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Decolonial Epistemologies for Energy Planning in Brazil

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Decolonial Epistemologies for Energy Planning in Brazil

A Thesis Submitted to the University of Westminster
by

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Abstract

This thesis opens up theoretical pathways for decolonial epistemologies for energy planning in Brazil. The critical analysis is verticalized from the 2015–2024 Brazilian Decennial Energy Expansion Plan (DEEP) to better highlight the epistemological problems in energy planning. Epistemological challenges demand a critical understanding of the ethical system we live in – the *ethics of exhaustion* – to enable a comprehensive radical transformation of the consideration of energy futures, since epistemology is part of the formalization of ethics. This thesis argues that energy planning in Brazil is based on the ethics of exhaustion to epistemically impose the colonial agenda of power. Energy futures are planned as necessary harm to achieve the fetishized good, normalized as the ethical intersubjective and human–environment relationships. Critically analysing the ethical system enables understanding the epistemologies for energy planning in Brazil as the formal moment of the ethics of exhaustion, which can only be challenged in an intersectional manner by framing the multilateral and collateral aspects of the violence consistent in planning energy futures regardless and to the detriment of the existence of life. Epistemic diversity is the first step towards decolonizing energy planning. It comprises: the inclusion of indigenous and communal perspectives when elaborating the energy plans; having persons directly affected by energy enterprises as the majority of the personnel involved in the activity of planning; setting the priority of energy planning as the production and reproduction of all lives in a non-hierarchized manner; recognizing the necessary balance in the human–environment relationship; privileging local needs in relation to transnational markets; and intentionally de-hierarchizing the benefits of energy exploitation by delinking energy studies, production, and distribution from financial capital. This work challenges colonial epistemologies, based on the ethics of exhaustion, from the standpoint of the colonial difference, proposing epistemic diversity as the impulse for decolonial energy planning in Brazil. It is an urgent academic task to perceive epistemic decolonization to transform the present in order to stop condemning the future to social and environmental catastrophes.

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Abbreviations

AAE	Strategic Environmental Evaluation (Avaliação Ambiental Estratégica)
ALBA	Bolivarian Alliance for the Peoples
Aneel	Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica)
ANP	National Oil Agency (Agência Nacional do Petróleo)
BNDES	Brazilian National Bank for Development (Banco Nacional do Desenvolvimento)
BRICS	Brazil, Russia, India, China and South Africa Economic Cooperation
CF	Brazilian Federal Constitution (Constituição Federal)
CNPE	National Council for Energy Policy (Conselho Nacional de Política Energética)
CVRD	Companhia Vale do Rio Doce
DEEP	Decennial Energy Expansion Plan 2015–2024 (Plano Decenal de Expansão de Energia 2024)
DEEPs	Decennial Energy Expansion Plans
DNPM	Department of Mineral Production (Departamento Nacional de Produção Mineral)
ECLAC	Economic Commission for Latin America and the Caribbean (CEPAL)
ECOSOC	United Nations Economic and Social Council
ED	Exhaustion Disorder
EIA	Environmental Impact Assessments (Estudo de Impacto Ambiental)
EPE	Energy Research Company (Empresa de Pesquisa Energética)
ESA	Environmental Strategic Assessment
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICSID	International Centre for Settlement of Investment Disputes
IMF	International Monetary Fund
MERCOSUR	South America Common Market
MDGs	Millennium Development Goals
MIT	Massachusetts Institute of Technology
MME	Ministry of Mines and Energy (Ministério de Minas e Energia)
OECD	Organisation for Economic Co-operation and Development
PNE	National Energy Plan (Plano Nacional de Energia)
PPP's	Public-private partnerships
PSDB	Brazilian Social Democracy Party (Partido da Social Democracia Brasileira)
PT	Brazilian Worker's Party (Partido dos Trabalhadores)
R & D	Research and Development
RIMA	Environmental Impact Report (Relatório de Impacto ao Meio Ambiente)
SSC	South-South Cooperation
SUS	Brazilian National Health System (Sistema Único de Saúde)
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNODC	United Nations Office on Drugs and Crime
VE	Vital Exhaustion
WB	World Bank
WCDE	United Nations World Commission on Environment and Development
WTO	World Trade Organization

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and Filhos da Gravida for making me laugh. I thank Djonga for inspiration and geniality. Thank you all for keeping me in touch with my Brazilian reality.

This amazing journey was a gift from the universe, and I reciprocate to the universe with the force of my vital energy.

I am an eternal student.

Okê arô!

Declaration

I declare that all the material contained in this thesis is my own work.

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Angelica de Freitas e Silva

Preface

Energy related subjects have always been part of my life. It is important to begin this work by explaining what brings me in the year 2019 to the writing of my thesis about decolonial epistemologies for energy planning in Brazil.

Beyond a bureaucratic apparatus in a government office, energy planning is also about lives, families, women, territories, communities, work, educating children, and living life with dignity. To establish these links, I need to briefly explain how my story is related to energy planning. In this preface, I describe how energy enterprises were part of my childhood, how I became a construction lawyer in Brazil, and why I decided to do LLM in Dispute Resolution in the United Kingdom, and move on to a PhD in Decolonial Epistemologies. I also explain why when I began my PhD, I wanted to work on hydropower dams concession contracts, but changed the scope to epistemology and ethics of energy planning at the end of the second year of the PhD programme.

Understanding the reasoning for this trajectory demands a brief introduction of how my family, specially my mother, had to overcome challenges of a capitalist patriarchal world, which required her to work in socio-environmentally harmful enterprises for a living. Millions of families in the Global South go through similar experiences. This story exposes the human element in what seems an exclusively technical phenomenon and denies the pretence that the activity of energy planning is detached from livelihoods. By linking energy planning and life, I show how ethics is the primordial issue to be discussed when dealing with the current predatorial activity of energy planning in Brazil.

A *Barrageira*'s Daughter

I was born in the city of Tucuruí, in 1985.

My mother moved to Tucuruí in 1980 to work in the construction of, at that time, the third largest hydropower dam in the world, the Tucuruí Dam. The dam is located in the state of Pará, in the northern region of Brazil in the north-eastern corner of the Amazonian region beside the river Tocantins. The Tucuruí dam was one of the megalomaniacal infrastructure projects of the dictatorial Brazilian military government begun for the so-called 'development' of the Amazonian region.

My mother is a technician in civil construction instrumentation and works on the *trecho* as a *barrageira*. The *trecho* is a popular expression in Brazil that refers to the 'nomad-like' lifestyle of working on the road in jobs in heavy-industrial enterprises. The *trecheiros* (people who live and work on the *trecho*) who work on hydropower dam enterprises are called *barrageiros*: 'barragem' means 'dam' in Portuguese. Mother has been a *barrageira* for 47 years and still works on the *trecho* to this day at the age of 67. My sisters and I have always been familiar with dams; we grew up listening to how electricity is generated from water, why the course of a river is changed, the technicalities of concrete structures, the descriptions of different types of soil, and what transmission lines are; we saw engineering drawings and learnt about equipment for the protection of an individual's health and safety, and other such things typically related to the building of dams.

Due to the nature of my mother's work, she had to work far from home. Her home has always been in her hometown, Belo Horizonte, the capital of the state of Minas Gerais, where my sisters and I grew up. Mother wanted us to have a solid education – what she thought would not be possible with a *barrageira*'s nomadic life, moving home every 2 to 3 years to another small village somewhere in the middle of nowhere. We lived on the outskirts of Belo Horizonte, near our relatives, and studied at public (state) schools. During school vacations, we would get into a bus and travel thousands of kilometers across the vastness of Brazil to visit her.

On those visits, she used to take us to the site to visit the reservoir area, the power force house, the spillways, the tunnels used to change the course of the river, the turbines, the provisional head offices, and the refectory. I remember being impressed with the industrial food served to the workers in trays, not in plates. I noticed that my mother was the only woman wearing uniform, boots, and helmet, and shouting on the radio things that I could not understand. I was impressed by the sheer size of everything around me: the river, the pieces of concrete, the tunnels, and the height of the dam. I remember that I complained once about the toilet on the site. Mother said that I should be really happy with the toilet because 'back in the days' there was no toilet *at all* on site. She described that men would urinate anywhere, in front of whoever may be nearby. She, on the other

Figure 1 - Mother at Furnas Hydropower Dam. Performing "water loss test with drilling rig". Credit: Personal archive. July 2019.

hand, would have to 'hold it' for long hours. For her, I should celebrate how the facilities had improved from the early 1970s to the mid-2000s.

I never wanted to be a *barrageira*. In my mind, it was a Mad Max chaotic scenario. Being a *barrageira* for my mother was a matter of great pride, breaking through all the barriers of distance, loneliness, sexism, unemployment, and education (since she had not gone to university). My mother made her name in one of the most difficult jobs, places, and times for a woman.

A Construction Lawyer

I was 18 when I went to law school at the Federal University of Ouro Preto. I chose law to be as far as possible from being a *barrageira*. I was then interested in the history of law and in criminal law; I was trying to understand the state's power of punishment and the functioning of the institutions that control the lives of peripheral peoples. I was deeply concerned with understanding the police and the prison system; I wrote the final course dissertation on 'Institutional Historical Origins of the Military Police in Minas Gerais'. Ironically though, after I qualified as a [criminal] lawyer, I was working in a small civil law firm, doing some clerical work for a paltry remuneration that made me feel worthless. After a few months, I heard of a job opportunity through one of my mother's friends. It was to work at a newly started hydropower enterprise. I went to the interview on the site, a two-hour drive from the nearest urban centre, five hours' drive from my house. The salary was good, and it was an opportunity to live a middle-class life. I passed the interview and started working for a firm involved in the construction of the Batalha Hydropower dam in June 2009.

'Batalha' means *battle* in Portuguese. Suddenly, it was my turn to have meals in trays in the refectory and to be one of the few women working on the site. My initial job was to deal with 'everything legal' that was the project manager's responsibility. I was working for a consultancy firm in a contractual scheme called 'the owner's engineering,' in which the consultancy firm dealt with all the client issues on site. On my part, this involved dealing with procurement, compliance, local issues such as dialogue with the community affected by the dam, and handling the contractor.

This last bit, handling the contractor, became a horror school of reality. The contract sum was about a hundred million dollars between the client, Furnas – a public

company, part of the holding Eletrobras – and the contractor, an old school established construction company called Camargo Correa, part of a national leading group in the infrastructure sector. Initially, some of my duties involved analysis of the contractor's claims to guarantee that the client's price and budget were complying with the directives of the Federal Accounts Tribunal. I was successful in this kind of task, so the financial balance of the contract – claims and counterclaims – became the central part of my work. This way I eventually became a *construction lawyer*, working in-house with the evaluation of the contractual situation. It was an unfair battle – I was a lawyer just out of law school and the contractors were old wolves. The series of happenings on the site gave me cause for concern about my professional future. In two years, I no longer wanted to be involved in any public contract. The sums of money involved in the contract, the politics, and the concern that I may be working with manufactured information made me quit.

I believed at that time that if I were working for a private company, I wouldn't face the ethical dilemmas that were haunting me. 'How could a bunch of rich white men decide on the future of energy systems in Brazil? How is it possible that those half-dozen lobbyists could decide on the employment and future of entire families? How is it that small landowners have their lands taken for pennies, while rich landowners negotiate lifetime paid easements?' Naturally, my initial problem was the public company. But this perception was superficial.

Hence, I went to work on a private–private contract, this time for the contractor. The client was Gerdau, a leading national company in the iron ore mining and metallurgy businesses. The site had a dusty terracotta colour, a depressing scenario, and was located in Ouro Branco, at the iron ore mines region in Minas Gerais. Again, there were very few women on the site, a rare one in a leadership position (working for the client). I became friends with my co-workers, and the few women there gave me courage to go there every day. As I knew, the *trecho* is a lifestyle. I had decided to live it. I would have after-work leisure time with the same colleagues I had worked with throughout the day. They had similar stories as my mother's: they came from another city, another region, another massive construction site, they had worked on huge projects, and their families had to adapt to that lifestyle. Of course, living on the *trecho* is better than being unemployed. Some of them loved the nomadic nature of the work, but the vast majority preferred to live in one place if only they could get a well-paid stable job.

So something was not right in the private company as well. The corporate environment was sexist, the type of the business was predatorial, and the private businessman was greedy and aggressive. I left the company in July 2013 and decided to apply for a scholarship to study LLM in International and Commercial Dispute Resolution Law in the UK. It seemed related to whatever I was working with for the last four years and far from that Mad Max chaos.

Something Wrong with Contractual Disputes

In January 2014, I moved to London. I applied for scholarship to the University of Westminster for two reasons: my English was reasonable, and I needed an institution that would cover all the costs of the masters' programme. I was awarded the University of Westminster Full International Scholarship, which covered the flights, the fee, and the accommodation. I was very grateful to the institution that was enabling me to have an international education.

The classes at Law School were challenging. First, I could not understand what was being taught. It was not only the language and cultural barriers but it was the scope of the course that made me question why the law would take the liberal agenda for granted. In the cradle of liberalism, contractual relationships were sanctified, private property was the absolute human right, and the rights of the foreign investor guaranteed against expropriation via the 'principle of most favourable laws for the protection of aliens'. I knew who the aliens were under such protection: they were not the Syrian immigrants forced to leave their homelands that were being bombed with UK's chemical weapons. The protected aliens were, instead, foreign entrepreneurs.

With my colonial memory and discomfort with the idea that the only thing legally protected in the world is wealth, I started falling into a depression in the second half of the master's programme. In my mind, foreign entrepreneurs were colonizers. Foreign direct investment was a trendy name given to the old well-known colonial apparatus. The investor–state disputes that would eventually arise were the *nouveau* post-independence version of the settler–metropolis dispute over the monopoly of trade in the colonies. I realised that I should not advocate for the investor. In the former colonial nations, it would be complicated to advocate for the state as well, since the formal bureaucratic apparatus, to which was given the idea of 'public', was nothing but the formalization of a central

power imposed through the language of the law. I did not know back then that this was an epistemological problem; I realized this a few years later, in the second year of my PhD programme.

Investors search for profit. The state, on the other hand, although forged by the imposed colonial rule, bureaucracy, language, and rule of law, had at least the legal function of protecting something beyond one person's profit. Despite all the problems of the imposed modern nation-states in the colonies, it was better to protect the larger number of people. I started realising that the problem was not about the public company *per se*, but the relationship between the public and the capital. With a contractual mindset, my understanding of the nature of the problem in infrastructure enterprises was still superficial.

For my masters' dissertation I chose to research the investor–state dispute *Águas Del Tunari v Bolivia* (2000). This dispute arose from the alleged breach by the government of Bolivia of the contract it had with the infrastructure company Águas del Tunari, a subsidiary of the North-American giant Bechtel Corporation. The contract was a long-term agreement for the installation and operation of water and sewage systems in the city of Cochabamba; the project was funded by the World Bank in a scheme called Structure Adjustment Programs (SAPs). The Bolivian government interrupted the contract after a couple years of massive uprisings against the water company in Cochabamba. The population was protesting against the fact that water prices had increased by more than 50% and, that by a contractual clause, the population could not store rainwater or drill artesian wells. As water became unaffordable, the people in Cochabamba started storing water 'illegally', which came to be severely repressed by the police. When public authorities started openly protecting the company to the detriment of the population, the situation became worse. The protests became bigger and more violent, leading to the murder of a young man by the police in April 2000. This series of events came to be known as the *Bolivian Water Wars*.

This case was very interesting for me because it involved exactly what had been disturbing me while working as a construction lawyer: the fact that the contract was more powerful, under the eyes of the law, than the survival/vital needs of an entire population. I had an ethical question with the dispute, which became a jurisdictional battle between the Bolivian government and Bechtel Corporation on an ICSID arbitration. The fact that the dispute was settled by arbitration was disturbing. How could a private settlement of a

dispute restore justice to the people of Cochabamba? How could some compensation for breach of contract be fair, if the problem was caused by limiting poor people's access to *water*? The rule of law does not protect the masses, but the owners of power; I knew that from my research on the historical origins of public institutions in Brazil, back in 2007. What was I doing in a Dispute Resolution course in London? None of what I was doing in my course was helping me to get into a discussion of the reality and the painful distortion of values that infrastructure was about making large amounts of money at the expense of the poor but justified in the Global South ostensibly by the promise of development of the poor.

I was disillusioned. In a conversation with my sister Áurea, she advised me to search for peers in the institution, to find someone who would understand the academic disappointment with private law and give me some ideas about the real meaning of those infrastructure contracts. Searching within the institution, I found Radha D'Souza. Radha's work involved disputes over water and the violence of dam building and development as a general subject. I emailed her asking for some support. Meeting her gave me hope: a coloured woman, from the Third World, focusing on subjects that, for me, were what really mattered. I enrolled for her module on International Law and Development; in the module, I learnt, among other things, to critically observe 'human' rights, the structure of the United Nations, the relevance of understanding NATO, the FAO agreements, and, most importantly, I found passion. Radha agreed to co-supervise my dissertation. Sometime later, she also agreed to be the director of studies of my PhD.

Work to Fund the PhD

I finished the LLM and went back to Brazil in January 2015, as my contractual obligation with the Scholarships Office demanded. I had decided to apply for the PhD and go back to London to keep working with Radha. I wanted to research the contradictions in the Belo Monte concession contract, a massive hydropower complex in the Xingu river basin, also in the state of Pará, Brazil. I filled in the application and was accepted by the university. This time, however, I did not get funding for the PhD. I was devastated. This fact turned out to be *crucial* for the development of my PhD research. I did not know at that time, but it turned out to be a good decision to critique Eurocentric academia and research methodologies and to link the heartfelt ethical concerns I had with dam building in Brazil with the ethics of energy planning.

It was the end of October when my mother said that she would sponsor my PhD. She did not have the money, but she would get a loan and figure it out. I hesitated; she could not afford it. In addition to the fee, I knew that the cost of living in London was very high and, on top of that, I would not be able to afford fieldwork and other expenses related to the research. My mother said that I had six months to get myself a job to pay for my living costs and that I should find a way to sponsor the fee because she could only pay for the first year. It was a very risky bet, but she never doubted that I could make it. She worked on weekends and holidays for years to enable me to start the doctoral studies.

I arrived back in London in January 2016, feeling the pressure. All I knew was that, before I started anything, I needed a job to make sure my mother's efforts were worthwhile. I believed that the Department of Property and Construction would be a place for me to align work experience with academic knowledge. On 27 January 2016, I wrote an e-mail to the course leader of the undergraduate programme at the Department of Property and Construction, asking for an opportunity or, at least, a meeting to discuss possibilities. They offered me a Part Time Visiting Lecturer position to work one hour per week. In June 2016, I applied for the post of *part-time Senior Lecturer in Construction Law*. I passed the interview and became a member of staff. July 2016 was the first month I could actually sleep after starting the PhD. I worked and studied during the whole time of the PhD, teaching undergraduate and postgraduate modules. Lecturing and researching in two very different subjects was challenging, but widened my understanding of both construction enterprises and the academic life.

Bad Contracts or Colonial Laws?

In the meantime, my PhD topic had become problematic. Since I did not have funding, I realized I would not be able to do any fieldwork; so my initial project had to be completely reconsidered. With time, I realised that fieldwork was not only dispensable, but not recommended for the critical framework and methodology I chose to follow. But I will explain this further. At that moment, I came up with the idea of working on 'the role of states towards their citizens when celebrating concession contracts of major development projects through the case-study of Belo Monte'. I intended to understand if and how the public contract of Belo Monte would protect the population affected by the enterprise.

The choice of the Belo Monte hydropower complex as the case study was because of the historical relevance of the Brazilian government's decision to carry on with the construction of that power plant. Localized in the heart of the Xingu river basin, affecting the Xingu indigenous peoples' reservation area, Belo Monte was one of the most controversial decisions made during Lula's second presidential mandate. The kickoff of the construction of the dam in 2011 destroyed 40 years of indigenous resistance against the appropriation of the Xingu lands.

Figure 2 - "You are a liar!" Tuíra Kayapó, warpainted, running a machete across the face of Jose Muniz Lopes, engineer defending the construction of Belo Monte. Credit: Paulo Jares Interfoto. 1989.

I first considered the problem regarding Belo Monte as a *bad contract*, in which the government was 'too generous' to the companies and lacked concern for the population. I was following a reasoning in which there was an apparent dichotomy between the need for development and economic growth and weakness in enforcing human rights, protection measures, and inspection of the works. The state should ensure that the rule of law balanced the rights of private owners and the public good. These ideas led me to believe that the problem were the *national elites*, a group that included the

infrastructure barons, historically lobbying with governments to take advantage of concession contracts and using the territory for their own enrichment.

The perception that the elites were the reason why enterprises like Belo Monte did not pay attention to national development was misguided. To analyze the specificities of the Brazilian case in the management of natural resources by understanding the harm done by Belo Monte, I had to study its colonial origins. The very existence of Brazil as a nation-state is grounded in the exploitation of natural resources – the main reason why the territory and the peoples were colonized. I started looking at the national elites as *a consequence* of imposed geopolitical, economic, and racial hierarchies.

This way, I was in a theoretical transition. At the end of the first year of my PhD programme, the doctoral project was a proposition to establish the link between the power and influence of national elites and the energy policy decision-making scheme in Brazil, through the case study of the Belo Monte hydropower complex in Amazonia. At that point of my research, I argued that projects like Belo Monte would benefit a specific group in society and would not exist without the effort of such a group, in the sense that lobbying would be the main factor guiding political decisions to build large dams.

In the second year of my PhD programme, I was completely focussed on unveiling those power relationships when I 'met' the Latin American Decolonial Community of Argumentation. Through the Community, I was introduced to the analysis of the global system of power from the perspective of those who suffered the Latin American experience of colonization. I realised that most of my understanding of the relationship between power, the state, and the economy were shaped by Eurocentric perceptions that prevented an accurate observation of the Brazilian political, social, and economic phenomena. The Brazilian elites were part of that configuration of power. However, the dichotomy between the 'public' and the 'private' was a Manichean simplistic dualism that would only lead me to fighting lobbying with 'anti-corruption laws'. It was not the core problem, but a theoretical placebo repeating the mainstream scholarship that the colonized world was more corrupt and, for this reason, poor.

I started realizing that my questions involved the whole political–economic– scientific language that would endorse and encourage enterprises like Belo Monte. I needed to deepen my understanding of that language, transitioning to questioning the reason why that was the only possible way to perceive energy enterprises.

The theoretical transition involved intense study of literature on the formation of society, class, and bureaucratic institutions in Brazil, covering the last 60 years of strategic energy planning but with reference to the first colonial enterprises in the country. The historical and institutional theoretical reconstruction was necessary as a reflection of the imposition of a global configuration of power after the colonization of the Americas. From the Latin American Community of Argumentation, I learned two concepts that changed that contractual mindset I had: *coloniality* and *colonial difference*.

Coloniality is a global pattern or matrix of power, co-constitutive of the European modernity, transposed to the Americas as the hidden ideology of colonialism, the obscure side of modernity. Such a pattern of power survived after the end of colonialism as a political system and remains, through time, as an ideology until the present day, naturalizing and normalizing the imposition of hierarchies and legitimating oppressions and inequalities. It was the Peruvian sociologist Aníbal Quijano who named this pattern *coloniality of power* to explain how mimicry of the European culture, behaviour, and violence would give *access to power*. The present time's configuration of power is global, the modern–colonial world-system, established from the European colonial enterprises at the end of the fifteenth century. In such a configuration of power, the Global North and European-like peoples are geopolitically allocated the centres of economic/cultural/technological annunciation, whereas the Global South and their 'ethnic' peoples are at the periphery, depending on the centre to survive.

In Search of Decolonial Languages and Methodologies

To critically write on coloniality of power, I had to understand the difference of doing research as a colonized person instead of mimicking Eurocentric values and methodologies as academia would encourage and reinforce. The *colonial difference* became my referential for research and analysis of the modern–colonial world-system, from the externality of the European legacy – perennial modernity. It meant that the standpoint of observation and the locus of annunciation of knowledge should be from the colonized world, not from the European imposed perspectives. I realized that the Eurocentric knowledge system and framework transposed to Latin America did not prevail naturally, but intentionally through the annihilation of the native peoples, their knowledges, memoirs, ancestry, beliefs, and culture. By shifting the intention to do research from Eurocentric frameworks to the Latin American's own science and

experience, another 'language' could be applied for the comprehension of the phenomena of power.

By language I mean the 'code', *the way we know knowledge* and the way institutions are presented in Brazilian society as a legacy of European impositions. This included the knowledge institutions, the rule of law, the bureaucracy, the military, the revenue, and, mainly, the fundamental capitalist character of such institutions. As uncomfortable as liberating, I fell into a reality that my research was about this 'code/language/way-of-knowing', not about the institutions per se, but about the way they were legitimized and the *modus operandi* of a system of oppressions that used institutions to legitimate power. Their legitimacy happened (and happens) through violence. Then, I comprehended that unveiling the 'code/language/way-of-knowing' was understanding its *epistemological origins*. The hierarchization of peoples, territories, and places happened through the imposition of Eurocentric epistemologies. This way, Eurocentric epistemologies imposed for the naturalization of hierarchies were violent. My core issue became the epistemic violence of developmental enterprises like Belo Monte. Such enterprises were defended, encouraged, and planned in the Brazilian Energy Expansion Plans. To contrapose the epistemic violence of the Energy Plans, I needed to work with decolonial epistemologies.

Researching and writing from the colonial difference involved a daily practice of grasping and developing decolonial epistemologies. This had to be done methodologically, by giving central attention and preference to works of subalternized peoples, especially women, feminist authors, and the racialized subjects such as indigenous, black, Latino, and others. I had to intentionally choose works geopolitically located in and produced from and for the Global South. I should be doing research unchained from the linear historiography and chronology of the oppressor to acknowledge the past and the ancestry and to stop living in search of the modern fetishized future. This would only be possible by understanding and embodying the fact that oppressions are correlated and undetachable, so they should be studied in a combined – intersectional – way. I also had to acknowledge that the production of works from the colonial difference perspective included a vast range of sources that were predominantly Eurocentric and the use of such sources would demand critical approaches. To summarize, I should do my research applying decolonial methodologies.

The Original Vice: The Energy Plan's Epistemology

All this needed to be observed in something practical. At the time, I thought there was an epistemic problem with the energy plans that encouraged enterprises like Belo Monte. For this, I needed to find examples of epistemic violence in the Energy Expansion Plans. The first notorious example was the collection of scientific data and the compilation of convenient studies and international reports (as "reference shopping") to *manufacture consent* to violent enterprises. Studies are used to endorse the Energy Plans, the governmental actions it required, and the benefits arising from those actions. I learnt that manufacturing consent is a relevant problem in energy planning. It means that the Plans artificially induce their targeted audiences and the general public to accept the Plans. This is the most latent type of epistemic violence consistent with Energy Plans. It is violent because it leads the understanding of what should be planned in order to justify the means that would enable the established goals. It operates on the reasoning that the ends are necessary and they, therefore, justify the means, where, in reality the ends or the goals – are not really necessary, and the means would demand more investment in a certain sector of the economy or encourage a certain area of industry, privileging these sectors. This way, by focusing on epistemic violence, I learnt that the Energy Plans 'choose' who to protect and support, grounded in biased 'unchallengeable' research.

Therefore, I decided to focus on one Energy Plan, so I could illustrate aspects of epistemic violence that would evidence the violent approach to energy futures in the country. I chose the Decennial Energy Expansion Plan 2015–2024, which I refer to as DEEP.

Although manufacturing consent is the most latent type of epistemic violence in the DEEP, there are subtler and more dangerous forms of violence that go unnoticed when analyzing the document with naked eyes. I am referring to the ideology behind a plan for 'energy *expansion*', in which the language intentionally detaches the 'social' and 'environmental' from the 'economic', while never directly mentioning the 'political'. Presented in a technocratic way, the document is a collection of economic jargon advocating for the country's development and economic growth, which would only happen with the expansion of industry and agriculture and producing commodities for export, all of which needs energy. The expansion of industry and agriculture would only be viable with investments in the infrastructure sector. Hence, the alleged development and economic growth depend heavily on energy systems, which depend heavily on the

infrastructure sector. While the industry, agriculture, and infrastructure are private businesses, the energy systems are of public interest. The DEEP presents that energy is solely about the economy, in which the private sector's success is part of the country's development, the 'national economic growth'. There is a mismatch of what is to be considered public and what is to be considered private in the energy business, but all of it should be for the country's development.

The justification for planning energy for the pursuit of economic growth is not natural, nor is it the obvious consequence of the relationship between private enterprises and energy systems. It is intentional. It nourishes the country's dependency on the production of commodities for export. Such dependency is historical and geopolitical, part of the formation of the country as a nation-state, a fundament of the political, legal, educational, and economic institutions. The Energy Expansion Plans give directives and present the action-plan for the expansion of the energy sector. It prevents even consideration of 'stability' or 'contraction' of the energy sector. It prevents the consideration of life (peoples and ecosystems) when planning energy futures. It solidifies the understanding that the only possible way to improve the country's economy is by producing more and more commodities for export. It assumes that improving the country's economy is the exclusive intention when planning energy futures. This is very colonial.

This perception became central for the critique I wanted to make. The most dangerous epistemic violence of the Energy Expansion Plan is the use of an alleged need for economic growth to perpetuate coloniality of power, the ideology that structures the energy systems in Brazil.

The identification of epistemic violence in the public documents that set the directives for energy futures in Brazil widened the scope under which my critique fell. The centrality of my concern and critique was not exclusively the violence of hydropower dam concession contracts. It was about the naturalization of violent discourses, procedures, and justifications for maintenance of the colonial ideology of power. I recognized, especially by analysing the DEEP, that the Energy Expansion Plans intentionally prevented social and environmental discussions in the agenda of economic and growth expansion of industry. In doing so, the most important part of planning the future was not in the plan: the production and reproduction of life.

This led me to change my research methodology. There was no need to produce evidence through fieldwork about the harm caused by the imposition of the hydropower complex in the Xingu river basin. Such data had already been extensively produced not only about Belo Monte but also about several large socioenvironmental harmful energy enterprises. Above all, I did not want to collect data for the sake of data, to make my research fit into the Eurocentric academic standards that push the social science research to look more technocratic and therefore more reliable, as hard science experiments. Researchers from various areas, as well as activists, indigenous movements, national and international organizations were capable of evidencing how prejudicial enterprises like Belo Monte were all over the globe. The core problem is that the intention to carry on such enterprises remains through time. Armoured against any evidence to the contrary, large dams and the oil economy are considered the saving sacrifice necessary for the country's economic growth, imposed and naturalized as *the only possible way to perceive energy futures*.

We Need to Talk About Ethics

In the third year of the PhD programme, the research was no longer about Belo Monte's concession contract. It was about the epistemic violence of the Energy Expansion Plans, verticalized in the DEEP. Other epistemologies should be presented to contrapose the colonial reasoning that commodities must be produced regardless of the people and the ecosystems, that is, regardless of the existence of life. The scope of my PhD became the proposition –: decolonial epistemologies for energy planning in Brazil. This perspective reinforced my perception that the research methodology should be non-empiricist, questioning the theoretical grounds for the violent epistemologies consistent with the Energy Plans.

Deepening the understanding of the activity of planning the future regardless of the production and reproduction of life took me to a philosophical dimension of the research. The production and reproduction of life is the content of ethics. The elaborations of the doctoral research then turned into a deep reflection on the ethical system we live in.

At first, when reflecting on ethics, I considered that energy planning in Brazil was *unethical because it is epistemically violent*. The language-code, the targeted audience,

and the purpose of energy planning were to please the relationship between the public good and capital, to the detriment of the majority of people and the environment – to the detriment of life.

The reflection on ethics raised another internal conflict. The violent epistemology, the scope of my critique, is the narrative of the modern–colonial world-system. This narrative naturalizes the hierarchization of bodies, territories, and knowledges as the only way to exist in the world. This (violent) narrative is part of the colonial ideology of power. The imitation of the colonial ideology creates and reinforces inequalities and also gives access to power. In the modern–colonial world-system, access to power shadows the 'ugly' side of the colonial ideology, which is the creation of victims. Actions to the detriment of life become the 'saving sacrifice', in the sense that every person in the modern–colonial world system must experience the 'necessary evil' in order to survive. Coloniality of power entails that, after surviving, it is possible, on a meritocratic manner, to be able to achieve the laurels of power.

Surviving cannot be unethical, since the content of ethics – its material moment or the very definition of ethics – is the production and reproduction of life. This was the bed of my conflict: I wanted to affirm that the Brazilian Energy Plans were unethical, but I could not say that working-class persons employed in the construction or working of a hydropower dam were unethical because they were able to get a formal job in the modern–colonial world-system. A worker, working to survive, somehow enables the epistemically violent goals of the Energy Plan. It does not necessarily mean that they are intentionally privileging the lives of owners of businesses to the detriment of their own lives or to the detriment of the ecosystem. They are also victims of a system that draws dignity from formal work. Eventually, those workers will repeat the same practices, not because they aim to preserve inequalities, but because it is considered ethical to ascend hierarchically. Hierarchization is assumed as a means to be able to live instead of surviving.

Many questions were spinning around in my head. Are we living unethically? In the patriarchal, racist, classist, destructive world we live, is it ethical to behave like the oppressor in order to survive? Is there an ethics of 'the peoples' and an ethics of 'the masters'? Would it be possible that, in the ethical system we live in, not *every life matters*?

The Energy Plans have the ultimate neoliberal justification that, if the 'pie grows', it is possible for the pie to be shared. For the economy to grow, more energy is needed.

To enable more energy, investments in infrastructure are needed. All this is justified with 'the greater good to be achieved in the future'. Overall, I recognised that the Energy Plans 'aim for the greater good', that is economic growth. I realised that the production and reproduction of life in the modern–colonial world-system, is about *saying* that life is intended, it does not need to be achieved. Epistemic violence elevates discourse over reality. A blatant lie or a partial truth forces us to believe that life is the ultimate goal. In coloniality of power, this would be ethical enough.

I needed to improve my knowledge about the ethical system. In order to sustain a decolonial methodological coherence, I needed to work with Latin American *filosofia própria* and *ciência própria* (own philosophy and own science). This way, I found the amalgam for the entire problematic put in front of me: the works of the Argentinian-Mexican philosopher Enrique Dussel on the Ethics of Liberation. For Dussel, the ethical system we live in started in the late fifteenth century with the European incursions towards the Atlantic. For the first time in the history of humanity, an ethical system became global through the success of colonialism. By analysing the content, form, and feasibility of ethics, Dussel evidences how such ethical systems became global and have remained so through time.

Dussel points out that the modern–colonial world-system's ethics *unintentionally* creates victims. For Dussel, the way this ethical system is formally morally constructed makes the achievement of the means–ends of ethics incoherent, that is, its goodness claim: the feasibility of producing and reproducing life. Building on that, the author calls for the liberation of the victims of such a system, the Ethics of Liberation. The victims result from the negation of the material aspects of ethics. Hence, Dussel presents that the victims, negated by the ethical system, should carry the burden of liberation. In this way, the author points out the necessity to evidence another ethics that would arise from perceiving the reality of the victim's condition, which could only be made by the victims themselves.

The Dusselian philosophical framework threw light on the heart of the problem I was facing. Notwithstanding, I could not agree that the ethical system was contradictory in negating the victims while aiming for the production and reproduction of life and, even less, that the victims should be in charge of the burden of their liberation.

From my perspective, the victims are the very reason why such an ethical system is possible, not a mischance or incoherence in achieving the goodness claim. Without the

victims, the fundaments of the system's formality would not be possible since the moral formality is the rule of law, which is forged in violence. The modern–colonial world-system's ethics is grounded in the transference of life from the victims to those who benefit from such a system. The fundament of such an ethical system is this unilateral transference of life (work, energy) so the hierarchizations can take place. The victims are not solely human; they consist of all kinds of life: people and ecosystems, interconnected by natural phenomena and human intervention. In the modern–colonial world-system, every kind of life works for maintenance of the hierarchized human life. The main beneficiaries of the modern–colonial world-system's ethics are the wealthy white men and their apparatus to remain in power. Hierarchically, everything beneath the wealthy white man must give life (work, energy) to maintain his place of power. In order to survive or ascend hierarchically, the wealthy white man's behaviour and violence must be imitated by those in lower hierarchies.

In the current global ethical system, the goodness claim is not production and reproduction of *all* life. Instead of aiming at the creation of life, it aims to take advantage of the victims' vital energy so *certain life* prevails at the cost of other lives. Ergo, this ethical system's materiality, formality, and feasibility are only possible at the expense of the life taken from the subalternized peoples and ecosystems. This way, such ethics does not aim at balance, but at *exhaustion*.

Notoriously, the ethical system prevents the capacity of people to live a full life. It corroborates and reinforces the exhaustion of persons through their physical and mental tiredness; of ecosystems by using everything up to please economic and power relationships; and of possibilities of existence by narrowing the scope of what is understood as life to economic aspects, in which survival overrides a full life. I understood the modern–colonial world-system's ethics as the *ethics of exhaustion*.

Energy Planning is About Life

I grasped that energy planning in Brazil is not unethical. In harmony with the ethics of exhaustion, the Brazilian Energy Plans are legitimated by the epistemically violent rule of law, the sanctified economic growth, and scientifically manufactured consent. Therefore, my PhD research is not about a legal problem per se, whether in public or contractual law, because the rule of law is a legitimizing agent of epistemologies

that impose the agenda of colonialities. This thesis is not about the problem regarding the activity of planning, because in order to plan something there must be an objective to be achieved – economic growth, which is forged in violence. This PhD is not about an economic problem either, since energy planning involves a much broader dimension of human occupancy of the planet than the production of commodities and the necessary energy inputs to enable them.

Ultimately, my doctoral thesis is about the modern–colonial world-system's ethics of exhaustion that naturalizes the ideology of colonialism – coloniality of power – through the imposition of violent epistemologies, formalized in the Brazilian Energy Expansion Plans (and for the verticalization of the analysis, I focus on the DEEP). The materiality of the DEEP allows me to challenge the violent colonial epistemologies and to propose decolonial epistemologies for energy planning in Brazil.

Decolonial epistemologies include ways of perceiving life, the relationship between humans and the territory, fauna, flora, and natural phenomena from lenses other than the Eurocentric ethics of exhaustion. Decolonial perceptions unlock the narrow selfish Manichean dualism of the individual existence inside the mind. In doing so, the personal is political, and existence is only possible if the collective is coherent with the available resources in a balanced way. I learnt about the possibility of decolonial epistemologies from indigenous ways of living, 'philosophies' about respect and balance in the long term. A balanced relationship among humans and between humans and nature is not only about planning the future but also about acknowledging the past. And this is not utopian. Utopian is to think that some invisible hand will distribute the concentrated wealth, fixing a relatively recent historical problem with a fairy tale in a (neo)liberal dope that confuses hope with illusion in order to oppress.

To propose such decolonial epistemologies for energy planning, I went after knowledge about indigenous ways of living with the territory such as the Guarani way of well living, *Tekó Porã*, and the Kichwa way of well living, *Súmak Kawsay*. These ancestral indigenous knowledges and practices taught me that the very recent exhaustive ethics can no longer prevail. The first step towards the epistemic decolonial turn on energy planning is the inclusion of life, transforming the current violent episteme of energy about the production and reproduction of the lives of peoples and ecosystems in harmony with the territory.

I imagine how it would be if people like my mother, who knows so much about the multiple facets of the harm of energy enterprises, had the possibility of working on energy projects that do not aim at capital accumulation and commodity export but aim instead at the well-being of the communities. Instead of working to be exhausted, people could work for abundance, like the Guarani people do.

Energy planning in Brazil directly affects the present and the future of life in the country, while it annihilates ancestry. This thesis is a heartfelt effort to evidence that the ethics of exhaustion, translated into violent epistemologies, legitimated by the rule of law, and materialized in the Energy Plans, has been steadily leading us to irreversible social and environmental catastrophes.

I remember the sentence of a famous Brazilian rap song from *Racionais MCs* that says 'every poor person's dream is to be rich'. It is true. Being rich may prevent others from belittling one's ability to live a full life. It is ethical to desire power as a means to survive. But imagine if the central task of life were not to survive humiliation, but to work for abundance? Energy planning can foster this organization, provided that it is based on the ethics of full life, elaborated from decolonial epistemologies.

I hope this work contributes to the application of theoretical reflections to practical matters. Energy is structural in the contemporary capitalist system. As Audre Lorde said, *the master's tools will never dismantle the master's house.* By tackling the structure with decolonial tools, it is possible to dismantle the master's house.

Chapter 1: Introduction

This thesis opens up theoretical pathways for decolonial epistemologies for energy planning in Brazil. The critical analysis is verticalized from the 2015–2024 Brazilian Decennial Energy Expansion Plan (DEEP) to better highlight the epistemological problems in energy planning.

Epistemological challenges demand a critical understanding of the ethical system we live in – the *ethics of exhaustion* – to enable a comprehensive radical transformation of the consideration of energy futures, since epistemology is part of the formalization of ethics.

Energy is one of the pillars of the contemporary capitalist system, central to the discussion of the socioenvironmental catastrophes of the present times. Treating energy exclusively as an economic–political issue that leads to socioenvironmental dilemmas prevents a comprehensive analysis of the problematic of energy, limiting thinking on energy futures within the constraints of energy as a commodity. In order to unlock the possibilities of energy futures from hegemonic understanding, the configuration of the global dynamics of power must be grasped from outside of the Eurocentric canon of the annunciation of knowledge.

Energy planning is analysed in this thesis as deriving from the *coloniality of power*, a structural pattern of power in the formation of Brazilian institutions. Challenging colonialities demands the rescue of epistemologies that were annihilated by the violent imposition of Eurocentric epistemologies that enable the persistent character of the colonial agenda of power. Coloniality of power is substantiated in the modern–colonial world-system's ethics of exhaustion. The content of such ethics is the production and reproduction of the life of a fetishized ethical subject at the cost of the life (vital energy, work) of the majority of people and the ecosystems. By enabling the life of a few by exhausting other people and the environment, the ethical system, i.e., the ethics of exhaustion (via epistemic violence) naturalizes the *sacrifice* of people and environment as *existence*.

This thesis argues that energy planning in Brazil is based on the ethics of exhaustion to epistemically impose the colonial agenda of power. Energy futures are planned as necessary harm to achieve the fetishized good, normalized as the ethical intersubjective and human–environment relationships. Critically analysing the ethical system enables understanding the epistemologies for energy planning in Brazil as the

formal moment of the ethics of exhaustion, which can only be challenged in an intersectional manner by framing the multilateral and collateral aspects of the violence consistent in planning energy futures regardless and to the detriment of the existence of life.

Epistemic diversity is the first step towards decolonizing energy planning. It comprises: the inclusion of indigenous and communal perspectives when elaborating the energy plans; having persons directly affected by energy enterprises as the majority of the personnel involved in the activity of planning; setting the priority of energy planning as the production and reproduction of all lives in a non-hierarchized manner; recognizing the necessary balance in the human–environment relationship; privileging local needs in relation to transnational markets; and intentionally de-hierarchizing the benefits of energy exploitation by delinking energy studies, production, and distribution from financial capital.

This work challenges colonial epistemologies, based on the ethics of exhaustion, from the standpoint of the colonial difference, proposing epistemic diversity as the impulse for decolonial energy planning in Brazil. It is an urgent academic task to perceive epistemic decolonization to transform the present in order to stop condemning the future to social and environmental catastrophes.

Structure of the Thesis

The thesis is developed through seven chapters. The thesis' objectives and main concepts are introduced in this first chapter, briefing the reader with the need to carefully understand each theoretical elaboration before entering the specific analysis of the Brazilian energy planning. For the complex historical and philosophical explanation, the theoretical foundations are deployed from three central concepts: *coloniality of power*, *epistemic violence*, and the *ethics of exhaustion*. After setting the theoretical grounds, academic perceptions of the energy issue are discussed in a critical manner. In this way, the first five chapters prepare the theoretical framework for the verticalization of the critique of the DEEP in Chapter 6. The last chapter will discuss how to decolonize energy planning in Brazil from the perspective cautiously presented and conceptually put together in the previous chapters.

Decolonial epistemologies for energy planning in Brazil first demand comprehension of the coloniality of power and its multiple facets that structure

institutions in Brazil. *Chapter 2: Colonized Skin, Colonizers' Masks* sets out formulations that serve as the standpoint for the epistemological and ethical critiques. The conversation starts by acknowledging that the whole discussion proposed in this thesis is in a place of academic discomfort since Eurocentric academia pushes away non-Eurocentric knowledges and methodologies. Recognizing diverse canons of annunciation of knowledge implies the recognition that academia plays a fundamental role in underpinning and maintaining historical oppressions. While fighting structures of power without including itself as a structure, Eurocentric academia carries on in the comfortable position of targeting critiques as outsiders, dodging the possibility of being targeted. Bringing up possibilities of better futures demands a fundamental endogenous force from within the academia to place itself as a powerful agent against oppression. Therefore, this thesis is about the perversity of the comfort of those in privileged positions who do not recognize their own roles in the processes of victimization. The linkages between the position of the privileged and the processes of victimization should be historically perceived and epistemically evidenced in order to be ethically challenged, and this brings unprecedented levels of discomfort.

In this sense, Chapter 2 expatiates on the acknowledgment of the victims, which must be made in the context of the present day global configuration of power, the modern–colonial world-system and its ideology. The ideology consists in the global pattern of power established by the European colonial enterprises at the end of the fifteenth century that continues to perpetuate specific modes of hierarchization of peoples, places, and knowledges, trivializing oppressive realities as the only way to exist in the world. Aníbal Quijano named this pattern the *coloniality of power*, to explain how European culture, behaviour, and violence give access to power.

Coloniality of power includes geopolitical, economic, intersubjective, and epistemic oppressions; in this context, the chapter outlines institutions, *modi vivendi*, and the relationship between humans and the ecosystems. It comprises three overlapping and co-constitutive aspects that are analysed in three separate sections for didactic purposes. The first aspect is coloniality of power itself, *strictu sensu*, the political–economic aspect, with respect to the geopolitical dynamics of power relationships for the establishment of capitalism, historically formed. The second aspect is coloniality of being, the ontological aspect of coloniality of power, referring to the formation of the colonial subject, the way a person exists in the context of coloniality of power and how subjective and intersubjective relationships take place in time and space. Coloniality of being is analysed

in two main strands: the creation of the idea of race and the imposition of gendered relationships, becoming normative tools and mimetic forces in the establishment of complex long duration oppressions, permeating every facet of human life in the present. The third aspect is coloniality of knowledge, the epistemological aspect of coloniality of power that informs the annihilation of non-European knowledges, perspectives, social organizations, practices, and common identifications for the imposition of the one valid (or legitimate) possibility of understanding the world and announcing knowledge. Coloniality of knowledge takes place mainly via ethnocide, the imposition of the colonial rule – the rule of law – and the reduction (or simplification) of legitimate knowledge into institutional Eurocentric production. Colonialities of being and knowledge are underpinned by the Cartesian Manichean sceptical dualism that reduces existence to a consequence of the Eurocentric-forged rationality. The Cartesian *ego cogito* is deployed from the Eurocentric *ego conquiro*, since Modern rationality obscures the way it becomes viable, namely, colonial violence.

The three overlapping and inseparable aspects of coloniality of power enable the persistence of Eurocentric Modernity to shape global structures of domination in the present. This perception clarifies the identification of the links between economic, gendered, racial, and epistemic privileges – tools that are *power in themselves* and also *means to access power* – and the victims. Conceptualizing coloniality of power is fundamental to the understanding of energy systems in Brazil. The taking of land, the imposition of property laws, the exploitation of natural resources for export, and the violent relationship among people and between people and the environment are consequences of the imposition of the colonial ideology of power that defines the way we know energy in the present Brazilian context. This understanding is a prerequisite for the discussion of decolonial epistemologies in *Chapter 3: Epistemology and Energy*.

Therefore, Chapter 3 explains why energy discussions cannot be confined to the limited understanding imposed by the colonial ideology of power for its own viability and permanence. The move towards energy futures in Brazil must be disengaged from the Eurocentric canon of annunciation of knowledge to include perceptions that are intended to dismantle the established power relationships. Decolonizing epistemologies demand the acknowledgement of the violence caused by the imposition of Eurocentric knowledges, symbols, subjectivities, as well as items of cultural construction in configuring collective and institutional knowledge. Epistemic violence consists in direct coercive ways of imposing meanings to legitimize agendas that ensure positions of power.

It informs the intentionality in the domination, hence the intentionality in creating victims. Affirming that energy planning in Brazil is epistemically violent means that the lack of epistemic diversity condemns planning energy futures to subserve the maintenance of colonial power.

There must be a conscientious intentional action in academia to decolonize epistemologies. The decolonizing action can only be made from the standpoint of the colonial difference in order to recognize Eurocentrism and, methodologically, search for/produce/include decolonial knowledge. In this sense, we list six fundamental colonial differences to be considered as methodological pathways to do decolonial research and to infuse institutions, such as energy planning, with decolonial meanings, symbols, cultural organizations, and perspectives. The first colonial difference is the identification of the androcentric character of Eurocentric epistemologies that becomes a normative tool and, through the coloniality of gender, a means to access power. Therefore, step one is to bring the perspectives of women, especially coloured women, into the configuration of institutional meanings. De-masculinizing knowledge is identified as the ultimate and most difficult barrier to epistemic diversity, which is discussed in Chapters 2, 3, and 4. The second colonial difference is to write back the idea of race, created to impose hierarchies to enable domination. The third colonial difference is the epistemic geopolitical awareness to contextualize the reality of diversity against the universalization that sets the Eurocentric truth as the one-size-fits-all knowledge. The fourth colonial difference is historiographic or chronological: to disengage the understanding of the human experience on the planet from the linearity of the Eurocentric explanations. Hegemonic chronologies are grounded in the annihilation of ancestry, forcing a people with no past to produce meanings in search of the Modern fetishized future. The fifth colonial difference is the constant perception of the intersectional character of research, in which all the colonial differences are co-constitutive and inseparable and, therefore, cannot be applied separately. This difference is complex because singularizing oppressions works to benefit the oppressor (discussed in greater depth in the section *Defeating the Lernaean Hydra* in Chapter 7). Finally, the sixth colonial difference is that even while taking a critical approach to established Eurocentric knowledges, we do not 'throw away the baby with the bath water'. As epistemic diversity is the corollary of decolonial epistemologies, the use of Eurocentric concepts, theories, and studies is not 'forbidden' but must be critically used in the context of production and application.

Having presented the theoretical grounds on coloniality of power and the structure, object, and methodology for decolonial epistemologies, *Chapter 4: Energy and the Ethics of Exhaustion*, plunges deep into philosophical dimensions of the epistemological transformation. Epistemology is part of the formal moment of ethics. Therefore, a critical understanding of the ethical system we live in is fundamental to the epistemic decolonial turn. Following the theoretical pathways in challenging coloniality of power and the methodological reference of researching from the colonial difference, the discussion of ethics is expatiated on the framework developed by Enrique Dussel in *The Ethics of Liberation in the Age of Globalization and Exclusion*.

The chapter begins with the links between energy, ethics, and epistemology and, in addition for the coherence of the argument, the need for philosophical elaborations of the colonial difference. The Dusselian philosophy is of paramount importance for Latin American decolonial studies. Dussel analyses ethics from three moments: the material moment or the content of ethics, that is the production and reproduction of human life; the formal moment, that is the norms and institutions that confer intersubjective validity to the content of ethics; and the moment of feasibility of the ethical system, the means–ends of ethics, the goodness claim of producing and reproducing human life. From this analytical framework, Dussel presents that the global ethical system negates the victims of the very system. The critical-negative aspect of the material principle of ethics confirms the existence of victims – to whom the capacity of producing and reproducing life is negated. From this finding, Dussel develops the Liberation Principle for the achievement of a society without such historical victimhood.

The Dusselian critical-negative aspect of the material ethics is relevant for the understanding of the ethical system. However, we add to the Dusselian critique the *intentionality of the creation of victims* of the ethical system. This reasoning is fundamental to grasp the central argument of this thesis: the need for decolonial epistemologies for energy planning in Brazil. It means that without the victims, there is no system – the victims are not merely the consequence of an adverse ethical system, but in fact necessary for its existence. The feasibility of the hegemonic ethical system lies in the legitimation of the use of the victims' life (energy, existence). We expand the concept of victims used by Dussel to include the non-human living beings and the territory, violently hierarchized and at the disposal of the Modern man, as part of the modern–colonial world-system's ethical viability. Without the victims, the system collapses.

Therefore, pushing for the *inclusion* of subalternized bodies, territories, and knowledges into the goodness claim of the ethical system does not change the ethical system.

This ethical system exists due to the exhaustion of the lives of the victims. The life (energy, work) is unilaterally transferred to enable the production and reproduction of the lives of those in privileged positions in the hierarchized modern–colonial world-system's society. This happens at the same time as the exhaustion of all possibilities of existing outside the ethical system or in parallel to it. The prevention of the victims from producing and reproducing their own lives is the result of the erosion of their capacity to produce their symbols, images, knowledges, traditions, and vital links between life and the land. Hence, this ethical system is the ethics based on the exhaustion of many persons, living beings, ecosystems, and possibilities of existence to facilitate the production and reproduction of the life of some. Notably, Chapter 4 conceptualizes the ethics of exhaustion that substantiates the colonial ideology of power, formalized and legitimated by violent epistemologies.

The ethics of exhaustion is a theoretical elaboration that enables clarification of the specific challenges of working with decolonial epistemologies for energy planning in Brazil. It evidences the complexity of epistemological underpinnings of planning energy for the production and reproduction of all lives. Historically, economically, and politically detached from the existence of life, the energy issue in the ethics of exhaustion is rationally reduced to problems of supply and demand. This way, *Chapter 5: The Problematic of Energy*, brings this epistemological reduction of the energy issue into an economic issue within academic discussions of energy.

Both mainstream and critical scholars have tremendous difficulty debating the energy issue from a non-economic perspective. Substantiated in the ethics of exhaustion, the existence of victims is naturalized, trivialized, and therefore, formally and morally accepted. Most scholars do not acknowledge the hierarchization of bodies, territories, and institutions and, in addition, do not grasp the problematic of human superiority above all existing things, ethically claiming that everything is at the service of the Modern man. This way, Chapter 5 presents mainstream and critical scholarships on the energy issue. This is an important exercise that clarifies the mainstream analysis of energy consistent with the Brazilian energy planning and the androcentric perceptions, conceptualizations, and orientation in academia that prevents real analysis that comprises the holistic phenomenon of existence as energy in itself. The chapter concludes with the idea that the

gift of life and the relationship with the land cannot be one of domination, but should be one of balance.

Building on the theoretical foundations to challenge decolonial epistemologies for energy planning, *Chapter 6: The Brazilian Energy Planning* applies the three central concepts – coloniality of power, epistemic violence, and ethics of exhaustion – to the Brazilian case. Divided into four main sections, Chapter 6 explains the relevance of analyzing the Brazilian case in challenging violent epistemologies for energy planning. The first section discusses Brazilian energy in the geopolitical context, given the country's vast energy potentials and key role as a *player* in the transnational energy business, contrasted by the peripheric subaltern place of a commodity exporting country completely dependent on foreign investment and the stability of the economy of the centre. The second section discusses Brazilian energy planning in the historical context, a fundamental part of this thesis. The Brazilian colonial history informs the formation of the administration and the relationship between the idea of 'public good' and the management of natural resources in the country. Observing the historical origins of the relationship between administrative bodies and the production of commodities for export, it is clear that the present configuration of energy systems is completely forged in the colonial ideology of power.

The third section explains the legal nature of energy systems and the activity of energy planning in Brazil, bringing a historical background exclusively for the energy issue, dating from 1960 to the present. It contextualizes the Brazilian decisions about energy systems in the national and international panoramas. The comprehensive analysis of energy planning briefly explains various political changes in the country in the last 60 years to get to the present configuration of institutional energy planning, materialized in long- and middle-term energy plans. There are two main Brazilian energy plans: the National Energy Plan 2030 (PNE) and the DEEPs. To verticalize the analysis, the theoretical framework is applied to the DEEP. Section four scrutinizes the DEEP in relation to its premises, goals, and methodology. From such analysis, the epistemic problem is pinpointed and the critique developed. The main epistemic problems identified with energy planning in Brazil are in two critical strands: energy futures are planned for industrial and economic growth, underpinned by economic research carefully put together to manufacture consent for the need of energy expansion; and energy futures are planned regardless and to the detriment of the existence of life.

Finally, *Chapter 7: The Decolonial Plan*, brings up ways in which it is possible to elaborate a decolonial energy plan. The challenges of the Decolonial Community of Argumentation are to bring the decolonial possibilities into decolonial *praxis*. Piercing colonial institutions such as energy planning with decolonial epistemologies are part of such *praxis*. However, the action towards structural changes must be taken in a holistic manner to tackle the persistent character of the coloniality of power and its capacity to re-establish oppression through time. Chapter 7 lists these challenges and opens up the grounds for decolonial energy plans substantiated on communal principles of abundance such as the Guarani *Tekó Porã* and the Kichwa *Súmak Kawsay*. These are examples of indigenous practices of good living that perceive life in the complexity of existence.

Hence, the propaedeutic structural change is ethical. Instead of exhaustion, the ethical system must aim for abundance, that is, the production and reproduction of life in a non-hierarchized manner. This is effected by considering the non-human living beings and the ecosystems as fundamental to human life. In the same manner, inter-human relationships cannot be hierarchized. The victims must occupy protagonist positions in deciding the structural institutional change. This shift from being victims to being protagonists of change is an ethical change. The chapter concludes with propositions for the practical epistemic shift.

This work is innovative. There are no examples of decolonial energy planning in the world. Being realistic, there are no examples of relationship between decolonial studies and the structural pillars of the contemporary capitalist system: energy, industrial complexes, the financial system, and the legal system. This thesis opens up grounds for a vast range of research that is intended to dismantle the master's house. It is not possible to think about better futures without a plan. It is not possible to have a plan without a method. It is not possible to have a method without understanding the meanings of phenomena in time and space. It is not possible to understand meanings without grasping the ethics from which meanings are derived. Although innovative, this study is about ancestry, because learning with history is the only way to organize the future. From this work, it is possible to understand the relevance of decolonial epistemological underpinnings in promoting social change. To do so, we focus the epistemic decolonial turn on energy. Dismantling energy – this very important pillar of the capitalist system – destabilizes all other structures of the master's house.

Chapter 2: Colonized Skin, Colonizers' Masks

Discomfort

A recurring question in the conversations about coloniality is *why are you still blaming Europe for the misery in the Global South, as colonialism ended long ago?* It is not a simple question. It involves many layers of collateral and multilateral oppressions. The core problem in this question is the lack of empathy with the condition of the victims – the misery of the victims. Asking 'Why blame someone else for your problems?' affirms 'You are responsible for your misery'. In doing so, the historical construction/creation of victims is dismissed, as also the links between the past and the present, the oppressed and the oppressor. By framing the responsibility for poverty on the poor, for racism on the indigenous or black person, or for sexism on women, the predicament of the victim is denied. Denying the existence of the victim nullifies the act of oppression, making the oppressor a winner and the victim a loser – someone who has not tried hard enough. The act of winning is embedded in the meritocratic legitimacy of a said effort in pursuing interests – it is about a battle for surviving and living well, morally approved and reinforced by the ethics of exhaustion of the modern–colonial world-system. Disregarding the means to win is oppressive, part of the task of keeping the victims in their condition, and disabling the possibilities of overcoming the predicament of oppression by the negation of the victim – how do victims stop being victims if victims do not even exist? It is something like saying believing in victims is like believing in the tooth fairy or in Santa Claus; it is just in the imagination of a naïve or delusional person and, therefore, no action is required.

This chapter deals with the creation of victims by discussing the concept of coloniality and its multiple facets. Acknowledging the victims must make those in historically comfortable positions uncomfortable. Comfort is secured when one benefiting from a system of oppressions ignores a set of privileges and, therefore, normalizes both privileges and oppressions. Nobody wants to carry the historical responsibility for poverty, genocide, or slavery. In freeing oneself from guilt, life becomes a more pleasant journey. In the patriarchal world-system in which we live, to affirm that *every man benefits from patriarchy (a.k.a. systemic violence against women)* sounds like an offense, instead of information. Generally, men react to this sentence saying '*Not me, I respect women!*' or '*I am not a rapist, I have a mother, a sister, a wife…*' or even '*Not*

me, I believe that women and men should have equal rights'. How comfortable is that? 'Not being a racist is not enough, we have to be anti-racism', as Aurea Carolina, paraphrasing Angela Davis, said in one of her speeches in the Brazilian National Congress[1].

It is also comfortable for the oppressor to learn of the existence of victims without feeling responsible for their existence. It is very uncomfortable for the victims to have, on top of suffering oppressions, the obligation to explain what constitutes oppression in order to substantiate their suffering, its historical and social foundations, the links between the oppressor and the oppression and, at the end, to still preserve the oppressor from being uncomfortable with this reasoning. It means to place causes of oppression in the past, making oppressions given situations and irreversible.

Acknowledging the victims and the oppressions is to create discomfort – we all have to be uncomfortable with the ethics of exhaustion that necessarily creates victims. Such discomfort starts from finding out what the oppressions are and delineating the genealogy of present oppressions. These actions do not have an end in themselves – finding a murderer does not resurrect the victim. The end of creating such discomfort is to put a stop to oppressions by gradual reduction of the victim's discomfort, which necessarily increases the discomfort of the privileged. That, in historical time, will enable reducing discomfort for all the parties. Linking the oppressor and the oppressed in academia is an epistemological discomfort. Considering that the number of victims of the modern–colonial world-system's ethics is much bigger than the number of privileged (framing 'accumulated privileges' in a combination of capacity to exercise power, to exist, and to announce knowledge), we start from an unprecedented level of discomfort for those at the top of the ethical pyramid of privileges. To do so, it is necessary to confront the reality that without victims '*everything' would not exist*[2].

Colonialities are those multiple levels of collateral and multilateral forms of oppression consistent with the pattern of power of the world-system. The following sections are dedicated to unfold colonialities in the light of the ethics of exhaustion. Within the macro topic of *Coloniality of Power*, Quijano's concept is explained here, the terminology that grounds the whole theoretical framework of the thesis. In order to develop the issue, we bring in the notion of ancestry in the section *Luzia's Children*, since observing the past from the colonial difference perspective is consistent with the

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[1] Aurea Carolina is a Brazilian congresswoman, black, feminist. This was published in her social media.
[2] Referring to Djonga's song "Corra!" from the 2018 album *O Menino Que Queria Ser Deus*.

perspectives to shift discomfort. Thereafter, some of the conceptual axioms of Quijano's concept are explained in the section *The Modern–Colonial World-System*. Finally, coloniality of power will be didactically disassembled to help comprehend the colonial subject and the colonial epistemic violence in the sections *Coloniality of Being, Coloniality of Gender*, and *Coloniality of Knowledge.*

Decolonial epistemologies for energy planning are definitely institutionally uncomfortable. Such a proposition is ahead of what is considered (narrow) possibilities for managing natural resources and energy production in Brazil. Decolonial epistemologies for energy planning reverses the proposition of value attributed to energy that sets the grounds for the current epistemology for energy planning, informed by the DEEP.

Coloniality of Power

The present configuration of power is the modern–colonial world-system, consistent with a global pattern of power established by the European colonial enterprises at the end of the fifteenth century and perpetuating a specific modus of hierarchization of peoples, places, and knowledge, naturalizing oppressive realities as the only way to exist in the world. Aníbal Quijano named this pattern the *coloniality of power*, to explain how European culture, behaviour, and violence – substantiated by what we call the modern–colonial world-system's *ethics of exhaustion* – gives *access to power* (Quijano 1992, 12). This means that the non-powerful could, somehow, change their social and economic status by mimicking the colonial power, thereafter the imperial power, and then the financial power. Such mimetic force is in place in many spheres of individual and communal life, from the self-recognition of each individual and the recognition of social identity to the production of legitimate valid knowledge. The European culture became a universal cultural model. The imaginary in non-European cultures today can hardly exist and, above all, does not reproduce, outside of European imposed relationships of domination.

Such imposition of Eurocentric standards happened in different ways across the globe. For Quijano, the worst impact took place in the Americas, due to the centrality of the domination of the Americas for the configuration of European hegemony. The European presence in the Americas caused a mass genocide that wiped out a great part of the American indigenous populations in a very short period of time and continues to

massacre the very few remaining indigenous people even now. Energy production is key to these continued massacres as it is the land of the indigenous that continue to be taken for the building of large dams and transmission systems (Campos 2012; Magalhães et al. 1996; Santos 2007). The global character of the Eurocentric domination – that is, beyond America – was shaped by other levels of domination on the cultures previously known by European imaginaries (what Dussel called the interregional ethical systems that existed before the modern–colonial world-system), being configured through political, military, and technological impositions on cultural values.

For Quijano, cultures could not be destroyed in Asia and the Middle East to the intensity and depth to which the American cultures were decimated. In those places, the relationship of subalternity imposed through political, military, and technological power, existed even before the coming of European culture and configured hierarchies not only in relation to Europe but also locally by the assimilation of power among the elite. Europe became the guiding norm for cultural and artistic development, partly constitutive of the conditions of production of those societies and cultures, 'pushed towards Europe in whole or in part' (Quijano 1992, 13).

> In Africa, the cultural destruction was undoubtedly much more intense than in Asia; but smaller than in America. The Europeans also failed to achieve the complete destruction of expressive patterns, particularly of objectification and visual formalization. What they did was to deprive them of legitimacy and recognition in the world cultural order dominated by the European patrons. They were locked in the category of "exotic". That is, without a doubt, what is revealed, for example, in the use of the products of the African plastic expression as a motive, as a starting point, as a source of inspiration, of the art of the Europeanized African western artists, except as a proper mode of artistic expression, of a hierarchy equivalent to the European norm. And that is, exactly, a colonial look (Quijano 1992, 13–14).

The centrality of the domination of the American peoples and territories in the configuration of the global pattern of power deserves specific attention here for the analysis of decolonial epistemologies for energy planning in Brazil. The critical historical view enables the deconstruction of a historiographic version that condemns the present.

Luzia's Children

In the Americas, coloniality of power was imposed though multilateral and collateral types of oppression, starting from the intentional annihilation of the native peoples. As Dussel argues, the hallmark of the domination of the Americas is the arrival of Columbus in the Caribbean in 1492. It is estimated that about 35 million indigenous people were decimated in the area of the Aztecs, Mayas, and the Caribbean in the first 50

years of conquest (Quijano 1992, 13). In the territory where Brazil is today, it is estimated that the original population was about (up to) 8 million inhabitants[3] of more than a thousand ethnicities, reduced today to a couple of hundred thousand individuals (Arruda 2001, 133; Moonen 2008, 7). It is believed that when the Europeans arrived, the total population in the American continent was about 70 million inhabitants (Crosby 1989, 25). The indigenous holocaust (Ribeiro 2016; Moonen 2008) took place due to the European's free and conscious will to dominate, conquer, and take over, what Dussel calls *ego conquiro*.

Despite the history of humanity being marked by conflicts, the colonization of the Americas experienced an unprecedented type of wilful domination, grounded in the dehumanization of the indigenous peoples, aimed at their decimation and the erasure of their histories with the intention to steal minerals, natural resources, technologies, land, and whatever could be produced on the land, as well as to use unpaid labour from enslaved indigenous and African peoples. The imposition of European values and institutions was made in a way that would justify their violence, especially the imposition of European property laws (Maine 1872) and thereafter 'public' laws (tax and criminal laws) in the colonies. The making of international law, followed by the laws in the colonies, was justified by the intention to protect thieves and murderers who would steal and kill away from their home states.

> One could hardly conceive modern European colonialism without international law. From the sixteenth century (Francisco de Vitoria in Spain), to the early seventeenth (Hugo Grotius in the Netherlands) and the late seventeenth century (John Locke in England), the legal foundation of land expropriation and appropriation was established. That was the nature and function of international law (Mignolo 2016, 182).

Obviously, the Europeans did not discover the Americas. The Spanish, on behalf of their kingdom, 'found' the American continent, trying to reach the commerce route to India (the 'Oriental Indias'), officially in 1492, in an attempt to become players in the international mercantile commerce, then dominated by the Persians and the Muslims, who

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[3] Studies present different numbers of inhabitants at the time Europeans started colonizing Brazil, because counting the number of inhabitants was not a concern of the colonizer because the native peoples migrated towards the west, running away from the violence and diseases brought by the invaders; and because indigenous peoples were dying at a fast pace due to diseases and conflicts. The numbers vary from 3 to 8 million inhabitants, but there is no accurate number. What matters is that the local inhabitants of the Brazilian territory had little use for the colonizer if they did not want to be enslaved or to give up their lands. Contrary to what happened in Spanish America, the Brazilian indigenous peoples did not work for the colonizer in the *encomiendas* scheme, partly because there was no central empire to which the Brazilian *indios* would serve, as happened in Mexico (with the Aztecs and Toltecs) and in the Andes (with the Incas) (Dussel 1997). They were enslaved in different ways (Moonen 2008).

were actively interacting with India and China (Dussel 1997). Until 1492, Western Europe was the periphery of the Muslim world[4], enclosed by the walls from Seville to Vienna (Dussel 1994a, 103).

In the work *1492: El Encubrimiento del Otro: Hacia el Origen del 'Mito de la Modernidad',* (translated into English in 1997 as *The Invention of the Americas: Eclipse of 'The Other' and the Myth of Modernity*), first published in 1994, Dussel explains why 1492 is the beginning of Modernity; and Quijano refers to 1492 as the commencement of the imposition of coloniality of power as a means to *access power*. The Eurocentric *ego conquiro* of the late fifteenth century unfolds into the Cartesian *ego cogito,* the enlightenment, the scientific and philosophical revolutions, the renaissance art movement, and the theories of state power. From a Eurocentric perspective, such phenomena are specifically analyzed as happenings from eighteenth-century onwards, whereas such movements were enabled from the primitive accumulation of capital, that is, mainly the precious metals stolen from the Americas and the production of goods in the stolen land using enslaved labour. Hence, the standpoint of Modernity is colonial violence, with *coloniality* as its ideology, as Dussel frames it:

> (…) It will be instead for Portugal (which in 1415 takes Ceuta in Africa) and Spain, that Europe will expand in the West and unlock the Europe of the Muslim site that had begun in the seventh century A.D., since the death of the Prophet Muhammad. That Spain, which after Western Europe will forget and despise – and that Hegel does not consider Europe – is the one that begins Modernity. The conquest of Mexico, on the other hand, will be the first "strong" experience of the

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[4] According to Dussel, 'Latin-Germanic Europe, did not surpass the totality of one hundred million inhabitants (inferior to the population of the single Chinese empire at the time). It [Western Europe] was an isolated culture, which had failed with the Crusades because it could not recover a certain presence in a neuralgic pole of the Euro-Asian continent's trade: the conquest of the place where the Holy Sepulcher was located was, in fact, the place where the trade of the caravans that arrived at Antioch from China (crossing Turan and the Chinese Turkestan) and they were united with the navigation routes of the Red Sea and the Persian in the present Palestine. The Italian cities of Genoa (the city of Columbus and of so many clandestine discoveries since 1474 on Atlantic coasts), Venice, Naples, Amalfi, needed these communication channels to reach tropical Asia, spices' India. Rejected Europeans in their attempts to control the Eastern Mediterranean, had to remain isolated, peripheral of the Muslim world. The Muslim kingdoms ran from North Africa - with the Almoravids and their flourishing cities of Morocco, the Maghreb or from Tripoli, which connected with the caravans to the south of the Sahara, and from there with the kingdoms of the savannah: Mali , Ghana, etc., with the current Libya and Egypt (later occupied by the Ottoman Empire), with the Caliphate of Baghdad, until Iran (later conquered by the Safawi Empire), reaching the Mongolian kingdoms that will occupy the north of the India – with the capital Angra, and then Delhi, and with works of splendid beauty such as the Taj Mahal – extending to the control over Malacca carried out by Muslim merchants, to reach the southern Philippines, since the island of Mindanao It will be Muslim from the end of the 14th century. So Dar-el-Islam (the house of faith) came from the Atlantic Ocean to the Pacific. It is true, that the Turkish invaders had broken the backbone of the Arab-Muslim trade world, although they themselves were Muslims. The Turks, who occupied the Balkan peninsula, Greece and Turkey, had isolated the western part of the eastern part of the pre-Turkish Muslim world. China had fallen by itself into a deep economic crisis. For its part, the Golden Horde of the Mongols had dominated Russia (1240-1480). The occupation of Constantinople by the Turks in 1453 meant for Europe, then, to be besieged and reduced to the minimum expression.' (Dussel 1997, 103–4)

European ego of control of another empire, of the Other as a servant, as colonized, as dominated, as exploited and humiliated (Dussel 1994a, 104–5).

The silver stolen from the mines in Potosí in Bolivia and throughout Mexico (which yielded to the Spaniards more than one hundred thousand tons of silver between 1540 and 1820 [Garner 1988, 898–99]) changed the face of the entire transnational economy in the world from the fifteenth century onwards (Dussel 1997). This was because of the stability of silver, the prevailing currency at that time and used for centuries throughout the Muslim world in commerce with India, China, and Bantu Africa. The abundance of precious metals stolen from the Americas is definitely one of the main factors that enabled the scientific and technological discoveries of Modernity (Mignolo 2016; Dussel 1997).

Indeed, the Portuguese in Africa and Asia and the Spaniards and Portuguese in Latin America sought gold and silver, the world money that allowed them to enrich themselves on a global scale.

> The global market, or Wallerstein's "world-system" invented by Portuguese and Spaniards, organized its tentacles, which, as a world-wide plot, allowed the "sacrificial myth" to consume its new victims in all corners of the earth. The mimetic desire of the conquest moved these first modern individuals to try to possess, excessively, the universal "measure" of power of the new system: money, the nascent universal equivalent, gold and silver – in the time of the primitive accumulation of capital. Money, in effect, an abstract equivalent of all value (in the Arab world, in Bantu Africa, in India or in China) will be managed by Europe as a way of accumulating exchange value, a means of transferring value, of exercising effectively the new North-South domain, center-periphery domain (Dussel 1994, 146).

Primitive accumulation of capital, then, killed not only the peoples in the Americas but also their ancestry. The myth of Modernity replaced ontological and metaphysical relationships (political, social, economic) by systematic suppression of beliefs, ideas, images, symbols, and knowledge that was not conducive to accumulation of capital and hence global domination. The suppression was felt, above all, over the modes of knowing and producing knowledge, of producing perspectives, images and systems of images, symbols, modes of signification, over resources, patterns, and instruments of expression, intellectual or visual; this repression was followed by the imposition of Eurocentric patterns of expression, including metaphysical patterns. According to Quijano, these beliefs and images had to be suppressed and discredited because they impeded the cultural production of European domination; further, this was 'a very efficient means of social and cultural control, when the immediate repression ceased to be constant and systematic' (Quijano 2007a, 169). Eurocentric epistemologies,

forged in violence, became the most efficient mechanisms of social control and domination.

This type of imposition of power survived through time and became persistent because it killed ancestry, forcing a people with no past (since the past was annihilated) to be converted into a people in search of a future in the intra-European phenomenon of Modernity. In the projection of the Eurocentric way of life, 'success' is in the future, through the attainment of certain material goods, social status, and individual freedoms that, if mimicked in keeping with the coloniality of power, would allow any person to become 'European', a conqueror, or *a winner*. It is what Quijano and Wallerstein called the *deification* and *reification of newness*.

> The new system was new, that is not old, not tied down to tradition, to a feudal past, to privilege, to antiquated ways of doing things. Whatever was new and more modern was better. But more than that, everything was always defined as being new. Since the value of historic depth was denied morally, its use as an analytical tool was dismissed as well (Quijano and Wallerstein 1992, 551–52).

The annihilation of history, and ancestry above all, ensured the loss of the link between the communal practices of existence and the occupation of the territory, since, from the colonial perspective, the occupancy of the territory began when the colonizers arrived[5]. It is not the object of this work to recover the missing link, but it is necessary to reinforce that the historiography of the oppressor makes it impossible for communal practices to have their political utility in the socioeconomic relations of the present. Thus, a brief report on the occupation of American territories, specifically of the Brazilian territories (for the purposes of this study), is necessary so that the political construction of ancestry is recognized in the political relationship with the territory through lenses other than the Eurocentric one.

It is clear that the existence of peoples in the American continent is much more than 500 years. According to Bonatto and Salzano (1997) the first humans to enter the American continent came from Asia (Siberia) through the Beringia (the land and maritime area bounded on the west by the Lena River in Russia, on the east by the Mackenzie River in Canada) and into what is now Alaska between 40,000 and 16500 years ago' (Bonatto and Salzano 1997), and then migrated to the south. Those people were named Paleoindians, the first Americans (Neves, Bernardo, and Okumura 2007). Although disputed, there are studies referring to different moments of incursions into the continent,

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[5] This is the main narrative taught in schools in Brazil to this date; history is the version of the victor.

such as Paul Rivet's version that the first inhabitants of South America came from Polynesia through navigations across the Pacific Ocean (Wauchope 1944). As Walter Neves argues, 'it is possible to know how many differentiated Asian populations contributed to the formation of the native American peoples, but not in how many migrations these contributions occurred. In other words, the same Siberian biological population may have contributed to the occupation of America through various migrations, or rather, through various expansion events in the east' (Neves, Bernardo, and Okumura 2007, 11).

The largest and oldest archaeological evidence of Paleoindians is concentrated in South America, especially in the south-eastern region of Brazil (Lagoa Santa) (Garcia 2012), where the skeleton of Luzia was found. Luzia is considered the most ancient human skeleton ever found in Brazil, and one of the oldest in the Americas, about 11,000 years old. Researchers have evidence that Luzia's skull has features and DNA similar to the Australian Aborigines, with negroid patterns: 'the paleoamerican morphology is very similar to the one that characterized the first Homo sapiens, that of Africa dispersed all over the planet, from 50 thousand years, before the racialization process had occurred' (Neves, Bernardo, and Okumura 2007, 12). Although Luzia's 'race' could be controversial for some (Gaspar Neto, Valle, and Santos 2009), since her features were similar to the first homo sapiens (before the racialization process had occurred), it is profoundly important to perceive from Luzia – the most ancient reference ever found of human occupancy in Brazil – the similarities of that skeleton with the first humans on the planet. Luzia is relevant here for the primary history of the peoples in the land as evidence of an erased ancestry and for the comprehension of a much broader spectrum of belonging to the territory and developing communal practices. This idea of descending from Luzia is far from being a shallow attempt to find the missing link between myself and the first woman, it is the recognition of an ancient history. The archaeological studies evidence the economic cycles (specially from the use of ceramic and other artefacts), the logistics, the non-predatorial agriculture, and the relationship between the native peoples and the land, (Machado 2006; Garcia 2012; Souza 2002) dating back to 5,000 to 2,000 years B.C.

We are all Luzia's children, not in a metaphorical way, but in a historical–political elaboration. Ancestry is politically constructed; it is in the imaginary that the possibilities of existing in the present time can be found; and unlocking the possibilities of existing demands an exploration of what and who we were, are, and will be.

The native peoples of the territory where Brazil is today had social, political ecological, spiritual, and economic organizations grounded in millennia of occupancy of the territory. Archaeological evidences indicate various communal practices such as agriculture, logistics, and the use of natural resources for their communities (Melià 1990). Some of this knowledge was useful for the European's specific type of production for the accumulation of capital – specially in agriculture and mining (Moonen 2008; Melià 1990, 36). However, the indigenous relationship with the land was completely different from the European way of relating to the land. Let us briefly analyze the example of the Guarani.

Litaiff informs that, among the peoples of the Americas who came into contact with Europeans since the early days of colonization, the Guarani are an example of those who have survived to this day, preserving important aspects of their culture and social organization. However, these *índios*[6] had entire populations decimated and continue to suffer a violent process of ethnocide, which is evidenced by the installation of energy enterprises like large dams, transmission lines, and mining, as well as by the environmental catastrophes caused by the collapse of dams[7]. Currently there are four Guarani groups located in South America: *Chiriguanos* (60,000), *Kayowa* (40,000), *Chiripa* or *Nhandeva* (30,000), and *Mbya* (30,000), located in Bolivia, Paraguay, Argentina, Uruguay and Brazil respectively, i.e., distributed in the continent's midwest, south and southeast (Litaiff 2008, 115–16). *Tekó porã* is the Guarani philosophy of good living, which establishes precepts for communal existence and the relationship with the land, knowledge, and the soul. Epistemologically, *teko* is related to 'a way of being, way of existing, law, culture, norm, behavior, habit, condition, costume' (Montoya 1876). *Teko porã* is the 'good being, well-being, good spirit' (Melià 1990, 43). *Tekoha* or *tekoa* is the land or living in the land, which is undetachable from and intrinsic to the way of living, necessary for the very existence of the Guarani. The *arandu*, the knowledge or wisdom, begins with the *xara'u,* which is the dream, and the *omoexakã*, which is the revelation of the *nhe'ẽ* (when a woman finds out that she is pregnant). The soul, *ã*, also

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[6] Brazilian indigenous peoples, original inhabitants of the territory.
[7] The irreversible damage caused by the collapse of the Fundão dam by the Doce river, in the city of Mariana MG affected several indigenous communities. 'The indigenous communities living in demarcated territories and located in the affected area are: the Krenak community, whose lands confront the Doce river in the municipality of Resplendor, and the Tupiniquim and Guarani communities, which live on the lands of Caieiras Velhas II, Comboios and Tupiniquim, on the coast south of the mouth of the Rio Doce. About 350 Krenak live on their 4,040-hectare land; already the coastal indigenous lands shelter about 3,000 guaranis and tupiniquins' (Sánchez et al. 2018, 11).

means energy and the atmosphere, 'what is together with you all the time, as if it were a shadow', and does not have a sacred connotation (Benites 2015, 12). This way, *teko porã*, the Guarani well-being, relates axiology, metaphysics, and ontology, presenting land, knowledge, and life as co-constitutive and coexistent.

When the Europeans first met the Guarani, in the early sixteenth century, they found 'abundance of groceries [agricultural products] (…) not only for the people who live there, but for 3 thousand men upstream"[8] (Melià 1990, 35). The Guarani 'divine abundance'[9] could not be practised by the Europeans because they had expelled the natives from their lands, killed them, and taken over the natural resources; so their knowledge was lost forever and could not be shared or passed on to others or to future generations.

Colonization killed ancestry and imposed exhaustive ways of living, in complete opposition to a culture and way of living that worked for abundance. In capitalist times, proposing decolonial epistemologies for energy planning does not aim to go back to indigenous practices of 2,000 years ago. These practices exist even in the present times, known outside Eurocentric violent epistemologies with the exhaustive economic perspectives. The Guarani peoples' struggle[10] in the present evidence non-violent epistemologies that enable other perceptions of relationship with life and territory. What is necessary is to involve such practices in the activity of planning. Doing so necessarily replaces the current way of planning energy that takes place regardless of the existence of life. In this sense, energy planning in Brazil today involves the appropriation and use of the land, the watercourses, and the agriculture, the very means to access the basics for life with dignity. The current epistemologies for energy planning in Brazil repeat the European colonizer's incapacity to practise abundance, reinforcing the modern–colonial world-system's ethics of exhaustion, as discussed in depth in Chapter 3.

The extermination of indigenes takes place in four macro spheres (Moonen 2008). The most evident one is the biological extermination, in which the colonial 'encounter' causes an enormous depopulation among the colonized, either by the introduction of hitherto unknown diseases or because of genocidal practices. Countless indigenous peoples have been exterminated; others have had their population drastically reduced. Another form of extermination is the territorial invasion and conquest, in which the *índios*

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[8] Governor Martínez de Irala, 1541 (Revello 1941).
[9] As described by European historians of the sixteenth century (Melià 1990, 35).
[10] For the Guarani struggle see Pereira 2012.

lost not only their lands, which are necessary for their subsistence, but, what is more serious, also their territories and their homelands, necessary for their survival as peoples, as indigenous nations. The fourth dimension of the extermination is the political domination; with the colonial rule, the *índios* lost (and keep losing) the elementary right to decide their own destiny and were governed by their colonizers. This political domination is achieved through decrees and laws and through colonial administration bodies, specially created for this purpose. The invasion and occupation of indigenous territories is not only a phenomenon of the colonial period of centuries past, but continues to the present day, and on a scale and intensity even greater than before (Moonen 2008, 7–16).

Hence, the articulation of power initiated by colonialism, *the ideology of colonialism* – coloniality of power – remains as the structure of power configured from the European conquest. The villainous character consistent in the intentionality of annihilation of the colonial subject that decimated millions of us is divided into two distinct fronts, the invasion and domination and the obscuring of colonial violence and its direct relation with the viability of Modernity. For conceptual clarity, it is now pertinent to show, within the subject of coloniality of power, how such a complex structure becomes global and persistent by bringing to light the constitutive lines that unfold in the concept of the modern–colonial world-system.

The Modern–Colonial World-System

The terminology *modern–colonial world-system* is used throughout this work to refer to an analytic unit that comprehends the configuration and structures of power of a global character, with interstate and subjective hierarchizations, as was initiated in the late fifteenth century legitimating European domination. Such an analytic unit consists, in addition to the concept of world-system developed by the North American sociologist Immanuel Wallerstein in the 1970's (Wallerstein 2011), the concepts proposed by the Latin American community of argumentation, especially by Walter Mignolo (Mignolo 2003), Aníbal Quijano (Quijano 2007a), and Enrique Dussel (Dussel 1997). This approach recognizes the impossibility of detaching the element of coloniality in the configuration of European Modernity.

Wallerstein's world-system concept and theory was strongly influenced by the Dependency Theories developed in the 1960s and 1970s in Latin America (Cardoso and

Faletto 1979) and by the works of Ferdinand Braudel on the analysis of history (Braudel 1965). From the Dependency theories, Wallerstein derived the relationship between the centre and the periphery, which creates subaltern relationships of geopolitical dimensions. From Braudel, Wallerstein derived the long duration historiographic analysis. The world-system brings with it the legacy of Modernity, through a combination of five mandatory elements: the installing of *capitalism* as the economic system; the flowering of sciences and technologies as fruits of *exchanges between Europe and other societies*, such as the Amerindian, Arabic, and Chinese societies; the *secularization* of social life, giving more importance to rational ways of explaining things in the realm of political governance; the creation of *nation states* as a consequence of the process of constitution of the world-system, a scheme of political organization in which European societies took *centre* place in the system while the colonies the place of *peripheries*; and the *universality*, the Eurocentric pretence of considering everything that was proper for Europe and for the European peoples as universal and as the role model for the rest of the world. The central critique proposed by Wallerstein is that the world-system was the legitimization of a highly unequal system, both within European societies and in the colonies. The place that Europe won in the context of the nascent system made it the centre of power in the world context for the following centuries.

In 1992, Wallerstein and Quijano published together an article called *Americanity as Concept, or the Americas in the Modern World-System* (Quijano and Wallerstein 1992), in which the authors clarify the core features of the world-system in the creation of the Americas and the American identity, with respect to the international division of labour, institutional racism, consumerism, and the problematic of hegemonic knowledge. Such issues are raised in the concepts of coloniality, ethnicity, racism, and the deification of newness, as co-existent and complementary to the world-system's oppressive character. Together, they reinforce the hegemony of capitalism that originated in the accumulation of capital from the colonization of the American continents.

However, the Decolonial Community of Argumentation feels Wallerstein has been trapped in a few Eurocentric assumptions that limit his approach (Restrepo and Rojas 2010, 77). This way, decolonial studies are separated from subaltern studies (the dependency theories and the centre–periphery analysis consistent with Wallerstein's world-system), despite bearing in common the historical materialist approach in the analysis of the configuration of structures of power. Hence, it is necessary to establish the distinctions between decolonial studies and post-colonial/subaltern studies, in order to

highlight the originality and independency of the decolonial epistemic contribution and affirm the terminology of the Modern–colonial world-system, instead of applying Wallerstein's approach.

The constitutive lines of the decolonial inflexion belong to the scholarship that challenges Eurocentrism and Modernity from the *colonial difference* perspective, concepts that are deepened further for the proposition of decolonial epistemologies[11]. In this sense, going through the experience of colonization provides the standpoint for the critical approaches that compose the Decolonial Community of Argumentation. The community encounters common aspects with the post-colonial and post-imperial movements in south-eastern Asia and Africa from the standpoint of the colonial wound. It differs, though, from the post-colonial / post-structuralist / post-modernist approaches that were developed in the United States and England after World War 2. For Mignolo, there must be epistemic and geopolitical distinctions between subaltern studies (from the colonial wound) and post-colonial studies (in the United States and United Kingdom), in which

> (…) the first originates mainly from the impulse and fury of the colonial wound, while the second originates mainly from the impulse and conditions of the western academy and the concomitant market of publications. I am talking about the geopolitics of knowledge and the historical-structural dependence between the metropolis and the colonies, between imperialism and colonialism on all planes: economic, political, epistemic and in the formation of subjectivities (Mignolo 2005, 49).

In this sense, the epistemic independence from the constitutive lines of the centre makes the decolonial community of argumentation capable of challenging Modernity from another standpoint – , the colonial difference. As Restrepo concludes,

> Between Wallerstein's notion of the modern world-system and that of Mignolo of the modern / colonial world system we find a substantial difference: the latter's emphasis on coloniality. This emphasis is not a simple insubstantial addition. On the contrary, **the emphasis on coloniality transforms the very notion of modernity**. While in Wallerstein it operates as an adjective indicating contemporaneity or more recent world-system, in Mignolo and other authors associated with decolonial inflection it operates as the visible side of coloniality. **From the decolonial inflection, coloniality is constitutive of modernity, not only in the past but also in the present; it is the product of the process of colonial expansion of Europe and a constitutive part of modernity: "[...] there is no modernity without coloniality [...]"** (Mignolo 2003, 34) (emphasis added in bold) (quoted in Restrepo and Rojas 2010, 79).

This way, coloniality of power is the configuration of the structure of power for the last 500 or so years. It is a constitutive element of European Modernity. Challenging Modernity from the standpoint of the colonial difference demands challenging its obscure

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[11] *See Chapter 3: Six Colonial Differences.*

side, coloniality. For this reason, we use the terminology modern–colonial world-system, framing the element of coloniality as fundamental to the configuration of global power in the present.

For Mignolo (Mignolo 2003), the modern–colonial world-system's ideologies are distributed between four visible ideologies, Christianity, conservatism, liberalism, and socialism, and one invisible basic ideology, coloniality. On the one side would be the visible face of this world-system: Modernity, with its apologists and *internal* critics. On the other, there would be a face that is not made explicit, not visible, not recognized as immanent to this world-system, coloniality. These ideological operations feed Eurocentrism as one of the central premises of the modern–colonial world-system.

Coloniality of power constitutes three overlapping spheres of direct oppression in the several hierarches created and underpinned by the modern–colonial world-system ideologies. The first sphere is the configuration of power in capitalism, which has become a global system and engages political and military apparatus for the maintenance of hegemonic places, consisting in the invasion and domination of territories, the stealing of goods, the imposition of European institutions in the colonies (religious, legal, and bureaucratic) – the political–economic aspect of the coloniality of power (Quijano 1992, 2000). This aspect is very clear in energy planning. When analysing the DEEP, economic growth is the main goal of energy futures, substantiated in legal and scientific documents. Capital is at the top of the hierarchy of power in energy planning in Brazil. Such power is exercised over the ecosystems and peoples, diminishing their relevance, and even existence, to privilege transnational financial relationships.

The second sphere of coloniality of power is about the creation of the colonial subject, in which 1) intra-European gender relationships are transferred to the colonies, making the European patriarchal family structure and European patriarchal political relations the prevailing ways of living, occupying the territory, and dividing labour (Lugones 2008; 2012), and is aligned with 2) the racial hierarchization, in which peoples are separated and governed by their racial identity, denying the humanity of the non-European, determining a specific social organization in which the subjectivity, history, customs, ontology, and relationship with the territory of the colonized persons are violated and annihilated (Césaire 2000; Fanon 2001, 2008; Mariátegui 2007; Quijano 2007b; Ribeiro 1998; Maldonado-Torres 2007). These are the ontological and subjective aspects of the coloniality of power, which Maria Lugones (2008) called *coloniality of*

gender and Nelson Maldonado-Torres (2007) called *coloniality of being* (following Mignolo's propositions).

Energy planning in Brazil privileges capital to the detriment of life, treating energy futures as a task related to business management. The detachment of life from the activity of planning is part of the structural patriarchal political relations. The content of the DEEP informs that landscapes and resources exist at the disposal of market interests, regardless of who or what exists in the territory. It also reinforces the racist character of energy planning, since the installing of these enterprises affects mostly indigenous and quilombolas[12] populations. Nonetheless, the perception of energy futures condones the injustices of the Brazilian division of labour, in which all the wealth produced from energy businesses is operated in international markets. The DEEP does not propose initiatives for local development, but affirms a 'general gain' of national economic growth. The only relationship between the working class and energy planning in Brazil is via the workforce, which is not part of the planning or decision-making process, but part of the necessary labour that enables businesses.

The third sphere of coloniality of power is about the annihilation of the past, the ancestry, and the history of the indigenous people for the imposition of Modern values/ categories/ perceptions/ perspectives/ knowledge, so that accepting such values would be the only way to exist and understand the world in a legitimate way, a way that is institutionalized and universal (Castro-Gómez 2005a; Walsh 2007b, 2012; Grosfoguel 2006, 2007; Mignolo 2012; Dussel 1997). This configured the epistemological dimension of coloniality of power, which Catherine Walsh (2007b) and others called *coloniality of knowledge*. In this sense, energy planning in Brazil privileges scientific underpinnings for market-oriented energy production. Grounded in the narrative of economic development and sustainable development, the DEEP is biased towards a liberal defence of relationships of capital. As indigenous and communal knowledges are annihilated, there is no involvement of the population (especially the population most vulnerable to the

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[12] Quilombolas are inhabitants of quilombos, a typical phenomenon of the Americas. While in the period of slavery, the term referred to African and Afro-descendant slaves who fled sugar cane mills, farms, and small estates to form small villages called quilombos, it now refers to the descendants of these enslaved peoples who live in rural, suburban, and urban communities characterized by subsistence agriculture and cultural manifestations that have a strong link with the African past. More than fifteen thousand quilombola communities scattered throughout Brazil remain alive and active, fighting for the right to property of their lands enshrined in the Federal Constitution since 1988. These communities are scattered throughout the Brazilian territory in the states of Alagoas, Pernambuco, Paraíba, Pará, Bahia, Maranhão, Amapá, Mato Grosso do Sul, Goiás, Rio de Janeiro, Mato Grosso, Minas Gerais, São Paulo, Paraná, Espirito Santo, Santa Catarina and Rio Grande do Sul.

harm caused by energy enterprises) in the development of the energy plans. Coloniality of knowledge is also about academic works (even the critical ones) that continue reproducing Eurocentric axiology, epistemologies, and methodologies while critiquing energy plans. As discussed further in the section *The Problematic of Energy*, even critical scholars have difficulties in shifting the Eurocentric canon of the annunciation of knowledge.

The structure of power of the modern–colonial world-system is then forged on colonialities of power, *didactically* divided into three categories: coloniality of power itself, coloniality of being (which includes Lugones' definition of coloniality of gender), and coloniality of knowledge.

The subdivision of coloniality of power into such categories is *didactic* because colonialities are entrenched and inseparable, one leads to another in a co-constitutive manner. The categorizational separation between power, race, gender, and class, as well as the separation between economic sciences and political sciences, or even between the 'hard' and social sciences are Modern constructs that work in favour of the relationships of oppression. The detachment of the subject who speaks and suffers from the object of analysis creates the idea that the object exists in itself without links to historical, social, and political analysis.

Exemplifying this, let us briefly highlight the elements in energy planning in Brazil, advancing some of the points that are discussed in Chapter 6. Energy planning is historically, politically, and academically treated as a combination of hard sciences – roughly about availability of resources and technological development, and political–economic factors, such as national or international necessity or availability of investment, national trade balance, commodity price oscillation, industrial production, and transnational financial risk. Such recognition, understanding, and praxis of energy planning is a matter of coloniality of power, independent of whether or not a state is in a position of subalternity in relation to the nations of the economic and political centre. In this coloniality of power, the prioritization of the hard sciences denotes attention to industrial and financial issues in the eyes of the international markets, evidencing stability of the national industry and hence, stability of investments.

Being technologically *avant garde* is not only a constant hangover of the myth of Modernity (the deification of newness that Quijano and Wallerstein describe), it also means political intention to attract investments and the capacity to negotiate (in search of parity of forces) in the transnational financial markets. The disregard of the human and

ecological factors is intentional since they bring uncertainty to the investment, thereafter political instability. Energy planning must inform economic stability for investments in the long term, as it is evidenced in the DEEP's chapter named 'Socioenvironmental Analysis', which treats ecosystems and populations as *challenges* 'related to other sectors' (meaning not related to the energy sector) that must be studied 'in order to assess the real risks and opportunities associated with decisions on the various possibilities of using available resources'. Such stability is achieved 1) through the prioritization of modern–colonial *nomos* in political economy – coloniality of power; 2) through the annulment or invisibility of the subject, namely the persons (active and passive in the action of planning) and ecosystems – coloniality of being; and 3) through the separation of the social aspects of energy planning from the political economy aspects of it, in a way that social consent is manufactured in favour of industrial growth and stability underpinned by scientific research – coloniality of knowledge.

This way, energy planning in the capitalist economy demands the annulment of the subject and scientific endorsement. The subject is negated by scientific 'objectivity' and 'impartiality' that analyzes energy planning – the object – for its ends, economic growth and funds for research from public and/or private sponsors. Scientific research brings legitimacy to political decisions. Political decisions enable scientific research; these two factors separate the living beings who occupy the territory from the matter for analysis and the decision-making process.

We follow with brief theoretical constitutions of colonialities of being and of knowledge to conclude the expatiation on the topic of coloniality of power, so that we establish the necessity of the epistemological discussion.

Coloniality of Being

The concept of coloniality of being was first proposed by Walter Mignolo as the fruit of conversations within the Decolonial Community of Argumentation in the early 2000's. It is referenced in Dussel's developments about exteriority to Modernity, in which the presupposition is the consideration of *being* from a focus other than the self-referenced understanding of *being* of the post-renaissance European white man. The recognition of the non-Europeans first as non-humans and thereafter as inferior races

creates the colonial subject/being. As non-European, the colonized is made to appear irrational, primitive, and *damned*[13].

The concept of coloniality of being takes shape with Maldonado-Torres' work (Maldonado-Torres 2007), which was itself an elaboration of the Heideggerian ontology on the question of the identification of the "being". In Heidegger, ontology is the primordial philosophy since the understanding of the individual enables comprehension of the total, in the sense that the 'being' is the 'being in place', or *Daisen* (Heidegger 1996). Heidegger localizes the individual in time and space (*Daisen*) to configure the perspective of the collective (they) in search of authenticity, which can only be found by resoluteness, and hence, by the certainty of death. This way, death is a singular individualizing factor. The anticipation of death provides the means for the achievement of authenticity at an individual level (Maldonado-Torres 2007, 250). Death establishes the conditions of possibility of one's own authenticity and the notion of 'oneself' that is incarnated in the leader as the authenticity factor of the collective. The possibility of dying for the country in a war becomes a means for individual and collective authenticity (Maldonado-Torres 2007, 250)[14]. Maldonado-Torres confronts the Heideggerian death by pointing out that this view is interesting for the victor in the war, not for the conquered colonized subject. For the author, in the colonial war,

> (…) it must be admitted that the encounter with death is no extra-ordinary affair, but a constitutive feature of the reality of colonized and racialized subjects. The colonized is thus not ordinary Dasein, and the encounter with the possibility of death does not have the same impact or results than for someone whose mode of alienation is that of depersonalization by the One or They. Racialized subjects are constituted in different ways than those that form selves, others, and peoples. Death is not so much an individualizing factor as a constitutive feature of their reality. It is the encounter with daily forms of death, not the They, which afflicts them. **The encounter with death always comes too late, as it were, since death is already beside them**. For this reason, [decoloniality] emerge(s) not through an encounter with one's own mortality, but **from a desire to evade death, one's own but even more fundamentally that of others**. In short, while a vanquished people in war could achieve authenticity, for subjects who are not considered to be part of 'the people' the situation is different (emphasis added in bold) (Maldonado-Torres 2007, 250).

Not being considered part of 'the people' is a consequence of colonization. The Brazilian energy plans which state that economic growth (the ultimate goal of energy planning) benefits 'the people', are produced regardless of the life of 'the people'.

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[13] As Fanon describes *Les Damnés de la Terre* – The Wretched of the Earth (Fanon 1990).

[14] In Maldonado-Torres's reading, Heidegger's views on ontology as a first philosophy follow in an argument that ultimately legitimizes Nazism, which was consolidated in those years and to which Heidegger received with enthusiasm. For Immanuel Levinas, a Jewish who had to run away to escape the holocaust, Heideggerian philosophy does not confront *oneself* and the *other*, which is a matter of ethics. (Maldonado-Torres 2007; Restrepo and Rojas 2010, 159–60)

Nevertheless, the Brazilian people, especially women, indigenous people, quilombolas, black people, and poor people, is not involved in the activity of planning. Such people – the vast majority of Brazilians – are damned, facing death, and experiencing survival as existence. *Being* does not exist in the context of energy planning. The subjects are challenges for the success and stability of the energy business. 'The people' benefitting from energy planning are the *conquerors*, the rationalized subjects who exist because they think, because they are [self]endowed with the capacity to plan.

Maldonado-Torres then questions the 'being' of the *ego cogito* using the Dusselian approach, highlighting the Manichean scepticism in the Cartesian philosophy that places the colonized subject – 'the barbarian' – as the reference for the analysis of subjectivity and reason. This way, the author applies Dussel's conceptualization of the *ego conquiro* as a pre-condition of the very existence of the *ego cogito*.

> The barbarian was a racialized self, and what characterized this racialization was a radical questioning or permanent suspicion regarding the humanity of the self in question.
> (…)
> Unlike Descartes's methodical doubt, Manichean misanthropic skepticism is not skeptical about the existence of the world or the normative status of logics and mathematics. It is rather a form of questioning the very humanity of colonized peoples. The Cartesian idea about the division between *res cogitans* and *res extensa* (consciousness and matter) which translates itself into a divide between the mind and the body or between the human and nature is preceded and even, one has the temptation to say, to some extent built upon an anthropological colonial difference between the *ego conquistador* and the *ego conquistado* (Maldonado-Torres 2007, 245).

This way, for Maldonado-Torres, the *ego conquiro* means that the conquerors' actions were regulated by the ethics of war (or the non-ethics of war), which created a long-standing reality of *damnation*. The word *damned* makes reference to Fanon's *Wretched of the Earth* (Fanon 2001) to define the creation of the colonial subject as the defeated in the war of the conquest. Hence, Maldonado suggests that 'coloniality can be understood as a radicalization and naturalization of the non-ethics of war' (Maldonado-Torres 2007, 247). As pinpointed in the introduction (and developed further in Chapter 3) we named the ethics of the modern–colonial world-system the *ethics of exhaustion*, which adds to Maldonado-Torres' non-ethics of war the fact that it is not only about the damnation of the people but *also* includes, in the ideology of coloniality within the context of patriarchal relationships, the intention to exhaust the ecosystem, ancestry, and knowledges for the benefit of the project of Modernity, transforming the ethics of the war into a political–ideological way of being. The ethics of exhaustion is ontological, epistemological, ideological; it is affirmative of the intention to transfer energy from

living beings and the natural phenomena to empower those who mimic colonial power. This exhaustive character is clear in the Brazilian energy plans as discussed in Chapter 6.

The configuration of the colonial subject as the damned in the war is not only about killing and enslaving. It involves a particular treatment of sexuality that permeates the specific modus of exercise of power that informs the whole establishment of morality in the colonial society. As Maldonado-Torres informs, 'racialization works through gender and sex and that the *ego conquiro* is constitutively a phallic ego as well' (Maldonado-Torres 2007, 248).

> Coloniality is an order of things that put people of color under the murderous and rapist sight of a vigilant ego. And the primary targets of rape are women. But men of color are also seeing through these lenses. Men of color are feminized and become for the *ego conquiro* fundamentally penetrable subject.
> (…)
> Misanthropic skepticism posits its targets as racialized and sexualized subjects. Once vanquished, they are said to be inherently servants and their bodies come to form part of an economy of sexual abuse, exploitation, and control (Maldonado-Torres 2007, 248–49).

Hence, for Maldonado-Torres, coloniality of being must be understood in the light of the *ego conquiro*, in which 'being' is comprehended as philosophical deployment of Descartes *ego cogito*, which evades recognition of the *ego conquiro* in the consciousness of the European. It thus naturalizes the inhuman treatment of the colonized peoples. 'The Cartesian formulation privileges epistemology, which simultaneously hides both what could be regarded as the coloniality of knowledge (others do not think) and the coloniality of Being (others are not)' (Maldonado-Torres 2007, 252). In this sense, Maldonado-Torres establishes the difference of 'being' in Heidegger (ontological difference) – the being and beings, self and the other, delving into the studies of Immanuel Levinas and Franz Fanon on the fundamental ontological differences.

In Levinas, the ontological difference is elaborated in the sense of exteriority to being, what is beyond being, or trans-ontological difference. In this sense, the act of giving and receiving, the metaphysical exchange is what enables the communication between the self and the other, hence the trans-ontological relationship (Levinas 1999). For Levinas, the metaphysical act of giving, the trans-ontological, is the foundation of the ontological, the 'radical givingness and reception' (Maldonado-Torres 2007, 258). Hence, Levinas callenges the Cartesian rationality by framing the issue in terms of one-for-the-other relationships as fundamental to ontology and to "being". This would ultimately have an effect on responsibility and justice. In the Cartesian rationality, *being* presents itself as the *foundation of reality* when it is not.

What seems incomprehensible in a humanity of flesh and blood to the Cartesian conception - the animation of a body by thought, which is non sense according to the intelligibility of a system, in which animation is understood only in terms of union and dovetailing and requires a *deus ex machina* – outlines signification itself: the-one-for-the-other. In the subject it is precisely not an assembling, but an incessant alienation of the ego (isolated as inwardness) by the guest entrusted to it.

(…) When thematized, synchronized, the one of the-one-for-the-other would be betrayed, even if it showed itself with the stigmata of the betrayal and would then lend itself to reduction. What will show itself in a theme said is the unintelligibility of incarnation, the "I think" separated from extension, the cogito separated from the body. But this impossibility of being together is the trace of the diachrony of the-one-for-the-other. That is, it is the trace of separation in the form of inwardness, and of the for-the-other in the form of responsibility. Identity here takes form not by a self-confirmation, but, as a signification of the-one-for-the-other, by a deposing of oneself, a deposing which is the incarnation of the subject, or the very possibility of giving, of dealing signifyingness (italics in the original) (Levinas 1999, 79).

In this sense, in Levinas, ontology is the philosophy of power, and philosophical accounts that attempt to reduce the-one-for-the-other relation (the trans-ontological relation) to knowledge or being, reduce the significance of giving, hospitality, generosity, and justice (Maldonado-Torres 2007, 258).

In Fanon, elaborating on being as *being a colonial subject*, the ontological difference is the *ontological colonial difference* or *sub-ontological difference*, that is, 'the difference between *being* and what lies below *being* or that which is negatively marked as dispensable as well as a target of rape and murder' (Maldonado-Torres 2007, 254). The colonial subject is created by its damnation via the normalization and naturalization of the violence of war, in which bodies are at the service of the conquerors. Fanon states that the life of the colonized is a 'permanent struggle against the omnipresent death' that 'tends to make life something resembling an incomplete death' (Fanon 1965, 128). The condemnation of the colonized is then the denial and the invisibility of their very humanity. With Fanon, we perceive the persistent intention in the energy plans to make the [colonial] subject disappear from the analysis presented, whereas their bodies are at the service of the beneficiaries of energy expansion.

The constant state of war and the naturalization of the ethics of war is shaped by the imposition of gendered relationships. Joshua Goldstein, in *How Gender Shapes the War System and Vice-Versa* (2009), explains (from a masculine perspective) how the domination of women in wartime is constitutive of the conquest, making mandatory the analysis of three central features: 1) male sexuality as a cause of aggression; 2) the feminization of enemies as symbolic domination, and 3) dependence on exploiting

women's labour (Goldstein 2009). In this aspect, the colonized men are feminized, that is, made even lesser than human – *women* (Maldonado-Torres 2007, 248)[15].

Transposing this analysis to the present time economic orientation of energy planning, which is elaborated regardless of the existence of life, we observe the intrinsic and fundamental patriarchal character of the energy plans' exhaustive intention. Nature, nurture, families, children, balance, earth – these are feminine things, perceptions. On the other hand, construction enterprises, business management, transnational finance, economic language, privileging the economy to the detriment of life are masculine things, rational and stable. The idea that bodies and territories exist at the service of the energy business is part of the androcentric perception of the relationship between humans and nature. Genderization and racialization are part of the inferiorization of the colonial subject.

Although this perspective brings to light the specific treatment of women and the feminine as disposable (as the inferior being that can be raped), there is a problem in the identification of women that comes from the normalization and naturalization of the biological binary dichotomy, which is a western (intra-European) perception that is imposed in the colonies. Decolonial authors assume a binary gendered perspective which reveals the depth of common patriarchal elaborations. Male authors are comfortable analyzing classist and racist oppressions, but not so, the entrenched patriarchal lens in society that governs interaction and co-existence of different sections of society. Race and gender issues overlap in a way that blinds observers from seeing the two phenomena in a co-constitutive manner, forcing an analytical separation of gender and race; in turn, and since, additionally, male authors cannot see themselves as beneficiaries of this system of oppression, it prevents the observation of patriarchy as the most perverse and invisible oppression. We move forward to bring the perspective of decolonial feminists of color to the concept of coloniality of being.

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[15] (…) men of color represent a constant threat and any amount of authority, any visible trace of the phallus is multiplied in a symbolic hysteria that knows no limits Mythical depiction of the black man's penis is a case in point. The black man is depicted as an aggressive sexual beast who desires to rape women, particularly White. The black woman, in turn, is seeing as always already sexually available to the raping gaze of the white and as fundamentally promiscuous (Maldonado-Torres 2007, 248).

Coloniality of Gender

In the gendered colonization, Maria Lugones brings the perspective of the feminists of color, framing within the terminology of *coloniality of being* the necessary approach to gender. According to Lugones, despite the intersectionality between violent domination and exploitation, men do not place themselves with any kind of recognition in the complicity or collaboration that lends to the exercise of violent domination of women of color (Lugones 2008, 74). There is an epistemic comfort in masculine scholarship in denying or distancing *that patriarchy of the past* and the relationships of oppression of women in the present. It is easier to perceive and engage in the depth of such relationships of domination when *being* concerns race and/or inhumanity or subalternity. However, masculinity is also a way to ascend in power; it is power in itself, and this must be evident in the conceptualization of the colonial subject.

Therefore, Lugones makes a critique of Quijano's concept of coloniality of power since he understands that power is structured in relations of domination, exploitation, and conflict between social actors who dispute the control of 'the four basic areas of human existence: sex, work, collective authority and subjectivity/intersubjectivity, its resources and products' (Quijano 2000b). For Quijano, the struggle for the control of 'sexual access, its resources and products' define the scope of sex/gender as *organized by the axes of coloniality and Modernity*. Lugones denounces the limitations of such an analysis of the modern/colonial construction of gender, scrutinizing Quijanos's presuppositions, built behind the veil of patriarchy, affirming that 'Quijano has not become aware of his own acceptance of the hegemonic meaning of the gender*'* (Lugones 2008, 78):

> Quijano's gaze presupposes a patriarchal and heterosexual understanding of disputes over the control of sex and its resources and products. **Quijano accepts the capitalist, Eurocentric and global gender understanding**. The framework of analysis, as capitalist, Eurocentric and global, veils the ways in which colonized, non-white women were subordinated and deprived of power. The heterosexual and patriarchal character of social relations can be perceived as oppressive in unmasking the presuppositions of this analytical framework (emphasis added in bold) (Lugones 2008, 78).

The hegemonic meaning of gender comprises the biological dimorphism – man/woman dichotomy and the patriarchal/heterosexual organization of social relations that is fundamental to the analysis of the colonial subject – racialized within gendered hegemonies. The spectrum of coloniality of power is broader than the creation of races (as a biological fiction) that globally hierarchize social relations. It is more comprehensive than the Eurocentric theories of social classes and must include, beyond

the racialized elaboration of power, control of sexual access, collective authority, work, and subjectivity/intersubjectivity, and the production of knowledge from the inside of these intersubjective relationships (Lugones 2008, 79).

A central element of the gendered/racialized domination is in the capitalist division of labour. As Quijano explains, capitalism refers to the structural articulation of all historically known forms of control of labour or exploitation, slavery, serfdom, petty commodity production, wage labour, and reciprocity under the hegemony of the capital–wage relationship (Quijano 2000a). Lugones points out that such a structure of the hegemonic model is discontinuous, since not all labour relations under Eurocentric and global capitalism fit into the model of capital/salary relationship (Lugones 2008, 80). The decolonial critique that draws from the elaboration on coloniality of power (and its spheres of domination, *being* and *knowledge*) enables a complex comprehension of labour relationships from gendered/racial and geopolitical hierarchizations. Such hierarchizations, however, cannot be perceived separately, but must be seen from an intersectional perspective in order to make visible the complexity in the victimization of women of color. As Lugones argues evoking the conceptual dimension of the feminists of color,

> [a]lthough in the Eurocentric capitalist modernity, we are all racialized and assigned to a gender, not all of us are dominated or victimized by this process. The process is binary, dichotomous and hierarchical. Kimberlé Crenshaw and other feminist colored women have argued that the categories have been understood as homogeneous and that they select the dominant, in the group, as their norm; therefore, "woman" selects heterosexual white bourgeois females as a norm, "man" selects heterosexual white bourgeois males, "black" selects black heterosexual males, and so on. Then, it becomes logically clear that the categorical separation logic distorts the beings and social phenomena that exist at the intersection, such as violence against women of color. Given the construction of the categories, the intersection mistakenly interprets women of color (Lugones 2008, 82).

The dynamics of indigenous societies takes place from other perceptions of 'gendered' relationships that compose intersubjectivity. The binary identification of man/woman is relative, and social roles are determined according to spiritual and metaphysical perceptions. For Oyéronké Oyewùmi, 'gender was not an organizing principle of the Yoruba society before western colonization' (Oyěwùmí 1997, 30). The genderization of the Yoruba society is an example of western domination since the 'investigators always find gender when they search for it' (Oyěwùmí 1997, 31). According to Lugones, 'Oyewùmi notes that the introduction of the Western gender system was accepted by the Yoruba males, who thus became accomplices, conspired with

the inferiorization of the female'[16]. Therefore, thinking of the indifference of non-white men to violence against non-white women enables the understanding of some of what happens through the collaboration between non-white male and western colonizers against the females of colour (Lugones 2008, 88).

We have to constantly bear in mind that coloniality is also about mimicking the colonial power as a means to access power, which is also repeated by poor and/or colored men. The present form of energy use perpetuates violence against women, placing colored women in the most vulnerable situation in facing such violence. Patriarchy is a system that discredits women from fighting for their own land. For women of color, in addition to the denial or hindering of institutional access to the protection of fundamental rights and dignity, they must still escape violence from their own husbands, companions, employers, authorities, and others in power. In many situations of the struggle against the violence of energy enterprises, for example, women must be represented by men, facing patriarchal violence in several collateral aspects. In the energy issue, this has to do with the difficulty for women of color to get employment in energy enterprises or in positions of planning; with the dangers they face in the forefront of the struggle for land while raising children, surviving poverty, and police violence, as well as suffering mental health problems specifically caused by the condition of being colored women. As a strategy of struggle and survival, they must preserve the unity of feminist anti-racist movements, which is a challenge in itself.

Paula Gunn Allen researched gynocratic indigenous societies (societies led by women) and their spiritual, political, economic, and sexual organizations (Allen 1992). In Lugones' analysis, Oyewùmi and Allen are interested in the collaboration between indigenous men and white men to weaken the power of women, framing the reflection on the indifference to the struggles of women against multiple forms of violence against them and against their own racialized and subordinated communities. 'The white colonizer built an internal force in the tribes co-opting the colonized men to occupy patriarchal roles' (Lugones 2008, 90).

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[16] Oyewùmi explains that 'the usual gloss of the categories Yoruba *obinrin* and *okunrin* as "woman/female" and "man/male", respectively, is a mistranslation. These categories do not oppose in binary form nor are they related by means of a hierarchy' (Oyĕwùmí 1997, 32–33). Lugones complements explaining that 'the prefixes *obin* and *okun* specify an anatomical variation that Oyewùmi translates as pointing to the male and female in the anatomical sense, abbreviating them as *anamale and anafemale*. It is important to note that you do not understand these categories as binary opposite' (Lugones 2008, 87).

The creation and imposition of gender is the determinant for the comprehension of the colonial subject and for decolonization. This happens though the problematization of biological dimorphism and its implications in the modern–colonial world-system (or as Lugones says, the colonial/modern gender system).

> The reduction of gender to the private, to control over sex and its resources and products **is an ideological question presented ideologically as biological**, part of the cognitive production of modernity, which has conceptualized race as 'gendered' and gender as racialized in particularly differentiated ways between the European/whites and the colonized/non-white people. **Race is neither more mythical nor more fictional than gender – both are powerful fictions** (emphasis added in bold) (Lugones 2008, 94).

Within such intersectionality in the formation of the colonial subject, the existence of women of colour is marked by allocating them to the female gender, but denying them the characteristics of femininity and treating them in a manner different from the way white bourgeois women are treated. Although both white and coloured women were considered 'animals' at the service of men, white women were identified with nature, children, and with small animals[17], whereas coloured women had no humanity at all (Lugones 2008, 94). Hence the difference between the feminist struggles of white bourgeois women and coloured women as well as the importance of the recognition of the rhetoric and the praxis from women of colour in decolonizing *being*. This has been intensively discussed in social and political movements of the present, stressing the relevance of coloured women in political representation and participation. Silencing the intersectionality of gendered, racial, and classist social allocations results in the women of colour being allocated the lowest place in the social hierarchizations of the modern–colonial world-system. Such silencing is a political–ideological project (Ribeiro 2018) with devastating consequences[18].

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[17] As Lugones explains, '[i]t is important to distinguish between what it means to be thought of as if there were no gender by virtue of which one is an animal, and what implies not having, even conceptually, any gender distinction. That is, having a gender is not a characteristic of the human being for all people' (Lugones 2008, 94).

[18] An example of such a silencing is the assassination of the councilwoman Marielle Franco in Brazil, on the 14th March 2018. Black, lesbian, human rights activist, Marielle represented the unfolding of the visibility of black women's struggles (echoing in all the oppressed struggles) in Brazil. Marielle Franco was murdered by paramilitary organizations that had pillaged land in slums in Rio de Janeiro and whose crimes were being investigated and constantly denounced by Marielle. Hence the importance of the struggle of politicians that pierce the overlapping spheres of coloniality of power. The relevance of the assassination of Marielle resides in the fact that her cause was disturbing the beneficiaries of a system of oppressions, similar to the struggles of indigenous people, quilombolas, and rural women for the right to land and against the forced eviction for the instalment of energy enterprises. These are causes that cannot be silenced. Marielle Franco's voice cannot be silenced. Marielle, Presente! *See* Ramalho 2019.

Coloniality of Being: Racial and Gendered Oppressions

Coloniality of being is then the pattern of power of the modern–colonial world-system that naturalizes systemic oppressions related to the subjectivity and intersubjectivity of persons, transformed into colonial subjects by the imposition of gendered and racial hierarchizations. Energy planning in Brazil is grounded in such systemic oppressions, in which condition of the victims is denied and life is disregarded when contemplating energy futures, whereas life should be the central in the activity of planning.

Such oppressions are persistent and cumulative, mainly suffered by women of colour, and result in structural impediments to altering the condition of victim. This means that by mimicking coloniality of power, the victim in the modern–colonial world-system may be able to ascend to another social class, but will be incapable of changing the inner ontological condition of being, incurring the oppressive cycle of repeating oppressions against similar others, reiterating the ideology of the colonial power. One cannot be simplistic and think that it is just a matter of resistance, since the burden of liberation is necessarily a social burden, the reason why elements of coloniality cannot be analyzed from a single perspective. As Fanon writes in *Black Skin White Masks,*

> In other words, the black man should no longer be confronted by the dilemma, turn white or disappear; but he should be able to take cognizance of a possibility of existence. In still other words, if society makes difficulties for him because of his color, if in his dreams I establish the repression of an unconscious desire to change color, my objective will not be that of dissuading him from it by advising him to 'keep his place': on the contrary, my objective, once his motivations have been brought into consciousness, will be to put-him in a position to *choose* action, (or passivity) with respect to the real source of the conflict – that is, toward the social structures (Fanon 2008, 100).

Hence, the structural problematic demands understanding the structures. The denial of the multilateral and collateral violence that accompanies ascending in the social hierarchy through financial or intellectual capacity pulls the *being* back into the wheel of oppressions. Accumulation of capital – profit – is a trap because it generates death, it increases social disparity and poverty. The Brazilian Energy Expansion Plans, by having economic growth as the ultimate goal of energy planning, perpetuate the sorry condition of the victims, forcing them to work for the system that oppresses them, while suffering the consequences of the violence of their own sustenance.

Intellectual development is even more of a trap: to think that accumulating titles of western oriented knowledge, it is possible that one can perceive the world in a critical manner and subvert patterns of oppression. However, institutional knowledge – the one

that enables a the colonial subject to obtain a *better job* – is, in its very formation, a strong apparatus to reinforce Eurocentric standards and perceptions; is imposed against non-Eurocentric ways and recognitions; is universal; justifies, endowed by its self-legitimacy, the violent functioning of legal and political institutions; and protects the accumulation of wealth through complex theories that justify the subsuming of a people/territory to the will of the conqueror. This is the reason why there is a severe epistemological problem with energy planning in Brazil: non-Eurocentric knowledge is not efficient, does not dialogue with the standard models of capital accumulation, and does not intend to please the colonizer. Knowledges that aims for abundance and balanced ways of living are not welcome in the energy business.

In the twenty-first century, the conqueror is the self-made man (who can be a woman or no-binary person, who mimics coloniality of power to be able to survive in financial capitalism) who has acquired institutional legitimacy to oppress. We move now to the discussion of how knowledge is an oppressive weapon and how, by manufacturing unchallengeable consent built on scientific research, colonial knowledge determines who deserves to benefit from the modern–colonial world-system. Colonial knowledge, disguised in the aim of a universal good, cynically oppresses while affirming the ability to tackle all forms of understanding in the world.

Coloniality of Knowledge

> The implications for non-Western societies and for subaltern and excluded subjects around the world would be quite different if colonialism, imperialism, racism, and sexism were thought of not as regretful by-products of modern Europe, but as part of the conditions that made the modern West possible (Lander 2000, 525).

Decolonizing knowledge is the heart of this doctoral thesis. To propose *Decolonial Epistemologies for Energy Planning in Brazil* is to affirm that the knowledge about energy planning in Brazil is colonial, therefore violent, reinforcing and perpetuating the overlapping spheres of coloniality of power. Knowledge is geopolitical. In Brazil, knowledge institutions are forged by the imposition of Eurocentric standards via the annihilation of all non-Eurocentric symbols, knowledges, philosophies, and technologies. All the social and economic phenomena in Brazil are observed with Eurocentric lenses, in order to mimic colonial power.

In the modern–colonial world-system, knowledge is hierarchically determined by the structure of power that legitimizes it, privileging certain types of knowledge over

others, according to its place of annunciation and its political–economic interest. It is also the concealment of the subject who [speaks] produces knowledge, giving the false idea that any scientific production is made in an impartial way, delocalized, entailing its application *erga omnes.* If the subject who produces knowledge is hidden, it is perceived as 'neutral', suggesting that the person behind the science is neither a man, nor a woman, nor a non-binary individual; is neither black nor white nor indigenous; is neither German nor Malawian nor North American, nor Indian; is neither wealthy nor poor; is neither from a rural area nor from an urban area; and it does not matter how this person had access to institutional knowledge production. It is the researcher/author/writer/scientist analyzing a distant object.

The standpoint from which to understand coloniality of knowledge is Eurocentrism. Restrepo explains that, for the configuration of Eurocentrism, it is interesting to combine ethnocentrism and sociocentrism. Ethnocentrism refers to the perception of other ways of life and conceptions from one's own cultural formation; and the conviction that one's own cultural formation is intrinsically superior to those of other cultural formations. Anthropologists have shown widespread ethnocentrism among the most varied cultural formations; some groups even refer to themselves as 'humans' and others as not human. Sociocentrism considers the customs and ideologies of different social sectors unfortunate or in bad taste and, therefore, disqualifies and rejects them. In ethnocentrism and sociocentrism, then, both cultural and social differences are considered inferior. (Restrepo and Rojas 2010, 135).

Eurocentrism is the naturalization of a universal paradigm of the centralization of Eurocentric historical facts, culture, politics, institutionalization, aesthetics, and all forms of existence. The imposition of modern philosophy and the sciences had the pretence of universality, overriding all forms of knowledge production that would not apply the Eurocentric standards. As Mignolo explains,

> Eurocentrism only arises when the particular history of Europe (and, in the second half of the twentieth century, that of the United States) and the subjective concomitant order are promoted and imposed as a universal model, and colonial subjects accept them in their adhesion to a model to be what they are not. The coloniality of being operates by conversion (to the ideals of Christianity, of civilization and progress, of modernization and development, of Western democracy and the market) or by adaptation and assimilation (as seen in the desire of the elites of the colonies to embrace the designs and imperial values that have led to the colonial subjective formation) (Mignolo 2012).

Considering that the non-European is inhuman (or a colonial subject), only European men could have the capacity of producing knowledge. In the colonies, as any

trace of ancestry and knowledge was destroyed, the history became the history of the future, now told by European men. For the colonized peoples to be able to produce legitimate knowledge (that is, according to Eurocentric standards), they should belong to the colonial elite to be accepted in the social circuit of knowledge production. This would happen only by mimicking the colonial power and by using the conditions available to become capable of producing knowledge. For Grosfoguel, Eurocentrism is a fundamentalism that does not tolerate or accept the possibility that there are other epistemes or that non-Europeans can think (Grosfoguel 2007, 210).

As mentioned previously, coloniality of knowledge is the epistemic dimension of coloniality of power. According to Catherine Walsh, 'coloniality of knowledge not only established Eurocentrism as a unique perspective of knowledge, but at the same time, completely discarded indigenous and Afro intellectual production as "knowledge" and, consequently, [discarded] their intellectual capacity' (Walsh 2007a, 104). It is about the epistemic arrogance of Eurocentric knowledge. Santiago Castro-Gómez called the Eurocentric epistemic arrogance *La Hybris Del Punto Cero* (The Hybris of the Point Zero) (Castro-Gómez 2005a). Castro-Gómez informs that:

> [The hybris of the point zero refers to] geopolitical constructions that, as such, appear ordered according to extra-scientific imperatives. Europe – as had already happened with the T/O map of Isidoro de Sevilla – continues to act as a producer and distributor of culture, while Asia, Africa and America are considered as 'reception' places. This continental and geopolitical separation of the world will be, as we shall see, the epistemological basis on which the anthropological, social, and evolutionist theories of the Enlightenment will rise.
> (…)
> In this way, by denying their own material conditions of possibility, **the 'hybris of the point zero' legitimizes an ideological separation between the economic universe (from which the observer can calmly 'be abstracted', because he had it already guaranteed) and the universe of symbolic production (which is the "real" world, which must be conquered by means of genius and intelligence)** (emphasis added in bold) (Castro-Gómez 2005a, 60).

Knowledge production in the colonized world is then marked by the *hybris* of the original legitimate knowledge, the dominant geopolitics of knowledge. All knowledge produced in the modern–colonial world-system has, at some level, Eurocentric influence. This is a constitutive part of the colonies' institutional formation. The implementation of educational institutions in the colonies necessarily mimics the colonial power, once non-Eurocentric knowledge is not valid/legitimate knowledge. This way, in order to produce knowledge that 'dialogues' with the colonizer, with Europe, with the hegemonic powers, the colonized must fit into the 'scheme', or not be heard at all. Education was necessary to understand the novel bureaucratic and legal systems installed in the colonies. Such systems were intra-European, since the ontology and subjectivity of the colonized were

annihilated for the establishment of the colonizer's institutions. Hence, critical and hegemonic institutional knowledge in the colonies shared the same locus of annunciation: Eurocentric philosophy and sciences.

Therefore, many academically recognized Latin American critical thinkers and theorists (even anti-colonial ones) also reproduced Eurocentric theoretical and ideological frames. The critique of critical thinkers in the colonized world must be delicate to avoid 'friendly fire'. Decolonizing knowledge is also about bringing the constitutive lines of the present into critical decolonial thought. Finding the problematic Eurocentrism in those constitutive lines is necessary for the epistemic decolonial turn. The problematic is not the geographical allocation of the production of knowledge, but mainly its geopolitical and subjective character. This is the case of the Peruvian philosopher Jose Carlos Mariátegui, for example.

The works of José Carlos Mariátegui are important contributions to the study of social change in Latin America. His *Seven Essays on the Interpretation of the Peruvian Reality* (Siete Ensayos de Intepretación de la Realidad Peruana) (Mariátegui 2007), first published in 1933, consisted of a deep critique of the establishments of political economy in Peru; it interconnected the elements of class, (indigenous) race, politics, land, religion, and knowledge to apply Marxian theory from the perspective of the new Peruvian republic to analyze the structure of the colonial and imperial times prior to its independence from Spain. Following the Marxian comprehension of historical developments and the constitution of the society in Peru, Mariátegui perceived the division of land and labour relationships in the colony as feudal in character and the difficulties of developing an advanced capitalism as a result of the inheritance of the decadent Spanish economy and its precarious capitalism when compared to that of England and North America.

Mariátegui's Seven Essays draw the mismatch of institutions of power legitimating and reinforcing oppressions, from the division of land to the enactment of laws, highlighting that the separation of class was also separation of race, the imposition of religion, and the suppression of the self-recognition of indigenous people in society. Studying Mariátegui is definitely enlightening for the comprehensive analysis of the present energy systems in Brazil, where the oligarchs and the bourgeois form the economic, political, and intellectual classes that create the violent character of energy systems and condone the violent character of energy planning.

Mariátegui denounces the inheritance from the colonial power of a system of privileges that frames not only formal institutions but the definition of life as a whole. In the fourth and seventh essays, 'The Public Education Process' and 'The Literature Process', the author lists the problem of independent education and literature, respectively, as the emancipatory potential of knowledge that, in the system of hierarchies and privileges, becomes the opposite force to an emancipatory force (Mariátegui 1988, 86–133; 191-).

Nevertheless, as Dussel argues, feudalism is an intra-European phenomenon. There was no feudalism in Latin America; since the European invasion of the Americas feudalism is already a constitutive element of Modernity (Quijano 2007a), which Dussel called *first Modernity* (Dussel 1994; Dussel, Krauel, and Tuma 2000). In this sense, primitive accumulation of capital (mercantile capitalism) enables the *second Modernity* (the enlightenment and so on). In other words, the colonial enterprises, as Modern phenomena (ideologically, politically, and economically), do not reproduce feudal relationships in the colonies. In the Americas, the division and ownership of land takes place in a completely different manner than in feudal Europe[19]. It is important to perceive the relationship between the exploitation of natural resources and the transnational monopoly finance, which shapes the present energy systems in Brazil. Transnational capitalism is the determinant for the configuration of the Brazilian nation-state, grounded in the production of commodities for export. This is crucially a Modern phenomenon.

In recognition of this system of privileges, Mariátegui points out the features of the *gamonale* and the *capitalist bourgeoisie*; the former refers to the landowner, patriarch, oligarch, exercising power through the exploitation of his latifundio using a slave

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[19] The distribution of titles of land ownership – *sesmarias* – was made following the domination of the territories. Every institutional apparatus is set in place *after* the conquer (including the wars against indigenous peoples). According to José Murilo de Carvalho (1997), there is a correlation between clientelism, coronelism (caciquismo), and mandonismo (the specific phenomena of the relationship between political and economic power in Brazil) and patrimonialism and feudalism, but the crucial differences lie in the subordination of landowners to a very powerful state. This is not the case in Brazil or in the other colonies in Latin America. 'Insisting on the weakness of the rural lordship before the State and from there deducing the existence of a representative state of the same lord seems in fact somewhat strange' (Carvalho 1997). 'The important thing in the whole debate is not to discuss whether there was or there is domination. No one denies this. The problem is to detect the nature of domination. It makes a huge difference whether it comes from a movement centered on the dynamics of class conflict generated in the market society that emerged from the transformation of feudalism into modern industrial society, via contractualism, representation of interests, political parties, political liberalism; or whether it is based on the slow expansion of state power that gradually penetrates society and encompasses classes through patrimonialism, patronage, coronelism, populism, corporatism. It is this difference that makes Brazil and Latin America not the United States or Europe, which are the Other West, in the happy expression of José G. Merquior.' (Carvalho 1997).

workforce for large scale export; the latter refers to the merchant class, as the core of imperialist capitalism that becomes the economic system after the Peruvian independence (Mariátegui 1988, 17–19). The capitalist bourgeoisie and the gamonales had, at the same time, convergent and conflicting interests. On the one hand, the elimination of oligarchic privileges was necessary for the implementation of liberal markets. On the other hand, the entry and consolidation of a class of capital demanded an alliance with the landowners, because they had power in the current political structure and the monopoly of capital from the slave-owning exploitation of the land and natural resources. This topic is analyzed in the Brazilian context in Chapter 6 to tie the historical construction of Brazilian administrative institutions to the context of energy planning in the present.

The transition from (what Mariátegui calls) a 'feudal' to a 'liberal' economy in Peru is achieved by the meeting of imperialist and monopolistic interests of national elites focused on international trade, especially with North America and Europe. Hence, for Mariátegui, the *gamonale* 'becomes' the capitalist, merging the current power configuration with the interests of imperial capitalism, holding the best positions in trade, political, military, juridical, religious, and academic institutions. Capitalism in Peru took root through the protagonism of such elites, who maintained the whole set of inequalities and their legitimations via capital and political power. The figure of the *gamonale* reflects the colonial system and is perennial, being very representative of the Latin American elites in the present times.

The importance of revisiting Mariátegui for the study of social change in Latin America is highlighted by Anibal Quijano in the prologue of the 2007 edition of the Seven Essays:

> (...) What does it mean to reflect on Mariátegui today? In the Peruvian sphere, it is above all the irrefutable testimony of the reunion, each day deeper, after several decades, between the revolutionary movement of a proletariat that advances to the conquest of its political maturity and the direction of the struggles of the other exploited Peruvians, and the memory of the man to whom we owe the central contribution to the birth of his first trade union organizations and national policies, and the still fruitful matrix of a revolutionary theory and strategic orientation in Peruvian society (Mariátegui 2007, IX).

Quijano highlights the need to realize the contribution of non-European revolutionaries to the development of Marxian thought, beyond the Eurocentric barriers that constrained Marxian occidental thought, illustrating that the 'most intense and decisive revolutionary struggles happened in scenarios distant from Europe' (Mariátegui 2007, X), in which '(...) [t]riumphant or defeated, these have revealed in Asia, Africa and Latin America, a new territory of revolutionary thought (...)' (Mariátegui 2007, X). This

way, Mariátegui brings to light the debate regarding the relationships between materiality and intersubjectivity of social relations and historical relations between the ways of production (Mariátegui 2007, CXVII).

Notwithstanding, there are many problems with Mariátegui's approach. The obsession with explaining Peruvian history as a feudal history forces the interpretation of the class struggle critique in intra-European frames. As Catherine Walsh points out,

> For Mariátegui, the central concerns in Latin America were the struggles of nationhood, culture, and class, understood from the frame of Marxism, applied and thought from the particularity of the Andes. The attention Mariátegui gave to the plight of the peasantry afforded a visibility previously negated. Yet, by elevating the struggles of class over race, converting indigenous peoples to campesinos or peasants, and denouncing blacks as barbarians with nothing to contribute to these struggles, Mariátegui not only reproduced Marxism's racial blindness but also the racist sentiments propagated by many key European thinkers, most notably Kant and Hegel[20] (Walsh 2007b, 224).

Obviously, the matter discussed here is not to debate with Mariátegui or discount his critical contribution[21]. The core problematic is to challenge 'its centeredness in western paradigms, frameworks, and theory' (Walsh 2007b, 225) and bring to light the unspoken element of such frameworks: coloniality. The unfolding of decolonial epistemologies must be made from the perspective of the colonial difference, that is, *pensamiento próprio*, 'own thinking'. As mentioned previously, it does not imply isolation of indigenous cultures, experiences, and perspectives from other epistemic traditions, but seeks the development of a 'political conscience' (Martínez 2005). For Walsh,

> The 'political conscience' here is not the same as that conceived by Marxism or by Eurocentric critical thought. Instead it is a consciousness whose roots derive from the lived experience of colonial histories and millenary struggles to confront the social, political, epistemic, racialized, and existential effects of these histories. It is what the Afro-Ecuadorian intellectual Juan García refers to as the building of a collective sense of belonging, an **unlearning** of what the dominant society has inculcated and a **relearning of past and present ancestral knowledge**, a focus on the

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[20] Walsh refers to Mariátegui's *El Problema de las Razas en América Latina* (The Problem of Race in Latin America), in which the author makes innumerous racist statements, such as: '[t]he contribution of the negro that arrived as a slave seems less valuable and negative [in comparison to the indigenous]. The negro brought with him his sensuality, superstition, and primitive nature. He is not in conditions to contribute to any culture, but rather threatens to obstruct culture through the crude and living influence of his barbarianism' (Mariátegui 1995).

[21] There is tremendous relevance of Marxist authors in theorizing and politicizing class struggle in Latin America. Mariátegui writes in the late 1920s and the 1930s, the period in which Marxist/Leninist theories and the Second International crucially influenced the unionization of rural and urban workers in Brazil, especially the *luta campesina* and the miners' movements (like the Morro Velho Mine Union, among others). This way, beyond the theoretical contribution, Marxist writers like Mariátegui, as well as South American communist movements, influenced political organizations to fight for worker's rights and for the right to land. These movements sowed the seeds for important organizations of the anti-dam movement in Brazil, such as the Pastoral Committee for the Land (Comissão Pastoral da Terra) in 1971. Likewise, the Theology of Liberation, which was inspired by catholic organization spawned the MAB and the Movement of Peoples Affected by Dams (Movimento dos Atingidos por Barragens) in 1991.

social, political, and epistemic work that needs to be done within (emphasis added in bold) (Walsh 2007b, 231).

Decolonizing knowledge means to bring in 'other' critical thought from the ongoing struggles – epistemic and political. 'Such shift is important for what it helps reveal, including the subjects left out or marginalized by much of critical theory and their socio–political and epistemic agency, but also the association between thought and social and political intervention' (Walsh 2007b, 232).

Colonialities of power, being, and knowledge are co-constitutive and interconnected, configuring subjectivities and power relationships in the modern–colonial world-system. Bringing in the element of coloniality as central to the historical creation of victims uncovers the genealogy of the oppression. It means no longer perpetuating the oppressor's understanding of economic and political relationships, the annulment or invisibility of gendered and racial dominations, and the fostering of violent epistemologies.

Conclusion

In this chapter we focused on acknowledging the existence of victims in the modern–colonial world-system's configuration of power in order to challenge the colonial epistemologies for energy planning in Brazil. Coloniality of power is the ideology of the modern–colonial world-system, which naturalizes economic and political oppressions, patriarchal and racist social organizations, and hegemonic knowledges.

We set theoretical grounds for the understanding of the concept of coloniality as the ideology of power that via historical hierarchization of territories, persons, and knowledge, imposes a mimicry of the colonial system's violence as a means to access power. This ideology takes place via capitalist, racist, patriarchal, and militarized violence, setting up economic and political systems, social relations, and relationships with the ecosystems. The elements of coloniality of power were highlighted in the light of the Brazilian DEEP 2015–2024 with reference to: 1) **coloniality of power** itself, that is, the Brazilian historical and geopolitical dependence on the exploitation of natural resources for export; 2) **coloniality of being**, in which peoples are hierarchized according to gender, race, and class and exposed to vulnerabilities created by the exploitation of energy inputs by ethnic cleansing and/or non-inclusion of the populations' demands and culture in the activity of planning, and by siphoning the profits from energy exploitation

to the wealthy business owners and (international) investors; 3) **coloniality of knowledge,** in which the definition of energy and energy futures are narrowed to Eurocentric epistemologies that legitimate the imposition of agendas that ensure positions of economic and political power.

Challenging the violence of energy planning in Brazil involves all those aspects. First, it is necessary to challenge the ethics of accepting the exhaustion of bodies, ecosystems, and knowledges. Second, it is necessary to challenge the specific oppressions: patriarchy, racism, epistemic violence, subalternity, and the developmental agenda. Third, it is necessary to apply the theoretical elaborations in order to design a decolonial plan, spelling out the type of energy planning that, instead of causing exhaustion, brings abundance. The naturalization of oppressions is part of an ethical system that exists due to the imposition of places of subalternity, which we called *ethics of exhaustion*, and which is detailed in Chapter 4. The modern–colonial world-system's ethics of exhaustion must be epistemically challenged to transform subjectivities, social relations, and political organizations in order to include the point of view of the victims of a system of oppressions in planning for the future. We proceed to the theoretical elaborations to define decolonial epistemologies and, thereafter, the ethics of exhaustion.

Chapter 3: The Epistemic Decolonial Turn on Energy Planning

What Does *Decolonial* Mean?

Decolonial approaches and practices are concerned with challenging colonialities entrenched in the ways of existing with our bodies in territories, with the ways of knowing from inside or outside institutions of knowledge, and with the ways of establishing political and economic relations in society. Applying decolonial methodologies (Smith 2013) and epistemologies (Grosfoguel 2007; Walsh 2007b) enables the perception of a vast range of possibilities to discuss the social and environmental catastrophes of present times that cannot be perceived using the Eurocentric lens imposed on institutions of knowledge.

Throwing Away the Master's Tools and Dismantling the Master's House[22]

Epistemology is a branch of philosophy concerned with the foundations of knowledge. The way knowledge is historically and geopolitically established defines its application in the material (practical/praxis) world. Thus, the way energy is known in the realm of ideas or a given approach to the concept of energy (the idea of energy) will define the methodology for its attainment in the material world. The activity of energy planning is, hence, a consequence of the epistemological approach to the subject. The activity of energy planning involves the methodology for obtaining and distributing energy as well as the specific procedures or techniques used to identify, select, process, and analyze information about energy – the information used in planning for energy.

To illustrate the need for epistemological challenges, let us didactically borrow a metaphor from the legal doctrine of the *fruits of the poisonous tree*[23], which says that if the original seed contains a poison, there will be poison in the final product produced by the tree, that is, the fruit. Hence, if the concept of energy is corrupted, planning for it will yield a vicious product. If energy is conceived of, as imposed by colonial [violent] epistemologies, as the spine of industrial–financial capitalism, planning for it will be a

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[22] Reference to Audre Lorde's text *The Master's Tools Will Never Dismantle the Master's House*, first published in 1979.
[23] *Fruit of the poisonous tree* is a legal metaphor used mainly in criminal law to describe evidence that is obtained illegally.

set of practices to underpin, reinforce, and enhance industrial–financial capitalism with the violence entrenched in it. On the other hand, if energy is conceived and perceived from a decolonial perspective, as a need of all the peoples respecting the limitations of persons, living beings, and the planet, its planning will be a set of practices for the benefit of all the persons, living beings, and the planet. Although this is a simple argument, to epistemologically challenge the understanding of energy (or, in other words, to decolonize the comprehension of energy) is a complex task, demanding a scrutiny of its philosophical, historical, political, territorial, ecological, and economic meanings.

The present understanding of energy interferes with the whole collective of people, living beings, natural resources, and natural phenomena on the planet. Our earth is a complex interconnected system (Shiva 2016; 2010; 2001). Modern forms of energy inputs are the results of 'human' interventions in the planet over the last 500 years (Bellamy and Diamanti 2018) – the Modern/Eurocentric/colonial interventions (Mignolo 2016). Independent of the character of such interventions in the ecological systems, whether they are 'sustainable'[24] or not, it is possible to assert that humans have been intervening in the planet's ecology to obtain energy inputs.

To discuss energy planning in this thesis, we start by discussing the meaning of energy in the present – the epistemological discussion – to understand the relationship between the epistemology of energy and the production and reproduction of human life. This reasoning leads to the primordial issue of discussing the meaning of energy: its ethics. The production and reproduction of life is the content of ethics, the material aspect of ethics. The content of ethics gains intersubjective validation through formal social outcomes, like norms and institutions. The intersubjective validation must aim to fulfil the content of ethics, that is, must make the production and reproduction of life feasible. This way, the discussion about the epistemology of energy – the way energy is historically and geopolitically defined in the present – is useful whether the epistemology of energy in the present supports the production and reproduction of life or not. Accordingly, understanding the ethics of energy is essential to the discussion of energy planning.

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[24] The idea of sustainability is dealt with later in Chapters 5 and 6 (section *The DEEP's Premises*). Roughly, it is argued that there is no sustainable way to use natural resources in the current ways of production. While there is industrial production for profit, it is not sustainable. The idea and acceptance of surplus value as a mandatory feature of capitalist relationships cannot coexist with a sustainable human intervention in the planet. Profit is gained by the expenditure of energy without exchange and balance, a single pathway of donation without reward, with the exclusive purpose of accumulation of capital.

The epistemological critique of energy is illuminated by the theoretical elaborations on the coloniality of power. The relationships of power over the economic, political, institutional, and intersubjective social dynamics is fundamental to the epistemological discussions. Coloniality must be challenged in the spheres of power, being, and knowledge, the reason why the epistemological critique that is proposed here is decolonial. The decolonial epistemological critique enables questioning the ethical validity and acceptability of the modern–colonial world-system's epistemology of energy in meeting the ethical criteria.

To expatiate on the modern–colonial world-system's ethics, as dealt with in Chapter 4, the *ethics of exhaustion*, let us delineate the decolonial epistemological perspective. It aims to contrapose the Eurocentric definitions of the global legitimate knowledge and the global geopolitics of power by focusing on the analysis of accumulation of capital as the central feature of the European colonial expansion. In the Eurocentric understanding of the world's political economy, class analysis and economic structural transformations are privileged over other power relations. Attacking the energy problem exclusively as a consequence of economic relations, leading to social and environmental catastrophes, misreads the dimension of the problem, blurring the visualisation of any other perspective outside the Eurocentric/Modern frameworks.

The epistemological critique proposed here must be from outside the modern–colonial impositions on knowledge, as discussed earlier on the issue of coloniality of knowledge. Such impositions dictate Eurocentric perspectives or, as described by the Puerto Rican philosopher Ramon Grosfoguel, fundamentalisms. 'What all fundamentalisms share … is the premise that there is only one sole epistemic tradition from which to achieve Truth and Universality' (Grosfoguel 2007, 212). The *epistemic decolonial turn* is the unlocking of other ways of knowing – epistemologies other than the fundamentalist ones (Grosfoguel 2007).

The critique of Eurocentrism cannot be made from within Eurocentric establishments, whether postmodern, poststructuralist, or postcolonial perspectives (Dussel 2013, 55–107). Eurocentric establishments are grounded in the theoretical developments that reduce subaltern studies to technique, genealogy, subaltern consciousness, and agency, as Ilena Rodriguez argues in the Latin American Subaltern Studies Reader (Rodriguez 2001). Rodriguez makes reference to Florencia Mallon's critique (Mallon 1994) that subaltern works 'keep trying to ride the *four horses of the apocalypse*', namely Derrida, Foucault, Gramsci, and Guha:

(…) Have we, as [Mallon] argues, reduced subaltern studies to 'half of its complexity: the methods and techniques of postmodernism' (1504)? In other words, has our political project been buried beneath our postmodern vocabulary? Are we really capable of 'marshalling semiotics and postmodern techniques for emancipatory purposes' (1498)? Can we combine the 'politically positive liberating potential of subaltern histories' (1498) with poststructuralism and deconstruction? Are we capable of maintaining 'the irresolvable tension… between technique and political commitment, between a more narrowly postmodern literary interest in documents as "constructed texts" and historians' disciplinary interests in reading documents as "windows", however foggy and imperfect, on people's lives' (1506)? (…) (Rodriguez 2001, 4).

Rodrigues herself answers such questions objectively: no. With due respect and consideration to the works of the people mentioned here, the 'four horses of the apocalypse', the whole idea of the epistemic decolonial turn is to bring in perspectives other than Eurocentric androcentric universal fundamentalisms (Amorós 2000; 1991; Lugones 2016).

What then, is outside of Eurocentric fundamentalisms? It is fair to say that academic institutions are Modern/Eurocentric constructs, which makes it impossible to find 'pure' decolonial epistemologies. Searching for *pure theory* is a very violent pursuit because these Modern/Eurocentric constructs prevent epistemic diversity, using material ethics and formal morality as instruments to explain the world by *simplifying* existence.

The assumption that something exists in its untouched original conception, disregarding 'human pollution', history, constitutive elements, or *the object* which is being theorized about, is an epistemic fallacy. In Hans Kelsen's work to create a *Pure Theory of Law*, he describes what is meant by 'pure':

It is called the pure theory of law because it only describes the law and attempts to eliminate from the object of its description everything that is not strictly the law: its aim is to free the science of law from alien elements. This is the methodological basis of theory (Kelsen 2005, 1).

Kelsen's attempt to free the science of law from alien elements is the typical pursuit of legitimacy for the one-size-fits-all epistemic rule that will bring theoretical validation in order to be universal and apply to all the peoples in all places at all times. His pretension in informing the fundamental rule of the legal system ignores its Christian/ Roman origins and the manipulation of 'god's will' to dominate peoples and territories and install a formal morality, institutionalizing appropriation of foreign property with the victims unable to resist (Anghie 2005, 1996; Mignolo 2016). The Kelsenian epistemic purity is an accurate example of a fundamentalist approach that denies constitutive lines and the context of theoretical production. In this sense, being anti-European, anti-Modern, and anti-Western are clearly not the aims of decolonial epistemologies. On the contrary,

the acknowledgement of what is Eurocentric and how Eurocentrism is embedded in the very concept of epistemology enables an even sharper critique.

For the study of energy planning, the collection of non-fundamentalist possibilities will follow the Latin American Community of Argumentation's[25] observations: 1) to 'bring a broader canon of thought than simply the Western canon (including the Left Western canon)'; 2) to avoid perspectives 'based on abstract universal [global] design', but bring in 'the result of the critical dialogue between diverse critical epistemic/ethical/political projects towards a pluriversal as opposed to a universal world'; and 3) to 'take seriously the epistemic perspective/is cosmologies necessary/insights of critical thinkers from the Global South, thinking *from and with* subalternized racial/ethnic/sexual spaces and bodies' (emphasis added in italics) (Grosfoguel 2007, 212).

Fundamentalist epistemologies are those produced in the Global North (as a geopolitical concept) or by revered authors from the Global North. They are written by men who revere masculinity and masculine authors and are necessarily androcentric; are white or revere whiteness; and impose an abstract universal truth. They are written in the third person without reference to the author's geopolitical context; pretend not to be linked to any social custom, spirituality, or feelings (a-ontological); accept and internalize the superiority of human beings over other living beings and natural phenomena; have their specific comprehensive methods, exclusively challengeable by the same methods; prioritize the use of data in relation to experiences and social demands, manufacturing consent through scientific results; hierarchize the validity and legitimacy of types of knowledge; privilege political-economy paradigms; and announce knowledge to be applicable to all the peoples, in all the places, for all times.

Hence, fundamentalist epistemologies are hegemonic thoughts to the detriment of the majority of people, the non-human living beings, and the ecosystems. Fundamentalist epistemologies are therefore violent. Epistemic violence is the use of such epistemologies to shape scientific discoveries, it is the ground for extensive hegemonic research and underpins political decisions over social dilemmas in the use of natural resources. Therefore, epistemic violence is not only a matter of exclusively observing economic relationships but also the reason why economic relationships are privileged in relation to

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[25] Castro-Gómez 2005ᵃ; 2005b; Dussel 2013; 1994; Grosfoguel 2007; Icaza 2015; 2010; Icaza and Vázquez 2013; Lugones 2016; 2012; 2008; 2007; Maldonado-Torres 2007; 2004; Mignolo 2016; 2012; 2011; 2010; 2005; 2003; 2000; Quijano 2007ᵃ; 2007b; 2000ᵃ; 2000b; 1992; Walsh 2007a; 2007b; 2002.

all other relationships and their imposition is the main problem leading to the planet's catastrophe.

Challenging colonial epistemologies is to challenge epistemic violence from the standpoint of the colonial difference. Violent epistemologies are direct coercive ways of imposing meanings in order to legitimize agendas that ensure positions of power. Such violent epistemologies are perceived from the critical–negative analysis of their ethical content, that is, the impossibility of producing and reproducing life from the attributed meaning. The critical–negative analysis of the content of ethics is a theoretical tool to identify the victims of ethical systems, that is, those who are being prevented from living a full life (of producing and reproducing life) as a consequence of the structure of the ethical system. Referring to *violence* is referring to the creation of victims.

Epistemic violence occurs by limiting the use of knowledges, symbols, subjectivities, and items of cultural construction in configuring collective and institutional knowledge. This limitation refers to identifying knowledges, symbols, subjectivities, and items of cultural construction that are interesting for the agenda of power and annihilating the non-interesting elements. In the colonial context, epistemologies are formed for the imposition of colonial power, which claims universality, that is, to be imposed *erga omnes*. The colonial subject must abide by the imposed meanings since those meanings shape institutions and social relations. As the colonial subject is not part of 'the people' (as explained earlier in the topic on *coloniality of being*), social inclusion is made through forced imitation of colonial knowledge production and abdication of any meanings produced before colonization. The colonial subject's knowledge production is marginalized, disabling the possibility of self-recognition, own history, own norms, and own science and philosophy. The colonial subject is then a victim of this system because she/he cannot live a full life, cannot produce or reproduce their own life, and are forced to fit into the system of knowledges, symbols, and subjectivities of the colonizer – the Eurocentric system. In this way, epistemic violence prevents epistemic diversity, aiming for the imposition and establishment of an agenda of power over time. This is a fundamental feature of the success of the colonial enterprise, a determinant of the permanent character of colonial power.

Over time, as the coloniality of power imposes this violence, its victims are naturalized. The modern–colonial world-system trivializes the creation of victims as the downside of modern developments, as if the existence of the victims was incidental and unintentional. Notwithstanding, there would be no colonial power without the victims. In

this sense, epistemic violence is the intentional creation of victims by denying them the independence to define and determine institutional and social relations from diverse epistemic possibilities.

To counter epistemic violence, it is necessary to discuss and apply the contribution of feminist and racial/ethnic subaltern perspectives. It is also crucial to apply decolonial methodologies to expand the field of research from the 'scientific' and 'economic' languages, that is, *intentionally de-hierarchize* the focus on political economy so other possibilities can arise from experiences that historically did not/cannot/will not reach places of power/institutional knowledge.

In 1979, black and chicana feminists in the United States got together to rise against the whiteness and maleness of literature, academic production, political organizations, and white wealthy feminist movements, an outcome of which was the remarkable work edited by Cherríe Moraga and Gloria Anzaldúa, *This Bridge Called my Back – Writings by Radical Women of Colour* (1979). In this work, the central purpose was to question why the same methods and approaches were being applied even when new solutions to old problems were sought? The book contains the inspirational historical text by Audre Lorde, *The Master's Tools Will Never Dismantle the Master's House* (Moraga and Anzaldúa 1983, 98). The text is Audre Lorde's presentation in the panel *The Personal and the Political*, at New York University Institute of Humanities in 1979, an event that commemorated the 30th anniversary of Simone de Beauvoir's *Second Sex*. Lorde's argues for the acknowledgement and embodiment of the *difference* between the various women and the various feminist movements, and against trying to club all feminist movements as a single struggle. She asks: 'Why aren't other women of colour found to participate in this conference?' in which she calls for the difference, for other people, (not masters) and other tools (epistemic turn) to make the necessary change to stop sexism, homophobia, and racism, as well as their terrible structural (the house) marks.

From Audre Lorde's critique we learn that the epistemic decolonial turn demands the identification of the subject who speaks and the location from where that is being said, as well as the identification of the tools used to elaborate that issue. The relationship between the subject and object of the analysis also gains a decolonial approach. This means that the object of study (or the approach/relevance given to it) changes when the subalternized (colonial) subject gains moral/formal legitimacy in producing non-violent

epistemologies. If 'the woman from the mines in Bolivia is *allowed to speak*'[26], the form she speaks in will be different from the Eurocentric academic form, but, centrally, the object of her speech is related to her perspectives and demands. In the same fashion, the Xingu women displaced by the forced construction of the Belo Monte dam in Amazonia will not discuss the country's economic growth based on the expansion of energy production or on the price of the enterprises' shares in the stocks market. Access to energy from the indigenous perspective has nothing to do with the international trade balance since the priority is the preservation of the livelihood in the territory, which will enable the healthy occupancy of the land, production of food, logistics, and interactions with non-indigenous perspectives. In this sense, decolonizing energy planning demands shifting the objectives of energy planning that, instead of aiming at Brazilian economic growth, should aim for the production and reproduction of life, enabling the people to live a full life.

Such identifications are central, representing the distinction between the hegemonic episteme and the decolonial one. Gendered, racial, territorial, political, and all the colonial *differences* must be acknowledged.

The *difference* then is the point of departure for the decolonial turn. In his works "Diferencia Colonial y Razón Postoccidental" (Colonial Difference and Post-Occidental Reason) (Mignolo, 2000) and "Local Histories, Global Designs" (Mignolo 2012; 2003) the Argentinian sociologist Walter Mignolo defines colonial epistemic difference. As Restrepo and Rojas, by quoting Mignolo's work, describe,

> (…) the colonial difference alludes to the place and to the experiences of those who have been object of inferiorization on the part of those who, in the middle of the colonial enterprise, consider themselves superior. Knowledge, beings, territories and colonized populations (or that are colonizable, one might add) are epistemic, ontologically and socially inferiorized by the colonialist look. These are places and experiences that are constituted as an exterior to modernity (not modern), in a logic of negativity (of inferiority). Hence, the colonial difference is the result of this logic that '[...] consists in classifying groups of people or populations and identifying them in their faults or excesses, which marks the difference and inferiority with respect to who classifies' (quoted in Restrepo and Rojas 2010, 132).

The colonial difference is not about 'cultural differences' (Walsh 2012; 2002) from the non-modern to the modern, as included in a 'cultural category' of a postmodern or cultural relativism. The difference in question has been passed off as some cultural dissemblance to mask the difference in power relations, the coloniality of power. The conceptual core of the colonial difference is the annihilation of

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[26] Reference to "If you allow me to speak: the testimony of Domitila, a woman from the mines of Bolivia" (Viezzer 2014).

ontological/epistemological perceptions of the non-modern and their replacement by the hierarchizations imposed thereafter by the invaders; as Maria Lugones explains, the dichotomous hierarchy between human and non-human is the central dichotomy of the colonial modernity (Lugones 2016).

Six Colonial Differences

There are many differences that must be brought to light in order to understand around what, specifically, the decolonial turn takes place. **Six central differences** are listed here for the epistemic decolonial turn on energy planning in Brazil. The **first difference** to be pointed out is the perception that places of existence, recognition, annunciation of knowledge, and political power are historically occupied by men, as well as the outcomes of such occupancy are addressed to men, not exclusively the man as a male person, but masculine genealogies and relationships – **androcentric perceptions**, which are mimicked by any person in order to belong or occupy a place of power (Amorós 1991). This involves the marginalisation of women in the division of labour and commodity production, encompassed by the derecognition of their work. The market related ideas of the value of labour are patriarchal.

Patriarchy is at the heart of the structures of domination. Although patriarchy is older than modern European structures and exists across different cultures including non-European ones, it is part of the intra-modern and intra-European impositions, transposed to the non-modern world as part of the 'combo of tools' for the establishment of hierarchies, as framed in the topic of *coloniality of gender*. The hierarchical distinction between men and women is part of the broader hierarchical distinctions of the dichotomous hierarchy, human/non-human. As Maria Lugones explains,

> [t]his distinction [human to non-human] became the mark of the human and of civilization. Only the civilized were men and women. The indigenous peoples of the Americas and the enslaved Africans were classified as non-human in their species-like animals, uncontrollably sexual and savage. The modern European, bourgeois, colonial man, became subject/agent, apt to govern, for public life, a being of civilization, heterosexual, Christian, a being of mind and reason. The bourgeois European woman was not understood as his complement, but as someone who reproduced race and capital through their sexual purity, their passivity, and their attachment to the home in service to the bourgeois European white man. The imposition of these dichotomous categories was interwoven with the historicity of relationships, including intimate relationships. (…)
> The hierarchical dichotomy as a mark of the human also **became a normative tool** to condemn the colonized. The behaviours of the colonized and their personalities/souls were judged as bestial and therefore non-gendered, promiscuous, grotesquely sexual, and sinful. Although at this time the understanding of sex was not biomorphic, the animals differed between males and females, the male being perfection, the female the inversion and deformation of the male. Hermaphrodites,

sodomites, *viragos*[27] and all colonized were understood as aberrations of male perfection (emphasis added in bold) (Lugones 2016, 106).

The exclusion of women as protagonists of history, philosophy, and science took place against European (white) women. The non-white women were animalized, being part of objects of the conquest[28], turned 'into various modified versions of "women" as it fit the processes of global, Eurocentered capitalism', (Lugones 2007, 206), but never as agents. The naturalization of masculinity frames the modern–colonial world-system, imposing the materiality of a conceived androcentric reality. To illustrate, masculinity is clear in exploitative labour relationships (starting from the very nuclear family) (Flatschart 2017); agricultural methods that impose the will and need of men, disregarding the natural cycles (Shiva 2004); conflict resolution methods that privileged war and murder to the detriment of communal relationships (Icaza 2010); and the idea that everything on the planet should be used to its exhaustion to benefit men[29].

Androcentric narratives underpin a certain way to occupy and use the territory by hierarchizing the living beings, placing the wealthy white man at the top (and everything else at his service: the white women, the coloured men and women, the plants, animals, the mountain, the minerals, the river, the air, the rain – everything). All the energy produced in the planet is to serve modern man. This way, the first step towards the epistemic decolonial turn in energy planning is to prioritize conceptions, definitions and understandings of energy, natural phenomena, and the occupancy of the planet created by women, especially by coloured and indigenous women from subaltern places, and feminist authors in general.

The Cartesian Manichean sceptical dichotomy between human and non-human also substantiates **the idea of race**, **the second difference** to be identified in the epistemic decolonial turn. Quijano argues that the idea of race is built in three distinct moments in history: the first goes back to the sixteenth century, that describes 'differences of biological nature' between Europeans and non-Europeans[30] (Quijano 1999), the second moment refers to the foundations of the myth of modernity in the seventeenth century, in

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[27] Noisy, masculine, dominant women.
[28] Rape was a colonial weapon, as explained by Lugones in *Heterosexualism and the Colonial/Modern Gender System* (Lugones 2007, 206).
[29] Here masculine and feminine are discussed as ontological principles – as opposed to epistemological and scientific classifications.
[30] In his paper, *Que Tal Raza?*(1998-9), Quijano is controversial and slightly contradictory in accepting that biological nature could be a feature for othering gender, but not race. Quijano's lack of attention to the relationship between coloniality and oppressions of gender and patriarchy as a complex system is strongly condemned by Lugones in *Heterosexualism and the Colonial/Modern Gender System* (2007).

a linear evolutive explanation of the development of the world from barbarism to civilization, in which the definition of 'colour' and 'race' is established. The third moment, for Quijano, is solidified in the mid nineteenth century with Gobineau and his *Moral and Intellectual Diversity of Races* (Gobineau 1856), justifying white superiority and, hence, the need to colonize.

Race is then created to highlight the powerlessness of the colonized, informing the psychological complexity of an annihilated person, who is no longer a person, becoming merely a non-white man. Moreover, as Aimé Césaire writes, the creation of races, as a consequence of colonialism, '*decivilize[s]* the colonizer, (…) *brutalize[s]* him in the true sense of the word, degrade[s] him, awakens him to buried instincts, to covetousness, violence, race hatred, and moral relativism' (emphasis in the original) (Césaire 2000). The imposition of the notion of 'better race' manufactures collateral violence and incites the feral reaction to violence (Fanon 2001). The racial difference has little to do with the idea of 'colour consciousness' but has to do with the overall perception of the experiences that constitute the baggage that racialized subaltern peoples carry.

The **third difference** to be identified for the epistemic decolonial turn is **geopolitical**. What is meant by *the decolonial turn on epistemologies* is to stress the territorial differences and the need for preservation of such differences, instead of persisting with the colonial agenda of the (capitalist) 'use' of all territories, the transformation of all places in the name of some so-called progress. This means that not only must knowledges that are produced outside of the said legitimate places of annunciation (Eurocentric standards) be included, as also 'good sources', but also *main sources*, the unheard, silenced voices from the 'underdeveloped' places – the voices of the majority of people. Geopolitically, such places are either outside of academia or in their periphery; outside of the central areas of access to goods and capital, namely, the hard sciences, the economy (and political economy), and the mainstream (fundamentalist) philosophy. They are peripheral voices that tell stories about livelihoods, either organized by resistance in occupying the uncomfortable master's house (academia, political institutions, economic activities) by social movements or other types of literature/storytelling that are inconceivable for the hegemonic epistemological canon. This aspect involves both the geographical location of knowledge production and the epistemic locus of annunciation of knowledge: it is futile to write from the University of São Paulo repeating the same mainstream agenda of the MIT or to spend one year with

the Xingu peoples to conclude how profitable their land could be (Macedo 2017). As Grosfoguel writes,

> […] the success of the modern/colonial world-system consists in making subjects that are socially located in the oppressed side of the colonial difference, to think epistemically like the ones on the dominant positions. (Grosfoguel 2007, 213)

It is the aim of this thesis to collect and apply peripherical voices to understand and discuss energy planning since the mainstream dominant positions cannot perceive energy planning outside of the exhaustive modern–colonial framework.

The **fourth difference** to be identified is **historiographic or chronological**. Whereas hegemonic epistemologies naturalize the linear evolutive definition of existence, decolonial epistemologies call for a broader perception of the human experience as well as the natural phenomena on earth (Pérez 1999, 11–14). Hence, the way modern sciences and technologies, modern ways of occupying territories, modern conflicts, modern spiritual beliefs, humanism, and social Darwinisms (Guha and Martínez-Alier 2013, 26) shape historiography to confine time into the modern–colonial framework violates all non-modern possibilities. Worse than that, modern–colonial chronologies are self-referenced and self-describe Modernity (a Eurocentric phenomenon) as the great moment of the revolution of knowledge (Mignolo 2012).

As Dussel explains in his (aforementioned) book *1492 – El Encubrimiento del Otro: Hacia el Origen del Mito de La Modernidad* (The Eclipse of the Other: Towards the Origin of the Myth of Modernity) (Dussel 1994), Eurocentric historiographic linearity is wilfully created, not inherent to the situation eventual, and sets aside any other knowledge, science, or experience that is different from the European. As an example, Dussel cites the destruction of the Aztec libraries and museums at the end of the fifteenth century, an act that was intended to erase their history (Dussel 1994, 154–58). From a decolonial epistemological perception, history is not linear, nor did it start when Europeans could record their narratives and their intra-European historical facts but covers what is called pre-Columbus or pre-colonial 'civilizations' in the Amerindian continent and the Interregional Systems that unfolded as a world-system after 1492[31]. In

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[31] Dussel notes that before the modern–colonial world-system, that is, before a global pattern of power, there were three stages of the Interregional System (intra-continental system). Stage I as the Egyptian Mesopotamian (from 4th millennium BC); stage II as the Indo-European (from 200 BC); stage III as the Asiatic-Afro-Mediterranean (from 4th century AD); and stage IV unfolds as the worldsystem after 1492, comprising Western Europe, the United States (after WW2), Japan (from 1945 to 1989 with Russia) in the center, and Latin America, Bantu Africa, Muslim world, India, Southwestern Asia, and Eastern Europe in the periphery, as well as two semi-autonomous regions in Russia and China (Dussel 2013, 3).

this sense, it may sound irreverent to reinforce that aliens did not build Machu Picchu (as it needed to be explained) (Reynolds 2015), but it is necessary to highlight that the South American history before the European invasion was not a pre-history of ancient civilizations, but simply South American history. In the epistemic decolonial turn, indigenous ways of perceiving the needs of collective livelihood such as energy production, logistics, and agriculture, which were erased by colonial violence, are given their due importance, like the concepts of *buen vivir*, the *Kichwa* expression *sumak kawsay*, (that means living well), or the Guarani *tekó porã*.

The **fifth difference** to be highlighted is the combination of all the four **elements** mentioned earlier: androcentrism, racism, geopolitical positions, and historiography are **co-constitutive elements of the colonial violence**, and cannot be observed through analytical eyes separately but have to be viewed as a holistic complex phenomenon. They are part of the violent colonial combo, and bring, as consequence, the violent acquisition of land and exploitation of resources for commercial purposes, the annihilation of peoples (who were non-Europeans or non-Modern), their histories, and cultures, the imposition of hierarchies in social institutions, and the imposition of the very social institutions themselves. This way, the nation-state, the rule of law, the military organizations, the institutions of knowledge, the destruction of ontology for the imposition of Eurocentric rationality, and the idea of sectarian societies are inseparable elements of the same structure of power: coloniality.

The impossibility of separating the different elements of such oppressions is crucial for the analysis hereafter proposed. One cannot conceive capitalism without patriarchy and racism or the implementation (imposition) of rule of law without the crimes committed. It is the Modern oppressive reasoning to hierarchize one element of progress and minimize the violence involved in making it viable. As Angela Davis explains, gender, race, and class are undetachable elements that, if analysed separately, yield results that work for the convenience of the privileged (Davis 2011).

Hence, every time this work refers to economic advantage in a certain way of planning energy, it also refers to the androcentric perception of the economy, to the superiority of men over living beings, to the destructive way of relating to natural resources, to the hierarchy of labour necessary to obtain inputs, to the manufactured consent obtained through convenient collection of scientific studies to underpin the need of a certain intervention in the environment, and so on. If the analysis of political economy is limited to the relationships of power imposed in capitalism, the solutions for

capitalist oppressions will be in the realm of economic policies and labour laws. Such an analysis ignores a big chunk of the exploitative nature of the accumulation of capital, which includes the rule of law per se.

Finally, the **sixth difference** to be framed is about "**not throwing away the baby with the bath water**". In this sense, there is no intention to deny or refute everything produced to create and sustain the modern–colonial world-system, to disqualify every intra-European critique of Modernity, or much less, to establish new thought that will replace all the philosophical thinking with subaltern perspectives. No universal truth is being imposed with the epistemic decolonial turn, making it different from the intra-European perspectives. As Fanon writes in *Black Skin, White Masks*,

> (…)
> I do not come with timeless truths.
> My consciousness is not illuminated with ultimate radiances.
> Nevertheless, in complete composure, I think it would be good if certain things were said.
> These things I am going to say, not shout. For it is a long time since shouting has gone out of my life.
> So very long...
> (…) (Fanon 2008, 9)

As the idea of evolutive historiography is a fallacy, there is much to be learnt from the various understandings of power. In particular, the hermetic imposition of knowledge prevents diversity of perceptions, becoming epistemically violent. To develop the epistemic decolonial turn for energy planning, a range of propositions and theories considered by intra-Europeans will be applied; this includes the Marxian [historical materialist] definition of capital accumulation as the core challengeable feature of the current (present) epistemologies of energy (since energy is treated as *energy input* – commoditized and hence fetishized, making energy planning a tool for economic growth). Much of the materialist critique is useful here and applicable to point out the weakness in the misuse of natural resources for profit.

Having said that, epistemic diversity does not mean being cautious. A sharp critique of oppressive knowledge can be made considering the collection of anticolonial perceptions that, for example, help us challenge the academia (and coloniality of knowledge) by writing a doctoral thesis – the privileged top of the academic hierarchy in the production of nouveau knowledge. The way to do this is by awareness of the multiple elements that constitute oppressions.

Conclusion

In this chapter we explained what is the epistemic decolonial turn as well as the six colonial differences that make it viable. To adopt the epistemic decolonial turn, the epistemologies for energy planning in Brazil must be anti-patriarchal and recognize the institutional androcentric genealogies to be able to move towards the inclusion of feminist perceptions. Decolonial epistemologies must be anti-racist, that is, acknowledge the racist character of the current planning for the future of energy systems. Energy planning naturalizes ethnic cleansing, the whiteness of the institutional production of the energy plans, the lack of humanity in determining the value of labour (especially women's labour), and the lack of regard for indigenous communities as *externalities*[32] for energy expansion. The production of the energy plans must include non-white perspectives, the relationship between natural resources and community solidarities, and the vital relationship between communities and the land.

A decolonial comprehension of energy futures in Brazil cannot ignore the country's peripheral position in global capitalism, in which the useless pursuit of economic growth steals the country's democratic character in deciding over natural resources. The endless catching up with the rich economies works to the detriment of a balanced relationship between the use of natural resources and better life conditions in Brazil. When thinking about energy futures – elaborating a plan for energy systems – we must learn from history in order to avoid repeating colonial mistakes. This can only be made by acknowledging the various definitions of energy systems in the territory, not exclusively the intra-European perceptions imposed on the country. By understanding the limitations of Eurocentric historiography, possibilities for energy planning are unlocked from a framework and a version of history in which Eurocentric perceptions are not the only possible ways of projecting futures.

Therefore, energy planning must be intersectional, taking into consideration all these elements without hierarchizing them, giving the same importance to each of these aspects, in a co-constitutive and inseparable way of establishing the premises, priorities, and goals. The epistemic decolonial turn demands a complex analysis in order to give decolonial meaning to established Eurocentric definitions and critiques, that should be

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[32] Or, as the Brazilian Energy Expansion Plan 2015-2024 defines, "issues that could increase the uncertainty associated with the planning of important developments for the expansion of the country's energy supply" (MME and EPE 2015, 33).

applied to the Brazilian case only after the listed colonial differences are carefully considered.

Now it is necessary to clarify how decolonial epistemologies will help the problem of energy planning in Brazil. Challenging the violence of energy planning in Brazil calls for comprehending the ethics of interference in bodies and in the planet's ecology for obtaining energy inputs. The ethics of energy is a primordial issue to understand epistemologies for energy planning. The critical ethical framework is grounded in the Ethics of Liberation, a Latin American framework proposed by Enrique Dussel, which establishes a critique of the hegemonic ethical system. *Chapter 4 – Epistemology and the Ethics of Exhaustion* brings in the Ethics of Liberation and the unfolding of the ethics of exhaustion by the critical-negative aspect of the Universal Material Ethics.

Chapter 4: Energy and the Ethics of Exhaustion

The ethics of energy refers to how energy is part of the universal human aim to produce and reproduce life. With this background, we examine the way energy has been historically and geopolitically formalized and defined in the present: the current epistemology of energy. The modern–colonial world-system's own ethics is related to the viability and prevalence of the colonial ideology of power (considering the spheres of coloniality of power, being, and knowledge), whose aims do not extend to the production and reproduction of *every life* in the planet and which *intentionally creates victims*. I named the modern–colonial world-system's ethics the *ethics of exhaustion*. In this way, the concept of energy is epistemically violent, grounded in the ethics of exhaustion.

The *ethics of exhaustion* permeates every aspect of human occupancy of the planet in this, the early twenty-first century, even as I write this in the year 2019. It is the hegemonic ethics in the recognition and understanding, by humans, of all living beings; it is the ethics of the institutions of knowledge; and the ethics of the political and economic institutions. Such ethics is the acceptance and naturalization of well-known historical oppressions, and with the denial of both their violence and the possibility of immediate change in the *modus* humans are left to occupy only such territory as they are allowed in which to survive.

The fundamentals of the ethics of exhaustion are built on the fact that the exhaustion of the planet and societies are for the 'greater good' (Dussel 2013, 158) – that one cannot survive without capitalism, the state, the laws, and the [hegemonic] knowledge. In this case, the downside of such social institutions is that we all have to sacrifice to achieve the future social equality we need – the idea that exhaustion today will lead to regeneration tomorrow. It is also the reformist thinking that supposes we must improve what is not working well, instead of *dismantling the master's house*. While such ethics continues to govern conduct of persons we are moving steadily towards social and environmental catastrophes, still believing that we are doing the right thing, that is, *making it great again* by reinforcing the same practices.

The concept of the ethics of exhaustion is drawn from the critical-negative aspect of the Dusselian *Ethics of Liberation*, deployed from the definition of the Universal Material Principle of Ethics. To get to the critical-negative aspect it is necessary to explain the Universal Material Principle of Ethics. Before that, let us introduce the Dusselian

Ethics of Liberation to contextualize the critical-negative aspect that leads us to define the *ethics of exhaustion*.

The Dusselian Ethics of Liberation

The works of Enrique Dussel are of paramount importance for the studies and elaboration of Latin American philosophy. His analysis of the ontological fundaments of Latin American self-recognition and philosophy is a huge contribution to philosophical–ethical studies in the region. His first proposition of the Ethics of Liberation was published in 1972 in the three volumes of the book *Para una Ética de la Liberación Latinoamericana* (Towards an Ethics for the Latin American Liberation), where he discusses not just the conditions for a possible Latin American philosophy but the very Latin American philosophy[33].

Dussel's perceptions and methodological approaches were part of the Latin American liberation movements arising from or somehow influenced by the developments of the Dependency Theories in the 1960s and the Theology of Liberation in the early 1970s. Those movements had exponents such as the Brazilian pedagogue and philosopher Paulo Freire, with his remarkable work *The Pedagogy of the Oppressed*, originally published in 1970 (Freire 2000), and the Peruvian sociologist mentioned earlier, Aníbal Quijano, who published around the same time *Tendencies in the Class Struggle in* Peru (Quijano 1980) and *Crisis Imperialista y Classe Obrera en América Latina* in (Imperialist Crisis and Working Class in Latin America) (Quijano 1974). Such movements were contemporary and had a dialogue with the world-system theories, with the North-American sociologist Immanuel Wallerstein as an exponent, having published in 1974 his work *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (Wallerstein 2011).

Developing his philosophical works, Dussel published *Introducción a la Filosofía de la Liberación Latinoamericana* (Introduction to the Latin American Philosophy of

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[33] In that work, Dussel elaborates on methodological pathways for the Latin American philosophy. In volume I, he works on the foundation of 'the Other', what he called the 'dialectical ascension' of the body to the foundation (of ethics), 'demonstrative decline' of the foundation to the body, and the metaphysical passage of the body, which is the transposition of 'the face of the Other' to the 'Otherness'. In volume II, he elaborates the grounds of the ethically deemed ontological project from the perspective of the Other, the analytic morality of praxis as a 'duty'. In volume III, he brings the methodological developments to the Latin American reality and in the alternative movement (the 'changing towards'), gestated between the male–female (the erotic), parents–children (the pedagogical), brother–brother (politics), Totality–Infinity (the theological) (Dussel 1973).

Liberation) in 1977 and re-edited and published it again in 1988 as *Introduccíon a la Filosofía de la Liberacíon* (Introduction to the Philosophy of Liberation) (Dussel 1988). In this work Dussel presents the theoretical framework of the Philosophy of Liberation that he further elaborates as the Ethics of Liberation.

The theoretical framework of the Philosophy of Liberation and the Ethics of Liberation follow a coherent Dusselian stamp, starting from the historical analysis, the (initially) metaphysical analysis (which becomes the Ethical Analysis), the observation of the *praxis* or the practical world analysis (which becomes the *material aspects of ethics*), and *poiesis*, referring to the actual action towards liberation.

The author established a sequence from philosophy, theology, and history to develop a Latin American theory from its own perspective, recognizing the specific singularities of the condition of being Latin American. This is done by challenging the Modern philosophers, especially Kant, whose (Cartesian) dualism and philosophical formalism are severely criticized. The core critique of Kantian philosophy, however, was presented in the moment of the critique of the Material Criterion and the proposition of the Material Universal Principle of Ethics (Dussel 2013) in the Philosophy of Liberation. In this sense, the early Dusselian philosophy meets Paul Ricoeur, in his phenomenological and personalist line, linking the understanding of the mythical to the rationality of philosophy. Influenced by Ricoeur, Dussel focused on giving relevance to the mythical as part of the elaboration of Latin American culture, imagination, and philosophy in the history of global thinking. 'The Latin American recovery required me not to discard the religious phenomenon and, therefore, an Augustine, Bartolome de las Casas or Cura Hidalgo should be assumed in an integrative vision (Dussel 1988, 86)'.

Heidegger's philosophy also had a strong impact on the early Dusselian philosophy. Dussel clearly applies Heideggerian terminologies to the ontological analysis. When Dussel met Levinas, he dropped the Heideggerian ontology for metaphysics, analyzing the subject from the perspective of the collective, a more practical aspect of philosophy than the categorical instruments. In the Philosophy of Liberation, Dussel goes from ontological thinking (the exclusive categorical Heideggerian hermeneutics) to analysis of the praxis. By analyzing the three main moments of the Dusselian philosophy of Liberation (1972, 1988 and 1998), it is interesting to perceive how the author arrives at the conclusion that there is a need to return to ethics as the standpoint of liberation. The return to ethics is evident from the focus on the studies on Hegel, from which the Hegelian dialectic appears, as well as from the focus on ethics in

the post-Hegelians: Kierkegaard, Feuerbach, and Marx, evidencing the practical–material analysis.

In 1998, Dussel published the first edition of *La Ética de La liberación: en la edad de la globalización y de la exclusion* (The *Ethics of Liberation in the Age of Globalization and Exclusion*); it was published in English in 2013 (Dussel 2013). In this work, the debate between the Dusselian works of 1972 and those of 1988 influenced by Karl Apel, Jurgen Habermas, Levinas, Hinkelammert, Kant, as well as his extensive analysis of Marxian works and special attention to the *historical subject of transformation* in Freire, became evident. This made the *Ethics of Liberation* a very detailed philosophical work *from* Latin America *to* Latin America.

Dussel's historical and philosophical works are crucial to challenge the hegemonic oppressive ethics of the modern–colonial world-system. For Dussel, the hegemonic ethics negates the victim. He counterposes the hegemonic ethics to the Ethics of Liberation. The author positively affirms that the Ethics of Liberation is the ethics of the oppressed, and considers the whole structure of oppressions in the historical context of actual transformation.

The historical perspective is crucial in Dussel's analysis. By adopting a historical perspective, Dussel introduces his critical ethical analysis. The historical background aims to 'situate the ethical problematic within a global horizon, in order to remove from it the traditional interpretation that has been merely Helleno- or Eurocentric, in order to open up the discussion beyond contemporary Euro-North American philosophical ethics' (Dussel 2013, 1).

Dussel describes **four historical stages** of interregional ethical systems that unfolded as a world-system (for the first time the global ethical system) after 1492. The **first stage** is the **Egyptian–Mesopotamian interregional system** that had no political–cultural centre, from the fourth millennium BC. The **second stage** is the '**Indo-European**' from second century BC, with the centre located in the Persian region and the Hellenic world (Seleucidic and Ptolemaic) from the fourth century BC, having China in the eastern extreme, the Indian kingdoms in the south-east, and the Mediterranean New World in the western region. The **third stage** is the **Asiatic-Afro-Mediterranean** system, from the fourth century AD. This interregional system had the Persian region and Tarim and thereafter the Muslim world from the seventh century AD as its centre of commercial connections. The productive centre was China, having Bantu Africa in the southwest, the Byzantine–Russian world in the west, and Western Europe in the extreme west. The

fourth stage is the **world-system**, having Western Europe in the centre from the late fifteenth century AD to the present, including the United States and Japan (from 1945 to 1989 with Russia). The world-system has as periphery Latin America, Bantu Africa, the Muslim world, India, Southwestern Asia, and Eastern Europe. China and Russia have been considered as two semiautonomous systems from 1989.

Cultures without direct links to the interregional systems are also discussed, explaining cultural ethical traditions in the Mesoamerican and the Inca worlds. Since the Neolithic period, there were frequent contacts of the American peoples with the Polynesians, who, in their transoceanic voyages, arrived at the coast of America.

> Here I should deal with India (…) and China (…); both cultures are prior to the appearance of the horsemen and the mastering of iron. (…) I simply indicate their 'place' within a general history of the Neolithic, which moves to west to east – a direct-contrary to Hegel's ideological proposal.
> (…)
> In the Euro-Asiatic steppes are an area of contact, the Pacific Ocean (with its Polynesian cultures) must be considered (…) another area of contact. In a global vision of ethical lives, reductionistic naiveté (...) cannot be repeated. In the history of *ethos*, the ethical vision of the Aztecs, Mayas, Chibchas and Incas, at the very least, should always be included (Dussel 2013, 9–10).

Through historical contextualization, Dussel evidences that the intra-European ethical systems, that became the world-system after 1492, were influenced by many ancient cultures (Dussel 2013, 25). The Cartesian separation between body and mind has reference in the Egyptian (Osiris) immortality of the soul (Dussel 2013, 8), which in turn influenced the Greek philosophers (Plotinus AD 204–70, in Alexandria, where the Roman and the Greek traditions converged, and also Plato), in the division into the evil – body/material, and the pure – divine/immortal (Dussel 2013, 8–15).

> It is thus that from Greece and Rome to the Persians, from the empires of India and Taoist China, an ontology of the absolute as One, a dualist anthropology of the superiority of the soul over the body (which is always in some way the cause of evil), establishes an ascetic ethics of 'liberation' from material plurality as a 'return' to the original one. This is the moment of Neoplatonic ontology, and later of German idealism, specially of Hegel's *Logic*. This is the logic-ethics of the Totality.
> (…) Empirical death is, for this ethical view of the world, the 'birth' to true life (Dussel 2013, 16–17).

Referring to Confucian ethics[34], Dussel explains the formal morality that consolidated the then existing contemporary ethics, that justified the then prevailing

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[34] Confucius (551-479 BC, China) wrote: "The ancients who wished to illustrate illustrious virtue throughout the kingdom, first ordered well their own States. Wishing to order well their States, they first regulated their families, they first cultivated their persons. Wishing to cultivate their persons, they first rectified their hearts. Wishing to rectify their hearts, they first sought to be sincere in their thoughts, they first extended to utmost their knowledge. Such extension of knowledge lay in the investigation of things. Things being investigates, knowledge became complete. Their knowledge being complete, their thoughts were sincere. Their thoughts being sincere, their hearts were rectified. Their hearts being rectified, their

institutionality, political organization, economy, pedagogy, and domination in the genders (of male over female). These concepts travelled to Europe along with Oriental-Mediterranean commerce over centuries. On that, Dussel goes on to say that 'everything' that is traditionally labelled as the European medieval or Renaissance 'internal' factors in the genesis of Modernity, had been accomplished with the resources of the Muslim world, centuries earlier (Dussel 2013, 21).

The current ethical system, the hegemonic Eurocentric Modern/Colonial/Androcentric/Capitalist world-system, was then created. Modernity, 'that is, perpetual, compulsive, obsessive and addictive *modernization*' (Bauman 2013). This has produced wasted humans; modernization at the cost of lives in the Periphery. The Periphery in its philosophy, needs to understand Eurocentrism in order to be able to criticize the world, shedding the lenses implanted by domination (Dussel 2013, 52).

We move now to the theoretical framework that is the foundation of the Dusselian ethics, and so, on a second moment, we can establish the critical ethical criterion for the present relationship between ethics and energy planning. For the application of the Dusselian framework for the analysis of energy planning in Brazil, the author's foundation of ethics will be discussed so that the argument can be elucidated.

Ethics

Understanding of epistemologies for energy planning in Brazil requires understanding the ethics of energy. To do so, we follow the analytical pathway proposed by Dussel in his work *Ethics of Liberation – In the Age of Globalization and Exclusion* (2013). In this work, Dussel contextualizes, grounds, and defines the *Ethics of Liberation*, the critical ethics lying outside the Modern hegemonic ethical system. The Ethics of Liberation establishes a framework for the ethical critique of the modern–colonial world-system from the perspective of the victims who have their *bodily reality* negated by the empirically impossible universal goodness claim of the dominant (Modern) ethical system (world-system).

Let us explain this reasoning. Knowledge is a human mental process through a collection of brain impulses stimulated by a set of sensations and experiences in the

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persons were cultivated. Their persons being cultivated, their families were regulated. Their families being regulated, their Stated were rightly governed. Their States being rightly governed, the whole kingdom was made tranquil and happy" (Dussel 2013, 17).

empirical world. Epistemology is the philosophy of knowledge, concerned with the investigation of the material manifestation of thoughts and how they acquire meaning. Ethics interfaces with epistemology as a primary issue in the externalization of thoughts that become knowledge. Such a primary issue refers to the ethical way thoughts are intentionally (rationally) externalized and hence formalized. The *content* of ethics refers to understanding the elaborations of the mind in the material world; for Dussel it is the 'principle of the obligation to produce, reproduce and develop the concrete human life of each ethical subject in the community' (Dussel 2013, 55–56). Epistemology is part of the *form* of ethics, when thoughts gather social validity through customs, norms, and institutions. According to Dussel,

> [t]his principle claims universality. It is actualized through cultures and motivates them from within, as well as the values or the different ways to accomplish the 'good life', happiness, and so on. Cultures, for instance, are particular modes of life, modes that are moved by the universal principle of human life of each subject in community from within (Dussel 2013, 55–56).

That is to say that ethics is produced collectively in a given space and time aiming at abstract universality, forming historical *ethical systems*. The principle of the reproduction of human life, in some way, has been an ethical content for more than fifty centuries, surviving up to the present time. Therefore, the decoloniality critique is within this tradition that seeks to reproduce the conditions for human life – aimed at the liberation of all human beings, including white European men, from the standpoint of the victims.

Concrete ethical systems affirm the fact of human life. That is the Dusselian universal material principle of ethics. The Dusselian Ethics of Liberation is an ethics of life from the perspective of the victims, claiming that the hegemonic material ethics negates the oppressed, the ones who cannot benefit from the hegemonic ethical system of the modern–colonial world-system that obeys the criterion of *practical truth* and the *goodness claim*. The negation of the existence (creation) of victims (the concealment of the evil) (Dussel 2013, 284) due to the fetishized hegemonic ethical system makes it contradictory, reinforcing violence where it claims goodness. The Ethics of Liberation, by focusing on the perspective of the oppressed, affirms the negation and exposes the ethical problematic. We will use the Ethics of Liberation to get to the critique I named as the *ethics of exhaustion* fundamental to the epistemological critique of energy planning in Brazil. To do so, we extend the critical examination of the negative aspect of ethics to

frame the ethics of exhaustion as the violent ethical problem that leads to violent epistemologies for energy planning.

In order to apply Dussel's framework to critically analyse the ethics of the knowledge about energy, the three aspects of the universal material principle of ethics are framed: the *material* aspects, that is, the ethical *content*; the *formal* aspects, that is, the *moral* configuration of ethics through epistemological, methodical, philosophical, and rational discourse; and the *practical* aspects of ethics, or the *ethical feasibility* claim of instrumental reason – meaning the meeting of successful ends, that is, the 'goodness claim' or the reproduction of human life.

We argue that the hegemonic ethical system – the ethics of exhaustion – aims at death instead (the critical-negative aspect). By not taking the structures that would enable life into consideration when defining the concept of human life, the hegemonic ethical system presupposes that everything in the planet exists for the service of human life – not as a cycle of interactions between human/nature/natural phenomena. Magnifying the importance of human life happens to the detriment of all the other forms of life and, as a consequence, causes human death. It is a one-way street in which everything exists in the service of human life: life-bearing beings such as plants and animals as well as "non-living things"[35] such as the land, the minerals, the air, the water, the sun, and the natural phenomena. Human life is specifically hierarchized since it does not include peripheric peoples, traditional communities, indigenes, women, and peoples of colour and it locates wealthy white men at the top of the hierarchy and the poor coloured women at the bottom.

This critique will be expanded further, but a short explanation is necessary to guide the reader on what is meant by the ethics of exhaustion. From a decolonial perspective, the Earth is an interconnected system and the life of the mountain is as relevant as the life of the new-born and the snail, in the sense that one cannot exist without the other, in a balanced cyclic way. By focusing exclusively on the life of the fetishized ethical subject, the hegemonic ethical system forces the exhaustion of everything else so that one type of individual can reproduce his own life. In a physical, psychological, and spiritual way, it exhausts the labourer who sacrifices her life to produce the commodity and gives her vital energy for the maintenance of the capitalist system. It exhausts nature, by removing the mineral from the land without considering the natural resilience time for

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[35] From decolonial perspectives, such as the *Patchamama* philosophy or the Guarani *Tekó Porã* (well-being), the land, the water, the sun, and the natural phenomena are part of the life cycles and bearers of life (Melià 2016; Zaffaroni 2010)

its reorganization and re-creation, or by changing the course of a river without considering the plants and animals that live from that water source, condemning all forms of life to 'evolve, adapt' and survive under the new conditions. In truth, this is exhausting their vital energy to the limit that they have to compete among themselves to exist on what is left. It exhausts the energy cycles by human alienation, not permitting the reconciliation between the human mind and the territory (Marx and Engels 2009), leading to the predatorial relationship that places human beings as the villains responsible for limiting the very conditions that reproduce their lives (for example, contributing to global warming by increasing production). The hegemonic ethical system is consistently aiming at exhausting humans' physical, psychological, and spiritual energy; all forms of non-human life including natural resources; and the energetic interconnection between existing things, the natural phenomena, thus creating disequilibrium with catastrophic results.

The critical-negative aspect paves the way by expatiating on exhaustion, the application of the critical ethical principle of the Ethics of Liberation. The following sections explain Dussel's philosophy to enable specific analysis of the critical-negative aspects of material ethics in order to unfold the ethics of exhaustion.

The Dusselian Foundation of Ethics

The foundation of the ethics of liberation consists in analyzing the moments of philosophical elaboration on ethics that lead to a level of complexity that seems to sufficiently explain ethical validity. Dussel argues that such sufficiency can never be reached fully, 'given that it would encompass the totality of human actions in the entire history of the world' (Dussel 2013, 53). The author then develops a non-linear complex explanation that forms the fundamentals of the Ethics of Liberation on the critical-ethical reason. The separation of 'thought/being' and 'reality' enables to identify, on a first moment, the victim of a given ethical system. On a second moment, this separation enables, from critical analysis, to adopt the perspective of the victims in order to be liberated from the fetishist (and for that reason violent and oppressive) ignorance that arises from of the non-acknowledgement of the existence of victims.

The non-linear elaboration for the foundation is made in three stages: from the identification of the reality – the *material moment*, the intersubjective validation of formal

social outcomes – the *formal morality*, and the possibility of meeting the aims of the given ethical system, the meeting of its 'goodness claim' – the *ethical feasibility*.

The Material Moment

The material moment of ethics concerns the content of ethics. The universal material principle is the production and reproduction (or the conservation) of human life. The content of ethics follows the perception of formal rationality, the dualistic reductionist separation between the body and the mind, in which *ethos,* postulated in the real world through the aims of a person or group of people, becomes a *nomos*. It is a constituent element of the *physis* – the primary nature of a person that depends on their actions to become a fact, a *praxis*. The *physis,* as the human nature, consists in vice and virtue, and ethics is the 'good half' of every person that must manifest itself for the benefit of the whole group of people. In order to become nomos, vice and virtue are brought into a rational framework. The bad and the good, existent in every person, would have to be rationally framed so that the ethics can be perceived.

To comprehend the functioning of the mind to contrapose the dualistic paradigm, Dussel explains how the brain needs the body to realize the 'self', the *ethos*. Neurological processes, then, are concrete, 'not intangible and vaporous qualities that many presume them to be' (Damasio 2006, 164)[36]. In this sense,

> The negation of the "body" in favour of the decorporealized "soul" (from the Greeks up to Modern ethics) speaks to us a very specific tradition, following a mythical path of the resurrection of the flesh with the Egyptian Osiris, or the Semitic or Muslim tradition, and culminates in the neurobiological sciences that allow us to recover the unity of the corporeal, within with the higher functions of the brain require that the highlight definitively the extremely ambiguous simplification in ethics of a substantial independent "soul" (Dussel 2013, 66–67).

At this point, Dussel follows on an extreme rationality, affirming that human survival includes reason as its ability: '[t]he reality of the human life of the ethical-cerebral subject has a permanent vigilance of requirements, obligations, an "ought-to-be" that internally incorporates motives, and that integrates itself constitutively in all the activities of the practical and theoretical levels of all possible behaviour' (Dussel 2013, 69).

Dussel then argues against a utilitarian analysis of ethics of European enlightenment thinkers like, among others, Adam Smith, John Locke, David Hume,

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[36] In *Descartes Error*, the Neurologist Damasio describes the co-constitutive articulation of affective and reason: without affectivity there is no reason.

Jeremy Bentham, and John Stuart Mill. The empiricist approach of utilitarian ethics that attempted to defeat rationality by the elaboration of ethics as the *pursuit of happiness*, as in Bentham's fundamental axiom: 'it is the greatest happiness of the greatest number that is the measure of right and wrong'. Dussel identifies four problems of the utilitarian approach: 1) the ambiguity of the hedonistic meaning of the concept of happiness; 2) the empirical impossibility of a strictly hedonistic quantitative calculus; 3) the materiality of the transposition from individual to collective happiness, in the sense that individual happiness may represent aspects of a developed society but to the detriment of the happiness of others (e.g., slavery systems); and 4) the utilitarian happiness, defined through the calculus of instrumental reason, is reached through consumption, or the satisfaction of the preferences of the buyer in the market, by means of capitalist distribution of goods. 'There is then an abstract and perverse circle: capital is the absolute a priori condition for the fulfilment of the ethical end (happiness)' (Dussel 2013, 73–74). For Dussel, the utilitarian subjective material criterion is a 'model of impossibility' (Dussel 2013, 186), since

> [i]n capitalism, objective wealth is accumulated (thus allowing the owners of capital to obtain subjective happiness) in the hands of few, while augmenting the 'poverty' of the majority (that is to say, 'pain' and 'unhappiness').
> (…)
> Utilitarianism does not discover the contradiction of its utopia since it does not recognize the essence of capital. But, at least, it makes sense when it indicates a relationship between economics and ethics (Dussel 2013, 75).

Utilitarianism is relevant for indicating the importance of one aspect of the subjective material criterion of ethics – happiness; but it cannot define criteria that can classify other material aspects of ethics, 'such as values, the logic of drives, and so on, that could be grounded or developed as the universal ethical principle; for [Dussel], this criterion will be concrete "human life"' (Dussel 2013, 77).

By reviewing the exponents of material ethics, Dussel highlights the importance of Communitarianism (on Alasdair MacIntyre, Charles Taylor and Michael Walzer) to the ethical question, that is, history, the concrete good of a given culture, and the different spheres of justice, within which the authentically ethical good ought to be situated in accordance with its content. Although such aspects of Communitarianism are necessary, they are materially insufficient for the universal material principle of ethics (Dussel 2013, 92).

To build his universal material principle of ethics, Dussel grounds in Hegel the need to look at systems of ethical life as the place in which practical life 'is lived

factually' (Hegel 2004, 10). As Dussel recognizes, 'Hegel proposes a concept of the cultural–historical *ethos* to which all the contemporary material ethics cannot cease to refer (…) but interprets it Eurocentrically' (Dussel 2013, 88). It is also clear that the universal material principle is built on the formal moral principle of Kant's 'conditioned value' (Kant 2003, 275), making evident that there are no values without cultural intersubjectivity, and for this reason they constitute an essential part of the content of a historical-concrete ethical life (Dussel 1973, 126).

The material criterion is based on what Dussel called *practical truth*[37], by asserting that the Ethics of Liberation is grounded in empirical judgements that are descriptive of fact, not value, that is neither instrumental nor formal but a statement of reality – material, compatible with rationality and means-ends, the latter relating to the reproduction of human life. No human action can be detached from a cultural–linguistic concrete way of institutionalizing the ethics of enabling human life in general. Therefore, epistemology is the form of institutionalizing ethical demands. For Dussel, this claim [or demand] is absolutely *universal* (Dussel 2013, 105). Schools of thought on material ethics earlier to Dussel (material formality, dualism, utilitarianism, communitarianism, and the Kantian values) were, unlike Dussel's, insufficient to explain the universal principle, bearing contradictions that could not meet the ends of the production, reproduction, and development of human life.

The universal material principle is an abstract construct that must be applied in the real world to prove its feasibility. This way, another principle – the *moral formal principle* – is combined to the material one, aiming at practical, intersubjective, discursive rationality that must achieve validity through effective argumentation making explicit and incorporating the values/means for accomplishing the ends envisaged.

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[37] The Dusselian universal material ethics is then grounded on the criterion of practical truth, in which '(…) human life is the mode of reality of the ethical subject (that is not of a stone, or a mere animal, or the Cartesian angelic "soul"), which gives content to all of its actions, which determines the rational order and also the level of its needs, drives and desires that constitute the framework within which ends are fixed. (…) That is to say, insofar as the human being is a living entity, it constitutes a reality as objective (…) in the exact measure in which it is determined as the mediation of human life. (…) The life of the subject delimits it within certain fixed parameters that it cannot exceed under the threat of death. Life is suspended, in its precise vulnerability, within certain limits and requiring certain contents: if the temperature of earth rises, we will die of heat; if we cannot drink water because of the desiccation of the planet (…) we will die of thirst; if we cannot feed ourselves, we will die of hunger; if our community is invaded by a stronger community, we are dominated (we will live but in degrees of alienation that are measured from a life lived almost animalistically to the point of extinction itself, as in the case with the indigenous peoples after the conquest in America). (…) Human life is an ethical mode of reality (Dussel 2013, 92–93)'.

The Formal Moment

Formal morality has the ethical function of applying in concrete terms the norms, ethical judgements, decisions, normative statements, epistemological elaborations, and different moments of material ethics. It is how intersubjectivity gains validity – material ethics is applied in the social sphere from *ethos* to *nomos*.

To elaborate on the intersubjective validity of the universal material principle, Dussel refers to Kant's transcendental morality, in which material ethics is a hypothetical scenario, that is, the reconstruction of the material (content) of ethics, without which formal morality is not possible. It Transcendental morality also clarified the distinction between the Discourse Ethics of Karl-Otto Apel, the normative–rational reconstruction of history and the self-catching-up principle of subjects as agents performing transformation with the material principle. Instead, the material principle proposes that such reconstruction must be made simultaneously and systematically by both the positivity of the institutions and ethical lives that have developed the life of the human subject. The material principle is also a critique of the structures that make impossible the reproduction or development of each subject's life in community.

The material principle is distinguished from the Habermasian Formal Morality. In Habermas, the public sphere – communal life – the intersubjective validity of argumentation 'free of coercion' is the democratic institution of legitimation. The crucial difference between Habermasian Formal Morality and the universal material ethics is the latter's recognition of the impossibility of achieving the universally understood moral content, in which rationality cannot be detached from the ethical subject in historical social contexts.

The moral principle of validity consists in acknowledging a procedure of application of ethical, material contents that must be evidently differentiated from its theoretical underpinning. As Dussel writes,

> The application of the ethical-material principle is carried out by means of the moral principle of formal validity, then a "synthesis" between the material and formal has been produced. The "decision" of the ultimate norm, moral judgement, or concrete normative statement, and the "fulfilment" or real integration of the selected judgement in the carrying out of human action on praxis (institution, historical structure, values, etc.) is the unity of the material (the mediation with "practical truth" based on the principle of reproduction and development of the life of the human subject) and the formal (the autonomous symmetrical, free, and responsible participation of each affected subject) that, only now, constitutes from real feasibility what we can denominate the "goodness claim", the ethical life in effect (Dussel 2013, 156).

In this sense, materiality refers to the life of each person in reality and universally (as Dussel's practical truth); and formalism refers to intersubjective capacity of genuine free consent (with universal validity). Material ethics then claims formal validity, that in turn, demands ethical feasibility.

Ethical Feasibility

The Dusselian concept of the *goodness claim* is a combination of the material moment of ethics and the formal moment of morality, for the feasibility of both in achieving the ends of ethical life through appropriate means. It is the moment of the fulfilment of the object of ethics. This aspect is crucial to the definition of the ethics of exhaustion, which is configured from the contradiction between the hegemonic ethics in its untruth and its impracticability given the confrontation of instrumental rationality and utopian rationality. The criterion of feasibility is then the possibility that the object of ethics to exist in the material world, by applying strategic-instrumental reason to achieve an abstract truth – the reason of the object's definition and the how it will exist in reality. However, strategic-instrumental reason is not sufficient for the means-ends of ethical life[38]. In evidencing that, Dussel argues that the abstract truth is not necessarily practical, such as the 'model of the market of perfect competition', in which perfect market means no monopoly, whereas essential elements of markets' performance are types of monopoly (such as know-how, greater capital, and so on). If all the competitors in the market share all the knowledge and have complete equality, there will be no competition, thus evidencing the impossibility of such an abstraction (the capital model). There can be, however, a logically possible abstraction that is empirically impossible, such as the idea that an object can keep moving in a straight line, at constant speed when no forces act upon them, remaining in motion indefinitely (the inertia principle). Also, something empirically possible can be technically impossible, and something technically and economically feasible may not necessarily be an ethical or moral possibility. Here, Dussel moved from abstract feasibility of the ethical principle to concrete feasibility, which he

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[38] 'The ethical problem takes shape when this formal sphere [empirical truth and intersubjective validity] of means-ends becomes autonomous, is totalized, when what *can be done* with "efficacy" (technically and economically) determines what is used as the *ultimate criterion* of theoretical "truth" and "validity". When this happens, one falls into a formal absolutization, in the error indicated by Horkheimer, Adorno, or Marcuse, namely, giving priority to "instrumental reason" (…). Marx called this *inversion* "fetishism": things are taken as ends (mediations of feasibility), and persons as mediations (the life of the subject and its free autonomous participation)' (Dussel 2013, 186).

called 'principle of ethical feasibility'. 'Without instrumental-strategic reason, ethical-discursive reason falls into utopian illusions' and does not achieve the ends of ethical behaviour, that is, the production and reproduction of (human) life (Dussel 2013, 188–90).

Such aim is the combination of the practical truth, the formal morality, and the feasibility of ethical life, resulting in the general good.

> The justified "good" is then an act, an institutional set of acts, or ethical-cultural totality that effectively integrates a condition of possibility and constitution of its ethical materiality, moral formalism and concrete operability.
> (…) What makes a goodness claim is not indefinable (…), nor is the mere incarnation of values (…), nor is simply the normatively valid (…) nor the "just" (…) (Dussel 2013, 201).

Therefore, ethical feasibility is about a set of *specific circumstances* under which a norm, act, institution, or system operates with a 'goodness claim'. An act is good when it applies the material component of practical truth, reproducing and developing the life of the subject within a given culture; it realizes the formal component of intersubjective validity with personal validity; and it realizes the feasibility component, deliberately considering with instrumental rationality the empirical, technological, and economic conditions of possibility framed a priori within the ethical requirements (Dussel 2013, 202–3).

Ethics and Energy Planning in Brazil

Combining the three moments of ethics (materiality, formality, and feasibility), we can analyze the specific circumstances under which the Brazilian governmental institutions project the future of energy systems in the country. Justified in the pursuit of economic growth, energy planning aims at energy *expansion*. Economic growth is said to benefit every person in the country (argument that will be countered in Chapter 6). The materiality of the ethics of energy planning is the greater good arising from economic growth. The formality is the institutional and legal nature of energy planning, the epistemological realm of ethics. The feasibility is explained throughout the plan that informs the premises, priorities, and goals for energy planning defining each sector. The problematic is that the ethics of energy planning hierarchizes the type of life to be produced and reproduced in the universal material principle of ethics. This type of life is epistemically defined, historically negating gendered and racialized subjects, and explained within the limited Eurocentric colonial knowledge. Epistemology is the form

of institutionalizing ethical demands. Eurocentric epistemologies impose meanings for the prevalence of an agenda of power. The agenda of power behind energy planning in Brazil is coloniality of power.

Therefore, the ethical demands of energy planning hierarchize life, as will be discussed in the following section. Epistemology of the modern–colonial world-system materially shapes such demands, imposing coloniality of power (didactically separated in power, being, and knowledge) by preventing epistemic diversity. Challenging epistemic violence in energy planning in Brazil involves challenging the ethical demands of the ethical system: the ethics of exhaustion.

Ethics of Exhaustion

The Ethics of Exhaustion is grounded in a critique forged in the Dusselian critical-negative aspect of the Universal Material Principle of Ethics to frame the *real ethics of the modern–colonial world-system*. Critical-ethical reason emerges from the separation from the person – the combination between *logos* and *ethos* "thought/being" (in Heidegger following a critique of Hegel's *Entzweiung* – dissociation or separation of *ethical substance*) (Hegel 1978; Heidegger 1970, 32–34); and 'reality', the materiality of thought/being in the *praxis*. In this sense, Dussel asserts that the only way to be able to 'critically judge the "totality" of a system of ethics' from the standpoint of the 'alterity of the system' without 'ethical complicity' is by adopting the 'perspective of the victims' (Dussel 2013, 207).

> In the light of the simple presence of the victims as victims, an inverted relationship occurs in the context of the exercise of critical-ethical reason: the dominant system of ethics, which to a naïve consciousness (…) was the measure of "good" and "evil", becomes in the presence of its victims, in systemic terms, something perverse (evil).
> (…)
> This negative material-ethical judgement is possible from the positive sphere of the affirmation of the life of the human subject, as an ethical principle and criterion, and also from the standpoint of the recognized dignity of the subject, which is denied to the subject when he or she is reduced to a victim (Dussel 2013, 207–8).

The hegemonic ethical system (the ethics of the modern–colonial world-system or Modern ethics) is not capable of recognizing the alterity of the victims because of the concealment of the other (Dussel 1997) by the modern–colonial world-system that necessarily creates the victims. The negative critique is then towards the ethical systems (the norm, action, institution) revealing them to be perverse and unjust because they are the cause and origin of the victim's condition.

The empirical truth (material reason), the formal morality (formal reason) and ethical feasibility (reason concerning feasibility) are combined for the elaboration of the Dusselian critical-ethical reason. By analysing such elements critically, we acknowledge the human reality that such aspects make sense in a theoretical framework but dot not correspond to the reality of the majority of people in the world. If the goodness claim is the aim of ethics, why are there exclusions, femicides, genocides, poverty, racism, and environmental catastrophes? Where is the universal material principle of producing and reproducing life? Would it mean that humans are living unethical lives and not applying any ethical principles? If so, humans have not detached themselves from the Eurocentric medieval Roman–Biblical condemnation to hell when living in sin. Moreover, it would mean that ethics is materially impossible in institutions forged in the modern–colonial world-system.

This is not the case. It would be superficial to think that this is a fundamental contradiction: having an unfeasible ethical system. The feasibility of the hegemonic ethical system derives from the endorsement of the use of the victims' life (energy, existence). This is the reason why there is no possibility of a reformist approach to the hegemonic ethics – something like the empowerment of the victims or the *liberation* of the victims. The Dusselian *liberation* proposes not only 'breaking the chains' (the negative moment), but also 'developing human life'. At this point, Dussel calls for the construction of a *possible utopia* (or *strategic-instrumental utopia*) by applying the *praxis of liberation*, that is, the fulfilment of the principle of liberation, by transferring the burden of responsibility for the liberating act to the very community of victims, which he called the *self-liberating act*:

> (…) [T]he liberation principle can be described more or less as follows: one who operates in an ethical-critical manner *should* (is ethically obliged to) act to liberate the victim, as part (either by "location" or by "positioning", according to Gramsci) of the same community to which the victim belongs, by means of (*a*) a feasible *transformation* of the moments (norms, acts, microstructures, institutions, or ethical systems) *that produce* the material negativity at issue (which impede a certain aspect of the reproduction of life) or its formal discursivity (a certain asymmetry or exclusion with regard to participation) for the victim; and (*b*) *the construction*, through mediations with strategic-instrumental critical feasibility, of new norms, actions, microstructures, institutions, or even complete ethical systems, where victims could live, as full and equal participants. (…) The *liberatory interest* is grounded in the regulatory idea of a society without victims (notwithstanding the empirical impossibility of such a society) and, concretely (and this *is* empirically possible) without *this specific* historical type of victim; **each of these victims is empirically responsible for, and must struggle on behalf of, this society without their kind of victim, in order to make their liberation possible** (emphasis added in bold) (Dussel 2013, 420–21).

We follow with a critique of the Dusselian Ethics of Liberation by the epistemic decolonial turn. *The master's tools will never dismantle the master's house,* and for such a radical perception, there must be a sharp and radical critique. The proposition of the ethics of exhaustion, built on the critical-negative aspect of the material ethics, does not intend to focus on the pessimistic problematic of the creation of victims. The critical-negative aspect is necessary for the acknowledgement of the real nature of the hegemonic ethics and the impossibility of maintaining any of its principles.

It is argued here that humans are not living unethically. The system of ethics in which we live – the *ethics of exhaustion* – is actually very coherent about the creation of victims, as Dussel points out throughout his critical-negative theoretical framework. Above all, the hegemonic ethical system is the very reason why the majority of people, the non-human living beings, and the ecosystems are hierarchized and victimized for the benefit of a few people. The hegemonic ethical system needs such hierarchization for the unspoken (or, as Quijano puts, "the dark side of Modernity") general aim of exhausting life.

Exhaustion is not about destruction of life and the environment *per se*. It is prior to the material action of destruction, as a general aim to use everything for one's satisfaction, without considering the consequences of the annihilation of a people, an ecosystem, and natural resources. Even worse, it is the assumption that peoples and things have the *capacity to adapt to the circumstances created by exhaustive norms, actions, and institutions and react against them*. If the hegemonic ethical system presupposes the creation and reproduction of life by fuelling itself from the energy produced by something or someone else, it is, in fact, creating and reproducing death by exhausting the other's vital energy. The hegemonic ethical system *transfers* (meaning that it does not 'create' or 'produce') life (energy, work) to a privileged minority of people to the detriment of a victimized majority and the ecosystem. Such *transference* is made unilaterally, demanding the vital energy that is impossible replenish. In doing so, the hegemonic ethical system not only endorses or fosters the exhaustion of life [energy, work] of the other living beings and the ecosystem, *it exists only because of such exhaustive behaviour*.

Hence, the Dusselian critical analysis of the material principle of ethics allows the acknowledgement of the victims. In Dussel's framework, the victims are persons because ethics is fundamentally for the production and reproduction of human lives. The human-centred ethics is an Eurocentric-androcentric hegemonic perspective of existence and

philosophy (Amorós 2000, 68–72)[39]. We argue further that the exhaustion of the other forms of life, as well as the structures that enable human life, also cause human death. In this sense, the preservation, production, and reproduction of the life of *non-human living beings and ecosystems* are mandatory for the preservation, production, and reproduction of human life. If humans, animals, plants, and the land are not hierarchized, they co-exist in balance. Once hierarchized, their existence is exhausted for the benefit of a minority of human beings. Therefore, everyone and everything that are not benefiting from the positive aspects of the hegemonic ethics become victims. This is the reasoning of the ethics of exhaustion.

There is no possible liberation from the hegemonic ethical system through the utopian attempt to fix such an ethical system because it does not change its exhaustive character. Such a critique can only be made from the standpoint of the colonial difference, which, as delineated supra, must propaedeutically be made from a non-androcentric look. The androcentric character of the Dusselian philosophy prevents him from experiencing liberation. This way, the twin aspects of the Dusselian liberation are the critique in the light of the ethics of exhaustion and that coming from a radical feminist place of observation, struggle, and critique (Lorde 2017, 16–17).

The first aspect is the *intentional (wilful) creation of victims* in the ethics of exhaustion. The Dusselian liberation acknowledges the impracticality of the goodness claim of the dominant system that *unintentionally creates victims* and proposes the liberation of such victims through the anti-hegemonic validity that allows a praxis of liberation. Dussel calls for the realization of the 'bad side' of ethics as the negative moment of the exercise of ethical-critical reason. We expatiate on the critical-negative aspect in relation to the creation of the victims. However, we add the *non-human victims* (plants, animals, the water, the mountain, and other aspects of nature) to the Dusselian framework and frame the *intentionality* of the hegemonic ethical systems in creating such victims, operating on a system of production and reproduction of death, preserving the

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[39] Celia Amorós, understanding the entrenched nature of the androcentric philosophical thought: '(...) the excluded and oppressed are more pressured to enter the universal and to rescue the garments that have been taken from them than to do the meticulous and subtle critical examination of the marks that in those same garments have remained of the usurper and that constitute them in the body of the crime. For the time being, it is urgent to have them in their power: there will be time - for now, the task of conquering them is so absorbing that they do not even consider it - to trace the traces of imposture. In the face of the itching of hunger, the refinement of smell is postponed in order to discern what, logically, of manly nature had left its impregnations in the usurped universality' (Amorós 2000, 71).

ethics that hierarchizes [certain] humans above everything else, having as the modus operandi the exhaustion of every source of energy, including human life.

The second aspect is the victims' *burden of liberation*. If the victims (or the community of victims) are the ones in charge of the praxis of liberation, they will be even more exhausted for carrying the burden of oppression and of having to adapt, survive, and change the exhaustive circumstances. Such praxis does not free the victims of being exhausted. The standpoint of the colonial difference enables the inclusion of the non-human victims and the realization of the weight of the burden of liberation because it looks at the hegemonic ethics with radical feminist eyes. As Audre Lorde stated,

> What does it mean when the tools of a racist patriarchy are used to examine the fruits of the same patriarchy? It means that only the most narrow perimeters of change are possible and allowable. (…)
> Within the interdependence of mutual (non-dominant) differences lies that security which enables us to descend into the chaos of knowledge and return with the true visions of our future, along with the concomitant power to effect those changes which can bring that future into being. Difference is the raw powerful connection from which our personal power is forged (Moraga and Anzaldúa 1983, p. 98).

For Dussel, liberation (praxis of liberation by the victims) seems feasible because, entrenched as he is in the primordial privilege of the ethical system, he is blind to the fact that patriarchy permeates the structure of knowledge, the conditions of living, the structural institutional life, and the formal morality. This is understandable, but patriarchy must be acknowledged and challenged. So, the praxis of liberation would include evidencing the androcentric character of philosophy and ethical systems, which makes the burden of liberation even heavier and more exhausting for the victims, especially for poor coloured women (Davis 2011). Such burden will exhaust her vital energy before the liberation starts. Audre Lorde continues on this point, teaching the unforgettable lesson of the feminist struggle:

> Women of today are still being called upon to stretch across the gap of male ignorance and to educate men as to our existence and our needs. **This is an old and primary tool of all oppressors to keep the oppressed occupied with the master's concerns** (Lorde 2017, 20).

The ethics of exhaustion is the hegemonic ethical system that we live in, historically configured from the globalization of a specific pattern of power that operates by the reproduction of colonialities, forming the modern–colonial world-system post 1492. The realization that the exhaustive relationships are androcentric and patriarchal by nature is point zero in the journey towards understanding the whole framework of human relationships. It is *nice* to observe ethics from the standpoint of the victim, but this will never be possible without acknowledging the complex collateral hierarchy of privileges

and, to do so, the primordial issue is the understanding of the androcentric nature of such an ethical system (Amorós 2000; 1991). Exhaustion and exhaustive behaviour are typical characteristics of patriarchal relationships, norms, institutions, and ethical systems. Cherríe Moraga, in the 1978 text called *La Güerra*, wrote:

> The danger [of the patriarchal academic establishment] lies in attempting to deal with the oppressions purely from a theoretical base. (…) Without an emotional, heartfelt grappling with the source of our own oppression, without naming the enemy within ourselves and outside of us, no authentic non-hierarchical connection among oppressed groups can take place. (…) He must, first, emotionally come to the terms with what it feels like to be a victim (Moraga and Anzaldúa 1983, 29–30).

Framing the hegemonic ethical system as the ethics of exhaustion happens when the Dusselian analytical understanding of ethics is applied to it; that is, putting together the material moment of ethics – the general intention to produce and reproduce human life; the formal morality – the intersubjective validity that institutionalizes materiality; and the ethical feasibility – the means-ends of ethical life. The three aspects (or moments) of the conception of ethics are exhaustive, because they bear the common aspect of privileging one over the whole – privileging a certain type of human life over the others, and human life over everything else. When this happens, all the energy flows are imbalanced and, nature cannot operate its perfect laws because some are using up the vital energy of others to the state where such energy will be used up – bringing life to its end, causing death.

The following section expatiates the concept of exhaustion so we can return to the discussion of epistemology by analysing Brazilian energy planning in the light of the (modern–colonial world-system's) ethics of exhaustion.

Exhaustion

Humanity is moving steadily towards social and environmental exhaustion. We *can get no satisfaction*. Exhaustion is a noun that means '1. A state of extreme physical or mental tiredness; 2. The action of using something up or the state of being used up; 3. The process of establishing a conclusion by eliminating all the alternatives' (Collins Latin Dictionary, Oxford English Dictionary). Let's apply the word's three meanings to elucidate the concept of the ethics of exhaustion.

First, the meaning deals with the exhaustion of persons: "a state of extreme physical or mental tiredness". In this typical condition of the present times, the lives of people are subject to several concomitant oppressions that undermine the ability of a

person to live a full life. Such oppressions are related to social hierarchizations, gender violence, racism, poverty, labour, consumerism, private property, gun violence, inability to produce food, and political violence. It concerns all the limitations that makes people invest their vital energy to adapt and survive in the oppressive world-system. If all the energy is allocated to surviving, there will be no energy left to live a full life. People are exhausted because they use up all their vital energy for living just part of their lives.

Second, exhaustion refers to the planet Earth: 'the action of using something up or the state of being used up'. Using up the planet, its natural life, animals, water, and minerals are consequences of the Eurocentric concealment of the other (Dussel 1994) by the hierarchization of the existent things and the superiority of human beings (especially white men) above everything else. It is the lack of respect to the life cycles; human interference is not for survival but to produce surplus value. It is the reinforcement of human supremacy and social hierarchizations.

Third, it is related to the arrogance of modern/colonial/patriarchal/capitalist deafness: 'The process of establishing a conclusion by eliminating all the alternatives'. This aspect is related to epistemic violence, the exhaustive approach to the possibilities of change, narrowing the capacity of changing perspectives and mindsets, making it impossible to overcome Eurocentrism. It brings the *intentionality* of the act of exhausting someone or something by the imposition of epistemologies to sustain the colonial agenda of power.

The critical-negative moment of ethics, in which it is possible to identify the victims brings the realization of the real aim of the modern–colonial world-system's ethics (the hegemonic ethics): the production and reproduction of life *for a few* at the cost of the many. When the life aimed to be produced and reproduced is not *every life*, it creates an irreversible imbalance that causes death. Therefore, when the type of life protected by such ethics aims solely at the preservation of human life, regardless of the means to do so, it also causes human death, since it uses all the means for the satisfaction of human greed, disrupting the natural cycles, hierarchizing humans in their (capacity to) access the means of survival, creating cycles of collateral/multilateral violence that ends up, in the short term, generating life for a few and death for the majority and, in the long term, generating just death.

In the following sections the three definitions of exhaustion are discussed in alignment with the argument proposed. This point is made so it is possible to move from ethics to epistemology. Thereafter, we expatiate on academic understandings of energy

systems, so we can enter the discussion of the epistemology of energy planning in Brazil by scrutinizing the Brazilian energy plans.

We Are Exhausted!

For the expatiation on the definition of exhaustion as 'a state of extreme physical or mental tiredness', we borrow the terminologies of Exhaustion Disorder (ED) and Vital Exhaustion (VE) used in psychology, neurosciences, and medicine to describe a person's state of physical fatigue, tiredness, and incapacity to perform, emotional overwhelming stress, feelings of being overextended, and feelings of being depleted of one's emotional and physical resources (Maslach, Schaufeli, and Leiter 2001, 399). ED and VE are characterized by the lack of energy, tiredness, feelings of demoralization, and irritability, apathy, and cynical behaviour and a lack of interest in life and social interaction. The combined situations of exhaustion can lead a person to *burnout*, that is a 'chronic depletion of an individual's energetic resources as a consequence of chronic stress' taking place in three dimensions: 'physical fatigue, emotional exhaustion and cognitive weariness' (Grossi et al. 2015, 626). Initial studies on ED took place in the 1970s in the United States and Europe to evaluate the increased number of individuals who had emotionally and physically collapsed due to exhaustion. In the early twenty-first century, 'psychological ill health has become the main cause of absence due to sickness' in Organization for Economic Co-operation and Development (OECD) countries (OECD 2013).

Christina Maslach and others (Leiter, Maslach, and Schaufeli 2009; Maslach, Schaufeli, and Leiter 2001) have developed the term *burnout* to refer to the specific exhaustion-related occupational characteristics and work-related activities that lack community support and interaction, lack a feeling of fairness in the way effort is rewarded (especially regarding comfort and financial reward), create conflicts of values between the individual and the occupation, and cause feelings of frustration, inefficacy, or reduced personal accomplishment. By definition, burnout is as a 'syndrome of emotional exhaustion, depersonalization and reduced professional accomplishment, mainly afflicting highly motivated employees working in helping professions. While emotional exhaustion refers to the depletion of positive emotions towards the recipients of one's care, depersonalization implies an excessively callous, detached and cynical attitude towards them. The third component, reduced professional accomplishment, refers to an

increase in self appraisals as ineffective, incompetent and/or inadequate for the job' (Grossi et al. 2015). In the International Classification of Diseases (ICD 2010; WHO 2010), burnout is classified as a 'State of vital exhaustion' (Z73.0) under 'Problems related to life-management difficulty' (Z73)" (Grossi et al. 2015, 627).

ED is related to causes of physical health problems such as cardiovascular diseases and diabetes (Bacqué 2015; Bonet 2013; Marrau 2004) and severe psychological conditions such as anxiety, depression, *folie a deux* (or 'shared psychotic disorder'), and causes of suicide (Fuentes and Rodante 2013; Grossi et al. 2015; Leiter, Maslach, and Schaufeli 2009; Maslach, Schaufeli, and Leiter 2001). Both ED and burnout have more incidence among women than among men (Grossi et al. 2015).

The number of people complaining about stress or being diagnosed with clinical psychological problems related to ED has been growing steadily. Overall, mental health problems represent a large proportion of the global burden of disease (OECD, 2017). According to the OECD, an estimated one in two people will experience a mental illness in their lifetime, and around one in five working-age adults suffers from mental ill health at any given time (OECD 2013; OECD 2017). Depression affects millions of individuals each year, especially women. In 2017, the OECD reported that women have higher rates of depression in all member countries. In serious cases, depression and other mental illnesses, such as bipolar disorder and schizophrenia, can lead to people harming themselves or even committing suicide. There is evidence of more incidence of depression during economic crises (European Commission 2010).

There is clear relationship between socio-economic conditions and ED. Moreover, oppressions related to racism and sexism, which leads to increased ED, result in violence (as in the case of black young men who do not have formal jobs); more persecution by the police; more incarcerations; and violent death (Rossi, 2013). Hence, there is a hierarchization, even of the varying impact of ED on different segments. When analyzing a person's exhaustion, one must consider the combination of oppressive situations due to gender, race, and class that a person goes through when analyzing a person's exhaustion.

This is something fundamental to the existence of a person in the modern–colonial world-system. The concomitant characteristics of a person existing in the territory, her gender, colour, and the mandatory condition of being a worker in a capitalist economy are draining her vital energy in simply continuing to survive. The ethics of exhaustion historically takes place through the viability of coloniality of power. Coloniality of being (considering gender and race) is the annulment of the subject for its transformation into

colonial subject. It prevents the being-in-place (*Daisen*) to live a full life, and isolates the subject to preclude communal life as the-one-for-the-other, diminishing the relevance of giving, hospitality, generosity, and justice whereas it places one's success as the general aim in life. When the one-for-the-other becomes the one-for-success, it is ethically exhaustive. It is an ethical system that forces every subject to become the self-made man, regardless of the necessary conditions of existence in social life. The exhaustive ethics of the self-made man is even more destructive to poor coloured and indigenous women since the nature of their work involves a broader communal aspect of raising children, developing domestic education and culture, and providing for the family while marginalized from so-called professional life. Coloured or indigenous women do not benefit from the exhaustive character of the non-communal work (capitalist work), but must prepare their children for this kind of work because it is a strategy for survival. The condition of being a worker in the ethics of exhaustion can be analysed from what Marx called the *alienation of labour*[40]. Adapting to the system as a strategy for survival results in the production of profit at the cost of the labourer's life.

The condition of the labourer (whether a woman, an indigene, one who works formally or informally to provide the capitalist his/her means of survival) implies the 'denial of the worker's own fulfillment' (Marx and Engels 2009) and, as Dussel concludes, 'what is the contrary to human life is death itself' (Dussel 2013, 226). The objectification of the worker for the achievement of capitalist profit (as means-ends), 'aims at sacrifice of the human end-in-itself to an entirely external end. […] It is satisfaction from a limited standpoint; while the Modern gives no satisfaction; or, where it appears satisfied with itself, it is vulgar' (Marx 2015b, 412). Such a condition is

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[40] First, the fact that labour is external to the worker, i.e., it does not belong to his intrinsic nature; that in his work, therefore, **he does not affirm himself but denies himself, does not feel content but is unhappy, does not develop freely his physical and mental energy but mortifies his body and ruins his mind.** The worker therefore only feels himself outside his work, and in his work feels outside himself. He feels at home when he is not working, and when he is working, he does not feel at home. His labour is therefore not voluntary, but coerced; it is forced labour. **It is therefore not the satisfaction of a need; it is merely a means to satisfy needs external to it**. Its alien character emerges clearly in the fact that as soon as no physical or other compulsion exists, labour is shunned like the plague. **External labour, labour in which man alienates himself, is a labour of self-sacrifice, of mortification**. Lastly, the external character of labour for the worker appears in the fact that **it is not his own, but someone else's, that it does not belong to him, that in it he belongs, not to himself, but to another**. Just as in religion the spontaneous activity of the human imagination, of the human brain, and the human heart, operates on the individual independently of him – that is, operates as an alien, divine, or diabolical activity – so is the worker's activity not his spontaneous activity. It belongs to another; it is **the loss of his self** (emphasis added in bold) (Marx and Engels 2009, 30).

oppressive per se, acquiring greater levels of oppression to the extent that the specificities of the worker will deny her capacity of living a full life.

In countering Smith's thesis in presenting happiness and labour as conflicting with each other, Marx uses the interesting term 'curse'[41] (that is explored further in the 'resources curse'). Marx goes on to explain that Jehovah's curse on Adam is not only for 'Smith's slaves of capital' (Marx 2015b, 534). The sacrifice is a purely negative characterization, also for the capitalist:

> Labor regarded merely as a sacrifice, and hence value-positing, as a price paid for things and hence giving them price depending on whether they cost more or less labor, is a purely negative characterization. This is why Mr Senior, for example, was able to make capital into a source of production in the same sense as labor, a source sui generis of the production of value, because the capitalist too brings a sacrifice, **the sacrifice of abstinence, in that he grows wealthy instead of eating up his product directly**. […] Something that is merely negative creates nothing. If the worker should, e.g. enjoy his work – as the miser certainly enjoys Senior's abstinence – then the product does not lose any of its value. Labor alone produces; it is the only substance of products as values. Its measure, labor time – presupposing equal intensity – is therefore the measure of values (emphasis added in bold) (Marx 2015b, 535).

This way, the exhaustive character of working in the modern–colonial (capitalist/ patriarchal) world-system is identified by the transference of life from the worker to the accumulated capital, creating a negative balance for the one who sacrifices and surplus value for the one who benefits from it[42]. The need to survive drains one's capacity to live a full life, leading to several EDs and to VE. It affects people in different ways, considering each specific condition within the social group, resulting in different

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[41] "Whether I obtain much or little for an hour of work – which depends on its productivity and other circumstances – I have worked one hour. What I have had to pay for the result of my work, my wages, is always the same hour of work, let the result vary as it may. 'Equal quantities of labor must at all times and in all places have the same value for the worker. In his normal state of health, strength and activity, and with the common degree of skill and facility which he may possess, **he must always give up the identical portion of his tranquility, his freedom, and his happiness.** Whatever may be the quantity or composition of the commodities he obtains in reward of his work, the price he pays is always the same. Of course, this price may buy sometimes a lesser, sometimes a greater quantity of these commodities, but only because their value changes, not the value of the labor which buys them. Labor alone, therefore, never changes its own value. It is therefore the real price of commodities, money is only their nominal value.' […] **In the sweat of thy brow shalt thou labor! Was Jehovah's curse on Adam.** […] **And this is labor for Smith, a curse.** 'Tranquility' appears as the adequate state, as identical with 'freedom' and 'happiness'. It seems quite far from Smith's mind that the individual, 'in his normal state of health, strength, activity, skill, facility', also needs a normal portion of work, and of the suspension of tranquility" (emphasis added in bold) (Marx 2015b, 533–34).

[42] The law, finally, that always equilibrates the relative surplus population, or industrial reserve army, to the extent and energy of accumulation, this law rivets the labourer to capital more firmly than the wedges of Vulcan did Prometheus to the rock. It establishes an accumulation of misery, corresponding with accumulation of capital. Accumulation of wealth at one pole is, therefore, at the same time accumulation of misery, agony of toil slavery, ignorance, brutality, mental degradation, at the opposite pole, i.e., on the side of the class that […] produces its own product in the form of capital. This antagonistic character of capitalistic accumulation is enunciated in various forms by political economists, although by them it is confounded with phenomena, certainly to some extent analogous, but nevertheless essentially distinct, and belonging to pre-capitalistic modes of production (Marx 2015a).

outcomes, whether more or less violent, more or less suicidal. Above all, it never renders happiness, which is part of a full life. It creates impossible means-ends logics and thus ties in with the promise of the impossible in the hegemonic ethics; e.g., women work hard for their children, but in doing so, they do not get time with their children; this circularity of means and ends is where the *promise of impossibility* becomes central to the ethics of exhaustion. This is also the problem of reduction: reductive understanding of happiness which argues that more money will bring more happiness; but in the process of making money, one is exhausted and unable to be happy.

When studying the impact of energy enterprises, for example, the necessity of a large dam is justified by arguing that it will bring *economic growth, which, in turn, will enable more formal jobs* – formal employment, narrowing dignity to the possibility of becoming part of the economic-bureaucratic system. In this way, the indigene and/or poor woman will suffer the downsides of displacement, of erasure of her means of life and culture, which she is sacrificing for the possibility of employment. This promise of impossibility is the critical-negative aspect of material ethics and the central feature of the ethics of exhaustion.

Franz Fanon, Algerian psychiatrist, studied the relationship between colonial war, violence, and mental disorders during the independence war in Algeria (1954 to 1961). In the remarkable work *The Wretched of the Earth* (first published in 1961), Fanon explains the exhaustion of a people struggling for liberation, which led to, among all the other consequences of the war, collateral violence. Fanon writes:

> Because it is a systematic negation of the other person and a furious determination to deny the other person all attributes of humanity, colonialism forces the people it dominates to ask themselves the question constantly: **"In reality, who am I?"**
> The defensive attitudes created by this violent bringing together of the colonized man and the colonial system form themselves into a structure which then reveals the colonized personality. This "sensitivity" is easily understood if we simply study and are alive to the number and depth of the injuries inflicted upon a native during a single day spent amidst the colonial regime (emphasis added in bold) (Fanon 2001, 249).

In this passage, Fanon makes clear that both the 'violent' and 'pacified' colonized respond to the violence of colonialism with some sort of mental disorder due to the loss of self-identification by their transformation into a colonial subject, their *beastialization* (Carvalho 1987); this was similar to what happened with the land, nature, and the resources – all transformed due to the constant catching-up with the colonial power[43].

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[43] 'We shall deal here with the problem of mental disorders which arise from the war of national liberation which the Algerian people are carrying on. (…) We cannot be held responsible that in this war psychiatric phenomena entailing disorders affecting behavior and thought have taken on importance where those who

There is no way to live a full life in the modern–colonial world-system. We are being exhausted before that happens.

Exhausting the Planet

The planet's exhaustion refers to a number of problems caused by human greed that are making the ecosystems unbalanced, leading to the extinction of animal and plant populations, scarcity of resources, increased global temperature, polluted water and air, and causing severe health problems in an irreversible way. The ecological issue is not a thing of privileged white wealthy environmentalists hugging trees and begging to save the Arctic whales (Guha and Martínez-Alier 2013, 59); it is also of concern to 'not-really-environmentalists' such as mainstream economists, business investors, the World Bank, governments, and mineral exporting companies. Although some would say that there is no risk of resource scarcity or mineral exhaustion (Arndt et al. 2017), a common concern is expressed in all publications about the future of resource availability, whether by pessimists or optimists: the way the exploration of natural resources has been happening in the last 150 years and the need of 'some regulatory framework and policies' for the extraction of minerals.

There are clearly different approaches between ecologists and economists when using ecological/environmental-related terminologies. Ecological and mineral exhaustions are, in fact, economic indicators (Auty 2007; Bachmann, Carneiro, and Espejo 2013) to assess businesses' viability, investment feasibility, and rate of return (Bachmann, Carneiro, and Espejo 2013, 43–45). Mineral-depletion or mineral-exhaustion *problems* refer to the availability of mineral commodities (the transformed mineral resources) over the coming decades and centuries, as Tilton explains in his book *On Borrowed Time? Assessing the Threat of Mineral Depletion* (2010). 'Availability' reflects the extent to which mineral depletion is a growing threat to the long-term welfare of society. Environmentalists measure availability by what has to be given up in terms of

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carry out the "pacification" are concerned, or that these same disorders are notable among the "pacified" population. The truth is that colonialism in its essence was already taking on the aspect of a fertile purveyor for psychiatric hospitals. We have since 1954 in various scientific works drawn the attention of both French and international psychiatrists to the difficulties that arise when seeking to "cure" a native properly, that is to say, when seeking to make him thoroughly a part of a social background of the colonial type. (…) In the period of colonization when it is not contested by armed resistance, when the sum total of harmful nervous stimuli overstep a certain threshold, the defensive attitudes of the natives give way and they then find themselves crowding the mental hospitals. There is thus during this calm period of successful colonization a regular and important mental pathology which is the direct product of oppression.' (Fanon 1990, 249–50)

other goods and services to obtain a mineral commodity, whereas economists refer to this sacrifice as the opportunity cost (Auty 2002; Tilton 2010). 'Shortage' is an economic term used to reflect an excess of demand over supply at the prevailing market price for a particular commodity. According to Tilton, such situations can happen '(…) if governments or companies control prices. They are, however, unusual, because normally when demand exceeds supply price rises, bringing the two back into balance. (…) If rising prices are needed to keep supply equal to demand, consumers are likely to find the commodity more and more difficult to afford. (…) A growing shortage or increasing scarcity is the same as declining availability, and may occur even though demand and supply remain in balance thanks to rising prices' (Tilton 2010).

Economists also established a difference between things that are renewable and non-renewable, referring to things that may be exhausted one day [or not, for some], and things that are 'inexhaustible'. For us, such difference is somehow relevant for the use of the available terminologies in literature. It is also relevant to analyze the treatment given to what is considered non-renewable. Such differentiations are Modern constructs that hierarchize the power of men over other existing things (Guha and Martínez-Alier 2013, 26–27; Shiva 2010). The ethics of exhaustion allows men to have a 'self-proclaimed' authority (universality and *la hybris del punto cero,* part of the arrogance of Modern knowledge that results in coloniality of knowledge) in determining what can be used up, and for how long. On this, Tilton explains:

> Mineral resources are the legacy of geologic processes that take place over geologic time, measured not in decades and centuries, but in hundreds of millions of years. Because the time required for their formation is so vast from the perspective of any meaningful time scale for people, mineral resources are considered nonrenewable. In contrast, many other resources, such as water, air, forests, fish, and solar energy, are considered renewable. Fish caught in the sea and trees cut in the forest can be replaced within a much shorter period of time. So their current use need not result in less being available in the future. Just how significant the difference is between nonrenewable and renewable resources, however, is debatable, because renewable resources, like nonrenewable resources, can suffer from depletion if overexploited (Tilton 2010, 59).

Hence, ecological exhaustion is about 'non-renewable' resources such as minerals or the soil, and 'renewable' resources such as agriculture practices, even the harmful practices that destroy the rivers and modify the seeds causing immeasurable impact on the future of food production (Shiva 2010). For energy planning, both kinds of resources matter since mineral commodities (considered non-renewable) and hydropower (considered 'renewable') are energy inputs in the Brazilian Energy Plan.

The problem of the irresponsible use of natural resources is not merely about regulation. The model of political and economic institutions in the modern–colonial

world-system – specially the regulatory institutions – contains the original vice and contradiction of existing [solely] to enable exploitation elsewhere without retaliation (Anghie 2005; 1996). The number of rights to protect individuals and/or the environment do not really represent a gain against the predatorial nature of international relations interfering in domestic legislation as Radha D'Souza has explained in *What's Wrong With Rights?* (D'Souza 2018). It includes domestic regulation that aims at economic growth and development. Regulating the exploitation of the territory in the modern–colonial world-system means that the masters care only about their businesses. In other words, the regulatory model is epistemically violent, as well as research on the advocacy of infinite endless mineral exploitation. Regulation does not mean the end of the cause of environmental harm (system of oppressions), it means control over the resources that, despite belonging to everyone, fall under the fallacious label of representativeness and democracy in which resources are being 'managed' (Shiva 2016, 25).

The idea that mineral resources are endless is hurtful. The issue *Geochemical Perspectives*, published in 2017, is, to say the least, irresponsible. Written from the standpoint of exhaustive ethics, the work seems to be a sponsored report to guarantee that investments in mining in the short future will be worthwhile. The authors argue that 'current reserves of [copper and aluminum] are larger than in 1972, despite four decades of continually increasing yearly production' (Arndt et al. 2017). They argue on the reasoning of reducing the carbon footprint (highly criticized elsewhere [Guha and Martínez-Alier 2013]) by digging deeper and 'more responsibly' to increase 'efficiency' and applying more up-to-date technologies: '[r]ecent technological advances allow low-grade mass mining to depths of 2–3 km to recover many of these deeper deposits, which will reduce the surface footprint and impact of mining' (Arndt et al. 2017). The work asks a rhetorical question (for the purposes of their targeted-audience's publication) '[i]s it then reasonable to warn of imminent peak production of important mineral commodities?' We believe that the answer to their self-referenced question is obvious: '*it is all good, we can keep mining and drilling as much as we want to profit from it*', so the Foreign Direct Investment (FDI) risk would be stable, the price of commodities would not suffer the environmentalist threat and the BHP Billiton shareholders would sleep well.

In the modern–colonial world-system's ethics of exhaustion, the idea that humans must radically change their relationship with the environment means going backwards in all the technological advance, against development and improvements on quality of life indicators. Mining and the consumption of mineral resources is not a thing that came up

after 1492, when the invaders made their wealth out of the silver mines in Bolivia and the gold mines in Brazil (Guha and Martínez-Alier 2013, 27). The problem is the pace of exploitation in the light of industrial financial capitalism and the modus operandi, regardless of the impact on communities and ecosystems (Shiva 2010; 2001; Gudynas 2011; Escobar 2015).

For example, the disasters of Mariana (5 November 2015 [Gormezano, Protti, and Cowie 2016]) and Brumadinho (25 January 2019 [Carneiro 2019]) consisted in the collapse of two tailing dams (dams used to hold the toxic waste from the activity of mining iron ore using water) of the mining company, Vale. These are considered the worst environmental catastrophes in Brazilian history to this date. Thousands of people, animals, and plants were murdered, communities (especially traditional communities such as Quilombolas and indigenous and riverine traditional peoples) vanished, agricultural lands were devastated, rivers irreversibly destroyed, and toxic mineral waste spread through thousands of kilometres of rivers up to the Atlantic sea. The intentionality of the outcomes of these disasters is framed in the ethics of exhaustion's intentionality in creating victims.

Tailing dams are part of the mining business. They create irreversible interventions in the environment. The mining business aims at producing commodities for surplus value. The means to produce commodities – labour exploitation and environmental destruction – are *necessary* for the business' success. In the ethics of exhaustion, such 'downsides' are necessary, therefore naturalized and hence, invisible. The victims are not perceived before the catastrophe, but they are fundamental – co-constitutive – for the implementation of the mining business. Therefore, the profit from mining only exists because of the victim's sacrifice. The naturalization of mining as a 'saving sacrifice' transforms the predatorial character of the activity into the only possible way to obtain mineral inputs: large scale, labour intensive, environmentally harmful, for commodity export. This naturalization is epistemically violent. As framed supra, violent epistemologies are direct coercive ways of imposing meanings to legitimize agendas that ensure positions of power. When the tailing dams collapse, the number of victims is bigger, but the victims – persons and the environment – were already part of the business. The collapse 'looks different', it looks like it is not intentional, looks like *an accident* exclusively because it does not bring profit to the owner: dams collapsing is not part of the business, therefore not naturalized in the 'saving sacrifice' epistemically violent discourse. The violence entrenched in the imposition of large-scale mining is

epistemically naturalized, softened until it becomes not-perceptible. The *predictably unwanted* consequences of large scale-mining are intentionally detached from the business' *predictably wanted* consequences. It is like committing a crime in which the agent not only produces the initially intended result but also goes beyond and produces the worse result. The business owner intended to create victims, but did not intend to lose capital. When victims are created without generating profit, the results are *accidental*. The *accident* is about money, not about the victims. The victims are fundamental to the business' success.

Mariana and Brumadinho are examples of the modern–colonial world-system ethics, what is impossible to fix with severe legislation, transparency, and compliance. There is no catch-word in economics that will bring the river back to life; there is no carbon footprint remedy that can restore the lives and livelihoods in the affected communities, there is no socio-impact study that can assess a better performance and efficiency of the existent remaining iron ore waste dams in the region, because it does not matter. Every year there are numerous environmental crimes like this around the [Third] world, caused by criminal actions of transnational corporations but, due to the legal characteristics of such businesses, the ones that benefit from the prejudicial enterprise are not held liable when *predictably unwanted* consequences of their actions or omissions cause incalculable harm. Protected by the corporate veil, the masters benefit from the law that encourages their types of businesses in the domestic environment, 'in the name of progress'. They say it is the *saving sacrifice*. It is not. It is just death.

There is no excuse for the exhaustive relationship with the environment. Resource abundance does not mean an economic escape against poverty in the sense that it could promote economic growth and enable a country's economic development. As a *curse*, resource-rich countries (generally in the geopolitical south) experience the contrary, as evidenced in Richard Auty's book *Sustaining Development in Mineral Economies – the Resource Curse Thesis* (1993). Auty analysed economic development in what were considered 'mineral economies' (defined as those developing countries which generate at least 8 per cent of their GDP and 40 per cent of their export earnings from the mineral sector) in countries in the Americas (Bolivia, Chile, Jamaica and Peru), Sub-Saharan Africa (Zambia), and south-eastern Asia (Papua New-Guinea). The study evidenced that 'a favorable natural resource endowment may be less beneficial to countries at low- and mid-income levels of development than the conventional wisdom might suppose. (…) [N]ot only may resource-rich countries fail to benefit from a favorable endowment, they

may actually perform worse than less well-endowed countries' (Auty 2002, 1). Although Auty (a World Bank economist searching for the promotion of the Bank's SAP policies in the 'developing world', a.k.a. the periphery, especially in countries where there are easily tradable commodities, necessary for the economies of the centre) gets to the conclusion of *poor managerial performance in the international pricing of commodities*, *weak regulatory environment*, and the *need for structural changes*, he finishes his work championing sustainable development (the type of development that attends to the Bank's regulatory framework and goals). There is a clear evidence that mineral abundance is proportional to greed and leads to misery – economic and spiritual.

The *resource curse* has little to do with the fact that there is natural abundance of hard minerals. The curse is not mystical, but a consequence of the exhaustive behaviour that cannot conceive the possibility of a rich ecosystem untouched by the masculine dominant *ego conquiro*. The curse is, as Marx referred to Smith's nature of work as the contrary of tranquility, a disturbance, humiliation, submission. The curse is the exhaustive ethics of the modern–colonial world-system, that will annihilate the one that has something to offer, if that one can be dominated, whether a coloured woman or a river.

The Exhaustive Possibilities of Knowledge and Knowing Existence

The definition of exhaustion as 'the establishment of a conclusion by eliminating all other alternatives' refers to making one single alternative prevail to the detriment of all the others. Applying this definition in a historical–political context, in which the imposition of the modern–colonial world-system takes place by a series of concomitant events – the colonial combo – involves the colonial violence of murdering or enslaving non-Europeans, the taking of land and resources, and the imposition of the European race, values, institutions, normative organizations, and knowledge.

The epistemic aspect of the exhaustion of (non-Eurocentric) alternatives remains to the present time, being shaped on the idea that what is Eurocentric is the normal/natural/good, whereas *the other* possibilities are rudimentary, non-sophisticated, not capable of establishing 'the truth', embedded in mystical (or folkloric, as said Walsh [2007b]) traditions that are considered 'not rational' and, for that reason, non-legitimate. The establishment of Eurocentric knowledge and rationality happens by banishing all knowledge and reason that are non-Eurocentric, by becoming naturalized as the only possibility of knowing knowledge (the only epistemic possibility) through the claims of

universality, objectivity, and neutrality (Castro-Gómez 2005a). Such claims are impossible since there is no 'neutrality' in domination. Hence, Eurocentric epistemic superiority does not happen naturally (Dussel 1997), but intentionally, as part of the modern–colonial world-system ethics.

The exhaustive approach perceives non-academic knowledge as non-serious knowledge, annihilating ancestral comprehensions of existence, which include political praxis – communal life. Living politically as a colonial subject forces ignorance of communal knowledges and practices of well-being as survival becomes paramount. To survive, the imperative is to 'catch-up' with the colonizer. Epistemic violence is then a condemnation of the victim since it does not allow the production and reproduction of a full life but, instead, the production and reproduction of the life of the colonizer.

This is the central argument of the whole thesis, and how the transposition of the theoretical groundwork, proposed in Chapters 2 – 5, and its application to the concept of energy, will enable the epistemic decolonial turn for energy planning. The elimination of all possible (ontological/ epistemological) ways of knowing energy by the imposition of one single possibility of 'rationally conceiving energy' as the core element of capitalist societies not only prevents thinking about energy from another locus of annunciation of knowledge, but also decides the use of energy, the management of energy sources, and the political action vis a vis energy futures in a violent manner. It entails research that advocates for the production of more and more energy inputs, under the threat of scarcity that may result in the collapse of the energy business' conglomerate: from viability studies, political lobby for the profitable use of land, mining, energy-generation businesses, energy transmission and distribution businesses, pricing of commodities, and negotiation in international markets. The whole chain is supported by the necessity of energy, whether sustainable or not is immaterial. What matters is to show, at the directors and stockholders' meeting, the chart with increasing numbers in production and profitability, expansion of markets and reach of consumer markets, in parallel with the chart of decreasing numbers of impediments such as environmental costs, delay in obtaining licenses, import and export taxes, and blaming and shaming from stakeholders.

The epistemic violence concerned in energy planning in Brazil is what the Decolonial Community of Argumentation frames into *coloniality of knowledge*, the epistemic aspect of *coloniality of power*. The epistemic dimension of the ethics of exhaustion enables the understanding of energy through the violent lens of the world-system, so the theoretical constructs can be applied in *Chapter 7*: *The Decolonial Plan*.

Such a transposition happens through the acknowledgement of the epistemic difference as explained in Chapter 3, that is, the *other* locus of annunciation of knowledge (Escobar 2003; 2002). As Catherine Walsh presents,

> To speak of an 'other' critical thought then is to give credence to ongoing struggles – struggles that are epistemic as well as political in character – to confront coloniality, thus marking a positioning radically distinct from that which locates critical theory simply within the histories and experiences of modernity and the narratives these histories and experiences have fostered and created. Such shift is important for what it helps reveal, including the subjects left out or marginalized by much of critical theory and their socio-political and epistemic agency, **but also the association between thought and social and political intervention**. Said differently, what this 'other' thought brings to light is both a political use of knowledge and an epistemic acting on the political from the colonial difference. It is an intellectual production not aimed at individual accomplishment or limited to the confines of the academy, but rather at the shared need to confront the colonial-racist structures, systems, and institutions of society through a collective praxis that finds its meaning in the condition of the colonial difference (emphasis added in bold) (Walsh 2007b, 232).

The process of establishing a conclusion by eliminating all the alternatives is then the epistemic dimension of the ethics of exhaustion. To decolonize energy means to understand it from the perspective of the colonial difference.

Conclusion

In this chapter we discussed the relevance of understanding the ethics of energy planning to enable the comprehension of the necessity of decolonial epistemologies for energy planning in Brazil.

The analysis proposed is grounded in the Dusselian philosophical developments of the Ethics of Liberation. Dussel's framework was chosen because of the author's paramount importance in Latin American philosophy and decolonial critique, part of the methodological coherence in writing from the colonial difference perspective. Through the specificities of the Latin American condition and perspective, the Dusselian philosophy acknowledges the ethical system that negates the victims. The Dusselian analytical framework lists three moments for the construction of an ethical system: the material moment of ethics – *ethos,* the content of ethics that is the production and reproduction of human life; *nomos,* the formal moment of ethics – the norm or institution that materializes the demand of ethics; and *praxis*, the means-ends of ethics, the feasibility of achieving the goodness claim of ethical systems. Epistemology is part of the *nomos*, the materialization of the ethical demands. Therefore, challenging the colonial epistemologies for energy planning in Brazil demands challenging the demands of the ethical system.

From the critical-negative aspect of the Dusselian Universal Material Principle of Ethics, that is, from what is negated by the general aim of producing and reproducing human life, it was possible to identify the victims of the ethical system. By adopting a feminist perspective, we identified that the modern–colonial world-system's ethics is androcentric and only exists because of the hierarchization of certain lives over the others. This means that the ethical system we live in is only viable due to the victimization of the majority of peoples (especially poor coloured women) and the ecosystems. In this way, privileges are naturalized as structural to the ethical system, in which the production and reproduction of the privileged lives happens at the cost of the victims' lives. Therefore, the transference of life (energy, capacity of doing work) from the victims to the privileged enables the means-ends of ethics for some individuals in society, exhausting other people, the environment, and the possibilities of rethinking the ethical systems.

The main feature of the modern–colonial world-system's ethics is exhaustion, reason why I named it the *ethics of exhaustion*. We listed the three main aspects of exhaustion that compose contemporary lives. The first aspect is people's emotional and physical exhaustion, fundamental for the maintenance of gendered and racial oppressions, indispensable for the very existence of the capitalist system (including the system of private property and division of labour). The second aspect is the environmental exhaustion, in which the victimization of the ecosystems is also the victimization of the poor and the racialized. The third aspect is the intentional limitation of possibilities of knowledge to Eurocentric frameworks, in which Eurocentric perspectives of the relationship with the land and with the other (non-European) peoples become the only way to occupy the planet, to perceive historiography, and communal identity. The three aspects form the ethical system that, to enable the life of some, impose their ways of living, culture, symbols, representations, and meanings of power, co-constitutive of European Modernity and perpetuate colonial oppressions even after colonialism (as a political system) has ended. The ethics of exhaustion is an ethical system because it contains a goodness claim, which takes place through a saving sacrifice.

The saving sacrifice is the illusion that something will be achieved, for the general good, if victims are created now. The ethics of exhaustion substantiates the meaning of energy planning in Brazil, which, by its turn, is forged in colonial epistemologies. Energy is one of the pillars of the contemporary capitalist system. Energy planning is not seen as a tool to dismantle the system because of the difficulties in challenging epistemologies

substantiated in an entrenched ethical system. This is the reason why decolonial epistemologies for energy planning are so necessary to *dismantle the master's house*.

But what is known about energy and how does it become the spine of the oppressive system? When was the ancestral relationship between peoples and the environment replaced by the exhaustive ethics of energy? The following chapter: *The Problematic of Energy* deals with historical panorama of some concepts of energy, bringing a few academic perceptions of energy for the epistemic rescue and re-signification – a re-encounter for further encounter – of communal understandings and practices of energy to epistemically transform energy planning in Brazil.

Chapter 5: The Problematic of Energy

The word energy entails many aspects of human existence on the planet. Energy could be calories, the sun, the mystery of the seed that germinates, or the strength to wake up every day to carry on vital activities. Some would think about energy as the immediate empathy that a person would transmit through a collection of senses, such as body language and mood: 'Chimamanda has a good energy'. For others, energy could be related to spirituality. Physicists would define energy as the capacity to do work; they speak of electrical, chemical, nuclear, potential, kinetic, mechanic, and thermal forms of energy. From an indigenous perception, energy represents the very existence of life, entails the life-cycles, love, and the capacity to survive on the land.

In the light of the modern–colonial world-system's ethics of exhaustion, it is reasonable to relate energy to power, violent acquisition of land, mass food production, transnational monopoly finance, exhaustion of resources, warfare – the list goes on and on.

Energy is also the spine of the contemporary capitalist system. In this perspective, energy studies intentionally separate the social and technical aspects involved in generating energy. To grasp the technicalities of energy, the subject is analysed in terms of compound nouns: *energy input, energy asset, energy source*. In the modern–colonial world-system's narrative, the relevant aspects of energy are its *supply and demand* to provide economic growth and foster industry. This way, energy studies become the consequence of the economic treatment of a group of commodities that have their costs, values, and prices determined by the transnational financial system. In the modern–colonial world-system's epistemology, the definition of energy is narrowed to fit the purposes of market dynamics.

As a consequence, knowledge about energy is hierarchized in a way that the narrative, relevance, legal protection, and the investments in research are limited to treating energy as commodity. In the age of the ethics of exhaustion, energy cannot be legitimately perceived in its broader sense. The invisibility of the non-economic aspects of energy is epistemically violent. At the top of the hierarchy of the 'possible legitimate' production of knowledge about energy, reside the aspects of economic analysis and viability, followed by the military aspects (that derive from a country's economic advantage over energy inputs), then followed by the socio-economic aspects (since they

interfere directly in the economy); and, at the bottom of this hierarchy, is the 'environmental issue'.

The 'human' factor, i.e., all the interferences in people bodies, the relationship with the landscapes, and labour will be dealt with in other branches of knowledge, in separate places as a secondary analysis for the understanding of energy. Even so, expanding the comprehension to include non-hegemonic knowledge, such as the South American indigenous ways of life like the *Sùmak Kawsay* (the Kichwa "good living") or the *Tekó Porã* (the Guarani "good-living") that have plural perceptions of energy, is far from any possible dialogue with hegemonic energy studies. Among the Guarani, *ã* – the soul – carries energy that influences the others in the community and the environment. For example, they prepare the energy of the house for the birth of a newborn (Benites 2015, 11). Despite all the *decolonial intention*[44] in academia in the recent times, giving living beings priority in energy studies remains a difficult task. It is argued here that this detachment is violent and can no longer be the ethics guiding energy studies.

The technical/social dichotomy is violent per se. Analysing epistemologically, it can be seen that the modern–colonial world-system's narrative of energy is ideological. In this narrative, natural resources are economic inputs. The scientific approach to energy is narrowed to this episteme. This limited perspective ignores the relationship between living beings and the production of energy. Therefore, the epistemology of energy planning ideologically excludes the existence of life to serve a project of power that needs energy for the expansion of wealth. In the Brazilian Energy Expansion Plan 2015–2024 (DEEP), e.g., the environment and indigenous communities are spoken of as 'challenges' for energy expansion.

The epistemological analysis reduces energy to a narrow contemporary meaning as a commodity, i.e., private property. Although it is widely accepted by both mainstream and critical scholars that energy production and distribution interfere negatively with the environment, energy is never treated as *the* environment. In this way, the scientific

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[44] There is a decolonial intention in academia. Many universities across the globe have opened a 'decolonizing dialogue'. In 2019, the word *decolonial* is trendy. But intention is not enough – there must be decolonial praxis: viable application of decolonial studies and perceptions to the hard sciences/economics/political science. It is useless to have a decolonial intention kept in the 'intercultural studies' department, as Catherine Walsh points out (Walsh 2007a). The cultural category is necessary, informative, and legitimate, but it is treated as mystical, folkloric, or 'interesting' by the hard sciences. Piercing the hard sciences with actual decolonial practices is a task that finds barriers in investments for research and political support, as we have said at the ABEP-UK X Conference in March 2018 (Association of Brazilian Researchers in the UK) (Freitas e Silva 2018), and at the OISE Decolonizing Conference (University of Toronto – Ontario Institute for Studies in Education) in November 2018 (OISE 2018).

analysis may establish a link between energy production and environmental harm and may propose more effective and sustainable ways of production. The existing epistemological approach treats energy as an economic/technical issue and sees socio-environmental harm as a consequence of energy production; however, it is necessary and valid to perceive the socio-environmental consequences as part of the process of obtaining energy inputs for economic purposes. In this reasoning, socio-environmental harm is *necessary* for the production of commercial energy as *condition* to it, not as consequence. Every energy plan contains the veiled premise that the socio-environmental harm will happen. The DEEP, however, does not include the necessary socio-environmental harm among its premises. The DEEP's premises are the macroeconomic scenario, the expected industrial growth, the foreign markets, and so on. The ignorance of some of the conditions for energy production informs the DEEP's ideological character since it is not a coincidence that unspoken premises are precisely those that will limit the indiscriminate business expansion and profitability. The Energy Expansion Plan that chooses which of the conditions to produce energy will be informed, and which will not, is epistemically violent.

The following section is a critical historical literature overview on energy matters, with an introduction to a critique of hegemonic knowledge, discussing epistemic violence and the limitations of academia in decolonizing knowledge, i.e., in bringing in non-Eurocentric knowledge. Thereafter, some examples of mainstream scholarship about energy will be discussed. For the purpose of this study, the mainstream approaches to energy are divided into two main categories: the liberal (or neoliberal) branch of study and the hegemonic–environmentalist (or 'sustainable development' environmentalist) branch of study. In the sequence, a literature overview on some critical lines on energy matters will be presented. This literature overview is presented with a historical perspective in order to clarify the element of coloniality in the approach to energy, explicated in the ethics of the modern–colonial world-system.

Mainstream Scholarship and Energy

Mainstream scholarship about energy assumes that there is an 'energy paradigm'. In this paradigm, energy is necessary to maintain and foster industrial and economic growth, and, as a subject, must be thought of accordingly to meet industrial demands.

This generates a whole elaborate framework to justify energy studies that underpin industrial expansion.

The energy paradigm in the 21st century contains two main categories: the *developmental* framework and the *sustainable* (or sustainable development) framework. As two approaches to the same industrial practice, paradigmatic studies on energy do not intend to tackle the privilege and monopoly of energy sources by few individuals in society. They are concerned with market flows, regulation, and business feasibility, fomenting the idea that transnational capital flows and the transnational energy business are necessary for human existence.

The developmental framework is grounded in the liberal agenda of privatization, liberalization, and competition in the energy business. Focusing mainly on fossil fuel energy and electricity production, the largely accepted mainstream literature on energy is concerned with market efficiency, regulation, and policy. In these works, it is challenging to find any mention of people, animals, or landscapes, while the vast majority of works are declared advocacy [or supplication] for capital intensive investments from public and private investors (Green 2001; Moutinho, Vieira, and Carrizo Moreira 2011; D. D. Anderson 1981; Pérez-Arriaga, Jenkins, and Batlle 2017; Siano 2014; Tesfatsion 2018).

Historically, the constitutive lines of the developmental theorizations on energy get central importance from the European industrial and scientific revolutions, from the sixteenth century onwards. The industrial and scientific revolutions cannot be detached from the hierarchization of power, European expansion, and the violence entrenched in it. These facts are direct consequences of the formation of the nation-states and their secularization, the emergence of colonial powers and capitalist international trade, the accumulation of capital through the exploitation of enslaved and semi-enslaved labour, and the exploitation of natural resources on an industrial scale in Europe and around the world (Dussel 1997; 1994; Mignolo 2011; Grosfoguel 2013).

The emergence of Newtonian mechanics in the 17th century, the theorization of property laws (and its derivatives for the exploitation of the soil, above and below), and the nineteenth century's laws of conservation of energy and thermodynamics influenced the mainstream perspective of energy, naturalizing the shift from human and animal work to sources of energy from natural resources. This naturalization was necessary for separation of the technical from the social aspects of energy: the economy directly influenced the scientific discoveries, whereas its social relevance and consequences

would be dealt with in other branches of knowledge. Technological developments became assets and technology became industry.

> The theory of energy as it unfolded in this crucial decade did not descend from the heavens, but bubbled up from the hidden abode of industrial production (Bellamy and Diamanti, 2018).

Energy production, from this perspective, has always been a capital-intensive business that involves occupancy of land, the need of easements for transmission and logistics, and exploitation of natural resources such as coal and water (and from the second half of the 20th century, oil). Hence, it is accurate when Bellamy and Diamanti inform that '(t)he emergence of the doctrine of energy […] is implicated in industrial phenomena' (Bellamy and Diamanti 2018, xiii), but it must be mentioned here that the industrial phenomena in question is the European one, and that it happened through the victory of colonialism (Dussel 2013, 1994).

The theories of conservation of energy and the exponential industrial growth of the late nineteenth century followed the modern–colonial world-system's ethics of exhaustion, substantiating the image of inexhaustible energy and capacity for industrial growth. During the 20th century, energy studies evolved from the technological deployments of the world [European] wars, becoming issues of national defence with the discovery of nuclear power and the shift into the oil economy. From the 1950s onwards, nations used the discourse on international development to reframe the colonial rule of usurpation of land and resources as a new agenda of the development of the Third World.

The idea that energy reserves and enhanced national industry should be seen as national guarantees in the face of international military threats was very useful for the imperial and colonial powers. However, it was not in the interest of the expansion of the economy and liberalization of markets in the former colonies, after the end of colonialism. The independence of the colonies created the need for a different type of exploitation that would ensure that the imperial powers continue to rule the international economic game. Therefore, instead of the direct control of colonial production, there would be financial monopoly, and, instead of colonial powers settled in the colonies, foreign direct investment, disguised as national investments and national development, would replace the colonizers in the newly independent nations.

With the cold war in the background, from the 1960s onwards, the expansion of industry and energy technologies had a political connotation that forced nations to choose the expansion of industrial economy via its liberalization or nationalization. Either way, the growth of industrial capacity was necessary in the New Economic Order, and hence

the need for reliable energy reserves. While oil became a great asset for industrial expansion, production of electricity from hydro or nuclear power plants boomed all over the world, dragging in the whole infrastructure business with it. Nations would demonstrate economic stability by building huge concrete-heavy capital-intensive power plants; this happened in both socialist and capitalist economies (Pahuja 2011). The development of technologies for energy guarantees perpetuated the colonial practice of absurd use of the territory. In Brazil, for example, the military dictatorial regime made massive investments in infrastructure for the construction of large hydropower dams such as Itaipú and Tucuruí, for opening of roads in Amazonia, and for the expansion of the mining sector. Alongside the infrastructure, dozens of viability studies were carried on for building dams in the Amazonian region.

The increased investment in scientific discoveries and new technologies sprang from the need to sustain economic and military power during the cold war. In the 1980s, the scholarship on energy was embedded in the discourse of development, underpinned by the UNCTAD (United Nations Conference on Trade and Development) in 1964 and followed by the ECOSOC (United Nations Economic and Social Council). Massive research was carried out by the institutions within the ECOSOC, as also by the World Bank. The advent of the Human Right to Development was one example of the United Nation's attempts to foster the developmental agenda following the 1970s global oil and financial crisis.

The Liberal and the Hegemonic-environmentalist Branches of Study

The advocacy for the liberalization of markets and foreign direct investment in the Global South culminated in the neoliberal agenda after the overthrow of the socialist block. The 1990s were marked by intense research, mainly sponsored by private institutions, for new energy technologies and, specially, for understanding market dynamics, markets regulation, and transnational capital flows. Yet no environmental concern was evidenced during the neoliberal decade, mostly because it was said to be a concern of the states, not of private investors, as echoed at the Earth Summit in 1992 and the Agenda 21. Up until the 2000s, the 'energy paradigm' disregarded the environmental issue as a problem of businesses owners, which led mainstream research on energy to the *new energy paradigm* (Helm 2007).

The self-proclaimed 'new energy paradigm' is a derivative of the 'old paradigm'; it suggests that energy be re-politicized to stop treating energy exclusively as a commodity and to oversee problems related to energy from beyond the agenda of security-of-supply. Despite these attempts to evidence concerns for the so called 'environmental issue', it assumes that the 'old paradigm' of liberalization of markets, privatization, and competition worked well in the 1980s and 1990s, but *now* it is no longer *sufficient* (Helm 2007, 10). Bringing examples of capital exporting nations such as the United Kingdom, Helm states that the energy-intensive industry business was replaced by financial services and other intensive activities because of the problem of energy efficiency and volatility of energy prices.

The new energy paradigm relates to the concern in the transnational monopoly financial system over the instability and the low rate-of-return in energy investments, representing an unwelcome emerging trend in the era running on the agenda of liberalization. Energy investments became risky and minimally profitable and prices too volatile, which brought back the figure of the state to handle the energy problem. However, such a line of argument is not clear for the liberal scholars of the new energy paradigm. The central argument is that climate change and environmental catastrophe demand *more investments in new technologies* to guarantee *more reliable supply and demand* and hence, *more stable prices*. The new paradigm calls for more investments, more capital flows, more technologies, and for a transition from the old energy economy to a happier efficient reliable energy market with assured rates of return (World Bank 2014).

The new school on energy seems to believe that embedding the word *sustainability* in order to foster more investments and technologies would change the previous model of risky energy business. Their line of argument is that the decades of liberalization were good while the profits were high. Now, there is a need for a better regulatory framework in the transnational energy markets that would make investments more stable. This role should be played by the states that would absorb the risk and make energy markets a better field for investors to play in ('making energy markets great again'). Then, being sustainable would mean investments in technologies other than fossil fuel or nuclear power, but not abandoning the oil economy and not changing the systems of distribution or sale of energy in the regulated markets. It is almost obvious that coal, oil, or even hydropower are environmentally problematic businesses. However, it does not help in any way to simply change the type of technology without changing the system

of energy sales, distribution, use, and its relationship with individuals and land. Furthermore, energy planning – the future projections about energy – does not involve any change in the industrial modus operandi, in the economic growth expectations, or in the market dynamics to control energy assets. The future remains a projection of the past, underpinned by cutting edge research. It sounds contradictory, but it is, in fact, the substance of the system of oppressions that uses both energy planning and scientific discoveries to protect power relationships.

The core refutation for this kind of research is that they consist of complex elaborations to maintain the same system of exhaustion of resources and social inequalities. There is no novelty in discussing how markets should be regulated or efficiency be increased in businesses models for more profitable energy markets. The difference between the old and the new paradigm of energy is the addition of the environmental issue, made regardless of any actual change in the capitalist ways of production, which remain ethically exhaustivist. The tautology of finding more beneficial ways of investing in the predatory transnational finance energy business is, in itself, prejudicial to public well-being. Moreover, when closely observed, it is possible to detect the element of fear among investors from capital exporting countries, when foreseeing a decline in industrial production. The more exhausting and destructive, the better. The colonial 'techno-utopian mastery of nature' (Bellamy and Diamanti 2018, xx), which emerged in prominence in the course of World War 1(WW1), remains as the long-term energy paradigm. The colonial project continues, it is the ethics of the modern–colonial world-system.

Critical Scholarship and Energy

For the purposes of this study, the critical lines on energy are the ones that challenge the industrial–financial–capitalist perception of energy. Originating from the materialist critique of industrialization in the nineteenth century, there is a large number of different critical, philosophical, and scientific approaches to the issue of energy, namely the studies in subaltern perspectives, anticolonial and postcolonial studies, feminist and decolonial works, and the Latin American Decolonial Community of Argumentation. None of these works, however, approach the specific issue of energy planning, let alone take an epistemological approach to energy planning. Critical studies

also share a common problem – the difficulty of interfering with the agenda of exhaustivist exploitation of energy inputs.

To start this discussion on critical scholarships, it is relevant to discuss the importance of historical materialism for the critique of energy. It is also fundamental to the developments that led to the decolonial critique, historically grounding the material part of the theoretical framework to propose decolonial epistemologies for energy planning. The standpoint of historical materialism is that the dialectical method presupposes the understanding of things, their interactions, and changes and the material world and its processes of transformations. The understanding of energy must begin by considering that bodies and the environment have no existence apart from the totality of the processes out of which they are constituted, which is not a mere critique of capital per se. According to Bellamy and Diamanti,

> (h)istorical materialism is born in the same breath as the doctrine of energy conservation, not as a version of it, but as a rejection of its uncanny claim on value, history, and labor. For a political economic framing of energy and capital, one might search out the technical location and impact of energy in general on the composition and scientific critique of capital (Bellamy and Diamanti 2018).

In looking at energy dialectically, the environmental aspect of energy production and distribution gets central importance because of its relationship with the exhaustion of natural resources and global distribution of wealth. During the twentieth century, orthodox economists did not frame the environmental issue as the economic incommensurability of existence and interaction between humans and ecosystems in the planet, raising a false dichotomy of monetary values versus environmental values. Such dichotomy is false because there is no monetary economy isolated from the use and occupancy of territories and labour, which are environmental discussions per se. However, the dichotomy remains in shaping policies and studies about energy; hence, the relevance of the historical materialist critique. The Brazilian DEEP, for example, clearly claims that certain socio-economic and environmental 'impacts' (the euphemism for harm) are necessary for alleged socio-economic benefits (MME and EPE 2015, 395).

Marxist studies and environmentalist studies went through a period of difficult interaction, in which the latter was seen by southern Marxists as a 'romantic industrial trend', some sort of western 'play' to keep the Third World underdeveloped (Guha and Martínez-Alier 2013, 23). During the second half of the twentieth century, environmentalism was immediately related to a frivolous upper-class trend, in the sense

that one can only be concerned about the environment if properly fed, accommodated, and living with minimal dignity.

Authors like Ramachandra Guha and Joan Martinez-Alier focused on the ecological distribution of conflicts in a transition from political economy to political ecology, as well as an economic ecology based on the impossibility of attributing [market] value to life (Guha and Martínez-Alier 2013; Martínez-Alier 2014). The proposition of political ecology and economic ecology critiques the alleged neglect of ecology by Marx, stating that Marxists have resisted the introduction of ecology into historical explanation perhaps because of the fear that this could 'naturalize' human history.

> Although Marx and Engels were contemporaries of the physicists who established the laws of thermodynamics in the mid-19th century, Marxian economics and economic history were based on social and economic analysis alone. (…) [T]he debate on whether growth of the economy goes together with a parallel growth of the use of energy and materials is still very much alive today (Guha and Martínez-Alier 2013, 26).

Instead of naturalizing human history, Guha proposes the necessity to historicise ecology, on the counter movement of the social Darwinisms that are still in vogue in the ecology/economy tension. Ecology is not a 'longue dureé backdrop to human history'; sometimes, it changes more rapidly than economic or political systems, as in many regions of the Americas after 1492 and again today with global warming and mass biological extinction (Guha and Martínez-Alier 2013, 27). The idea of ecosystems' incommensurability opens a broad political space for environmental movements; the idea may be recent for the scientific and social critique of capitalism, but it has been the core of the ontologies of the colonized peoples of the world. The separation between the social, environmental, and technical aspects of the economy is a modern phenomenon, as well as part of modern science and social determinisms, as part of the ethics of the modern–colonial world-system configured from the late fifteenth century.

The rise of the 'environmentalism of the poor', or the environmentalism of the Global South, in contrast with the movements that originated from wealthy nations clamouring for the reduction of pollution, the preservation of forests, and the saving of whales, happens simultaneously with the colonial invasion of territories and acquisition of land. The academic use of social movements' claims has to do with the visibility of specific movements in specific places. In a Eurocentric academia, the environmental movements that take place in Europe and in the United States would be visible, while the vast majority of the world's population claiming their indigenous lands, their ontological relationship with the landscape, and their political organization to co-exist in the natural

environment producing food, having commerce, and livelihoods would be ignored. Furthermore, a bigger problem happens when European environmental groups project their own environmental problems as global ones. The problem of large dams, for example, was seen in Europe as an environmental one, whereas in the Global South, it was always one of subsistence, agriculture, rural economies, and displacement of rural people.

The spread of conflicts reveals such historical processes. Central to this is the ownership as it is held of places and discourses is to the detriment of the actual occupiers of the environment. As an example, in the twenty-first century, Europeans have exceeded their rightful per capita carbon dioxide allowance to a great extent; they act as if they own a sizeable chunk of the planet outside of Europe, but "nobody is charging them a fee" for this (Guha and Martínez-Alier 2013, 31).

The association of energy production and distribution with economic growth and economic development (or sustainable development – a branch of the same predatory system), aligned with the necessity of attracting investments and increasing industrialization for the economic catch-up of the poor, led to the late industrialization of the colonized world. When the environmental movements of the rich came out in the mid 1960s, the wealthy countries' industrialization had been in place for at least a century, together with the environmental and social catastrophe necessary for industrial expansion. The imperialist expansions of the twentieth century, the discourse of economic growth and development, and the discourse of sustainable development forced the predatorial industrialization of the North to migrate to the political South as the 'salvation of the poor'. In the oppressive ethics of exhaustion, the goodwill of capital-exporting countries as well as their nationals' precious investments in the host countries should be awarded with benefits in exchange for the investments, such as most favourable investment laws, tax incentives, more flexible labour legislation, and non-restrictive environmental legislation. This disguised colonial rule has increased and accelerated environmental degradation and poverty.

A shallow observation of this phenomena, specially by mainstream analysts, operates in favour of the hegemonic system, in a cycle of oppressions that ends up blaming the victims, creating an impression of 'the poorer, the dirtier, the more polluted, the more deforested'. That is, the oppressed (framing gender, race, and class), on top of everything, are also accused of devastating the environment. Thus, they would need international environmental scrutiny and control, more technologies to reduce

environmental catastrophe and, of course, foreign investment and international aid. This also informs an epistemological problem, in which legislation corroborates the oppressive narrative; and in which energy enterprises, for example, are legally degrading the environment and increasing social disparity through official legitimate mechanisms.

The idea of sustainable development is linked to wealth in the mainstream liberal agenda of opening economies to operate in global markets. Wealth may or may not provide means to correct environmental damage, but unscrupulous economic growth is definitely a historical cause of environmental and social catastrophes.

Observed as conventional attempts to blame the victims, the correlation between per capita income and some measures of environmental quality have been challenged by subaltern scholars as evidencing the opposite, how economic expansion of the hegemonic economies remains the absolute cause of accelerated annihilation of prospects of balanced ways of occupying the planet. By defining the concepts of human carrying capacity and population pressure, it is possible to understand the dynamics of abundance, waste, the need to supply foreign markets, and possibilities of more equitable distribution of resources, without pinning on the poor the tragedy of the modern–colonial world-system's ethics of exhaustion.

Human carrying capacity and population pressure are important concepts for the study of energy planning. Associated with population growth, the concept of human carrying capacity is the maximum population size that the environment can sustain indefinitely, given the food, shelter, water, and other necessities of human groups available in the environment they occupy. Population pressure is the pressure exerted by deforestation and demand for arable land by a rapidly increasing and dense rural human population outside of protected areas (Ryan et al. 2017). Excess population could cause ecological degradation. From a decolonial perspective, however, the issues of population pressure on resources and carrying capacity are related more to historically reiterated multiple levels of socioeconomic and political oppressions at local, national, and global levels.

Population pressure on resources in capitalism is immediately related to production pressure on resources. Large-scale production for export dates back to the introduction of the plantation systems and mining in the Americas in the sixteenth century, i.e., violent taking of land, ethnic cleansing, enslaved labour, and the invaders' monopoly of local resources. In the twenty-first century, this system remains with the same structure and operates with the same methodology as of the colonial times. This

leads to a big question in challenging capitalism: is supplying foreign markets necessary? One cannot be fundamentalist on this, but there are obvious limits on how and what should be produced, and these limits define legitimate consumption and waste.

The distinction between local and export agricultural production, for example, turns production pressure on resources into population pressure on resources. In South America, there is abundance of and capacity for production, but there is no way that the local population can use all the resources available. It could be a case of small-scale production for local consumption, which Liebig's agricultural chemistry evidenced in 1840. It cannot, however, co-exist with exponential industrial growth – it is related to the ethics of exhaustion. Increase in population numbers is not justification for the discrepancies in the distribution of resources. If that was the case, Europe would be responsible for the world's inequalities, acknowledging that from the sixteenth to the twentieth century, the greatest demographic expansion was generated by Europeans, both within Europe and in the countries to which they emigrated (Boserup 2017, 55).

Ester Boserup suggested that a way to overcome production pressure would be through the use of technology in modern agriculture in a sustainable way, for both the supply of goods locally and externally and for the production of renewable energy. Her thesis, however, implicitly excludes external subsidies to the agricultural economy, does not evoke the problem of ownership and occupation of land, and hence, does not tackle the agricultural economy in question – again, it is an ethical problem with the backdrop of the ways of occupying land and distributing wealth. Historically, energy inputs and minerals have flowed from the periphery to the centre, which must be cautiously observed in ecological history.

Energy inputs are not appropriate measures for the distribution of resources and the supplying of foreign markets. In the transnational market economy, the liberal flag of freedom of contractual relationships reduces itself to the acceptance of prices as measures of value. This disregard the influence of monopoly in the distribution of income and pricing becomes an adequate measure for the value of shortage of resources and of current and future value of production (Guha and Martínez-Alier 2013, 56). Considering the economic history of humanity is the history of international trade and migration, it is observed that the colonial character of distribution of resources configures a pattern of power that endorses exploitation. The surplus economy is violent, manifested in the ethics of exhaustion.

Economic growth under capitalist production is much more a cause of environmental degradation than poverty. Nevertheless, Guha explains that poverty can cause environmental degradation because of the inability of the poor to afford better domestic fuels, for example, the unaffordability of energy inputs increases the use of firewood. This phenomenon was appropriated in the discourses of international aid such as the World Bank Structural Adjustment Programmes (SAPs), and was, therefore, condemned by subaltern scholars and social movements. The SAPs evidenced a general idea that if the poorer sections and the more populated sections are given a territory, the higher the need for energy inputs, and hence, the more degraded the environment. Such a discourse was widely accepted in countries from the centre and from the periphery, because the former wanted to send 'aid' in the form of exporting capital or the peripheral countries' liberal elites were keen to expand markets and improve commercial relations in the transnational markets or the mainstream left-wing elements were convinced that aid could be useful for investment in social programmes. Embedded in colonialities of power and knowledge, the manufactured consent propagated by the World Bank through the SAPs convinced wannabe-European intellectuals in the Global South that poverty and environmental degradation were correlated; and this became a prejudicial common sense – implying that the 'curse' of the poor is *bad management* (Auty 2007). Although the critical environmental and social movements from the Global South had been historically complaining about ecological degradation, they did not speak the same language as the environmentalists from the North. The tension of speaking the language of the environmental movements of the poor to deaf liberals unleashed numerous conflicts caused by the imposition of the SAPs[45]. Again, this tension is epistemological, because the recognition of the non-hegemonic claims from Global South demands a language other than the imposed knowledges about the relationship between people and the environment.

The idea that generalised economic growth is good for the environment is unacceptable because some forms of wealth are inseparable from resource exhaustion and pollution. Moreover, the close correlation between per capita income and the use of commercial energy makes economic growth and the increasing use of energy and natural resources inseparable (Guha and Martínez-Alier 2013, 70). From this perspective, the problem of private ownership of territories and resources becomes more evident. The

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[45] Like the Cochabamba Water Wars and others.

colonial rule of divide and conquer entrenched in the system of private ownership of land has been one of the main causes of social disparities and environmental catastrophes. This issue is fundamental to the epistemological critique of energy planning. Economic growth is the justification for energy expansion. The epistemological problem is the lie disguised as truth. Economic growth is harmful socially and environmentally and does not bring the alleged collective benefit that justifies its necessity.

The conflicts between monopoly of production, expansion of production, and the incapacity to feed the population is discussed in Vandana Shiva's work *Earth Democracy: justice, sustainability, and peace.* Through the concept of an earth democracy, Shiva proposes another type of relationship of the commons with the landscapes, food production, and trade – the *ecofeminism*, denouncing the limits of representative democracies within the global panorama of control of markets via commoditization of life and resources. By framing predatory and lethal anthropocentrism, patriarchal relations of power, and unscrupulous industrial agriculture, Shiva denounces the total failure of representative democracy; this, Shiva argues is because the constitution of representative democracy is a system that originated in the need to control international trade – co-constitutive of the modern–colonial humanist epistemologies of ownership of the world and human superiority over all other species. For us, ecofeminism, as well as traditional ways of living such as the Kichwa *Súmak Kawsay* and the Guarani *Tekó Porã*, is the counter-movement to the ethics of exhaustion (Benites 2015; Litaiff 2008; Zaffaroni 2010).

By criticizing the industrial myth that credits technology as the reason for the growth of the British textile industry, Shiva observes that, in 1750, the Chinese and the Indians produced 73% of the world's textiles, arguing that it was the combination of tariffs and prohibitions that led to the growth of the industry in England (Shiva 2016, 28). The exploitation of energy inputs can be analysed in a similar fashion, considering that power plants and dams are built with public funds, but they aim to satisfy the energy and water needs of industry and the irrigation of large-scale export agriculture (Shiva 2016, 30).

> Goods were traded across borders before colonialism. In fact, colonialism was caused by the desire to control that trade.
> (…)
> Globalization is, in fact, the ultimate enclosure of our minds, our hearts, our imaginations and our resources (Shiva 2016, 30).

In *Earth Democracy*, the idea that environmental movements are luxuries of the rich is then challenged, being instead seen as survival imperatives for the majority of people whose lives are put at risk by the market economy and threatened by its expansion. Shiva's work was severely criticized by Eurocentric ecologists and the mainstream 'sustainable development' liberals, and even by environmentalists from the South for many reasons, but all of them were centred around the accusation of the 'romantic character' of *Earth Democracy*. This is because epistemic violence is not obvious, since the violence of the narrative to challenge the capitalist ways of production is hidden behind the veil of an ethical system that naturalizes the exhaustion of persons, ecosystems, and knowledges. It is also about the androcentric entrenched character of philosophy and academia in general. Critical scholars, as well as mainstream scholars, condone the ethics of exhaustion as the only way of existing, as a result of entrenched colonialities of power, being, and knowledge.

It is interesting to identify coloniality of knowledge and coloniality of being in the critique against Vandana Shiva's *Earth Democracy*. First, because she writes in a different manner, addressing also women in communities, using a different language, including words such as compassion and love, which sounds unacceptable to the academic economic rhetoric. She also calls for ontological perceptions of social relations, involving livelihood, maternity, and spirituality, which, for the technocratic scholars of politics and economics, are nonsense because their rationality is forged in the colonial ideology. The epistemic violence of the legitimated discourses substantiated in the ethics of exhaustion then prevents the dialogue in other languages for economists. However, the central critique against Shiva's work resides in the fact that she proposes total separation of the corporations that delineate life in the planet from the dynamics of the economic 'democratic institutions'.

Shiva sharply criticizes the WTO, the IMF, the World Bank, Wall Street institutions, and the transnational monopoly finance. She also points out that cultural nationalism emerges as the twin of economic globalization, propagating the powerful structure of hierarchization of life in the planet. By linking liberal democracy to economic dictatorship, it is clear that political change does not imply changes in the economic policies. 'No matter which party rules the office, in reality, corporations rule' (Shiva 2016, 74).

Critical, But not *That* Critical

Shiva's *Earth Democracy* is a good contribution for the movements that search for ethics other than the modern–colonial world-system's ethics, calling for communal approaches to life and the planet's resources. However, observing the type of critique against possible communal approaches to existence, it is clear that energy as a concept is perceived as a commodity both by mainstream and critical scholars. Decolonizing energy planning means decolonizing knowledge, institutions, and territories, e.i., to bring epistemologies from others rather than the Eurocentric cannon of annunciation of knowledge. Energy planning must aim at non-exhausting relationships; hence, the ethical discussion is of central importance.

While the intentionality of the predatorial ethics is not questioned, scholars continue to search for the magical solution for social–environmental catastrophes. It is not enough to educate the oppressed about the oppressions they undergo. It is not enough to identify the harm of predatorial behaviour against living beings and the ecosystem. It is necessary to embody the understanding of the intention to exhaust of the world-system's ethics. It is necessary to acknowledge the victims, as Dussel says, but it is mandatory to confront the whole predatorial education that the oppressed and oppressors are raised on.

Hence, it is fundamental for the epistemic decolonial turn to acknowledge the ethics existing in the modern–colonial world-system: the ethics of exhaustion. It is useless to identify the victim and the oppressor, without recognizing privileges. Such privileges are centred in patriarchal, racist, and classist structures for the identification of the place of annunciation of knowledge. How can one have empathy with the victims without acknowledging our own privileges? This also means that, as humans, it is difficult to perceive other living beings and ecosystems as victims, as we benefit from them. Having said that, the understanding of the ethics of exhaustion is fundamental to the perception of the victims as 'others', without trying to liberate them by some sort of 'generosity', 'white or patriarchal guilt', or 'Christian regret'. This way, it is possible to take the meritocratic burden of liberation from the victims' backs: without pretending to understand their condition while living the same exhaustivist ethical life. As the great master Paulo Freire said:

> Any attempt to 'soften' the power of the oppressor in deference to the weakness of the oppressed almost always manifests itself in the form of false generosity; indeed, the attempt never goes beyond this. In order to have the continued opportunity to express their 'generosity', the oppressors must perpetuate injustice as well. An unjust social order is the permanent fount of this

'generosity', which is nourished by death, despair, and poverty. That is why the dispensers of false generosity become desperate at the slightest threat to its source (Freire 2000, 44).

Conclusion

In this chapter we discussed some academic positions about the definition of energy and pinpointed the fundamental difference between perceptions of energy in Eurocentric academia and non-Eurocentric communal ways of living. In chronological order, we covered the mainstream and critical [Eurocentric] scholarships that discuss energy. A common element between the two chunks of knowledge is the perception of energy as a commodity – energy inputs. As criticized earlier in Chapters 2, 3, and 4, there are limitations in perceiving energy without the technocratic lenses of Eurocentrism. This difficulty feeds the capitalist exhaustive approach to energy, which fears that applying indigenous and/or feminist perspectives would make energy studies less reliable or serious. Nevertheless, the Guarani perception of energy can be found in different words such as the *ã* (the soul) and the *mbaretekue* (environment, energy), including the phenomenon of life, the soul, the capacity to live in harmony with the land, and the land itself. This is the epistemic look that makes more sense when thinking of the future, instead of othering the ecosystems and fetishizing energy futures regardless of the means to enable it, in the example of the Guarani perspective, we are all included as energy. This way, we move towards a feasible future, in which we all exist – a look at the Guarani ethics of abundance, as opposed to the Eurocentric ethics of exhaustion.

Understanding the ethics of energy is then a propaedeutic matter leading towards the decolonization of cultural, communal, scientific, and institutional meanings of energy planning, in a movement from abstraction to material application, from *ethos* to *nomos*, *physis* to *praxis*. Energy is a concept, and energy planning materializes it.

Energy planning is then institutional machinery or apparatus for the obtaining of energy inputs in the light of the ethics of exhaustion. Such an apparatus is localized in time and space, demanding a case study and a specific analysis, since it must be studied considering historical, geopolitical, and human contexts. Once this is done, it is possible to bring back the concept of energy and organize decolonial epistemic pathways for energy planning. Hence the following chapter localizes the activity of energy planning by analysing Brazilian history and the Brazilian (legal) nature of energy planning.

Chapter 6: The Brazilian Energy Planning

Although the epistemological analysis of energy perceives the entire planet as a complex integrated system, energy planning is a localized phenomenon related to political, territorial, and social aspects, and reflecting the international political and economic scenario in a given period of history. This way, the study of energy planning must be framed in time and space. The choice of analyzing the Brazilian case is due to the specificities of the country's geopolitics, history, and society. In the following sections, we contextualize Brazilian energy planning geopolitically, historically, and legally. Thereafter, a brief history of energy planning in the last 60 years will be used to link historical oppressions and the current epistemically violent Brazilian Energy Expansion Plans. Finally, the epistemological critique, the scope of the thesis, is brought to discussion by linking the Brazilian colonial origins and the entrenched coloniality of the management of natural resources that is configured in the DEEP; the ethical system that justifies the exhaustivist approach to energy; and the premises that define the goals for energy planning in Brazil.

Brazilian Energy in the Geopolitical Context

The first specificity for the choice of the Brazilian case is geopolitical, referring to the variety of possibilities in energy production and commercialization. In Brazil, the geography is favourable to the exploitation of various energy inputs (as evidenced throughout the DEEP), whether renewable or non-renewable energy[46], – placing the country as one of the main *players* in the international energy business (World Energy Council 2019, 162–64). The geopolitical context also informs the peripheral position (on the centre–periphery model of the modern–colonial world-system) of Brazil as a host country for foreign (direct or indirect) investment, in which the economy is based on the exportation of commodities, vulnerable to market oscillations, and dependent on the economic situation of wealthy countries of the Global North. The Brazilian geopolitical position reflects its colonial history, in which coloniality of power permeates all the aspects of energy planning.

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[46] The definition of what could be a renewable energy source is questionable. Hydropower, for example, is considered a renewable source of energy in the DEEP, but severely challenged by specialists like Phillip Fearnside and others (see Fearnside 2009; 2004). In perspective, hydro is "more renewable" than fossil fuels, but the socio-environmental harms caused by large dams are irreversible.

Brazil's energy potential includes vast oil reserves in the deep waters of the Atlantic coast – the PreSalt and underneath a large extension of the Brazilian Amazon – as well as reserves of natural gas and abundance of freshwater in its large and flowing rivers. Brazil is the largest producer and distributer of electricity in Latin America, occupying the fifth position in the international ranking of the most dammed countries (CIGB 2018). The country is also responsible for supplying some of the neighbouring South American countries with electricity, oil, and gas (Eletrobras 2016).

Let us briefly illustrate the role of Brazil as a key player in the global energy markets, although peripheric in positioning its power. The DEEP informs that the Brazilian energy matrix is composed of 54.8% of non-renewable sources and 45.2% of renewables, as shown in Table 1. The non-renewables consist mainly of oil and gas but also include nuclear power and mineral coal. The oil and gas industry in Brazil accounts for 46.7% of the total energy production in the country.

Evolution of the Internal Offer of Energy in the Decennial Horizon

	2015		2019		2024		2014-2024
	mil tep	%	mil tep	%	mil tep	%	Variance (% year)
Non-Renewable Energy	**172,074**	**57.5%**	**183,717**	**55.0%**	**218,793**	**54.8%**	**1.7%**
Oil and Derivatives	114,319	38.2%	122,109	36.6%	139,250	34.9%	1.5%
Natural Gas	33,949	11.3%	33,305	10.0%	46,956	11.8%	1.3%
Mineral Coal and Derivatives	17,947	6.0%	19,320	5.8%	22,991	5.8%	2.7%
Uranium (U308) and Derivatives	4,038	1.3%	6,858	2.1%	6,986	1.7%	5.6%
Other Non-Renewables	1,827	0.6%	2,125	0.6%	2,609	0.7%	3.7%
Renewable Energy	**127,289**	**42.5%**	**150,246**	**45.0%**	**180,659**	**45.2%**	**4.1%**
Hydro and Electricity	40,417	13.5%	45,073	13.5%	53,270	13.3%	4.3%
Firewood and Vegetable Coal	22,403	7.5%	22,993	6.9%	27,444	6.9%	1.0%
Sugar Cane Derivatives	50,212	16.8%	60,171	18.0%	67,586	16.9%	3.5%
Other Renewables	14,256	4.8%	22,009	6.6%	32,358	8.1%	9.9%
Total	**299,362**	**100.0%**	**333,964**	**100.0%**	**399,452**	**100.0%**	**2.7%**

Table 1 - Brazilian Energy Matrix in the Decennial Plan (MME and EPE 2015, 436)

Oil and derivatives encompass 34.9% of the total energy production in Brazil. In 2015, according to a survey made by the Brazilian Oil, Gas and Biofuels Institute – Instituto Brasileiro de Petróleo, Gás e Biocombustíveis (IBP) – based on data produced by the Brazilian National Oil Agency – (Agência Nacional do Petróleo (ANP)) – the

largest company in the sector is Petrobras, followed by BG E&P Brasil Ltda, Repsol Sinopec, Statoil Brasil, Shell Brasil, Petrogal Brasil, Sinochem Petroleo, OGX and others.
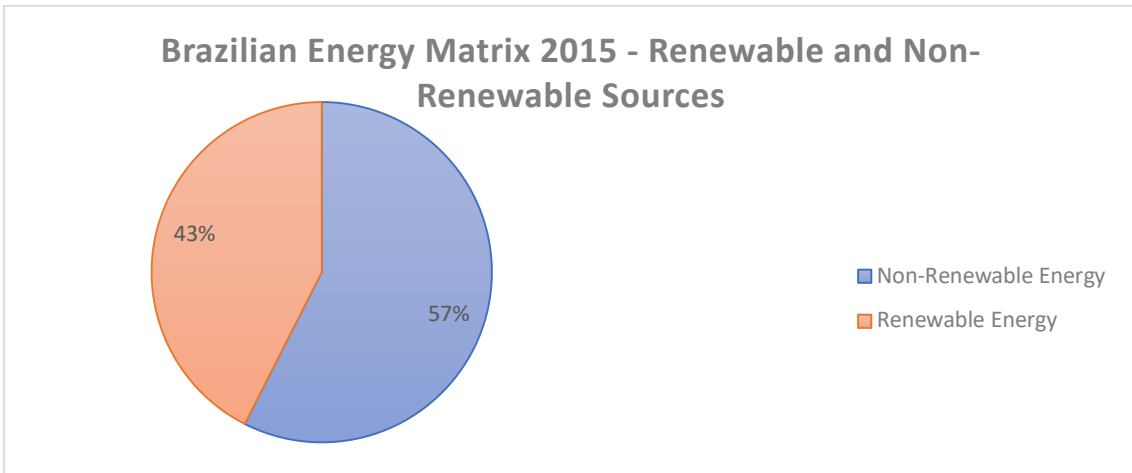
Chart 1 - Brazil's Total Energy Production - Renewable v Non-Renewable (MME and EPE 2015)
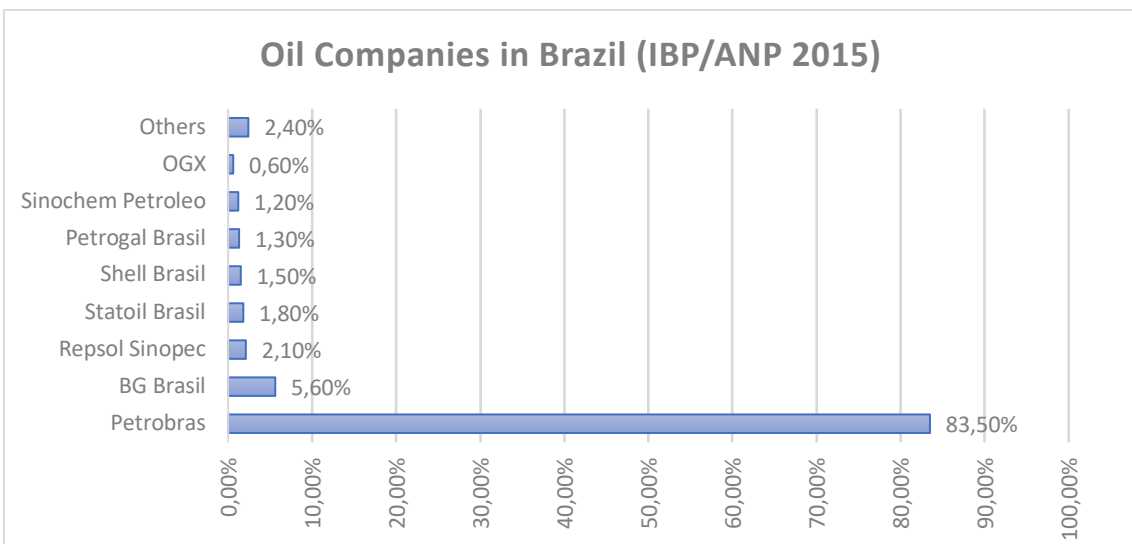
Chart 2 - Oil Companies in Brazil by Production in 2015 (IBP 2015)

Petrobras shares are traded in international markets. The company's ownership structure is divided into common shares (shareholders with voting and decision-making powers) and preferred shares (shareholders with participation in profits and dividends, but with no voting powers), configuring the company's total capital stock. As shown in Chart 3, the Brazilian Federal Government owns 50.2% of common shares, which gives the Brazilian government the largest number of shares with decision-making power in the company, making Petrobras a Brazilian public company. Other entities with voting

powers are the Brazilian National Development Bank (BNDES) and ADR holders[47]. Petrobras preferred shares are predominantly owned by foreign investors (80.3%), as displayed in Chart 4.

Petrobras Common Shares Ownership

4,03%	
11,42%	
2,31%	
18,64%	
0,08%	Federal Government
3,24%	BNDESPAR
9,87%	BNDES
0,16%	Caixa Econômica Federal
50,26%	Fundo de Participação Social - FPS
	American Depositary Receipts level 3
	FMP - FGTS Petrobras
	Foreigners (RES. No 2689 C.M.N)
	Other entities (1)
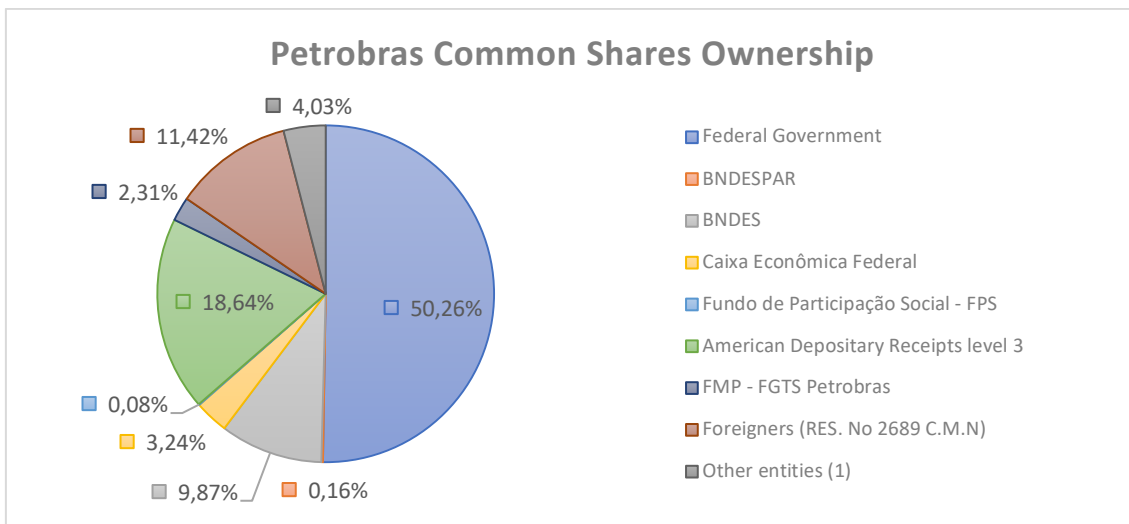
Chart 3 - Petrobras Common Shares Ownership (Petrobras 2019)

Petrobras Preferred Shares Ownership

16,17%	BNDESPAR
2,88%	BNDES
0,65%	Caixa Econômica Federal
12,90%	American Depositary Receipts level 3 and rule 144 -A
32,28%	Foreigners (RES. No 2689 C.M.N)
35,12%	Other entities (1)
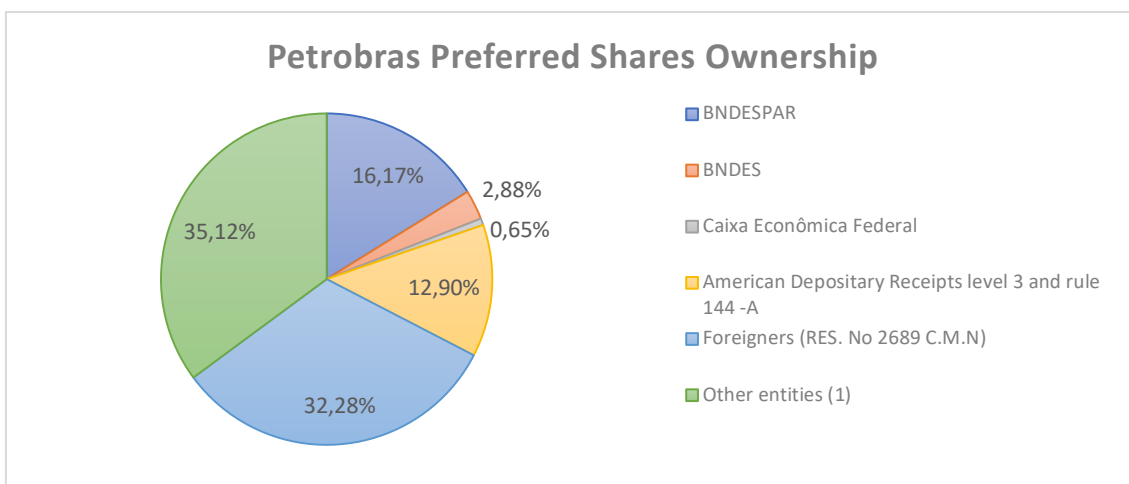
Chart 4 - Petrobras Preferred Shares Ownership (Petrobras 2019)

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[47] ADR stands for American Depositary Receipts. They consist in shares issued by US banks, that represent security for investors who purchased foreign company's shares in the US. It is a market tool to negotiate in the US stock exchanges.
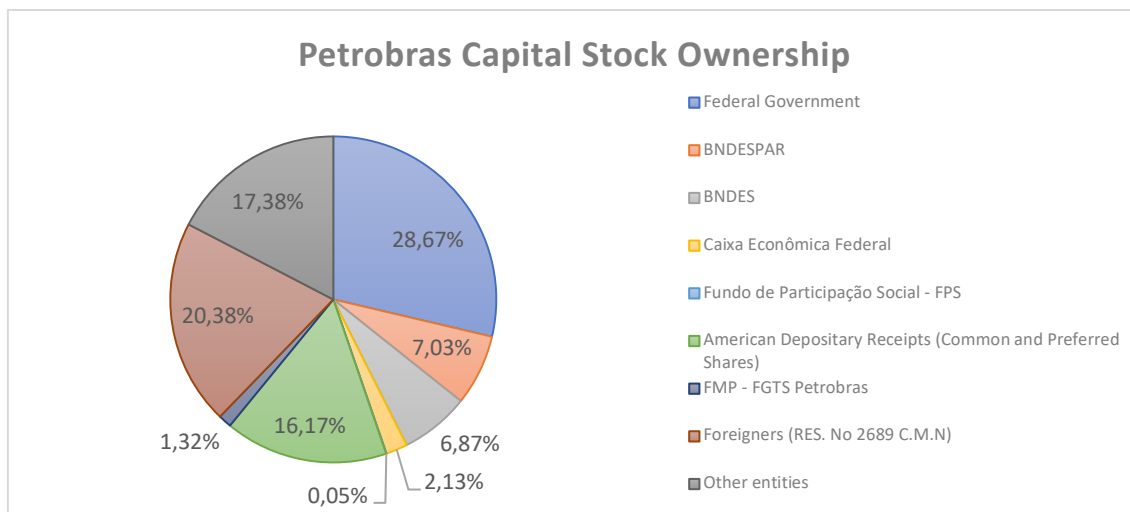
Chart 5 - Petrobras Capital Stock Ownership (Petrobras 2019)

Petrobras' capital stock ownership indicates that the company, despite its public character, has 53.93% of its capital stock owned by foreigners against 28.67% held by the Brazilian government. Petrobras is responsible for 83.5% of the total production of oil and derivatives in Brazil, meaning 29.14% of the total energy production in the country. This means that 15.7% of the total energy production in the country is owned by foreign investors.

Petrobras is the one of the very few national companies in the Brazilian oil and derivatives sector. The other large companies are: BG E&P Brasil, that operates as a subsidiary of the Royal Dutch Shell plc, also known as Shell Global; Repsol Sinopec is 60% owned by the Spanish Repsol and 40% owned by the Chinese Sinopec; Statoil is a subsidiary of the Norwegian Equinor; Shell Brasil is also a subsidiary of Shell Global; Petrogal Brasil is a subsidiary of the Portuguese Galp Group; Sinochem Petroleo is a subsidiary of the Chinese Sinochem Group.

These are some of the world's largest companies in the oil and gas sector. Brazil is one of the most important countries in the global oil markets. In 2019, Petrobras was ranked the ninth largest company in the oil and gas sector by Forbes.

Brazil is also a giant player in the global electricity sector. According to the Energy Research Company (EPE) 2018 Statistical Yearbook of Electricity (MME and EPE 2018), in 2017 Baseline Year, Brazil is ranked the seventh largest electricity consumer in the world, the eighth in the world for installed capacity for electricity generation, and ranked third-highest in the world in hydroelectricity generation. Table 3 brings the Aneel ranking of the largest electricity generation companies in Brazil.

Forbes Ranking of the Largest Companies 2019 – Oil and Gas

Rank - All	Rank - O&G	Company	Country	Sales	Profits	Assets	Market Value
#9	#1	Royal Dutch Shell	Netherlands	$382.6 B	$23.3 B	$399.2 B	$264.9 B
#11	#2	ExxonMobil	United States	$279.2 B	$20.8 B	$346.2 B	$343.4 B
#19	#3	Chevron	United States	$158.7 B	$14.8 B	$253.9 B	$228.3 B
#22	#4	PetroChina	China	$322.8 B	$8 B	$354.3 B	$198.7 B
#24	#5	BP	UK	$299.1 B	$9.3 B	$282.2 B	$149.5 B
#25	#6	Total	France	$184.2 B	$11.4 B	$256.8 B	$149.5 B
#35	#7	Sinopec	China	$399.7 B	$9.5 B	$233 B	$105.6 B
#40	#8	Gazprom	Russia	$128.4 B	$18.9 B	$305.9 B	$59.9 B
#50	#9	Petrobras	Brazil	$95.7 B	$7.1 B	$222 B	$91.2 B
#52	#10	Rosneft	Russia	$112.9 B	$8.7 B	$191.3 B	$72.2 B

Table 2 - Forbes Ranking of the Largest O&G Companies 2019 (Forbes 2019)

10 Largest Companies in Installed Capacity for Electricity Generation in Brazil

Ranking	Generation	Parent Company / Group	Nature	Company's Home Country	Installed Capacity (kW)
1º	Chesf	Eletrobras	Public	Brazil	10.323.428,00
2º	Furnas	Eletrobras	Public	Brazil	9.443.500,00
3º	Eletronorte	Eletrobras	Public	Brazil	8.883.150,00
4º	Norte Energia	Eletrobras / CEMIG / Iberdrola / Vale	PPP	Brazil + Spain	8.788.655,55
5º	Itaipu	Eletrobras	Public	Brazil + Paraguay	7.000.000,00
6º	Petrobras	Petrobras	Public	Brazil	6.323.528,15
7º	Engie	Engie	Private	UK	6.188.467,73
8º	Copel-GT	Eletrobras	Public	Brazil	5.374.529,55
9º	Rio Paraná Energia S.A.	China Three Georges Coorp	Public	China	4.995.200,00
10º	Energia Sustentável do Brasil	Engie / Mitsui & Co / Eletrosul / Chesf	PPP	Brazil + UK + Japan	3.750.000,00

Table 3 - Largest Companies in Electricity Generation in Brazil (Aneel 2017)

Eletrobras Common Shares Ownership

Legend:
- Federal Government
- BNDESPAR
- BNDES
- Citybank (ADR's Depositary Bank)
- Banco Classico
- FND
- FGHAB
- Norges Bank
- 3G Radar Funds
- BlackRock Funds
- Others

Values: 51%, 13%, 7%, 3%, 5%, 4%, 0%, 1%, 0%, 0%, 16%
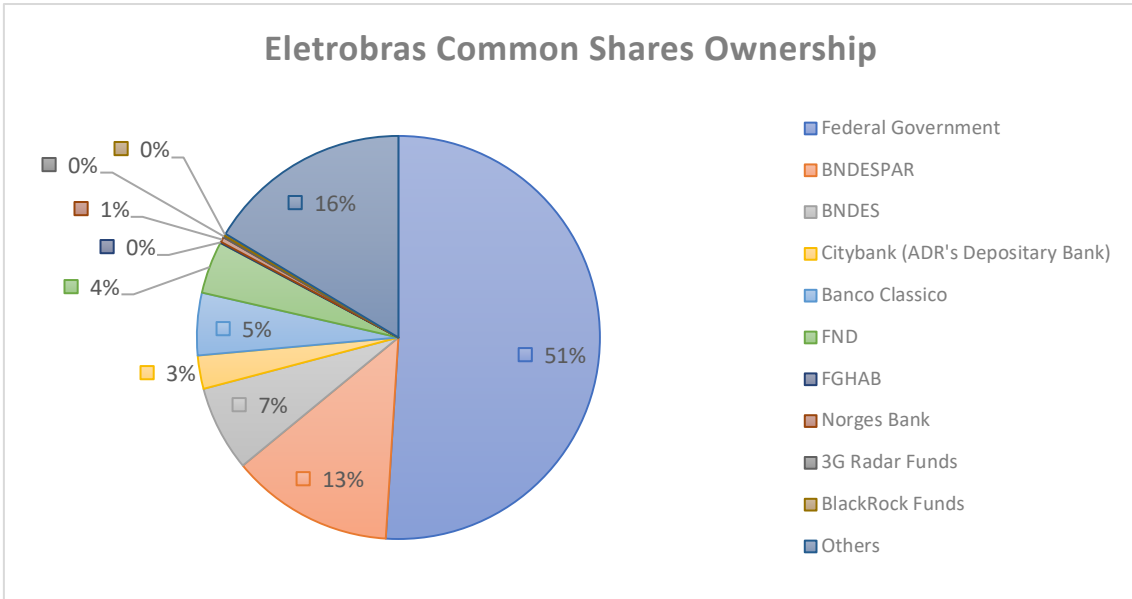
Chart 6 - Eletrobras Common Shares Ownership (Eletrobras 2019)

Eletrobras Preferred Shares "B" Ownership

Legend:
- Citybank (ADR's Depositary Bank)
- BNDESPAR
- BNDES
- Norges Bank
- BlackRock Funds
- 3G Radar Funds
- Shareholders to be Identified
- Federal Government
- Admin. Board
- Others

Values: 3%, 7%, 7%, 1%, 1%, 10%, 1%, 0%, 1%, 69%
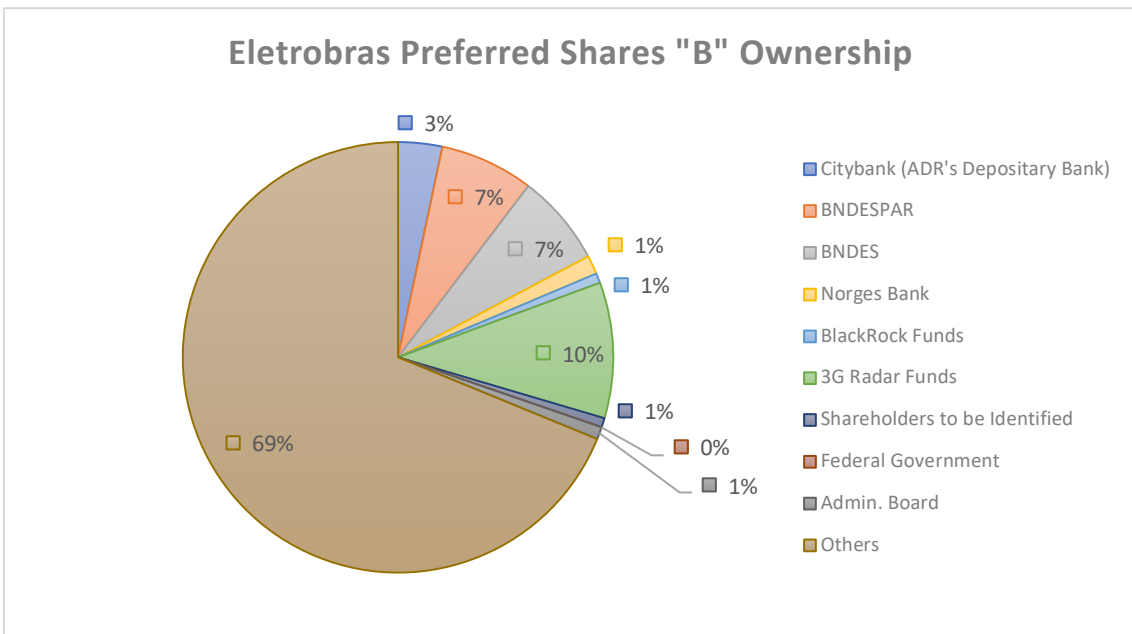
Chart 7 - Eletrobras Preferred Shares Ownership (Eletrobras 2019)

The largest electricity generation company in Brazil is the holding Eletrobras. In the same fashion as Petrobras, Eletrobras shares are also traded in international markets. The company's ownership structure is divided into common and preferred shares, configuring the company's total capital stock. As shown in Chart 6, the Brazilian Federal Government owns 51% of common shares, the minimum required to make Eletrobras a Brazilian public company. The federal government does not hold any preferred shares, as displayed in Chart 7.

Eletrobras capital ownership reflects, in ownership pattern, its nature as a private sector company vitally and organically linked to the international capital markets with its shares freely traded in the international markets. The Federal Government owns 41% of the company's capital stock and the other 59% is split among multiple types of investment banks, private shareholders, financial brokers and so on, as shown in Chart 8.
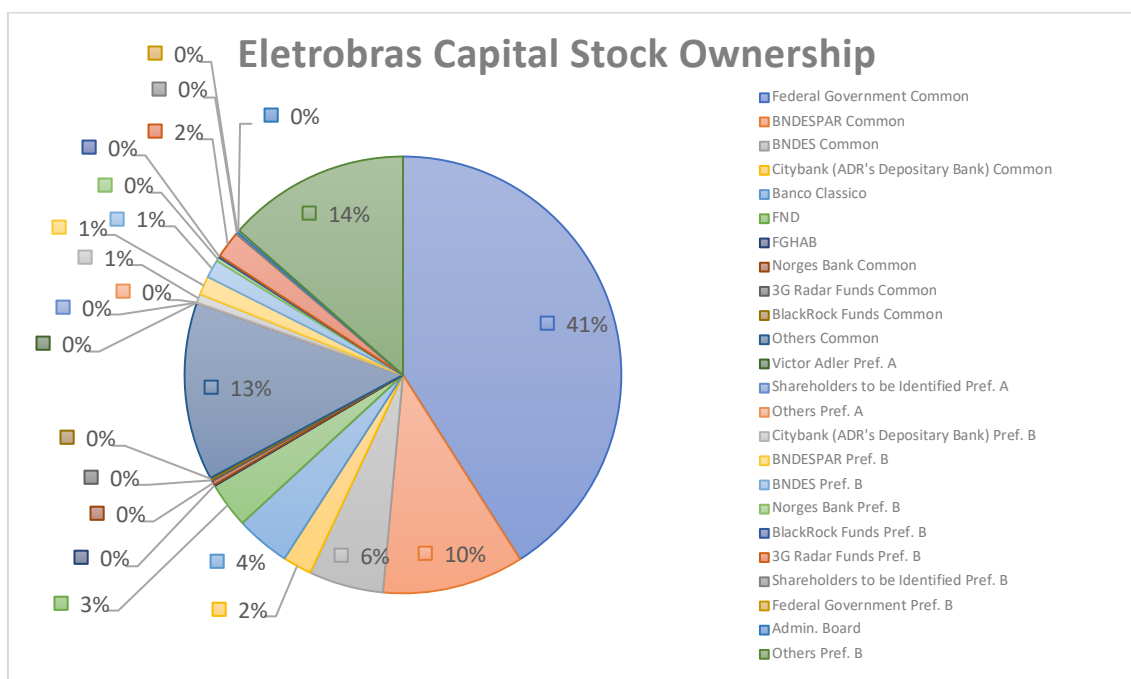
Chart 8 - Eletrobras Capital Stock Ownership (Eletrobras 2019)

Both Petrobras and Eletrobras are large public companies, but dependent on foreign capital to operate their businesses. This illustrates that, despite the fact that Brazil has prominent companies in the transnational energy business, it is historically dependent on the internationalization of capital. As a reflection of the modern–colonial world-system configuration of power, Brazil is rich in natural resources and explores such potential but is chained to the transnational finance monopoly.

As shown in Table 3, the largest electricity generation companies in Brazil are in the hydroelectricity business. According to EPE, hydro accounts for 63% of the total electricity produced in the country (MME and EPE 2018, 58).

Heading the list of the major hydroelectricity companies are Chesf, Furnas, Eletronorte, and Norte Energia. Chesf is an Eletrobras subsidiary, operating most of its generation enterprises in the north-east region of Brazil, and is also a shareholder in the

large Jirau hydropower dam (3.750 MW installed capacity) in the north region, the state of Rondônia, Chesf's largest enterprise. Furnas is also an Eletrobras subsidiary, operating hydropower generation business all over the country, in which the largest is Santo Antonio hydropower dam (3.570 MW installed capacity), in the north region of Brazil, state of Rondônia. Eletronorte is also an Eletrobras subsidiary and operates the huge Tucuruí hydropower dam (8.300 MW installed capacity) in the state of Pará, northern region of Brazil; Tucuruí is Eletronorte's largest enterprise. Norte Energia is a concessionaire formed from public–private partnerships for the construction and operation of the massive Belo Monte hydropower dam, the largest hydropower dam in the country with an installed capacity of 11.200 MW[48], also in the state of Pará, located in the Xingu peoples' reservation area. Large hydroelectricity production means large dams built in areas where they raise controversy such as the northern region of Brazil, which comprises entirely of an extension of the Brazilian Amazonian region. The northern region accounts for 16% of the total electricity production in the country. It is the largest region in territorial extension and the least populated. Industry is the largest consumer of electricity in the northern region, accounting for 44% of the total, whereas residential consumption is 27.5% of the total production (MME and EPE 2018, 89).

To understand the problematic of damming the northern region of Brazil, let's closely observe how the energy plans deal with the issue. The DEEP, for example, cites the approved projects for the construction of major hydropower dams in the Amazonian region (which is located in the northern region) as very positive things (MME and EPE 2015, 82–86). The Plan informs that hydropower produces 'clean energy' (MME and EPE 2015, 392–94), i.e., it causes minimal environmental impact and allows a positive carbon footprint according to international standards of gas emissions. The DEEP 'celebrates' the expansion of hydroelectricity to meet the targeted carbon emissions:

> The results show that the scenario of expansion of energy supply and consumption in the ten-year horizon **is in line with the target expressed in terms of the absolute value of emissions in 2020** (range 634-680 MtCO2eq). Even in 2024, emissions do not reach the lower limit of the PNMC target set for 2020.
> To a large extent this result is a consequence of the downward revision of the economic scenario. Even so, it can be said that the objective of PDE 2024 regarding GHG emissions is met. **The measures incorporated in the plan such as the expansion of hydroelectricity**, of other renewable sources in electricity generation, the use of biofuels, energy efficiency measures, among others**, will allow Brazil to maintain the performance indicators of its energy matrix at the levels of the countries that emit the least greenhouse gases in production and energy consumption** (emphasis added in bold) (MME and EPE 2015, 392).

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[48] Itaipú Binacional is the largest hydropower dam in terms of installed capacity, but it is built on the border of Brazil and Paraguay, owned by both countries in equal shares and participation. In Brazil, Itaipú Binacional is controlled by Eletrobras.

This way, the DEEP argues that, to meet the demand for electricity and industrial growth expectations, it is necessary to build more large-capacity powerplants. The plan argues that if the electricity demand is not met, there will be an economic collapse (MME and EPE 2015, 14–15; 25). The demand comes mainly from the industry, the agricultural sector, and the services sector. The plan makes clear that, to enable the construction of more hydropower dams in Amazonia, there must be more investments in the infrastructure sector.

This is a collection of arguments carefully put together to induce, justify, and encourage the damming of the Amazonian region. Such arguments are unsustainable when confronted with the downsides of damming Amazonia. The worse problems are socioenvironmental, but there are also economic, strategic, and political issues to be raised, and they are all correlated. The first issue is the displacement of peoples. The existence of indigenous communities and their protected traditional lands are threatened when forced to be relocated. The riverine communities and the population of villages are evicted, sometimes by force, and rearranged in poor temporary accommodations made hastily, later transformed into permanent (since after being relocated, those communities will no longer be a problem for the installation of the enterprise) settlements. To flood the reservoir area, vast extensions of land must be deforested, and again, as these works are carried out in the urgency of meeting contractual deadlines, some areas are ignored, which causes the lake's eutrophication. Thousands of plant and animal species are threatened with extinction. The lakes of the dams emit methane gas, and the larger the lake, the greater the environmental damage (Fearnside 2009; Millikan 1992; Moreira and Millikan 2012; Hurwitz et al. 2011).

On the economic strategic side, researchers have argued that hydropower dams in Amazonia produce electricity for specific industries (specific clients) and, even though the electricity would be distributed for an entire region, a single client often justifies the viability of installing a powerplant. The ultra-pollutive aluminum industry, for example, is the largest consumer of electricity in the Amazonian region (Fearnside 2016). This shows that the potential benefits of large dams are meant not for the community, but for industry.

The idea that large dam building generates employment and stimulates the northern region's economy is also false. Dam building may create seasonal jobs during the construction phase, but all the personnel will have to find other jobs when the

construction work is completed. It creates a transitory peak or surge in the villages and cities near the construction site, which does not bring proper infrastructure and development. Cities get over populated, disrupting water and sewage systems and the supply of food and medicines (Neto 2014). The employee profile, that is, the *barrageiros*[49], are mostly men, far from their families, living by themselves in precarious accommodations, with limited possibilities of visiting their homes or having access to sports or entertainment. Their income and lifestyle do not allow them to buy property and have stability in the region. They live in a semi-confined regime to grasp the opportunity to save some money to send back home. These conditions of life make these men more likely to use alcohol and other drugs, to become violent, and to be exposed to diseases of confinement, like viral diseases that spread quickly in accommodations for thousands of people (Ribeiro and Corrêa 2018). It is common to have rebellions against such living and working conditions, in which workers set the accommodations on fire, or destroy the facilities in protest (Setti 2012). Such workers live in a loop, waiting for the next enterprise to have the dignity of being employed.

The DEEP argues that damming the Amazonian Region is part of the major goal of the country's economic growth. This reveals the epistemically violent character of the plan in negating the victims of energy expansion.

Along with the electricity generation business, there are two essential businesses that ensure that electric power is reached to the final consumers: transmission and distribution. Transmission is generally related to generation, since reaching electricity to the final consumer is part of the viability of the enterprise. Thus, the largest electricity transmission companies in Brazil are part of the holdings of Eletrobras, namely Eletronorte, Chesf, Furnas, and Eletrosul. Let us briefly mention at least two problematic issues with transmission lines: the need for permanent easements and the efficiency of energy transmission.

The negotiations for the use of right of way for transmission lines occurs disproportionally when comparing poor land owners, indigenes, quilombolas and riverine communities to wealthy agribusiness owners, as exposed by MAB (Movement of peoples affected by dams in Brazil) (IPEA 2014). Whereas poor and traditional peoples are displaced, wealthy landowners get long-term concessions for the right of use of their land.

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[49] People who work at hydropower dam's enterprises are called *barrageiros*: "barragem" means "dam" in Portuguese.

Concerning efficiency, the Brazilian Electric System – Sistema Interligado Nacional (SIN) – reports that electricity transmission lines incur technical losses of 19.2% (MME and EPE 2018, 69), occurring between the electricity generated in powerplants, passing through the transmission lines and distribution networks to reach the final consumer (Bermann 2004; 2003). In the northern region, losses are 28% (EPE 2018, 69–70). The bigger the powerplant, the farther it will be from urban centres, residences, and hospitals. The farther the powerplant, the longer the transmission lines, and the bigger the loss.

Hence, large dam building, as evidenced in the example analyzed here – the north region of Brazil, including the Amazonian region – does not contribute to local development or actual benefits for the country in general. It may generate economic indicators of economic growth, as expected in the Brazilian Energy Plans. This way, energy enterprises are likely to reflect more positively in terms of global financial indicators than in terms of any improvement of conditions of life for the country.

As mentioned above, the electricity business also involves distribution to end-consumers. We will not go deeper into the distribution business, but it is interesting to highlight the corporate structure of electricity distribution in Brazil in order to determine the geopolitical aspects of energy planning in Brazil.
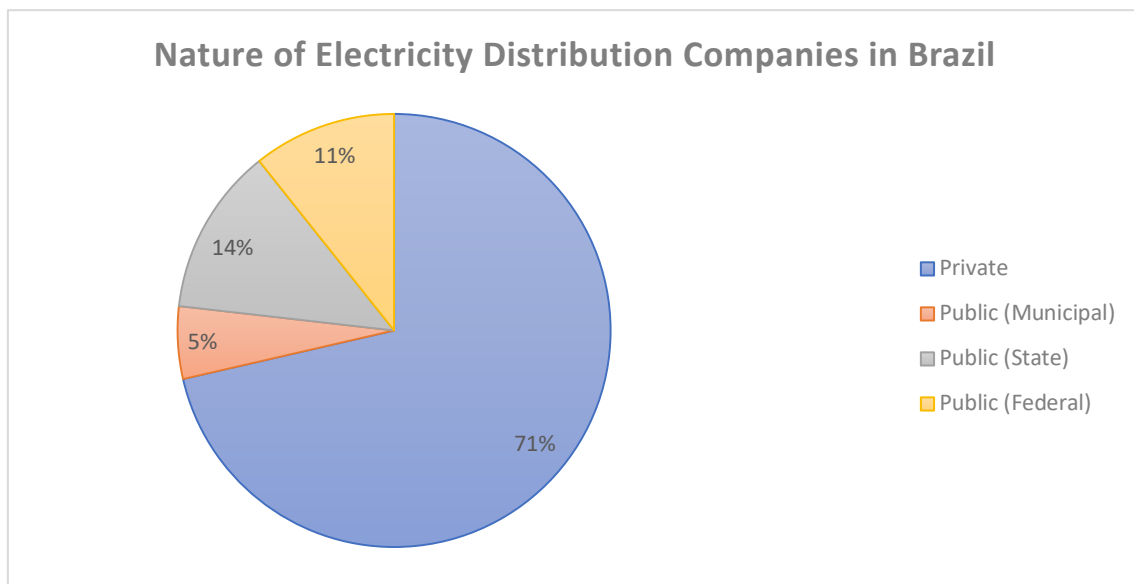

Chart 9 - Nature of Electricity Distribution Companies in Brazil (Abardee 2019)

The distribution business is mostly held by private companies. As Chart 9 shows, 71% of electricity distribution companies in Brazil are private. The largest companies are

market-based entities, with shares traded in international markets, whether companies are public or private. The largest private companies are: the Energisa Group, mostly owned by Brazilian investors (financial-rentier capitalists), but traded in international markets; the Enel Group, originally Italian; the CPFL group, subsidiary of the Chinese public company, State Grid; the Neoenergia group, subsidiary of the Spanish Iberdrola; and the EDP Brasil, subsidiary of the Portuguese EDP group. The largest public companies are the Eletrobras subsidiaries, concentrated in the northern region of Brazil, and the CEMIG group in the south-eastern region, all market-based entities being companies traded in international financial markets.

There are two main reasons for listing the companies and their ownership structure when explaining the specificities of the Brazilian geopolitical position in the global energy business. The first reason is related to the large potential of energy sources that attracts a number of foreign investors to the country. The second reason is the fact that capital is transnational, financial, and only aims more capital, regardless of the means to produce it.

The vast majority of companies in the energy business operate in transnational markets, which does not necessarily link the fortunes of the business with local development. The money does not stay where the energy input is obtained. Targeted profits are high in risky businesses like oil and electricity. But taxation is low even when large profits are realized. This imposes a blatant contradiction in Brazil: although the territory is rich, the populations who live in the territory and work in such enterprises are generally poor, vulnerable, and oppressed. This happens because energy in Brazil is not produced to diminish social / territorial / economic disparities. Energy in Brazil is produced for the profitability of transnational businesses. In this way, the pattern of energy planning remains unchanged, and the future is planned in terms of repeating the same mistakes. Despite being a key player in the international energy business, Brazilian energy planning reinforces the peripheral position of Brazil in the global economy.

The transnational financial character of energy businesses effectively leads to transference of the 'pains' of industrialization from wealthy nations in the Global North to the Global South. It is a continuation of colonial methods of profitability, with minimal involvement with the territory and communities.

All the companies listed in this part operate in international stock markets, generating money via investments, speculations, or the sale of intangible assets in online transactions. Buying a share from Petrobras, Energisa, or Royal Dutch Shell has nothing

to do with local development. Shareholders do not need to know about the communities displaced, the lack of running water, or the seasonal character of jobs created in large enterprises (that will end up creating unemployment in due course). All that shareholders need to know are the company's balance and the portion of dividends. The transnational financial character of energy businesses is on a global scale. Brazil bears the contradiction between being the ninth largest oil producer in the world, the eighth largest electricity consumer in the world, and being a leading country in the world in socio-economic inequalities. This is a picture of the modern–colonial world-system's division of labour and geopolitical transference of environmental damage from the rich to the poor.

The DEEP ignores geopolitical discrepancies and insists on planning energy for economic growth. This reasoning underlies the historical development of the DEEP's epistemological character, privileging transnational economic outlooks to the detriment of the population through the encouragement of the extractive industry for exportation. The epistemological character also consists in the invisibility of the geopolitical problem. The DEEP only explains the potential benefits of the given system, historically constructed. The victims of such a system are ignored and thereby silenced. When the energy expansion plan silences the victims, it reinforces the victim's situation.

In order to understand such geopolitical configuration, it is necessary to bring to light the Brazilian colonial past and present. For a full understanding of energy planning as the materialization of coloniality of power, lets elucidate how the configuration of the structures of power demand violent epistemologies to substantiate the colonial ideology that still dominates the present. This historical background is not about a 'past that condemns the present' but about a past that informs the present to enable change. As it is argued in this thesis, the perception of the epistemological problem allows the use of tools other than *the master's tools*[50].

Brazilian Energy in the Historical Context

The second specificity that justifies the study of the epistemology of the present energy planning in Brazil is Brazilian history: the formation of the Brazilian Nation State and its configuration in the present global geopolitics of power. As a colonized nation in the Global South, the Brazilian State is the result of a collection of imposed colonial

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[50] As Audre Lorde shows in *The Master's Tools Will Never Dismantle the Master's House*.

institutions and relationships of power. Therefore, the division of the territory, as well as the appropriation and use of natural resources are consequences of imposed geopolitical hierarchies, as well as hierarchies of gender, race, and class, as discussed in Chapter 2.

The ideology or pattern of power imposed by colonization survives the end of colonialism as a political system, remaining as the continuation of political, economic, and social institutions, as well as knowledge and legal institutions. This way, coloniality of power is a fundamental concept for the understanding of the epistemology that structures energy planning in Brazil. The definition and deployments of *coloniality of power* were dealt with in Chapter 2. The concept is used as the theoretical ground for the expatiation of the historical formation of institutions in Brazil that lead to the present configuration of energy planning in the country.

The imposition of the Eurocentric nation-state and its institutions is not a process that took place exclusively in Brazil. Every colonized territory and peoples went through some sort of annihilation of culture and history for the imposition of Eurocentric modern institutions, as well as the modern–colonial ethics (the ethics of exhaustion). The historical scrutiny enables the comprehension of how the ethics of exhaustion takes place as the naturalization in material terms (definition of what is ethics and ethical), in formal terms (the social validation of such ethics, corroborated through the institutions that impose values), and the feasibility criteria governing energy planning in the present Brazilian context. The historical formation of Brazil as a nation state is of paramount importance for understanding the complex structures that configure public administration in Brazil. Today, such structures stand as governmental institutions such as the Ministry of Mines and Energy and the EPE – which created the DEEP.

Administrative Institutions' Entrenched Coloniality of Power

It is relevant for the epistemological critique to understand the historical formation of the administrative institutions in charge of energy planning in Brazil. This is in turn requires an understanding of how coloniality of power is expressed in the Brazilian context.

As discussed in Chapter 2, the central feature of coloniality of power is the mimicry of the colonial ideology in order to have *access to power*. This must be considered in the context of the modern–colonial world-system, i.e., the peripheral and subaltern position of agents of power that underwent the experience of colonization in

relation to the hegemonic political, military, and economic powers. States formed from the colonial conquest are institutionally colonial after independence from the colonizing power. This happens because the imposition of institutions in the colonies was forged in the colonial ideology of power, implementing the ethics of exhaustion.

Bureaucratic, educational, economic, military, and judicial institutions were formed to enable the colonizer's aim to conquer and maintain a preponderant position in mercantile capitalism and, subsequently in industrial capitalism. The colonial enterprise was a private initiative that installed institutions, which took on, through historical time, a 'public character' to administer the colonial business and to have the financial and military support of the metropolis. After independence, such structures remained in the newly formed states to assist the trading of products; the state now had its own military organizations and expanded possibilities of commerce, unchained from the metropolis' monopoly.

The formation of administrative bodies in the colonies took place around the need to control the monopoly over tradable products. In Portuguese America, colonial Brazil, the whole governmental apparatus was formed to protect the viability of economic activities. This is evident from the intensification of the "presence of the state" on the discovery of the gold and diamond mines in the late seventeenth century (Cotta 2006, 50). Justice, revenue, and military bodies had the same original constitution, with positions generally occupied by the local wealthy men, whose influence concentrated power in the local administration. Mining (as a means for the management of natural resources and energy inputs) was intrinsically related to the state's power of punishment, fact evidenced by the presence of military bodies which could also exercise the functions of legislation, justice, and the collection of taxes (Silveira 1997).

For a better understanding of the constitution of a centralized administration in Brazil, let us briefly elucidate some relevant aspects of Brazilian colonial history.

Brief History: The Origins of Administration in Brazil

Brazil was a Portuguese colony from 1500 to 1822. From 1822 to 1889, the independent country was a monarchic empire, governed by dissident members of the Portuguese royal family. From 1889 to the present, Brazil has become a republic marked by military and autocratic governments. The period called The First Republic endured from 1889 to 1930, with the first republican constitution, and with alternating military

rulers in power. The following period is known as the Vargas era, from 1930 to 1945, with a politics called the New State, of authoritarian nuances. From 1945 to 1964, Brazil was aligned with the external politics for *development and economic growth*, a period generally reported as the 'democratic moment', but under severe interference from international economic actors. The military dictatorship in Brazil from 1964 to 1985 was well supported by the international agenda of economic growth and development; it aligned politically with the United States during the Cold War. The country restored a democratic regime in 1985, enacting the current democratic constitution in 1988. Notwithstanding this, since the parliamentary coup in 2016 (Secco 2016), the Brazil's democracy has been suffering from severe threats, which culminated in the election of a far-right government in 2018.

To analyze coloniality of power in Brazil, we should recap some relevant facts of the colonial period, starting from Portuguese America – before the constitution of Brazil as a nation state. In 1494, Portugal and Spain signed the Tordesillas treaty to regulate the ownership of the recently invaded lands in the Americas. In April 1500, the Portuguese explorer Pedro Álvares Cabral arrived with his crew at Santa Cruz, north-eastern region of the South American territory (where the city of Porto Seguro is today). English, Dutch, and French expeditions were also officially installed in the north-eastern region of South America in the first 30 years of the 1500s[51]. The interest in that "new world" was initially centralized in the commercialization of brazilwood. To secure control over the territory, in 1534, the king of Portugal, D. João III, decided to divide the known lands (the eastern part of the South American continent) into 15 lots, or hereditary captaincies. The areas were 'donated'[52] for life, in hereditary character, to the citizens of Portuguese nobility, the grantees (Fausto 2006, 17–45).

The grantees had the right to economically explore the territory as they wished, as well as to kill or enslave those who would claim the land. The grantees' duties were, among others, to govern, colonize, protect, and develop the region with their own resources, that is, with the resources they would gather by exploiting the territory (Wehling and Wehling 2000). The commercialization of products was mainly for export.

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[51] Such European nations never actually left Brazil; they either the Portuguese stayed on in some territories or their presence was felt in the active contraband commerce of products from the colony. Relevant conflicts against the Portuguese control took place with the support of the Dutch, French, and English during the Brazilian colonial period('Frei Vicente Do Salvador - A História Do Brazil - Atlas Digital Da América Lusa' n.d.).

[52] As if someone can donate something they do not own.

From 1530 onwards, the main commodity became sugar cane, with the implementation of the plantation schemes. The workforce in the plantations was predominantly enslaved African people, brutally kidnaped and brought to South America on vessels called *navios negreiros*, the slave ships.

The grantees had (under Portuguese laws or *Ordinations*[53]) the right over the land, ownership of everything produced in the territory, and ownership of the workforce. They had the right to conquer more territories (land yet unknown to the Portuguese Crown). They could organize themselves in wars[54] against the native peoples, either to take over territories or to prevent attacks. For the first half of the sixteenth century, Portuguese America was administered by Portuguese nobles who would trade the main commodities produced in the territory with the Crown. The grantees would report directly to the king of Portugal.

The decentralized administration and the distance between the colony and the metropolis were problematic for the Crown to closely observe its source of wealth and regulate the grantees' activities. The captaincies system did not bring the profitability expected by the metropolis (Fausto 2006, 46). In order to centralize the administration, the king of Portugal, Dom João III, created the General Government (*Governo Geral*) in 1548[55]. The grantees would then report to the General Governor. Among the other administrative positions created in the General Government, we can highlight three: the *Ouvidor-mor*, or the Head of Justice, responsible for legal issues and for the application of Portuguese law in the colony; the *Provedor-mor*, or the Head of Revenue, responsible for the collection of taxes and control of the revenue in the colony; and the *Capitão-mor*, or Captain-in-chief, responsible for the development of the colony's defences, whether against foreign attacks, internal rebellions, or against indigenous peoples.

To clearly understand the colonial moment, it is necessary to keep in mind that the concept of Modern European administration that was transferred to colonial Brazil was distant from that clear division of powers and functions later understood in the

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[53] The legislation in force in the colony was the Ordinations of the kingdom: first the Afonsinas (1466), then the Manueline (1521), and then the Philippine Ordinances of 1603, which was the most important and of longest temporal scope in the colonial history (Lara 1999, 22).

[54] The *just wars*. See (Moonen 2008, 12–13)

[55] The historian Boris Fausto enumerates a series of factors that explain why King D. João III decided to implement the General Government in the territory that today corresponds to Brazil. First, there was the weakening of trade with the Indies, which forced the Portuguese to turn Brazil into a lucrative enterprise - a role that had not been fulfilled before in the Colony. In addition, Portuguese attempts to deploy an empire in the region of present-day Morocco were failing. Finally, the Portuguese were troubled by the success of the Spaniards in exploring Spanish America, where large quantities of precious metals were being found (Fausto 2006, 46–49).

concept of the bureaucracy. Such a concept in Brazil becomes meaningful after the Pombaline era (1750–1777)[56] and, more precisely, in the first decades of the nineteenth century, when administration became more noticeable. In any case, *bureaucracy*, specifying its technical significance, is defined by Weber in the late nineteenth century. Far from this, in the villages and cities of colonial Brazil, there was no fully rational apparatus of careers, positions, and functions. According to Maria José e Arno Whelling, the colonial administration

> [...] is not a modern bureaucratic organization, but a set of tasks arising empirically and casuistically, according to specific interests and needs, often juxtaposed and often with competing competences (Wehling and Wehling 2000).

The colonial administration encompassed the attributions of justice, revenue, and war in the foreground, and other administrative activities on a second plane, just as it was organized in Portugal. The *ofícios*[57], i.e., the colonial activities of 'administrative character' belonged to the king as an attribute of his sovereignty and could only be granted by the king (as Portugal was an absolutist state until the late eighteenth century). In that colonial society, holding an *ofício* was to hold a dignity attributed by the monarch: it would give the individual a certain social status and made it easier for the descendants

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[56] Pombaline era refers to the period from from 1750 to 1777 when Marquis of Pombal served as Portuguese Secretary of the State of Internal Affairs of the Kingdom in the government of Joseph I of Portugal. The term *administration* is used throughout this section to designate the activities related to the State for the functioning of the institutions responsible for the crown's commandments. It was questioned whether it would be prudent to use the term public administration because it refers to the activity of the State or on its behalf, but in the period in focus it is difficult to establish a clear differentiation between the public and private spheres, since the venality of public *ofícios* (especially with regard to Portuguese America) was a common and even "institutionalized" practice (Silva 2006, 85).

[57] Instead of the term *public adminstration*, we use the term *ofício*, which fits more precisely to the analyzed period, so that a conceptual error or anachronism does not happen. Maria Jose and Arno Whelling point out seven main characteristics of the *ofício*. The first is *patrimoniality*: the *ofício* was understood as part of the king's patrimony, could be both donated and sold. "The venality of public offices, so criticized by the liberals of the nineteenth century, derived from the patrimonialist conception of the state and was one of its sources of income, both in colonial Brazil and in Spanish-American colonies". The second characteristic was *the private use of the public function*: "the basic idea was that the *ofício* – with few exceptions – remunerated its holder, similar to an object of property, such as the right of use and the building lease contract". The third characteristic was *the predominance of personal fidelity*: the service of the State was confused with the interest of the representative, being of personal fidelity to the monarch. The fourth characteristic was *the multitude of functions*: a single position could cover a varied number of functions. "The fact is explained by the improvisation and absence of planning of the public administration, with the attributions corresponding to needs dictated by the circumstances". The fifth characteristic was *stability*, "if not vitality and even heredity in the occupation of positions (...) which cannot be generalized because the financial needs of the State have ended up reducing many *ofícios* to triennial mandates (...)". The sixth characteristic of the *ofícios* was *the absence of professional specialization*: with the exceptions of the positions of the superiors of the justice and the clergy (trained in civil or canon law by the University of Coimbra), the public functions did not require special professional qualification. Finally, the seventh characteristic of the *ofícios* was the *association with ennoblement*: "(...) in Brazil [the *ofícios*] had an important role as a vehicle of social ascension, giving the first occupant *nobility de facto* and significantly benefiting their dependents" (Wehling and Wehling 2000, 144–46).

to enter the public service as a sort of familiar 'precedent'. The *ofício* represented an element of social ascension.

Hence, administrative functions of the military, justice, and revenue in Portuguese America were mismatched and most of the time self-regulated (Hespanha 2006, 24–38), operationalized by the nobles – generally the grantees and/or their relatives (Wehling and Wehling 2000, 147). The formation of the administration is entangled with the ownership of land, the capacity for defense, the collection of taxes, and the status of nobility.

With the discovery of gold and diamond mines in the midwest and southeast regions of the Portuguese America (where today are the Brazilian states of Goiás and Minas Gerais) in the late seventeenth century, the Portuguese Crown decided to observe the colony more closely. In 1719, for the first time in the Brazilian colonial history, an institutionalized, regular, and paid troop was sent to the colony, specifically to the mines' region, the *Dragões Del Rey* (the King's Dragons) (Cotta 2006, 47–50). The "official" troops, however, would have incomparably fewer contingents than local barons' organizations, much less power, resources, structure, or influence (Silveira 1997, 166–67). Hence, the military forces were intrinsically aligned with the local barons – not only in the context of the mines, but in the context of the whole colony. Thus, in the second half of the eighteenth century, the central administration was seen as a state of functional confusion with, on the one hand the laws of the kingdom and the private interest of the kingdom in theory to be defended by the holders of *ofícios* in the colony, and on the other hand, the reality of networks of power and patronage that ensured local private interests (Silveira 1997, 169–83).

Mining was the most profitable and hence most closely observed economic colonial activity during the whole colonial time. However, the representative institutions of the Portuguese state in the mines had developed much more emphatic influences than the power of the Crown, creating a local identity of private character. The administration in colonial Brazil was in misalignment with the judiciary, the police, and the municipal councils. An essential point in understanding this connection between military bodies, justice, revenue, and politics in the local sphere is the relationship between economic power – networks of patronage – and the royal *ofícios*. This institutional interaction allowed an exalted legitimacy to be shared by these organizations, leading to a different local reality from that envisaged by the laws of the Kingdom. Thus, the characteristics of the local dynamics demonstrate the difficulty to separate what would be specifically police, jurisdictional, political, or economic activities.

While wealthy businessmen who bearers of nobility titles and *ofícios* were controlling the colonial activities locally, they were also aiming at expanding their trade arms internationally. Despite the metropolis' monopoly over the colony's goods, everything could be contrabanded, especially by the English, who were interested in raw materials (especially for the production of wool, silk, and iron) (Fausto 2006, 122).

In 1808, running away from the Napoleonic invasions, the Portuguese royal family moved to the colony, taking with them the whole monarchic apparatus. Dom João VI, the king, took with him a crowd of administrative officials, members of the army, the navy, of the high clergy, as well as the royal treasure, the governmental files, several libraries, and other things, with the protection and support of the English navy (Fausto 2006, 121–25). The first measures of the royal family in Brazil was the opening of the ports to 'friendly nations', the revoking of decrees that prohibited the installation of manufacturing units in the colony, the exempting of taxation on the import of raw materials for uses of industry, and the offering of subsidies for the local industrialization, especially for the purchase of machines. The main beneficiaries of such measures were the English, who, when Portugal fell to French invasion, took over the commerce of everything produced in Portuguese America and became the main suppliers of industrialized goods. The port of Rio de Janeiro became the point of entry for English manufactured products, which would be traded all over the South American continent, from the River Plate region (Río de la Plata) to the Pacific coast. Other beneficiaries of the measures were the plantation barons, who would export their large-scale production to whoever had interest in buying their products (Fausto 2006, 124).

Despite the presence of the monarchy in the colony, there was no fortification of the central political power. On the contrary, the local baronage got stronger and more powerful, especially in alliance with the English capitalists. It is understandable that the independence of Brazil happened 15 years after the opening of the commerce, in 1822, supported by the local capitalists who were also the politicians, public officials, justice officials, and generally held military patents.

Brazil became an independent nation-state in 1822. The Brazilian people were not involved in this political transition. In fact, nothing had changed in the social aspect, since the networks of power remained unchanged. Slavery was legal until 1888. The economy remained predominantly agricultural (where the agricultural products were for export) and grounded in exploiting natural resources, again for export. This continues to the present, as evidenced in the premises in the energy expansion plans. Places of

political/institutional power remain occupied almost exclusively by white wealthy men, even in 'democratic' times. The fixation on developing a market-oriented political economy, focused on the competitiveness of the production of primary commodities, remains the main economic goal of the Brazilian state. This demonstrates that the configuration of the institutional arrangements for the management of natural resources – including the prospect, viability, and production of energy inputs – remains in the hands of the 'sugar mill owners and coffee barons', as Taliria Petrone[58] would emphasize.

The formation of Brazil as a nation state is grounded on the patriarchal exploitation of the territory, natural resources, and enslaved workforce. This original formation is entrenched in the country's institutional character. It is clear that the enactment of the first democratic constitution in 1988, which enabled for the first time direct democratic presidential elections in 1989, could not establish a democracy *de facto*. Because of the 322 years of colonial history, and 166 years of Brazil as a nation state, there was not a moment in which the Brazilian people could modify such solid control over the peoples, resources, and territory – aspects of the Brazilian coloniality of being. The independence from Portugal was not a people's movement – it was a patrons' capitalist independence. The attempts to implement a democracy in this context was nothing but a illusory pretence of the people's participation in the *economic dictatorship* (Shiva 2016, 74).

Understanding the formation of administrative bodies for the configuration of energy planning in Brazil is of paramount importance to observe the priorities of energy planning and who is actually benefitting from such planning. Building on that, the history of the management of natural resources represents the private aim of controlling the 'endless' sources of wealth. There is no evidence in history that the private control over mineral extraction or waters (for example) could bring a collective gain, but there is much evidence of the violence of such control. In Brazil, the idea of state ownership of such resources is also weak since the territory and the public institutions are historically divided into hereditary captaincies.

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[58] 'Brazil remains under the control of the sugar mill owners and coffee barons' says the historian and congresswoman Taliria Petrone, in many of her speeches to challenge the status quo in political environments in Brazil. In Portuguese: "O Brasil permanece sob o controle dos senhores de engenho e barões do café!"

Building on the historical formation of administrative institutions in Brazil, let us analyse the management of natural resources by those institutions in the present, by focusing on the country's energy planning.

The Public Management of Natural Resources and Energy Planning in Brazil

Energy management comprises a mix of public and private regulations. The management of energy sources in Brazil is the constitutional responsibility of the state, at the national level, up to the point of commercializing energy, when it becomes regulated by markets and by national (and international) laws. It is important to note that the energy business in Brazil is not restricted to the sale of energy inputs, but involves a number of different elements[59]. Analyzing energy management as an activity of public character that, in its rollout, involves ceding space to the private sector, prevents the comprehension of its multidimensional structure. The energy business is regulated and planned by public and private entities at the same time, with the common goal of fulfilling market expectations. The Brazilian state, although constitutionally sovereign over natural resources, has a neoliberal approach to development. By the enactment of laws, the concession of subsidies, and the impunity of enforcing the constitutional principle of the social function of property[60], the institutional framework fosters the rolling back of the state simultaneously to the liberalization and privatization of the economy.

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[59] Such elements are: a) land, and everything it can offer above and underneath: mineral potential, oil potential, water, logistics, right of way and so on; b) infrastructure: concrete-heavy capital-technological-intensive projects, for the viability studies, construction, commissioning, operation, transmission/transport, and so on; c) legitimacy/bureaucracy: legal provision, bids, tenders, concession contracts, subsidies, taxation, protection, insurance, dispute resolution and so on; d) financial/markets expectations: investment, inflation, risk, trade balance, supply and demand, rate of return, expectation of growth, profit and so on; e) workforce: managers, directors, lobbyists, accountants, lawyers, architects, civil engineers, mechanical engineers, electrical engineers, metallurgy engineers, automation engineers, chemical engineers, environmental engineers (and as many engineers as possible), quantity surveyors, bricklayers, carpenters, electricians, master builders, instrument technicians, concrete technicians, janitors, secretaries, inspectors, cooks, helpers, machine operators, explosives operators, security guards, doctors, nurses, councillors, marketers, website designers, social-workers… and so on; f) governance: political intention to carry on energy enterprises and to protect them in case of markets pitfalls.

[60] The Brazilian Federal Constitution has the *social function of the property* as one of its general principles, mentioned in two distinct general titles. TITLE II - About *fundamental rights and guarantees* - Chapter I - Of *Individual and Collective Rights and Duties* - Art. 5 Everyone is equal before the law, without distinction of any kind, guaranteeing to Brazilians and foreigners residing in the country the inviolability of the right to life, liberty, equality, security and property, as follows: **XXIII. property will serve its social function**; (…) TITLE VII - From the Economic and Financial Order - Chapter I - Of the *General Principles of Economic Activity* - Art. 170. The economic order, based on the valorisation of human labour and free

Such a neoliberal approach makes difficult the differentiation between market regulation and state regulation of the economic activities related to natural resources' exploitation. For Radha D'Souza, 'the difference lies in the institutional framework for "the law" seen as a set of rules and principles. Markets undertake "enactment" and "enforcement" of law in very different ways from states' (D'Souza 2006, 11). D'Souza explains that certain legal *forms* are essential features of state regulation, reinforced by (mainstream) social scientists, as follows:

> (a) conflating law with statute law;
> (b) an instrumentalist view of law that sees state agencies achieving certain outcomes mandated through statutes, rules, regulation and policies;
> (c) law as a set of imperatives for different social actors to abide by;
> (d) law as comprising two distinct domains, the "public" the "private" domains;
> (e) regulation through the institution of the civil service, the executive and in the final analysis the legislature, all operating under public law principles (D'Souza 2006, 11).

On the other hand, market regulation in neoliberal regimes is established via market institutions, that is, agencies/authorities/organizations not linked to the state's civil service nor to the cogent *erga omnes* character of the state laws. Market regulation sets up regulatory authorities of private character to regulate each specific area of market relationships, such as competition, inflation, currencies, and even 'social regulatory frameworks of markets', including the fables of corporate social responsibility and labour market regulation. Whereas state regulation assumes a distinction between public/social and private/economic areas of the law, market regulation combines the economic and social spheres showing that economic regulation *is* social regulation, therefore benefits all society (D'Souza 2006, 12).

In the modern–colonial world-system, however, especially in places that underwent the experience of colonization – where the (Modern/Eurocentric) rule of law is imposed to enable and/or facilitate the colonial enterprise – state and market regulation share a common cannon of annunciation, the same origins, and hence similar or 'coincident' attributes that include, according to D'Souza:

> (a) privileging of economic relationships over all other social relationships;
> (b) sanctifying private property rights;
> (c) creating and refining legal regimes, principles and instruments for appropriation of labour and environment;
> (d) **legal policies and instruments for alienation of people from land, water, minerals and other nature resources by turning them into commodities for exchange in the market-place**;
> (e) positive law underpinned by empiricism and positivism in social and physical sciences (emphasis added in bold) (D'Souza 2006, 12).

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initiative, is intended to guarantee everyone a dignified existence, according to the dictates of social justice, observing the following principles: **III. social function of property**; (…) (Brasil 1988).

Economic regulatory instruments are then produced to detach the existence of life from the object of the law, giving the idea that the economy happens on a parallel dimension – completely separate from those who suffer the wrath of the law. In this sense, natural resources are perceived exclusively as economic affairs by the Brazilian law. They become objects of analysis solely due to their economic potential. Thus, natural resources are dealt with as vested with the potential to bring development to the collective (to the state and society) after being transformed into commodities. This process of commoditization of nature has colonial origins and ignores the existence of life. Regulation and planning are, thus, narrowed to economic outcomes.

The DEEP is an example of such a limited approach to energy potentials and energy inputs. The very nomenclature of the document reveals the intention of the document: energy expansion. It implies the need for economic growth and the availability of more energy inputs in the markets. In mainstream reasoning, including so-called 'socio-environmental plans related to energy activities' in combination with the *economic* plan amounts to including *life* in the plan. Instead, we reinforce that the separation of life from the economic activities enhances the violence inherent to the indiscriminate supremacy of economic activities of the state and its institutions. There is no need for a separate plan that deals with the 'non-economic matters', but a plan that is grounded on the preservation of life that will guide the management of economic matters.

Energy planning in Brazil has the state working hard for the maintenance of places of economic and political power – in which meeting market expectations is the reason why nature and everything else exist. Energy planning in Brazil, as materialized in the DEEP, is the report of the success of the colonial enterprise through time. The DEEP is a manual of mimicry of the colonial power as a means to *access power* disguised as some fetishized economic growth that somehow will bring some social benefit, but in reality, maintains the same historical owners of capital exercising political, institutional, and even military control over other people and nature. Hence, the DEEP must be extinguished because its principles, intentions, and priorities are violent. The violent content cannot be reformed. It demands an epistemic decolonial turn. In the section that follows, we explain what is energy planning in Brazil, detailing the history of the activity of planning for the epistemological critique proposed.

Energy Planning in Brazil

Energy planning is part of the institutional design of the economic activities in a given state. In the modern–colonial world-system, energy planning is carried out in the ethics of exhaustion, which narrows energy planning to infrastructure, industry, and the management of energy sources. In Brazil, decisions regarding energy's short and long-term strategies are the responsibility of the executive power that delegates the activities of planning to the Ministry of Mines and Energy (MME). Within the MME, energy planning is the responsibility of the Energy Research Company, EPE, a public company composed of a collection of institutions of public and private nature, which produces annual documents named Decennial Energy Expansion Plans – DEEPs (Planos Decenais de Expansão de Energia).

Energy in the Brazilian Federal Constitution

The Brazilian Constitution (Brasil 1988) defines in article 20 that the following belong to the Federal Union (the Brazilian Federation, as of public character):

> Art. 20. The following belong to the Union:
> V. The **natural resources** of the continental shelf and the exclusive economic zone;
> VIII. **Hydraulic power potentials**;
> IX. **Mineral resources**, including those of the subsoil;
> XI. **Lands traditionally occupied by indigenous peoples** (emphasis added in bold) (Brazil 1988).

Declaring as constitutionally public the hydraulic potentials and minerals, and, in the same article, including indigenous lands looks odd. It means that such things can be used, traded, or disposed off based on the political decisions made at a given time in history. Such treatment given to indigenous lands is not something inevitable, but is the consequence of historical vilification and seizure of indigenous lands and the intentional annihilation of indigenous peoples and traditional communities; these are, apparently, dispensable when confronted with the need *to build the nation*, *to enable the nation's economic growth*, and to facilitate the *nation's development*. The *historical nation*, geopolitically inserted in the modern–colonial world-system, irreplaceable in the Eurocentric legalist model, sets priorities and hierarchizes, in the constitutional text, the sacred private property, denying indigenes autonomy over the sovereignty of their territory. This implies that, in energy planning, materialized in the DEEP, indigenous land is treated as a removable obstacle to the imposition of modern–colonial energy projects. The constitutional text reads as follows:

> Art. 21. It is the responsibility of the Union:
> XII. To explore, directly or through authorization, concession or permission:
> b) Electric energy services and installations and the energy utilization of the watercourses, in conjunction with the States[61] where the hydropower potential is located (Brasil 1988).

The federal government has the responsibility of exploring energy potentials and the utilization of watercourses for energy generation purposes. Such responsibility can be delegated to public or private entities via concessions, authorizations, and permissions. By comprehending the formation of administrative bodies in Brazil, as explained above, it is understandable that decisions about the use of watercourses are in the hands of historical oligarchs controlling the land and the political decisions over the land. Although the constitutional text is grounded in the principle of a democratic nation, the features of political and economic structure in Brazil go beyond the population's power to elect representatives and have everything to do with transnational capitalism. Article 23 has an interesting point that is immediately related to energy planning:

> Art. 23. It is common competence of the Union, the States, the Federal District and the Municipalities:
> XI. Register, monitor and supervise the concession of rights to research and exploit water and mineral resources in their territories (Brasil 1988).

By linking rights to *research* and *exploit* water and mineral resources (energy inputs), the prospects of energy possibilities – energy futures – are in the hands of those who would potentially profit from the energy business. This aspect is central to the epistemological critique herein proposed: research is part of the energy business. The knowledge about energy possibilities and energy futures is narrowed to its economic framework. It gets more intriguing when it comes to the taxation of energy inputs and energy-related services:

> Article 155. It is incumbent upon the States and the Federal District to institute taxes on:
> II. operations relating to the movement of goods and on services of interstate and inter-municipal transport and communication services, even if operations and services are carried out abroad;
> Paragraph 2. The tax provided for in item II shall comply with the following:
> X. Shall not apply:
> b) On operations destined to other States for oil, including lubricants, liquid and gaseous fuels derived therefrom, and electric energy.
> Paragraph 3 - Except for the taxes dealt with in item II of the caput of this article and art. 153, I and II [related to import and export taxation], no other tax may be levied on operations related to electricity, telecommunications services, oil products, fuels and minerals in the country (Brasil 1988).

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[61] States mean the federative units that compose the Brazilian federation. Brazil is composed of 26 States and the Federal District, where is located the country's capital, Brasilia.

It is understandable that, given the country's regional socio-economic differences, the Federal Constitution should encourage the facilitation of access to certain goods throughout the country, waiving taxation for movements of goods and services. However, as demonstrated in the section *Brazilian Energy in the Geopolitical Context*, the non-taxation of energy inputs-related movements and services results in encouraging the centralization of the production, creating industrial zones, which may help transnational businesses but increase social disparities. In the case of the problematic damming of the Amazonian region and the installation of transmission lines, for example, the main beneficiaries are energy producing industrials since it does not impact the final price of electricity or fuel to the population. Support for transnational business is a corollary of the constitution of the Brazilian modern–colonial state. The language of the law imposes the agenda of economic growth in a 'natural' way. This is an epistemic problem. But the private ownership of natural resources is also included in the constitutional text, as naturalized from the imposed ideology of the modern–colonial world-system, coloniality of power:

> Art. 176. The deposits, whether or not mined, and other mineral resources, and hydraulic power potentials constitute property distinct from that of the soil, for the purpose of exploration or exploitation, and belong to the Union, granted to the concessionaire ownership of the product of mining.
> Paragraph 1. The research and mining of mineral resources and the utilization of the potentials referred to in the caput of this article may only be made upon authorization or concession of the Union, **in the national interest**, **by Brazilians or a company incorporated under Brazilian laws and having its headquarters and administration in the Country**, in *the form of the law*, which **will establish the specific conditions when these activities are developed in** borders or **indigenous lands** (emphasis added in bold and italics) (Brasil 1988).

Article 176 allows the ownership of mineral inputs by private owners. It envisages that the exploitation of natural resources can only be made for the national interest and that foreign companies must have subsidiaries in Brazil. That is, the exploitation of natural resources by foreign companies in Brazil can only be made via foreign direct investment (FDI), and the foreign company will own the products extracted. We showed that profits and dividends of companies that operate in international markets (even national companies headquartered in Brazil) are not national. They belong to shareholders who cannot be reached by Brazilian regulations, protected by the corporate veil.

Two things in article 176 are very pertinent for the critique herein proposed: first, the fact that the national interest includes the foreign company's ownership of mineral inputs and the fact that the law will determine how this would happen. Again, the rule of law condones historical relationships of power, maintaining Brazil in the periphery as a

supplier country, identifying 'national interest' even in foreign investors taking ownership of commodities in the country, as it was in the colonial times. Second, this article also allows the exploitation of indigenous lands but under certain *conditions*. This is one example of how the ethics of exhaustion is manifested throughout the constitutional text: it aims to exhaust persons, the nature, and the possibilities of knowing the dynamics of the territory, effectively making the territory into something at the service of capital. In this case, for example, the Brazilian constitution *intentionally creates victims* since it is known that displacing indigenous communities from their lands causes irreversible damage and may lead to the extinction of peoples, knowledges, traditions, and philosophies that prioritize life. Furthermore, it shows that the displacement of indigenous peoples from their lands is for the profit of a company, which the Brazilian state authorizes to own whatever they can explore from the land. This is the definition of colonial violence.

It is now necessary to explain what is meant by energy planning in Brazil and the reason to focus on the DEEP. To understand the DEEP demands a brief historical review of the activity of energy planning in Brazil, its institutional arrangements and legal nature, and the political background. The next section provides a comprehensive analysis of the legal nature and the institutional historical context of the energy plans.

The Brazilian Decennial Energy Expansion Plans

The DEEPs are joint documents that propose a combined analysis of the main components of the energy sector: the various sources of electric power (hydro, gas, oil derivatives, coal, nuclear, biomass, wind, and others), and non-electric power from oil and its derivatives, gas, and biofuels. They consider macroeconomic assumptions and projections by sector in order to quantify the demand; that is, it operates on a methodology of applying international currency and market parameters to determine the sum of investment to be made in each sector of the economy – mainly about capital-intensive infrastructure projects. Although the documents contemplate the national scope and predictions on energy security in the long-term, they do not refer to any social or environmental issue contemplated in the macroeconomic perspective, treating socioenvironmental structural problems as *challenges* in achieving energy expansion.

The DEEPs are reports produced by the MME through EPE, attending to long-term planning (National Energy Plan – PNE) 2030. In the Brazilian energy sector, it is

the responsibility of the National Council for Energy Policy (CNPE) to establish policies and guidelines aimed at '"sustainable national development'. The DEEPs are not environmental-friendly reports since the socioenvironmental analysis is contemplated at the end of the documents, as part of a subsequent analysis of all the macroeconomic assumptions considered.

The DEEP proposes an integrated socioenvironmental analysis to list some of the 'socioenvironmental issues associated with the expansion of the energy offer' (MME and EPE 2015, 426). That is, the expansion of energy must be guaranteed at any cost, and the consequences that 'might' cause socioenvironmental harm should be 'mitigated'. This reasoning is ethically exhaustive, since the DEEP proposes energy expansion without setting socioenvironmental premises as the basis of planning. The plan perceives the 'socioenvironmental issues' as 'interferences' and 'regional sensitiveness', which clearly rejects the value of life in favour of the need for energy expansion. The *Chapter X – Socioenvironmental Analysis* is the DEEP's last chapter. Although it raises possible interferences with energy enterprises, it merely lists the issues, not bringing any discussion, or actual inclusion of actions in the plan that would privilege life over energy expansion. The DEEP presents, as the conclusion of the socioenvironmental analysis, nothing but the affirmation that energy expansion is the goal and in order to achieve that goal, all these *challenges* must overcome. Furthermore, the plan applies the catchwords of the economics vocabulary, considering the socioenvironmental problems as 'risks' for the energy business, that should be transformed into 'opportunities':

> The energy sector will continue to face a number of *challenges* that are ***in some way*** related to other sectors. The *development* of the country can be driven by better integration and compatibility of different sectoral policies. It is therefore important to discuss the socio-environmental issues on a broader scale in order to *assess* the real ***risks and opportunities*** associated with decisions on the various possibilities of using available resources (emphasis added in bold and italics) (MME and EPE 2015, 434).

The DEEP does not innovate or suggest severe regulation or inspection of environmental and social harms caused by the expansion of industry. On the contrary, such aspects are dealt with as *challenges* to reduce investment costs. The essence of energy planning in Brazil attends to the developmental agenda aimed at opening up markets for inflows and outflows of capital so investors regulate and control demand and supply of energy (D'Souza 2006). The DEEP then calls for technical and legal-institutional aspects that would protect projects that aim at the expansion of energy.

> In addition to **indicating** the socioenvironmental themes that must be observed in the planning process, it is believed that the most important contribution of the DEEP's integrated

socioenvironmental is the selection of priority themes for **environmental management**. The objective is to highlight those **issues that can increase the uncertainty associated with the planning of projects important for the expansion of energy supply in the country** and, therefore, impose the need to channel efforts to address them adequately. It is important to remember that the analysis incorporates technical and legal-institutional aspects and *considers the strategic importance of projects for the country's energy security* (emphasis added in bold and italics) (MME and EPE 2015, 433).

However, as the centre of the epistemological critique proposed here, the narrow economic framework confuses the reasoning and disturbs the various facets to be considered regarding the preservation and recovery of the environment, the empowering of local communities, and the self determination of peoples, as well as the availability of essential needs such as water, land, and freedom of bodies. This study is focused on the Brazilian state as peripheral modern–colonial state, establishing a critique diametrically opposed to the idea of absolute profit and the need for economic growth and industrial expansion that guide strategic sectors of global capitalism (Gudynas 2019; Beveridge 2017; Dussel 2006; Leme 2005; Escobar 2004; Marini 1992). It proposes the epistemological opening to the reality of the modern–colonial world-system: that there is no free and deregulated market; that the commoditization of essential natural resources and bodies is to the detriment of life and the environment, and that there may be other perspectives in planning energy.

The Brazilian State exercises under the law, the functions of planning, whose targets are binding for the public sector and indicative for the private sector. For the public sector, the planning activity refers to the country's inventory of energy enterprises and the perspective of economic growth. For the private sector, it indicates the country's financial risks, indicating the benefits, *risks, and opportunities* for the existing businesses, as well as the prospect of inward investments and new businesses. The decennial plans constitute important instruments of planning of the energy expansion of the country. Having the first DEEP released in 2007, the plans are reviewed and updated from time to time, although the periodicity is not regular (generally every year).

The critique herein proposed is focused in the analysis of one of the DEEPs, the 2015–2024, the last report resealed before the parliamentary coup d'état in 2016. The reason for choosing the DEEP 2015–2024, and not the latest report released by the time of the conclusion of this research (DEEP 2018–2027) is due to the period of political and economic uncertainties after the coup, hampering the understanding of what is intended for the country's energy sector from then on. From 2007 to 2015, eight DEEPs were

released. At the time of writing this study in 2019, two reports were released after the coup, the DEEPs 2017–2026 and 2018–2027.

Broadly speaking, the DEEPs cover four broad areas of energy planning: 1) national and international contexts for energy demand; 2) electricity supply; 3) oil and derivatives, natural gas and biofuels; and 4) socioenvironmental aspects. Although the differences among the eight reports produced between 2007 and 2015 are minimal, considering macroeconomic and neoliberal premises in all of them, the reports released after the coup, the DEEPs 2017–2026 and 2018–2027 (before the finalization of this thesis), differ in being less cogent than the earlier DEEP documents. This is a reflection of the unstable political background that Brazil is facing since the parliamentary coup in April 2016 (Secco 2016).

Michel Temer, the never-elected[62] former Brazilian president (MPF 2015)[63], composed his cabinet with the most conservative representatives[64]. The point made here is that a new privatization era in Brazil was inaugurated by the far-right allies in the Brazilian National Congress headed by Temer. For now, it is relevant to point out that the last DEEPs stress the informational character of the decennial plans and no longer have the directive function as an attribute and exercise of the MME's energy planning function through the CNPE and the EPE.

To bring a clear understanding of the institutional arrangements of energy planning in Brazil, it will be interesting to review the histories of the MME, created in 1960, and of the DEEPs, created in the mid 2000's. The following section summarizes the history and legal nature of energy planning, starting from the inauguration of the MME to the release of the DEEPs.

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[62] Temer was Dilma Rousseff's vice president. The coalition between Rousseff's PT (the Worker's Party) and Temer's MDB (the "center-right party, historically with the largest number of representatives in the national congress) resulted in an unsustainable political crisis due to the articulations against the PT governments. The crisis let to the impeachment of Dilma Rousseff, charged of filling holes in her government's accounts by taking loans from state banks without congressional approval. In 2019, Rousseff was found not guilty of any crimes, which makes the impeachment process illegitimate and illegal. Temer assumed the presidency without democratic popular vote, through obscure articulations in the congress.

[63] Michel Temer finished the mandate on the 31st December 2018. During his time as the president of the republic, Temer was denounced by the General Attorney's Office for the crimes of active and passive corruption, involvement with criminal organizations and obstruction of justice. He was arrested on 21st March 2019, accused of leading a crime organization and corruption scheme in which he had received more than 1.8 billion Reais (0.5 billion US Dollars).

[64] Although Temer formed the most conservative cabinet, his successor, Jair M. Bolsonaro, elected president in the October 2018 elections, composed his cabinet with religious conservatives, military men, and declared sexist, racist, and homophobic individuals, considered the most undemocratic presidential cabinet since the military dictatorship that endured from 1964 to 1985.

Historical Context and Legal Nature of the DEEPs

Decisions regarding long-term energy strategies in Brazil are the responsibility of the executive power, that is, the final endorsement of such decisions are incumbent on the presidency of the republic. As one of the directive institutions that make up the executive branch and give the necessary legitimacy to political decisions, the MME has the function of supporting the presidency in the planning and directives of the energy sector (Brazil 1960). Created on July 22, 1960, the MME became an autonomous entity of the Ministry of Agriculture, which until then had been responsible for decisions involving natural resources in a wide way: waters, mining, and agribusiness mainly. The power of the agricultural sector in the country's politics and economy must be reckoned, looking at its influence since the beginning of the colonial times.

The same law that implemented the MME also had incorporated some of the most relevant strategic institutions dealing with sovereign matters[65], such as the National Department of Mineral Production (DNPM) and the now extinct institutions, National Council of Waters and Electric Energy, the National Council of Mining and Metallurgy, the National Petroleum Council, and the Committee on the Exportation of Strategic Materials. Beyond that, the companies related to the sale of energy inputs, such as Petrobras (the oil company), Chesf (generation and transmission of electricity company, which further became part of the holding Eletrobras), Vale do Rio Doce (CVRD) (the mining company, privatized in 1998 during Fernando Henrique Cardozo's administration) (Jr 2013) were legally under the institutional umbrella of the MME.

Energy Planning and Military Dictatorship in Brazil

The decades following the creation of the MME were marked by the military coup which installed a military dictatorial regime in Brazil, against the unstable international political background of the cold war. The military dictatorial regime instituted in the country (as also in other South American states during the cold war [Huneeus 2007; Cooney 2007]), was supported and sponsored by the United States (Campos 2012), and influenced by its international economic set up. The years of dictatorship in Brazil continued from 1964 to 1985. In that period, the developmental agenda (in the aforementioned international background) rested on economic growth through the

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[65] Brazil 1960, articles 7-8.

exploitation of natural resources – primary commodities, especially energy inputs and large infrastructure contracts (Skidmore 1988).

In 1988, the Democratic Constitution of the Republic was enacted, enabling the first democratic presidential elections in 1989. Fernando Collor de Mello, Brazil's first democratically elected president, however, renounced his post in December 1992, after an impeachment procedure accusing him of corruption scandals during the elections. Although Collor did not complete his mandate, his administration was marked by the introduction of Brazil as a neoliberal country in the international economic scenario, friendly with the US political agenda of 'democratization', opening of markets, and legitimization of international finance regulators (Hirst and Pinheiro 1995). Despite the fact that the neoliberal agenda appeared contrary to the nationalist economic development discourse of the militaries, economic and political importance given to the industrial and infrastructure elites after the democratization remained the same as it was under military rule (Campos 2012). The new democratic period was an excuse for the sale of public companies, applying the discourse that was being spread by international economic institutions such as the World Bank and the IMF (Anderson 1995), to 'bring development to the Third World'.

Development and Neoliberalism

In 1990, during Collor's administration, the MME was extinct. The law n. 8.028, changed the nature of MME, transferring its attributions and competencies to the newly created Ministry of Infrastructure, which encompassed the former MME, the Ministry of Communications, and the Ministry of Transports. In a clear attempt to reduce the influence of the state and to show international investors that the political agenda was in alignment with the idea that the private sector was more efficient and beneficial to the economic development of the country, the 1990s inaugurated a wave of privatizations and demonstrative steps in neoliberal economics (Alves 2002). In 1992, the Ministry of Infrastructure was dissolved and the MME was re-established, but the public companies under the MME's institutional umbrella were weakened to boost the discourse about the inefficiency of the state to manage strategic sectors for the country's growth, together with the need for the same state to make intensive investments in infrastructure (Pêgo Filho, Cândido Júnior, and Pereira 1999).

Neoliberal Decade: PSDB and the Right-wing Democracy

The *Brazilian neoliberal decade* (Alves 2002), from 1990 to 2000, impacted energy planning negatively. The election of Fernando Henrique Cardoso in 1994, a dependency theorist (Cardoso and Faletto 1979), who became the great name of neoliberal politics in Brazil, gave a strong impetus to privatizing state-owned companies (Rodrigues 2013; Ribeiro Jr 2013). During Cardozo's administration, the new currency and monetary plans were implemented in the country. The Brazilian Real (Filgueiras 2000) brought economic stability and made the Brazilian currency equivalent to the US dollar in value.

The 1990's privatization movements applied strategies that could also be observed in the privatization of other public companies around South America, something strongly encouraged by international institutions (World Bank 1998) and liberal economists (Pêgo Filho, Cândido Júnior, and Pereira 1999). Such strategy was to gather scientific studies to underpin and legitimize the discourse about the inefficiency of the state, then to reduce public investments, scrapping public companies until their commercial value reduces to the point that selling them would appear to be a better deal for the public coffers (Benjamin 2001). This way, the population would be convinced that state-ownership of strategic companies was 'holding back the development observed in the UK and in the US' (Mattos and Coutinho 2005; Pêgo Filho, Cândido Júnior, and Pereira 1999). This was the case of companies in the energy sector.

The Anti-Corruption Squad

In December 1996 was created the Brazilian Electricity Regulatory Agency – Aneel (Brazil 1996) to inspect and regulate the production, transmission, distribution, and commercialization of electricity. With the legal nature of an autarchy, Aneel became the appropriate institution to celebrate concession contracts related to electricity. The 'outsider character' of Aneel would almost represent a non-governmental body, totally 'unbiased' and 'unpolluted' from the 'corrupt Third World politics' in order to give *transparency and compliance* with international standards to the commercialization of electricity in Brazil, as suggested by international regulatory agencies for the promotion of inward investments in 'developing countries' (UN 2003) during the 1990s.

The international *anti-corruption movement* started in 1990 so regulatory agencies would promote international standards of mechanisms against corruption and

international crimes, strongly supported and encouraged by the US. It is important to bring to light that the 'hollowness of the anti-corruption discourse' (Bukovansky 2006) hides the intention to hierarchize levels of corruption in Third World countries, creating the international obligation to enact laws in the domestic environment to apply the international guidelines in order to reduce the risk for foreign investments.

> The United Nations Guide Practical Measures against Corruption was originally requested by the United Nations Economic and Social Council (ECOSOC) in 1990 and first published in 1992 by the United Nations Office on Drugs and Crime (UNODC), **with the assistance of the United States Department of Justice**. During the 1990s, **issues relating to corruption were repeatedly raised within the United Nations** and in other contexts and in 1995, ECOSOC requested that the Guide be reviewed and expanded, with contributions from other relevant international organizations, to take account of new developments.
> (…)
> In order to respond to this request UNODC has developed three publications for anti corruption practitioners: (i) the Anti Corruption Tool Kit and (ii) a Handbook for Prosecutors and Investigators and (iii) International legal Instruments on Corruption. In order to help senior policy makers, UNODC has compiled this United Nations Guide on Anti Corruption Policies.
> (…)
> There is now increasing recognition throughout the public and private sector that corruption is a serious obstacle to effective government, economic growth and stability, and that anti-corruption policies and legislation are urgently required at the national and international level.
> (…)
> As a result of efforts on the part of the Council of Europe, OECD and OAS in recent years, the international community **has embarked on the search for standards that are comprehensive in scope and global in application**. These efforts will soon result into the United Nations Convention against Corruption, which is presently being negotiated in Vienna by an ad hoc committee, supported by my Office (emphasis added in bold) (Pêgo Filho, Cândido Júnior, and Pereira 1999).

Exploring the concepts of compliance, corruption and international crime is crucial for the understanding of the history of energy planning in the Third World, because it explains the core of the neoliberal discourse in guaranteeing that foreign investors' property will not be expropriated. In addition to the necessity of privatizing strategic sectors of the economy, it was necessary to please and reassure the capital exporting countries and the wealthy investors that the Third World was underdeveloped, but 'honest' or intensive observation by foreign investors will suffice to exercise adequate control (Bukovansky 2006). Despite the fact that there is no space in this study to discuss the length of Aneel's institutional arm, it is interesting to perceive that such an agency was created to scrutinize the electricity sector and to celebrate concession contracts during a convenient timing and political orientation for the international markets and the opening of economies.

Cardoso and the Country on Sale

During Cardoso's second mandate, a series of regulatory measures were created to enable the progressive privatization of strategic sectors of the economy. In 1997, with the enactment of the law n. 9.478, the principles and objectives of the National Energy Policies were determined, as well as the national regulation for the *rational* use of energy sources[66]. That law also created the Brazilian CNPE, the institution of reference for energy planning in Brazil. The most important aspect of this law, however, is the definition of monopoly regarding oil and natural gas and the creation of the ANP, an autarchy created with the goal of attracting new investments in the search for new reserves in the Brazilian sedimentary basins (Lucchesi 1998). Although the 'Oil Law', as it became known, claimed energy independence and sufficiency of supply within the country, it strongly encouraged the private sector to take advantage of the energy potentials in Brazil, something that would benefit mainly the infrastructure business and internationalized capital.

The privatization of the mining company CVRD in 1997 and the state-owned telecommunications holding Telebras in 1998 were justified as the salvation of public finances, but the reforms were intended to go far beyond:

> In the period from 1991 to 1998, the sectors with the largest participation in the general results of privatization were: 37% in telecommunications; 33% in electricity; 10% in steel; and 8% in mining […]. In the case of telecommunications, the percentage refers to the sale of the TELEBRÁS system and the concession of the B band of cellular telephony. Regarding electricity, the highlights were the privatizations of the state distribution companies, in which there were very high premiums, such as in the CEEE and CPFL sales; there were several large projects in the steel sector; in the mining sector, the participation was due to the sale of CVRD. (Pêgo Filho, Cândido Júnior, and Pereira 1999, 41).

The privatization project was centrally committed to transfer to private capital the entire infrastructure sector, which encompassed telecommunications, energy, and transport (Pêgo Filho, Cândido Júnior, and Pereira 1999). Discussions about the 1990s privatizations divided intellectuals in Brazil; it is possible to find literature arguing how efficient the mining company CVRD became after its privatization (Pêgo Filho, Cândido Júnior, and Pereira 1999; Oliveira, Lustosa, and Sales 2007; Leme 2005) and, at the other extreme, some consider the sale of CVRD one of the biggest strategic mistakes of the country's economic history (Ribeiro Jr 2013; Zorzal and others 2004; Biondi 2014; Affonso 2000).

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[66] To the extent that the unconstrained and incontrollable aims of expansion of industry would allow.

The political dedication to privatize the energy sector through the weakening and scrapping of state-owned companies has made the planning function of the MME less important than the impact of the rate of return of the sale of each of its enterprises in the stock market. Such a conjecture culminated in the worst electricity crisis in Brazilian history, still during Cardozo's administration – the 'blackouts' or *apagões*.

The deficiency of electricity supply materialized in the year 2000 with the occurrence of blackouts ('apagões'), was the consequence of the discrepancy between the rise in the number of consumers and the lack of expansion of installed capacity for generation and transmission of energy (Tolmasquim 2000). The first decade of the twenty first century was marked by campaigns for domestic energy rationing, in an attempt to transfer to the population – residential consumers – the responsibility and onus for the crisis, creating the false impression that the main consumer of electricity in the country was residential, whereas it was more than clear that industry was and still is the main consumer (Fearnside 2016; MME and EPE 2015).

Development and the Partido dos Trabalhadores Left-wing Governments

When Lula was elected in 2002, Brazil was going through the peak of the electricity crisis. Although the left-wing administration reached the highest institutional level for the first time in the country's history, the political alignments proposed at Economic Commission for Latin America and the Caribbean (ECLAC) were definitely neoliberal in character. The aims were to economically strengthen the region in order to start 'the rise of Latin American countries as industrial potencies', in accordance with international economic institutions, reinforcing the discourse of economic growth as development and maintaining strong alliances with local elites – especially regarding infrastructure.

The Partido dos Trabalhadores (PT), (the Brazilian *Workers' Party*) governments (Lula 2003 – 2006; 2007 – 2010; Dilma Roussef 2011 – 2014; 2015 – 2016), although concerned with social programs, public investments in education and in the National Health System – Sistema Único de Saúde (SUS), made irreparable mistakes in continuing the neoliberal politics in the infrastructure and energy sectors. Numerous concessions and subsidies were given to the private sector ("Orçamento de subsídios da União — Ministério da Economia Fazenda," Relatório 2º Orçamento de Subsídios da União 2003 - 2017), and many concession contracts were entered into for the exploitation of energy

resources. Gigantic infrastructure enterprises were initiated during the PT governments, which led to the investigation of corruption scandals involving construction companies and investors in the infrastructure business.

At this point, there is room for further research about the relationship between the infrastructure elites and political campaigns in democratic governments in Brazil.

The Energy Research Company as the Gateway

In order to deliberate on and frame policies for exits from the structural energy crisis, in 2004 the EPE was created (Brasil 2004). EPE is a state-owned company, with the purpose of providing services in the area of studies and research aimed at subsidizing the planning for the energy sector, such as electricity, oil, natural gas and its derivatives, coal, renewable energy sources and energy efficiency, among others (Brazil 2004, art. 1). The legal nature of EPE is of a consulting company entrusted with the following duties, among others:

> To obtain the prior environmental license and the declaration of water availability required for the biddings involving hydroelectric generation and electric power transmission projects selected by EPE;
> To monitor the execution of projects and feasibility studies carried out by interested and duly authorized agents;
> To support and participate in the articulations for energy integration with other countries (Brasil 2004, art. 4, VI-XI-XIV.).

EPE allows payments from public and private entities or individuals and Brazilian nationals or international institutions; it also allows payments in the form of investments and donations. EPE's personnel, i.e., the technical staff to produce the most important documents for the authorization of energy exploitation in Brazil (especially hydropower), can be appointed by public concourse and by direct hire. All this information is useful to understand the double nature of the main entity within the MME in charge of environmental licensing, producing scientific documents, guidelines, and technical reports that underpin political decisions for energy planning and execution.

As an example, EPE produces the Environmental Impact Assessments (Estudo de Impacto Ambiental) (EIA) and issues the Environmental Impact Report ((Relatório de Impacto ao Meio Ambiente) (RIMA) for the feasibility studies of hydroelectric projects. These two reports are presented as a joint document known as the EIA/RIMA, which is essential and conditional for the authorization of the viability of new enterprises. The EIA/RIMA is produced by EPE in partnership with third-party consultancies, according

to the Law n. 10.847 (Brazil 2004, article 15). This entails that the EPE is allowed to contract by waiver due to unenforceability of the tendering procedure and hire the contracted consultancies as technical staff to develop activities indispensable for its functioning. Article 6 of the same law authorizes any institution of the public administration to contract EPE without the tendering procedure, on condition that the contract is for the pursuit of their institutional purpose. That is, indirectly, institutions of the public administration are able to contract third-party consultancies without going through the scrutiny and procedural period of the tendering process.

There are many problems in this. The 'third-party consultancies' might be part of the holdings that operate in the energy sector, as in the case of Engevix Engenharia S.A or the CNEC – WorleyParson, part of the Camargo Corrêa Group. The two environmental licensing consultancies are also holdings and international players in the construction sector, linked to energy concessionaries in the country, as the Belo Monte Hydropower Complex concessionaire, Norte Energia (Norte Energia n.d.). As active players in the industry, international holdings are also prospecting for new long-term concrete-heavy/capital-intensive projects, which removes the discretionary nature of the environmental licensing process. EPE's partners represent the clear influence of the interests of private capital. The consequence undermines the idea that regulation and transparency in processes are decisive factors in boosting economic growth, given the maintenance of seats of power by the capital markets operating elites at national and international levels (Paiva 2015).

The National Energy Plan – PNE 2030

In 2006, EPE released the first PNE 2030, a joint document that proposed a combined analysis of the main components of the energy sector: electricity, oil, natural gas, and biofuels. By then, the MME did not have a unified plan for long-term energy planning, which previously had been done exclusively for the electricity scenario (Santos and Souza 2011). The document considers macroeconomic premises by sector in order to quantify the demand, that is, it operates by applying international currency and market parameters to determine the amount of investment to be made in each sector of the economy – mainly about capital-intensive-infrastructure projects. Although the document contemplated a national scope and predictions on energy security in the long term, it does

not mention any social or environmental concern which would, in any way, interfere with their macroeconomic perspective.

In the year following the creation of the PNE 2030, the MME, applying the directives instructed by the CNPE, in partnership with EPE (and all the private consultants that composed the Energy Research Company), released the first DEEP 2007 – 2016 (MME and EPE, 2007). The DEEPs became the reference for planning the energy sectors, with *transparency* and *scientific legitimacy* endowed by the scope and legal nature of the EPE and the CNPE. The assumptions made, however, were useful to demonstrate energy security overshadowing any crisis, in order to attract investments and foster economic growth. The report advised massive public investments in infrastructure to meet the market requirements of economic growth.

> This Plan, in a pioneering way, extends the planning scope to the 10-year horizon, incorporating an integrated vision of the expansion of demand and supply of various energy sources, as well as electric energy.
> **The objective of the 10-year planning of the expansion of the national energy system is to provide a reference scenario for the implementation of new facilities in the energy supply infrastructure necessary to meet the growth of market requirements**, according to **supply**, in an *environmentally sustainable manner*, and **minimizing the total expected costs of investment**, including socio-environmental, and operational costs (emphasis added) (MME and EPE 2007).

Between 2007 and 2018, the MME and the EPE released ten DEEPs: 2016, 2017, 2019, 2020, 2021, 2022, 2023, 2024, 2026, and 2027, all with reference to the PNE 2030 and offering very similar methodological parameters. As mentioned previously, this work is focused on the DEEP 2015–2024 – referred to as DEEP.

The Brazilian Decennial Energy Expansion Plan 2015–2024 – The DEEP

The DEEP is produced by EPE, adopting economic assumptions on the macroeconomic and sectorial scenarios. This is the turning point of the thesis. Considering that:

a) coloniality of power (and its deployments in being and knowledge) is the ideology that permeates the public administration in Brazil;

b) for this ideology to take place, it requires the implementation of the epistemological parameters that impose an agenda of power, annihilating epistemic diversity, i.e., imposing violent epistemologies;

c) the ethical system we have been living in for the last five centuries does not aim at the production and reproduction of all lives, instead requiring the existence of victims for the preservation of certain lives, hierarchically determining who benefits from the ethical system;

we get to the point of analysing the DEEP as a document forged in the coloniality of power that annihilates epistemic diversity for the promotion of the economic agenda, made effective in an ethical system consistent with the hierarchization of bodies, living beings, territories, and knowledges and which needs victims for the preservation of such hierarchizations.

The most entrenched epistemological problems in the DEEPs consist in the establishment of the basic premises of energy planning. Narrowing the premises to economic variables defines the scope of energy planning and, hence, the goals to be achieved with the plan. The scope's definition prevents the inclusion of socioenvironmental (to use the DEEP's terminology) premises in energy planning. This way, whatever means are necessary to expand energy production in Brazil are justified if the economic agenda is achieved. Downsides such as environmental damage and the non-involvement of the population (consultation, long-term socioeconomic benefits, and so on) with the installation of an energy enterprise are mere consequences that are less important when compared with the main goal established for the plan.

The DEEP's premises epistemically determine the goals for energy planning, limiting the analysed items and the methodology for the analysis. The major goal which permeates all Brazilian strategic planning is the country's *economic growth*, and, for that, the expansion of industry, which demands energy expansion, sets the tone of the middle-term planning. Before expatiating the concept and problematic of economic growth, the DEEPs premises are clarified in the light of the ethics of exhaustion, considering coloniality of power and epistemic violence.

The DEEPs' Premises

The DEEPs premises are considered with reference to the macroeconomic scenario for a period of 10 years: from 2015 to 2024. The economic indicators used for the 10-year projection are: the national and global GDPs, as well as the amount of investment considered for the national GDP; the growth of the global trade; the national surplus based on commodities' export; the evolution of the oil prices; and the trade

balance of import versus export. The external variables considered for the 10-year projection are the country's savings and the total productivity index. The other premises are demographic, considering population growth and distribution in the territory throughout the period (MME and EPE 2015, 18–24).

The macroeconomic scenario considers the international financial markets that determine energy planning since energy inputs are commodities and their prices will vary according to market oscillations. The sectorial scenario suffers the impacts of the macroeconomic expectations but are considered under domestic regulation. Economic variables such as economic growth impact directly the projection for energy consumption since the main variable to evaluate it is the growth and stability of industry (Bermann 2004). The social challenge is related to the lack of infrastructure that imposes limits to the expansion of industry (MME and EPE 2015, 19), which limits the economic potential of the country.

The general premises involve dependence on the Global North's economic stability, as rich countries are the greatest exporters of capital. Capital flows warm up the economy and, from the macroeconomic perspective, the rise of the global GDP is said to be beneficial to a country's economy. The premises also point out the necessity of raising the industrial productivity in the domestic environment, justifying the need for investments in skilled labour, research, and development.

The international perspective and expectation for the energy business, as the guide for the Brazilian energy planning in the short, middle, and long terms is explained in the 2019 World Energy Issues Monitor, a report produced by a private organization named World Energy Council. The 2019 report for the 'Brazilian case' is a mix of a bad internet meme and a show off of economist clichés. As shown in Figure 3, environmental or social dilemmas are not issues of 'impact' in the business, neither of any relevance to be even mentioned in the chart. Crazily enough, "hydrogen economy", "Russia", "terrorism", "US policy" and "coal" are somehow issues – although less urgent – of concern for energy planning in Brazil.

As mentioned above, the DEEPs are not environment-friendly reports. They are economic reports that consider the concept of sustainability for the socioenvironmental studies within the overall economically-focused reports. As a unified document for the various sectors of energy planning, the DEEP contains a chapter entitled Socioenvironmental Analysis. The DEEPs are national documents for the mitigation of

and adaption to climate change in the energy sector[67]. The methodology applied for such analysis in the DEEP is the same as of the previous reports (2022 and 2023) (MME and EPE 2015, 386). Despite being presented in a vague and generic way, the socioenvironmental analysis makes clear the lack of intention in setting the environmental problems or the empowerment of communities as long-term priorities[68]. None of the premises consider any socioenvironmental demand.
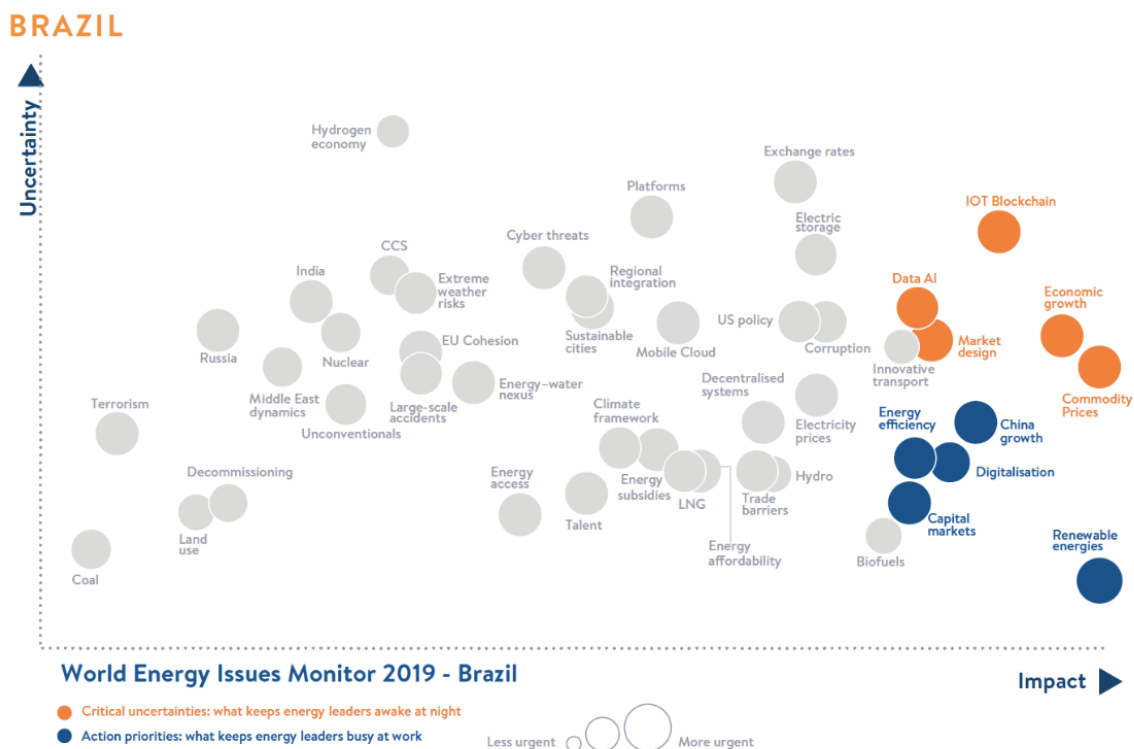
Figure 3 - World Energy Issues Monitor 2019 – Brazil (World Energy Council 2019)

The DEEP declares that 'the concept of sustainability guided the premises and the criteria used in the analysis' but neither describes or references the concept in the premises nor refers to the territories, communities, population, or living beings. Instead, it lists the following general considerations at the end of the document after all the 'relevant subjects' (as if these elements form a separate isolated group that does not interfere with the central elements of energy planning):

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[67] The National Policies on Climate Change (PNMC) appoints the DEEPs as the plans for mitigation and adaptation to climate change in the energy sector (Brasil 2009).

[68] It would be fair to say that having a chapter called 'Socioenvironmental Analysis' in the PDE means to Brazil the equivalent of what the BP's CSR website means to the population of Bento Rodrigues, the village destroyed by the collapse of the Mariana iron ore waste dam at the end of 2015 (Segura et al. 2016).

- Reduction of the local and global impacts in the use of energy sources, especially in the hydropower generation;
- The use of renewable sources;
- The minimization of environmental impacts;
- The discussions regarding climate change (MME and EPE 2015, 385).

For epistemological clarifications, the word *sustainable* means 'that which can be maintained over time' (Heinberg and Lerch 2010). The concept came to be globally used after 1987, when the United Nations World Commission on Environment and Development defined *sustainable development,* as a type of development that '"meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (WCED 1987). In the modern–colonial world-system's ethics, sustainability is about thinking about a better future, by maintaining the practices for the achievement of the benefits of Modern standards. The current ethical system creates victims but suggests mitigating the consequences of the harm already caused.

In this way, the DEEP's concept of sustainability is about mitigating the necessary harm caused by energy expansion with practices that do not change the nature of the harm caused, but attend to international parameters and specifications of 'best environmental practices'. Being sustainable is being ethically conscientious of the harms caused by energy enterprises. In the ethics of exhaustion, being ethically conscientious means that the ends will justify the means – that socioenvironmental harm must exist for the achievement of the wonders that energy expansion brings. The plan's 'social' part of the 'socioenvironmental' long-term perspective receives far less attention and less visibility in the analysis, whereas the 'environmental' is a very superficial aspect covered as an issue of 'risk'. The problems created by the expansion of the economy are dealt with as the *necessary sacrifice* for development, whereas human and environmental obstacles to economic growth are treated as *challenges*. There is no reference in the DEEP to the local population as the main stakeholders of the energy business.

It is clear that the DEEP's socioenvironmental premises are used to encourage hydroelectricity since it is considered a renewable source in the official energy plans. Since hydropower is the main source of electricity in the country, the socioenvironmental analysis is focused on how green the Brazilian Energy Matrix is due to the country's huge hydroelectric potential. According to the EPE, 43% of the country's energy matrix are from renewable sources. That is an interesting point to make: despite the irreversible impacts caused by large hydropower dams (Fearnside 2015), hydroelectricity is

considered a green source. It is assumed in the DEEP that hydroelectricity does not produce greenhouse gases (Fearnside 2009). The energy sector celebrates the fact that the international agreements on climate change are being met, which roughly could be considered a good thing. However, the point is not about 'being the politest predator', but the 'rudest fake environmentalist'[69].

> The results show that the scenario of expansion of energy supply and consumption in the 10-year horizon is in line with the target expressed in terms of the absolute value of emissions in 2020 (range 634-680 MtCO2eq). Even in 2024, emissions do not reach the lower limit of the PNMC target set for 2020 (MME and EPE 2015, 392).

The first considerations of sustainable development and environmental impacts in energy planning are materialized on a very broad and generic way in the DEEP. Decisions to make the Environmental Strategic Assessment (ESA)[70] point out 'technological characteristics and social, economic and environmental impacts of energy production, transformation and use highlight the strategic importance of the energy sector' (Santos and Souza 2011).

As mentioned in Chapter 5: *The Problematic of Energy*, energy is epistemologically dealt with as a commodity. Energy sources are not considered *the environment*. Socioenvironmental harm is treated as a *consequence* of energy production, whereas it is *part* of the process of obtainment of energy inputs for economic purposes. Socioenvironmental harms are *necessary* for the production of commercial energy. Therefore, in the DEEP, harm is a *condition* to, not a *consequence* of energy production that can be mitigated. The DEEP does not clearly include the necessary socioenvironmental harm among its premises – all the premises are exclusively economic. For these reasons, the DEEP's definitions attend to an agenda of power: the transnational monopoly finance agenda. This reveals the DEEP's epistemic violence as discussed in Chapter 3. Violent epistemologies are direct coercive ways of imposing meanings on social institutions to legitimize agendas that ensure positions of power. From

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[69] 'Regarding emissions from hydroelectric reservoirs, although there are several studies in this area, there is no academic consensus on a reliable estimation method that can be applied to a set of reservoirs. In this context, the strategic R & D project called BALCAR - Carbon Balance in Hydropower Reservoirs, coordinated by CEPEL, is in progress and has the participation of several research institutions, in addition to the support of ANEEL and MME. The already published data of this project indicate emissions significantly low (with exceptions) and quite variable, depending on the different conditions in which the reservoirs are. It is also worth noting that several of the existing studies are based on gross emissions from reservoirs, but recent studies point to the need to account not only for gross emissions, but for net emissions, i.e., it is necessary to discount emissions existing before the construction of the reservoir and to evaluate the influence of external factors, such as the use of the soil of the contributing basin to the reservoir. Considering this scenario, such emissions are not accounted for'. (MME and EPE 2015, 387).
[70] Avaliação Ambiental Estratégica – AAE. (Simone Santos and Souza 2011, 371).

epistemic violence, it is possible to grasp colonialities in the DEEP. Coloniality of power is identified in the imposition of the economic agenda to the detriment of any other subject, as the Brazilian colonial history exemplifies. Coloniality of being is identified in the exclusion of the existence of life in determining what is energy, in determining the premises for energy planning and the long-term plan underpinned by these definitions – the majority of the population are not considered at any moment throughout the document. Coloniality of knowledge is identified in the fact that the people's knowledge is not allowed to change energy planning in Brazil. The narrow macroeconomic aspects prevent any non-economic discussion. The peoples that are mostly affected by energy enterprises do not have the economic arguments, their demands are about maintaining their culture, their relationship with the land, and *their capacity to influence the need and object of the energy enterprise*.

All the 'sustainability aspects' mentioned in the DEEP are considered with reference to the country's expansion of industry for economic growth. This way, it is relevant to discuss this concept to understand who benefits from energy expansion, as well as what kind of economic growth comes from it.

The Epistemic Problem of Energy Expansion for Economic Growth

The epistemic decolonial turn on energy planning begins with challenging the DEEP's priorities and premises. Grounded in the ethics of exhaustion, the DEEP's main goal is to delineate strategies for the country's 'economic *development*', what would be achieved via economic growth. Such strategies are researched by the EPE. According to the DEEP, the ultimate goal for energy planning in Brazil is to promote economic growth.

It is inadmissible that the middle and long-term directives on energy management in Brazil are guided by the pursuit of economic growth. Scholars in various areas of sciences have been challenging the idea of economic growth as something good for some time now (Martínez-Alier 2009). Such a concept brings together white male liberal economists at the MIT and indigenous feminist movements in Popayán: challenging the alleged advantage of this growth, exposing its disadvantages.

To discuss the institutional pursuit of economic growth in Brazil, it is necessary to contextualize the debates surrounding the concept of *development*, the epistemic creation of its necessity after WW2, as well as its influence in the post-independence movements on the second half of the twentieth century.

Development as a concept informed the "backwardness" character assumed by countries from the Global South (Pahuja 2011, 56). In this sense, underdevelopment represented a consequence of colonization and then imperialism. The Global South should aim for development as means to claim their sovereignty in the international post-war configuration. In the post-independence context, the status of nation-state would guarantee that former colonial countries could claim permanent sovereignty over natural resources (PSNR)[71], since colonialism was partly about controlling natural resources, raising the economic gap between developed and underdeveloped nations. The aim of a New International Economic Order (NIEO) raised at the UNCTAD in 1964 ("officially" recognised by the United Nations General Assembly Resolution 3201, of 1974) was to expose the fiasco of the post-war world order in enabling the former colonial states to have their own approach to development.

The viability of a potential NIEO for the "underdeveloped world" would be the cooperation between countries from the Global South to achieve such economic development and to overcome the North-South structural unequal exchange based on the attributes of sovereignty. Having as a historical milestone the Asian-African Bandung conference in 1955, and reinforced at the UNCTAD in 1964, South-South Cooperation (SSC) was launched as a movement to lessen the dependency on the developed economies.

In the 1960's and 1970's, SSC was established as a political movement for economic development asserting control over the assets through international law mechanisms and Third World solidarity. If the unity gained strength during the oil crisis, it was rapidly dissolved with the instability of commodity prices, splitting the oil producers and the non-oil producers, since the formation of cartels of non-oil commodities were proved difficult to form (Pahuja 2011, 104). Political debates and actions around SSC re-gained strength from the early 2000's, gaining centre stage of world politics and economics, due partially due to the rise of China, as well as the wave of left governments gaining political space in Latin America, and the declared global movement towards "development" as identified in the United Nations Development Programme.

The concept of development has been intrinsically embedded in the necessity of economic growth to enable "development as freedom" (Sen 2001). In this sense, the

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[71] Permanent sovereignty over natural wealth and resources was a deployment of the right to self-determination, as defined in the United Nations General Assembly Resolution 1803, of 1962.

nationalist character of SSC demanded a level of economic complicity to achieve the discursive aspects of justice and equality for the "rise of the rest" (Amsden 2001). The problematic of the developmental or economic-growth centred approach is the trap of the achievement development goals (UNDP 2017) via the operationalization of the economic dynamics of massive industrialization, commodity-exportation and the strengthening of local elites. None of this is new in the modern-colonial world-system. Development is deployed from the ability to operate the transnational monopoly financial system, which does not differ in any sense from the exploitative dynamics of global capitalism. The rise of global potencies like China, and trade alliances like the BRICS (Brazil, Russia, India, China and South Africa) ends up configuring what Ruy Mauro Marini called *subimperialism* (Marini 1992; Valencia 2019). This happens because *development* entails the use of colonial epistemes for the maintenance of capitalist hegemony grounded on the geopolitical and socioenvironmental hierarchizations (from regional to global), built on exhaustivist relationship between people and the environment.

Eduardo Gudynas (2016) informed that SSC takes place around the disputes regarding two types of development: type I, considered positive, involves controversies or instrumental arrangements about the use of technologies or locations for industrial projects, different options for value-chains in agro-foods, concerning mainly technology assistance or policy transfers. Type II regards controversies about varieties of development, whether neo-Keynesian or neoliberal (or a mismatch of both, such as the Brazilian Energy Planning – neo-Keynesian methodology, neoliberal premises); or whether sustainable development is different from economic development. It informs development "based on different political and ideological perspectives, such as classical Anglo-Saxon capitalism, the Latin American neo-developmentalist 21st century socialism, or state-controlled Chinese capitalism" (Gudynas 2016, 726).

In this sense, SSC towards development of the Global South can be depicted from the presence of the BRICS in the African continent, specially Brazil and China, which "remains primarily a recipient of limited and natural-resource-concentrated foreign direct investments, an aid recipient and an exporter of primary commodities" (Carmody 2013, 137). The subimperialist character of the BRICS contains the projection of political power across borders, differing from each country (the private sector engagement of India, the neodevelopmental Brazilian state or the state-driven capitalism of China), expanding "the portfolio of extraversion possibilities that enable regime maintenance". As Carmody explains, this takes place in the formula "revived economic growth and tax revenues +

aid + 'no questions asked' = (in general) regime maintenance" (Carmody 2013, 136), in which the regime is fundamentally grounded on market-oriented economic growth.

Some may see the geopolitics of development as positive, as the defense of the Chinese presence in African countries being different from that of the West, suggesting the possibility of a cultural "third space" (Jackson 2012, 188). This understanding of the concept of development from solidarity, cooperation and friendship, sounds like an attempt to fit Bhabha's concept of resistance and re-construction of cultural spaces into the capitalist vortex of the epistemologies of development.

Development and economic growth are twins (Pahuja 2011, 45), separated by a very tenuous line via discourse. The advocates of the contradictory discourse of an anti-imperial socialist rise of the South via industrialization and commoditization, condone the operation within the transnational monopoly finance for the rescue of culture values. These advocates have been proved wrong in the Latin American left experiences of the twenty first century. This can be easily observed in Brazil during the PT governments of Lula and Dilma Rousseff (responsible for the creation of the DEEPs), or in Ecuador during Rafael Correa's governments[72].

This is the reason why the "good" twin, development, is not the central analysis for the critique of the Brazilian developmental state that leads to the colonial epistemologies of energy planning. Such energy plans were made in the realm of Brazil representing "the rise of the Global South" as a potency in energy exploitation and commodity export country. Development is just another catch-word for the expansion of the capitalist agenda, regardless of the perpetuation of the ethics of exhaustion. The bad twin, economic growth, is more powerful and more entrenched in the epistemologies of energy planning. Reason why we proceed to discuss some of the aspects and schools on economic growth.

There is no room in this thesis to evidence all classic, Keynesian, neoclassic, liberal, neoliberal, and critical scholarship on economic growth. For the coherence of the argument proposed in this part, that economic growth cannot be the main goal for energy planning in Brazil, we point out the grounds of the economic growth advocacy, a few examples of the classic limits to growth, and open the discussion of the (non) benefits of capital accumulation. Such a discussion comes from the Marxian critique of political economy and leads to the contemporary critical scholarship on *de-growth* and the

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[72] More about the left developmentalism in Ecuador is discussed in CH7.

communal practices of *Buen Vivir*. Finally, we show that the priority of energy planning in Brazil must be *against* the colonial ideology of the accumulation of capital, in this case, through the exploitation of energy inputs. Such a practice only benefits the great capitalists to the detriment of the people and the environment, and it compromises the future. Because it compromises the future, it cannot be the strategy for the future – *the plan* – as the DEEP maintains. Trying to plan the future reinforcing well-known failures is condemning to catastrophe. The bad strategy has been killing the indigenous and the poor to make the rich richer at the cost of spilt blood and the destruction of nature. If we are to plan the future, we better apply a good strategy, starting from not making the same mistakes of the colonial times. It is mandatory to stop the violence of energy planning, *a.k.a*, it is mandatory to decolonize energy planning.

Grow the Pie, Feed the Greedy

The advocates of the endless pursuit of economic growth follow a Keynesian strand (illustrated by the Harrod-Domar growth model) (Keynes 2003, 114–16), based on the idea that there is a direct relationship between the level of investments (in physical capital or gross formation of fixed capital) and savings of a country and the pace of GDP growth. By establishing that Brazil's economic growth depends on the expansion of energy production, the DEEP relies on the level of (transnational capital) investments in the energy sector for the growth of industrial/agricultural production, which, in terms of the earlier mentioned growth model, will increase the country's savings and improve the country's GDP, as mentioned above in the section *The DEEP's Premises*. This model assumes that investors are the main decision makers of countries' growth rate, safeguarded by states' capital controls and regulated currencies. Such a model, in wealthy countries, would lead to rapid and relatively balanced economic growth and would also free governments to institute the social-democratic programs. Investors decide their level of investment according to their expectations (Keynes' animal spirits) (Keynes 2003, 103) and these expectations will dictate long-term investment levels (Keynes 2003, 55–60). There is no balance in this model (Shell and Stiglitz 1967, 600–602), which presents a strong undemocratic character since, in the words of Chomsky,

> free flow of capital creates a "virtual senate" of lenders and investors who carry out a "moment-by-moment referendum" on government policies if they find them irrational – that is, designed to help people, not profits – they vote against them by capital flight, attacks on currency, and other means. Democratic governments therefore have a "dual constituency": the population, and the virtual senate, who typically prevail (Chomsky 2011, 5).

The Keynesian model increases the volatility of energy prices, increasing the risk of business and demanding that the state guarantee the supply via economic rescue of investors. In the Global North, this model made investors shift from energy-intensive industry to financial services and other intensive activities (Helm 2007, 14–15). In electricity markets, operating the grid needs constant price update in the pools. According to Helm, '[i]n liberalized energy markets, investors, operators and consumers should, in theory, face the full costs of their decisions. This applies to access to resources and capital, and the social and environmental impacts of energy consumption. However, current practice falls short of this ideal' (Helm 2007, 295). The electricity grid itself is a social form of accumulation of value (Bellamy and Diamanti 2018, XXVI). This means that, in this model, it does not matter whether the energy source is 'clean' or fossil since markets operate the commodity according to the business risks. Their capacity for altering prices makes energy markets undemocratic. Every single person indirectly involved in the energy business – from affected communities to final consumers – is vulnerable to the economic dictatorship.

As mentioned before, the current model of economic growth presented in the DEEP (MME and EPE 2015, 18–22) is a mix of neoliberal and Keynesian approachs; i.e., it operates in a methodology almost free from interventions in regulatory measures, in which the figure of the state is a mere *guarantor* to the original investor that enables the investors to reduce their risk. For example, in the DEEP, the articulation of a 'difficulty' in obtaining public investments is made through the shrinking salience of the 'public debt' and the encouragement of strong players (infrastructure sector – construction companies, concrete-heavy capital-intensive projects and so on) in the national economy (with transnational capital) to improve the economy. In asserting that public debt discourages investments by increasing the country's risk, evaluated by rating agencies, the DEEP announces its neoliberal facet.

> In the last year [2014], the country did not reach the surplus target, with a primary deficit of 0.6% of GDP. Thus, many efforts should be made to return the country to a declining trend for the public sector net debt, thereby **removing the risk of loss of investment grade rating agencies**. In addition to the issues cited above, economic performance has been limited by structural factors such as **infrastructure bottlenecks that limit industry competitiveness and productivity gains in the economy**. **To solve these bottlenecks is of extreme importance in order to observe a more significant growth of the Brazilian economy**. In general, the future performance of the Brazilian economy depends on the evolution of these conjunctural issues and on how the structural problems will be faced and solved (emphasis added in bold) (MME and EPE 2015, 19).

The DEEP's 'reference scenario' for the establishment of the projections of the Brazilian economy is a moderate global economic growth. '[T]he premise is that developed countries will recover from *the crisis*, and there is no rupture in the European Union. In addition, despite expecting a soft slowdown in China, developing countries, especially Asian ones, will continue to contribute heavily to world GDP growth' (emphasis added in italics) (MME and EPE 2015, 20). Overall, the perspective described in the DEEP for the 'recovery of Brazilian economic growth' is to increase the volume of investments and economic productivity, expecting that in the ten-year projection, 'Brazil will grow at an average rate of 3.2% per year, while the world grows at 3.8% per year' (MME and EPE 2015, 20).

Why is energy planning in Brazil based on the premise that the rich are recovering from *the crisis*? Which crisis? Chomsky explains that '[f]or the West the phrase '*the crisis*' has a clear enough meaning: the financial crisis that hit the rich countries with great impact, and therefore of supreme importance" (emphasis in original) (Chomsky 2011, 1). The financial crisis of the hegemonic economies shares a common source with the food crisis (Shiva 2011, 169) in the global South: the shift towards neoliberalism from the 1970s onwards (D'Souza 2013). How is the production of energy in Brazil benefited by the enrichment of the rich? What does it have to do with the majority of Brazilians? Will the transnational monopoly finance be able to share the pie? History has shown it will not.

As evidenced in chapters 2 and 3, scientific research is also a strategy to underpin and legitimize power – coloniality of knowledge. The "scientific" character of the projections – elaborated by the research *company* EPE – analyzes energy exclusively as a matter of economic sciences. This way, in order 'to increase the productivity of the Brazilian economy, *making it contribute more strongly to economic growth*, investments in R & D and training of the workforce will need to increase considerably' (MME and EPE 2015, 20). There is no intention here to deny the importance of research for better energy planning in Brazil. However, the DEEP does not mean 'all relevant research', which would include sociological research or decolonial research but exclusively research to increase the productivity of the Brazilian economy – the one and only relevant issue.

> To sustain strong economic growth in the long term, investments must be increased. In the short term, however, the **low level of investor confidence in the Brazilian economy will limit the resumption of investments**, which should only gain more momentum in the second five-year period. The outstanding sectors in the period will be **infrastructure**, aiming to overcome the bottlenecks and increase the productivity of the Brazilian economy; the housing sector, in order to

reduce its high deficit; and **those related to the exploration and production of petroleum, aiming to supply the recent discoveries in the pre-salt layers and to guarantee the positive impacts that this sector provides for the other sectors of the economy** (emphasis added in bold) (MME and EPE 2015, 21).

[On the second quinquennium if the period] a more favourable international scenario and the expectation of increased exports from the oil sector are factors that should boost a recovery of the trade balance.

With regard to the current trade balance, the expectation is that the deficit will intensify, especially in the first five years, due to the lower balance of trade and the growing deficit of services and income. In the meantime, **there is no difficulty in financing this deficit**. Especially because, in the period, **capital inflows are expected to increase through *foreign direct investment*** (emphasis added in bold and italics) (MME and EPE 2015, 22).

The Plan recognizes the debt and declares that there is no problem because the country can attract FDI for the exploitation of fossil fuels, which is seen as a good thing, although it does not solve the problem and increases the carbon footprint. The DEEP gives directives for energy planning in Brazil for a 10-year period. Such directives aim at the country's economic growth through the encouragement of the infrastructure sector[73], oil export, and increasing foreign direct investment. Such priorities are the recipe for social and environmental harm.

On this projection for the country's economy grounded in the diminution of the public debt by attracting foreign investment (financial and direct), the historical primary commodities (raw materials and agriculture) gain central importance in regulating economic stability. The volatility of commodity prices, however, leads to market uncertainties in the chicken–egg question of whether inflation determines commodity prices or commodity prices lead to inflation. It is well accepted among mainstream economists that rising commodity prices leads to increasing inflation, which increases instability and risk (Schaeffer 2008, 33) at the international markets level, as well as unemployment and social crisis at the national level (Schaeffer 2008, 53–54; 62). It is clear that the macroeconomic orientation for economic growth entails the abuse of monetary policies, generating cycles of policies controlled by financial speculation. On this approach, the economy may (or may not) grow at the cost of endless repeated cyclic social crises. Commodity producers, however, may benefit from the external markets, but this cannot be the way to democratically manage the country's economy since it benefits the capitalists to the detriment of the majority of people.

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[73] Referring mainly to heavy construction – a sector extremely influential in financing political campaigns, directly related to corruption scandals, denounced for abuse of environmental and labour rights, with big companies as shareholders of EPE.

The economic scenario presented in the DEEP is divided into three sectors of energy interest: agricultural (which includes livestock), industrial, and services. While lamenting the economic crisis and fall in industrial production, the DEEP's sectoral premises celebrate the fact that the export extractive industry is expanding:

> As a reflection of the most unfavourable external and domestic economic scenarios, the value added of industrial production fell by 1.2% in 2014. One exception was the extractive industry, which, despite the significant fall in the price of commodities, **inaugurated important expansion projects in the areas of oil and mining**. The **negative industrial performance was mainly due to the downturn in the construction industry and in the manufacturing industry sectors linked to the automotive and machinery and equipment production** (emphasis added in bold) (MME and EPE 2015, 25).

The advocacy for the strengthening of infrastructure and automobile manufacturing industries (leading to infrastructure for logistics, roads, ports, airports, as well as production and consumption of fossil fuels and many other consequences that are very unfavourable to environmental sustainability) is blatant.

> The analysis is based on the long-term plan of energy planning adopted by the EPE, from which some assumptions impact the outcome of the sectoral projection for the decade, such as: **high investments in the petroleum chain** and in the housing sector; **increasing investments in infrastructure,** *facilitated by PPPs*, and the consequent reduction of logistics bottlenecks; economic development with gain of participation of the services sectors; **a shift in the profile of international trade**, with reduced growth in China and other developing countries and **recovery of developed economies.**
> It should be emphasized that such assumptions will have a more limited impact in the first five years in view of the **need for macroeconomic adjustments to recapture economic stability and confidence indicators of consumption and investment** (emphasis added in bold and italics) (MME and EPE 2015, 25).

In the introductory section of the DEEP document, there is a vague mention of 'reduction of local and global impacts on the environment in the expansion of energy supply'. This, however, contradicts the basic assumptions, which definitely run counter to recovery and protection of the environment. The loose references to technological advances for 'greener' expansion of energy are negated in the same document by the insistent mention all over the plan, of the need to support the infrastructure business.

The agricultural sector, a very problematic part of Brazilian history, politics, and economy, gains as special attention as the mining and infrastructure sectors in the context of energy planning. The *grantees* control a good part of the country's territory, management of energy inputs, water courses, and so on. Since the beginning of the colonial times, and especially after the alliance with the English traders during the opening of the commerce in 1808, Brazilian agricultural landowners aimed at the global trade.

This can be considered the first historical moment for the understanding of the energy sector: when land and nature are alienated from people and communities to become 'resources' and thereafter commoditized. The colonial origins of the alienation of energy resources continues to guide the nature of energy planning in the present – detached from the existence of life. Energy inputs, like every other commodity produced by the alienation of land and nature, become private property to be traded in transnational markets.

The independence from the metropolis resulted in a centralized state. With control and influence over the political and economic decision-making processes, commodity producers relied on the centralized state for the monopoly over commercialization of resources. The present Brazilian energy planning does not interrupt its colonial legacy, reinforcing and relying on wealthy business owners for the country's economic growth.

It is not a secret that the enrichment of the grantees does not bring social improvement, does not reduce hunger or poverty (Shiva 2011). The 'agribusiness kings'[74] are some of the wealthiest businessmen in the country, having their tentacles in every sector of the economy and even a bench in the national congress (a result of the historical configuration of public administration in Brazil as mentioned earlier). In the DEEP, the agricultural sector is treated as 'well positioned in the global market', capable of 'improving competitiveness with the maturation of the considered investments in infrastructure'. The energy plan for the agricultural sector is then directly related to the expansion of exports and (again) the growth of infrastructure business. The energy used in industrial scale agribusiness not only alienates land from people but transfers the benefits of energy to consumers in the Global North through export – in every export from Brazil there is an energy export that is implicit. Obviously, the agricultural sector in question is not the small producer, but the big players in the transnational markets. This way, when energy is planned to assist the agricultural sector, it must be understood to refer to the big agribusiness sector in alliance with the infrastructure barons.

The services sector is considered in the sectoral part just for the sake of ensuring it is not omitted since there is no explanation or definition of what would be included in this sector. The DEEP only affirms that the increase of consumerism in Brazilian families is excellent for the services' sector, which does not say much about how energy should be planned in relation to it (MME and EPE 2015, 27). If consumerism is growing, there

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[74] Reference to the poem and song by Chico César "Reis do Agronegócio" album Estado de Poesia 2015.

is need for more industry, fossil fuels, electricity. But this is not for the benefit of the people, but for the financial/industrial class and surely to the detriment of the environment.

For the industrial sector, the plan insists on advocating for investments in infrastructure, as if the EPE, the company that produces the plan, worked for a massive infrastructure holding[75]. Among the sectors that compose industrial activity in the country, special attention in the plan is given to the growth of the extractive industry (mining and oil), followed by the industries of 'electricity, water and gas, processing, and civil construction' (MME and EPE 2015, 27). It is particularly interesting that water management is dealt as part of the industrial sector.

> The industry average growth projection is of 2.8% over the next 10 years. This growth will occur below the variation of GDP, due to the economic premises on which the Ten-Year Plan is based. In general terms, **the partial solution of infrastructure bottlenecks in Brazil is admitted, as a result of the increase in the investment rate in logistics, as well as the increase in investments in the oil and civil construction sector.** The external sector will continue favourable to the growth of the most competitive export sectors, as it will assume a soft deceleration profile of Chinese growth, offset by the gradual recovery of developed economies. The exchange rate, in turn, will be more favourable to the domestic producer than what is observed in recent history.

The epistemology of energy planning, that is, the definition of the premises of energy planning in Brazil, supports a mainstream approach to growth. But mainstream economists have also demonstrated concern with unlimited growth, following the Malthusian alarmist fear of population growth. Let us briefly cite three very distinct positions in three different moments of the modern capitalist history. The first in 1848, when the idea of unlimited growth of wealth was questioned by John Stuart Mill, in his *Principles of Political Economy*[76].

The second example takes place in 1968, when a group of businessmen, company's representatives, industrialists, economists, and civil servants from a number of countries – mainly from the Global North, assembled a work group named the *Club of Rome*. 'They met at the instigation of Dr. Aurelio Peccei, an Italian industrial manager and economist' who, as the wealthy white man's entitlement and self-esteem allows, intended 'to discuss a subject of staggering scope – *the present and future predicament of men*'[77] (Meadows et al. 1972, 9). As the outcome, the Club of Rome published in 1972

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[75] See section *EPE as the Gateway*.
[76] "If the Earth must lose that great proportion of its pleasantness which it owes to things that the unlimited increase of wealth and population would extirpate from it… I sincerely hope, for the sake of posterity, that they will be content to be stationary, long before necessity compels them to it" (Mill 2004, 692).
[77] Emphasis added in italics to highlight the arrogance of a half-dozen millionaires in "informing the future of humanity", like in a super-hero movie.

The Limits to Growth, a semi-Malthusian report covering a vast range of issues related to the unviability of maintaining the industrial pace and population growth rates. Despite very universalistic, deterministic, and technocratic (blaming the exponential growth of industry on population pressure[78]) the report announced limits of infinite growth of the economy.

Finally, the third example takes place in 2008, when the World Bank released the report about the 'limitations to growth' called *Living Beyond Our Means: Natural Assets and Human Well-being* (World Bank 2008). Typical of WB's reports, nature is treated as an *asset* at the service of human well-being. They recommend for better use of natural resources and imposing of limits on industrial growth. This would be viable through things such as market-regulated mechanisms to control pollution; influence individual behaviour; environment-friendly technology; and, of course, better managerial skills, as well as (international standardized) market policies for better business practices (World Bank 2008, 18). In other words, the solution for unending growth is that markets – which expect more capital flows to operate – would be advising the operators in the transnational capital to encourage less pollution through individual awareness. This is clearly ideological.

Challenging economic growth without challenging the basic principles of capitalism becomes a useless effort. Capital accumulation is diametrically opposite to limitations to growth. Despite the gymnastics of numbers, manufactured consents through economic studies, and empty predictions, *accumulation* and *limit* cannot coexist.

Money is Pregnant[79] **with Rosemary's Baby**

A large number of critical scholars have antagonized the advocacy for economic growth. Starting from the basic principle that capital accumulation – money generating money – happens at the cost of the life of the labourer and all living things[80], the exhaustion of everything and the need of de-growth must be discussed.

The *fetishized* performance of ever-growing capital is incompatible with distributive wealth, since *growing capital* demands *having capital*. For the labourer (the

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[78] See chapter 5 for the concept of population pressure.
[79] In the Chapter 24 of the Capital Volume III, Marx explains the fetishized character of capital referring to Goethe's Faust tragedy, Part I, Scene 5, in which Mephistopheles proves he has supernatural powers and overwhelming control over people and objects. Marx says "money is now pregnant", evidencing the "magic" character of fetishized capital (Marx 2010, 267; Goethe 1808).
[80] In the ethics of exhaustion, as explained in CH4.

person who does not own capital), whose only commodity is the availability of her body/time to exchange for wages, there is no time (life) to accumulate capital. The production of capital does not return to the labourer: the reproduction of capital is the 'pregnancy' of wealth in the hands of the capitalist, ovum fertilized by donation of the worker's body and time. Even if there is an increase in the labourer's wages, there is no distributive wealth. This is extensively discussed in Chapter 25 of the Volume I of the Capital, *The General Law of Capitalist Accumulation* (Marx 2015a, 434–38)[81]:

> The rise of wages therefore is confined within limits that **not only leave intact the foundations of the capitalistic system**, but also **secure its reproduction on a progressive scale** (emphasis added in bold) (Marx 2005a, 438).

Capital accumulation is a condemnation to growth. The ever-increasing economy's populist justifications are grounded in a fictional demand of the ever-increasing population. But the problem is not the isolated (ever-increasing) number of persons, but the way wealth 'consumes', especially about the compulsions of wealth in forcing consumerism for its expansion (Latouche 2009, 26–28). As Latouche exemplifies,

> Over-consumption of meat on the part of the rich, which is the source of many health and ecological problems, means that 35% of the planet's arable land (in addition to the 30% of Natural grazing land above water level [Paquot 2007a: 13]) has to be given over to the production of animal fodder. A relative cut in stock breeding and improved treatment of livestock would allow us both to feed a larger population better and to cut carbon dioxide emissions (Latouche 2009, 28).

There is a salient scholarship on the search for *fair futures* (Sachs and Santarius 2007), alternatives to the exhaustive character of the global economy. Miriam Lang explains the motive to search for alternatives (Lang 2012) which, if we can apply to this work, is grounded in the fact that the ethics of exhaustion can no longer be the ethics of

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[81] "The law of capitalistic accumulation, metamorphosed by economists into pretended law of Nature, in reality merely states that the very nature of accumulation excludes every diminution in the degree of exploitation of labour, and every rise in the price of labour, which could seriously imperil the continual reproduction, on an ever-enlarging scale, of the capitalistic relation. It cannot be otherwise in a mode of production in which the labourer exists to satisfy the needs of self-expansion of existing values, instead of, on the contrary, material wealth existing to satisfy the needs of development on the part of the labourer. As, in religion, man is governed by the products of his own brain, so in capitalistic production, he is governed by the products of his own hand." (Marx 2015a, 438). In Chapter 24 of the Volume III, *Externalization of the Relations of Capital in the Form of Interest-Bearing Capital*, Marx clarifies: "In interest-bearing capital, therefore, this automatic fetish, self-expanding value, money generating money, are brought out in their pure state and in this form it no longer bears the birth-marks of its origin. The social relation is consummated in the relation of a thing, of money, to itself. Instead of the actual transformation of money into capital, we see here only form without content. As in the case of labour-power, the use-value of money here is its capacity of creating value – a value greater than it contains. Money as money is potentially self-expanding value and is loaned out as such – which is the form of sale for this singular commodity. (…) For vulgar political economy, which seeks to represent capital as an independent source of value, of value creation, this form is naturally a veritable find, a form in which the source of profit is no longer discernible, and in which the result of the capitalist process of production – divorced from the process – acquires an independent existence." (Marx 2010, 272).

the future. Eduardo Gudynas presents pathways for the transition towards a non-extractive model (Gudynas 2011). The Spanish economist Joan Martínez-Alier works on the concepts of *ecologic economy* (Martínez-Alier, Roca and Sánchez 1998), environmental justice, and *environmentalism of the poor* (Martínez-Alier 2014), and proposes a 'socially sustainable' economic de-growth (Martínez-Alier 2009). Demaria et al. explain what is intended by such a transition from the greed economy to a de-growth economy:

> Unlike sustainable development, which is a concept based on false consensus, degrowth does not aspire to be adopted as a common goal by the United Nations, the OECD or the European Commission. The idea of 'socially sustainable degrowth', or simply degrowth, was born as a proposal for radical change. The contemporary context of neo-liberal capitalism appears as a post-political condition, meaning a political formation that forecloses the political and prevents the politicisation of particular demands. Within this context, degrowth is an attempt to re-politicise the debate on the much-needed socio-ecological transformation, affirming dissidence with the current world representations and searching for alternative ones. Along these lines, degrowth is a critique of the current development hegemony (Demaria et al. 2013, 192).

Degrowth or *décroissance* is a discussion introduced in the global North by Nicholas Georgescu-Roegen in the 1980s (Georgescu-Roegen 1992), which has been gaining strength among ecological economists in the last ten years. Martínez-Alier explains what is meant by degrowth:

> It is easy for the financial system to increase debt (private or public), and to mistake this expansion of credit for the creation of real wealth. However, in the industrial system, growth of production and growth of consumption imply an increase in the extraction, and eventual destruction, of fossil fuels. Energy is dissipated and cannot be recycled. Real wealth would instead be the current flow of energy from the sun. Economic accounting is false because it mistakes the depletion of resources and the increase of entropy for wealth creation. The obligation to pay debts at compound interest could be fulfilled by squeezing the debtors for a while. Other means of paying the debt are either inflation (debasement of the value of money), or economic growth, which is falsely measured because it is based on undervalued exhaustible resources and unvalued pollution. Economic accounting does not properly count environmental damages and the exhaustibility of resources (Martínez-Alier 2009, 1100).

Precisely, policies to rescue the economy via economic growth, especially in the Global South, are exhaustive and unstable, aiming at short-term solutions of long-term harms. One question that comes up is: *how to deal with debt, if the continuous financial crises arise alongside the claims of the creation of wealth, especially in the colonized world*? Notwithstanding those claims, the decolonial argumentation follows this question with sharper ones: *where did the wealth of the Global North come from? How was it historically formed?* The transnational financial system, *financial capitalism*, is the third continuous phase of capitalism. Mercantile capitalism and industrial capitalism incubated the beast. Capital growth is not abiogenic, it comes from the unpaid original accumulation. The stolen resources, the unpaid profit to the labourer, and the mass taking

of land from the peoples are the places where financial capital originated from. It came from colonization and developed as management. Even so, it would be naïve to claim the restitution of such capital to its original owners, since the violence of the ethics of capital accumulation cannot be the methodology of rebalancing the global economic system. Nevertheless, the mere consideration that applying the same methodology that led the wealthy nations to their financial stability to be used against them would be at all possible will create a global financial collapse. Let us imagine that if the African nations or the indigenous nations would apply the financial methodology of interest to each transaction, to each enslaved labourer, to each milligram of gold and silver that underpinned the organization of the financial system as it is today, the debt and inequality would not be exclusivities of the Global South. But reinforcing the ethics of exhaustion is catastrophic. The vindictive reasoning of repealing the evil with the same evil helps nobody. It is, though, an argument to discuss the present debt of the poor and the need to cancel this ethical reasoning.

Reality is very different. Instead of redefining the strategies of global economics from below, countries that underwent the experience of colonization operate in the ideology of coloniality of power. Repeating colonialities are means to access power. The poor were taught that the pie must grow in order to be shared – the economy must grow in order to be able to invest in social programmes. It does make sense at first glance, in the short term, it is possible that increasing revenue and attracting FDI can increase employment and hence some dignity to the poor people. But this only happens until the next capitalist crisis since the financial system cannot avoid periodic crises, which generates inflation and unemployment (Chomsky 2011). Of course, this will always lead to environmental and social catastrophes.

Market fluctuations and instability, the vehement social disparities, and environmental harm do not suffice as arguments for adopting comprehensive mechanisms of sustainable degrowth in rich countries, nor do they present an *opportunity* for the Global South. The effects of such measures in the Brazilian case, under Lula's administration and of his successor, Dilma Rousseff, culminated in the DEEP's violent energy epistemologies. As Martínez-Alier exemplifies,

> Will the economic crisis bring an end to the boom in exports of energy and materials, thus diminishing pressures at the commodity frontiers? Grandiose plans for more and more exports from Latin America were pushed particularly by President Lula of Brazil. More roads, pipelines, harbours and *hidrovias*, more exports from Latin America of oil, gas, coal, copper, iron ore, soybeans, cellulose, biodiesel and ethanol, this was the credo of President Lula. In October 2008, and in total opposition to the views of Via Campesina and the MST in Brazil, Lula was still

pushing for an opening of world markets to agricultural exports. He went to India to press for the liberalization of agricultural imports and exports in the Doha round. True, the export boom gave Lula money for social purposes and increased his popularity. Petrobras was no less dangerous to the environment and to indigenous peoples of Latin America than Repsol or Oxy. But Lula's obsession with primary exports made him do nothing about deforestation of Amazonia and drove environment minister Marina Silva to resign in 2008. What will the strategy of President Lula and the Latin American left be after the crash of 2008–09? (Martínez-Alier 2009).

Indeed, during Lula's administration there were unprecedented investments in social programmes. Fighting the neoliberal agenda, however, was not on Lula's plan. If he could not fight against them, he joined them. At the international level, becoming a competitive player threatened creditors, competitors (especially in the United States), and business monopolies, mainly in the electricity, oil, and mining businesses (Watts 2013). However, to do so, under Lula's government, Brazil was a strong advocate of free market globalization, and for a seat in the WTO (Gray and Gills 2016, 560). On the opposite direction of the social movements claiming for land and environmental justice, Brazil asked for the continuation of the negotiations at the Doha round, arguing that for more liberalization, and that "a world without the WTO or other multilateral institutions would only reinforce the North's capacity to extract concessions from the weaker states in the South" (Gray and Gills 2016, 560). By reinforcing the commodity-export competitiveness of the Brazilian "strong players", Brazil disrupted intentions of solidarity in the South-South Cooperation in the name of "national interest" (Gudynas 2019, 4). Therefore, the creation of Brazilian National Bank for Development (BNDES) to sponsor capital-intensive projects and de-linking the dependency from the World Bank institutions were bold movements in the global economic geography for a resource export-oriented growth. At the same time, alongside with the other BRICS countries, Brazil was seeking for shares in the IMF, having become among the 10 largest shareholders in the Fund in 2010[82].

Backing social policies through the neodevelopmentalist (neoliberal in character) approach was a strategy that led to the weakening of the social programs in a short period of time. The Brazilian neodevelopmentalism was based on exports, investment and consumerism, taking advantage of the commodity price boom after the 2008 crisis, with notable increases in both volume and value, enabled by the expansion of the extraction of natural resources. As Gudynas explains,

> This has resulted in progressivist extractivism, which has repeated social and environmental impacts (particularly on indigenous and peasant communities), but also in a number of spill-over

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[82] *See* https://in.reuters.com/article/g2o-brics-statement/india-pledges-10-bln-to-imf-war-chest-china-43-bln-idINDEE85I03420120619.

effects beyond the extractive sectors. These include, among others, the weakening of social and environmental regulations in order to attract investment, drastic territorial reshaping as a result of oil and mining concessions and expansion of agricultural lands, the curtailment of human and environmental rights as extractivism has displayed increased violence, and the narrowing of social justice to distributive economic programmes, and particularly economic compensation. Most countries deepened their traditional roles as raw material suppliers and are competing in their flexibility to attract foreign investment, resulting in more subordination to global markets and a reduction of national industries (Gudynas 2016, 723).

The governments of Lula and Dilma Rousseff, as well as their contemporary left governments in South America and in other emerging economies of the Global South (even when inspired by different versions of socialism and Marxism) defended growth, development and some very limited forms of valuation (Gudynas 2019, 5). The establishment of South-South trade agreements such as the Mercosur, the ALBA (Bolivarian Alliance for the Peoples) (Muhr 2013) or even the BRICS are questionable as to whether they would differ in any sense (politically, practically or epistemologically) from the neoliberal norms of the OECD's Development Assistance Committee and as providing assistance as an alternative to the dominant aid paradigm.

The subimperialist character of the Brazilian "social miracle"[83] (Marini 1992) reiterate structural problems and opens political vulnerabilities as consequences of the "economic dictatorship". Having the colonial epistemologies for energy planning in Brazil as the guidelines for the extractivist economic security, aiming at economic growth, do not change the global relationships of dependency (Valencia 2019).

How to move towards a degrowth economy? How to start the socioecological transition? In the Global South, problems such as unemployment and the need of public attention to social policies sound contradictory to the idea of degrowth.

According to Arturo Escobar, such 'transition discourses' as degrowth are prominent in the fields of culture, ecology, religion, and spirituality, alternative science (e.g., complexity), food and energy, and digital technologies (Escobar 2015, 452). The author informs that the sharpest reactions to the exhaustive economy come from ground movements in the Global South, and *must* be radical:

> World-wide, the economic globalized civilization has taken on a tremendous force, seemingly relegating critical debates over growth and 'development' to the back burner; internationally, these debates are domesticated within the discourses of the millennium development goals (MDGs) and the post-2015 'sustainable development goals'. (…) At least for many social movements and for transition advocates, whatever form 'development' or alternatives to development take will have to involve more radical questionings of growth, extractivism, and even modernity than ever before (Escobar 2015, 460–61).

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[83] Brazil was historically considered out of the hunger map in 2014 by FAO (FAO 2014).

Energy planning in Brazil must be radically transformed. It is not only a matter of transition discourses; it is about the praxis of another ethics. Economic growth cannot be the priority of energy planning, nor its euphemisms 'economic development' and 'sustainable development'. The radical transformations come from places radically excluded from interference in mechanisms of power, such as energy planning. The next chapter explains some of these radical places and positions.

Conclusion

By taking up one country it is possible to better highlight the epistemological problems in energy planning. Energy planning in Brazil is historically dealt with exclusively as an economic matter that disregards the most relevant aspects when dealing with energy: persons, the living beings, and ecosystems. The official document that sets epistemologies and methodology for energy planning in the country, DEEP, is a collection of economist clichés, narrowing the energy issue to market expectations, without considering the complexity of the intervention in the territory and in people's bodies for the exploitation of energy inputs.

This chapter evidenced how Brazil's geopolitical position influences the perspective of energy planning in Brazil. Located at the periphery of the modern–colonial world-system, Brazil remains a commodity-export country since colonial times, with severe problems of land, resources, and wealth distribution. The peripheral position was historically established. The colonial invasion imposed political, economic, legal, and educational institutions, annihilating epistemic diversity. The historical relationship between Brazil as a nation-state and the management of natural resources is about economic advantage and operates through violence. It was evidenced that the formation of administrative bodies in Brazil is related to relationships of patronage, economic power, exploitation of natural resources for export, the domination over the land, military protection, and political control. Energy planning has its primary origins in that moment of Brazilian colonial history: the alienation of land from the peoples and the imposition of colonial ideologies. The historical and geopolitical analysis are fundamental to the understanding of the configuration of the Brazilian energy management in the present times.

The history of energy planning as an autonomous issue is relatively recent. Beginning with the creation of the MME in the early 1960s, energy becomes a 'national

concern' in the context of the military dictatorial regime at the national level and the Cold War in the international level. The historical analysis evidences that the international economic panorama influencing national politics is a determinant for the understanding of energy planning. The energy business is a transnational financial issue. This way, international policies and guidelines influence the national planning. The liberalization of the economy, the establishment of anti-corruption laws and institutions, the need for attracting foreign investment, and the international trade balance are elements that compose the epistemology of energy in Brazil as expressed in the DEEP.

The epistemology of energy planning is defined from the country's economic perspective as a player in the international energy business and in attracting inward investments. These elements are the premises for planning energy futures in Brazil. Such premises set the goal for energy planning, which is the country's economic growth. In this part, we argue that the current epistemology for energy planning in Brazil imposes an agenda of power by preventing epistemic diversity in dealing with the energy issue. Preventing epistemic diversity excludes possibilities of energy futures outside of the modern–colonial world-system's framework of power, exhaustivist by principle. The ethics of energy planning in Brazil substantiates the use of violent epistemologies, in which energy is planned for economic growth regardless and to the detriment of the existence of life.

Energy planning in contemporary Brazil is the outcome of the ethical relationship between people and nature in the modern–colonial world-system – the ethics of exhaustion. The Brazilian DEEP is a product of long-term violent assumptions and practices wrongfully perceived as necessary for the improvement of the country's economy. In a broader perspective, energy planning is part of the modern/colonial/patriarchal/capitalist task of dividing and conquering the world, smoothened by the idea of progress, civilization, evolution, development, and more recently, democracy. The modern–colonial world-system's 'necessary evil' is so entrenched in the ways institutions are conceived that it naturalizes violence and perpetuates colonialities. This is the reason why challenging epistemologies is so necessary, to keep questioning: *why do we think that killing the river will create life?* It is an ethical matter. The ethics of exhaustion must be then challenged.

The following chapter deals with epistemological possibilities that do not reduce energy planning to economic growth. Decolonial epistemologies search for, above all, epistemic diversity. The first step towards decolonial epistemologies is overcoming

coloniality of knowledge and coloniality of being, that is, including perspectives from subalternized bodies, territories, communities, and cultures that have been historically prevented to interfere in the modern–colonial world-system relationships of power. Energy planning is central to solutions to the contemporary ethics of exhaustion, given that energy is a fundamental part of the capitalist system. By dealing with energy planning from decolonial approaches and methodologies, we apply a complex philosophical and epistemological framework to something extremally practical, presenting possibilities from inside academia to unlock the Eurocentric narrow possibilities of knowledge for capitalist problems.

Chapter 7: The Decolonial Plan

Decolonial Argumentation for Decolonial Reality

It is rare to find someone who would disagree that the ideology of colonialism – coloniality – permeates the present relationships of power, subjectivities, and institutional knowledge. The elaborations of the Decolonial Community of Argumentation demonstrate that, arising from the colonial wound, there is a coherent historical linkage with the hierarchization of places, living beings, and institutions and with the creation of victims. Notwithstanding the formal decolonisation steps that have taken place, the colonial world continues to perpetuate colonialities in practice. Intersubjective recognitions, subjective conscientiousness, political praxis, institutional arrangements, and economic dynamics carry on the ideology of colonialism.

It is hence mandatory to decolonize. Evidencing the ideology and the ethics that substantiates it are the first steps towards transformation in the real world. The decolonial argumentation cannot exist only in academia; it must reframe the social realities as a *decolonial praxis*. Such praxis is the challenge of the Decolonial Community of Argumentation at present.

Introducing peripheral and subalternized voices to address entrenched institutionalized problems like the colonial Brazilian energy planning is not only a political problem, it is also an academic task. Setting theoretical grounds enables directions and methods towards decolonization. For energy planning, the decolonial theoretical framework challenges the ethics of exhaustion in favour of epistemic diversity. Doing so is to constantly have in mind the question: what do we want for energy futures? How should we be thinking of energy? How can we plan energy futures without feeding the capitalist *Lernaean Hydra*?

Decolonial praxis must dismantle the powerful pillars of this system of oppressions, not only in a metaphorical way. Energy is one of the pillars of the modern–colonial world-system. This is the reason why, when discussing the possibilities of energy futures, we must have a decolonial plan. Energy planning is a very practical thing. Moving towards better energy production and use demands a whole new perception of what we want for the future. Energy planning must be a strategy to decolonize the

systemic creation of victims that is entrenched in the current ways of energy production and use.

Spivak asked if the subaltern can speak. The modern–colonial world-system's ethics of exhaustion prevents the victims from challenging violent epistemologies. In order to get the subaltern peoples to speak, they must challenge the violence of the voice that speaks on their behalf to their detriment, a voice that silences theirs. Piercing institutional epistemologies is the first and probably the major difficulty. The next section discusses the challenges of decolonial epistemologies in penetrating institutional spaces and then identifies possibilities of planning energy from a decolonial loci of annunciation.

Defeating the *Lernaean Hydra*

> I felt ashamed to think that I had not known enough to value the wisdom of the people. Because, look: I who had not attended university, nor the school had even been able to go, I who was neither a teacher, nor a master, nor a lawyer, nor a professor... What had I done in the Tribune? What I had spoken was only what I had heard of my people from the cradle, I could say, through my parents, my colleagues, the leaders, and I saw that the experience of the people was the best school. What I learned from village life was the best teaching. And I cried when thinking: How big is my town! (Viezzer 2014, 397)[84].

Calling out the lies contained in the economist's language of energy planning is dangerous territory. Those who challenge the manufactured consent face a variety of challenges: their arguments are technically/scientifically disqualified, threatened with the disappearance of employment possibilities, politically persecuted, and they receive death threats. In the intellectual disqualification, coloniality of knowledge, the flagrant evidence of poverty, environmental degradation, lack of representation, and wide social disparity become invisible and are glazed over by the complex theories of economic flows that result in wealth for the rich and employment for the poor (to work for the rich).

Coloniality of knowledge operates through epistemic violence. Challenging the priorities of the macroeconomic energy planning is to challenge such violence. The priority of energy planning must be the enabling and guaranteeing of the production and reproduction of life. There is no "why?" or "how?" or "whose?" to follow such

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[84] This fragment is part of the text *Si me permiten hablar: testimonio de Domitila, una mujer de las minas de Bolivia* (If you allow me to speak: testimony of Domitila, a woman from the mines of Bolivia) (Viezzer 2014) published in the book *Tejiendo de otro modo: Feminismo, epistemología y apuestas descoloniales en Abya Yala* (Weaving differently: Feminism, epistemology and decolonial bets in Abya Yala) (Miñoso, Correal, and Muñoz 2014). The text is part of the publication of Moema Viezzer of her conversations with Domitila Barrios, entitled: *'If you allow me to speak...' Testimony of Domitila. A woman from the Mines of Bolivia*. This was published for the first time in 1977, and the version reproduced in the book is the 2005 digital edition of the print edition Siglo XXI Editores S.A.

affirmation. There is no moral relativism. *All life*. Defending the big profit is the opposite of protecting and generating life. This is a radical priority. It is necessary to stop pretending to be resolving mega economic problems with false dichotomies and tautological explanations. As Vandana Shiva comments,

> [G]lobalization didn't take over in a kind of natural organic growth. It's presented that way you know, "we lived in world villages, then we lived in states, and now we live in a beautiful global world – it's all a village". It's not (Shiva 2010, 83–84).

The most prominent radical critiques of economic growth (and economic perspectives) as strategies for better futures are from feminist indigenous movements. In Latin America, indigenous philosophies and ways of perceiving the world are gaining communal, political, and academic force, like the discourse of *buen vivir* in actually entering certain political spaces and practices. In October 2009, the *Global mobilization in Defence of Mother Earth and Peoples* took place in Peru, having made the *Declaration of Mama Quta Titikaka*. The declaration was elaborated by "indigenous peoples from the Abya Yala, sister nations of Africa, the United States, Canada, the Polar Circle and other parts of the world, and observers of various social movements". The first and second resolutions of the Declaration are as follows:

> *Proclaim* that we are witnessing a profound crisis of the capitalist Western civilization where the environmental, energy, cultural, social exclusion, hunger, and other crises are superimposed, as an expression of the failure of Eurocentrism and of colonialist modernity born from ethnocide, and that now leads to the whole humanity to sacrifice.

> *Offer* an alternative life to the civilization of death, picking up our roots to project us to the future, with our principles and practices of balance between men, women, Mother Earth, spiritualities, cultures and peoples, which we call Buen Vivir/ Vivir Bien. A diversity of thousands of civilizations with more than forty thousand years of history that were invaded and colonized by those who, scarcely five centuries later, are leading us to planetary suicide. Defend food sovereignty, prioritizing native crops, domestic consumption and community economies. Mandate for our organizations to deepen our Good Living strategies and exercise them from our community governments (emphasis in the original) (Miñoso, Correal, and Muñoz 2014, 407).

Buen vivir (good living) is the translation into Spanish of the *Kichua* expression *sumak kawsay*, similar to the *Aymara* expression *suma qamaña* (*bien vivir* – living well) and to the Guarani *Tekó Porã*. The *Kichua* good-living (*buen vivir – bien vivir*) "refer to a way of life in harmony with nature and other human beings, inspired by the ancestral culture of Andean-Amazonian indigenous peoples, which is based on the principles of social equity and environmental sustainability. This way of life aims to become an

alternative to the development notion of Western civilization" (Cubillo-Guevara and Hidalgo-Capitán 2015, 302)[85].

The *buen vivier* discourse was introduced in the Ecuadorian constitution (the Constituición de Montecristi) in 2008 (Vega 2016). The introduction was the result of the transference of the concept of *buen vivir* from the indigenous political realm in 2006 to the political articulations of the Alianza País (Pais Alliance or Country Alliance) led by Rafael Correa, to launch his presidential candidacy. According to Cubillo-Guevara, the Alianza País "agglutinated almost all the critical Ecuadorian social movements with the neoliberalism" (Cubillo-Guevara 2016, 128). Correa, who was the president of Ecuador

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[85] Cubillo-Guevara and Hidalgo-Capitán explain the *genuine sumak kawsay* as grounded in the works of Carlos Viteri Gualinga, the indigenous, *kichwa*, man from *Sayaraku* (Ecuador), anthropologist and executive secretary of the Amazonian Regional Ecodevelopment Institute (ECORAE, 2009-). "The *sumak kawsay* must occur in a specific territory that constitutes a vital cosmos in which material and spiritual elements interact. This territory has three spheres: the orchard (*chacra*) from which the basic sustenance is obtained (*yuka* and other foods, among them the *asua* or *chicha de yuka*); the jungle (*sacha*) from which game meat is obtained as a complement to the diet and other materials; and terrestrial water (*yaku*) from which domestic water and fish are obtained as a complement to the diet (Viteri 2003, 41-52). In order to obtain the necessary resources for *sumak kawsay* from the territory, good management of the soil, the forest and the waters is required and this is related to a series of material and spiritual elements that, in the case of the *Sarayakuruna*, are based on the myths of *Nunguli* or spirit of the garden, of the *Kushillu Supai Runa* or spirits of the jungle and of the *Tsumi* or spirits of the waters (Viteri 2003, 74-77). In addition, in order to obtain the necessary resources for *sumak kawsay* from the territory, the *runa* (person-spirit) needs to have inner strength (*sámai*), balanced behavior (*sasi*), wisdom (*yachai*), comprehension capacity (*ricsima*), vision of the future (*muskui*), perseverance (*ushai*) and compassion (*llakina*). And all these elements are acquired by the *runa* throughout their lives through a process of community teaching / learning, based on myths and experience, and called *yachachina* (Viteri 2003, 53-65). If the *runa* possesses all these qualities (strength, balance, wisdom, understanding, vision, perseverance and compassion), it will be able to interact with the orchard, the jungle and the waters to obtain the essential material resources, and nothing more than the essentials, to the *sumak kawsay*. But the *sumak kawsay* also has an ethical dimension, which is related to a series of values without which the former could not be maintained. These values are: domestic harmony, which is concretized in "eating, drinking and making love" (*mikuna*, *upina* and *huarmita yukuna*); solidarity or compassion (*llakina*); the help (*yanapana*); generosity (*kuna*); the obligation to receive (*japina*); reciprocity (*kunakuna*); the council (*kamachi*); and the listening (*uyana*) (Viteri 2003, 66-71). Thus, *sumak kawsay* requires that there be a harmony within each household (*mikuna*, *upina* and *huarmita yukuna*), because if there is not a good living in each house, there cannot be a good living in the community. It also requires solidarity (*llakina*), which translates into *mingas*, helping those who do not have, inviting, sharing the hunt and dealing in a special way with the elderly and widows; this way, *sumak kawsay* extends to those members of the community who are in need. This solidarity has other related values, such as: aid (*yanapana*), which is materialized in the *minga* (mandatory community work that benefit the entire community); generosity (*kuna*), which is materialized in the sharing of material objects and gives prestige to those who practice it; the obligation to receive (*japina*), which is the counterpart of generosity, since to refuse generosity generates conflicts; and reciprocity (*kunakuna*), which, unlike generosity, consists in giving in the hope of receiving in the indefinite future something in return that links donor and recipient in a relationship of exchange that can be deferred over time. Together with these values are advice and listening. The councils (*kamachi*), which are given by respected members of the community, usually the elders, have the mission of guiding and correcting the behavior of the other members of the same to reach and maintain *sumak kawsay*. Its counterpart is the listening or following of the councils (*uyana*), which guarantees not only the acquisition of wisdom, but also respect for the social norms that lead to *sumak kawsay*. Taking all this into account, the *sumak kawsay* is configured as the philosophy of life of the indigenous based on the search and maintenance of harmony with the community and with other beings of nature and that has both a plan of vital aspiration and another of vital daily life." (Cubillo-Guevara and Hidalgo-Capitán 2015, 318–19).

from 2007 to 2017, was of left-wing orientation. As it happened in the left-wing governments in Brazil, development and economic growth epistemologically took over as the exclusive ways to access social stability.

According to Cubillo-Guevara, the inclusion of *buen vivir* in the Ecuadorian constitution was pragmatically usurped as an "omnibus concept of post-neoliberal development" (Cubillo-Guevara 2016, 130), and emptied of its genuine philosophy. Embedded in the developmental agenda of the economic growth of the poor, *buen vivir* was appropriated by false discourses, away from the indigenous understanding of the relationship with the territory and the community. Cubillo-Guevara also criticizes the academic ecologist movements that, in search of paradigmatic pathways for another economic model, detach the genuine intentions of the indigenous understanding of *buen vivir* as the strategy of a post-extractivist model (Cubillo-Guevara 2016, 141). The genuine intentions of indigenous ways of living are related to the holistic comprehension of life and the balance between production and necessity. Instead of a general "macro" model of relationship between peoples, land, knowledge, and communities, we need to observe ways of production and resources locally. Academic attempts to impose *the* indigenous modus vivendi over colonialities insist on a Manichean dualistic perception that there must be a new paradigm that will overcome the old paradigm, which fails to appreciate sufficiently the localized phenomena.

Decolonizing the structure of colonial institutions like academic and political ones is such a difficult demand. Colonialities are means to access power, and, for the powerless, accessing power is at least a strategy of survival. This way, when indigenous movements, social movements, decolonial academic movements, and political organizations outside the hegemonic power have to deal with the entrenched colonialities of the system, the trap is formed so that the structures of power remain.

As it happens with those who dare to challenge the violent epistemologies that underpin the oppressive system, piercing institutions with decolonial philosophies and ways of living is also a delicate and very dangerous task. Fighting the solid mechanisms of power demands sagacity and resistance at all times. Sometimes it demands resilience and the capacity for democratic dialogue, which is even more difficult for those being collaterally violated. The patriarchal, racist, and classist characters of the institutions of power have mechanisms of protection and return to the status quo every time they are challenged. Such characters "mainstreamize" or trivialize the agendas and claims of popular struggle, and, before one notices, the agendas of the struggle are working in favor

of the structures of power all over again. The system pretends to be inclusive of new leaderships and agendas, but in fact, they realign relations of power, with the already established relations of power, with catastrophic results. Instead of changing the oppressive mechanisms, the agendas of popular struggle end up being swallowed by the neoliberal agenda effectively co-opting the challenge.

The trivialization mechanism operates in a manner that prevents the complaint that the powerful are silencing popular voices. The implementation of policies of popular origin within the neoliberal agenda makes social movements and activists' claims sound like "nothing is ever good or enough for these people". It works in a pattern. First, popular struggle makes every attempt to penetrate the institutional arena to transform ideologies and practices. Then, there is the political/legal/institutional fight to make it an institutional reality – to be written as a paper, to have institutional *commitment* and *compromise*. After that, when it sounds legitimate, that is, because the agendas come from social movements through their representatives, they operate like a silencing weapon – "there can no longer be any complaints" since the movements were "heard". The operationalization of the agendas falls into the old well-known colonial reasoning, making the genuine attempt shallow, empty, and meaningless. Instead of promoting actual change, it fortifies the oppressive system. Like the Greek myth of the *Lernaean Hydra*, trying to kill the beast without cutting off its "immortal head" with the *correct tool* will not only not kill it, but make it stronger[86]. "*Nor could he effect anything by smashing its heads with his club, for as fast as one head was smashed there grew up two*" (Apollodorus 2015).

Such usurpation and absorption of popular claims happens at local and international levels. The idea of "human rights" as a resource that can be used when there are violations at the national level unaddressed by the prevalent judicial system is also dangerous. As Radha D'Souza points out,

> 'Human' rights went from standing in opposition to the International Economic Organizations-supported development model to becoming the vehicle for neoliberal restructuring. These developments did not occur in an economic and political vacuum; rather they occurred in the context of the economic crises in capitalist countries, the debt crises, the development crises, anxieties about the state of the environment in the G7 states and the establishment of the National Endowment for Democracy. (D'Souza 2018, 160)

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[86] Hercules' second labor was to kill the Lernaean Hydra. "Now the hydra had a huge body, with nine heads, eight mortal, but the middle one immortal. So mounting a chariot driven by Iolaus, he came to Lerna, and having halted his horses, he discovered the hydra on a hill beside the springs of the Amymone, where was its den. By pelting it with fiery shafts he forced it to come out, and in the act of doing so he seized and held it fast. But the hydra wound itself about one of his feet and clung to him. Nor could he effect anything by smashing its heads with his club, for as fast as one head was smashed there grew up two" (Apollodorus 2015).

Instead of disbelief and despair, the popular struggle must persist. Concomitant to the institutional penetration for change, local possibilities of thinking decolonial futures must take place through shared experiences in families and communities. The oppression and situation of the victims of the modern–colonial world system is a given. The possibilities for change exist only through the struggle that must be guided by an ethics that aims at abundance, not by the ethics of exhaustion. Radha D'Souza, in the conclusion of *What's Wrong With Rights – Social Movements, Law and Liberal Imaginations*, teaches an important lesson:

> I inherited the Indian constitution and the UN Charter. They were written before I was born. We have no choice except to live under the institutional conditions we inherit at birth. Because we are forced to live under the institutions we inherit does not mean we must claim them or defend them. Quite the opposite. Because there is widespread racism in the academia, I do not stop working for a university. I cannot, if I wish to survive. No one sees any inconsistency in my employment in a university where there is racism and my claim that non-discrimination laws cannot address the problems of institutional racism. I am born into a patriarchal society and must necessarily live with family, friends and neighbours. I do not therefore defend patriarchy nor do I advocate aborting male children because they might turn into future patriarchs; or claim that patriarchy is a thing of the past because my own father raised his daughters to be independent women in thoughts, actions and spirit. The conflation of individual life with social institutions is a hallmark of liberal thinking. We have inherited rights-based institutions. Do we need to, for that reason, demand rights, struggle for them and place our futures in its power of promise, knowing the promises are empty for most people most of the time? What did the socialists and the freedom fighters in anti-colonial movements do? They demanded the real thing – food not right to food – national independence not right to independence, peace not right to peace, debt-repudiation not forgiveness. (D'Souza 2018, 210)

It is necessary to occupy the institutions. The popular struggle must take the institutional wheel without repeating colonialities. Energy discussions are fundamental to the consummation of viable futures. Brazil must overcome institutional colonialities through an ethical shift. This can only be done through fair representativeness, with indigenous persons, Quilombolas, coloured women, small farmers, *favelados*[87], i.e., the majority and most vulnerable population assuming the direction of the institutions. But it is not enough to have representatives. It must be decolonial, anti-exhaustivist. The institutional plan must be made by the people, for popular benefit. The Decolonial Energy Plan must be made within the ethics of abundance. Decolonial epistemologies for energy planning in Brazil are useless if narrowed to academic reflections. Challenging colonial epistemologies is to challenge the ethics of exhaustion, and that demands an actual intentional search for the silenced voices; otherwise, the plan will not change.

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[87] Inhabitants of the favelas and urban peripheries.

Towards an Ethics of Abundance

Prior to the inclusion of decolonial epistemologies for energy planning, there must be an ethical change from the global ethical system that exhausts people, ecosystems, and the possibilities of knowledge, to an ethics that aims at abundance. This idea comes from the search for possibilities to counter the ethics of exhaustion, inspired by indigenous ways of living to provide ethical possibilities from outside of the modern–colonial world-system.

As discussed in Chapter 4, the ethics of exhaustion is founded on the critical-negative aspect of the Universal Material Principle of Ethics. The material principle of ethics is a key part of the content of ethics, focusing on the production and reproduction of life. The negative aspect of the material ethics is that the global ethical system we live in negates the existence of victims, to whom is denied the possibility to live a full life.

The life in question is *all kinds of life*, meaning that enabling the production and reproduction of human life demands the preservation and balance of the life of non-human living beings and the ecosystems. Aiming at abundance demands de-hierarchization of lives as all lives matter. To move towards an ethical system that aims at the production and reproduction of all lives, intra-human relationships also need to be de-hierarchized.

The ethics of exhaustion is the modern–colonial world-system's ethics. It takes place in three macro spheres of human intervention in the planet: exhausting persons, the ecosystems, and the possibilities of understanding the world. This ethics is substantive to the colonial ideology of power, materialized epistemically in the modern–colonial world-system's institutions. Energy planning is one of those institutions.

To shift from the ethics of exhaustion to an ethics of abundance that will infuse substance into decolonial epistemologies for energy planning, there must be a primary intention to produce and reproduce life. In this sense, the primary goal for energy planning in Brazil cannot be economic growth, but practices that enable the possibility of living a full life. The premises of energy planning cannot be macroeconomic scenarios but the combat of colonialities and consequent hierarchizations that prevent peoples from living full lives. The existence of hierarchies of bodies, territories, and knowledges makes it impossible for the majority of people to participate in the mechanisms of energy planning.

The premise to decolonize – to de-hierarchize – makes the activity of energy planning to be concerned with the existence of victims. Therefore, from the standpoint of

decolonization, the most victimized must be the priority in planning energy futures. This action allows an institutional mechanism to share the victims' burden of liberation, enabling the community of victims to survive while moving towards liberation, instead of being exhausted before actual liberation takes place. Changing the premises and goals for energy planning – the ethics of it –alters the epistemology of energy planning to include decolonial perspectives.

Actions towards such a change back the community of victims since it involves collective action towards liberation. While the theorization of an ethical system that aims at abundance takes place in academia, references and practices of abundance take place in communal spheres, exemplified by ways of living such as the Guarani *Tekó Porã* and the Kichwa *súmak kawsay*, to name a few. There are numerous decolonial ways of living based on the principle of abundance, of a relationship with the land, the living beings, the spirit, and between ancestry, existence, and the future. Those practices are not part of the institutional frameworks because of imposed colonialities. This is the reason why ethics is a propaedeutic matter in proposing decolonial epistemologies for energy planning. Moving towards an ethics of abundance enables a decolonial energy plan elaborated from decolonial epistemologies.

The Decolonial Plan

The premises of a Decolonial Energy Plan aim at decoloniality of power, decoloniality of being (decoloniality of gender and race), and decoloniality of knowledge. It is assumed that people and nature should not be exhausted, and that knowledge cannot be exhaustive – there must be epistemic diversity. The Decolonial Energy Plan is grounded in the critical-negative aspects of material ethics for the recognition of the victims. This way, instead of *carrying the burden* of liberation, the victims are *empowered with the facilities* of instrumentalization, institutionalization, and politicization of liberation. This happens in the three concomitant and overlapping spheres of people's power, the power that arises from the discontinuation of colonialities. While discontinuing colonialities, there must be endogenous and exogenous institutional forces for the replacement of the oppressive ideology through actual participation of the victims in the mechanics of institutional power and in energy planning.

The central ideology of energy planning in Brazil is coloniality of power, that mimicry of colonial power is the means to access power. Buttressed by the ethics of

exhaustion, energy planning does not aim at the production and reproduction of all lives. The most flagrant feature of such ethics and consequent ideology is the main goal of economic growth, operating in macroeconomic reference scenarios that extol the virtues of transnational capital and imprisonment of the future of people and nature within the volatile walls of financial capital. The Decolonial Energy Plan does not operate on this dynamic, since it is founded on ethical parameters that aim at abundance. Therefore, having life as a priority and abundance as a goal, mechanisms must be developed to resist the violence of the modern–colonial world-system. Decolonial epistemologies allow epistemic diversity – that is, the inclusion of meanings that are outside the ostensibly legitimate agendas that ensure positions of power. An energy plan founded on the ethics of abundance through decolonial epistemologies is legitimized via the material moment of ethics: the production and reproduction of life; the formal moment of ethics: the intersubjective and institutional recognition of communal practices of abundance; and its ethical feasibility: institutional meanings, values, and practices that enable abundance. Therefore, decolonial epistemologies will change the premises, methodology, and goals of energy planning.

Instead of a macroeconomic analysis of investment flows, the methodology for energy planning must be geographical from the local to the federal levels. In the local spheres, private interests must have less relevance than communal interests, in the sense that the communities' representatives must be more influential than the agribusiness' owners and industrial lobbyists. The public apparatus, that is, the executive political organizations at municipal levels, the judiciary, the police, the revenue, the legislative have the obligation to enable people's forums and create cogent mechanisms to ensure that their decisions prevail. The concerns related to the viability of generation of energy, should prioritize attending to the community, and in case of any surplus of energy, it should be exchanged for investments in culture and the reinforcement of local traditions and ways of living.

In the case of products considered of national importance, such as petroleum and minerals, the policies must aim at restitution of historical looting against popular sovereignty. In this case, such businesses cannot be in the hands of transnational capital, so as to guarantee that international legal mechanisms of protection of investors and investments are not prioritized to the detriment of historical restitutions. Every polluting activity must be part of a specific case analysis to evaluate the necessity, communal gain,

and collective benefit. In the balance of advantages, the community will decide on the existence/continuation or not of such activity.

The question of land must be addressed using the same methodology. The social function of property must prevail and the expropriation of land must happen under the existent constitutional parameters in Brazil. On top of effecting constitutional measures, there must be a mechanism of justice of land, restorative justice for the historical exercise of unlimited control over land and resources in the hands of *grantees*. The expropriation of land (which includes productive land, since the Brazilian constitution allows the expropriation of land for public necessity and national interest) will happen under the existing compensation regimes currently applied only to the land of poor people. The compensation mechanism for rich landowners must be less burdensome on the public budgetary resources.

The energy plan cannot be made by a *company*. Every single person involved in the activity of energy planning *must* be directly involved in the management of the energy enterprises. The various levels of the decision-making process must include popular consultation and such consultation should override any private interest in the exploitation of the land. The communities affected by energy activities must be prioritized in the distribution of energy; the entities executing the activities of energy production and distribution should not operate in the stocks markets and prioritize the claims of shareholders for dividends over the rights of communities. There should be no profits at all, communities should produce for their own use – first and foremost for consumption and then for sale (exchange) of surplus products to geographically close regions and/or supply to regions going through severe necessity.

The activities of energy planning are continual, demanding local establishments to meet, discuss, and understand supply and demand, new prospects, and green technologies. All the technical personnel involved in the viability studies, construction of energy enterprises, commissioning, and energy production and distribution should have managerial positions and report to the communities' consultation boards. There must be a large number of people from the communities among the technical personnel. Such personnel cannot be temporary or constantly changing, as usually happens in the construction of energy enterprises. As the activities are never ending, there cannot be a conclusion to the activity of planning.

The studies, researches, technological developments, and all knowledge produced around energy must have the final goal of promoting local life, culture, small agriculture,

health systems, and education. The priority in the studies must be communal abundance. According to each area of study, each community will have a support center for the development of viable local green technologies. Studies must be focused on local sustainability and never on the commercialization of energy. Everything that is taken from the land must be applied to the land. Studies on logistics must guarantee a carbon-free goal, gradual reduction of fossil-fuel-driven vehicles, and the prioritization of clean energies. The study groups must periodically meet with each other to discuss challenges to and opportunities for a gradual movement towards the best relationship between persons, communities, ecosystems, and natural phenomena.

Changing energy planning entails changing the practices that involve energy viability studies, construction of energy enterprises, energy generation, transmission, and distribution. Moving towards ethical parameters that aim at abundance of energy demands epistemological decolonization.

There must be an academic intention to understand and discuss decolonial epistemologies. Decolonizing ways of knowing requires actions to diversify the places of annunciation of knowledge. This can only happen through critical thought. This thesis brings theoretical frameworks to critique of Eurocentric – modern–colonial – established ways of relating theory and socioenvironmental dilemmas. The critique demands action, theory demands practical objects. The epistemological critique herein proposed links the ethics of exhaustion and the modern–colonial world-system's ideology of power to the activity of energy planning in Brazil. Without challenging the epistemologies that legitimate agendas of power, there cannot be institutional diversity; therefore, there cannot be institutional change. For energy futures that aim at the production and reproduction of life, there must be a decolonial plan.

Conclusion

This thesis comprises epistemological critiques from the colonial difference approach that propose pathways towards decolonial energy planning in Brazil through the unlocking of decolonial epistemologies on the subject. In this way, this thesis is a theoretical work to answer the questions: why are the epistemologies for energy planning in Brazil colonial? Why is ethics central for the discussion of decolonial epistemologies? How is energy planning in Brazil related to an ethical change in the society-nature dualism?

Although energy is one of the pillars of contemporary capitalism, the theme is not limited to economic and political discussions; it involves social and environmental problematics that must be considered for planning energy futures. Energy planning is an activity that takes place in the present to analyze the possibilities of energy studies, generation, and distribution in the future. This way, the standpoint of energy planning must be social and environmental analysis. However, these issues are intentionally detached from the economic and political analysis of energy, dealt with in separate branches of knowledge with the social/environmental becoming non-priority in thinking about energy futures. This detachment is part of the colonial project supported by the ethics of exhaustion that has been perpetuating colonialities since the late fifteenth century on a global scale. Energy planning in Brazil is permeated with the intentionality of exploiting natural resources regardless and to the detriment of the existence of life, evidencing the parameters of ethical exhaustion and the colonial ideology that are realized in the epistemologies consistent with the Brazilian Energy Expansion Plans. This work establishes a critique of colonial epistemologies by evidencing colonialities: the ethical model that confirms and normalizes violent energy planning. The work also identifies the core epistemological problems in energy planning in Brazil and elaborates on the epistemological possibilities of the colonial difference approach.

Energy production and distribution fundamentally cause environmental and social harm. In the Brazilian energy planning, such harms are not explicitly considered as *necessary* for obtaining energy inputs, but as *consequences* of obtaining energy inputs. Dealing with social and environmental harm as consequences of energy production and distribution transfers a structural feature to a further analysis, de-linking the downsides of energy activities from its necessary harm. This is a perception of ethics, in which the production and reproduction of life is considered to be achieved at the cost of the lives of

the victims: the life aimed is that of the fetishized ethical subject. Dealt as consequences to be mitigated or solved, social and environmental problems caused by energy exploitation are not part of the fundamentals of energy planning. Energy is not defined with reference to *the environment* or *the society* in energy planning. Energy planning is cynical and confined exclusively to economic and political analysis. Therefore, by making invisible the victims of energy exploitation, energy planning prevents thinking about producing energy without creating victims. By not considering the existence of victims as premises for energy planning, the activity accepts victimization, intentionally creating more victims. Intentionally narrowing energy planning to economic and political matters necessarily creates victims.

Including social and environmental problematics to the economic and political analysis of energy planning is an epistemic challenge, since epistemology is part of the formalization of ethics. The epistemic analysis of energy planning must be framed in time and space. Historical, social, and geopolitical contexts have to be considered for the accurate understanding of the decisions of a given state in projecting energy futures. In this thesis, we discussed energy planning in Brazil. The epistemology for energy planning in Brazil is formed in the context of the modern–colonial world-system's ideology of power, the coloniality of power. This ideology is implemented through the ethics of exhaustion, the global ethical system that accepts the hierarchization of peoples, territories, and knowledges for the production and reproduction of the lives of a privileged minority at the cost of the lives of the majority of peoples and the ecosystems.

We evidenced, by verticalizing the theoretical analysis in the 2015–2024 Brazilian DEEP, that the epistemologies for energy planning in Brazil are colonial and, therefore, violent. For this reason, there must be an epistemic decolonial turn on the subject. The decolonial epistemologies for energy planning in Brazil are considered from the possibilities of ethical systems that work for the production and reproduction of all lives and, instead of aiming at exhaustion, aim at abundance. Enabling the inclusion of epistemologies consistent with the idea of ethical systems of abundance, decolonial epistemologies must be proposed from the standpoint of the victims of the ethical system, whose capacity for living a full life is denied by the constraints of exhausting ways of living. Such epistemologies are inspired by indigenous modus vivendi such as the *Guarani Teko Porã* and the *Kichwa Súmak Kawsay*, grounded in the balanced interconnected relationship between persons, communities, the land, and the spirit, that

respects ancestral fundamentals that enables life in the present with guarantee of the future.

In Brazilian energy planning, the inclusion of decolonial epistemologies start from a shift of priorities for energy exploitation. In the DEEP, the premises are macroeconomic parameters, and the goal for energy planning is the country's economic growth. We evidenced the violence of such epistemic determinations and hence the need for completely rethinking the epistemologies of energy planning in order to transform energy exploitation. The premises of energy planning must be the acknowledgement of the creation of victims. The goals for energy planning must be the production and reproduction of all life.

Throughout seven chapters, the thesis explained the theoretical grounds of the decolonial critique, the reasons why there must be an epistemic turn, the ethical system in which energy planning is currently developed, and the specificities of the Brazilian case in the analysis. The first chapter introduced the subject and set the main concepts used in the thesis. The second chapter defined coloniality of power and the relevance of the terminology as the framework for understanding the current situation of energy planning in Brazil. The third chapter discussed epistemology in the context of the modern–colonial world-system and the need to bring other ways of knowing from the colonial difference perspective. The fourth chapter explained why discussing ethics is central to the proposition of decolonial epistemologies since the modern–colonial world-system's ethics accepts the creation of victims as necessary for the production and reproduction of certain lives, to the detriment of the lives of the majority of people and ecosystems – the ethics of exhaustion. The fifth chapter dealt with the academic understanding and discussions about energy, establishing a critique of the Eurocentric perspectives and the possibilities of exploring natural resources. The sixth chapter localized the discussion in the Brazilian case, bringing the country's geopolitical and historical contexts for energy exploitation, as well as the national relationship between public administration and natural resources. Building on the understanding of the Brazilian case, the DEEP was scrutinized from a decolonial perspective, in which the theoretical elaborations were applied to the reality of the Brazilian energy planning, linking coloniality, epistemology, and the ethics of exhaustion. Those links were used to explain the urgent need to decolonize energy planning in Brazil, by making the ethical shift that enables the elaboration of an energy plan applying decolonial epistemologies. Finally, the seventh chapter discussed the challenges of including the decolonial critique

in the praxis, bringing decolonial epistemologies from the academic realm to ground movements in order to replace the institutional structure for the ethical transformation. Bringing decolonial epistemologies to the reality of institutions such as energy planning remains a daunting challenge but is fundamental to a complete change in one of the solid pillars of contemporary capitalism: energy exploitation.

This thesis presents the links between theoretical aspects – the discussions of decolonial epistemologies (the formal moment of ethics) – and the practicality of energy planning, as a material institutional framework that gives the directives of energy futures in Brazil. These linkages inform the contribution of the theoretical framework in the production of novel research about alternative ethics in the discussion of energy planning outside the conventional framework of development, exploring other epistemologies, departing from the repudiation of economic growth as the aim of energy planning, considering the central ethical discussion of the society-nature dualism. The thesis also brings novel approach to the analysis of energy planning in Brazil applying a decolonial methodology. The use of a decolonial methodology shifts the economic-centered analysis of energy planning, focusing the study on the socioenvironmental perspective, de-hierarchizing the macroeconomic parameters as traditionally observed in energy planning studies.

The limitation of the epistemological critique of energy planning is to pierce Brazilian institutions with a discussion of ethics. In this sense, decolonial epistemologies for energy planning are academic discussions that must go beyond the theoretical framework and take place as decolonial praxis. Hence, this thesis is limited to the academic critique of the ethical system that epistemically condones (formalizes) colonialities in thinking energy futures. The next steps for the research concern deepening the critique of the ethics of exhaustion towards a theory of value in the society-nature dualism. Such work comprises the comprehensive inclusion of indigenous ways of living and relating to nature such as the *Tekó Porã* (the Guarani way of living) for the overcoming of the epistemologies concerning development, in order to substantiate energy planning outside of the paradigm of economic growth, towards an ethics of abundance.

Moving forward to better energy futures comprise the understanding of how energy is perceived in the present. In doing so, we realise that the complexity of issues that must be discussed demand an ethical change to actually aim at the production and reproduction of all lives. The decolonial epistemic turn involves the inclusion of voices

and practices that have been historically set aside when deciding energy futures. This is an academic work that sets theoretical – philosophical and epistemic grounds – to evidence the role of academia in social transformation. The novelty of this work in discussing ethics, epistemology, and energy opens up ways to challenge, in practice, the pillars of the system of oppressions. Energy is one of these pillars. The only possible way of thinking about energy futures is acknowledging that energy is about life, and life is intersectional.

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