



Trading off climate change mitigation and poverty reduction in South Africa: drivers and barriers to institutional change

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Abstract

The assumption that there will be trade-offs between climate change mitigation measures and poverty reduction measures goes largely unchallenged in the United Nations Framework Convention on Climate Change. This paper analyses how these trade-offs unfold at the national level in South Africa. South Africa is a middle income country that exemplifies the challenge of accommodating efforts for emissions reductions and poverty reduction at the same time. The paper analyses the trade-offs and distributional conflicts that drive and hinder institutional change in the current climate policy regime. The analysis focuses on three regulatory regimes in climate change: the climate change response white paper, the carbon tax and the renewable energy program. A combination of interview-based qualitative research and an innovative discourse network analysis reveals the discourse between competing coalitions supporting and opposing specific interventions. We find in the case of South Africa that the lack of economic growth over the last few years has kept emissions levels relatively low and consequently postponed the hard trade-offs between climate change mitigation and poverty reduction. Trade-offs appear in the political discourse, especially around the carbon tax and carbon budgets. Yet, distributional conflicts determine both drivers and barriers to institutional change. Powerful coalitions opposing the carbon tax managed to push the government into postponing the implementation of the tax. We conclude that win-win situations are possible, and that the crux lies in the implementation. A carbon tax proposal has made provisions for off-setting emissions through investment in clean technologies in low income communities. The renewable energy program created large foreign investment influx into the country, which is partially spent on community development. The main challenge in creating win-win situations is overcoming the distributional conflicts. Lack of policy coordination, alignment and clarity of the legal frameworks create severe barriers to institutional change.

List of Acronyms and Abbreviations

ACF	Advocacy Coalition Framework
ANC	African National Congress
BEE	Black Economic Empowerment
BUSA	Business Unit South Africa
CDM	Clean Development Mechanism
COP	Conference of the Parties
DEA	Department of Environmental Affairs
DEROs	Desired Emissions Reductions Outcomes
DNA	Discourse Network Analysis
DoE	Department of Energy
EIUG	Energy Intensive User Group
EUR	Euros
GDP	Gross Domestic Product
GW	Gigawatt
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
kwh	kilowatt hour
LTMS	Long Term Mitigation Scenarios
MEC	Minerals Energy Complex
mt	Metric Tonne
NAMAs	Nationally Appropriate Mitigation Actions
NERSA	National Energy Regulator
NRCC	National Response White Paper on Climate Change
OECD	Organisation for Economic Development
RE	Renewable Energy
REIPPPP	Renewable Energy Independent Power Producer Procurement Program
REFIT	Renewable Energy Feed-In Tariff
SARI	South African Renewables Initiative
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
ZAR	South African Rands

1 Introduction

The assumption of a trade-off between climate change mitigation and poverty reduction generally goes unchallenged. The members of the negotiations under the United Nations established this trade-off in the Framework Convention on Climate Change (UNFCCC), arguing that climate change responses must take “into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty” (UNFCCC 1992). Developing countries can, in theory, call for support under the principle of “common but differentiated responsibilities”, but attempts to support Nationally Appropriate Mitigation Actions (NAMAs) have not, to date, materialized at a large scale.

It remains unclear how these trade-offs unfold at the national level in developing countries. This question is relevant, because the Convention has increasingly emphasized the role of national contributions for climate protection in the post Kyoto regime (COP 19). The majority of member states expressed their intentions for emissions reductions in the form of Intended Nationally Determined Contribution (INDCs) submitted to the UNFCCC in the course of 2015. These contributions are only meaningful if actually implemented. The risks of national climate policies failing to reduce emissions is amongst the main threats to climate protection (UNESCO 2013). The implementation of national contributions depends on the success and failure of national development and climate policies, because the INDCs usually relate closely to national policies.

This paper examines how the trade-offs between climate change mitigation and poverty reduction measures unfold in the South African climate policy discourse. South Africa exemplifies the challenge of simultaneous efforts to reduce emissions and boost socio-economic development that many developing nations share. The country’s per capita emissions range is similar to Germany’s, while the GDP falls into the World Bank’s category of higher middle income countries. 39% of the population lives below the national poverty line of 390 ZAR/ 25 EUR per household per month.

The paper analyzes how these trade-offs and consequent distributional conflicts shape coalitions which may drive or hinder institutional change.¹ The research builds on the literature on institutional change in the political economy, the role of conflicts in institutional and policy change, discourse coalitions and the roles of interest, ideas, common knowledge and power relations between the actors making up supporting or opposing coalitions. The paper identifies both drivers and barriers to institutional change in climate change policy based on this research literature and the empirical analysis of three climate change mitigation policies which are used as case studies, namely:

¹ Trade-offs can be defined as decision-making conflicts, as actors may want to achieve two objectives, but can only achieve one with the existing means. Distributional conflicts are more immediate interest-driven conflicts between actors about who gets what.

- i) the national climate change response white paper;
- ii) the carbon tax; and
- iii) the renewable energy program.

The analysis contextualizes these policies within the dynamics in the political economy and major events (Thelen 2005). The research combines a qualitative research strategy with a discourse network analysis (Leifeld 2012) which represents the coalitions and the arguments they use to support or oppose a specific climate policy. The dataset consists of 789 statements from primary data in the media, parliamentary notes and public comments on specific policies, as well as 21 interviews.

The paper is structured as follows. Section Two presents an overview of the existing literature explaining drivers and barriers to institutional and policy change and the role of conflicts and coalitions in driving or hindering institutional change. Section Three elaborates on the methodology and research design chosen for this analysis. Section Four presents the analysis of South Africa's political economy dynamics, and of drivers and barriers to institutional change in the three case studies. Section Five presents a synthesis of the findings and conclusions.

2 Trade-offs, distributional conflicts and the role of coalitions in shaping institutional change

The literature review incorporates the research literature which addresses the respective roles of trade-offs, distributional conflicts and discourse coalitions in driving or constraining institutional change. The section clarifies definitions of institutional change and how it relates to policy change. It summarises conclusions from the literature with respect to issues such as how trade-offs and distributional conflicts relate to each other, how conflicts shape coalitions, and how coalitions shape institutional change. The section closes with an analytical framework that summarises the relationships between those factors and actors that drive institutional change.

2.1 A glance at the literature on drivers and barriers to institutional change

Institutions provide the framework under which a society operates, and explaining institutional change has occupied academics in various disciplines for decades. The result is a sizable body of research literature across the fields of economic studies, sociology, political science and history.

The study of institutional change starts with the definition of 'institution'. The most common definition describes institutions "as the rules of the game in a society, [...] the humanly devised constraints that shape human interaction, [that] structure incentives in human exchange, whether political, social or economic"

(North 1990, p.3.). Others add political characteristics to the nature of institutions defining them as “distributional instruments laden with power implications” (Hall 1986, Skocpol 1995, Mahoney 2010 cit in Mahoney and Thelen 2010). This definition puts distributional conflicts and power implications at the centre of the ‘rules of the game’. Another important aspect emerging from the definitions is that institutions are never static, but constantly evolving, which builds change into the nature of institutions (Ostrom and Basurto 2010).

Not every policy is necessarily an institution. Only those policies that establish rules which affect actors in a society as a whole, not only the decision makers, are institutions. The implementation and legitimation of these policies depends on actors in both the private and public sectors. A retirement sector reform, if promulgated through formal channels and taking into account the results of public consultation, would be an institution, but a military intervention would typically not be (Streeck and Thelen 2005). The concept of institutional change derives from policies which stipulate changes in the rules that affect the political economy. Individual policies and institutions cumulatively amount to a regime. This view of institutional change differs slightly from conventional policy analysis, which focuses on specific policy intervention in economic sub-systems.

Both institutional and policy change perspectives offer concepts to explain drivers and barriers to the public policy interventions that promote emissions reductions and poverty eradication. Mitigation policies consist of individual policies, like the carbon tax, the climate change legislation and the renewable energy program. In their sum, along with other interventions, they address institutional change towards a cleaner, less carbon intensive development pathway. The aim is to transform the existing fossil fuel intensive economy towards a cleaner, greener, less carbon intensive economy in the long term. These policies clearly count as institutions or rules in Streeck and Thelen’s (2005) understanding, because their implementation and legitimation depends on support from coalitions in the private and public sectors. Decision-makers alone cannot implement these policies with meaningful outcomes.

The frameworks used for policy analysis, such as the advocacy coalition framework (Sabatier 1988) and the concept of discourse coalitions (Hajer 1993) share a similar focus on the long term with the historical institutionalism methods (Streeck and Thelen 2005) in their theory of change. They also focus on long, ten-year periods of change and take the wider political economic context into account, including external and internal systems events, cleavages and conflicts (Sabatier 1988, Weible and Sabatier 2009). The analytical framework for this study integrates aspects from both institutional and policy change literature.

2.2 Institutional change in the developing world

The research on institutions and institutional change derives mostly from evidence in modern capitalist democracies in the Northern hemisphere. For the

purpose of this paper it is necessary to draw on additional literature from development studies to describe the nature of institutions and institutional change in developing countries. The role of informal institutions in the society has not been addressed in depth in the research literature on institutional change, because most of the evidence comes from wealthy capitalist economies. The literature in African studies establishes the concept of neopatrimonialism, which refers to a political system with formal structures of rule that co-exist along with strong informal institutions. In neopatrimonial political systems, informality plays a much bigger role than in Western capitalist democracies. This phenomenon can be conceptualized as institutionalized informality. Neopatrimonial states show high levels of insecurity about the behavior of state institutions. The political system reflects this insecurity, which makes institutional change difficult to predict and governments actions not calculable (Erdmann and Engel 2007). This concept is a valuable addition to the literature on institutions and institutional change from African political and economic literature, which in return can benefit from the insights of the theory on institutional change drawn from Northern hemisphere literature.

2.3 Definitions: Institutions, policies and determinants of change

For the purpose of this research, institutions can be defined as sets of formal rules that organize the interactions between the state, business and society as a whole. The state has the mandate for rule setting in negotiation processes with actors in society, subject to the legitimacy of these rules. In neopatrimonial systems, formal institutions coevolve with parallel informal ways of rule setting, which may compromise the transparency of institutional change. Institutions may create or solve distributional conflicts, which makes them powerful instruments by virtue of the losses and gains that they imply. This definition draws on elements of the work of North (1990), Streek and Thelen (2005), Mahoney and Thelen (2009), Ostrom and Basurto (2010), Erdmann and Engel (2007) as an attempt to contribute to a better understanding of institutional change in developing nations.

The existing research literature offers valuable explanations for institutional change in general. Key determinants of institutional change in the literature are:

- i) External and internal events and dynamics in the political economy (Thelen and Hall 2009);
- ii) The nature of conflicts, material interests and power relations (Knight 1992, Streeck and Thelen, 2005) ;
- iii) The relative power of various actors to organize coalitions to defend or change existing institutional arrangements (Hall 2009);
- iv) Shared storylines and the coalitions' ability to dominate a political discourse (Leifeld Haunss 2011, Hajer 1995); and

- v) Shared ideas, identities and common knowledge creation (Wendt 1999, Culpepper 2008).

Much of the research literature focuses on explaining why institutions do *not* actually change. Authors refer to institutional inertia, path-dependencies and stickiness (Mahoney and Thelen 2009). Therefore, most analysis of institutional change also starts with analyzing institutional stability and the shocks that do cause institutional change. The most frequent explanations for institutional change are external events or “critical junctures”. Events exogenous to an institutional equilibrium are a common explanation for institutional change in sociological institutionalism research, as well as in some rational choice and neoclassical economic research on institutions (Weingast 2002, Katznelson 2003). The idea is essentially that institutional change is a disruption of an existing equilibrium by an external influence. An institution, here viewed as a coordinating mechanism for cooperation of competing rational actors, only emerges from a punctuated equilibrium (Baumgartner 2013).

Historical institutionalism, in contrast, suggests that institutional change is often more nuanced, and emerges from a combination of exogenous and endogenous influences. Endogenous influences are changes in the political economy, which can emerge from small, seemingly insignificant behavioral changes or ideas of actors (Mahoney and Thelen 2009). The evolutionary perspective on institutional change suggests that institutional change is mostly incremental, as opposed to radical, and continuous as opposed to static (Ostrom and Basurto 2010). Endogenous institutional change can take different shapes, which have been conceptualized as types of institutional change as follows:

- i) *Displacement* refers to the replacement of existing rules through new rules;
- ii) *Layering* refers to the introduction of new rules along existing rules;
- iii) *Drift* refers to the changing impact of existing rules caused by a changing socio-economic environment, in the absence of new rules; and
- iv) *Conversion* refers to the changing performance of existing rules caused by strategic redeployment (Mahoney and Thelen, 2009, Streeck and Thelen 2005).

Layering and displacement describe species of institutional change that produces new rules. Only under displacement are old rules removed. Conversion and drift refer to changing impacts of existing rules, rather than the introduction of new rules. The outcome of institutional change depends on the composition of the actors involved in the coalitions for or against a policy intervention.

2.4 Conflicts, coalitions and power relationships in institutional change

The nature of the coalitions and the actors drawn to a particular coalition depends on the distributional conflicts that a rule or policy creates. An actor will join the coalition that represents her interests and beliefs, and will aim to gain the benefits or to mitigate any losses that a policy intervention may result in. Distributional conflict stands at the center of explanations of institutional change from political economics, sociology and some rational choice scholars, which recognize distributional conflicts as central to policy processes (Knight 1992). These processes result from short-term, direct interests in the benefits of certain actors and indirect, longer term interests in the public good (Knight 1992, North 1994). New conflicts can occur during the negotiation processes. These can be conflicts about clashing interests within government, resulting in trade-offs between those incompatible conflicts, as well as conflicts about the process and organization of collective actors. The negotiating power of the government bodies as well as that of the interest groups derives directly from their ability to organize themselves and to coordinate their interests (Knight 1992).

Lacking the ability to explain power as one of the drivers of institutional change is recognized as a weakness of neoclassical explanations (North 1990, Teng 2012). Power distributional approaches to institutional change focus on the endogenous drivers of institutional change, which emphasize power. There is nothing automatic or predictable about these processes. Few rational choice approaches also emphasize power relationships as variables for institutional change (Mahoney and Thelen 2010). Conflict-driven approaches explain these drivers through conflicting interests and power relationships. Conflicts emerge from discontent and disadvantages felt by different interest groups. Advantaged groups may fear losing their privileges. Institutional change largely depends on the relative power of the political actors involved in the conflict and their ability to organize coalitions to defend or change existing institutional arrangements (Hall 2009). Power is a concept with multiple facets. Firstly, power is a relational concept. Power only exists in a relationship between more than one individual and cannot exist in isolation. There are three relational conditions for a power relationship: i) power only exists if there is a conflict of interests or values between two or more parties; ii) a power relationship comes into existence when one party concedes to another party's wishes; and iii) one of the parties must be able to sanction the other party (Bachrach and Baratz 1976). Secondly, power relates to assets and capabilities. Important power assets include access to financial, military and knowledge resources. Capability assets include the ability to self-organize and to express political claims (Knight 1992).

Coalitions emerge from a conflict of interest and values over a policy proposal. Each coalition attracts actors who share a set of basic beliefs that include policy goals plus causal and other perceptions and who seek to manipulate the rules (Sabatier 1991). The actors have different power assets,

authority, influence and even force, which may change over time (Bachrach and Baratz 1976). Research on the role of coalitions in driving institutional and policy change puts interest, ideas and belief systems at the center. Empirically, it can be difficult to establish the evidence for these interests and ideas. Hajer’s approach to discourse coalitions offers a solution to this problem in focusing on “shared storylines as the cement of the coalition”. Hajer (1995) puts language at the center of the analysis of coalitions which drive institutional change (or in his words “social change”). The focus on storylines is grounded in classical discourse analysis, which reflects the ideas and interests of the actors. Yet, discourse offers the opportunity to shape ideas and interests in the process of coalition building. An actor’s interest in a policy and her motivation for engaging in a coalition in support or opposition to that policy may differ from the argument that she puts forth to achieve her interests. Ideas may also change through participating in the public debate of a policy (Hajer 1995).

Hajer’s discourse-centered perspective on the role of discourse coalitions in institutional change criticizes the current model in which government sets an agenda and society reacts to the proposals. He calls for increasing institutional reflexivity with more room for debate, because of the important of discourse in shaping coalitions and their interests and ideas (Hajer 1995).

2.5 An analytical framework for institutional change

The analytical framework used for this paper summarises the various factors that explain institutional change in the research literature. It draws on the main elements of the theories explaining institutional and policy change from the context of historical institutionalism (Streeck and Thelen 2005, Mahoney and Thelen 2009), discourse coalitions (Hajer 1993) and advocacy coalitions (Sabatier 1988, Sabatier and Weible 2007). The table below lists the main elements that explains institutional change and shows how the frameworks complement each other.

Table 1: Determinants in actor centred theories of change from historical institutionalism, discourse coalitions and the advocacy coalition framework (ACF)

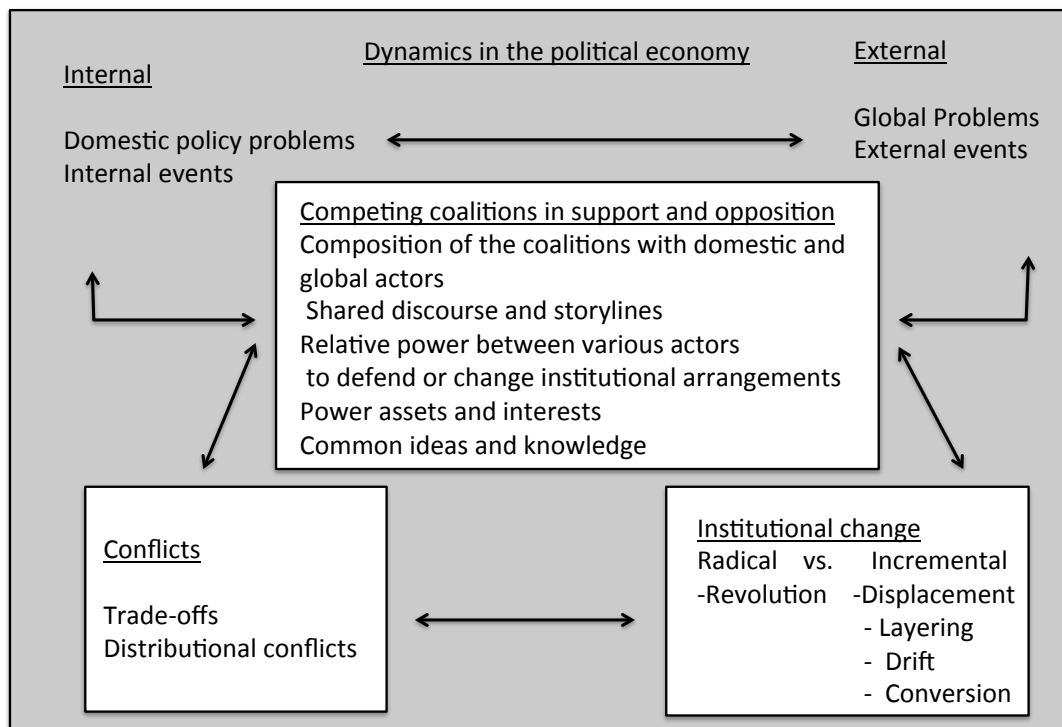
Determinants	Historical institutionalism	Discourse coalitions	ACF
Role of policy networks		✓	
Role of ideas, beliefs and interests	✓	✓	✓
Long-term perspective (10 years +)	✓		✓
Role of conflicts	✓	✓	✓
Role of coalitions		✓	✓
Role of international events	✓		✓
Political economy context	✓		✓
Power relations	✓	✓	✓
Differentiation of institutional change	✓		
Differentiation of the role of actors in determining institutional change	✓		

Source: own compilation

The framework illustrated below integrates the main determinants of institutional change which we identified in the research literature in this section. The framework will guide the analysis in the next section. It establishes the relationships between three main elements that determine institutional change:

- i) the wider political economic context, which shapes the ideas, interests and power relations that guide the behavior of domestic and international actors, as well as the composition of coalitions which drive or hinder institutional change in formal and informal negotiation processes;
- ii) the trade-offs and distributional conflicts that determine the coalitions depending on power relationships and potential losses and gains from a policy intervention; and
- iii) the nature of institutional change that emerges from the conflicts, power relations, coalitions and their formal and informal negotiation processes.

Figure 1: Factors and actors explaining institutional change



3 Methodology & Research design

The operationalization of the theoretical framework requires a mix of methods. The methodology for this inquiry combines classic qualitative content analysis of interview data and documents with a discourse network analysis (DNA) based on statements from documents. The documents that went into the DNA dataset came from online searches through Lexis Nexis® and the Parliamentary Monitoring Group. The table below shows how each determinant of institutional change identified in the literature review of the previous section can be analysed. Power relationships between actors could not be fully assessed, as a comprehensive interview strategy covering all relevant actors was not successful, due to lack of availability of actors. The pilot interviews revealed valuable information, but not always the consolidated position of the organization the interviewed individual was associated with. For this reason, the author decided to change to a discourse network analysis based on official statements from the organizations, official comments to the public policy debate, statements in the media and from parliament, This resulted in a more reliable method to examine the discourse that shapes coalitions in support or opposition of specific climate policies.

Table 2: Overview of methodology to assess institutional change

	Determinants of institutional change	Methodological approach
1	External and internal events and dynamics in the political economy (Thelen and Hall 2009)	Qualitative analysis of political economy factors
2	The nature of conflicts, material interests and power assets (Knight 1992, Streeck and Thelen, 2005)	Qualitative analysis based on the interview strategy and documents
3	The relative power of various actors to organize coalitions to defend or change existing institutional arrangements (Hall 2009)	Not fully established, due to lack of availability of interviews to establish a coherent social network analysis
4	Shared storylines and the coalitions' ability to dominate a political discourse (Leifeld and Haunss 2011, Hajer 1995)	Discourse network analysis
5	Shared ideas, identities and common knowledge creation (Wendt 1999, Culpepper 2008)	Discourse network analysis and qualitative analysis

The determinants of institutional change will guide the analysis of the three main climate policies in South Africa. We chose the National Response White Paper on Climate Change (NRCC), the Carbon Tax and the Renewable Energy Independent Power Producer Procurement Program (REIPPPP). These policies are currently the most relevant and most debated climate change mitigation interventions in the country. Others exist, such as the energy efficiency program,

but are less visible and less controversial. Comparing these three policies works in a most relevant case study design, but also from a most similar design perspective. All three policies started at similar times, with slightly different but similar sets of actors under similar political economic circumstances. The outcomes differ. Both the implementation of the carbon tax and the carbon budgets were postponed, while the Renewable Energy program has become a significant success story for the country's energy policy. The different outcomes of the case studies re-focuses the research questions onto the issue of why institutional change happened in the case of renewable energy but the carbon tax and carbon budgets were postponed. How can trade-offs, distributional conflicts and their role of shaping coalitions explain these different outcomes?

4 Analysis: Institutional change in South African climate policy

This section analyses the institutional change and discourse coalitions in South Africa's climate governance, by examining the dynamics and events that shape the conflicts between climate change mitigation and poverty reduction in the economic context.

4.1 Dynamics and events in South Africa's political economy of climate change mitigation and poverty reduction

This sub-section provides an overview of the global and domestic dynamics and events that shape the structures in the South African political economy, and particularly those which drive conflicts and coalitions in support of or opposition to climate change and poverty reduction policy changes.

Structural dynamics shaping South Africa's political economy with respect to climate change mitigation and poverty reduction

South African economic activity is largely fossil fuelled; these fuels account for ninety percent of its primary energy consumption. Coal remains an essential ingredient of South Africa's economy and a significant earner of export revenues (Eberhard 2014). The electricity sector shows an equally high dependence on coal (DoE, 2010). Only ten percent of South Africa's electricity comes from renewable and nuclear energy sources. Historically, the extractive industries laid the foundations for economic development over the past century (Sorensen 2015). The socio-economic structures and institutions that evolved from this development path continue to shape today's political economy. Scholars conceptualized the close link between private capital and the state in the mining sectors, the electricity generator Eskom and the energy intensive industries as a "minerals energy complex' (MEC) (Fine and Rustomjee 1996). The MEC describes a particular system of accumulation that has grown out of

predominantly English and Afrikaans mining interests and their political establishment. The system has largely sustained itself during the post-apartheid years through these historically grown institutional structures and a regulatory vacuum for the mining sectors. The expansion of financial markets favoured the integration of Black Economic Empowerment (BEE) through access to the financial system (Fine 2008).

The MEC favours the consumption of fossil fuels and coal-generated electricity. Historically, Eskom subcontracted inexpensive low-grade coal from the mines and provided electricity at low rates to the mines and related industries in return. High electricity intensities result from these historically nurtured institutional structures, which result in the unfortunate profile of a country with a relatively low middle income GDP and the emissions level of an industrialized nation.

Some of these historical structures have changed, in response to changing international demand and coal prices. Eskom has more recently struggled to secure contracts for low-grade coal, due to competition mainly from Indian buyers (Burton and Winkler 2014, Eberhard 2014).

Historically low electricity tariffs have more than doubled over the past five years. As many industrial users negotiated fixed tariffs over twenty year periods directly with Eskom, tariff increases do not necessarily affect them. Eskom's generation costs exceed these tariffs; especially in times of crisis, which led to the use of diesel imports in 2014 and 2015. Production costs spiked as high as 4 ZAR per kwh, while some large consumers negotiated tariffs as low as 0,5 cents per kwh (MacDonald 2009). This discrepancy is another threat to Eskom's financial sustainability, which is already under stress as the utility sells electricity to municipalities who are sometimes unable to pay for it. In some municipalities the income from electricity sales to residents is as high as 70% of total revenue. The high dependency of municipalities on the revenue from electricity sales to its residents prevents them from creating financially viable incentives for residential use renewable energy and energy efficiency measures. Politically, Eskom is unable to disconnect defaulting municipalities from its electricity supply, as compromises in "service delivery" of basic infrastructure may lead to a loss of votes for the ANC ruling party.

Although poverty levels have declined in South Africa since the end of apartheid, high income inequalities persist. Poverty levels are particularly high among the black African population. 80% of South Africans are black, and 93% of them count as poor (Leibbrandt et al 2014), while the white population make up 9% of the total and hold about 41% of the country's wealth (M&G 2011). Statistically, inequalities between racial groups have increased since the end of apartheid in 1994, while inequality between racial groups has decreased.² The per

² Per capita income in total values remained grew seventeen percent, while white income grew twenty percent in the same period (SALDRU 1993, 2008).

capita income of a black African household member is a fraction of a tenth of the one in a white household (Leibbrandt et al 2012).

The labour market continues to fuel inequalities between and within racial groups, as it largely allows only skilled workers to move up and unlock higher earnings. Child support and old age grants have helped provide for lower income groups, but those without access to social grants or sufficient education to enter the labour market remain in poverty (Leibbrandt et al 2012).

These structural characteristics put South Africa's electricity sector at the centre of the political economy of climate change mitigation and poverty reduction. The historically white dominated minerals energy complex reflects these inequalities, as "the Mineral Energy Complex (MEC) lies at the core of the South African economy not only by virtue of its weight in economic activity but also through its determining role throughout the rest of the economy" according to Rustomjee and Fine (1996). South African scholars have updated and expanded the concept of the MEC, arguing that it explains and sustains the inequalities in access and consumption of electricity in Africa. While 80% of the population remain undersupplied, mining and heavy industries consume the bulk of the available electricity at inexpensive rates (MacDonald 2009).

The tariff structure is designed to cross-subsidize between the poor and the wealthy. A free basic tariff provides an allowance for residents in poor areas. An inclining block tariff design charges high residential consumers higher tariffs, while those who consume less also remain in a cheaper tariff structure. This cross-subsidy mainly applies to the residential sector, while industrial consumers pay about half of the average residential tariff.

The contribution of the electricity consumption from the poor population in South Africa to its emissions burden is small and likely to remain small (Tait and Winkler 2012). The negligible impact from electricity consumption from poor population groups on emissions may allow climate change mitigation and poverty to appear unrelated.

Domestic and global events

The electricity sector has also been affected by the current political crisis and vice versa. The mid-term future of the country's electricity mix underwent a participative planning exercise, which resulted in the Integrated Resource Plan (IRP) (RSA 2011). The plan foresaw an energy mix of coal, nuclear and significant share of renewable energy to be implemented by 2030. The plan was intended to be updated every two years. The DoE did update the plan, but did not present the updated version to parliament for approval (DoE 2013). The updated plan revised the economic growth prospects, expanded the planning horizon to 2050, and delayed the decision on the nuclear build program, which had meanwhile emerged as a presidential priority program (Rennkamp and Bhuyan 2016). Similarly, decision-making in the renewable energy sectors has been

erratic, as the future market size remains unclear and the program has expanded, with occasional increases in capacity, without a clear pathway forward (Baker 2014). The nuclear program has become a cause of friction within the ANC. Minister of Finance Nhlanhla Nene repeatedly questioned the affordability of the nuclear program, along with other presidential initiatives, and was abruptly dismissed in December 2015. The immediate reaction from rating agencies and financial markets led Zuma's advisors to reappoint the previous minister of finance Pravin Gordhan to restore trust at the financial markets. Gordhan committed to only funding projects within the scope of the national budgets (England 2015).

While the renewable energy program moved forward, the construction of new coal fired plants was delayed. The South African coal plants had seen no infrastructure investment since the 1970s. During the power crisis in 2014 and 2015, former president Thabo Mbeki specifically apologized for this mistake made during his presidency. The electricity sector crisis in 2014 resulted from Eskom's structurally unsustainable business model, failed reform attempts, lack of investment capacity and other factors (Eberhard 2008, Baker et al 2014). Eskom's ability to raise capital in the international financial markets has declined visibly over the past years, which also made nuclear investments infeasible in 2008. The recent investments into new coal power plants were supported through a loan from the World Bank. The international financial crisis created opportunities, and pushed the renewable energy industry in Europe and the US increasingly into diversifying their markets and seeking opportunities in emerging economies.

The international climate change negotiation and the South African commitment to hosting the 17th Conference of the Parties (COP) in Durban opened several windows of opportunity for domestic climate action. The carbon tax proposal, the renewable energy program and the climate change white paper, which are the main mitigation policies, all emerged either before or soon after the Conference. The policy processes were under way long before the COP, but as we will see in more detail below, the event created opportunities for all three policies for implementation through international performance pressure.

The following analysis of the coalitions in support and opposition of South Africa's main climate change mitigation policies will reveal the structure of public support for all interventions. The support structures will then show whether these policies can contribute to the necessary redistribution of emissions budgets and wealth in the country.

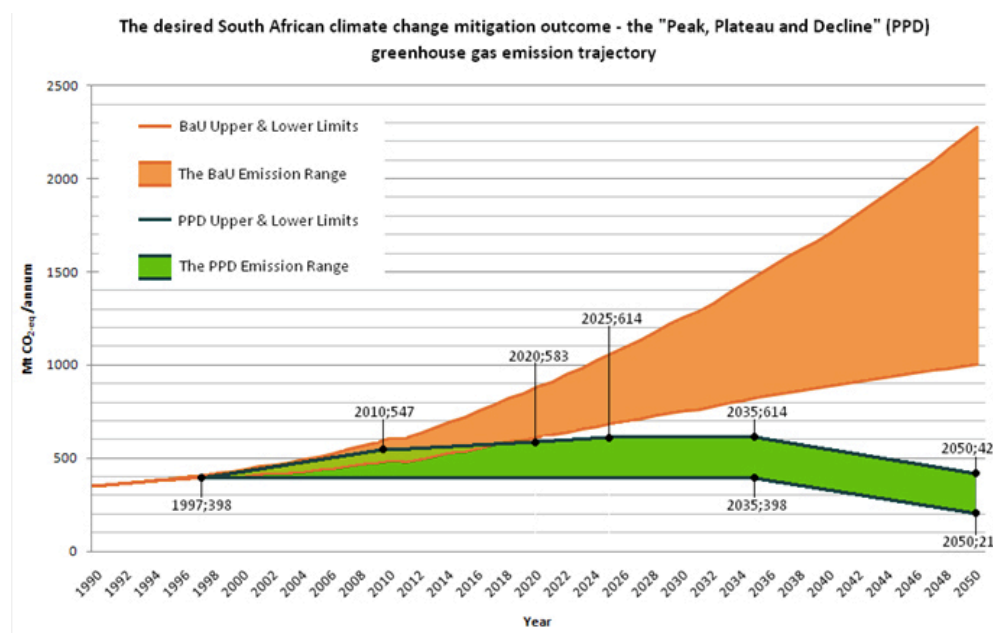
4.2 South Africa's climate change mitigation policy

The South African government officially recognized the challenge of climate change mitigation and the science of the 4th assessment report of the Intergovernmental Panel on Climate Change (IPCC) in 2009. President Jacob Zuma announced voluntary pledges for emissions reductions of 34% and 42% by 2025 and 2030 respectively from a business as usual line at the 15th COP in Copenhagen in 2009.

2011 was an important year for South African climate and energy policy. South Africa's hosting of COP 17 put the country in the international spotlight. The cabinet approved the country's first explicit climate policy, the National Climate Change Response White Paper (NCCR) in October, a month ahead of the COP. A month after the Conference, the Treasury and the Department of Energy launched the renewable energy independent power producer procurement program (REIPPP). The REIPPP is a competitive bidding program that aims to procure 7,3 GW of energy, derived from photovoltaic and concentrated solar, wind, small hydro and biogas sources, from independent power producers (IPP). Eskom issues power purchase agreements (PPAs) to buy and distribute the power generated from these producers. This program is significant, not only because it allows renewable energy to enter the electricity mix but also because it creates competition between independent producers and has diversified the market for electricity generation. Eskom's monopoly was technically reduced to the distribution function. The program replaced the feed in tariff (REFIT), which the National Energy Regulator (NERSA) had unsuccessfully tried to implement since 2009. Furthermore, Cabinet gazetted an important planning document for the electricity sector, namely the Integrated Resource Plan (IRP) earlier in 2011. As described above, the IRP laid important foundations for the introduction of renewable energy into the technology mix for electricity generation (RSA 2011).

The NCCR White Paper suggests a profile for greenhouse gas emissions reductions in the form of a "peak, plateau and decline trajectory" as a benchmark for mitigation. According to this profile, emissions will peak in the period from 2020-2025 in the range of 398 mt to 614 mt of CO₂ and plateau for up to ten years at similar levels. The policy aims to begin reducing emissions only from 2036 onwards. The target range, following reductions, is between 212 and 428 mt CO₂ (RSA 2011).

Figure 2: South Africa's proposed greenhouse gas emission trajectory



These numbers only become meaningful if they relate to the current emissions output. Total emissions from energy production alone in 2010 amounted to 492,2 mt. 60% or 298,6 mt of these emissions emerge from electricity generation only (DEA 2013). The coal fired plants under construction, Medupi and Kusile, will add to the coal related emission for at least fifty years (Eskom 2011). Eskom and Sasol's emissions alone add up to 300 mt per annum, with 230 and 72 mt respectively.

These emissions data show that effective climate change mitigation requires a transformation of historically developed structures of carbon combustion for fuel and electricity generation. The White Paper targets the electricity sector in suggesting renewable energy, energy efficiency programs and carbon pricing mechanisms as the main instruments for achieving emissions reductions. The implementation of these programs depends on the Department of Energy (DoE) and the support of other powerful entities in the government. The mandate for electricity planning falls under the DoE, while the much smaller Department of Environmental Affairs (DEA) deals with climate change and initiated the White Paper process. The implementation of the renewable energy program showed that this support is essential.

Understanding the penetration of renewable energy in the South African electricity mix requires a structural grasp of the political economy, supplementary legislation and sectoral planning. The main rationale for diversifying electricity generation technologies in the past were energy security concerns rather than climate change concerns. Electricity supply was interrupted significantly in 2008, because of generation capacity, and because coal supply did not keep up with the pace of economic development in the early 2000s. The initial IRP process organized technology choices and the way electricity supply should be secured until 2030 (later extended to 2050). The plan took economic development demands into account and suggested that it would be necessary to double the current capacity of 40 GW to roughly 80 GW by 2030. The process involved stakeholder participation, which allowed for active revision of the plan, and pushed the projected renewable energy capacity up to 17,3 GW, a total contribution of over 40% of the new added capacity of 40 GW by 2030.

Another main component of the electricity sector reform is the Independent System Market Operator (ISMO) Bill, which was a proposal to split the Eskom's single buyer monopoly into two state owned entities and allow the entry of independent power producers into the market. The ISMO bill was drafted in 2010 and was intended to be approved by the cabinet in 2011. The process was finally abandoned in 2015. The ISMO bill would have laid a legal basis for independent power producers beyond the REIPPP.

There are no direct governmental programs targeting renewable energy to produce electricity for low income households. A solar water heating program is the main energy efficiency program targeted at poor households. A number of

pro-poor programs in the electricity sector aim to reduce electricity expenses in poor households, including the use of cross-subsidies, whereby large consumers are charged more for the benefit of poor consumers. Four subsidies benefit poor households: i) the state subsidy for network capital cost; ii) low connection fee; iii) low tariff structure at low consumption levels with gradually reducing cross-subsidies as the consumption level increases; ” and iv) a “free basic electricity” scheme which is an allowance of up to 50kwh per month per household to cover basic needs, like light, water heating, ironing and basic media access.

Besides clean electricity technologies, the White Paper suggested carbon-pricing mechanisms as additional efforts for mitigation. Carbon pricing as a mitigation effort in the White Paper builds on the National Treasury’s “framework for considering market-based instruments to support environmental fiscal reform in South Africa” (NT 2006). This policy paper built a base for market signals to trigger environmentally friendly behaviour and consumer patterns. The Treasury introduced an electricity levy on industry tariffs to subsidize renewable energy and energy efficient light bulbs, a motor vehicle emissions tax, a price on plastic bags and tax incentives for investments in renewable energy investments. In 2010, the Treasury published a paper on a carbon tax option for comment. The tax was officially announced in 2012.

Table 3: Implementation status of selected climate and energy policies in South Africa

Policy	Legal status	Process	Implementation
National Climate Change White Paper (NCCR)	White Paper	Cabinet approval in 2011	Under delayed implementation
Carbon Tax	Policy papers, announced in various budget speeches	Conceptualized in 2006, policy paper in 2010, announced in 2010, postponed until 2016	Not implemented
Renewable Energy Independent Power Procurement Program (REIPPP)	Implementation program based on the Electricity Regulation Act	Initially suggested as REFIT in 2009, announced in 2011	Under implementation, 4 of 5 bidding rounds
Integrated Resource Plan (IRP)	Government gazette	IRP Update no approval	Under implementation
Independent System and Market Operator (ISMO)	Draft Bill	Announced in 2010, draft bill in 2011, delayed until 2013, abandoned in 2015	Not implemented

Source: own compilation

4.3 The National Climate Change Response White Paper

The NRCC White Paper is South Africa’s only explicit climate policy. Parliament approved the White Paper on 19 October 2011, following five years of

development including public and key stakeholder engagements, research and parliamentary hearings. The White Paper is a wide-ranging plan that tackles all aspects of climate change, including mitigation, adaptation, technology and finance. The mitigation section refers to a number of flagship projects in renewable energy and energy efficiency as well as carbon pricing mechanisms that should bring about the desired emissions reductions (RSA 2011). Many of these interventions are not under the mandate of the DEA, which makes the implementation of the plan subject to successful coordination with other departments. The following section disentangles the main controversies in the climate white paper. Sections 1.4 and 1.5 below will analyse the discourse networks for the carbon tax and renewable energy in detail.

Conflicts, coalitions and power relations

The White Paper polarized South Africa's interest groups into two coalitions; namely those in opposition and those in support. The division was not with respect to the overall policy, but over specific aspects in the policy, which are summarized in Table 4 below. The most polarizing issue in the White Paper was the carbon budgets approach and its alignment to the carbon tax. The DEA suggested developing "carbon budgets" in the form of emissions contingents for each sector in the economy. Emissions in excess of these budgets would then be subject to pricing and taxation (RSA 2011).

The network on the discourse coalitions as shown below clearly illustrates that carbon budgets and taxation stand at the centre of the debate. The approach to carbon budgets appealed to the DEA, because it seemed to be a "straightforward" approach.³ The idea was to work out benchmarks for emissions reductions called "desired emissions reductions outcomes" (DEROs), which divide the national carbon budget into sectorial budgets and later company-specific budgets. Some companies were supposed to get specific budgets, others a mix of measures. The system was primarily intended to regulate the big emitters⁴.

The network below illustrates the relationships of the coalitions favoring and opposing the White Paper, based on their comments in the public consultation process. The powerful coalition of the main emitters voiced their objections to the policy actively in the stakeholder engagement (PMG Notes). The main objections to the White Paper are the carbon budget and tax approaches, as well as their possibly negative impacts on economic competitiveness and jobs. The coalition of opponents to the White Paper are notably big emitters, including Sasol at the centre, the Business Unit South Africa (BUSA), the Industry Task Team on Climate Change and the Energy Intensive User Group. In Figure 3 below, the opposition coalition actors in white circles are connected through red lines with the arguments they share. These arguments

³ Interview Representative of the Department of Environmental Affairs.

⁴ Interviews Representatives DEA, EUIG, ERC

are represented by blue squares. The green lines represent linkages between supporting coalition actors and the arguments they share.

Figure 2: Discourse Network National Climate Change Response Policy

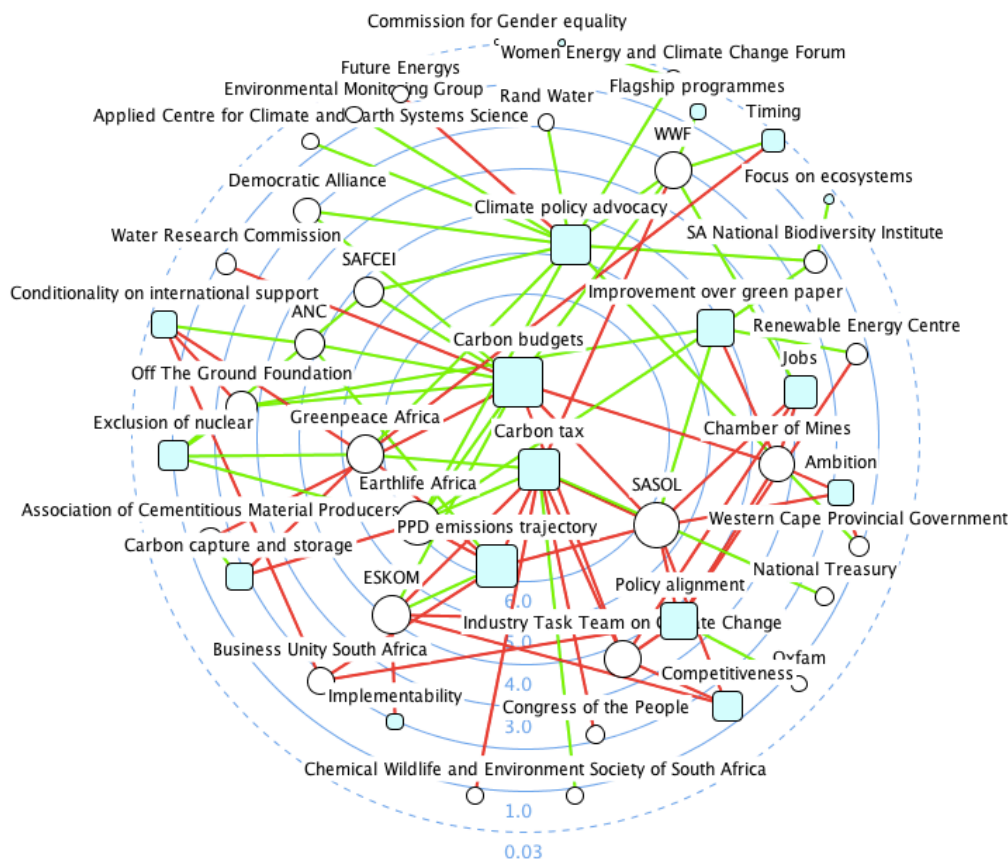


Table 4: Main controversies in the NCCR White Paper

Main arguments in favour of the NCCR	Main controversies in the NCCR
Existence of a climate change policy in principle.	Carbon budgets
	Job creation
	Economic competitiveness
	Alignment of policies
	International support
	Carbon capture and storage

The coalition of civil society groups welcomed the carbon budget's approaches as a significant improvement over the previous Green Paper, although concerns arose that the specific targets were too vague and based on outdated data. Sasol,

on the other hand, expressed an opposing view that it preferred aspirational targets subject to conditions, as structured in the Green Paper. Government held a similar view to other groups that the specific targets were necessary for success in combating climate change. There was consensus that more detail needs to be added to the structure of the budgets such as implementation and monitoring strategies.⁵

The issue of carbon budgets also raised concerns around policy alignment, such as its co-existence with the carbon tax, the NCCR White Paper, Integrated Resource Plan 2010, beneficiation policy, economic development, and the new growth path. On this issue, the government emphasized that the NCCR White Paper is the umbrella policy framework and each executing department would have to align other policies with its broader objectives.

The emissions trajectory informing the carbon budgets was also a focus of the debate. The Long Term Mitigation Scenarios (LTMS) informed the emissions trajectories that lead to the peak, plateau and decline scenarios in the White Paper. At the time, this was framed as “just a scenario planning process”.⁶ However, these numbers then actually informed the first national mitigation policy in the form of the White Paper, which made the business actors feel outmanoeuvred by the government.⁷ The peak-plateau-decline scenario emerged from the international “required by science” (RBS) scenario. The RBS shows the emissions trajectory if emissions were low enough to meet the target to maintain the temperature increase below two degrees.

The first reaction against the peak-plateau-decline scenario in the White Paper was to critique the database for the LTMS. Business asked McKinsey to produce a presentation that raised the weak spots of the LTMS (McKinsey 2011). In a spirit of collaboration and an effort to arrive at conclusions by consensus, the DEA subcontracted a mitigation potential analysis to develop economy-wide benchmarks for emissions reduction. The results were intended to be Desired Emissions Reduction Outcomes (DEROs), but the subjective value of the word “desired” as opposed to “technically feasible” was problematic and turned DEROs into a political rather than a technical problem.

Another problem for the implementation of DEROs and carbon budgets was the database. There was no baseline. Attempts by the DEA and the Treasury to conduct studies that would establish a baseline that could inform the carbon budgets were blocked by the Business Unit. Companies were asked not to participate, and most complied.

As a result the minister postponed the implementation of the carbon budgets for five years (source Edna Molewa), and instead efforts were concentrated on the design of the carbon tax, which has however suffered from a similar delay in its

⁵ Interview Network Data based on Public Comments on NCCRWP

⁶ Interview, ERC representative

⁷ Interview NBI representative

implementation. In the next phase, from 2021-2025, the DEA will attempt to establish a legal basis for emissions reporting, but this will likely prove difficult in light of the strong established opposition. The dilemmas were postponed without any obvious solutions. The implementation of the measuring, reporting and verification system for emissions reduction also remains unresolved, because there is no legal basis for verification (PMG source).

External influences

Both national and international drivers motivated the White Paper. The paper turned the country's pledges for emissions reductions into national policy and established its integrity ahead of COP17. South Africa's meeting its international obligations remains conditional upon it receiving the necessary finance, technology and other forms of support from the developed nations.

The rush to finalize the White Paper in time for the COP resulted in its approval by cabinet before public hearings were held for input from stakeholders and only eight days were allowed for submission of public comments on the policy. The short timeframe raised concerns about the process and resulted in a policy that postponed a number of significant decisions. The coalition of supporters in the government, civil society and to some extent business welcomed a climate policy in principle. The process of turning the emissions reductions stated in the White Paper into an Intended Nationally Determined Contribution (INDC) followed during 2015. Actors in and outside the government who did not pay much attention to climate policy were alerted when the INDC proposal went for parliamentary approval. The format of the INDC relies very much on the content in the White Paper.

Further international influences played a role in the implementation of the White paper. The German funded international climate initiative (IKI) contributed funding for capacity in the DEA climate change unit, which now comprises around 23 staff.⁸

Institutional change

The approval of the White Paper drove innovative institutional change towards the current first climate change framework, but the Paper remains a vague expression of intent. The implementation of individual actions depends on different policies and departments, beyond the mandate of the Department of Environmental Affairs. DEA relied on the existing framework for air pollution and aimed to expand it for emissions reporting (source PMG), but legislation for emissions reporting and air pollution is necessarily very different in practice. Sasol has been engaged in a court case opposing some aspects of air pollution legislation for years, and the opposition actors under BUSA made it clear that an attempt to expand existing air pollution legislation to also cover emissions reporting would result in another court case. The existing legal framework was

⁸ PMG (2015) <https://pmg.org.za/committee-meeting/21469/>

not robust enough to allow the DEA to move ahead, leaving them a choice between a legal battle or collaboration with the business association. The choice was collaboration. The group dropped the charges after the DEA granted Sasol a five year postponement on compliance with the Minimum Emission Standards. ⁹ The vagueness of the White Paper provisions with respect to emissions reductions left room for different interpretations. The implementation was left for later, within two years of publication of the White Paper. Two years, however, proved very short for a thoughtful implementation of the budgets approach and its monitoring system.

Here, institutional change here can be summarized as layering, because the framework rests on existing policies and brings in innovative elements. The launch of the White Paper was a strategic move to sustain South Africa's credibility at the COP. The implementation of the paper was planned for 2013. Some initiatives under DEA's mandate operated under this deadline. Other flagship programs like renewable energy and carbon pricing relied on the efforts of other government departments, which operate differently. Although the White Paper is an all government policy, interviewees often referred to "DEA's White Paper". ¹⁰

The White Paper is South Africa's first explicit climate policy. The implementation of its main mitigation programs depends on other negotiation processes, which all face similar resistance from a strong coalition of powerful actors incentivized to maintain the status quo.

4.4 The carbon tax

The carbon tax is currently South Africa's most contested climate policy. The tax aims to charge corporate emitters at the rate of 120 ZAR/7.3EUR per ton. The tax was first announced in 2012, but is not yet implemented.

Discourse coalitions in support and opposition of the carbon tax

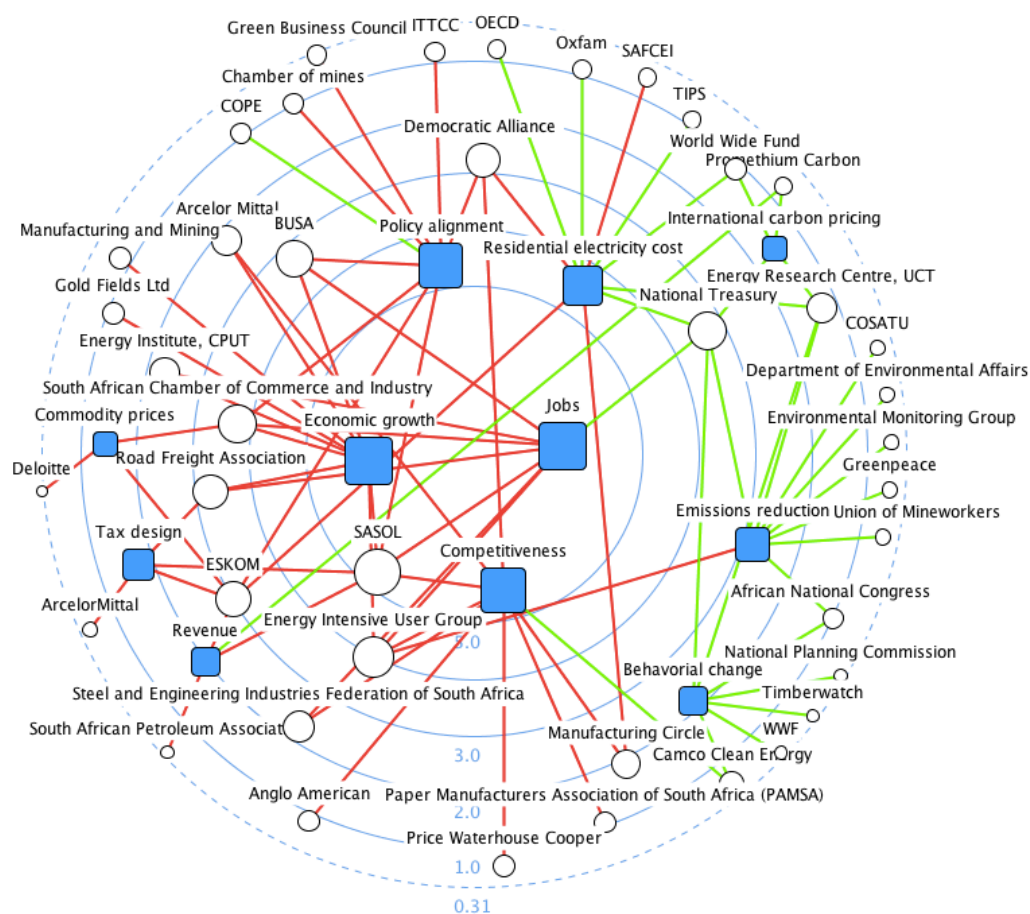
The carbon tax proposal has resulted in two competing coalitions, namely those in support of and in opposition to the tax. 51 organizations have publicly stated their position in support or opposition, as illustrated in the network below in white circles. Actors in the coalition connected through green lines form the coalition of supporters, while actors connected in red lines represent the coalition of opponents. They are connected through the discourse they share arguing in favor or opposition of the tax proposal. The size of the circles and squares reflect the frequency of engagement measured in eigenvector centrality. ¹¹

⁹ <http://www.iol.co.za/scitech/science/environment/sasol-drops-air-pollution-court-challenge-1851633>

¹⁰ DoE Representative at the National Climate Change Committee Meeting

¹¹ Eigenvector centrality is a centrality measure that highlights the centrality of a node in a network in respect to the centrality of other nodes in the network.

Figure 3: Discourse network coalitions on the carbon tax



The structure of the coalitions is not surprising. The supporting coalition consists of government departments, trade unions, several NGOs, consulting and academic organizations. This coalition is relatively small, with 17 actors. The proponents of the carbon tax ally in a coalition of government departments. The National Treasury is the custodian of the carbon tax in the government. The DEA and the National Planning Commission support the proposal. Think tanks, universities and civil society support the tax, because of its contributions to fulfilling the government’s functions of providing (global) public goods in forms of cool climate and poverty reduction.

The coalition of opponents consists mainly of those who stand to lose financially from the implementation of the carbon tax. Large polluters and their business organizations stand at the center of this coalition. Sasol, Eskom, the Energy Intensive User Group (EIUG), Business Unity of South Africa (BUSA) and the South African Chamber of Commerce and Industry are the strongest opponents to the carbon tax., Sasol (South African Synthetic Oil Limited) , produces petrol from coal to liquid technologies and is also South Africa’s third largest coal producer, contributing one third of the country’s total emissions.

Sasol is the most central actors in the coalition of opponents, as the carbon tax directly threatens its coal-to-liquid operations. The group runs a climate change unit with seven full time staff members who dedicate their time to climate response strategies and engagement with the policy processes.¹² A representative from Sasol's climate change unit served on the South African delegation to the international climate change negotiations. Besides internal efforts, Sasol has organized its opposition through the business associations EIUG and BUSA. The EIUG represents 31 firms who consume about half of the country's electricity. The companies operate mostly in mining and manufacturing and employ half a million people. The EIUG has four staff members who work with an Industry Task Team for Climate Change based at the mining company Glencore. BUSA represents a wider range of business and industries. However, BUSA's engagement in the carbon tax is also driven through Sasol, as BUSA's main representative in the carbon tax debate is simultaneously heading the Chemical and Allied Industry Association.

Other opponents to the tax have joined the opposing coalition of powerful businesses, despite having lower or no financial stakes. Political parties, such as the Democratic Alliance may join this coalition primarily because of its position opposing the ruling party. Think tanks, universities and civil society organizations engage in the debates either to add knowledge or to represent marginalized groups who may be negatively affected by the tax, but lack the power resources to engage directly in the process. These organizations frame the public discourse around the tax rather than being directly affected through either benefits or losses of the tax.

Power is distributed unevenly in these coalitions. The opposing coalition has more power resources in terms of number of actors in business, and the ability to self-organize of the business interest groups as well as their monetary and human resources. The proposing coalition's main power asset is the legislative power exclusive to the government. Additionally, there are power relations and competition within government. The Treasury has a powerful¹³ position within the cabinet, as do most Departments of Finance. The Treasury has the support of three departments. Other important departments like the Department of Trade and Industry have expressed their concerns about the benefit of the tax. Implementing the carbon tax is therefore important for the Treasury in order to maintain its power position within government and vis-à-vis the private sector.

Both coalitions frame the problem as one of a trade-off between emissions reductions and poverty alleviation. The main difference is that the proposing coalition argues that this trade-off can be overcome: revenue transfer through tax collection can alleviate poverty, and green economy jobs can balance out possible job losses in the fossil fuel industry. The main arguments of the coalition in

¹² Interview Sasol Representative (2014)

¹³ Interviews: President EIUG

support are, firstly, the tax’s contribution to emissions reductions, and secondly, the possibility of revenue transfers to poor households.

The coalition of opponents argues that the tax will compromise the companies’ competitiveness and limit economic activities and growth, and that it is not aligned with existing policies and levies. In their view, a carbon tax cannot achieve two objectives, and so cannot reduce emissions and poverty at the same time. The reference to low-income households is less frequent than in the discourse of the proposing coalition. The opposition does argue that the tax will lead to increases in electricity tariffs, which will lead to a heavier burden on poor households. Eskom is very clear in its position that they will not pay the tax themselves, and that it will be passed on to consumers. Given its financial situation, this argument is very convincing. Passing on the carbon tax would affect every electricity consumer in the country. Behavioural changes to reduce this impact are not necessarily possible, because 95% of electricity users depend on the national grid. Consequently, tariff increases will affect almost everyone. This argument allows Eskom to elevate the carbon tax discourse to broader constituencies, and strengthens the opposing coalition. Eskom’s claim attracts civil society organizations to the opposition coalition in pursuit of their interests in defending poor households from additional cost burden. Simultaneously, the government and proposing coalition need to ensure, through further cross-subsidies to electricity costs, that poor households do not suffer from the tax..

The so called “recycling options”, which refers to the options of how the tax revenue can be spent, were narrowed down to either increasing cross-subsidies for poor households to mitigate increases in household expenditure, or feeding the revenue back into the industry in form of energy efficiency measures (Treasury, 2014).

In sum, the main arguments against the carbon tax are the prospects of job losses, negative impacts on the industry’s competitiveness and economic growth, and its alignment with other implicit carbon prices. Conversely, the coalition of supporters argues that the tax will contribute to emissions reductions and reduce residential electricity cost, which will lift the cost burden on poor households. The most contested issues are the impact of the tax on residential electricity cost, competitiveness, emissions reductions, jobs and alignment. These arguments are summarized in Table 5 below.

Table 5: Key arguments in favour of and against the carbon tax

Main arguments for the carbon tax	Main arguments against the carbon tax
Emissions reductions	Job losses
Residential electricity cost through revenue transfers to poor households	Negative impact on competitiveness
International carbon pricing	Negative impact on economic growth
Behavioral changes through incentives to use cleaner fuel	Policy alignment with current levies and existing carbon prices
Job creation	Compromise economic growth

Source: own compilation based on discourse network analysis for South Africa’s carbon tax

External influences on the domestic debates on the carbon tax

International actors and organizations have mainly had roles in diffusing norms and producing knowledge. Norm diffusion happens mainly through the UNFCCC and the IPCC. The South African government acknowledged the findings of the IPCC and the pledges to the UNFCCC for conditional emissions reductions in its National Response to Climate Change White Paper (see section 3.5 in this paper). The domestic actors generally acknowledge the global problem and the necessity to reduce emissions in their official statements, the media and interviews. The most common response is “yes, but...” and the subsequent question as to how the burden and cost of emissions reductions can be supported.

The National Treasury referred to experiences in other countries who started to implement environmental taxes in the early 2000's. These policies inspired the Treasury to also begin considering environmental taxation in 2004. The result was a first policy paper on environmental taxation in 2006. Policy learning occurred at a relatively high level and motivated South African policy makers to tackle a new policy domain, but did not lead to copying an exact tax design from another country. Collaborations with international organizations and academic bodies such as the OECD and UNU Wiser added to the knowledge production on the carbon tax and its possible impacts. A collaboration between experts from UNU Wiser, National Treasury staff and Southern African academics produced a small body of peer reviewed literature on economy-wide impacts of different tax levels and their impacts on income distribution. The OECD added a comparative study on carbon taxes in different countries including a study on South Africa to the literature. The World Bank also contributed to the literature with comparisons between the 15 countries that have taxes in place. The role of these organizations in the national discourse is quite discrete, and limited to the production of knowledge rather than putting any obvious pressure on government with respect to the tax proposal.

In terms of bilateral cooperation, the British High Commission funded a pilot emissions trading scheme in 2014 to prepare for the implementation of the tax in 2016 with the objective of aligning the tax with international emissions trading and pricing schemes. (Reuters from BD 18.7.2014)

Implementing domestic carbon pricing because of potential international taxation is a frequent argument for the tax. Border tax adjustments aim to tax those who do not tax carbon intensive product domestically. A country without a national carbon-pricing regime would have to pay the difference on its carbon intensive exports and imports. Coal exports are a significant source of income to the South African GDP. Border tax adjustments could hit the mining sector hard, in the absence of a national carbon tax. In the absence of an internationally binding agreement for emissions reductions, however, this scenario seems to move further into the future and doesn't come up as an immediate concern in the coalition that opposes the carbon tax.

Institutional change

Institutional change in the market-based climate change policy is incremental. Since the environmental tax reform in 2006, the Treasury has succeeded in introducing small levies for renewable energy and fuel taxes. The carbon tax is a major policy change, which attracts strong opposition, because it may produce direct financial losses in industry actors that stand at the core of the country's political economy. Organizations like the EUIG, Sasol, Eskom and BUSA who represent employers of almost a million people can argue against the tax by raising the spectre of job losses and decreased competitiveness in a political economy where the government's main objective is job creation leading to reduced poverty and inequality.

Alignment with existing taxes and levies is an important argument against the tax and for improved tax design. The opposing coalition claims that lack of alignment with existing levies is a major shortcoming of the current tax design. At a glance, the tax seems an innovative instrument that fills a policy vacuum, because there is no explicit carbon pricing regime in place. A closer look at the existing environmental legislation reveals that the carbon tax builds on an existing regime of levies and implicit carbon prices. The tax builds on at least three implicit carbon prices. Firstly, an energy levy on non-renewable sources of 3 cents per kwh. Secondly, the inclining block tariff which charges lower tariffs to consumers of small amounts of electricity and higher tariffs to consumers of higher amounts, although corporate consumers negotiate their rates in separate processes. The block tariff and the free basic electricity policy are the main instruments for cross-subsidizing of electricity tariffs to low income households. Thirdly, in the transport sector a tax on the purchase of new vehicles that emit more than 120g/km of CO₂ during operation, at a rate of R75 per g/km above 120g/km, was introduced in 2010. The tax exempts minibus taxis, which are the main form of affordable public transport predominantly used by passengers in a lower income range.

The existing regime of carbon pricing constitutes another case of "layering" in institutional change, which is, as described above, the introduction of new rules on top or alongside existing rules according to Streeck and Thelen (2005).

To date, the policy development process has been a mix of two rounds of formal public consultations with policy documents and comments submitted by the interested stakeholders. The feasibility of the carbon tax depends on the government's ability to maneuver its proposal through the opposition's sphere of interest without ending up with a toothless policy.

Since the beginning of the carbon tax process, Treasury has already made a number of compromises. Firstly, research from UNU Wider and the Treasury initially suggested levels of 30 Euros per ton in order to make an impact on emissions reductions (Arndt et al. 2011). In practice, the Treasury decided to

announce the tax at a third of this suggested rate (Treasury 2013). Secondly, informal negotiations between the Treasury and the main opponents of the tax led to sectoral exemptions. Thirdly, the date of implementation of the tax was postponed for one year to January 2016. Fourthly, the National Treasury published a policy paper on offsetting options, which allows affected parties of the carbon tax to offset their payments through various external renewable energy, energy efficiency, transport, agriculture or forestry projects (Treasury 2014). 'External' in this context means that the project must be external to the company and outside of the dedicated government programs. The offsetting rules follow the international rules of the Clean Development Mechanism (CDM). The Designated National Authority, which administers South Africa's few CDM projects may administer the offsetting program. The offsetting options open an attractive loophole for businesses who wish to avoid additional tax payments. Furthermore, the offsetting program, if administered properly, may be an effective way of overcoming the trade-offs between emissions reductions and poverty reduction and actively create a win-win situation with an innovative institutional design, which builds on existing institutional arrangements and capacity.

A neo-patrimonial outcome of institutional change is likely in the case of the carbon tax. This is a result of a combination of a formal policy process and informal negotiation processes between the most powerful actors. The most likely outcome is that the Treasury will implement a formal tax, but informally negotiated exemptions with respect to the significant sectors will negate its impact on achieving the desired emissions reductions.

4.5 Renewable energy in the electricity sector reform

South Africa's abundant resources for solar and wind energy make renewable energy a suitable alternative to fossil fuelled electricity supply. Despite its climatic advantages and available technology, it took fifteen years from the intention to increase the renewable energy share in the electricity mix in the National Energy White Paper in 1998 for renewable energy to actually enter the national grid. An unimplemented Renewable Energy White Paper in 2003, a draft Feed-in Tariff in 2009 and finally the Renewable Energy Independent Power Producer Procurement Program in 2011 were landmarks on the legislative route towards implementing renewable energy. The integrated resource plan (IRP) legitimized the introduction of renewable energy into South Africa's electricity mix for the future in 2010, but its revised update never reached parliamentary approval. A bill for a reform of the electricity sector to a market based system that allows an active role for independent power producers was finally dropped from the decision makers' desks in 2015.

Why did it take so long to unlock South Africa’s renewable energy resources and translate them into active electricity generation capacity for the national grid? How did the players in the national political economy enable institutional change in the electricity sector on some occasions and hinder it in others?

Table 6: Main renewable energy (RE)-related policies in South Africa’s electricity sector

Policy	Date	Objective	Status
Energy white paper	1998	Support implementation of RE technologies, attract investment in RE and support the development of the renewable industry	Parliamentary approval
Renewable Energy White paper	2003	10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro.	Parliamentary approval
Integrated Resource Plan (IRP)	2010	9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources.	Parliamentary approval
Integrated Resource Plan Update	2013	Delay nuclear decision, amplify gas and continue procuring renewable energy with additional annual rounds of 1000 MW PV capacity; 1000 MW wind capacity and 200 MW CSP capacity, with the potential for hydro at competitive rates.	Not implemented, Not submitted for parliamentary approval
Renewable Energy Feed In Program (REFID)	2009	Set fixed prices for generation of PV, wind	Not implemented, superceded by REIPPPP
Renewable Energy Independent Power Producer Procurement Program (REIPPPP)	2011	6,9 GW in 5 bidding rounds of PV, wind, biomass, CSP and small hydro power	Parliamentary approval
Independent System Market Operator Bill (ISMO)	2010-2015	Provide ISMO as a company responsible for the planning of supply of electricity [...] to minimize electricity to customers	Not implemented, Not submitted for parliamentary approval

The policies summarized in the table above were managed through quite different processes. The Energy White Paper, the Renewable Energy White Paper, the IRP and the REFID were all quite open policy processes, accompanied by public consultation and media coverage. The White Papers and the IRP were mostly planning exercises, containing recommendations but no binding decisions. The non-binding nature of the IRP was underlined by calling it a “living document” that should be revised every two years. The REIPPPP, the ISMO and the IRP

Update did not allow for public consultation. The Department of Energy presented the IRP Update belatedly. The update came as a surprise to the public and even to government officials in other departments.¹⁴

Cumulatively, the seven policies in Table 6 form the institutional and legislative foundations for renewable energy in South Africa. The planning policies (White Papers and IRP) set forth long term intentions for an increase of renewable energy, while the ISMO, IRP Update and the REFID/REIPPPP suggest concrete actions and choices. These policies created actual conflicts, with winners and losers. For the analysis of institutional change in the renewable energy sector we do not focus on each individual policy, but on the public discourse in general. The following section will present the analysis of the conflicts and related discourse coalitions in the renewable energy sector.

Conflicts, coalitions and power relations

There are no evident trade-offs between renewable energy (in the form of climate friendly technologies) and poverty reduction in the debates on (renewable) energy policy. The discourse network doesn't reveal any competing objectives between poverty reduction, job creation and other development objectives with the implementation of renewable energy programs. The main arguments for renewable energy in the discourse coalitions are in fact emissions reduction, industrial development and job creation. The nature of the conflict between the discourse coalitions is mostly distributional.

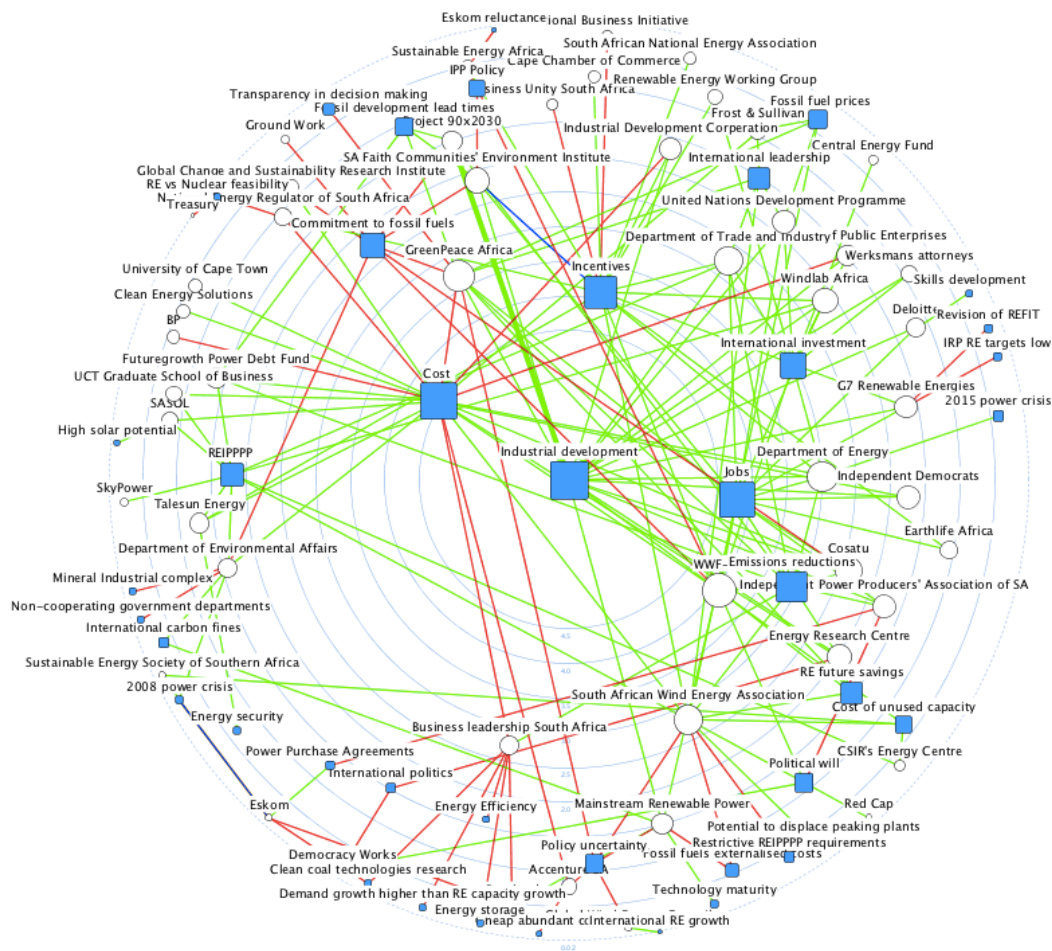
Arguments on the costs of renewable energy point to opportunity costs, assuming that adopting renewable energy may take away funding from rolling out other technologies. The competitive nature of the renewable energy program led to renewable energy prices falling far below the originally envisioned feed-in tariff. Wind energy prices dropped below the price of coal-fired energy in the third bidding round. Prices continue to be the subject of heated discussions in the public discourse, especially when it comes to coal or nuclear infrastructure.

The distributional conflicts shape two coalitions, those for and against renewable energy, and these both compete for government support. The coalition against renewable energy involves Eskom and other interested parties in traditional large electricity infrastructure. The main arguments of the coalition against renewable energy are the power crisis, baseload and intermittency of renewable energy, cost and the existing commitment to fossil fuels.

The proposing or supporting coalition again consists of government departments, numerous civil society organization and renewable energy industry representatives and associations.

¹⁴ Interview: Representatives Department of Environmental Affairs, National Treasury

Figure 5 Discourse coalitions proposing and opposing renewable energy in South Africa



The commitment to a fossil fuelled electricity infrastructure and existing expertise in the country drives the opposing coalition to a position defending the status quo, which is very much in line with the concept of institutional inertia. Eskom’s expertise lies mostly in managing centralized energy infrastructure and building coal-fired power plants, if at any. The previous regime produced a now aging generation of nuclear engineers who support the nuclear energy program. The arguments for large, centralized power plants, whether coal or nuclear, unify under the argument of baseload. Baseload refers to the constant electricity generation provided by coal or nuclear, as opposed to intermittent electricity generation, which renewables suffer from in cases of lack of sunshine or wind. The fact that the baseload problem reduces with a growing amount of renewable energy sources has yet to enter the political discourse. Baseload remains exclusively an argument against renewable energy.

Table 7: Overview of main arguments for and against renewable energy

Main arguments for renewable energy	Main arguments against renewable energy
Emissions reductions	Commitment to fossil fuels
Job creation	Rising cost of renewable energy
Industrial development	Focus on cleaner coal
Declining cost of renewable energy	Policy uncertainty
Renewable energy incentives	Baseload

One of the major problems with advancing renewable energy technology in South Africa is the institutional inertia that comes from the existing fossil fuel dependence and the lack of leading renewable energy industries domestically.

The intergovernmental power relationships were an important determinant of institutional change favouring the implementation of renewable energy. NERSA, despite its mandate as an energy regulator was not able to secure the support of the more powerful departments as in energy, finance and the presidency.

External influences on the electricity sector reform

As mentioned above, the COP 17 in Durban imposed performance pressure on South Africa. President Jacob Zuma launched the South African Renewables Initiative (SARI) during the conference. The country’s renewable energy capacity at the time amounted to 3 MW in demonstration programs. Shortly after the announcement of SARI, the Treasury and the DoE launched the REIPPP program, which Zuma did not mention during the COP. The announcement of the new program took the industry by surprise, as had the previous halt to NERSA’s feed-in tariff proposal.¹⁵ The process of decision-making on the renewable energy procurement program corresponds to the concept of neopatrimonial decision-making which occurs in non-transparent processes, involving small elites, in this case government representatives and a few external mostly international consultants.

The renewable energy industry is mostly international. When South Africa’s program started in 2011, there were no significant solar or wind energy industries in the country. The program aimed to develop local industries through local content requirements, which force international manufacturers to invest into local manufacturing sites or buy from other local manufacturers. These

¹⁵ Interview Representative: South African RE Industry Association

requirements produced two tower manufacturers in the wind energy industry and a number of photovoltaic solar panel assemblies. However, the fact that the renewable energy industries are mostly foreign caused opposition to the program, arguing that government support should rather target existing local expertise and support the development of clean coal technologies and other “baseload” technologies.

Institutional change

The combination of international performance pressure for climate action and domestic pressure on the electricity grid drove institutional change in favour of the implementation of a renewable energy program, despite powerful opposition. Institutional change in the electricity sector has been underway since the late 1990s. With its Energy White Paper, the ANC spelled out its vision for South Africa’s electricity future for the first time. Renewable energy received significant attention in the paper, but without formulating any specific targets. The Energy White paper was an expression of interest in renewable energy technology development, without any clear commitment. Parliamentary approval was simple, as the paper did not create any serious distributional conflicts. As economic growth picked up in the 2000s, South Africa’s development pathway appeared to be on the right track, until Eskom’s management crisis became evident with the power shortages in 2005-2008. The need to diversify the electricity supply became evident. NERSA began the process of designing a feed-in tariff in 2007, based on its mandate in the National Electricity Regulation Act. When NERSA presented the REFIT in 2009, the Treasury vetoed the proposal, because it did not comply with procurement rules. The government changed the regulation from a price-based to a quantity-based competitive procurement program.

The REIPPP deals with the reality of inequality and poverty in two ways: Socio-economic development criteria established very specific rules for local content requirements and community development criteria. Local content requirements are a common way of creating local industries and forcing international investment into the country through a trade barrier. The content rules require a specific percentage of the value of each plant to be sourced from local manufacturers. To date, the content rules have resulted in the two wind tower manufacturing plants and solar photovoltaic assembly plants mentioned above.. The value of these content rules remains highly contested between industry representative, project developers and the government (Rennkamp and Westin 2013). The community development rules require that developers spend a specific percentage of their investment in the power plant in benefit of local communities within a 50 km radius of the plant. The rules for the payment of these funds have been non-specific. The industry developed different models on how to fulfill these requirements through direct expenditure to the communities, funding non-profit organizations or a combination of both. It is too early to assess

the impact of the expenditure, but new institutional arrangements of industry-community-government relations can already be identified (Wlokas 2015).

The renewable energy program contains elements of policy innovation. Its socio-economic development requirements are not just new to South Africa, but also new to the world. The overall successful implementation of the program became a major advantage for renewable energy technologies, despite the confusion surrounding the implementation of community development criteria and the heated debate on local content requirements.

Eskom's management crisis blazed up again in 2014 and 2015. The crisis revealed that there are to be major electricity shortages in the years to come. The reasons for the crisis slowly came into focus. After a major silo collapsed in 2014, it became clear that Eskom's management had neglected important maintenance work, while focusing too much on "keeping the lights on". The slogan of "keeping the lights on" became the credo for Eskom corporate policy during the 2010 FIFA World Cup, when international attention focused on South Africa.¹⁶ The crisis led to a major conflict between the ministers of public works and energy, who held diverging views of how to deal with the crisis. While the minister of public works supported the view that Eskom should roll out temporary power cuts and undertake the necessary maintenance work, the minister of energy called for "keeping the lights" on. During 2014 and 2015, Eskom bought diesel to produce electricity at a cost of 4 ZAR and could only sell it at a maximum of 3 ZAR. The budget crisis in the utility became more and more evident. The government had to organize emergency bailouts. Eventually, the minister of public works prevailed with her view on maintenance and load shedding. Electricity shortages and rolling blackouts have become part of day-to-day life in South Africa. The crisis opened an opportunity for further electricity supply from renewable energy. The minister of energy announced an additional 1,8 GW to be allocated in the program in an "expedited bid submission phase".

The REIPPP is designed in a flexible way that allows the government not to commit to any longer term plan. The program only foresaw five bidding rounds and 3,7 GW of input. This allocation of renewable energy can then be increased if desired. The DoE approved 79 renewable energy projects under the REIPPP until August 2015. The installed capacity amounts to 5 243 MW and represents private investment of R168 billion. An additional 6300 MW of additional generation capacity are currently under consideration.

There is no official communication on the program's future after the 5th bidding round in 2016. The IPP unit, which manages the administration of the program, has no institutional basis. The lack of institutional sustainability of the program reflects the lack of long-term commitment in the decision-making process. This lack of commitment is also reflected in the flexibility built into the IRP.

¹⁶ Former CEO Eskom at Seminar: "The Energy Challenge" at the University of Cape Town, 26th August, 2011

Overall, institutional change for renewable energy in the electricity can be summarized as layering. Multiple policies have been introduced in addition to the existing ones. However, there are also elements of policy innovation which have not been implemented before. Drivers of institutional change are a combination of both domestic electricity crises and need for diversified electricity supply as well as international performance pressure from the climate change negotiations and international industries. Barriers to institutional change remain the obstacles that result from the overall structure of the political economy. The lack of long-term commitment reflects the pressures from industries that support competing technologies, and the government is keeping the options of further coal-fired plants and a major nuclear program open.

The REIPPP creates a significant renewable infrastructure. Initially the program funded projects larger than 5 MW, but later it was opened to 1 MW projects. Net metering and residential grid connected use of renewable energy is still very limited. Only a few municipalities offer net metering possibilities against a connection fee that defeats the point of the exercise. The regulator NERSA started a process to increase the use of renewable energy technologies in the residential sector, but the constraints of the high dependence on revenue from electricity sales in the municipalities slowed the implementation of this process. Renewable energy is a potential win-win technology for poor households, especially for those that are not connected to the grid. The electrification program, however, envisions getting consumers on the grid rather than providing off-grid alternative technologies, for the above-mentioned reasons. The Free Basic Electricity Tariff and the Inclining Block Tariff aim to cross-subsidize electricity use and make it affordable for low-income households. Again, these policies operate under the premise that every household connects to the national grid. The current structure of the electricity market does not encourage the use of renewable energy technologies in low-income households. Any incentives towards decentralized electricity supply translate into perceived revenue losses, although additional capacity would relieve the stress on the grid.

5 Conclusion

The analysis used in this paper shows how the success and failure of institutional change depends on the interplay of distributional conflicts and power relations between the actors in the respective coalitions, as well as international norms. The distributional conflicts matter more than potential trade-offs; who wins and who loses from climate response policy determines respective coalitions in the policy development process. The case studies on the carbon tax and climate white paper showed how strong coalitions of the heavily emitting industries and proponents of centralized energy technologies successfully defend the status quo. The opposing coalitions are most active in situations where they fear actual

financial losses. The discourse networks on the carbon tax and the carbon budgets appear as the most controversial climate policy proposals, as they threaten the future operations of powerful corporations and possibly all electricity consumers. In the electricity sector, particularly in a country where so much of the population is poor, cost remains the most contested issue. Proponents of centralized energy technologies use the cost argument to advocate for coal and nuclear power plants, as if the renewable energy program took public resources away from these programs. The overall success of the renewable energy program relied on the support of a large coalition of supporters in business, government, civil society and international actors. The program offered investment opportunities and created win-win situations. The carbon tax and carbon budgets proposal did not operate in a similarly favorable environment. Distributional conflicts played out more severely and led to delays in the implementation.

Drivers of institutional change could be identified in situation where the interplay of international norms and government commitments weighed in the favor of policy implementation. International norms and attention created unifying moments between the coalitions and opened the opportunities to advance climate policy.

The potential for trade-offs between emissions reductions and poverty eradication measures only really emerged in the discourse of the carbon tax proposal. This trade-off referred mostly to the implementation of the carbon tax and the corresponding possibility of tariff increases. In the renewable energy sector, the only occurrence of poverty alleviation is implied in tariff increases as well. Win-win situations are possible in all cases. Offsetting is a viable option that pleases the industry, because it serves their interest of avoiding additional tax payments to the government and helps poor communities through clean technology projects similar to the Clean Development Mechanism. The success of an offsetting scheme that fulfills both objectives of emissions and poverty reduction depends on rigorous implementation capability.

Renewable energy in South Africa creates significant win-win situations. The plants come onto the grid quickly, while industrial development progresses slowly. The plants generate electricity into the grid at relatively low cost. The full potential of renewable energy, especially in residential and pro-poor use, are unlikely to be unlocked in South Africa. The opposition both in and outside the government advocating centralized “baseload” technologies remains very strong. Municipalities hesitate to offer net metering options to their residential customers due to their fear of revenue losses. The potential for win-win situations with renewable energy remains underexplored, because of the resistant elements within the political economy who continue to defend the status quo of fossil fuel combustion. Renewable energy could be particularly valuable the residential, corporate and low income sectors by helping to alleviate the pressure on the national grid.

Neopatrimonial structures are characterized by a blend of formal and informal institutions. In the case of the carbon tax, this mix is likely to produce a formal tax that is undermined by informally negotiated sectorial exemptions. The exemptions defeat the main purpose of the tax, which is behavioral change that leads to emissions reductions. The case study on renewable energy indicates a similar neopatrimonial structure, whereby decision-making takes place within a small circle of government and elite actors without open stakeholder consultations.

All three case studies show institutional change as “layering”, where new institutions are layered over existing institutions. The carbon tax built on an existing regime of environmental taxes and levies. The renewable energy program layered over the energy planning process, previous white papers and the attempted feed in tariff. The Climate Change White Paper built on the renewable energy and energy efficiency regimes as well as carbon pricing. Although it’s the first climate policy in the country, the White Paper serves as an umbrella document. It relies heavily on policies and their implementation in other departments. Yet, each policy has novel elements and fills niches. All three policies contribute to wider institutional change towards a low carbon development pathway.

In sum our findings oppose the assumption established in the UNFCCC about trade-offs between mitigating climate change and reducing poverty, in middle income countries. Trade-offs between development and climate rarely hinder institutional change. The South African government received no financial or technological support from the international climate finance facilities to implement the renewable energy program, which resulted from a mainly domestic decision and international norms. Distributional conflicts are more significant in determining institutional change.

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