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Power Purchase Agreements

Energy contracting under Private Law

Dissertation as part of the requirements for the Award of a Master Degree in Law and Management *("Mestrado em Direito e Gestão")* from NOVA Law School and NOVA School of Business and Economics

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June 2018

Statements

I.

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II.

This work has:

Abstract: 2495/2 500 (EN) + 2500/2 500 (PT) characters w/spaces and footnotes

Corpus: 199 9997/200 000 | characters w/spaces and footnotes | 80 pages

Annexes: 25/25 pages

III.

Modus Citandī

It will be used abbreviations throughout the text; at the beginning of this dissertation, the list of those that were most used. Regarding citations, are cited, with the mention of the author's name, the title of the work, the year of publication and the respective pages. In addition, in cases where the work is the same as in the previous reference, differing only the page in question, it will be used the expression "op. cit." afterwards. If the reference is the same as the previous one, the used expression will be "ibid.". At the end of the dissertation, there is references list with complete bibliographic indications. Regarding jurisprudence, it will be mentioned with an indication of the country, court, number and date of the decision, and, where possible, the web page on which it will be possible to access it. When using a direct translation (free translation), will be within quotation marks and, its author will be referenced, with the location, explicitly, as well.

Abstract

The constructions created through abstraction and *fīdūcia*, as currency, needed different constructions of the ones applied to corporeal realities. Energy, by nature, and now, by legal intent, is dynamic, fungible and represents a change that is not possible to harmonise with the logic of the immutable, determined and concrete set of "things".

This demands a meta-juristic analysis (as the dominant construction does not hold incorporeal and dynamic phenomena) and, reconstruction of entities and classes, from an entity (*substantia*), to the system. Besides "things" there are facts, not only those "*perceived by the senses*" but also, emerging from the autonomy of the will. Also, time is a continuous variable and, we cannot postulate a legal system where all phenomena (and norms) are discrete.

This dissertation is structured into 5 chapters, whereas:

I - *Substantia*, as electricity, is the subject matter of the analysed contract, it will be analysed:

- The (de)construction of (constitutive) unilateral juridical position (*fōrma*), based on the principle of autonomy of the will (associated with responsibility), limited by the principle of good faith. Its attributes, namely regarding other acquisitive positions (tested), as the right of disposal and effects and, subsequent solutions (and corrections) within the legal system.

- Categories, as entity creation or definition, as attributes of a given substance. As a derivative, the concepts of *Commixtiō* and *Cōnfūsiō* are also addressed.

- Position, where it is defined the *substantia* of the PPA.

II - Vectors, the direction (as the transfer of a given position) linked with time, under a causal and consensual system, integrated with MIBEL, its contracting modalities, namely as a futures market). Lastly, will be constructed, as a continuous contract with several dispatches (as a vector value function).

III – Tensors, presents several transformations, that a set of elements and entities may define, for achieving its final cause, namely if using a common infrastructure.

IV - System, takes *substantia*, vectors and tensors, and are inserted in a coordinate system, namely the main terms and conditions, connecting with the current regulations that (may) shape such terms, as transportation and dispatch.

V - Epilogue, are the final conclusions and remarks.

There are summarised in the annexes:

- Description of the market and its dependencies, due to the nature of energy;

- Understanding, doctrine, jurisprudence and, other legal systems.

Keywords: Power Purchase Agreement (PPA), Electricity, Juridical System, Private Law, Contract, Juridical Act, Meta-Juridical, Futures, Intangibles

Resumo

As construções criadas através da abstração e *fīdūcia*, como moeda corrente, precisam de construções diferentes das aplicadas às realidades corpóreas. Energia, por natureza e, agora, por intenção legislativa, é dinâmica, fungível e representa mudança que não é possível harmonizar com a lógica do conjunto de “coisas” imutáveis, determinadas e concretas.

Isto exige análise meta-jurídica (como a construção dominante não se sustenta para fenômenos incorpóreos e dinâmicos) e uma reconstrução de entidades e classes, de uma entidade (substância), para o sistema. Além de "coisas", são *rēs*, não apenas o que é "*percebido pelos sentidos*", mas também, o que emerge da autonomia da vontade. Além disso, o tempo é uma variável contínua e, não podemos postular um ordenamento jurídico onde todos os fenômenos (e normas) são discretos.

Esta dissertação está estruturada em 5 capítulos:

I - *Substantia* (como a eletricidade, é o objecto do contrato) vai ser tratado:

- (De)construção (constitutiva) de posição jurídica unilateral (*fōrma*), com base no princípio da autonomia da vontade (associado à responsabilidade), limitada pelo princípio da boa fé. Seus atributos, em relação a outras posições aquisitivas (testando), como um direito dispositivo e seus efeitos e, soluções subsequentes (e correções) dentro do ordenamento jurídico.

- Categorias, como a criação de entidade ou definição, dos atributos de uma determinada substância. Derivado, os conceitos de *Commixtiō* e *Cōnfūsiō* também serão abordados.

- Posição, em que é definida a *substantia* do PPA.

II - Vectores, a direcção (como a transferência de uma determinada posição) ligada com o tempo, sob um sistema causal e consensual, integrados no MIBEL e as suas modalidades contratuais, como mercado de futuros. Por fim será construído, como um contrato contínuo com vários despachos (como uma função vectorial).

III – Tensores, são apresentadas as várias transformações, que um conjunto de elementos e entidades podem definir para alcançar a sua causa final, nomeadamente, se for utilizada uma infraestrutura comum.

IV - Sistema, onde *substantia*, vectores e tensores se inserem, no sistema de referência, nomeadamente os termos e condições, em conexão com os regulamentos actuais que (podem) formatar tais termos, como o transporte e despacho.

V - Epílogo, são as conclusões finais e observações.

É resumido nos anexos:

- Descrição do mercado e suas dependências, devido à natureza da energia.

- A compreensão na doutrina, jurisprudência e, outros sistemas jurídicos.

Palavras-chave: Contrato de Aquisição de Energia (CAE), Eletricidade, Ordenamento Jurídico, Direito Privado, Contrato, Acto Jurídico, Meta-Jurídico, Futuros, Intangíveis.

Table of Contents

Acronyms

Acronym – Original - English

AC – Alternating Current

ACER – Agency for the Cooperation of Energy Regulators

art. – *artigo* – article

AT – *Autoridade Tributária* - Tax Authority

BGB – *Bürgerliches Gesetzbuch* – German Civil Code

BOOT – Building-Own-Operate-Transfer

CAE – *Contrato de Aquisição de Energia* – Power Purchase Agreement

CC – *Código Civil* – (Portuguese) Civil Code

CCom – *Código Comercial* – (Portuguese) Commercial Code

CfD – Contract-for-differences

chap. – *Capítulo* - Chapter

CHP – Combined heat and power

CMEC – *Custos para a Manutenção do Equilíbrio* – Contractual Balance Maintenance Costs

CMVM – *Comissão de Mercado e Valores Mobiliários* – Securities Exchange Commission (Portugal)

CNE – *Comisión Nacional de Energia* – National Energy Commission (Spain)

CNMV – Comisión Nacional de Mercado de Valores – Securities Market Commission (Spain)

CPA – *Código do Procedimento Administrativo* – (Portuguese) Administrative Procedure Code

CSC – *Código das Sociedades Comerciais* – (Portuguese) Commercial Companies Code

CVM – *Código dos Valores Mobiliários* – (Portuguese) Securities Code

COD – Commercial Operation Date

D – Digest (of Justinian)

DC – Direct Current

DGEG – *Direcção Geral de Energia e Geologia* – General Directorate for Energy and Geology

DL - *Decreto-Lei* - Decree-Law

DR – Demand Response

DSM – Demand Side Management

DSO – Distribution System Operator

Ed. – *Edição* - Edition

ERSE – *Entidade Regulatória Serviços Energéticos* - Energy Services Regulatory Authority

EC – European Commission

EE – Energy Efficiency

EIA – *Estudo de Impacto Ambiente* – Environmental Impact Study

EIB – European Investment Bank

ENTSO – E – European Network of Transmission System Operators for Electricity

EU – European Union

ES – Energy System

EV – Electric Cars

FiT – Feed in Tariff

GGS – Gestor Global do Sistema - Global System Technical Manager

GMLDD – *Guia de Medição, Leitura e Disponibilização de Dados* – Guide for the Procedures of Measurement, Reading and Data Availability

HV – *Alta Tensão (AT*) – High Voltage

IP – Intellectual Property

kWh – kiloWatt hour

kVA – kiloVoltAmpere

LCOE – Levelised Cost of Energy

LV – *Baixa tensão (BT)* – Low Voltage

MIBEL – *Mercado Ibérico de Energia* – Iberian Energy Market

MPGGS SE – *Manual de Procedimentos da Gestão Global do Sistema do setor elétrico* – System Network Procedures Manual

MS – Member States

MV – *Média tensão (MT)* – Medium Voltage

MVH – *Média e Alta Tensão (MAT)* – Medium and High *Voltage*

MWh – MegaWatt hour

NRA – National Regulatory Authorities

OMIE – *Operador do Mercado Ibérico de Energia – Pólo Espanhol, S.A*.

OMIP – *Operador do Mercado Ibérico de Energia – Pólo Português, S.A.*

ORD – *Operador da Rede Distribuição* – Distribution network operator (DSO)

O&M – Operations & Maintenance

P. – *Procedimento* – Procedure (of the MPGGS SE)

para. – *(número do artigo)* – paragraph

PatG – *Patentgesetz* – (German) Patent Act

PDBC – *Programa Diário Base de Contratação* – Daily Base Contracting Schedule

PDBF – *Programa Diário Base de Funcionamento* – Daily Basic Operating Schedule

PDVD – *Programa Diário Viável Definitivo* – Daily Definitive Viable Schedule

PHF – *Programa Horário Final* – Final Schedule

PHL – *Programa Horário de Liquidação* – Settlement Schedule

PHO – *Programa Horário Operativo* – Operating Schedule

PHOF – *Programa Horário Operativo Final* - Final Operating Schedule

POD – Point of delivery

PPA – Power Purchase Agreement

PPP – Public Private Partnership

PPR – *Programa Previsional de Reserva* – Provisional Reserve Schedule

PV – PhotoVoltaic (solar)

RARI – *Regulamento de Acesso às Redes* – Network and Interconnections Access Regulation

RES – Renewable Energy Source

RegCom – Código do Registo Comercial – Commercial Register Code

RegPredial – *Código do Registo Predial* – Building Register Code

REN – Rede Eletrica Nacional S.A.

RESP – *Rede de eletricidade de serviço Publico* – National Electric Public Service

RND – *Rede Nacional de Distribuição* - National Distribution Network

RNT – *Rede Nacional de Transporte* – National Transportation Network

ROR – *Regulamento de Operações das Redes* – Operation Network Regulations

RQS – *Regulamento de Qualidade do Serviço* – Quality of Service Regulation

RRC – *Regulamento de Relações Comerciais* – Commercial Relations Regulation

RRCEE – *Regulamento de Relações Comerciais do setor elétrico*

RRCGN – *Regulamento de Relações Comerciais do setor do gás natural*

SA – Sociedade Anónima - PLC

SEN – *Sistema Eletrico Nacional Portuguese* - National Electrical System

SEP – *Sistema Electrico Português* - Portuguese Electric System

SLV – *Baixa tensão especial (BTE)* – Special Low Voltage

SPV – Special purpose vehicle

STA – *Supremo Tribunal Administrativo* – Supreme Administrative Court

STJ – *Supremo Tribunal de Justiça* – Supreme Court Justice

ToU – Time-of-Use

TSO – Transmission System Operator

TRC – *Tribunal Relação Coimbra* - Coimbra Higher Court

TRL – *Tribunal Relação Lisboa* – Lisbon Higher Court

UK – United Kingdom

USA – United States of America

VA – Volt-ampere

VAR – volt-ampere reactive

VAT – Value Added Tax – IVA

W – Watt

WpHG – *Gesetz über den Wertpapierhandel* – (German) Securities Trading Act

Where (in accordance with MGSS, Procedure.1, General Provisions) the Manual of Procedures establishes the provisions applicable to the operation of the Global System Management activity, developed by the transmission system operator, and defines:

Daily Base Contracting Schedule (PDBC) - Program elaborated by the OMIE with hourly discrimination of sales and purchases made in the daily market by the National Supply Units;

Daily Basic Operating Schedule (PDBF) - Daily Schedule elaborated by the GGS, with hourly discrimination, which aggregates the information presented in the PDBC and affects the implementation of the bilateral contracts communicated by the Market Agents;

Definitive Viable Daily Schedule (PDVD) - Daily Schedule, with hourly discrimination, incorporating the modifications introduced in the PDBF to solve technical restrictions in the PDBF and later rebalance between generation and consumption;

Final Schedule (PHF) - Schedule established after each session of the intraday market with the aggregation, by time period and Programming Unit, of all firm transactions after resolution of the technical restrictions identified in the transactions established in the intraday market session;

Settlement Schedule (PHL) - Settlement program, which results from the algebraic sum of programs related to the participation in MIBEL, a Portuguese control area, to determine deviations from programming by settlement unit;

Operating Schedule (PHO) - Operational Schedule established by the GGS, with hourly discrimination until the end of the daily programming horizon, and by Program Unit. Includes transactions carried out in the organised market and through bilateral contracting that have been technically validated, the regulatory reserve mobilisations included in the PPR and all other mobilisations executed by the GGS until its publication, 15 minutes before the start of each hour;

Final Operating Schedule (PHOF) - Operating schedule resulting at the end of the daily programming horizon. It includes transactions carried out in the organised market and through bilateral contracting that have been technically validated, the mobilisations resulting from the PPR and all other programming changes associated to the processes of resolution of technical restrictions and system services;

Provisional Reserve Schedule (PPR) - Daily Schedule, with hourly discrimination, with the expected mobilisations of regulatory reserve to eliminate the differences between the consumption forecast by the GGS and the one defined by the PDVD;

Primary regulation (Regulação primária) - Decentralised automatic function of the turbine speed regulator to adjust the power of the generator as a result of a frequency deviation;

Regulation Reservation (Reserva de Regulação) - Maximum variation of power up or down of the system and program groups in the interconnection, which can be mobilised during the schedule of the operation in force;

Technical Restriction (Restrição Técnica) - Any limitation, derived from the situation of the transmission network or the system, so that the electric power supply can be carried out under the conditions of safety, quality and reliability defined in Procedure nº 6;

Interruptibility Service (Serviço de Interruptibilidade) - System Service consisting of the voluntary reduction of electricity consumption to a value less than or equal to the residual power value, in response to a power reduction command given by GGS;

Balance Area (Área de Balanço) - Set of Physical Units connected in the same network area and belonging to the same Market Agent, to which are added the deviations to the production schedule or consumption in pumping;

Secondary regulation band (Banda de regulação secundária) - Range of variation of the power in which the secondary regulator can act automatically to rise, in a time less than five minutes, starting from the point of operation in which it is at each instant, multiplied by 1.5. The total value is obtained by adding, in absolute value, the individual contributions of each physical unit submitted to this type of regulation;

Interconnection Capacity (Capacidade de Interligação) - Maximum technical capacity of transit of electrical energy between two interconnected electrical systems, compatible with the fulfilment of the safety criteria established in the respective electrical systems. An interconnection capacity is defined in each of the directions of the power flux of an electrical interconnection, as the maximum value of the net interconnection program that can be established in said power flow direction;

Bilateral Contract (Contratação Bilateral) - a contract freely established between two parties, in which one party undertakes to place on the network and the other party to receive the electric energy contracted, at the prices and conditions established in the same contract;

Programming Horizon (Horizonte de Programação) - the period between 23:00 hours of the day d-1 and 23:00 hours of the day d;

Interconnection Schedule (Programa de Interligação) - Energy programmed to transit between two interconnected electrical systems, in each programming period, agreed jointly between the respective electric system operators;

Production Unit (Unidade de Produção) - Hydro or thermal group of a given production facility;

Programming Unit (Unidade de Programação) - Unit that allows each market agent to execute the programming of purchases and/or sales of electricity related to its participation in MIBEL, Portuguese control area;

Generic Programming Unit (Unidade de Programação Genérica) - Unit that temporarily registers the assumption by the Market Agent of commitments to purchase and/or sell energy, which is then obligated to convert into effective operations with other programming units, through mechanisms of bilateral contracting, or to be paid through participation in the organised market;

Commercial Deviation Unit (Unidade de Desvio de Comercialização) - A unit that allows the aggregation of economic values determined by settlement units of the Marketing Agents, authorised by ERSE, through an annual communication, and signalling to the GGS the willingness to aggregate their consumption for the purpose of consolidating deviations;

Settlement Unit (Unidade de Liquidação) - Unit that allows aggregating economic values determined by programming unit/physical unit, and determining physical values to be valuated, for accounting by Market Agent, according to the type:

- Programming Unit, for Marketing Agents, commercialisation entities of last resort and customers;
- Deviation of Commercialisation Unit, for Marketing Agents;
- Area of Balance and, in some cases, physical unit, for Producing Market Agents and Commercial Agent;
- Generic Programming Unit for any Market Agent considered above.

Where (in accordance with MGSS, Procedure. N. º 3, Programming Units) defines the types (of allowed) of Programming Units as:

Commercialisation (Comercialização) - Each Commercialisation Market Agent may request the registration of a Programming Unit to be able to execute the scheduling of purchase and sale of electricity related to the supply of its customers.

Consumption (Consumo) - Each Consumer Market Agent may request the registration of a Programming Unit to program the purchase and sale of electricity corresponding to the consumption of its facilities. A Producer Market Agent may request the registration of a Programming Unit regarding its own consumption of energy in the auxiliary services of its facilities.

Pumping Consumption (Consumo em Bombagem) - Programming Unit registered by a Market Agent Producer to carry out the schedule of consumption carried out by the set of reversible groups

of hydroelectric plants belonging to the same Area of Balance. This Programming Unit shall be distinct from that relating to the production of electric energy and that relating to the own consumption of energy in auxiliary services.

Generic (Genérica) - Any Market Agent may request the registration of a Programming Unit intended to temporarily record the purchase and/or sale of electricity commitments, which the Market Agent undertakes to convert into effective operations with Units of other type, through bilateral contracting and/or participation in the daily organised market session.

Production in Special Regime (Produção em Regime Especial) - Programming Unit registered by a Producer Market Agent, Last Resort Supplier or Representative to carry out the production scheduling on a special regime.

Production in Ordinary Regime (Produção em Regime Ordinário) - Programming Unit registered by a Producer Market Agent to carry out the scheduling of production under the ordinary regime. A Programming Unit shall be set up for each group of a thermoelectric power station, with a power plant being defined as the set of production facilities which may operate autonomously from the rest of the installations with which it shares the connection to the transmission or distribution network or the set of hydroelectric projects belonging to the same Area of Balance.

The referred diplomas are in accordance with the present date (May 2018)

(as it was written in English, the meaning of the following expressions should be understood in the Portuguese meaning):

Accession - acessão

Arrears/Delay – Mora (no cumprimento)

Assignment of Contractual position - Cessão posição contractual

Benefit - Prestação

Breach of contract – Incumprimento (do contrato)

Business Assignment – Trespasse (de estabelecimento comercial)

Compensation (for damages) – Compensação, Restituição (responsabilidade civil)

Decree-law (DL) - Decreto-Lei

Economic Unit - Unidade económica

Enforceability *ergā omnēs* - Oponibilidade *erga omnes*

Expire – Caducidade

Immovable Things - Coisas Imóveis

Legal/Juridical situation - Situação Jurídica

Legal/Juridical position (as related to) – Posição jurídica

Lien in Payment - Dação em cumprimento (*pro solvendo*)

Movable Things - Coisas Móveis

Occupation - ocupação

Ordinance - Portaria

Performance – Cumprimento

Prescription - prescrição

Pre-formation Responsability - Responsabilidade Pré Contratual (*Culpa in contrahendo*)

Real Rights/ Rights *in rem* - Direitos reais

Usocapion - usocapião

Table of Figures

"You can know the name of that bird in all the languages of the world, but when you're finished, you'll know absolutely nothing whatever about the bird. You'll only know about humans in different places, and what they call the bird. … I learned very early the difference between knowing the name of something and knowing something" [1]

Richard P. Feynman, in What Do You Care What Other People Think? (1988)

"The 2nd law of thermodynamics has the same degree of truth as the statement that if you throw a tumblerful of water into the sea, you cannot get the same tumblerful of water out again"[2]

James Clerk Maxwell, in a letter to Lord Rayleigh (1924)

"The representation of a body in intuition, on the other hand, contains nothing that can belong to an object in itself, but merely the appearance of something, and the mode in which we are affected by that something; and this receptivity of our faculty of knowledge is termed sensibility. (…) If our subjective constitution be removed, the represented object, with the qualities which sensible intuition bestows upon it, is nowhere to be found, and cannot possibly be found. For it is this subjective constitution which determines its form as appearance. (…) Since, however, in the relation of the given object to the subject, such properties depend upon the mode of intuition of the subject, this object as appearance is to be distinguished from itself as object in itself. Thus when I maintain that the quality of space and of time, in conformity with which, as a condition of their existence, I posit both bodies and my own soul, lies in my mode of intuition and not in those objects in themselves, I am not saying that bodies merely seem to be outside me, or that my soul only seems to be given in my self-consciousness."[3]

Immanuel Kant, Critique of the pure Reason, Transcendental Doctrine of elements (1881)

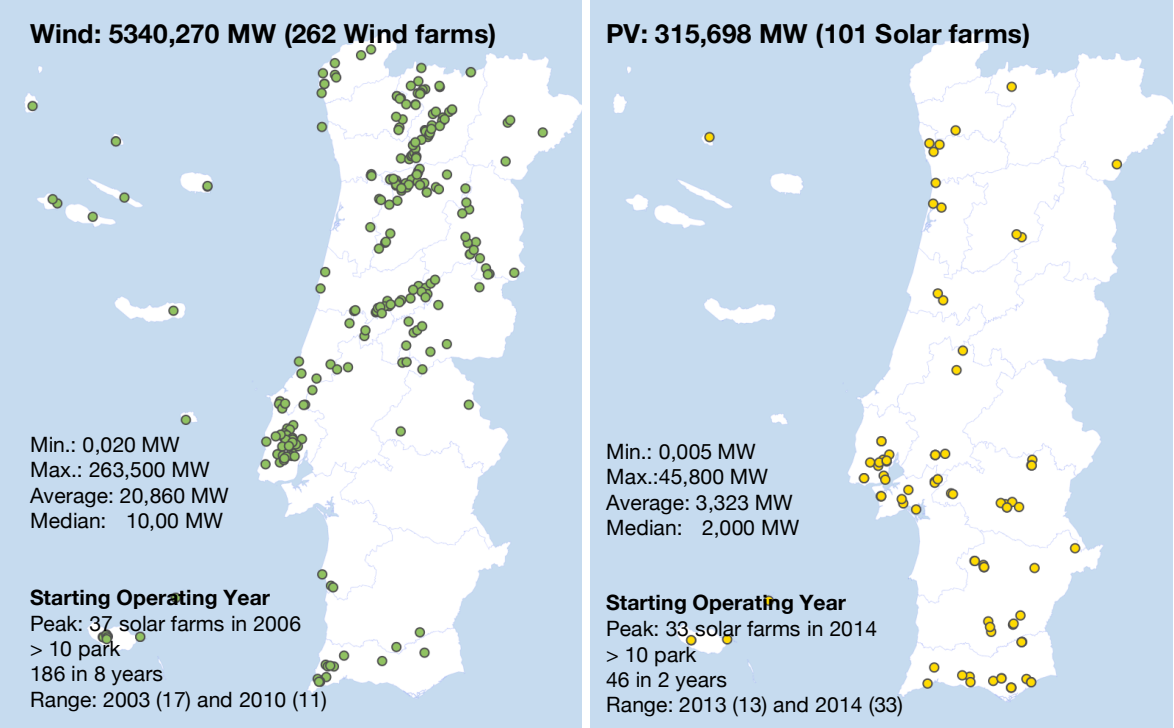
[1] *Feynman, Richard P., What Do You Care What Other People Think? (1988) The Making of a Scientist,*" *p. 14*
[2] Maxwell, James Clerk, (1870) in a letter to Lord Rayleigh, as quoted in John William Strutt, Third Baron Rayleigh (1924), p. 47
[3] Kant, Immanuel, Critique of the pure Reason, Transcendental Doctrine of elements, (1881) pp. 84-89

I - *Substantia*

i - Prōpositiō (introduction)

Energy is essential to manufacture most goods, and this is namely visible in energy-intensive industries. Most economic activities need energy to be able to transform, create or perform a given activity.

Figure 1 - Wind Farm and Solar Farms (Total Installed Capacity (as of February 2018)

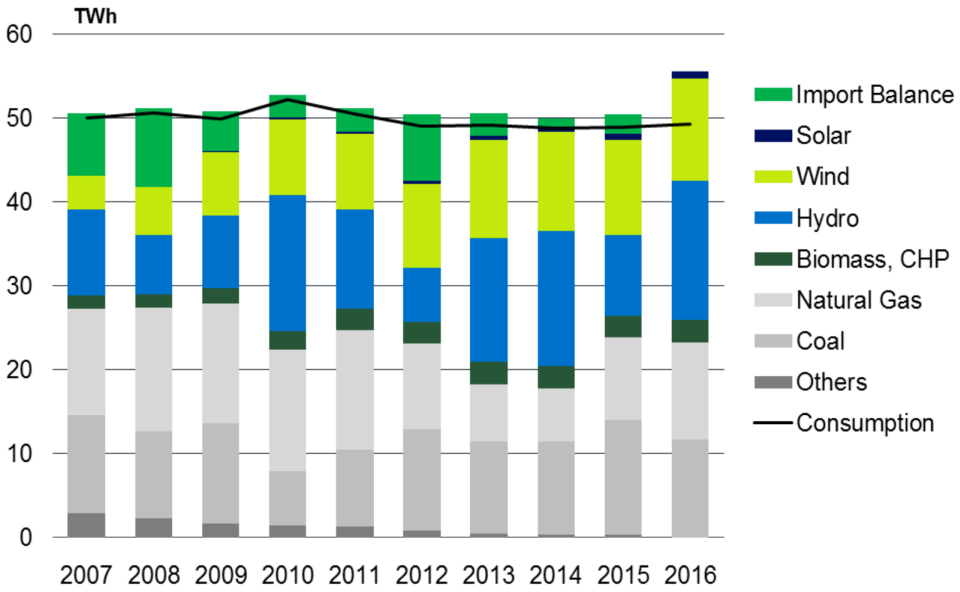


Source: "Database of electric power plants based on renewable energy sources", INEGI

Most PPA's (under FiT), from the previous auctions, will expire (i.e. 15y term or until 33 GWh in the case of wind power, or solar, until 21 GWh delivered to the grid with the possibility to extend for more 5 to 7 years[4]) and, with liberalisation of the market, namely generation and commercialisation, in line with the EU Energy Market, which aims to have an integrated market. There are 3 main challenges: the definition of a PPA (namely its substance and transfer), the relationship with electricity infrastructure (or how transportation and distribution - delivery - influences the overall agreement) and, security of supply (namely due to the intermittency of RES).

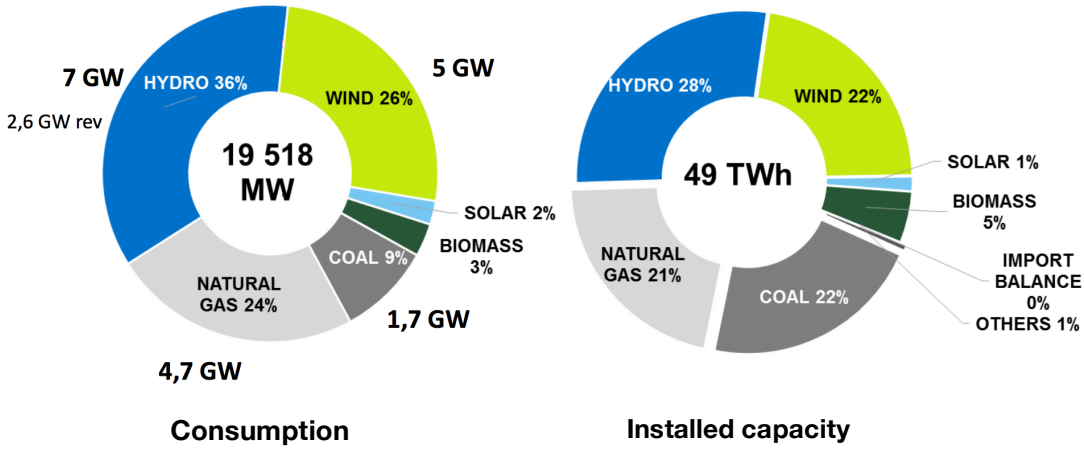
[4] After the guaranteed FiT period expires, and as an alternative to free-market pricing, under DL n. º 35/2013 (art. 5.º) allowed for an extension of regulated tariffs for wind power plants (as other technologies), through agreements between the Government and individual producers.

Figure 2 - Installed capacity by technology (2007 – 2016)



Source: REN

Figure 3 - Installed capacity and Energy Consumption (per technology, 2016)



Peak Load (consumption): 8.5 GW

Source: REN

ii - Substantia formulae (Definition and purpose)

A power purchase agreement (PPA), has been defined as a contract between two parties, where one which generates electricity (the seller) and, another purchases electricity (the buyer). The PPA defines the commercial terms for the sale of electricity between the two parties, the schedule for the dispatch of electricity, penalties for underperformance, payment terms, and termination. A PPA it is the principal agreement that defines the revenues of an energy generating project and thus, a fundamental instrument.

According to the current MPGGS SE, *"The bilateral contracting between Market Agents allows the transaction of electric energy between two National Programming Units. Where with the conclusion of a bilateral contract, one party undertakes to place on the network and the other to receive the contracted electricity, adjusted for losses, at the prices and conditions established. Each Party shall be responsible for the respective charges resulting from its participation in the electricity market"* (Procedure n. º 8).

iii - Māteria substantialis (prīma)

Electricity

I.

One of the questions is how would be classified "energy" or, in this case, "electricity", under the Legal System.

"Energy" (ἐνέργεια[5]) as "work" (opus, ŏpĕra), the "change in a given system". Delivering 1 barrel of Brent (after extraction and separation) is not the same thing as delivering 1 kWh. Energy is not a "thing" (like mass or, *māteria* in rest) and even measurable, so other dynamic phenomena are susceptible to be measured (i.e. a car moving in a road at a certain speed per hour). If applied same criterion to communications bandwidth for certain time[6] (e.g. to make a phone call) also would be susceptible of physical appropriation (similar elements: infrastructure, availability and time).

[5] In the concepts of actuality and potentiality (Aristotle, *Physics*) a key distinction is between potentiality (*dunamis,* - δύναμις - "*potentia*") and actuality (*Energeia,* - ενέργεια - as "being at work" and, entelecheia - *ἐντελέχει - as "*being-at-an-end"*)*. Aristotle argued for the priority in substance of actuality over potentiality. Things that come to be move toward an end (*telos*) and "the actuality is the end, and it is for the sake of this that the potency is acquired. For animals do not see in order that they may have sight, but they have sight that they may see (...) matter exists in a potential state, just because it may come to its form; and when it exists *actually*, then it is in its form" (Book IX, part 8).

[6] Cf. art. 30.º (Allocation of frequency usage rights) and art. 34.º (Transfer and lease of frequency usage rights) of Law n. º 5/2004, of Feb. 10 (Electronic Communications)

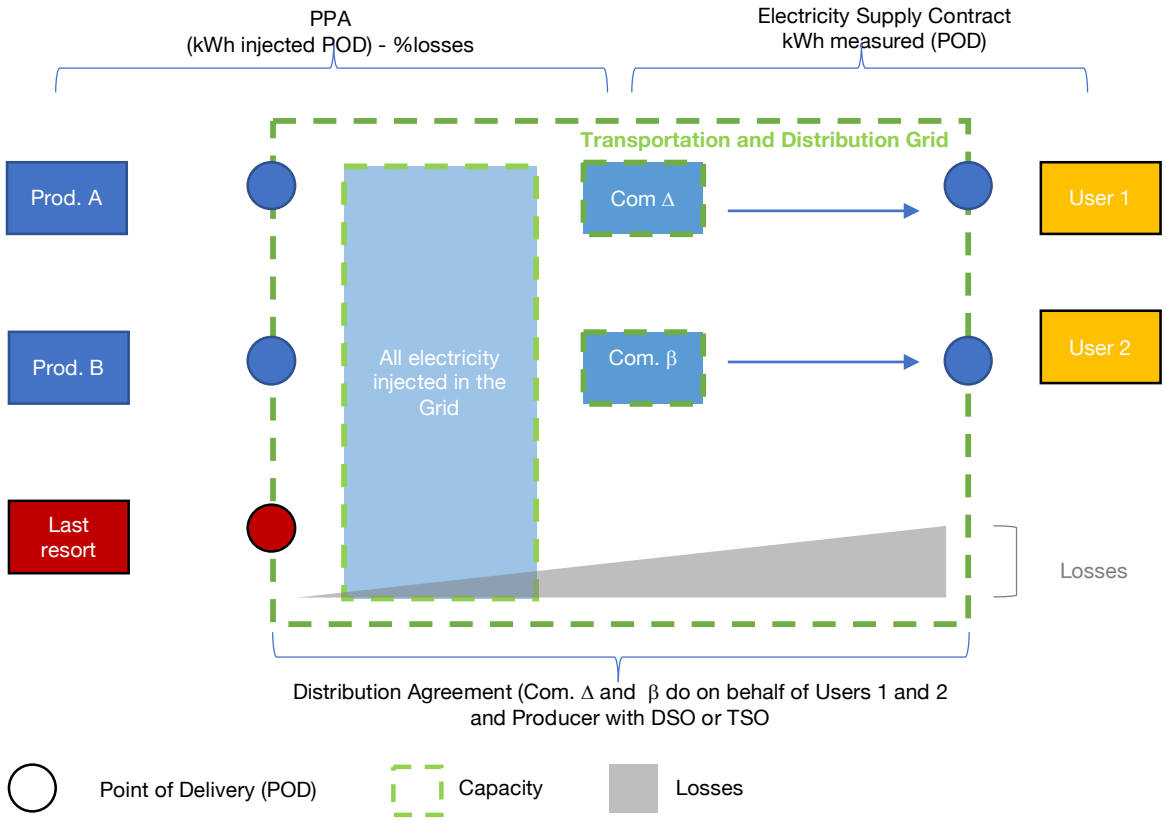
Most authors defined electricity (or energy) as a movable thing (*ā contrāriō*, that if not a movable thing, would be a credit right), in several examples (being afterwards used in several court decisions[7]). Similar problems were observed, e.g. on the right of use of waters, namely its current, unfortunately, that understanding and distinction are yet to be made.

II.

Secondly, to qualify the act of delivering electricity in the electricity infrastructure.

Following the electricity transfer in the infrastructure, only it is visible (and measurable) the entry point and exit point (circles) as shown in the figure 4 *infra*:

Figure 4 - Electricity in the infrastructure (transfer across parties)



Electricity, from generation to final use, it is only measurable within the electricity infrastructure in a moment and place (e.g. where a meter is installed). Although the amount measured between the entry and the exit points, changes *dominium* across multiple parties, where there are also losses (or the quantity measured is not the same at exit point). It should be noticed that there is also capacity (green dashed line) and actual electricity (in blue), where it mixes with all the other power generating units. As part of the system also exists last resort units (if needed to fulfil all contracted electricity). With its natural fungible trait, so as its continuous supply (only concluding each time it passes the POD of the end user, questions emerge on the subject matter of the contracts that take place within the electricity infrastructure (the problem of mix goods of several owners).

[7] General opinions of the doctrine, court decisions and historical categorisation of energy or "*rēs*" are on the annexes.

Indeed as, soon as is injected into the grid, does not hold any characteristic that makes it possible to distinguish between producer A or B, if generated using coal or solar (where “green energy” is in most cases an abstraction represented by a title issued), where a fungible asset is being traded across multiple entities, namely when the producer does not contract directly with the end beneficiary.

As also, when this primitive acquisition would emerge, before analysing the derived acquisition, if no appropriation was visible to determine or, separation occurs) or, the issue of time of the transfer and corresponding risk, across all chain, for a given right to a quantity of kWh. If for producers is considered, that the price is the amount of kWh injected into the grid and for commercialisation entities is that minus the losses (pre-determined) and for the consumer the amount of kWh measured (actual or estimated), the question is if A (producer) sells to Δ (commercialisation entity) and then sells to User 1 (end user), how (and when) this transfer would occur (e.g. in case of underperformance, who would be liable?) If using the public electricity grid, the RQS assumes that the DSO (or TSO) is liable and, there is a shared burden between generators and DSO and, a right of return of the last against the first.

As the new European Network Codes are harmonising technical specifications, so that it is possible to integrate generation and consumption in different places (i.e. to transform into generic *rēs* or placing as a “commodity”). If it involves the use of the public electricity infrastructure (RESP), energy (namely electricity), turns out to have a very similar configuration of money (fungible trait, function, representation and circulation).

In similar terms, the TSO or DSO as managers of the network, turns out to be the central depository[8] (equal elements, registration in an aggregated account, communication obligations, network management, even in the measurement regulation, is what is registered, that is "valid" for billing/metering), in fact, considering a supplier, turns out to have a right and, if not enough to meet the portfolio, can "buy" more of the same kind or quality, in the market, to an aggregator or last resort supplier. One could never say that there is an "absolute right" of *x* kWh, since it is neither possible to determine, isolate and separate, in specific.

III.

The question is:

a. if incorporeal “*rēs*” with economic value (where there´s no physical possession[9]) and;

b. not a credit (emerging from a bilateral contract or civil responsibility).

This is the initial paradox that emerges, demanding a deconstruction of concepts, under penalty of leaving to impossible solutions.

[8] The TSO is not either the counterpart and would not be assumed as a default the regime for irregular deposits for fungible things (art.1205.º CC), in contrast with the CCom (406.º), and CVM (para. 1 of art. 100.º).

[9] Possession will be used due to the initial (juridical) fact that puts a certain person in a potential position to claim ownership (initial legal situation), that with effect time can preclude to *ūsūcapiō* (prescription in *strictō sensū*).

Initial deconstruction

I.

The “Law of Things”, encompass in its derived[10] legal definition, to things that are capable of possession (discussion of *animus* and *corpus*[11]). Although, where there was a great discussion over the cumulative existence of the *animus*, the *corpus (*as individualisation, externalisation of a given *rēs*), in the CC the definition is absent (art. 207.º refers as capable of). Or rather, with no *corpus*, the discussion of *animus* is subsequent and without content.

Moreover, applies to incorporeal realities (e.g. usufruct) and, others derived (e.g. securities and IP) and, have their own autonomous branch and, share a common trait: process to create an externalisation of legitimacy (title), to comprise (as a kernel) a given economic and social right (as representation and its public manifestation[12]), or a derived reality, so it could be object of property rights (as “a shell that covers and protects as a kernel of enjoyments”[13]), as *corpus mēchanicum,* that aims to determine, individualise an abstract right in the market. The question is how those titles are constituted, that for incorporeal things, the Civil Code has no direct answers[14].

If under “obligational” rights (as opposed to real rights), more than inserting in one or another classification, as Jhering pointed out, there is the economic function of a given right, or beside the abstract construction, rights do not exist empty of an economic function.

II.

The ultimate interest protected by Law intermediates the objective and subjective rights between individuals. From this, the substantive property of a right cannot be done by the procedural norms - as a direct transposition of “*āctiō*” to “rights”, denying its own ontology and meaning - of the Institutes of the Justinian’s *Corpus Juris Civilis*[15], where in the French case, comes closer to the definition of *rēs*[16], as “*Biens*”, being separated under Book II “Goods and various modifications of the property”, where includes rights and incorporeal things, from the “Different forms in which one acquires property”, under Book III) to achieve its end. This seems the original sin of the doctrine, namely when the Civil Code it is an abstract normative system[17], leaving its application and interpretation to each individual and concrete case (as opposing common law systems). Although, both systems (with

[10] Due to the notion of *iūrisdictiō* and *dominium* (over a certain *rēs*), should be understood within its normative system and time (i.e. political structure). The notion of *rēs* is not strictly dependant on the last, although it changed considerably, namely autonomy of will as inherent to every human being.
[11] There is a shift from *substantia* (from “*essentia*”, “οὐσία”) to *corpus*, which is not a perfect synonym.
[12] As possession (act, dependant on will, peaceful (undisputed by third parties) in good faith, that precludes with time and can be assigned.
[13] Cf. Philbrick, Francis S., Changing Conceptions of Property Law, University of Pennsylvania Law Review, V. 86, N. 7 May, 1938
[14] Concerning the structural options of the CC, namely, Luís Correia de Mendonça, As origens do Código Civil de 1966: esboço para uma contribuição, Análise Social, vol. xviii (72-73-74), 1982-3.º-4.º-5.º, 829-867
[15] *Corpus Juris Civilis* (comprises *Institutiones Justiniani (based on* Institutes of Gaius, with three books covering "persons", "things" and "actions"), the *Digest*, the *Codex Justinianus*, and the *Novellae Constitutiones*
[16] Moncada, Luís Cabral, Elementos de História do Direito Romano, Vol. 02, 1824, concerning the classification of *rēs* (chap. III)
[17] Considering the fundamental principles (axioms), the principle of non-contradiction where “the same attribute cannot at the same time belong and not belong to the same subject and in the same respect”. Aristotle, Metaphysics (Book IV)

different constructions), Common Law is closer to the old Roman Law as it keeps "*choses in action*" and "*choses in possession*", both under (personal) property rights, have these dual projections.

Using the Common Law definition, of Choses in action, initially comprised all, where the definition is given by Channel, J., in Torkington v. Mage "*Chose in action*" is a known legal expression used to describe all personal rights of property which can only be claimed or enforced by action, and not by taking physical possession."[18], then derived, by uses and namely, the admissibility of its assignment and, own regulation to different branches of Law.

However, was that impossibility to appropriate (as the need for "āctiōnēs" to enforce those rights), that the distinction emerged (as the procedural form to claim for a certain "āctiō"). Before questioning if a thing is movable or immovable, should be asked if the element "*corpus*" is there; if it is able to be object of appropriation or, legal rights, where depending on the personal bonds of the holder, may or may not (as a right to sue, as the original problem in common law) be assigned as the right is not intricately related to the holder.

Strictly speaking, the enforceability is not a predicate of the objective right (real or obligational), but the juridical fact or act from which emerges (*animus* and *anima*). It may be said that, by virtue of the specific difference which is noted, the credit right, because it interconnects two persons, implies a horizontal relationship, whereas a real right, because it attributes certain *dominium* over a thing (or event[19]), implies a vertical relation.

III.

A certain record of a given kWh injected into the grid is not confused with the actual electricity injected. Although, this record serves to express its material representation (money - e.g. coins - is to value of exchange). There is no incorporation but a representation of a given right to a certain quantity of electricity that can be traded and discharged within the electric system.

By design, electricity can only be delivered using the electricity infrastructure (except the cases of direct wired PPA), where the DSO or TSO must know and keep records of who delivered and to who deliver. Considering the mechanism and purpose, money (and the banking system), securities (and the capital markets) and electricity (and the electricity infrastructure and market) share common attributes, where the first two have a given object of representation that is not confused with the represented right.

Using the definition of money, it is not consumable as a "*thing"*, although depreciates if considering its utility as a *medium* of exchange, by the effect of time in its value $(1+i)^t$ and, also by the relative value, in nominal terms, of the exchange goods and services (i.e. impact of inflation). As a currency, its value is no longer attached to the object (e.g. paper money and not the gold standard[20]), but as being backed by central banks, where the last may artificially increase or decrease the relative value of a given currency (e.g. quantitative easing). The difference between the representative object of money (so as regarding securities) and the social function of money is also object of discussion.

[18] as quoted in by W. S. Holdsworth, The History of the Treatment of "Choses" in Action by the Common Law, Harvard Law Review, Vol. 33, No. 8 (Jun. 1920), pp. 997-1030, on Torkington v. Mage [1902] 2 KB 427
[19] In the labour contract, (*operum, not operis as the "services contract"*) also the discussion is on the *dominium*, who can direct a given work, not in the actual "*opus*"
[20] Cf. Bretton Woods Monetary Conference, July 1-22, 1944

There is no confusion between a given event or thing and the records of such events or things. Looking to what is being measured, is the number of kilowatts generated or consumed over one hour (e.g. 0.04 kW light bulb for five hours is equal to 0.2 kWh, of electrical energy). There is no separation in a physical sense, just that a certain amount of electrical energy flow passing through a certain measuring point, for a given period.

Electricity, in the same manner, needs these elements to allow its circulation, being forced by its nature, to be represented by a record[21] (as possession, if this record - in paper or joint account (by book entry of the TSO or DSO) - assumes the assumption of the *dominium*) as one cannot own a specific quantity of electricity injected into the grid.

IV.

The *rēs* definition, going back to its initial and broader concept (*iūs in rem*), is not univocal, as one says "The thing is mine" ("*rēs mea est*") but also, "Something happened" or, "X has to perform (*facere*) something". The object can be a thing, as an act, or the result of such act (the case of *locātiō operis*). One may hold a thing but is not able to hold (physically) an event (or fact). No one confuses the records of events, with their actual manifestations. But realities, encompass time (namely futures) and, some "things" hold their substance in rest, others are motion or, the result of such motion (work[22], "*opus*") in a given *matter*.

iv - Fōrma substantialis (secunda)

"If there is a conceptual, and not simply a contingent, connection between dispositive *concepts and legal* rights *and duties, there is also a conceptual, and not merely a contingent connection between such concepts and the types of event they report."* [23]

Constitutive legal positions

I.

The figure of possession is not suitable so leaves to the construction of legal position (initial) related to a certain actual or future reality or, an act that would constitute a positive legal situation, based on capacity (*potestās*). It leaves to the general theory of juridical fact and its subjective imputation. Or the objective right (abstract), that confers a certain position to an individual, if out of will or physical event, namely a right of disposal. In the case of exploitation of a given work, the construction was held under a right of freedom and speech, considering currency and banking[24], under an authorisation, where the

[21] Cf., e.g. Plato's theory of Forms (Ideas), as "shape" (μορφή, *fōrma*), and its "appearance" (φαινόμενα, *phaenomena*)
[22] The discussion of an obligation of means or results, parallel with the criteria to distinguish employment or a services contract, or guarantees and comfort letters.
[23] Dworkin, Ronald, A matter of principle, Is there really no right answer in hard cases. Harvard University Press, 1985, reprint, p. 125
[24] Cf. 'electronic money institution' and 'electronic money issuer' definition under Directive 2009/110/EC of 16 Sep. 2009, transposed by the Law nº 34/2012 of Aug. 23

issuance of currency is reserved to central banks. IP, under the right of work and self-establishment, where the concrete subjective right emerges from an act (invention), where if granted (specification), there is an attribution of an exclusive monopoly to be exploited[25]. Hence, a license (to generate electricity) confers this initial right of *disponendī*, similar to the corporeal things and its fruits[26] or, where its use and fruition and the subsequent determination[27] is dependent on the act that produces and delivers electricity, but keeping its legitimacy (cause) in the new constituted right.

Subjective rights[28] are constituted towards a given individual based on *potestās*[29], or the faculty of, given by an objective right (this is the reasoning why most Civil Codes lay down on the beginning the definition of capacity (as within emerge *volūtās*, but also responsibility), as general and common rules [30], to all matters and, the *rātio* of the separation principle (*Trennungsprinzip*) and abstraction principle (*Abstraktionsprinzip*) of the BGB.

Given an objective[31] right (i.e. right to work, or the right of appropriation, as in the Code of 1887, not property), the physical reality (an event out of nature or, will or, agreed will), the Law only gives legal significance to events that can have legal effects[32].

From this, a pure unilateral juridical act (under 295.º), must be adapted, otherwise, is a denying of logic of the system, as the legal situation does not necessary emerges from cooperation with two individuals, when all general part assumes more than one part, which operates in a mediate intersubjective level[33] (and not as several times confused at the mediate objective level). When describing benefits, it is done under obligations, but the immediate result, namely if constitutive (or acquisitive) may, or may not be out of an agreement or delict.

Considering the constitution of subjective rights (not its modification or extinction), *volūtās* depends on *potestās* and, the system protects the legal certainty (effects should be in accordance with the intended will) of the parties (or individual) and, third parties in the legal traffic (as generic, where within each case, is determined by the legitimate interest not a generic and abstract interest).

Recalling the general principle of autonomy of will, and its corollaries, as the principle of freedom of stipulation (and to limit the legal effects) and, the general principles of good faith, against the public law, which operates under the principle of legality (e.g. art 3.º CPA).

II.

[25] Similar to the right of use
[26] Cf. para. 2 of art. 212.º and 213.º CC. Similar §99 BGB, although, the §100 also extends to uses.
[27] In this case, the fruits emerge on the person with the right of use.
[28] Moncada, Luís Cabral, Lições de Direito Civil (Parte geral), Volume 01, 1932, p. 50 "Things are synonymous with assets, meaning by this word those things which may be used by man, by the powers that exercise upon them: *Bona discuntur ex eo quod beant, hoc est, beatos faciunt; bera est prodesse* (DL. L. 16 49), and Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, 1907, p. 337
[29] "The right to property, *mancipium*, *domimum*, corresponds, in the content of the powers and faculties which constitute it, to his *potestas* over the *alleni juris*" cf. Moncada, Luís Cabral, Elementos de História do Direito Romano (Fontes e instituições), 1923, p. 83
[30] Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 02, 1925, p. 28-29
[31] Cf. "They define the object of the law the things that are subject to our power or on which the will to be able to exercise its dominion. This notion of the subject-matter of the law is rigorous with respect to real rights, but it cannot apply to all subjective rights, nor is there any domain at all." Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, 1907, p. 331
[32] For Aristotle, substance is a "principle and a cause" of being. *aitia* ("cause" or "explanation"), is "that out of which a thing comes to be, and which persists" (*Physics*), as *material* cause. In a second sense, a cause is "the form (…) the account of the essence", the *formal* cause. A third sense, *efficient* cause, is "the primary source of change or rest". Fourth is the *final* cause, as "the end (*telos*), that for which a thing is done".
[33] Cf. Pinto, Carlos Alberto Mota, Teoria Geral do Direito Civil, 4ª Ed., Coimbra Editora, 2005, p. 379

Even under the previous Code, José Tavares defined a "juridical fact, therefore, is all the event that the objective law attributes effects to the acquisition, modification or extinction of a right. (...) the fact that the right is acquired is what is called the title or cause of the right."[34] as "In the original acquisition the extension of the acquired right depends only on the fact or constitutive title".[35]

The same Author writes "Any constitution of a right implies its acquisition[36], since there are no subjective rights without an individual."[37] and "are cases of original acquisition, the occupation of movable things (art. 1318.º *et seq.*), usucapion[38] (art. 1287.º *et seq.*), the acquisition of copyright by literary or scientific creation, etc.".[39]

There is not (always) agreement or delict, but under the right of freedom[40] (abstract), e.g. writing a book creates (a new) legal situation, where an individual has the power (*potestās*, as a positive legal situation) to either use or not (potential or, a right of disposal)[41], so as negative (generic) position externally (as abstention to perform a certain - illicit - act[42]). There are two sets of bonds, the last; we could say it that for every abstract right, there is also a generic duty.[43] One can write a book within his liberty but also has a duty (or a generic obligation[44]) to not infringe other people's rights. There is no direct bilateral *negōtium* with any party, there is a generic duty that limits or *a contrāriō*, there aren't rights *ergā omnēs* without obligations (or duties) *ergā omnēs*.

It is on the last, i.e., that regimes of tort and delict, unfair enrichment are based. There is no concrete *nexus* before potential delict, there is, at the same level of rights, the correspondent (generic) duty.

III.

As the preference of using the *negōtium (iūris)* instead of a situation (or act), increases the confusion (the legal situation is not an equivalent of an intersubjective relation[45]. When stating that if not a thing, then is a credit[46], implies the idea of an obligation (out of cooperation between two parties or emerging under civil liability).

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[34] Tavares, José, Os principios fundamentais do Direito Civil, Coimbra Editora, 1922, p. 65
[35] Pinto, Carlos Alberto Mota, op. cit., p. 365
[36] Cf. 1316.º and a) and c) of 1317.º CC
[37] Pinto, Carlos Alberto Mota, op. cit. p. 359
[38] or acquisitive prescription
[39] Pinto, Carlos Alberto Mota, op. cit., p. 360
[40] Cf. "No one can compel me to be happy in accordance with his conception of the welfare of others, for each may seek his happiness in whatever way he sees fit, so long as he does not infringe upon the freedom of others to pursue a similar end which can be reconciled with the freedom of everyone else within a general workable law — i.e. he must accord to others the same right as he enjoys himself." (…) The only conceivable government for men who are capable of possessing rights, even if the ruler is benevolent, is not a paternal but a patriotic government." Kant, On the Relationship of Theory to Practice in Political Right
[41] Cf. Ac. STJ 08A1920 of 01/07/2008, where "The intellectual creator of the work has its right recognised regardless of registration, deposit or any formality whether it is simple (singular) or complex (collaborative, composite or collective) authorship.", "3) Copyright implies exclusive rights of a patrimonial character (disposition, enjoyment, use, reproduction and presentation to the public with a perception of remuneration) and moral rights."
[42] Cf. Kant stated, "What essentially distinguishes a duty of virtue from a juridical duty is the fact that external compulsion to a juridical duty is morally possible, whereas a duty of virtue is based on free self-constraint." (The Doctrine of Virtue). Since hypothetical imperatives, such as the prudential maxims will promote personal happiness, cannot be applied universally to every human being, as do not meet the formal test for moral laws, as expressed in the Categorical Imperative, but are not "immoral", as well.
[43] Cf. Tavares, José, op. cit., p. 254
[44] Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 03, 1907, p. 3
[45] Cf. Moncada, Luís Cabral, Elementos de História do Direito Romano, Vol. 02, 1824, concerning the classification of a juridical act (chap. IV)
[46] "The obligation or right of credit, as a legal bond whereby one person may be compelled to provide a benefit to another, under penalty of satisfaction of his or her patrimony, is a relatively recent concept of formation in Roman law." Moncada, Luís Cabral, op. cit., p. 86-87

The principle of private autonomy operates - most of the cases under contracts - where trust (*fīdūcia*) is part of such institution. Internally, the end (*telos*) and content (substance) are defined by the parties (or individual), where they can use one of the *formulae (fōrma as type*[47]*)* given on the Code or not. The limit is on the test of *dominium* (efficient cause), where the fundamental elements are the autonomy of the will and good faith. The *corpus* is substance, the matter, in a given form. *Dominium* is also present in an obligation, as a right of disposal (to contract or not), to assign, to waiver a given right, but, a legal fiction cannot be held as physical *māteria*, but exercised within the legal trade. Abandoned object (physical act) is also when a right is not exercised (expires), either one or another, have a fact or reality (that is visible) associated with an intended will (or lack of such) and, a right to action, if violated (e.g. claim for specific performance).

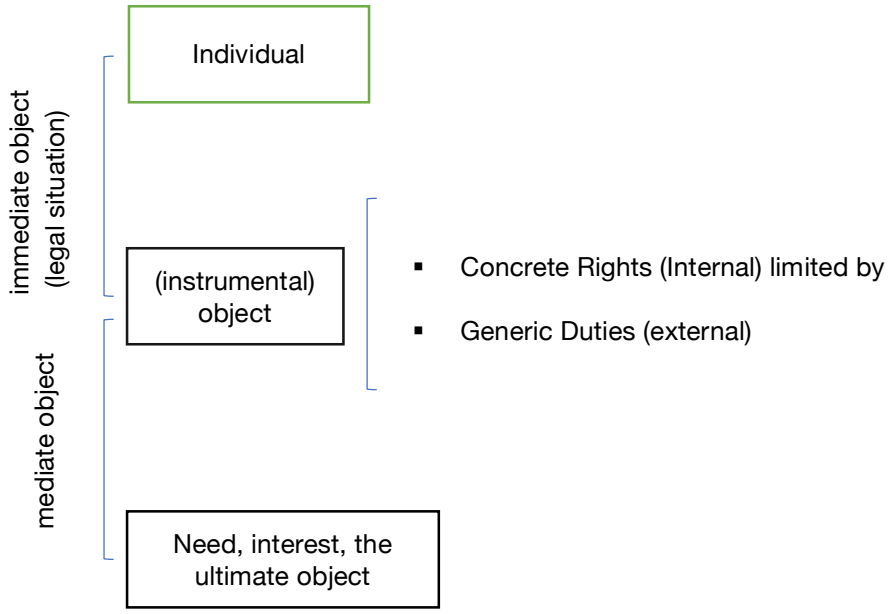
Individuals can freely contract (within their capacity) and decide on the scope and range of the effects of the contract.[48] But also within the limits of Law and corresponding liability, if violates other's rights. The private autonomy cannot operate disconnected from liability but also, cannot operate without Good faith (as the *Grundsatz von Treu und Glauben* under §242 BGB), which is an indeterminate concept (but determinable) on a concrete subjective right, in a particular case. As in case of civil responsibility, there is no agreement in a *strictō sensū*, where the obligation emerges out of a violation (event) of third party right or, in the case on intermediate cases, as *Negōtiōrum gestiō* [49], there is no prior relation before an event (or act) that links two individuals. There is, a generic and abstract duty prior.

IV.

All rights (not only things but credits that could be extended to any other legal situation), are relative and concrete internally and absolute and generic externally. When leaving to rights (not the *medium of manifestation or creation*), also emerges the abuse of a right (this is just a reflection of this idea and duality of the same legal situation). The system always considered *aequitās* and *bona fidēs* as a collective[50] and common good (that keeps[51] the fabric of the collective[52] and not in a pure Hobbesian nature), that cannot bend towards a supposed right against all.

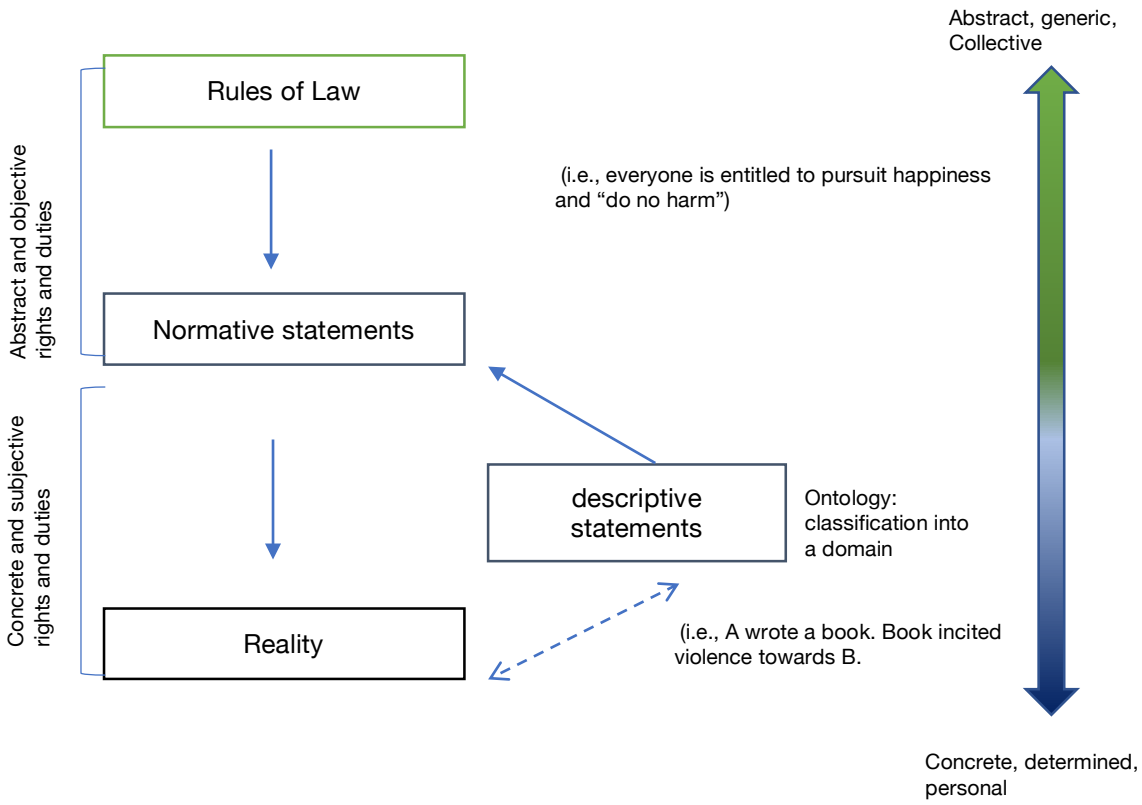
[47] There is an inconsistency with form (type, that can be nominated or not) with the medium, how it is expressed (verbal or written).
[48] Principles of freedom of contract 405.º and, 219.º, 217.º and 236.º CC
[49] Cf. *iūs gentium*
[50] German historicists approached law as a result of the *Volksgeist.* Under Roman Law Kaser refers "These institutions are supplemented by other rules of written or unwritten law (here often jurists' law) and guided by certain general ideas (principles); P. ex: bona fides; boni mores, aequitas, and many others, of all areas of law" Kaser, Max, Direito Privado Romano, Translation of Samuel Rodrigues and Ferdinand Hämmerle, Lisboa, Fundação Calouste Gulbenkian, pp. 42-43, Kelsen, writes "Justice, in the sense of legality, which relates not to the content of positive order, but to its application." in General Theory of Law and State, The Lawbook Exchange, 2009 p. 14
[51] John Locke and the Social Contract Theory, also property, freedom and work.
[52] Cf. "merely *mores maiorem* towards moral obligation to limit the subjective sphere's right. Certain abuses of subjective rights were understood as a violation of moral duties against the community; particularly the abuse of the absolute power that the legal order attributes to the paterfamilias, granting him ample powers of disposition over his own children." Kaser, Max, op. cit., p. 46

Figure 5 - Legal Situation (Mediate and Immediate)



Relational (as subjective) rights have this dualism, where rights can be defined by their qualities within an objective normative statement (using Kelsen's terminology[53]).

Figure 6 - Abstract and concrete rights (Kelsen)



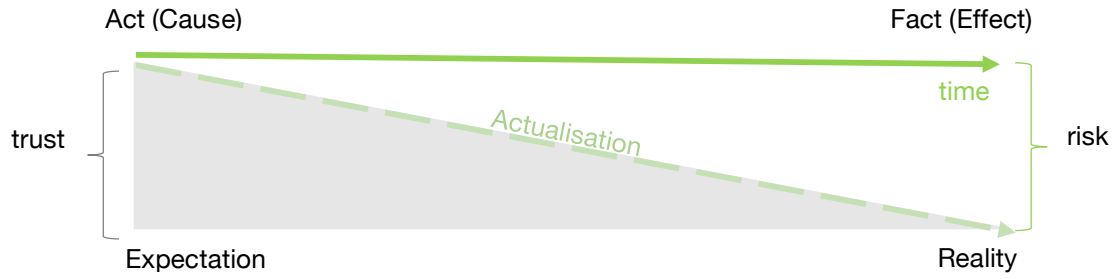
[53] Kelsen, The Pure Theory of Law, namely chap. "The Abolition of the Dualism of Right and Obligation"

V.

When referring the sources of obligations are classified by their types, not the subjective source, e.g. contract or civil liability it is an attribute of an act or fact, both with subjective imputation (their actual source) and not on the same level (freedom of contract or responsibility). Contracts are classified as a future (or actual[54]) event (act) and civil liability accessed as an (illicit) fact (already occurred).

Using the notion of potentiality and actuality, all future right is potential until it is actual (e.g. exercised, completed, "real"). As a credit (benefit and debt) is only claimed after the due date. Between potential and actual, linking cause and effect, there is a time lag, where cause does not imply (immediate) effects, or the error of determinism: "*cum hoc ergō propter hoc*" (with this, therefore because of this). Considering risk (or uncertainty), if all businesses are causal, as its form is defined by their agents (the efficient cause), so as its correspondent (intended) effects. When referring to the expectancy right, means an *āctiō* on the potential (not already actual) *rēs* (thing or fact) defined by the parties. If they can set for the future (*telos*), implies their ability to define in the present juridical acts (*substantia*), freely (as efficient also relates to capacity), its material so as its formal cause (not confused on the manifestation of the intended material and formal will) for the future. *Rēs* are actualities (event, the thing already completed) and most credits are potentialities (as an obligation to perform), but all actualities started by being potentialities, wherein the last we refer to a right of disposal, that can either be on the present and future events or things, that can be continuous or not, under different forms. Even if the thing or fact is not immediate real, with the effect of time (actualisation) will become real (time gap diminishes). When referencing the concept of *fīdūcia*, it is a (legal) protection during this process of actualisation (as the contract is already "real", completed, creating a given - and legitimate - expectation[55]).

Figure 7 - Actualisation (Expectation to Reality)



VI.

A (legal) person is responsible for curing (recalling it is the patrimony that responds in case of liability, not the actual person[56], as the argument used against the "unilateral agreement" or its *numerus clausus*

[54] Although they can set effects for the past.
[55] Similar question was analysed in German Courts, BVerfG, Judgment of the First Senate of 6 Dec. 6, 2016 - 1 BvR 2821/11- para. (1-407), where it was considered that "A licence granted under public law does not generally constitute property.", but the court did not excluded "Under certain conditions, Article 14 sec. 1 of the Basic Law protects legitimate expectation in the stability of a legal situation as a basis for investments in property and its use."
[56] *Lex Poetelia Papiria* abolished the contractual form of *nexum* (debt bondage). 326 BC Cf. also, Moncada, Luís Cabral, Elementos de História do Direito Romano, p. 188-189

principle[57], e.g. a will is not a unilateral contract[58] (the defunct[59] is not contracting) and prior to its acceptance, the successor has a positive legal position over the inherence[60] (as a right of acquisition[61], not as an acceptance of an offer). This is the paradox used as an example either of a juridical act so, as for unilateral contracts.

It cannot be stated, simplistically, that there is an obligation as statically defined in art 397.º CC (but, e.g., as defined in the French Civil Code in art. 1100, where "Obligations arise from juridical acts, juridical significant facts or from the sole authority of legislation." and "They can arise from the voluntary performance or from the promise of performance of a moral duty towards another person".

As a reflection (maintaining the dichotomy even in the same type of art. 397.º CC), on civil responsibility, there is also the idea of a unity of nature (obligation to repair) and, duality[62] (contractual liability and delictual liability). It unilaterally treats the obligation to indemnify, as set out in art. 562.º *et seq*. of the CC, but within the same separates[63] them in different places. While the contractual liability for breach of contract is contemplated in the art. 798.º *et seq.*, the aquilian responsibility is set in art. 483.º *et seq*., referring to the liability for illicit facts[64]. The arguments presented to support (although a minority[65]) the external effectiveness of the obligations support the idea that it is possible for third party liability which violates the right of credit. Thus, some using art. 490.º, as the basis for the external effectiveness of the obligations, other used the provision of 334.º or, under 483.º, but on very restricted terms.

Even so, the French Civil Code has recognised and adopted the principle of third party liability that interferes with the right of credit[66], i.e., the external effectiveness of the obligations, in a peaceful and resolute manner. However, in the German case, §826 BGB[67] will be sanctioning "immoral" conduct, but only in cases of material legal reprobation.

VII.

From the preceding in the beginning, the admissibility of the external effectiveness of the obligations (as a positive legal situation), should be considered, as its corresponding (generic) duties, as the characterisation should be made under the substantive criteria, not the procedural[68].

[57] Confusion on the level that such effects operate.
[58] Cf. Tavares, José, op. cit., p. 56
[59] Death (or birth) is an event (factual) that does not imply any will or delict and has (legal) effects on third parties.
[60] Cf. Moncada, Luís Cabral, Elementos de História do Direito Romano, p. 91
[61] e.g. "Succession is said to call one or more persons to the entitlement of the legal relations of property" (art. 2024.º CC) and the position can be waivered (art. 2028.º CC)
[62] The doctrine states that in obligational liability there is a violation of a right of credit, while in the non-contractual there is a violation of third party right against the right of credit (a result of a violation of general duties of respect).
[63] One of the obvious discrepancies is on the prescription periods (498.º, 309.º and 310.º CC)
[64] Júnior, Eduardo Santos – Da responsabilidade civil de terceiro por lesão do direito de crédito, p. 209. and Leitão, Luís Manuel Teles de Menezes – Direito das Obrigações, Vol. I, p. 254., also Kelsen, op.cit chap. "III Delict" difference between "*mala in se*" and "*mala prohibita*" p. 51 *et seq.*
[65] Tavares, José, op. cit. p. 254-255
[66] The French legal system was the first to legitimise the civil liability of a third party for interference with the right of credit or with the contract, "Les tiers doivent respecter la situation juridique créée par le contrat." (1200). According to art. 1240, states that: "All the fact that a man causes harm to another person obliges him for whose fault (*faute*) he has occurred to repair it.". Art. 1199 of the French Civil Code which enshrines the principle of relativity provides that: "Conventions shall have effect only between the Contracting Parties"
[67] §823 I, covers the life, body, health, freedom, property or other rights, case law decided to exclude the credit rights in the field of action of the same.
[68] Cf. "Expression in the actio in rem, res must remain in a broad sense, as "subject of law"; in this sense, res may also be a person", "Actio is the medium that is at the disposal of the holder of the subjective right to achieve the effectiveness of the same", Kaser, Max, op. cit., p. 56

(Subjective) Construction

I.

There is an almost unanimous consideration that there is *numerus clausus* principle, on the unilateral legal business. Mota Pinto, refers, unilateral legal business, does not require the consent of the opponent, but assumes the *numerus clausus* principle (457.º CC), only differentiating as recipient and non-recipients. Using the examples of the will, waiver, public promise.[69]

Although, "juridical acts which are not a juridical business, the provisions of the last, in so far as the analogy of situations is justified" (art. 295.º). The first note to retain in the field of interpretation[70] of any contract, i.e., fixing the meaning and scope legally relevant and, the decisive intended effects. In general, the declaration is effective as soon as the will of the declarant manifests in the proper form (para. 1 of art 224.º).

II.

Concerning the effect of time, one of the differences of expiration or prescription is related to the consolidation of subjective and concrete rights (not generic). In case of prescription precludes within a certain period. Thus, while the prescribed right continues to exist, the expired right has lost its existence. However, both prescription and expiration presuppose the will of the law or, of the parties to whom the right is exercised, within a certain period, aiming the rapid definition of rights and the corresponding legal certainty.

A contrāriō, as soon a declaration (or act) is complete, has effects, in general, as "the effects of the fulfilment of the condition are retroactive to the date of conclusion of the business, unless, by the will of the parties or by the nature of the act, they are to be reported at another time" (art. 276.º CC), as regarding third parties there is a generic external duty to respect a given (internal) position. Otherwise, it should be analysed what is a unilateral juridical act with no effects, as would lead to the denial of the act itself.

Prescription, in most cases, operates in cases of annulment, not in void businesses (the agreement is completed, but there is a period that the business is said to be disputed, where it is retroactive until a certain period). On the other hand, when a business is said to be void[71], usually is by the lack of faculty or the contract was *ab initiō* out of the freedom of contract, or legal trade, e.g. against good faith[72] or imperative norm. There is, in general terms, the assumption of good faith or, individuals do not have to prove *a priori* that all intent and acts have a protected right.

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[69] Pinto, Carlos Alberto Mota, op.cit., p. 386 Similarly, Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol I, 6ª Ed., Almedina, 2007, p. 277

[70] Considering interpretation (art. 9.º CC), the meaning, in contracts, would be assumed that the method (rule based or case based) of classification (ontology is absent) is in accordance with the intended will. In this case, it can be stated that the construction could not be held by induction (of experience) or, by deduction would fail the test of reality. Also, as observed in either doctrine or jurisprudence (as one feeds another in loop), the construction was based on dogmas and fallacies. The reference to "literal interpretation" is not correct, it's the interpretation of the meaning, where the same word can have more than one meaning (univocal and equivocal predication).

[71] Cf. Kelsen "By validity we mean the specific existence of norms. To say that a norm is valid, is to say we assume its existence (...) we assume that it has "binding force" for those whose behaviour it regulates." Kelsen, Hans, General Theory of Law and State, p. 30 "Thus efficacy is a condition of validity; a condition, not the reason of validity" Ibid. p. 42

[72] Cf. 253.º and para. 2 of art. 254.º CC

What exists is a reverse or consolidation processes on such position, where there is a duty of publicising (so third parties – but not without grounds and legitimate interest – can oppose). All have the first entry rule in case of doubt (so, in this case, the rule of 407.º is a recurrence of registration rules, where both have the first entry rule, but registration allows the correction *ā posteriōrī*).

Either emerging "real" or "credit" rights, the original constitution can, as a rule, emerge out of peaceful situations and with external visibility (or *a contrāriō*, registration is a means to the opposition before reversal of final registration of the title[73]). In case of claiming these records as void, indirectly states that only third parties with a legitimate interest (not *ergā omnēs*[74]). On the other hand, by stating that the sale is void if there is no title, there is a reversal of the proof (para. 2 of art. 342.º CC, or legal presumption). *In extremis*, all sales would be void of movables, if the first acquisition could not be established (the "*Probātiō diabolica*").

Considering third parties, only legitimate interests are protected either in the case of 286.º CC or, in the case of annulment, only the persons whose interests the law establishes are entitled to claim and, only within the year following the termination of the vice, on which it is based (para. 1 art. 287.º CC).

There is, although the exceptions of art. 291.º CC, which aims to protect the rights acquired by the third party in good faith (It is considered in good faith the third acquirer who at the time of acquisition was unaware, without fault, of the business vice, void or voidable).

From this, the application of general rules for legal business ("*negócio jurídico*"), with the adaptations needed (295.º), namely arts.: 224.º, para. 2 of art. 236.º[75] and 239.º CC may be used.

III.

Testing the construction (on a pure acquisitive right[76]), in case of real rights, e.g. even if the possession in good faith is not a title[77] is not complete that with the effect of time (*praescrīptum*) can be reversed to acquire the full title. In case of IP, the records of juridical acts also have this prescription period (where for a certain period potential third parties can dispute this right), in case of immovable property, a record is a presumption (also works inversely, e.g. adverse possession). On securities, there is also a presumption that the holder, has a legitimate title.[78] When looking at all these regimes, when a third party can oppose to a given legal act, a prescription of a right (externally) and a presumption of a cause (internally) exists.

There is the presumption of entitlement of the right[79] (para. 1 art. 1268.º[80]) unless, there is a presumption based on registration *prior*, in favour of another person. If there is a contest of legal

[73] para. 2 of art. 1252.º CC
[74] Third parties, for the purpose of registration, are those who have acquired from one common author rights incompatible with each other (para. 4 of art. 5.º CCom under Third Party Opposition) and art. 36.º RegCom.
[75] To this extent, the absence of form (i.e. 875.º), assumes the business as void (289.º), is implicitly assuming represented form over will, where the vice is not on the (admissible) content of an agreement. Where in this case confirmation, convalidation would be the logical remedy.
[76] Accession implies an already existing object in the legal traffic, *ūsūcapiō* works by prescription, as derived of possession.
[77] The legal presumption of ownership established in the art. 7.º of the RegPredial.
[78] Cf. In possession can also be exercised by an intermediary, where "in case of doubt, the possession of the person exercising the right, in fact, shall be presumed, para. 2 of art. 1252.º CC)
[79] Similar to art. 2256 of the French Civil Code "On est toujours présumé posséder pour soi, et à titre de propriétaire, s'il n'est prouvé qu'on a commencé à posséder pour un autre.), where "La possession est la détention ou la jouissance d'une chose ou d'un droit que nous tenons ou que nous exerçons par nous-mêmes, ou par un autre qui la tient ou qui l'exerce en notre nom." (Art. 2255)
[80] Unlike provisions of §855 (Agent in possession) and §868 BGB (Indirect possession), there's no distinction between detention and possession, presumes the last.

presumptions based on registration, it will be the priority among them, established in the respective legislation (para. 2 art. 1268.º). Where is dependant on the faculty (ability to acquire possession) to "all who have the use of reason, and even those who do not, can acquire possession of the things that can be occupied" (1266.º), similar to capacity to contract (e.g. 263.º CC[81]). There is a presumption of good faith (para. 2 of art. 1260.º), as when the possessor was unaware, when acquiring, that it harmed the right of another (para. 1 of art. 1260.º), and by the repeated practice, with publicity (in order to be known by the interested parties, 1262.º), of the material acts corresponding to the exercise of the right (para. a) art.º 1263.º).

To this extent confirms this idea, e.g. para. 1 of 1270.º (fruits of possession in good faith) where it is applied the prescription regime as its effects[82] (retroactive, not resolute), because we are under an acquisitive[83] (internal and externally) legal position, under good faith.

Concluding, by induction and subsequent analogy, considering opposition and its prescription period (for third parties), the same general rules should be used, as general rules, 295.º and para. 1 of 286.º (void business), 287.º and 301.º and 305.º (legitimate interest), 298.º and 306.º (Effects of time and starting date). But also, 334.º (abuse of a right), 483.º (civil responsibility) and 335.º CC (conflict of rights).[84] Concluding the admissibility of other unilateral contracts, against a supposed *numerus clausus* principle of art. 457.º.

[81] or, para. 2 of art. 488.º

[82] As relational, an act or a material cause with form, has an active part (who takes action) and negative (who carries the effects of such action), as such there are no "effects" only towards the same that took action, as would be a contradiction, by cancelling the action and, the substance of the act. The distinction is on the extension and admissibility of the act, not its existence.

[83] The para. 3 of art 298.º, confuses acquisition with modification and extinction, as refers to already consolidated rights, but forgets the other causes of extinction of obligations (as performance).

[84] Where considering provisions of para. 2 art. 406.º and 407.º CC, are compatible only with a system with *trāditiō*, that implies separation. The rule of 335.º CC should prevail.

Levelised Rights (of disposal and use)

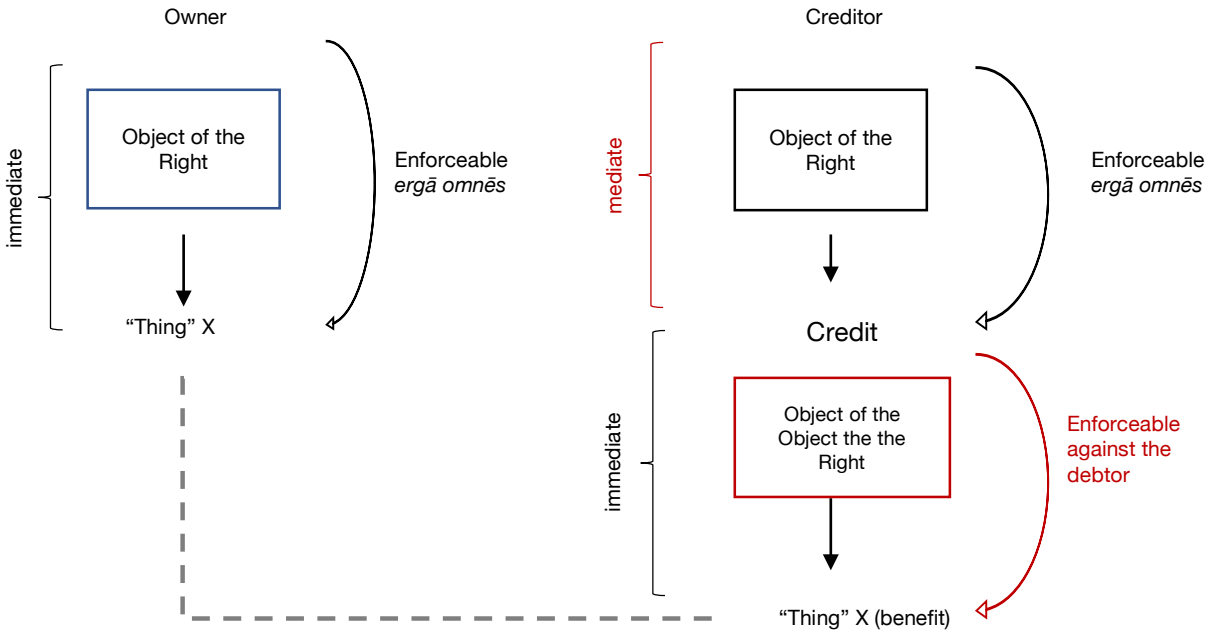
I.

According to the traditional and almost unanimous position[85] in the doctrine[86], the real rights are absolute and, the credit rights are relative[87], which suggests that they are enforceable *ergā omnēs* and these can only be demanded against the debtor.

However, Vítor Neves considers that this is not a good distinction, given that it is based on an analytical defect, which, fundamentally, consists in comparing - in order to assess the effectiveness of the two sets of rights (real and credit) two elements which, while not performing the same function, assume the same legal significance.[88]

According to the illustrative scheme of the said vice of analysis done by Vítor Neves in the class, we have that:

Figure 8 - Real Right and Credit Right



[85] It's a dogma, not a principle, wherein the last would fail to pass the test of non-contradiction or, relies on a proposition with non-evident grounds

[86] "Confrontation between rights of obligation, rights *in rem*, family rights and succession rights. Cf. Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 02, 1925, p. 11

[87] The Roman distinction between *actio in rem* and *actio in personam* has been transformed into a distinction between a *right in rem* and a *right in personam* by the School of the Glossators. Savigny first introduced the direct distinction between a "real right" and a "personal right". He pointed out that the relationship of individual rights (as a whole composed of relations of personal rights and real rights) was known as "property".

[88] Neves, Vítor Pereira das, A cessão de créditos em garantia: entre a realização das situações obrigacionais e a relativização das situações reais, 2005, policopiado (FDUNL), p. 198

Succinctly, the vice on which the analysis of most doctrine rests is to compare, in real rights and credit rights, the nexus between the subject and *X* (taking the figure *supra*), neglecting that X is the immediate object, *proper sensū*, of the property right and, the credit right, *X* is the subject of the object, or mediate object.

Thus, it is not under dispute that the creditor can only demand his credit claim against the debtor. However, it is not such a level that it should be taken into account, as a term of comparison with the enforceability of rights *in rem*. What occurs is that a particular creditor can turn to any other third party, to recognise him as a creditor of certain claim (which is distinct from the payment of the benefit to any other person). However, it is this recognition of the claim, that is enforceable *ergā omnēs* - the recognition of an individual as the holder of a credit excludes other third parties.

From the preceding, Vítor Neves concludes that the principle of *numerus clausus* (art. 1306.º of CC) must be applied to credit rights, insofar as it is ground is the enforceability *ergā omnēs*, is justified "by the inconvenience of admitting the existence of absolute rights, created by simple will of the parties with multiple conformations that they decide" and that, given its absoluteness could oppose to any third party".[89]

II.

There is an overall flawed (or an inconsistent ontological) construction (or attribution to a domain or class) on the right (as relational) of property[90] to a thing. This derives, on the one hand on the defect on the construction of juridical act (or fact) or, juridical situation[91]. Individuals are the holders of rights (and duties)[92], from that, one cannot argue that there is an objective (and abstract) right to a thing.

In general, property related to (as in Roman law) all patrimony (or the group of assets that constituted the inheritance)[93], including rights, debts and money.[94] It's a right of disposal (*Dominium dīrectum*) and use (*Dominium ūtile*) that are included in the property right (as *Dominium dīrectum et ūtil*e) as the complete and absolute dominium in "property", where is not absolute[95], considering i.e., the *iūs aedificandī*, that is also a limitation of the "full and absolute" right). The right of property emerges, initially (potential), from possession and the right of credit emerges from contract or delict. Both "obligations" and "property" are part of the patrimony that an individual has a right of disposal.

Being accurate, property is an abstract set of attributes of a given subjective right, as a set of qualities of a given substance, that can be used by the person in such position. To this end, one does not own a set of abstract attributes, but has a given position with that set of attributes.

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[89] Ibid., p. 195.
[90] Property in an etymological sense relates to qualities, features, not function. E.g. "*prōprietās rērum*", as all left out of the right of disposal, use. Or the property, as the qualities, features of a certain right.
[91] "The immediate object of the right can be said to be the set of facts that the individual can practice, but, since all these facts are carried out on a certain thing, it is said that this is the object of these rights" cf. Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, 1907, p. 332
[92] Cf. Tavares, José, op. cit., p. 25
[93] Cf. Moncada, Luís Cabral, Lições de Direito Civil (Parte geral), Volume 01, 1932, p. 71-72, and "Set of assets that belong to an individual is their patrimony" Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, p. 339
[94] Cf. Tavares, José, op. cit., p. 64
[95] In Right of Possession Savigny also claims that property is not a fundamental right of the individual, "By the possession of a thing", wrote Savigny, "we always conceive the condition, in which not only one's own dealing with the thing is physically possible, but every other person's dealing with it is capable of being excluded".

III.

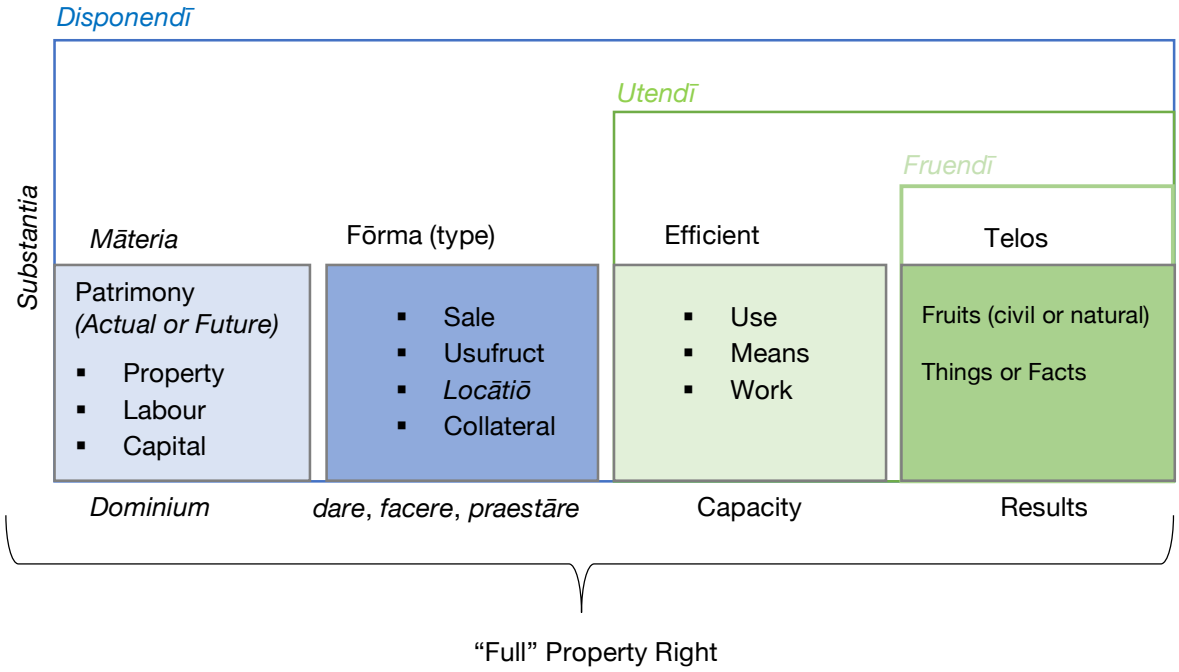
The constitution of legal position (primitive or derivative), encompasses its creation (out of will or nature) and, subsequent modification and extinction. Extracting the use and enjoyment, what is left out are the set of rights and duties related to the constitution, modification and extinction of legal situations (and their corollary rights to an action of the last). It could be said that this right of disposal is limited by the general principles of *bona fidēs*. One can use his freedom and labour or, patrimony. Within his autonomy may dispose of this right (limited or not), can transfer the whole right or, only its use, for a period, in the present or in the future. The title relates to legitimacy, not the instrumental form how it is constituted. When transferring a right of property (1305.º CC), transfer, as well, part of actions that can be used against third parties (e.g. the case of usufruct and lease). The last two have a right based on the right of the holder of the "full" property right, but within this relationship, all have a right against all who aims to disturb this right. Within its title (or right) one can use and enjoy within its limits. To this degree, a lessee cannot change the structure of the constituted right but can enjoy the use of that right and, against third parties that may dispute such right, as will never possess, only has mere detention, the usufructuary even having possession, does not have a right to extinguish the right of the person holding the right of disposal. He can extinguish the usufruct, not the actual object of the usufruct[96]. It can also be decomposed (within the 1305.º and limited to 1306.º if *in rem* - the para. 2 of art. 1306.º allows by expressing stating only obligational effects - otherwise), as the usufruct, the lease are examples of detachment of this right from the original "full" right. A usufruct also can be on either property, a right or credit. One can use a credit right and assign it or; the lease it is just transferring the right of use without transferring the right of disposal. Both rights can be used as collateral. So, as a thing can perish or be lost, a right can expire.

IV.

Looking to the common denominator of the right of use (the *iūs utendī* and derived from the last the *iūs fruendī*) arises the figure of fruits, namely civil (where some jurisdictions divide in natural, industrial and civil[97]). The property, the capital and the labour (as *opera, ex labōre frūctūs*), all can be applied (as a potentiality), to generate future income. The uses can either emerge from a property right (as it is implied) or from the lease (*locātiō*[98], as there is also a *iūs utendī*). *Locātiō* could either be for work (*operarium*[99]) or corporeal and tangible things (final output, "*operis*"), so as money (as credit). In case of civil fruits, it is divided by days or another measure, not an actual physical separation.

[96] *"ius alienis rebus utendi fruendi salva rerum substantia"* (D. 7, 1, 1; Inst. 2.4, pr.)
[97] The notion of fruits in the Italian Code: 820.º and 821.º. The French Code, art. 530 *et seq.*
[98] From "*loco*", as to place, put, lay, set, dispose, arrange, hire
[99] Although most relate to the work being done or automation, e.g.: computing power, software use, where the object is on the means, not the actual output, or a fungible mean (not final benefit) for a certain period.

Figure 9 - Iūs (Disponendī, Utendī, Fruendī)



The fact that this detached right is fungible, it has similar effects as in the joint ownership of companies. All shareholders contributed (initially in capital and work), and are entitled to a certain position, which can be disposed. In case of joint ownership, the quantity keeps its relationship with the owner by book-entry (this is the determination in fungible things, as the quality is the same). To this magnitude, in companies, the reserves are part of the company's assets and, only with a resolution (act) to distribute profits, emerges a specific credit right over those distributable profits, in accordance with each share and articles of association. Before that moment, there is no (separate) right to claim for the dividends (or fruits).

V.

It could be stated that there is a right of use without actual transfer of the *dominium*[100]; regardless if a corporeal or incorporeal, things can be disposed and used and, the legitimacy can just be based on the right of enjoyment (as the usufruct[101]), based on a legitimate right of use. Even if an energy producer only has a right to use (that can also decide not to generate electricity), he is not trading his right to use, but the work (potential) under such right, or transferring his "work" (actuality) that is measured in a certain kind (quality) by a certain period (as kWh).

[100] Or could be framed as follows: the difference between a sale with a buyback provision (repo) or, reservation clause, a usufruct or lease of a right, namely fungible (e.g. quasi-usufruct).
[101] The holder of the real right can use, enjoy and manage the thing (of the third party), as would a good *paterfamilias*, respecting its economic end (art. 1446º CC) and usufruct on securities and credit titles 1463.º (annuities), 1467.º (securities) CC *et seq.*

v - Catēgoriae

Accident

“Things that are determined by their gender, quality and quantity are fungible when they are the subject of legal relations.” (207.º CC). Money (or fungible things) as securities, being the last governed by its own Code, have different constructions due to its own nature that would not be applicable to the same as determined things, if non-fungible[102].

Generic obligation

I.

Pires de Lima writes "*The generic obligation as opposed to a specific obligation. (...)*[103]*. According to the same Author, “The determination of the moment of concentration or individualization of the benefit is of the greatest interest to the problem of risk, since under Article 408.º nº 2, the transfer of the right occurs only in these cases, when the thing is determined with knowledge of both the parties and, in contracts that entail the transfer of control over a certain thing, the perishing or deterioration of the thing runs, in principle, on behalf of the acquirer”.*[104]

Menezes Leitão set that "*This means that the benefit is determined only by reference to a certain quantity, weight or measure of things within the same gender (…) occur almost every time a negotiation on fungible things is carried”.*[105]

The CC “extends the concept of fungibility and the respective term to in fact (positive) benefits- p. ex. Article 828.º"[106] and "The notion of fungibility of the benefit is parallel to the concept of fungibility of things, given in article 207.”[107]

II.

The pecuniary obligations, defined as quantity[108] obligations[109] (heading of subsection I), where is stated the nominal principle (art. 550.º CC), and allows its actualisation (art. 551.º CC[110]). But the order, would be inverse, pecuniary is a type (*genus*) of quantity obligations, or fungible obligations.

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[102] *Genus*, derived generic and homogeneous (the same). If the same gender, implies same quality.
[103] Lima, Pires e Antunes Varela, Código Civil Anotado, Volume I, p. 550.
[104] Lima, Pires e Antunes Varela, op. cit., pp. 550-551, Varela, João de Matos Antunes, Das obrigações em Geral, Vol. I, pp. 819-827 and Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol I, pp. 142-148. The act of determination (in a countable set of generic things) as the act, process, or result of any accurate measurement (nominal, rates, etc.). Concentration is the act of grouping, *con+centrer*, to bring, or direct toward, to a common centre, to unite more closely, to intensify, to condense (as opposed to dilute).
[105] Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol I, 6ª Ed. Almedina, 2007, pp. 142-148
[106] Teles, Miguel Galvão, Fungibilidade de valores mobiliários e situações jurídicas meramente categorais, p. 589
[107] Varela, João de Matos Antunes, Das obrigações em Geral, Vol. I, p. 94-95
[108] Being separate (and determined) relates to being able to exist independently, existing on its own (*x* is separate from *y* if *x* is capable of existing independently of *y)*.
[109] "Fungible things" "things of quantity (*res that ponder, numero, mensurá constant*)" Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, p. 352
[110] interest is also the fruit of a given thing (para. 2 of art. 212.º CC)

There is a confusion with *genus* and *species*, where *species* is a subclass of *genus* (e.g. *genus:* pecuniary obligation and *species:* Euros), so as with individuality and species, to determine is by quantity, not by *specification* if already defined.[111] Also, with realism and nominalism, as *rēs* (as realities) and *nōmina* (giving names to classes) can be by universalities (Platonic *universalia ante rem*) and generalities (Aristotelic *universalia in rēbus*). All rights (and duties) are generalities, but are only attributable, in a concrete *rēs* (event or thing). An *āctiō* is *iūs in rem*, where *rēs* is determinated towards a given individual but, the right objectively considered is generic, implying that it is defined by its attributes. We predicate the same property of multiple entities, where entities only share a name, not a real quality, in common. A "*Transcendental Idealist*", as Kant, states that universals are not real[112], but are ideas of rational beings, as fundamental categories of pure reason (or as secondary concepts derived from those fundamental categories).

Kant concerning categories (where the a priori synthetic knowledge is pure mathematics (arithmetic) as pure intuition of time[113] and "geometry is based on the pure intuition of space"), writes "If two things are fully the same (in all determinations belonging to magnitude and quality) in all the parts of each that can always be cognised by itself alone, it should indeed then follow that one, in all cases and respects, can be put in the place of the other, without this exchange causing the least recognisable difference."[114]

As in Roman Law, Kaser writes "fungible things (*res quae consider mensural number consistunt*, Paul D.12.1.2.1) are those in the legal trade are considered by belonging to a gender (*genus*) and not for their individuality (species), such as wheat, oil, bricks, etc."[115], where it was "Another *certum dari* (other than money) is considered: the transfer of a particular thing or (in the generic obligations) of a certain quantity of fungible things)."[116]

Fungibility of Securities

Miguel Galvão Teles when analysing the fungibility of securities noted that it is one of the requirements of marketability in the (secondary) market[117], whereas the concern "*to be traded on the stock exchange, the securities will have to be deposited*"[118] that can either be in an authorised financial intermediary, at the initiative of the holder or in a centralised system. Thus, "*the deposit in a centralised system is necessary for the securities to be admitted to trading on a regulated market*"[119].

As expressed by Vítor Neves, concerning the "*descriptive approach to the general notion of money, it should be noted that, with reference to the same, one may be referring to one of two different*

[111] On Categories, Aristotle enumerates the possible accidents, attributes of things that can be the subject or the predicate of a proposition.
[112] "Space is not something objective and real, nor a substance, nor an accident, nor a relation; instead, it is subjective and ideal, and originates from the mind's nature in accord with a stable law as a scheme, as it were, for coordinating everything sensed externally", Kant, Immanuel Kant's Inaugural Dissertation of 1770 (1770), trans. by William J. Eckoff
[113] "Arithmetic itself brings about its number concepts by successive addition of the units in time, but above all pure mechanics can bring about its conception of motion only by means of the conception of time" Kant, Immanuel, Prolegomena to Any Future Metaphysics That Will Be Able to Come Forward as Science with Selections from the Critique of Pure Reason, trans. and Ed. by Gary Hatfield University of Pennsylvania Rev. Ed., Cambridge University Press, 2004, §10
[114] Ibid. p. 37
[115] Kaser, Max, op. cit., p. 123
[116] Ibid. p. 204
[117] Teles, Miguel Galvão, op. cit., p. 581
[118] Ascensão, José de Oliveira, "Valor Mobiliário e título de crédito", OA, pp. 842-843
[119] Teles, Miguel Galvão, op. cit., p. 584

realities"[120], where taking the first as the abstract value, leaving the "concrete" tangible aspect of money[121].

Galvão Teles also refers that "*the first fungible title was paper money. Paper money was undoubtedly a credit instrument in the convertibility period - it represented a credit to a quantity of gold. The fiduciary paper will incorporate a simple "right of discharge", correspond to the legal course of the currency. But it typically consists of a bearer title*"[122].

Commixtiō et Cōnfūsiō

Mix and confusion of fungible goods or rights

Commixtiō and *Cōnfūsiō* were used in the Roman Law to express the union of things either solid or fluid[123]. Still, *commixtiō* is most generally applied to the mixture (and union) of solids. If the mixture takes place with mutual consent, the compound is common property, if by chance, or by the act of one, each retains his former property, and may separate it from the mass. If separation is impossible, each owner is entitled to a part, according to the proportion of his separate property to the whole mass.

This principle means that property rights only relate to determined things, not to an unspecified (*species* or *genus*) item in a larger mass of different things. The rules on *cōnfūsiō* and *commixtiō* are applications of the principles of specialisation and determination. *Whereas* indivisible are the things that cannot be divided without evident loss of economic value (*rēs quae interitū dīvidēs possunt*[124]).

Determination, in generic things, can be "Pars pro division is the part of the thing obtained by the physical division of the same, as well as the lots obtained by instalment (Ulp D. 8. 4.6.1). If the thing is homogeneous, it can only have all its parts (§93 BGB "essential component") a destination of homogeneous real right, i.e., can be in property, pledge, etc."[125] not implying a physical separation.

Common and Joint ownership

The general solution, under the CC, considering the mediate mean (physical things), it is the common ownership on the (whole) property, regulated in art. 1403.º CC, in case of the mixture of (corporeal) things which belonged to different owners (the regime is similar to the art. 534.º CC (divisible) and 535.º *et seq.* (indivisible), concerning obligations).[126]

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[120] Neves, Vítor Pereira das, "A Protecção do Proprietário Desapossado de Dinheiro – Estudo dos Direitos Português e Inglês", em Assunção Cristas, Mariana França Gouveia e Vítor Pereira Neves, *Transmissão da Propriedade e Contrato*, Coimbra, 2001, pp.143-144

[121] Ibid., p. 230.

[122] Teles, Miguel Galvão, op. cit., p. 589-590

[123] Cf. D. 41.1.7 et 8; 46.1.3 et 2 et 5

[124] Cf. D. 6.1.35.3 (Paul)

[125] Kaser, Max, op. cit., p. 123

[126] Under the BGB it is held in "fractionally-shared" ownership (*Bruchteilsgemeinschaft*), i.e., it is held jointly and severally, unless the law leads to a different conclusion, the provisions of §742 to §758 apply (co-ownership by defined shares). The *Bruchteilsgemeinschaft* differs from the *Gesamthandsgemeinschaft,* where two or more persons jointly own a right but not in fractional shares, each having the same interest in the whole (as not being divisible), to the common ownership of a single right

It should not be confused with the confusion (868.º CC) in an (intersubjective) level. Menezes Leitão refers "The confusion is justified because there is no legal need to maintain the obligation as an instrument of inter-subjective collaboration, starting with the moment when the creditor and debtor positions are met".[127] But being the only in the book of obligations, which operates at a horizontal level, not vertical level.

Joint ownership of Companies

In the case of Companies[128], Galvão Teles uses the example of *"joint account (bank deposit) although it is assumed, in principle, deposit holders compete for their formation ... each of them enjoys full freedom of account movement, unless otherwise stipulated*"[129], *where* "*fungibility, no longer titles, but rights, allows the strange form of*" *joint ownership divided* "*- or, more precisely, joint ownership of title or titles without joint ownership of incorporated rights.*"[130] whereas "*It is the merely categorical character of the securities with no relevant order number that explains the strange modality of joint ownership divisible*".[131]

Common Securities Depository

A similar type of joint ownership is also found in the case of a common securities depository (CSD). The acquirer immediately becomes co-owner of the whole mass - co-property - of generic goods. The pool of goods is specified, and each party has a quantitative share in the pool, limited by the publicity principle (possession for movables). Thus, such separated pool (the third party holds under custody), to keep its determination, is not on the factual separation, but of a record of the compensation to be done within the same quality (same fungible things), with the indication of quality ("*quālitāte*") being maintained, avoiding the *confusiō numerum, by registration.*

Same as in the Commercial Code with warehouses (art. 94.º CCom), where there is the "pool" or "warehouse" and a receipt that is the title and receipt, that can be freely transferred and discharged (408.º *et seq.* CCom).

(e.g. (§1008-1011 BGB, patent community §6 PatG), by several (*Gemeinschaft*). It arises regularly by law (e.g. merger, mixing (§947, §948), processing by several (§950). when several persons jointly acquire a thing when is one and indivisible).

[127] Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol II, 5ª Ed. Almedina, 2007, p. 227

[128] To some extent also, the regime of ancillary capital contributions (287.º CSC *et seq*.)

[129] Lima, Código Civil Anotado, Liv II, p. 863

[130] Teles, Miguel Galvão, Fungibilidade de valores mobiliários e situações jurídicas meramente categorais, p. 595

[131] Ibid. p. 608

Waters Regime in the Civil Code

I.

The regime of waters, namely concerning how a “right to water” would be constructed, due to its proximity, as the problem to define the right of property (as a right of use[132] that only could be deceived from a prior right of use)[133], is not a new problem[134]. At the time, the problem with individualising a given amount of water as to attest the possession (as a real right can only have determinate things as an object), was also disputed.[135]

Pires de Lima also referred that “*The use and customs do not, however, attribute rights of property over water, or simple rights exclusive to its use. They have as their function only to determine the measure of the right of each user over waters appropriated in common by another title*".[136] But recognising this same irrelevance (and possibility) of the specification. "*The co-users, after legally fixed the criteria of allocation cease to be joint owners and start to have an exclusive right to the respective fraction of the water, although this fraction, the peculiar nature referred to, it cannot equate to the fraction of anything else movable or immovable.*"[137]

As referred by Pires de Lima "The reasons are known that the laws establish the waters for a special regime, within the general chapter of property (…) the mobility of water, in the currents or the veins they form, gives them their own legal physiognomy, creates special conflicts of interest among water users, and demands a special discipline *sui generis*”.[138]

Implicitly, there is the discussion if a concession[139] may be a form of the original acquisition, as "this absence has not failed to raise doubts about the rights that have been granted this way, particularly, regarding the ones acquired by perpetual concession after the 1919 legislation."[140]

It was noted that the mixture, concerning if “the groundwater would be susceptible of domain transfer, even before its exploitation. "From the provisions of paragraph 1 of Article 1395 seems to be an affirmative answer, since it is considered (…) However, it should be borne in mind, that the title of acquisition of property may only be used in relation to groundwater which is properly individualised. This is not the case (...) The existence of subterranean waters "is more or less hypothetical, and the parties cannot be held responsible for the existence of the right to property, in view, when executing the contract, certain veins or water reservoirs."[141]where "The only right, therefore, which the owner may attribute to a third party over groundwater, prior to its exploitation or individualisation, is that referred to in Article 1395 (2). Any business of disposing of the same waters must be considered null

[132] In the Water Resources Act 1991 (UK), it refers to “Rights to abstract or impound” and the Curtailment of rights (under section 27), not an exclusive and full right of ownership.
[133] "Water, considered in its entirety and as such (*aqua fluens*), is not, like air, susceptible of appropriation. Taken together or separated from the course or reservoir, it is a movable property belonging to the first occupant. Considered in the course or reservoir is immovable property", Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, 1907, p. 364
[134] "By Roman law, all water was the *aqua profiuens*, it was public the *flumen*, that is, a perennial aqua course, a volume determined of waters, for which there was ownership, thus distinguishing this right to *flumen* of the property right to use the water. In public things there was the appropriation by the Roman people, considered as a collective person, that is, by the State, in the common things there was no such appropriation.”, Moreira, Guilherme Alves, Águas, Vol. 01, 1921, p. 16
[135] Regarding the legal classification of waters, Moreira, Guilherme Alves, Ibid., namely p. 22 et seq. and “the legal character of Waters is dependent on their end or destination”, p. 169
[136] in Código Civil Anotado, vol III, 4th ed., pp. 338-339
[137] Ibid., p. 340
[138] Ibid., pp. 289-302
[139] Cf. Case 1 BvR 2821/11-para. (1-407)
[140] in Código Civil Anotado, vol III, p. 291
[141] Ibid., pp. 326-327

and void. (…) The question is whether the right referred to in Article 1395 (2) is a real right or, on the contrary, a right of credit. Being a figure expressly provided for in the law, we see no obstacle to its qualification as real and, consequently, the susceptibility of registration in the land register and being enforceable *erga omnes*".[142]

II.

Similar, problem of the one analysed *"the money of a particular owner, insofar as it has been mixed with the money of another owner in the hands of this or any third party, because it will cease to be an identifiable reality in the in spite of its broader and more homogeneous universality, will cease to be the legally admissible object of any right of property"*[143] where "*the concrete specification of the water (i.e. whether these or those litres of it), prior to its consumption (or definitive physical separation, if previous) by the condominium to which it is attributed, is absolutely indifferent, since water is absolutely fungible within if only the quantity of the same shall be fixed, which shall be assigned to each of the respective owners.*"*[144]*

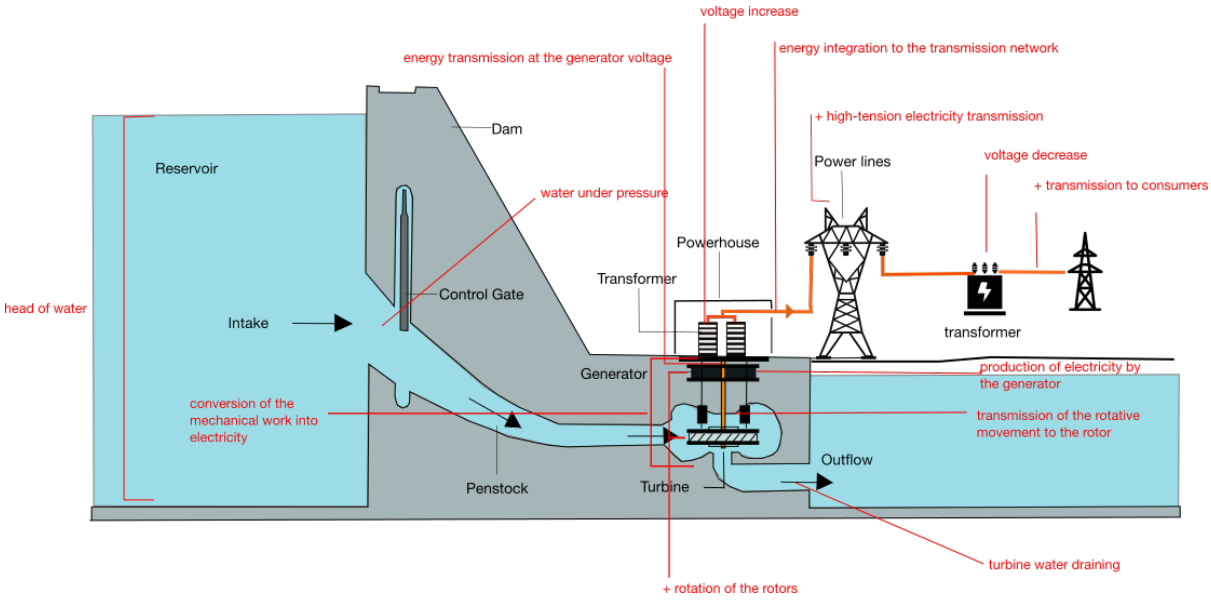
Using the art. 1399.º CC (condominium of waters), where is established a joint ownership over the waters, to all owners, was used where Vítor Neves writes "*In fact, considering specifically for a moment, the figure of the*" *condominium of waters* "*(...) Thus, what separates the ownership of the condominium, or in other words, the joint ownership of the same right over a certain thing the existence of a plurality of full owners of the property and exclusive rights over parts of the same thing is said* "*division.*" *And, note, that division, under Article 1399 of the Civil Code, has nothing to do, under penalty of loss of useful content of the regulations in question, with any specification (or physical separation) of the concrete part of water which is the responsibility of each one of the condominium owners, but rather with definitive and accurate establishments of the criteria that allow to allocate parts of the water to the various condominium owners, either by the distribution of their flow or their time of use."*[145]

As referred "*the essential question to which the owner of fungible things who contributes to a mixture of them must respond, when aiming at its restitution, is* "*how many*" *(not* "*what*") *the fungible things which at that very moment integrate the mixture and which it must be assigned as an object of his property rights.*"[146], explicitly, if there use in the concrete separation or concentration of the obligation or, the extreme solution considering cease any right over joint, common property.

[142] Ibid., p.327
[143] Neves, Vítor Pereira, "A Protecção do Proprietário Desapossado de Dinheiro – Estudo dos Direitos Português e Inglês", op. cit., p. 206-209
[144] Ibid., p. 221
[145] Ibid., pp. 220-221
[146] Ibid., p. 223

III.

Figure 10 - Cross Section of a hydroelectric power plant



Extending the example to electricity generation by a hydroelectric dam, demonstrated in the figure *supra* (considering that the amount of water belongs to more than one person), the output generated will depend on the amount of water in a given reservoir and injected electricity into the grid (where it is measured, not, indeed, separated). It is impossible to define the specific quantity and quality, within a homogenous fluid, of each one, so, jointly, all contributed with a given resource to generate electricity.

An application of the same regime (joint ownership, held severely) to electricity may solve a similar problem with the same underlying resource. The SEN acknowledges the existence of the electricity output as soon as it passes a given measuring point and creates a record of such event. It is that record, which creates the existence of the title to electricity as a given thing for the legal trade, by linking quantity to each person. Inversely, if removing this operation, electricity would not be susceptible of trade (or would be applied the presumption of equal share to each owner). There is no appropriation of charges, as it was inadmissible the appropriation of water current, but a certain right to a certain quantity of electricity that needs to be transported and distributed using a common infrastructure until it gets the final user (or leaves the electricity infrastructure and measured again at the POD).

The division (or discharge) occurs with delivery, so between injection and delivery, there is, in fact, a joint amount of given kW in the electricity grid, where is stated a “solidarity principle” (e.g. MIBEL Agreement). This would assume that at a given moment, all recipients of electricity (if the TSO does not take the seller's bids) own a certain portion or percentage of a given aggregated (and homogenous) amount. The case of joint ownership. Or at that moment a given quantity of electricity belongs to all (where the TSO has the duty, under interruptibility obligation and services, to find the remaining, in a continuous manner, to guarantee all electricity injected is enough to the electricity to be delivered).

The regulation states that in case of an emergency that choice is not to the debtor, rather says is by “priority” entities list. In this case, the uses, referend of the Civil Code are replaced by the terms of MPGGS SE. Otherwise, we would assume that in the case or shortage to serve all owners of a unitary commodity (or given electricity flow), would have preference over the entities classified as “priority entities” or, would be applicable an equal distribution or *ratiō*.

vi - Position

I.

There is nothing new as already argued by several authors, from back as Gaius and Ulpian, as Bartolus de Saxoferrato (in the XIV century), to currently, in one way or another, the grounds were the level that the right (and its mediate or immediate relation) operates and putting and linking the two sets of effects in time. Although not dominant, in the past, the preference towards the majority of the opinions was not a good parameter to access the admissibility or not of certain constructions. Where in this case, was attempted a short deconstruction on the grounds[147] - without content or, using a particular definition under other legal systems without connecting with function or end - of such almost unanimous position, going back to its substance and intent (or semantics), putting again, the words (signals) within its signifiers (meaning). So as there is no overall, preference to written law (as *lēx*, opposing *iūs*). As internally, within subjective relations, the written form does not overpower the intended will (either from one individual or the parties out of an agreement). As in case of doubt, it is done under the general principles, as the Law does not protect instrumental objects, rather interests.

It is not as the dispute between monists and dualists on metaphysics, as either it one or another, both plans coexist, but as forces (as attraction and repulsion). As same as in Physics, there is no Unification theory[148] of the General Relativity[149] and Quantum Field Theory[150]. Just that both realities coexist and, are related to one another. One does not exclude the other (as *volūtās*, free will, *anima*) implies *potestās* so, as liability has a *nexus* of a fact to a given individual with *potestās*). As the extinction of one, extinguishes the other (e.g. Individual Freedom and the Rule of Law).

II.

What is traded are derivatives (in this case as an OTC), a PPA has in this sense a derived, indirect mean, or immediate. Electricity is the mediate mean, although, until delivery (or extinct by its individual use), the injected electricity must be considered as a right of use a certain relative percentage in accordance with the rules of the market (this case until settlement of each dispatch schedule). What is being agreed is to participate, to inject in the constitution of a common property of all that take part of that given dispatch, where the TSO manages but does not take part.

The determination of interests does not need any sort of concentration or separation, they can be grouped, without limiting its use[151]. This is the underlying difference between joint and co-ownership, but when referring to joint, most cases, as companies or the trust, related to interests. This separation between disposal and benefit is most clear in the trust, the IP Licence agreement (right of exploitation, use) or, even the concession, where (excluding the classification if as public property or not), the *dominium* belongs to the state and it is given a right to use, to exploit, or the *iūs ūtile*).

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[147] Regarding construction, cf. annexe, namely "*rēs*" under Roman Law.
[148] or "Theory of everything", as stated, "the aim of physics at its most fundamental level is not just to describe the world but it explains why it is the way it is.", Steven Weinberg, Dreams of a Final Theory: The Scientist's Search for the Ultimate Laws of Nature
[149] As Einstein´s theory of general relativity (1915)
[150] As in Feynman's Quantum electrodynamics (QED) theory that explains how light and electrons interact.
[151] What can be grouped are the payments due, common to all rights of use, as the counting is by days and is due blocks of certain number of days.

To this end, the deposit in the grid (constitutive of a common – divisible - right[152]), registered in the account (conferring the determined interest) is the original title to be traded, or the fact, under the agreement, which constitutes a right over a certain joint property. It this right that will be traded and the mediate thing that will be settled, extinguishing the first by its use or expiration.

It is this right, or credit that is being under the PPA, not a defined and concrete "thing", but a relative interest of the overall electricity to be dispatched, in accordance with the rules of the market, that both parties (and all the market participants) subscribed. If representation is needed for its circulation, also the fungibility carries indifference of the specific unit.

[152] Art. 541.º (and 797.º) CC, where the separation, in case of transport, occurs when delivering (as the risk). To this end, the act of delivery (in the POD) marks a constitution of a new right.

II - Vector (*Quantitas et Dīrēctiō*)

A PPA is atypical because it brings together elements of nominated contracts, the sale and purchase, (of a given interest in an electricity dispatch), but also capacity and delivery, which is held simultaneously between the parties. Most models are bundled[153], with delivery and transportation of energy to be performed by a third party.

Under the right of disposal, one can assign a right (position) or, promise to assign. The transfer belongs to operational rules to mediate towards the subjective end but, there are different systems of transfer (safety and reliability as also the discussion on the acquisition *non domino* in good faith and its remedies[154]). As systems with separation and abstraction (German Case, wherein the BGB the abstraction principle it is not decoupled from the unjustified enrichment under §812 *et seq.*[155]) or, causal systems, as consensual systems, as the French[156] and Portuguese cases or, causal with separation, as under Roman Law, the conveyance was not immediate out of the agreement[157].

The *cōnsēnsūs parit prōprietātem* principle[158], where the constitution or transfer of the rights *in rem* over a certain thing occurs, as a rule, by mere effect of the contract (para. 1 art. 408.º CC). The real right is transferred, *sōlō cōnsēnsū* [159], at the time of conclusion of the causal contract. This transfer would operate, instantaneously and automatically, without the need of delivery of the thing[160]. Thus, the constitution or transfer of rights *in rem* is only dependent on the existence of the *titulus adquīrendī*.[161] The para. 1 of art. 408.º, establishes[162], in full, the system of title,[163] or the consensualism "principle" of immediate real effectiveness. Although in contracts, and not in Book III, dedicated to things, with reference to the moments of acquisition. The right *in rem* must be regarded as constituted or transferred by virtue of the contract.

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[153] Mäntysaari distinguished between “actions before supply” or COD and afterwards (supply, operations) Mäntysaari P. (2015) in: EU Electricity Trade Law. Springer, Cham p. 475

[154] Cf. D. 41.1.1 (Gaius)

[155] Systems of property law can also be characterised as abstract or causal, depending on whether (the validity of) a transfer of property depends on an underlying obligation or not. Concerning the distinction between the contractual disposition, bearing legal effects only *inter partes* on the execution of that disposition, bearing legal effects *ergā omnēs*. Abstraction, there is independence (separation) between o the contractual disposition *inter partes* of the execution of that disposition. Thus, if any of those steps is void this does not necessarily affect the validity of the other one; §433 of the BGB explicitly states this obligation of the seller. For transfer of ownership, another contract is necessary which is governed by §929 *et seq*. Consensualism or Separation and their corollaries: Cause (*a priori*) Abstraction (ā *posteriōrī*), where applies to the Effects vs Unjust enrichment, respectively. The major difference is this assessment is done ā *priōrī* or *posteriōrī*, i.e. If one transfers property or money or rights to someone else, it is assumed that there is legal cause for this transfer, where the control, in the German Case, is done *ā posteriōrī* (§812 BGB).

[156] Cf. Article 1196 (*Effet translatif*) where “Dans les contrats ayant pour objet l'aliénation de la propriété ou la cession d'un autre droit, le transfert s'opère lors de la conclusion du contrat.” where “Le transfert de propriété emporte transfert des risques de la chose.” Also, there is a direct and expressed assimilation to the regime of movables under article 539.º (“Sont meubles par la détermination de la loi les obligations et actions qui ont pour objet des sommes exigibles ou des effets mobiliers, les actions ou intérêts dans les compagnies de finance, de commerce ou d'industrie, encore que des immeubles dépendant de ces entreprises appartiennent aux compagnies.”)

[157] Moncada, Luís Cabral, Elementos de História do Direito Romano, p. 184

[158] In the French case, according to art. 1583 of the French Civil Code, the contract creates the obligation and simultaneously transfers the domain of the thing sold (*nūdus cōnsēnsūs parit prōprietātem*), under the German system (§433 BGB), as in the Roman conception according to which the contract generates, for the seller, only an obligation to *dare*, i.e., to deliver the thing sold (*ad trādendum*). Only with this effective delivery (*trāditiō*) gives the transfer of the *dominium*.

[159] In Comparison, in Roman Law, the "transfer" (of *rēs*) was performed through the practice of typical transference acts: the *mancipatio*, the *in iuri cessio* and *traditio*. The contract only produced, *per se*, obligational effects, but not triggered the transfer of ownership. Cf. Leitão, Menezes, Direito Das Obrigações, Vol. III, 7.ª Ed., Almedina, 2010, p. 23.

[160] As the old *trāditiō*

[161] principle of causality that prevails in the system of the title (and the title and mode). In the mode system, it is regulated by the principle of abstraction, which prevents the vices of causal business from affecting the transfer of ownership.

[162] Also b) of 879.º and a) of 954.º of the CC and "It results from the legal type of purchase and sale (…) is therefore a consensual contract (...) Ac. STJ de 18-09-2003 (Lucas Coelho), on 15/04/2013

[163] Thus, the transfer of ownership is linked to the conclusion of the contract, on which it depends and has automatic effects.

i - Āctiō et effectūs

I.

Considering the definition in the previous chapter, as a right (positive legal position), the regime to operate its transfer, in accordance with art. 588.º CC, is the same for the assignment of credits (577.º *et seq*. CC), in the applicable part (as out of a unilateral juridical act).

The art. 588.º of the CC sets that "the rules for the assignment of credits are extensive, in the applicable part, to the assignment of any other rights not exempted by law, as well as to the legal or judicial transfer of credits.", consequently, the assignment of credits (art. 577.º *et seq*.) seems to assume the general regulation of the transfer of rights.

The credit rights are the subject of multiple transactions[164]; the disposition of a credit right[165] does not correspond to a different mode of movement of goods[166], or the claim that real rights and credit rights correspond, in economic life, to different ends and, therefore its distinct legal nature.[167] Consequently, it should not be treated differently, generally, as a right *in rem*, with the needed adaptions to their particular structures.[168]

What is predicated in this institute, is the same for the transfer of rights (cause or the title), which means that the transfer of credit rights is subject to a patrimonial regime, common to *rights in rem*. In fact, art. 578.º provides that such integration must be made (in reference to the causality "*negócio base*").

The extension of consensualism to the transfer of (credit) rights deserves some reservations, nevertheless, a consensual system can be assumed (where in the case of credits rights, the need to notify the debtor is equivalent to the acts necessary for the transfer of rights *in rem*, in accordance with para. 2 of 408.º CC)[169][170]

Hence, it is necessary to analyse the system of transfer of real rights in order to perceive in which elements it can be associated or dissociated. Are considered vectors of the transfer of real rights: consensualism; possession in good faith is not the title and, publicity[171] (however, there are a number of exceptions[172]).

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[164] Neves, Vítor Pereira, A *Cessão de Créditos em Garantia*, op. cit. p. 19, and Varela, João Antunes, Das obrigações em Geral, Vol. I, 10ª Ed., Almedina, 2006, p. 161

[165] "They are, on the contrary, susceptible of transfer and assignment, like the real rights, thus entering into the movement of commercial relations." cf. Moncada, Luís Cabral, Elementos de História do Direito Romano, p. 194

[166] "Die Verdinglichung obligatorischer Rechte", Dulckeit published a paper in which he proposed that claims had "*some characteristics of real rights*", remarked that "*relative rights may be endowed with some effects in rem*". Gerhard Dulckeit, Die Verdinglichung obligatorischer Rechte", Tübingen: Mohr Siebeck, 1951

[167] In the opposite sense, Fernandes, Carvalho, *Lições de Direitos Reais*, 1999, p. 54

[168] Antunes Varela, refers "For DEMOGUE, for example, there would be only stronger rights and weaker rights, all of them being rights of obligation" Varela, João Antunes, Das obrigações em Geral, Vol. I, 10ª Ed., Almedina, 2006, p. 166

[169] Cf. Cristas, Maria da Assunção, "Transmissão Contratual do Direito de Crédito. Do carácter real do direito de crédito", Coimbra, 2005 p. 430, Some authors consider that in the assignment of credits, the effectiveness (external) of the credit depends on the notification to the debtor (by analogical integration with art. 584.º)

[170] Cf. art. 789.º of the Code of Seabra

[171] Similar principle of organised markets, where publicity assures trust in the market, or *a contrāriō*, where it is assumed the ownership belongs to the holder of the title (as represented right) or beneficiary if, in a central depository.

[172] Cf. Duarte, Rui Pinto, Curso Direito Reais, pp. 56-59 and Almeida, Ferreira Carlos, Transmissão contratual da propriedade – entre o mito da consensualidade e a realidade de múltiplos regimes, Themis, Revista da faculdade de direito da UNL, ano VI, n. º 11, 2005, Almedina, pp. 7-9.

For its assignment, the requirements and effects should be accessed in accordance with the type of legal business[173] that serves as basis (para. 1 of art. 578.º), wherein this case, it is the sale and purchase agreement, with the adaptations needed (the absence of mediate party, as the debtor, but the existence of a CSD[174]).

In case of a claim (as a right) that does not have any mediate part, can be freely assigned, as in the case of possession (that is not a title) can be assigned (art. 1252.º CC), that corresponds to legal situation with no mediate party. Also, in the BGB allows the "constructive possession" (§930 and §931 BGB) as an example of an active legal position that can be assigned to a third party, without any mediate party.

II.

Some contracts do not immediately produce the real effects,[175] being constrained to the obligational effects. However, the transfer does not cease the sale's obligational duties, even if complemented by a subsequent act.[176]

This means that the principles of causality and consensualism stated in para. 1 of art. 408.º CC (immediate effectiveness of the contract), are excepted in para. 2 of art. 408.º CC, which allows the decoupling between the moment of conclusion of the contract (agreement) and the moment of the transfer of the right *in rem* (mediate effects).

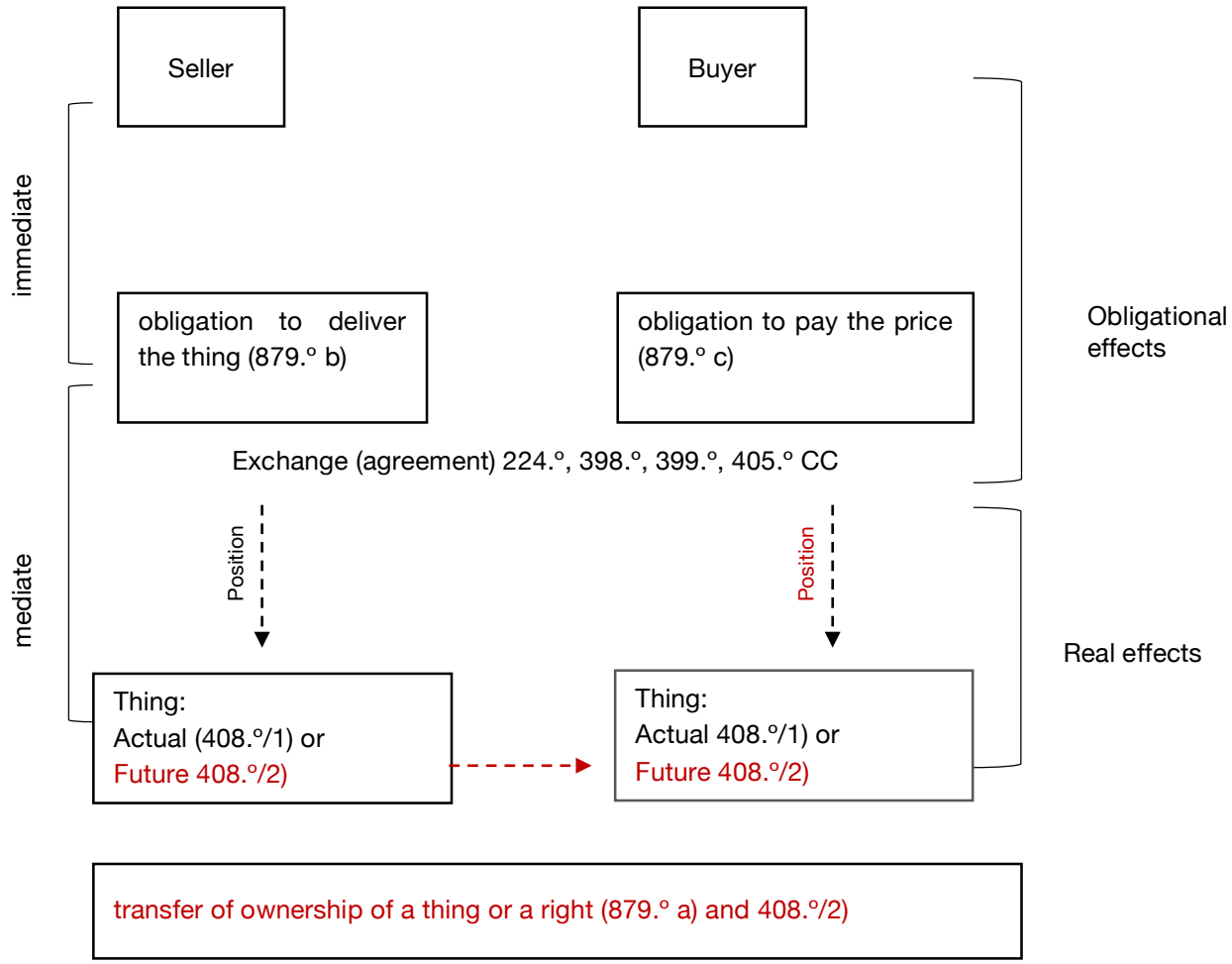
In this sense, Pires de Lima and Antunes Varela wrote in annotation on the art. 879.º of the CC: "The transfer of the property of the thing sold, or the transfer of the alienated right, is due to the contract itself, although these effects may be dependent on a future fact (acquisition of thing by the seller, collection or separation thereof, production of thing, verification of a condition precedent, etc.)."

In the Roman Law case, "This rule considers the spot sale as the normal case and, if it is exceptionally delayed the delivery of the thing, no longer includes it in the patrimony of the seller, although it remains on his property. The seller, from the celebration of the sale, is liable for custody, as if he had since received from the buyer the thing in *commodatum* (cf. D. 18.6.3)"[177], where "The Romans make this risk transfer from the seller to the buyer with the perfection of purchase (*perfecta emptione ad periculum emptorem respicit* cf. Paul D. 18.6.8. pr; Inst 3. 23. 3/3 a)".[178]

[173] Cf. "Binding business, which aims to establish an obligational relationship, and dispositive business, that directly transfer, modify or extinguish rights, such as the transfer of ownership (alienation in a technical sense) or its encumbrance (with limited real rights)." Kaser, Max, op. cit., p. 61., Cf., legal business and contracts in general, Ibid p. 60 *et seq*.
[174] Cf. p. 47
[175] Cf. Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, 1907, p. 460
[176] "There are obligations whose purpose is the transfer or creation of real rights. This is the case in the obligations which concern the provision of fact concerning a thing, on which the active subject will be carrying out that is providing a real right." Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 02, 1925. p. 27
[177] Kaser, Max, op. cit., p. 244
[178] Ibid., p. 243

III.

Figure 11 - Obligational and real effects



Real Effects (para. 2 of art. 408.º CC)

Considering the overall conceptual and abstract nature of the code, one cannot justify the lack of determination of the good or right of an objective norm to a concrete subjective right. Therefore, the criterion on the determinable (207.º CC) not being determined *strictō sensū ā priorī*.

Transfer of the mediate object of the Sale

Concerning if the right emerges directly under the patrimony of the seller or the buyer[179], two theories[180] exist (and an intermediate one), using the considerations written for the assignment of future credits.

[179] Cf. Ramalho, Tiago Azevedo. A cessão de créditos futuros e a insolvência: a posição do cessionário na insolvência do cedente. Revista da Faculdade de Direito da Universidade do Porto, a. 9 (2012), pp. 481-503 (491)
[180] In Germany, *Direkterwerb* (imediation) and (transfer) *Durchgangserwerb*, respectively.

The sale of something future postulates the assumption that the thing will enter into the patrimony of the buyer.[181] And the contract is settled based on a legal expectation of a right of acquisition of the property by the seller. The sale made in these terms is valid. However, the only immediate effect it produces, is the obligation of the seller to carry out all the necessary steps so that the buyer acquires the property of the purchased good (para. 1 of art. 880.º).

For Carlos Mota Pinto, a supporter of the doctrine of the transmission, the acquisition of the future credit by the transferee must be verified in the person of the transferor. Hence, the theory of immediacy could only be accepted if the requirements for acquiring the credit were to compete in the person of the transferee.

João Calvão da Silva states that "In respect of future claims, the contract concluded shall have purely obligational effects, and consequently its immediate transfer from the transferor to the transferee shall not be carried out: in this case, the transfer shall take place only when the credits are born and existing, becoming present (article 408.º nº 2 of the Civil Code)."[182]

Following the intermediary position, Antunes Varela assumes that it could never be understood that the transferor had provided an expectation of its acquisition which it already had.[183] In this case, the transferor transferred not only the future credit, but also an expectation of its acquisition that it already had, so the credit would emerge directly in the sphere of the transferee.

On the theory of immediacy, the transferee would have acquired the credit and its regime will be the same as the one subject to the ownership of the transferor, since the transferee will only acquire the right in spite of the transferor, without the assignment.

Inversely, the discussion under German Law, is the subsequent (instrumental) right emerges in the patrimony of the seller or buyer (mediate and immediate object), where under the abstraction principle one of the critics is that would imply the assumption of the causality principle (where in the case of claims or a previous contract, or constructive possession is built on the principle of protection of expectations, "*anwartschaftsrecht*".[184]

From this, if the cause is established, the future right *in rem* would emerge directly on the transferee, as there is no separation under a consensual system.

[181] Pires de Lima e de Antunes Varela, Código Civil Anotado, Vol. III, 3ª Ed., Coimbra, 1986, p. 191
[182] Silva, João Calvão da, Titul[ariz]ação de Créditos, Securitisation, 2ª Ed. 2005, Almedina, p. 103
[183] Antunes Varela, Direito das Obrigações, II, p. 317 *et seq*.
[184] *Anwartschaftsrecht* is an independent right (*sui generis*) approximating the right *in rem*. There is a practical need for *iūra in rē aliēna*, in the event that the acquisition of a right has already been initiated, but not completed, the acquirer legally must be protected of the transferor. (i.e. a contract of sale and registration acts to operate the transfer). This is, an application of the protection of *fīdūcia* or legitimate expectations (theory of appearance or confidence, e.g. §405 BGB) or similarly, under different construction, para. 1 of art. 830.º CC.

IV.

On the derivative acquisition, Portuguese law is one of the last which preserves in its purity[185], regarding movable things,[186] the rule *nēmō plus iūris in alium trānsfers potest quam ipse habeat*.[187] It is only in cases restricted to the good faith of third parties that it is protected (para. 2 of art. 1281.º and 1301.º CC and, para. 2 of art. 467º CCom). As a subsequent solution, to guarantee trust and liquidity, in the market, representation of these immaterial rights was created to ease the transfer of rights, namely in the market[188], as can't be demanded that the buyer check the whole chain prior under penalty of seeing a void agreement so as the corresponding effects.

The "external effects", where in case of commerce, was given preference to circulation (*theory of appearance*) to protect the trust in the market (as the publicity principle, namely when transferring rights of immobile property or credit titles[189]), that has nothing to do with the constitution, modification and extinction of (internal) legal situations, subjectively[190]. This does not comprise any waiver of a right, to claim damages in the subjective legal relation, under art. 483.º CC.[191]

[185] In the French case, introduces the correction - to ensure adequate protection of the legal traffic - rule "possession is worth title" as on the other hand, in the case of a double sale of a movable thing, the buyer who first acquires possession of the thing is protected, provided he is in good faith art.1141 do Code civil. On the contrary, in Portugal, the right of the first purchaser prevails over the non-entitlement of a third party (Article 892.º).

[186] Cf. Oliveira Ascenção considering the acquisition *non-domino* of movable things, namely credit titles and securities Ascensão, José de Oliveira, "Valor Mobiliário e título de crédito" p. 859- 865 and Pires de Lima on the sale over documents (937.º), where the delivery is replaced by its representative titles, or the uses. Lima, Pires e Antunes Varela, Código Civil Anotado, Volume II, pp. 233-234. Also, alium derives from alius, ius in re aliena, right of foreign, other, third party *in rem* (as an acquisition right of third party), Alienation, transfer to third party, etc. The general solution would be under representation (with or without), where is not void and the business can be convalidated by the represented.

[187] Ulpian, D. 50.17.54.

[188] Miller v. Race (1758) 1 Burr 452, (Property in a bank note passes like that in cash, by delivery; and a party taking it *bona fide*, and for value, is entitled to retain it as against a former owner from whom it has been stolen.

[189] Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 02, 1925, pp. 210-211

[190] "The autonomy of the title of credit results from the debtor, at the time it issues it, if it becomes an obligation for any person to whom it is transmitted under the conditions designated in the title itself or dependent on the nature of the latter, as he was the original creditor. " Moreira, Guilherme Alves, Ibid., p. 211 also Cf. The subjective rights. Actio and exceptio. Prescription - Kaser, Max, op. cit., p. 55 *et seq.*

[191] Cf. On the Indifference of the represented right, Ascensão, José de Oliveira, "Valor Mobiliário e título de crédito"

ii - Dīrēctiō (Sale and Purchase Agreement)

“Sale and purchase’s rules shall be applied to other onerous contracts whereby goods are disposed of, or charges are imposed on them, insofar as they conform to their nature and do not contradict the respective legal provisions." (art. 939.º CC). "It follows, however, that the purchase and sale continue to be the legal instrument for the exchange of goods - and not the exchange of services. In this generic category of goods - as a possible object of purchase and sale - not only the tangible and intangible things, but also the rights *in rem*, the credit rights, the contractual position itself.”[192]

The Civil Code regulates the - actual[193] - sale of things, where, "sale and purchase is the contract by which ownership of a thing, or right, is transferred[194] for a price" (art. 874.º of the CC).

This corresponds to the real contract *quoad effectum*, i.e., because the transfer of the right, object of the legal transaction, as a rule, results from the contract (cf. a) of 1317.º and 879.º CC).

It may be assumed that separation (but without the need of further acts as it is implied to operate the transfer) exists, where: three effects emerge, although different, under different levels (as noticed prior), where b) and c) correspond to the agreed exchange (obligational and as such subjective agreement) and a) corresponds to the (mediate) object.

The essential effects produced by the sale and purchase (art. 879.º of the CC) are:

a) The transfer of ownership of a thing or a right;

b) The obligation to deliver the thing[195]

c) The obligation to pay the price (pecuniary obligation[196]).

The parties may agree that the transfer of the right is subject to an uncertain future event, i.e. that the contract is subject to a condition precedent[197], or even dependent on the payment of the price, e.g. subject to a reservation clause (409.º CC).

[192] Lima, Pires e Antunes Varela, Código Civil Anotado, Volume II, p. 162
[193] The emphasis in actual is due to is principles *nemo dat quod non habet* rule to bone fide buyer (against the CCom), its straight determinism and static character, where with no further interpretation, only existing things would be susceptible of trade. Cf. Seabra, António Luís de, “A Propriedade.” Philosophia do Direito, 1850
[194] Cf. "From the wording of Article 874.º clearly gives the attribution of a real, not just obligational nature, to the contract of sale" Lima, Pires e Antunes Varela, Código Civil Anotado, Volume II, p.16
[195] “It includes not only the titles of ownership, but all those who refer to goods or alienated right, as licenses, certificates of origin, tax documents. Cf. sale on documents.” Lima, Pires e Antunes Varela, Código Civil Anotado, p. 173
[196] Cf. Ibid., p. 169
[197] "When the execution of a contract is only dependent on the mere will of one of the parties, the other undertaking being committed, if it pleases, there is what the jurisconsults call a merely potestative condition, but not a proper condition" Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 01, p. 473, “The condition is suspensive or resolute, depending on whether the definitive existence and effectiveness of the legal business is dependent, or its dissolution of the legal business, producing this its effects, until the condition is verified. Moreira, Guilherme Alves, Ibid. p. 475

iii – Quantitas (scalars)

Futures

As credit rights may constitute future claims and, can emerge from already established business relationships - e.g. lease rents or interest due on a loan agreement - or yet to be formed - e.g., a sale and purchase of services that are expected to be celebrated in the future.

Future credit, such as periodic instalments not yet due or, a legal relationship not materialised yet, since they can be sold (art. 880.º and 577.º CC). In the case of time gaps and multiple sales, disposition and execution mostly happen at different times, so it virtually cannot be the same act or, in case of a change in ownership may require additional actions.[198] Under art. 880.º, the nature of the contract for the sale of things is discussed[199]some consider that it is an "incomplete business"[200], others understand that it is subject to a suspensive condition[201] and, there are those who argue that this is a kind of "compulsory sale".[202]

Its admissibility is grounded, first and foremost, in the general rules concerning legal business (and other legal acts) on future matters. In fact, the provision of future obligations (211.º CC) is provided in general terms in art. 399.º CC (besides art. 880.º).[203]

Menezes Leitão says "The benefit must be determinable. This rule results from art. 280.º, which establishes as void the legal business whose object is indeterminable. It must be clarified, however, that indeterminable should not be confused with indeterminate, since the obligation can be constituted if the benefit is still undetermined, but it is determinable. Examples of indeterminate benefits are generic obligations (article 539º *et seq.*) and alternative obligations (article 543.º *et seq.*)."[204]

João Calvão da Silva, similarly, but on continuous or recurrent obligations (as an object of future securitisation) wrote "Indeed, it is conceivable determinable future claims, the "amount known or estimable "just not contracts: one thinks in providing water, telephone, electricity, gas, tolls, etc. and easily will be assumed futures contracts of which will emerge pecuniary credits of determinable amounts that will not be translated into uncertain and unforeseeable obligations, for that reason of not difficult "securitization". Securitisation units or securitised securities may be projects - industrial projects, infrastructure projects, concession contracts, etc. - from which financial flows are constituting future profits or credits, objectively assessed, determined or to be determinable."[205]

Antunes Varela refers to "The provision of future things refers, as a rule, to things already existing. But it may also have as its future object: the farmer sells the wine of his next harvest or the production of his oranges in the year following the conclusion of the convention; the creditor grants the third party the right to interest for future years", where refers "The term future thing is, however, used by law (art.

[198] The previous Civil Code, was, in essence, transposed (art. 715.º and 716.º) to the present Civil Code (408.º), "The most serious consequences, from the point of view of legal technique, are those resulting from confusing the source contract of real rights with the source contract of obligations. (…) The provision, which is the subject of the obligation in contracts that have the content of the sale of certain things, does not consist of the sale, but the delivery, since the item is already oblivious at the time the service was performed."; "It is clear from this that the contract can both be a source of real rights and a source of obligations." Moreira, Guilherme Alves, Instituições de Direito Civil Português, Tomo 02, 1925, p. 26
[199] As quoted and framed in Ac. STA 30/05/2012 (Lino Ribeiro), Proc. n. º 0677/11
[200] Raul Ventura, O contrato de compra e venda no Código Civil, ROA, 43 (1987), p. 287
[201] Pedro Martinez, Direito das Obrigações, Parte Especial, 2ª Ed., Almedina, p. 60
[202] Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol III, 5ª Ed. Almedina, p. 49.
[203] Cf. Varela, João Antunes, Das obrigações em Geral, Vol. I, 10ª Ed., Almedina, 2006, p. 79
[204] Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol II, 6ª Ed. Almedina, 2007, p. 117
[205] Silva, João Calvão da, Titul[ariz]ação de Créditos, Securitisation, 2ª Ed. 2005, Almedina, p. 87

211.º) in a broad sense, encompassing not only those things which are still lacking in existence (future things in the usual, current or naturalistic sense), as the things already proposed that the available one is not yet entitled to the time of the negotiation declaration (but expects to have it later)."[206]

Nevertheless, considering the contract for future sale, under the art. 476.º of the CCom, is allowed: "the purchase and sale of uncertainties or hopes, except for the provisions of articles 876.º, 881.º, 2008.º and 2028.º of the Civil Code." (para. 1 of art. 476.º CCom) and "The sale of goods that are owned by others" (para. 2 of art. 476.º CCom).[207] In the second case (para. 2 of 476.º CCom), the seller will be obliged to acquire by the legitimate title of property, the thing sold and, to deliver it to the buyer, under penalty of liability for damages.

Carlos Ferreira Almeida (as Amadeu Ferreira and Engrácia Antunes), has a similar construction: *"It is the further concentration of contracts whose object fungible things (including money). But the transfer may depend on a due act of the seller (...) These contracts will, therefore, be, even in Portuguese Law, transmissive contracts with merely obligational effects."[208].*

The same Author also writes that Contract for *"futures have the nature of future sale and purchase because they result in the obligation to transfer a right for a price. The mere obligational nature does not preclude the qualification".*[209], where Futures are contracts, with an obligation to acquire and the other with the obligation to pay the price (although refers only the patrimonial rights[210]).

The provisions of arts. 211.º, 399.º, para. 2 of art. 408.º and para. 1 of art. 880.º of the CC show that the contract is perfectly valid. The absence of the *rēs* to which the contract terms do not prevent the establishment of an agreement on a future thing, since "the contract is performed with the perspective (assumption) that it comes to enter into the patrimony of the seller – *emptio rei speratae".*[211]

There is no misperception between the cause (contract and all provisions related to its formation), its effects (obligational or potentiality) and transfer (*rēs, fact or thing*). The particularity of this agreement is to have a *dare*[212] obligation, (of a thing as a good, right or, fact), where its transfer would be a time of the agreement. By confusing the general concept of "thing" of art. 207.º with *rēs corporaes*, so and putting on the same level different relations (subjective or objective). Otherwise, the art. 211.º would not be possible to consider, or all sale of future things[213], would be reconducted to a promissory contract.

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[206] Varela, João Antunes, Das obrigações em Geral, Vol. I, 10ª Ed., Almedina, 2006, p. 68
[207] Similarly, the §433 of the German Commercial Code.
[208] Almeida, Carlos Ferreira de, Contratos II, p. 137
[209] Ibid., p. 154.
[210] Ibid., p. 138
[211] Cf. Pires de Lima e Antunes Varela, Código Civil Anotado Vol. II, 2º Ed. p. 153. The *ēmptiō reī spērātae* (sale of a future thing, as an obligation of results) and the *ēmptiō speī* (sale of a pure chance, obligation of means), where it is considered that an *ēmptiō reī spērātae* contraposes an *ēmptiō speī*, as defined in the Italian Code (Dispositivo dell'art. 1472*). ēmptiō speī* (sale of a pure chance) is more a risk problem, where *rēs perit domino*, as a general rule, transfer of risk takes place at same time as the transfer of ownership. Owner of property assumes the risks of loss, then related to transfer and completion of an agreement. There is also the binding promise to make something available, to deliver at a future date. The agreement conclusion (effects) and who carries the risk (*ālea*) are not similar terms. This was already on the "The Code of Hammurabi" of ancient Mesopotamia, 1754 BC, i.e. "244. If any one hire an ox or an ass, and a lion kill it in the field, the loss is upon its owner."
[212] As if was in case of *facere* or *praestāre* in the future the same argument is not used, but "*facere* is also "something", in the future.
[213] It could also be built under the regime of usufruct (1339.º CC *et seq.*), where it may be over a third party's right, such as credit, copyright, or shareholdings (cf. art. 1467.º). To this degree, the existence of future profits emerges directly on the usufructuary with no need of further acts. As CC defines fruits as the thing "produces periodically, without prejudice to its substance" (212.º). The determination (or separation) does not preclude that is not possible to assign a future position. A sale of a future crop, in some sense, comprises this idea, someone will sell today, the result (fruits) of its labour in x time. The difference between a lease (1022.º CC), seems to be on the element "retribution" needed and related to the right to use, not the fruits.

There is also an error on the level of statements and inference rules (propositional), on using a "or" (disjunction) to classified a contract (as real or obligational). If all (formed) contracts are obligational, then at a second, subsequent level, they can be real (immediate) "and" (conjunction) not immediately real (or obligational, potential), but not at the same level (or time). All contracts are obligational (this is a needed tautology) but they cannot just be “real” without not being obligational (due to lack of cause). The set (or classes) of real or obligational emerges on the second level, not in a higher level, the immediate (object) and mediate respectively (or all contracts imply a cause). Also, if using a systemic approach, all real contracts (as the other forms of secondary acquisition, emerging from *rēs in aliēna* are under the book of obligations, but under the book of things, are the assignments (or limited real rights, as enjoyment and use) that don’t imply the transfer of the *dominium* (e.g. usufruct and lease).

Forwards

Whereas stated that all entities that operate in the electric market of both Parties are subject to all the rights and obligations arising from the creation of MIBEL[214], as well as any other entity which, direct or indirectly, act on the electric system of each of the countries (para. 1 of art 3.º of MIBEL Agreement), namely the producers of electric energy, which function, is the production of electric energy, as well, as build, operate and keep production plants, either for own consumption and for the consumption of third parties (head. a); the final traders, under the terms specified on the 2003/54/CE European Parliament and Council Directive containing the common provisions for the internal electricity market. (head. d) moreover, the traders who are the legal persons who by accessing the transport and distribution networks have the function of selling electric energy to the consumers or, any other entities of the system (head. e).

Considering that electricity is traded under the organised markets of MIBEL and the respective settlement are the following (para. 1 of art 6.º):

a) Forward markets, comprising the transactions regarding energy buckets which settlement is either physical or in cash and completed after the following day of the transaction date;

b) Day markets, comprising the transactions regarding energy buckets with physical settlement completed on the following day of the transaction date.

c) Intraday market with a physical settlement.

The non-organised markets comprise bilateral transactions between the entities of MIBEL which settlement is either physical or in cash (para. 2 of art 6.º).

In the context of the operation of MIBEL, the parties undertake to act under the principle of solidarity which applies in case of emergency, namely in those situations when the warranty of supply of energy in the MIBEL’s area is at risk (para. 1 art. 15.º, Warranty of Supply of Electric Energy).

Where is granted to OMIClear Clearing Members the possibility of registering bilateral transactions for their own account and for the account of Clients (para. 1 para 12.º MIBEL), where the trading rules apply, *mūtātīs mūtandīs*, to the Clearing Members’ activity (para. 2 para 12.º MIBEL).

[214] Agreement between the Portugal and Spain for the creation of an Iberian Electric Energy Market (01/10/2004), then amended.

Amadeu Ferreira[215] wrote that derivatives can be constructed as individual legal positions or may be multiple, with characteristics of homogeneity. Where, for this case, classification as a derivative (iii), head. e) para. 1 of art 2.º CVM[216], thus distinguishing:

- financial instruments (settled physically);
- financial instruments (settled in cash).

Consequently, may be considered futures and forwards (as the difference is related to first being on the market - standardised - or as an OTC agreement)[217]. Its structure is also of the financial futures, legal positions resulting from actual sale contracts, where there is a delivery of securities or tangible property (in general, goods), with the typical obligations of the purchase and sale agreement, according to art. 879.º CC.

Amadeu Ferreira[218], considered that It should also be noted that if there is a transfer of ownership of a good or asset (contract with physical settlement) it only operates at the end of the term of the contract ("principle of the essentiality of time in forward contracts"), in art. 879.º CC, which should be regarded as limited to spot contracts. For the same reason, typical obligations of the contract are only rendered at the end of the period.

Carlos Ferreira de Almeida, writes *"The derivative is created at the time the bids are registered, and therefore integrated into the system. As the central counterpart adopts a position of neutrality, that is, it is only a formal part, since it does not intervene in the determination of the price; it is possible that the creation of a derivative may result from an earlier agreement between two opposing sign investors who decide to bring the agreement later to the stock exchange. There is no issue of derivatives, there is an offer to the public and a takeover of positions in standardised contracts. Investors acquire legal positions that will exist until the final settlement."*[219]

One of the disputes is whereas the derivatives (namely in the market) are a contract in favour of a third party or, a unilateral business. Derivatives are abstract businesses[220]. They do not depend on the validity or existence of any underlying business to be formed.[221]

Menezes Cordeiro writes, "In Portuguese Civil Law, legal business is, in principle, always causal[222], although "On the contrary, in an area where trust is safeguarded in legal traffic, abstraction imposes itself as a natural solution. (…) whose efficacy emerges from credit instruments: they subsist independently of the source that originated them, presenting themselves as abstract businesses"[223]

It cannot be referred to the use of the abstract principle, without its correlative separation principle. There's no abstraction with no separation.[224] Although, the Civil Code assumes that the effects of the

[215] Amadeu Ferreira, Notas aulas de Direito dos Valores mobiliarios, Instrumentos Financeiros Derivados
[216] Similar construction in on the German Securities Trading Act (*WpHG*) Where, under section 1 (scope of application), also includes "to the conclusion of financial futures and forward transactions", where defines Derivatives within the meaning of this Act (art. 2.º)
[217] Some authors, relating to Futures (or Derivatives in general, negotiable in the market, classified as a unilateral business, not as a contract. And those who classify them as a unilateral business (Ascensão, Oliveira, *Derivados,* Coimbra, 2003 p. 62 *et seq.).*
[218] Ferreira, Amadeu José, op. cit.
[219] Almeida, Carlos Ferreira de, Contrato de Opção, Lecture Notes, of Contratos Civis e Comerciais
[220] Cf. Abstract and causal business, Almeida, Carlos Ferreira de, Contratos II, p. 118-125
[221] Leitão, Menezes, Direito das Obrigações II, 5 Ed., p. 19-20
[222] Cordeiro, Menezes, Tratado de Direito Civil Português, I, Parte Geral, Tomo I, 3.ª Ed, 2005, p. 470
[223] Ibid., p. 471
[224] Cf. prior note p. 53.

contract (formation and completeness) and its factual effects (namely transfer) is the same operation (cf. *supra*). Considering that forward contracts are derivatives, which means that the business in which they are based is characterised by the existence of a period of time between the date of their conclusion and the date of the execution of the rights and obligations emerging from them. In effect, this will only be verified on the date of the respective maturity, so the early settlement will disqualify the contract.

Lastly, OTC derivatives are bilateral contracts, generally preceded by the conclusion of a master agreement which sets out the general conditions under which the parties decide to contract in the future. Like futures contracts, forwards give buy and selling positions on a given underlying asset at a price and at a future date previously fixed.[225]

iv - Vector Function

PPA as an Energy – Master – Purchase Agreement

Electricity Supply

The supply contract is a legal instrument of what has been called a commercial distribution, where the business relationship between producers and large retailers is usually based on a supply contract. In this case, it is a recurrent transaction in which one of the parties (the supplier) undertakes, against payment of a price, to make periodic supplies to the other contractor (the buyer). The supply contract qualifies as a durable contract: meeting the buyer's interest requires that the supplier's services be repeatedly performed within each time frame.

It is a flexible negotiating scheme, which provides an adequate response to complex contractual situations: "*its originality derives from the fact that it is left to other contracts [the contracts of execution] to concretely achieve the objective of the parties*".[226] The framework contract is the source of a complex obligational relationship, the implementation of which requires the conclusion of multiple acts, in accordance with the parameters originally agreed upon. These execution acts, considered separately, constitute purchase and sale of goods.[227]

Looking to what being traded, is given position over the injected electricity (in a given POD), or relative interest, over a certain (common but divisible) quantity of all the injected electricity, being delivered within a certain timeframe (of dispatch) dependant on previous market rules (this case the central counterparty and settlement's rules).

[225] Futures, derivative contracts emerged as soon as humans were able to make promises and it is essential for a promise that it is somehow recorded (in stones, metals, etc.) With these several examples of futures (namely cereals) were traded since ancient times. Cf. e.g. Cuneiform Digital Library Initiative

[226] Cf. Carlos Ferreira de Almeida, Contratos II, 2000 Ed.

[227] On the interdependence between the framework contract and the performance contracts - these implement the object of that contract; Pinto, Carlos Alberto Mota, op. cit., pp. 186-187

The art. 5.º of the Regulation of the Quality of Service also refers the supply on a continuous basis, by stating that "Network operators in the electricity and natural gas sectors should, wherever possible, maintain the continuous supply of electricity and natural gas".

Carlos Ferreira de Almeida also refers to the supply contract as "*the contract of sale does not exhaust the contractual types of exchange for the transfer of rights. (...)",* where *"the supply contract is characterised by the periodic or continuous nature of non-monetary supply (goods, publications, water, electricity, gas, telephone). Although not mentioned in the Portuguese civil law, it is mentioned in article 230.º*[228]*, paragraph 2 of the Commercial Code, as a criterion of the commercial nature of the companies, and recognised in the administrative law, which can also include services. The doctrine of the supply contract is often classified as a sub-type of purchase and sale. More suitable seems to be though. If the interpretation of the contract does not conflict with it, the classification as a framework contract, in which multiple sale and purchase contracts or services are concluded (in addition to the possible integration as a component of a network access contract."*[229]

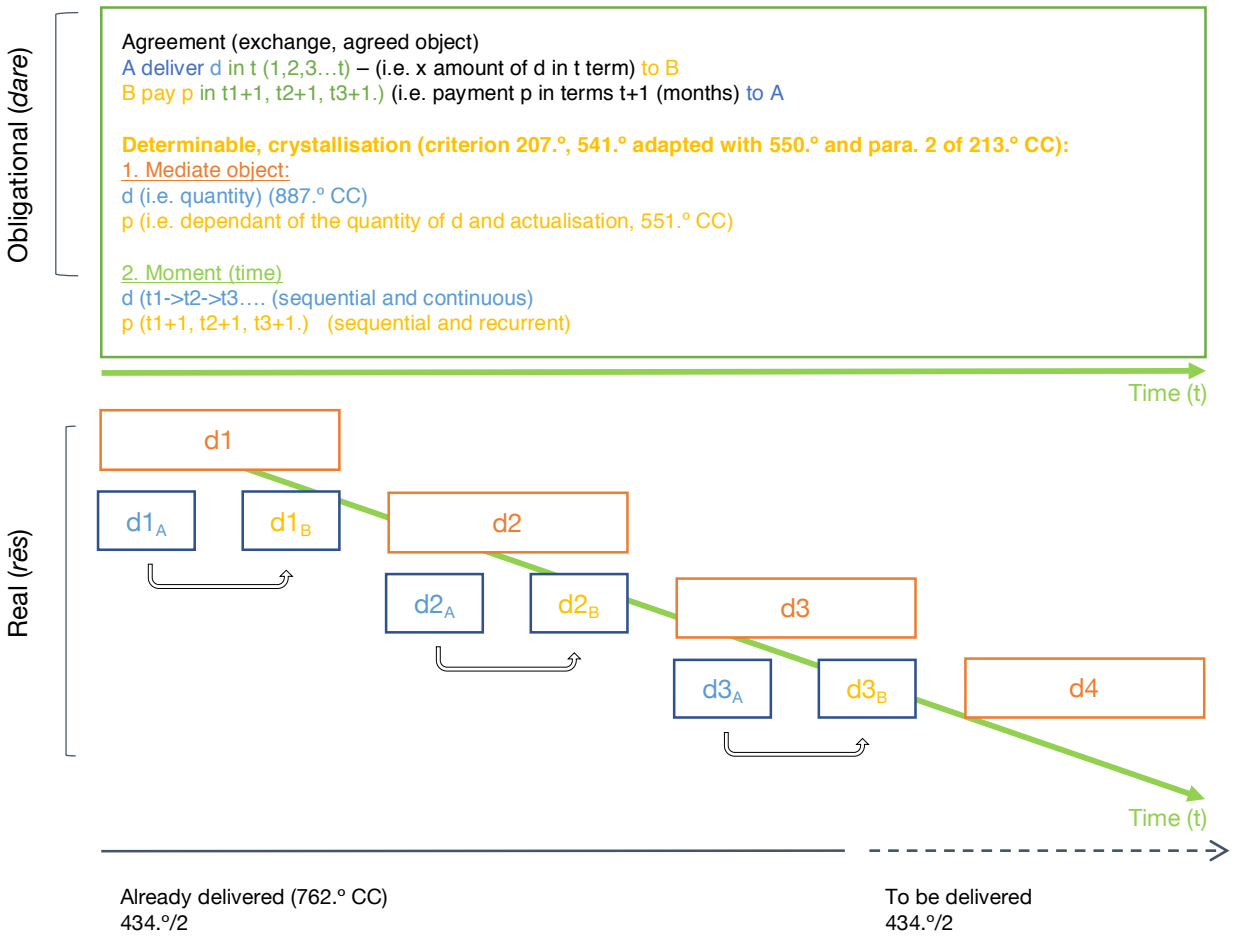
Using the monetary supply, as an analogy, contractually acquires the certainty that he can count on capital at the convenient moment, if and when he will need it. In the case of electricity, this can take the form of "minimum" dispatch quantity or a certain percentage of guaranteed supply (is a promise to deliver or make available a certain quantity, not to deliver or to actually settle), where for each sale (in a continuous manner) to occur a framework for its delivery must be settled so, as capacity (as the maximum amount under a credit line) is contracted.

However, in this type of contract, the determination of the price to pay is necessarily made in function of the amount (quantity) of to be dispatched, which, is unknown (but determinable) at the time of the initial subscription of the contract.

[228] Coutinho de Abreu also refer the art. 230.º CCom. Cf. Curso de Direito Comercial, vol. I, 4.ª Ed., Almedina, 2004, p. 56

[229] Almeida, Carlos Ferreira, Contratos II, Almedina, Out 2007, pp. 142-143 and pp. 239-240. Similarly, on the same subject matter, Freitas do Amaral under Administrative Law, Cf. Amaral, Diogo Freitas do, Curso de Direito Administrativo, Vol II, 6th reprint 2001, Nov. 2006, Almedina, p. 550

Figure 12 - Continuous supply (future credits) obligational and real effects across time



As Antunes Varela has written, "The distinction between the complex obligational relationship and the one or simple obligations that may, artificially or abstractly, be isolated within it becomes especially in the long-term binding relationships, such as the lease, supply contract (water, gas, electricity or other products) or onerous loan, whose development in time will lead to the successive creation of new obligations. (…) The obligation will be not only a complex relationship (composed of several acts, logically linked together), but essentially changeable in time and geared towards a particular purpose."[230]

Taking into consideration the interest of both parties (as described *supra*), there is more than a sum of several undertakings to deliver electricity (or an interest in a given dispatch) or that more than several derivative contracts (sale and purchase positions of the injected electricity). There is an economic value on reliability, trust that cannot be discharged and thus, should also be the object of protection.

In general terms, the main operation is in the future agreement of dispatch schedule (amount and procedure), where each "sale" cannot be seen separately, but also as pointed out, namely availability

[230] Varela, João Antunes, Das obrigações em Geral, Vol. I, 10ª Ed., Almedina, 2006, p. 94

(right of use, potential), constitutes a service and as such, it is a complex contract for the sale of future fungible positions (rights), in a continuous manner.

The error is assuming or forcing a bundle of a continuous supply into a single contract of several (predefined) instalments. What is being traded is not to deliver a certain number of specific things (as existing realities), divided per several intakes (e.g. delivering *x* number of *y* within a given *z* period). If considering as a framework agreement such construction is not needed for the future deliveries, where the amounts subscribed are tied to the previous terms agreed (e.g. price per kWh). What is open is the agreed dispatch schedule or the number of given (or interest, position) units to be delivered. The general terms and conditions remain the same or, are dependent on the framework (or master) agreement.[231]

[231] On the difference between individual instalments (repetitive) and lasting obligations, cf. Varela, João Antunes, op. cit., p. 91 *et seq.*

III - *Tensors*

i - Models Involving PPAs

There are several models involving PPA's, ranging from typical wholesale model to corporate wired PPA, or from onsite to virtual PPA'S. We can have:

On-site sale

- Direct sale on site (e.g. shopping centres, commercial centres, manufacturing industry, airports, ports etc.)

Sale through the grid:

– Utility-scale ground-mounted plants;

– Sale to energy utilities (i.e. peak load purchases, renewable energy source obligations);

– Sale to end users (e.g. large industrial clients);

– Sale to wholesalers or "aggregators".

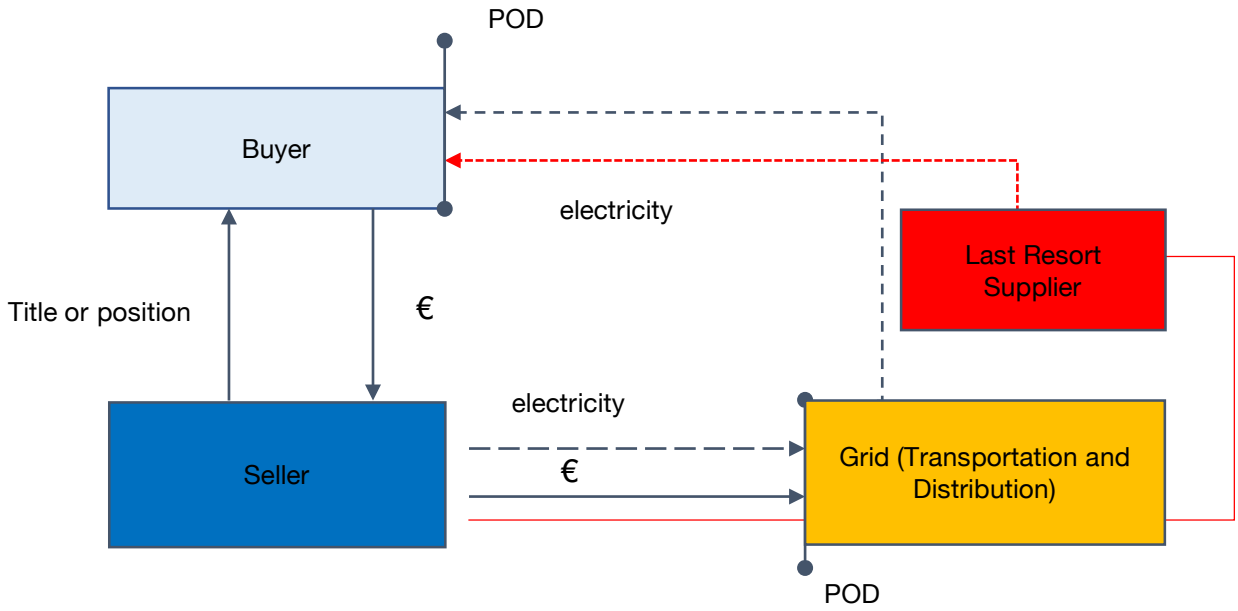
Virtual

- There is no physical delivery of electricity and can be operated throughout typical structures instruments (as CfD´s, compensation, among others).

PPA with backup System Framework

A potential contractual Framework, maybe be, as the one described in the figure *infra*, where, a PPA integrates a set of obligations, namely to have the Usage of networks Agreement with TSO or DSO, and Interruptibility Agreement with the last resort supplier (security of supply or TSO).

Figure 13 - PPA with backup System Framework



ii - PPA structures

Corporate renewable PPAs may be complex transactions and take a variety of different forms. Some of the most common structures are defined *infra*. These are usually 10-20 years' agreements to buy electricity generated from a project that flows directly to the purchaser i.e.

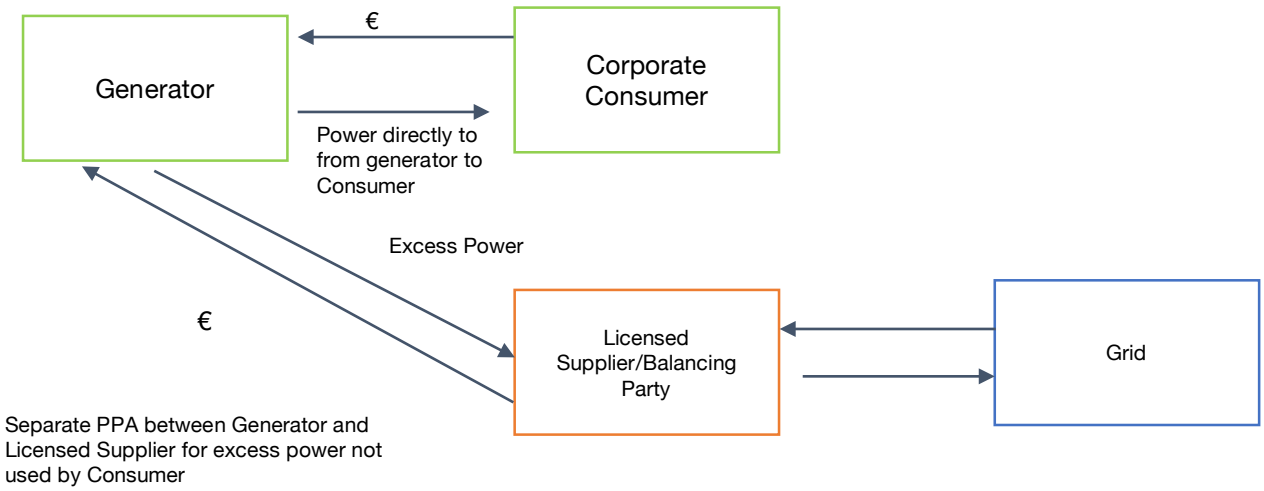
Wholesale PPA

Figure 14 - Wholesale PPA

The simplest PPA is the "Wholesale model", where the generator sells all power supply back to a licensed supplier. Most of the RES generation implemented using this structure, licenses were auctioned to generate a certain amount of energy in exchange for a certain predefined tariff per MWh.

Onsite direct wire PPA

Figure 15 - Onsite direct wire PPA

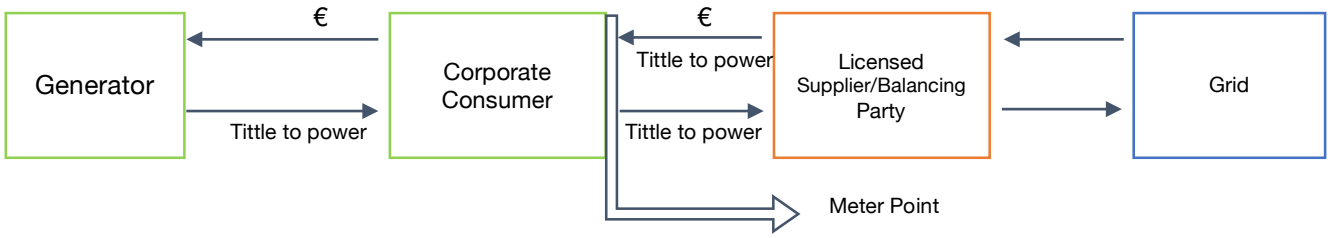


Not all PPA are wholesale PPA´s and, increasingly, we see more often on-site private wire PPA´s. Instead of selling all back to the market, namely activities that are energy-intensive, or to improve the percentage of RES in their overall energy mix, can have power directly from a generator to them and, a separate PPA, for either the excess power generated or as a last resort supplier.

Sleeved off-site PPA

Figure 16 - Sleeved off-site PPA

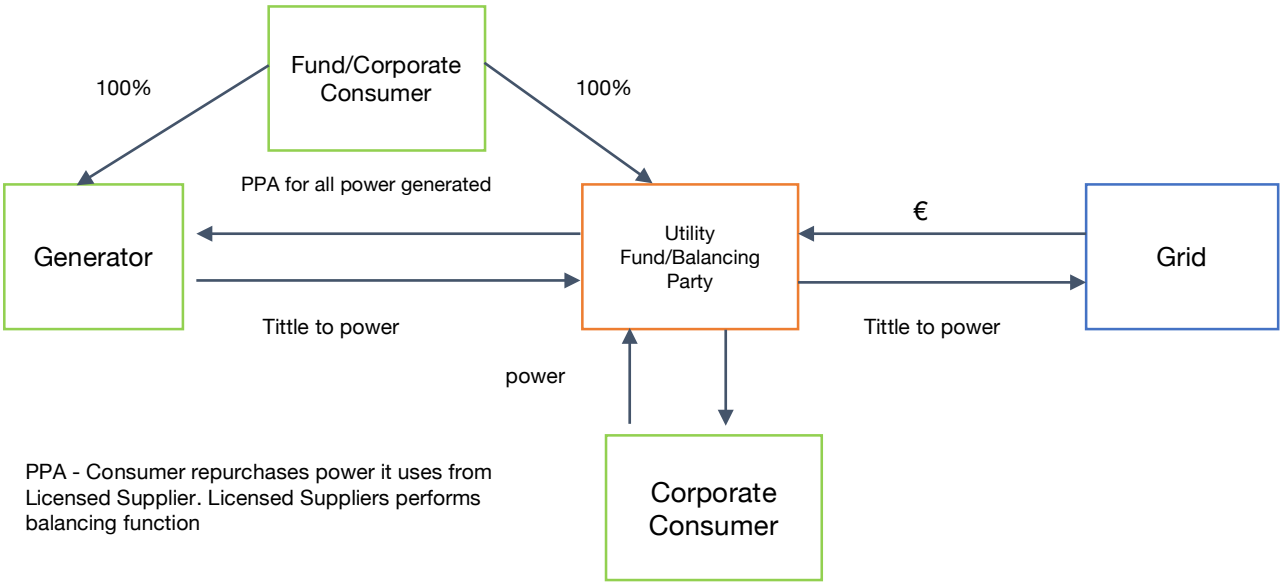
Back to back PPA – Electricity Supplier purchases all power purchased by consumer. Consumer repurchases power it uses (performing balancing function).



In a Sleeved PPA, all power generated is sold by the corporate consumer to the licensed supplier – or balancing party – still is a back to back PPA – Electricity supplier purchases all power purchased by the consumer. Consumer repurchases power it uses (performing balancing function).

Mini-utility

Figure 17 - Mini-utility

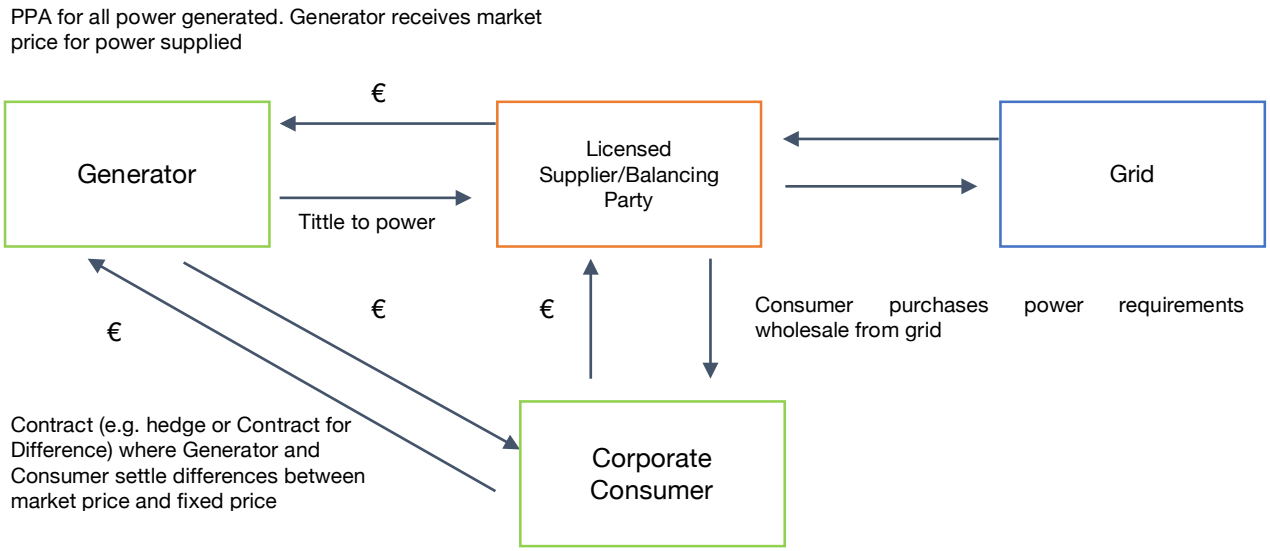


PPA - Consumer repurchases power it uses from Licensed Supplier. Licensed Suppliers performs balancing function

A mini utility PPA – Buyer purchases power it uses from Licensed Supplier and Licensed Supplier performs balancing function too (this is the typical case of the referred programming unit, where instead of one physical unit, it is assumed a group of physical units as a single “Programming Unit” (the terminology used in REMIT and procedures related to dispatch and settlement).

Synthetic PPA

Figure 18 - Synthetic PPA



Lastly, a Synthetic PPA or, also referred as a "Virtual PPA" is a Contract where generator receives the market price, under PPA and Generator and Consumer settle the difference between market price and fixed price. It is virtual, because there is no physical purchase of electricity, like most Contract for Difference. Similar to commodities trading (i.e. Brent, where most have "financial settlement and not physical settlement).

IV - Coordinate System

i – PPA Contractual Terms

Taking into consideration the present regulation, namely for dispatch and delivery, most terms will imply the adhesion to such terms (or the parties may have to comply with the obligations and duties).

If using a direct wired PPA (not using the grid or under a private network), may also include delivery and transportation, so as metering, as overall services provided under a distribution agreement and, may include capacity (availability) for balancing function.

Considering the previous chapter, the definition of the dispatch schedule, assumes extreme importance, as corresponds to the future agreed (quantity of) electricity (or position) to be delivered to the electricity grid.

Pre-operation Period

Pre-operational obligations frequently include reasonable efforts by the seller to obtain necessary consents and approvals and, by the purchaser to provide reasonable assistance in obtaining the needed consents and approvals.

The purchaser may be required to provide the seller with the title to the site and construction, water, power and other services (namely if onsite direct wired PPA).

The pre-operations provisions generally also provide the purchaser with the right to observe the construction progress of the project, as for the registration of physical units within the transport and distribution network. A PPA will often provide, as part of the pre-operation obligations, for the purchaser and the seller to agree on the operating procedures.

Seller's pre-operation obligations may include (using all commercially reasonable efforts):

i. Meet or satisfy the Conditions Precedent;
ii. cause installation of the System to be completed and;
iii. cause the System to begin Commercial Operation on or before the Commercial Operation Deadline.

Conditions Precedent

Often are set out conditions precedent for the *effectiveness* of each party's obligations under the PPA (and certain other obligations may not be supplementary) and subject to the fulfilment or waiver (270.º of the CC).

Testing should be objective and designed to confirm levels of contracted capacity, reliability, and fuel (or RES) efficiency or heat rate. The receipt of the certificate (namely of registration of physical units) should become the trigger for the commencement of capacity payments unless an earlier "deemed" commissioning has occurred.

It may, also, to clarify, the basis to enter into the agreement (i.e., a specific energy project that is not able to get a connection to the grid or, not able to clear an EIA (namely if more than 10 MW), or other relevant authorisation or circumstance needed to implement the remaining terms (as to be able to perform its contractual terms, as the registration of its physical units).

Term

The term defines the date on which the agreement becomes effective and the period after which it will terminate. The provision will also provide extensions for specified *force majeure* events and may also include procedures for a request by either party for an extension.

The COD, corresponds in fact, to the starting date of the normal operation and dispatch of electricity, which differs from the starting date of the PPA, where depending on the structure, there can be periods prior to this moment (prior actual dispatch of electricity).

In the event of default, the non-defaulting party may have the right, subject to certain cure rights for the defaulting party, to terminate the agreement and exercise certain rights. It could also trigger a right of either the seller or the purchaser to terminate the PPA.

Termination provisions generally include requirements for notice by the party wishing to invoke termination and/or another remedy, followed by a consultation period between the parties and a period during which the defaulting party may attempt to cure the default.

Obligations related to the Energy System (control, quality[232] and safety standards)

This may include an obligation of the seller related to the installation and commissioning of the ES (and lease) and its operations (this last intrinsically dependant on the sale and purchase agreement, namely quality and dispatch). Additionally, the need to install the ES in a given physical place needs a right to use the land (that can take the form of a lease, surface right to install the ES), as with RES, the location and its natural conditions assume extreme importance.

The inclusion of provisions related to the ES are standard due to several elements, namely: services are provided within a certain quality standard, in the case of default, these assets may be used as a remedy, to regulate aspects usually out of the scope of a regular supply contract.

The fundamental elements, assets and rights that compose the energy system is quite important to any given PPA, because the absence of one, may compromise the ability to deliver the contracted electricity. There is no definition on what is an “Energy System” (although most PPA’s will have provisions regarding the several elements of an ES).

[232] To be able to generate “things of the same quality”, the regulation on potential, assumes particular importance, in order to have the same form and end.

The control over such assets, namely not conserving ownership may suspend or cancel the registration of the physical unit. Depending on how a given business is structured, may also be under a SPV that has all elements of the ES, where other issues may emerge, often classified as indirect ownership of a business.

It may also include all related permits, agreements to be able to dispatch electricity (i.e. use of networks, comply with safety standards of the ROR and related regulation of the electricity grid), e.g. Quality standards and Safety Standards under art. 25.º of the RQS.

The STA[233] (on a dispute between the Fiscal Authorities and the owners of a Wind Farm, on the admissibility of taxing singular components) considered the concept of "economic entity" or industrial (commercial) unit.

Purchase and sale of output

The art. 162.º sets that bilateral contracts may be established between two market agents, where with the conclusion of a bilateral contract, one of the parties undertakes to sell and the other to buy the contracted electricity, adjusted for losses, at the prices and conditions established in the same contract (para. 2 of art. 162.º RRC). Market agents who conclude bilateral contracts are subject to compliance with the provisions of the MPGGS SE [234] provided for in art. 38.º (para. 3 of art. 162.º RRC).

Although there is a duty to give notice of the conclusion of bilateral contracts (art. 163.º RRC), within the scope of the Global System Management activity, where the contracting parties may agree that one of the parties assumes the responsibility for the communication of information regarding the execution of the contract (para. 2 art. 163.º RRC).

The settlement process related to the electric power contracted through bilateral contracts is the exclusive responsibility of the contractors (para. 1 art. 164.º RRC). The verification and valuation of the deviations are carried out by the TSO, within the scope and in accordance with the MPGGS SE (para. 2 art. 164.º RRC).

However, if using the grid the same applies, as all electricity injected (being irrelevant if the contract is under a bilateral contract or organised markets), assumes similar treatment for dispatch, as there is no separation from one and the other.

Concerning the sale of electric power purchased from producers under the special regime with remuneration guaranteed by the fixed administrative tariff may be affected through participation in the contracting modalities provided and, the commercialisation of last resort must submit to ERSE, for approval, a proposal for contracting for the following year regarding the energy of the production under the special regime (para. 1 of art. art. 170.º).

The RRC does not define the regime of a PPA (only the relationship between the parties) thus, arises several obligations, wherein this case:

- To provide Contract Capacity and Electrical Output;

[233] Ac. STA 0140/15 of 15/03/2017 (Dulce Neto)
[234] Cf. Definition P. n. º 8, MPGGS SE, also in p. 25

- Obligation to Pay for Available Capacity and Electrical Output (as defined in Price or Pricing mechanisms);
- If defined (e.g. under a take-or-pay obligation), forbearance of Third-party sales (or circumstances to allow such sales);
- Rights to Renewable Energy Certificates;
- Third party reporting duties (namely reporting to TSO or DSO or REMIT).

Obligations to Provide Contract Capacity and Electrical Output

It specifies that the seller must make available to the purchaser, not later than the specified commercial operation date (COD), the contracted capacity of each unit and deliver energy to the purchaser in accordance with the PPA. The seller will commit to making each unit available by the COD to ensure that each unit meets specified operating characteristics (to operate and maintain the plant over the term of the PPA, and to comply with the purchaser's dispatch instructions), subject to the network operator (or the definitive viable dispatch schedule sent by the last).

It may also set take-or-pay obligation of all electricity generated (and dispatched), where the producer will make available to the buyer, at the POD, all (if take-or-pay) the output produced by the system.

Obligation to Pay for Available Capacity and Electrical Output

The purchaser will be required to pay a monthly tariff for the available capacity and the electrical output generated by the plant. The most common approach is a "two-part" tariff, separated into capacity and energy components.

Energy costs are usually incurred only if the plant is dispatched by the purchaser, whereas fixed charges are payable if the capacity is available but not dispatched and, under specified (*e.g. force majeure*) events, even where capacity is not available.

Pricing mechanisms

PPAs can be driven by a variety of pricing mechanisms, removing its fix part. The two most common mechanisms are as follows:

1. Fixed-price PPA: this structure involves an upfront agreement on how the price will move over the lifetime of the contract.

2. Discount to market PPA: this structure could only apply in markets with a fluctuating wholesale power price.

Besides the price related to kWh delivered also exists costs for the usage of the networks (tariff), paid by the producer, the aggregate variable charges.

The tariffs for the electricity sector are set out in regulation (from ERSE), however, the obligation to pay them is due to the conclusion of a private contract between agents in the sector.

Electricity Price

As the discussion related to the nature of the obligation, the quantity measured will complete the needed determination for the transfer to take place.

The art. 245.º of the RRC states the quantities to be measured or determined (for the purpose of applying the tariffs) are as follows: power load, contracted power, power at peak hours, active energy and reactive energy. The art. 256.º adds that the power taken is the highest value of the average active power, recorded in any uninterrupted period of 15 minutes, during the interval of time that the invoice respects.

This corresponds to the variable part of the price, that can either be set a minimum quantity (still here the price would be related to availability rather than delivery). This may also be the object of adjustment (usually inflation or another agreed index).

Namely, when discussing curtailment and its compensation, the argument is on the payment for availability or the undelivered output or the possibility to make third-party sales (resource is not wasted, not used but sold to a third party if the purchaser agrees with such terms).

Capacity

As referenced previously, the electricity prices are composed by several components, where the tariff related to the voltage level to which the producer (or both parties, depending on the structure) is connected and the type of supply applicable, as defined in the Tariff Regulation. As defined in RRC the producer is due payment for connecting to the grid (e.g. art. 45.º of the RRC on the billing of deliveries by the TSO to the DSO in MV and HV). Still, these costs may be transferred to the PPA.

Considering the current Tariff Regulation (RT), there are the Global System Usage Tariffs (art. 71.º *et seq.*) to be applied to the DSO in MV and HV, which shall provide the RNT concession entity with the permitted revenues from the activity of purchase and sale of the commercial agent and the activity Management System of the TSO (para. 1 art. 71.º) and are composed by two instalments of: a) The instalment I allows to recover the costs of managing the system and, b) The instalment II allows to recover the costs of energy policy measures, environmental or general economic interest and the costs for maintaining the contractual balance of producers with CAE (para. 1 art. 72.º RT).

There is also transportation (and distribution) network usage tariffs (art. 75.º RT) to be applied by the TSO to ordinary regime producers and special regime producers for the entrance in the RNT and the RND and, to the DSO, in MV and HV, for the deliveries of the RNT, which must provide the allowed revenues of the activity of transport of electricity of the TSO, in Portugal. The general structure (art. 76.º RT) is:

a) Transportation Network Usage Tariff of the TSO applicable to the RNT and RND entrances;

b) Tariffs of Usage of the Transport Network in MHV for deliveries in MHV;

c) Tariffs of Usage of the Transport Network in HV for the remaining deliveries.

Considering that with RES, this may be an important service to be provided and that will limit the amount of energy purchased, capacity may be, in some cases, the most critical component of the performance and corresponding price.

In this case, there is no exchange or transfer of any good, but the right to use. Capacity markets (or the right to transport electricity) is also under the same energy wholesale classification of REMIT.

Capacity, as noticed, when referring the several mechanisms can also be designed according to availability and response time, along different periods (i.e. dynamic prices where it is attached to peak loads), not over quantity (as kWh).

Ancillary services

Similarly, the cost related to using the electricity grid, they also encompass Global System Fees and Backup system supply (last resort). This function can, in theory, be provided by third parties (namely backup, i.e. with alternative energy source or storage to supplement moments on (natural) interruption or unavailability of natural resource (wind and solar irradiation).

The Agreement of Guarantee of Supply (for market Agents that use the public electricity grid) has as subject matter "the rules applicable to commercial relations between the DSO and the (market operator) or a customer with the status of a market agent (clause 1).

There is a right of return (clause 4.1), without prejudice to the specific provisions of the Agreement, the commercialisation entity must ensure through the supply contracts entered into with its clients, in accordance with the rules and regulations in force, regarding matters within the scope of the activity of the TSO and the DSOs, in particular the RARI, RRC and the RQS, namely for metering, power control, reading, continuity and interruption of supply, quality of service, accessibility to customer use facilities, inspection and fraudulent procedures (clause 4.2).

The supply and absorption of reactive power by generator sets, at the intervals defined in the Transport Network Regulation, is a mandatory and unpaid system service (para. 3 art. 32.º of ROR), aiming to maintain the voltages in the different nodes of the network within the established limits.

Payment and Invoicing

The RRC under art. 40.º, expresses the billing of the TSO to producers by entering RNT and RND of production, except for producers under the special regime with remuneration with a fixed tariff, to enter the RNT and, the RND of production (para. 1 of art 40.º).

Contest Rights

As stated in the GMLDD, clients have up to 30 days, to complain to any measurement taken and, if correct is the ORD that send this correction back to the producers. Although, even if out of RESP, the right to contest gains exceptional importance due to the nature of the contract.

Considering wholesale energy market, there are Monthly Settlements[235]:

- Within five business days following the end of the month, GGS will make available to each market agent a monthly settlement note, with the amounts related to the receivables and payment obligations, due to its participation in the Portuguese area of MIBEL, broken down by the different settlement units affected by the market agent (para 7.1 of P. 21 Monthly Settlement, MPGGS SE).

- The market agent has a period of 5 business days, from the date it was made available the monthly settlement note, to contest the amounts presented, for the purpose of incorporating any corrections in the said monthly settlement note, with effect on the payment date/next receipt.

Third-party sales

Any output may not be immediately usable by the purchaser and may be exported to the grid pursuant to Interconnection and Usage of the Networks Agreements.

It might benefit both the purchaser and the seller if the last is permitted to sell excess capacity and the energy not dispatched by the purchaser to a utility (or other balancing party). As the PPA may constitute a take-or-pay obligation of the purchaser, the proceeds of third-party sales can reduce the purchaser's monthly tariff payments. Alternatively, the seller, as an agent for the purchaser, might sell available capacity and energy to a third party in return for a negotiated agency fee from the purchaser.

Renewable Energy Certificates

Considering, Renewable Energy Certificates[236] are defined as tradable, non-tangible energy derivatives that represent a proof of 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity) and was fed into the shared system of power lines which transport energy. Renewable Energy Certificates provide a mechanism for the purchase of renewable energy that is added to and pulled from the electrical grid.

In accordance with art. 45.º (energy labelling) of the DL n. º 26/2006 must be followed. RRC under art. 133.º goes further on the electricity labelling elements needed.

These certificates can either be delivered to the buyer, along with the electricity supply, or sold in the market.

[235] para. 7 of P. 21 Monthly Settlement, MPGGS SE)
[236] Cf. DL n. º 39/2013 of March 18

ii – Transport and Distribution

Connection and Point of delivery (POD)

It is also defined, according to the previous, to deliver output to the physical location where the Energy System connects to the electricity infrastructure (the POD) and the title to, the risk of loss of, and custody and control of, the output will pass from producer to buyer at the Delivery Point if private or, to the grid.

Contract of use of the electricity grid

The contract establishes the commercial conditions, the remuneration to be paid, by network users, for the usage of networks and interconnections (the electricity grid) in accordance with the Regulation on Access to Networks and Interconnections "RARI" (Reg. 560/2014, of Dec. 22).

According to its art. 5.º (Entities entitled to access) the right of access to the networks and interconnections, is automatically recognised to all entities on the moment when the process of connecting to the networks of its facilities is completed, under the terms defined in the RRC, namely: customers, the commercialisation entities, producers in the ordinary regime and, producers in the special regime.

Under the art. 23.º, is defined the compensation for the usage of facilities and services:

- The DSO is entitled to receive a fee for the use of their respective facilities and services by applying the access tariff related to the voltage level to which the customer's installation is connected and the type of supply applicable, as defined in the Tariff Regulation.

- The TSO shall be entitled to receive a fee for the use of its associated facilities and services, by applying the access tariff related to the production facilities linked to the RNT or the RND, under the terms defined in the Tariff Regulations.

- The tariffs referred are published together with the remaining electric sector tariffs, in the annual ordinance that establishes the tariffs and prices of electric energy for the following year, in the terms defined in the Tariff Regulation.

The term of the Usage of Networks Agreement is limited to one year, automatically and successively renewed for the same periods, unless notice is given by the market agent (para. 1 of art. 12.º of the RARI).

The suspension of the agreement implies that the Market Agent temporarily forfeits the possibility to transact electric energy through bilateral contracting, to participate in the organised electricity markets and the systems services markets managed by the GGS. (para. 3 of P. n. º 2 – Agent Market Status, MPGGS SE).

The termination of the Agreement implies that the Market Agent concerned will definitely lose the possibility of transacting electricity through bilateral contracting, participating in organised electricity

markets and the systems services markets managed by the GGS. The termination of the contract occurs in the following events:

a) Agreement between the parties;
b) Expiration;
c) Expiration of the registration referred in the art. 9.º of REMIT;
d) Resolution, if it is maintained for a period of more than 20 business days, the default that caused the suspension of the Market Agent (para. 4 of P. n. º 2 – Agent Market Status, MPGGS SE).

Constitution and determination of the collateral amount[237]

The constitution and determination of the collateral (MPGGS SE), the minimum value of the operating guarantees that each market agent must provide at any given moment, are determined by the GGS, subject to:

a) the risk period to be covered by the guarantee,

b) Consideration of a margin for possible deviations.

Registration[238]

The Market Agents must register with the GGS all the Physical Units[239] that wish to use in the organised markets, systems services markets, managed by the GGS and/or bilateral contracting. The Market Agent must provide to the GGS, the necessary information, as established in the procedures and forms defined by the GGS Notice. For the registration of a physical unit, the Market Agent must do the registration of physical unit, under the terms defined by the GGS Notice.

A programming unit will be automatically removed when the termination of the Usage of Networks Agreement or, no longer having a license or registration of with the DGEG, in the case of a commercialisation agent.

The exclusion of a physical unit implies the definitive loss of the possibility to transact electric energy through bilateral contracting, to participate in organised electricity markets and the system services markets managed by the GGS.[240]

iii - Dispatch and Settlement

For one hand, there is a continuous supply and the natural intermittency of RES. Another, namely buyers, if commercialisation entities need the ahead (possible) schedule prior, to either decide, amounts to purchase, either to third parties or, to the last resort supplier to be able to fulfil their obligations with their clients. DSO and TSO, for network operations, as well, for grid management.

Alternatively, if under a minimum guarantee obligation, the seller may have to contract on the market (until its limit capacity), if its generation is not enough to guarantee the minimum agreed by the parties.

[237] (para 2.5, P. 22 payments, receipts and guarantees MPGGS SE)
[238] (P. 2 Physical Units, MPGGS SE)
[239] Cf. Registration (P. 3 Types of programming units, MPGGS SE) and (P. 4 Physical Units, MPGGS SE)
[240] Exclusion (para 7, P. 4 Physical Units, MPGGS SE)

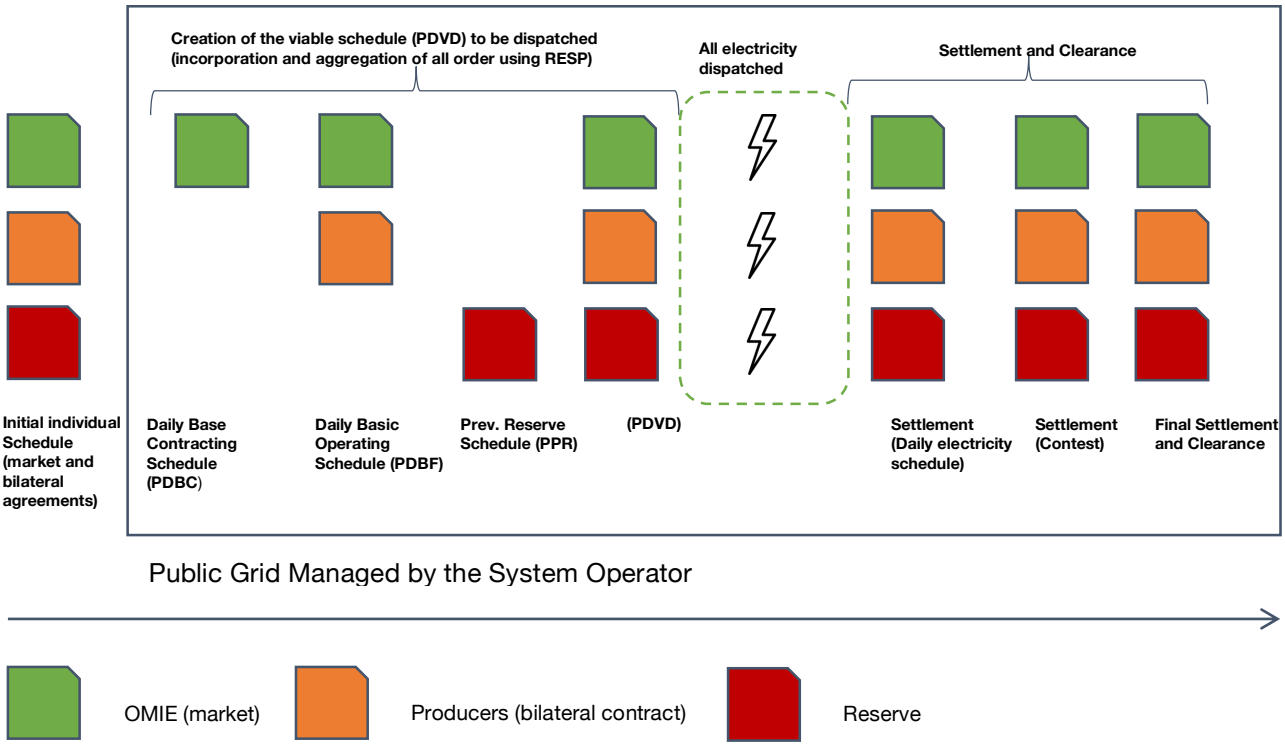
The Dispatch Schedule

The dispatch schedule as the agreed quantity to be dispatched, subject to the Viable Definitive dispatched schedule.

This sets out the procedures for issuance, by the purchaser, of the dispatch instructions to the seller and, the degree of dispatchability allowed to the purchaser, if any. These provisions usually provide that the ES's dispatch procedures shall be in accordance with dispatch procedures for a similar ES of the seller's system. Typically, the dispatch instructions should take into account the characteristics of the ES, the overall system conditions and requirements and, the conditions and characteristics of other power sources available (as wind, solar irradiation or water reservoirs) to the purchaser (namely its intermittency and forecasted available natural resource), when setting out appropriate and equitable dispatch instructions.

In accordance with ROR and Procedure set on the MPGGS SE, the dispatch (from initially agreed dispatch schedule) is as follows:

Figure 19 - Dispatch and Settlement (under RESP)



Viable daily schedule and provisional reserve schedule

The Global Technical Manager of the System shall elaborate the daily base program of operation, observing the levels of safety and quality of service, taking into account the following programs and contracts (para. 1 art. 10.º ROR):

a) Basic daily program, prepared by the Market Operator.

b) Physical bilateral contracts, communicated by market agents.

Viable daily schedule and provisional reserve schedule

Once the technical verification has been completed, the Global Technical System Manager shall prepare the viable daily schedule which, based on the daily base schedule, shall discriminate the total electric energy and the average electric energy to be produced by the various generating or central groups, the total energy and the average electric energy to be consumed by the various commercialisation entities or consumers and, the electric energy imported or exported through the interconnections, in each hour (para. 1 art. 13.º ROR).

Upon completion of the viable daily schedule, the Global System Technical Manager shall send to the entities involved the respective programs, as well as any changes made (para. 2 art. 13.º ROR).

Developed and published the viable daily schedule, the Global System Technical Manager shall establish a provisional reservation schedule, simulating the mobilisation or demobilisation of production and consumption eligible to participate in ancillary services markets, to ensure coverage of consumption of the SEN provided for in the safety conditions established in the Manual (para. 3 art. 13.º ROR).

Creation of the definitive viable daily schedule[241]

The OMIE, after conducting the bidding process in the daily market, will send to the GGS, the Daily Base Contract schedule (PDBC), for the following daily horizon, corresponding to the hourly breakdown of sales and acquisitions made in the daily market by the Offering Units, based on the meeting of offers of purchase and sale, received after the resolution of congestion in the interconnection.

With the closing of the period defined for the receipt of the bilateral contracts, identified in P. Nº. 8, the GGS elaborates the Basic Daily Operating schedule (PDBF), daily program with an hourly discrimination prepared from the PDBC and the information of execution of the bilateral contracts, opening the period for the receipt of information necessary for the process of Resolution of Technical Restrictions in the Daily Base Operating schedule, a process described in detail in P. Nº. 9, namely:

a) Offers for Resolution of Technical Restrictions in the PDBF;

b) Breakdown by the physical unit of the energy contracted in the organised market and/or, through bilateral contracting, by the different Programming Units;

[241] (para 2 P. 7, Schedule of operation and deviation resolution, MPGGS SE)

c) For the periods requested by the GGS, the maximum hydraulic power that can be supplied, if required for reasons of system safety, for a maximum time of 4 to 12 hours.

The GGS, taking into account its consumption forecast, the unavailability programmed in the network and related to the Production Units, will carry out a security analysis, to detect possible technical restrictions in the PDBF and, possible solutions. The GGS will introduce any programming changes that are necessary to resolve the constraints detected by selecting those that imply a lower burden on the system and will establish the security limitations that are necessary to avoid the appearance of new technical restrictions in subsequent processes and markets, as set out in P. n. º 9 of MPGGS SE.

Changes to the final schedule

The Global System Technical Manager may change the final schedule of consumption and production and, participate in the system services market, whenever unforeseeable changes occur to the assumptions that have been used in its elaboration, such as changes in the topology of the system, transport network due to incidents, accidental unavailability of generating groups, changes in the evolution of consumption or production under the special regime or, at the request of the producers (para. 1 art. 15.º ROR). It also must elaborate the daily schedule of operations performed, due to the final schedule and changes introduced before the operation in real time (para. 2 art. 15.º ROR).

Preparation of provisional reserve schedule (PPR)[242]

The GGS will prepare and publish a forecast of hourly energy consumption. After the establishment of the PDVD, the GGS will draw up a bidding curve for the increase and another one for the generation reduction, based on:

a) Increase in scheduled energy - The mobilisation or demobilisation of the Programming Units associated with production or pumping facilities, respectively, through the use of offers for the resolution of technical restrictions in the PDBF identified in para. 2.2 of P. Nº. 9;

b) Reduction in scheduled energy - The demobilisation or mobilisation of the Programming Units associated with production or pumping facilities, respectively, through the use of offers for the resolution of technical restrictions in the PDBF identified in para. 2.2 of P. Nº. 9.

c) PDBF breakdown and additional information for technical verification (para 2.1 P.9 Resolution of internal technical restrictions, MPGGS SE)

Settlement[243]

Bilateral Contracts Procedures [244]

[242] (para. 5 P. 7, Schedule of operation and deviation resolution, MPGGS SE)
[243] (P.Nº. 21 - Settlement Procedures, MPGGS SE)
[244] (para. 4 of P. 21 Settlement, MPGGS SE)

Although referred[245], "The settlement process for energy contracted through bilateral contracts - contracts freely established between a (buyer) market agent and another seller, is the sole responsibility of the market agents involved in the transaction and is not within the scope of this Procedure", indeed, if using the grid, they end up being the same, as cannot be settled differently from the overall electricity flow.

Energy measurement Procedures[246]

Calculation of the energy delivered to the Public Electrical Network[247]

Energy delivered to the public utility grid, either at the frontiers of electric energy production or consumption in pumping, or in international interconnections, is not subject to adjustment for losses.

Calculation of the energy received from the Public Electrical Network[248]

At the frontiers between the public utility grid and the consumer market agents, the amount of energy received from the public utility grid is subject to the mechanisms of application of load profiles, adjustment for losses in the networks and, matching between curves generation and consumption, being the responsibility for the application of such mechanisms and the provision of information to the GGS, the DSO in MV and, the TSO in HV, for the purpose of calculations of deviations from the programming unit.

Settlement Units[249]

The determination of the physical energy values to be settled, due to the participation of the Market Agents in the Portuguese area of MIBEL, are as follows:

a) Daily electricity schedule, resulting from the participation of market agents, last resort commercialisation entities and customers, in the spot market and bilateral contracting market, *per* programming unit affected to each market agent, validated by the GGS;

b) Daily electricity schedule, resulting from the participation of market agents, validated by the GGS;

c) Daily electricity schedule, resulting from the modification introduced by the GGS in the daily programs contracted, in the context of the technical management of the system;

d) Daily electricity schedule, resulting from requests for secondary regulation sent by the central regulator, validated by the GGS.

[245] "For the purpose of the settlement referred to in this Manual of Procedures, the market agent is considered to be a breakdown by settlement unit and, where applicable, the obligations and rights contracted in the bilateral contracting market, in particular with regard to the corresponding physical values. The settlement process for energy contracted through bilateral contracts - contracts freely established between a buyer market agent and another seller, is the sole responsibility of the market agents involved in the transaction and is not within the scope of this Procedures."
[246] (para. 6 of P. 21 Settlement MPGGS SE)
[247] (para 6.2. of P. 21 Settlement, MPGGS SE)
[248] (para 6.3. of P. 21 Settlement, MPGGS SE)
[249] (para 2.3. of P. 21 Settlement, MPGGS SE)

iv – Metering and Data

If using the National Electrical infrastructure, according to the GMLDD, governed by Directive n. º 11/2016, "The operators of the electricity and natural gas distribution networks (DSO's) are the entities responsible for the reading the measuring equipment for the consumption points." (art. 7.1).

Section IV (para. 62 *et seq.*) of the GMLDD defines the rules for the allocation of electricity delivered to Commercialisation Entities.

Where under para. 62 (Electric power allocation delivered to commercialisation Entities) defines "The allocation to each of the Commercialisation Entities of the electricity corresponding to the consumption of their customers involves the use of estimation, consumption profiles and adjustment factors for losses. Since these elements are not strictly known, there are differences in each 15-minute period between the total energy input to the RESP and, the sum of the energies allocated to the various commercialisation entities. These differences have to be distributed by the various commercialisation entities, so that all the electric energy entered in the RESP is properly distributed proportionally, to the electric energy attributed to each commercialisation entity before the outage. Since in the consumption metered, the uncertainty results only come from the scaling for losses, it is obtained a greater rigour if the distribution of said differences is made in proportion to the electric energy attributed to each commercialisation entity, deducted from the one obtained from metering." For this purpose, it is necessary to perform the calculations as described in the GMLDD.

The calculation of the active power delivered to the RESP (para. 63) "in electricity production frontiers, both in international interconnections, it is considered that is not subject to adjustment for losses". Although there is an adjustment for losses of the active power assigned to each commercialisation entity (para. 64) "at each voltage level, is adjusted for losses to the production reference, using the applicable loss profiles", calculated by the given formulas of the GMLDD.

The assignment of active power to each commercialisation entity, (under para. 65 of the GMLDD) is defined as "In order to quantify the active electric energy to be attributed to each commercialisation Entity, it is necessary to distribute the differences referred to in para. 62, by the various commercialisation Entities, so that all the electric energy entered in the RESP, is properly distributed proportionally to the electric energy attributed to each commercialisation Entity. To this end, a factor of adequacy is introduced, determined for each period of 15 minutes, to be applied to non-metered consumption with 15 minutes' discrimination, already adjusted for losses".

Where it is understood (under the same para. 65 for performing the calculation):

- Market generation electricity (GM) value: the sum of all production participating units in the electricity market (including the special regime production, either directly participating in the market or the one that is aggregated in a production portfolio), with the import balance of cross-border interconnections discounted from consumption for pumping and synchronous compensation.

- Adjusted aggregate consumption adjusted for losses (CPA): the sum of all adjusted consumption losses. The market consumption of the last resort supplier-customer portfolio is obtained in the same way as for any commercialisation entity.

- Non-metered consumption (CNT): the difference between the value of the electric power produced (GM) and all adjusted metered consumption (CTA).

Data Acquisition System and Communications

During the term, the parties shall grant access to the monitoring equipment of the ES, necessary for the continuous monitoring of the ES's performance.

The quantities of electricity supplied by suppliers in each reckoning period are calculated from the measured quantities at the delivery points of its customers (para. 1 art. 260.º RRC) and have an obligation to make the data available (art. 253.º RRC).

In the customer measuring points in BTE, MV, HV and MHV, the measuring equipment must include technical characteristics that allow their integration into centralised metering (telemetry)[250] systems (para. 1 art. 263.º RRC).

The measuring equipment, including meters and power indicators, and their accessories shall be supplied and installed (para. 1 of art. 239.º RRC) by:

a) the TSO at the points of connection of their substations to the distribution networks.

b) the TSO at the points of connection of the customers physically connected to the transmission system.

c) the DSO at customer connection points which are physically connected to distribution networks.

d) the producers at their point of connection to the network.

Records

Each party shall keep complete and accurate records of its operations for a minimum defined period and shall maintain such data, as may be necessary to determine with reasonable accuracy any feature relevant to the Agreement.

The art. 226.º of the RRC lays down the duty of requesters of a grid connection to the RESP to make available to the network operator to which they wish to connect, the technical information necessary for the elaboration of the studies to assess the feasibility of connections and network expansion plans.

[250] As in 02/2008, considering wind farms, Information on Telemetered Wind Farms (REN) was: Total Power Telemetry: 2772 MW in real time, Total Power Telemetered: 4354 MW with power limitation and the Total Power Telemetered: 4643 MW without limitation of power, finalizing construction. Available at: http://www.centrodeinformacao.ren.pt/EN/InformacaoExploracao/

Due that most payments will use these readings (so as for calculating the amounts to be invoiced, there is also need to keep such records. As a matter of fact, without any form of records, the overall sale would be impossible to resume (except in the cases where estimation is used).

Under the GMLDD is defined the data availability in production facilities (Section VIII, para 70.º *et seq*.), where the data collected by the general metering unit is made available by the network operator responsible for making this information available.

There is also a right of access to measurement data (28.º of the GMLDD), attributed to: the producer, the TSO, the DSO (in MT and HV). The DSO to which the installation is connected and the commercialisation entity, including the market facilitator, with whom the producer has entered into an agreement to sell electricity produced (28.1 of the GMLDD).

As referred to metered data there is also the consumption profiles (35. GMLDD) and are applied to all end customers that do not have metering equipment with consumption records in 15-minute periods. The final profiles are obtained by adapting the initial profiles, based on the variations between the Reference Load Diagram and the System Load Diagram.

In the absence of a specific rule, regarding the conservation of data, the storage and archiving time of the auditable records of the data (in para. 43) by the network operators may not be less than 3 years (para. 52 of the GMLDD).

It also should be mentioned the Regulation (EU) N. º 1227/2011 (REMIT), where is mandatory the:

- Registration of market participants (art. 9.º);
- Data collection of records of wholesale energy market transactions, including orders to trade (para. 1 of art. 8.º).

Under REMIT Implementing Regulation[251]

- Contracts for the supply of electricity or natural gas to a single consumption unit with a technical capability to consume 600 GWh/year or more (vii) para. 1 of art 3.º).

- Options, futures, swaps and any other derivatives of contracts relating to electricity or natural gas produced, traded or delivered in the Union (viii) para. 1. of art 3.º).

Where a PPA falls under, wholesale energy products concluded outside an organised marketplace[252], where under art. 4.º (List of contracts reportable at request of the Agency). Unless concluded on organised marketplaces, contracts and details of transactions in relation to those contracts shall be reportable only upon reasoned the request of the Agency and on an *ad-hoc* basis:

- Intragroup contracts (head. a) para. 1 of art 4.º);

[251] EC REGULATION (EU) Nº 1348/2014 of 17/12/2014 on data reporting implementing REMIT
[252] Reportable details of non-standard contracts for the supply of electricity and gas (Table 2) (b) 1 5.º of REMIT Implementing Regulation)

- Contracts for the physical delivery of electricity produced by a single production unit with a capacity equal to or less than 10 MW or by production units with a combined capacity equal to or less than 10 MW (head. b) para. 1 of art 4.º).

v - Interruption of service, scheduled outage

The RQS, on its art. 12.º defines interruption as "the absence of electricity supply to the network infrastructure, a production facility or a consumer facility." Where they are classified (art. 13.º) according to their source, type and cause, as the following table:

Source	Type	cause
Production, transport or distribution	Planned interruptions	Reasons of public interest
		Service Reasons
		Reasons attributable to the customer
		Agreement with the customer
		Other networks or facilities
	Accidental interruptions	Security reasons
		Incidental cases
		Cases of *force majeure*
		Own
		Other networks or facilities

The arts. 69.º *et seq*. of the RRC, states several reasons for interruption of the electricity supply, by the network operators, in line with the previous table (of art. 13.º of RQS).

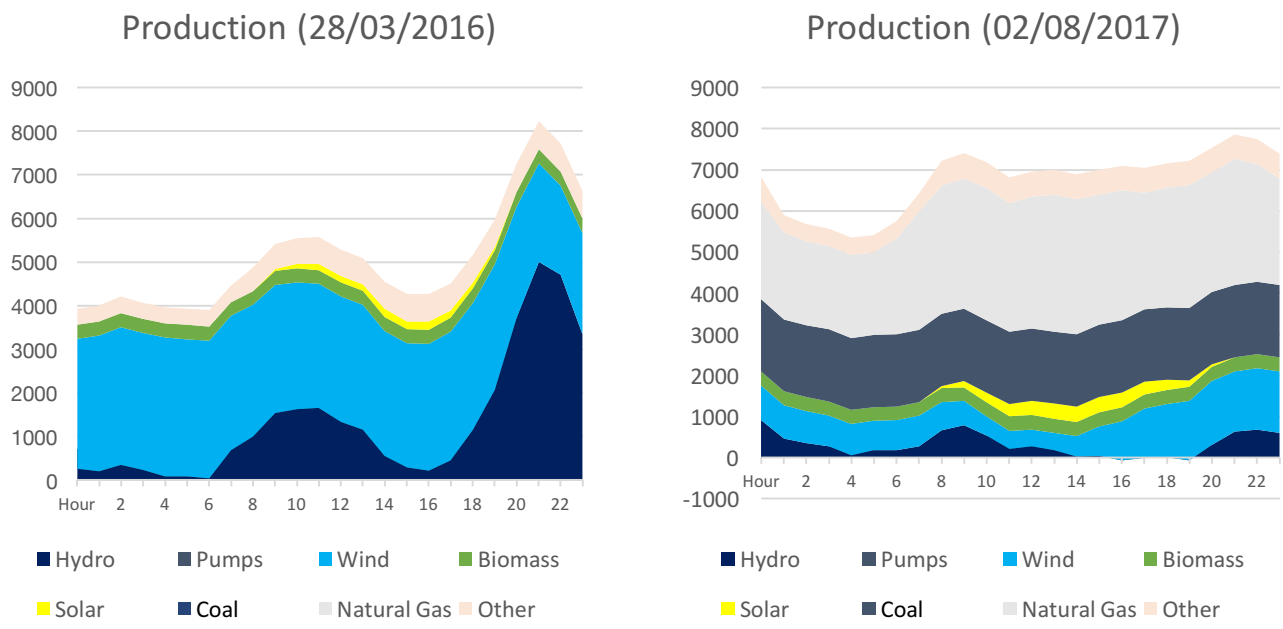
Also, adds that Network operators may interrupt the reception of electric power produced by producers causing disturbances that affect the quality of service, as the legally established in the SEN, when the disturbing causes are identified, after notice, from the operator to those producers, do not correct the anomalies in due time, taking into account the work to be done (para. 2 of art. 69.º). Generally, any interruption only can occur with prior notice (i.e. due to a failure of the payment obligation, i.e. art. 75.º and 137.º RRC).

Intermittency of the resource

As the focus is on RES, there is the need to retain a primary source of power from the grid (depends on the structure). Solar and wind power are an intermittent resource whereas the output of the ES, which is dependent on solar irradiation or wind and other factors, will constantly vary and no

predefined amount of output is guaranteed or, time of delivery. Taking, e.g., the extreme variations in different days:

Figure 20 - extreme variations in RES



Source: Based on REN (electricity markets)

Even in most accurate estimation (usually less than six days *prior*), the actual amount to be dispatched and delivered may change considerably. Similarly, to the considerations regarding what is a significant change in weather conditions, in this case, it is an inherent risk, where either the seller may be able to compensate (to the limit of his maximum production licence) or, the purchaser takes that risk.[253] Currently, most PPA's have a unique off-taker, so this risk is passed to the electricity system (due to the FiT model). Under the ordinary regime, they are exposed to market prices, or supply (dependant on weather) and demand (the amount that may be consumed or able to be absorbed either parties or the system).

Scheduled outages and maintenance outages

Prior to the COD, the parties will be required to submit its desired schedule of planned outage periods for the first full maintenance year after commissioning and for each subsequent year. The PPA may also set parameters within which the scheduled outage periods should occur.

Emergency plans; supply of power and emergency

The PPA will generally call for each party to establish plans for an emergency, such as local or widespread electric blackout and voltage reduction, as load curtailment. During an emergency, the seller may be required, as soon as possible after a request from the purchaser, to supply such power as the plant is able to generate, consistent with prudent utility practices and specified technical limits

[253] Cf. *note 211*

of the plant and, at the purchaser's expense, make reasonable efforts to reschedule any outages or to complete work during the outage to restore power as soon as possible. Other limitations and parameters on the ability of the purchaser to direct the seller to perform emergency-related operations may be included.

Interruptions due to events attributable to network operators

The operator of the RNT and RND may interrupt the delivery of electricity to the operators of the distribution networks connected to the RNT that cause disturbances that affect the quality of service of the legally established in the SEN when:

- once the disturbing causes are identified, those entities, upon notice to the RNT operator, do not correct the anomalies in an adequate time (para. 1 of art. 74.º).
- after identifying the disturbing causes, those entities, after RND operator notice, do not correct the anomalies in an appropriate period (para. 2 of art. 74.º).

The commercialisation entity, in addition to the provisions of art. 75.º, may request from the network operator the interruption of the electricity supply (after written notice with at least 20 days before the date on which it will occur) due to a fact attributable to the customer due to:

- non-payment within the stipulated amounts due, pursuant to art. 131.º and art. 136.º (para. 1 of art. 137.º)
- failure to provide or update security, when required under the terms of art. 113.º and art. 117.º (para. 2 of art. 137.º)

Coordination with System Operator (if using the public network)

Provisions concerning the coordination of outages in Portugal are contained in the following rules:

Network Operation Regulations

- Coordinating outages (Chapter VI, art. 41.º to 43º ROR)

System Management Procedures Manual

- Transmission network outages (P. n. º 6, MPGGS SE, namely 6.3 service replacement plans);
- Generation unit outages (P. n. º 18, MPGGS SE).

The coordination of outages is designed to ensure that the unavailability of network elements or facilities for electricity production, contributing to the safety and quality of the supply of consumption. The coordination of outages is based on two phases of coordinating and updating outages:

- Annual Outage Plan of the National Electricity System (SEN);
- The Weekly Outage Plan includes changes to the Annual Outage Plan and the new unplanned outages.

The TSO (REN) website has a section devoted to disseminating this information[254], where in addition to the information provided daily, broader information is also available periodically.

Control and safety variables

The variables that allow to supervise the state of operation of the RNT are: the frequency, the voltage, the angular deviation, the current intensity, the active power, the apparent power and the temperature in the various elements of the RNT, namely lines, transformers and associated equipment (para. 1 of art. 19.º ROR).

The permissible limits of the control and safety variables are established in the MPGGS SE (para. 1 of art. 19.º ROR), e.g. under Procedure 10 (Voltage Control) of MPGGS SE, the general criteria for the voltage control at the RNT nodes are established according to the safety and operation criteria for the operation of the electrical system that is required, according to the established in P. nº 6 of the MPGGS SE). This Procedure applies to producers, distributors and consumers directly connected to RNT (para. 1 of P. N. º 10 MPGGS SE).

The GGS (cf. para. 2 of P.10 MPGGS SE) can take several actions for the control of voltage, namely the necessary instructions for the operation of the voltage control means, in real time, such as:

a) Request the supply or absorption of reactive power by the generators, pumping groups and synchronous compensators;

b) Perform manoeuvres on the reactive compensation elements connected to the RNT or connected to the tertiary windings of the transformers belonging to the same;

c) Switch on/off capacitor banks;

d) Manoeuvres of RNT lines;

e) Changing the regulator sockets on the transformers.

Evaluation of power reduction needs [255]

[254] Cf. REN, interruptibility service, available at: http://www.mercado.ren.pt/PT/Electr/InfoMercado/Indisponibilidades/UnidProd/Paginas/Indisp.aspx
[255] (para. 8 of P. N.º. 15 MPGGS SE, interruptibility)

According to the operating conditions presented to the GGS, the GGS will evaluate the needs of the Interruptibility Service, managing this service according to those needs. This can be an order of reduction of power emitted by works in the RNT and/or situations of risk for the safety of the electrical system as the need to carry out works of maintenance of the electric infrastructures in service, as well as works related to the construction of new installations or, the reinforcing the existing ones, can force the temporal reduction of the local consumption of the electric system. For this purpose, the GGS may issue power reduction orders in any of the following assumptions:

i. Where there is no possibility of taking other measures than reducing the supply of electricity or, the measures available pose a high risk for the continuity of the electricity supply (Curtailment);

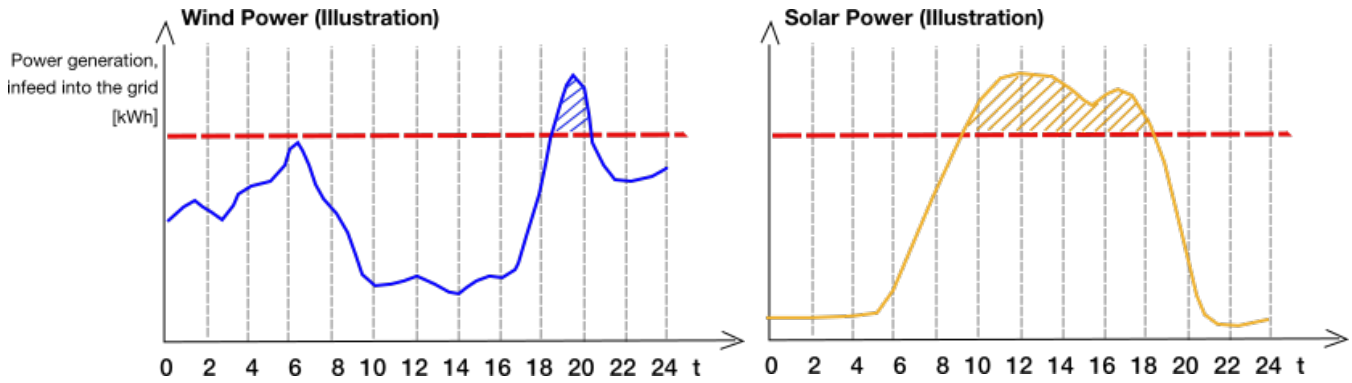
ii. When the partial reduction of the load in the affected zone of the system is translated into an effective safeguard measure aimed to minimising the impact on the RNT, while the scheduled work is taking place (load shading);

iii. When after an incident, it is necessary to adopt emergency measures to partially and/or locally reduce the load of the system in order to be able to restore its control variables to normal operating values and/or return the electricity supply to customers that do not are service providers of the Interruptibility Service.

Curtailments

Due to most PPA's have as an underlying source renewables, as in this example with a supply of wind and solar power, there are curtailments, or a right, usually belonging to the grid operator, to curtail, or switch on or off, RES generation.

Figure 21 - Illustration of wind/solar peaks and the curtailment potential



Adapted from: Copenhagen Economics based on DNV-GL (2014)

There are what so called Default provisions related to curtailments. In general terms, there can be:

Third-Party Curtailment:

- Interconnecting Utility or Transmission Provider;

- Broad curtailment rights in Network Interconnection Agreement (e.g. emergency, reliability, system maintenance, as the *supra* referred para 8. of P. N.º. 15 MPGGS SE, interruptibility);

- Frequency and voltage may depend on the level of the transmission service.

Figure 22 - Daily Load Diagram (of occurrence of – wind - curtailment)

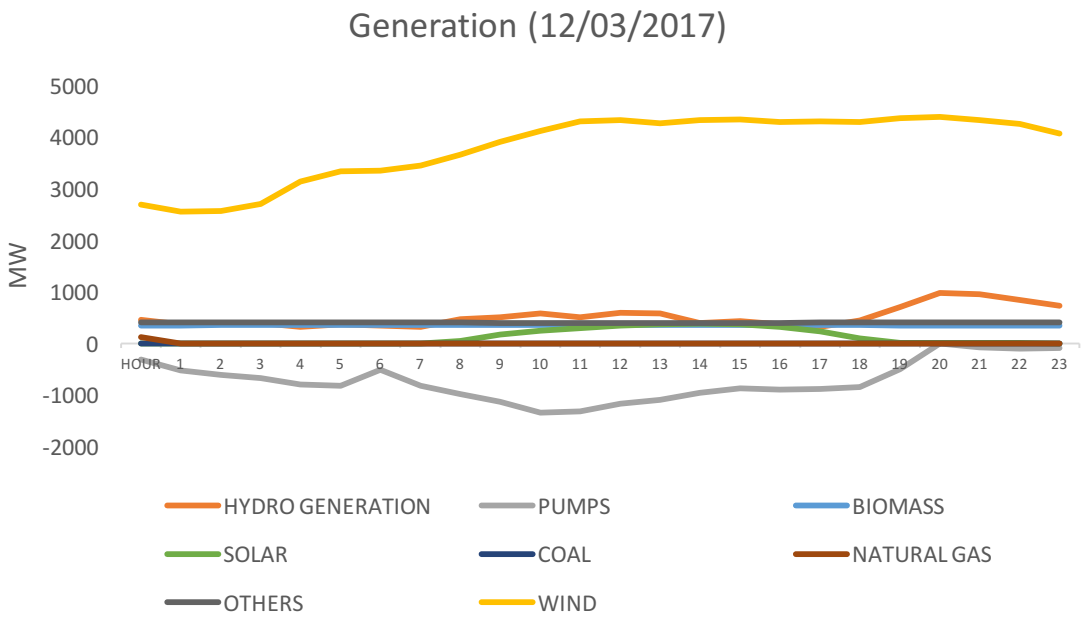
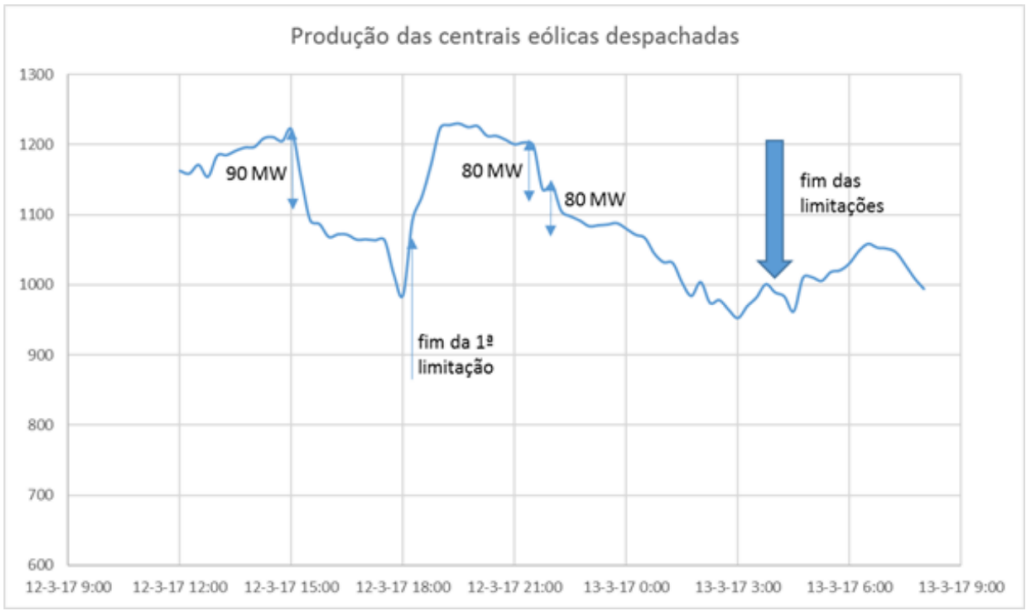
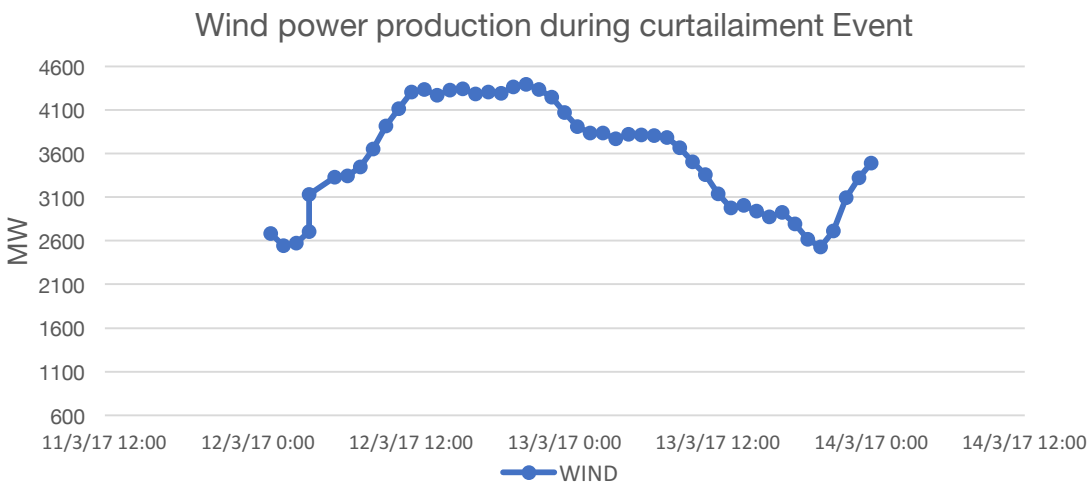


Figure 23 - 2017 Curtailment (wind)[256]



Source REN

[256] REN, Relatório de Ocorrência, Corte de geração eólica 12 e 13 de março de 2017



Source: based on REN electricity market data

Buyer-Directed Curtailment:

- Buyer may have the right to direct seller to decrease or stop deliveries;
- Generally, for economic reasons;
- Seller should be compensated;
- The ES must be capable of complying with such provision.

Curtailments can be compensated or not, where:

On the Compensated curtailments:

- Contract price for each MWh the seller could have delivered (loss benefit);
- Plus, if applicable, the value of lost benefits, grossed up with taxes.

Or Non-Compensated curtailments:

- Generally, no compensation for an “Emergency” (ROR and RQS defines the circumstances and procedures);
- Buyer treats this like a *force majeure* or safety procedure;
- Commonly, no compensation if the curtailment results from seller’s failure to maintain required permits or interconnection facilities at or prior to the POD.

vi - Events of Default

The typical events of default, similar to any contract, such as:

- Failure to make payments;
- Failure to deliver the contracted output;
- Breach of reps and warranties (subject to materiality);
- Breach of transfer/change of control restrictions;
- Other material breaches of obligations.

The principle of continuity requires that the service is provided on a continuous basis, and may only be interrupted for functional reasons, unforeseen event, *force majeure* or arrears of the buyer.[257] To that end, it is necessary to take into account the circumstances of the case, the balance of the interests involved (social, economic and parties) and the principle of good faith.

Remedies

Most (legal) systems actively encourage to rebuild the relationship on revised terms and, they often aim to find a way to equitable outcomes, through different mechanisms, depending on the interest of both parties, the injured party and negative and positive interests of the contract.

Where there are notices and opportunities to cure remediable breaches and typical remedies can range from:

- Actual damages, may be subject to mitigation and be capped;
- Termination;
- Penalty Clause;
- Step-In-Rights.

[257] Varela, João Antunes, Das obrigações, II, p. 60; Leitão, Manuel Teles de Menezes, Direito das Obrigações, Vol II, 5ª Ed. Almedina, p. 231

Continued Operation of System

On the other hand, the buyer should have sufficient time to find alternatives (as replacing the supply), as without electricity may cause severe damages, as most business or industries cannot operate without power supply.

Considering that most PPA's are designed as a framework agreement and their dependency, may set up cross default provisions, where the default in other related contracts (as a lease agreement) may constitute an event of default under the PPA (e.g. obligation related to the ES referred *supra*).

V - Epilogus (Conclusions and Final Remarks)

a. Several elements were left out due to the constraints imposed and, considering the last, its importance to the present work. The choice relied on the basic elements, as their decomposition and construction.

b. Due to the nature of the object “electricity”, the classification as a movable thing implies the idea of possession of a dynamic phenomenon. As noted with the exceptional regime of waters, electricity (as a movable thing may not hold namely under liberalised market), depending on the initial classification, different solutions (with different results) may be possible to argue.

c. Electricity is sold at a certain power (i.e. capacity) and, in many cases, there is no generation or consumption, i.e. there is an obligation of availability, there is no transfer of *x* units and if the purchase and sale regime is assumed, there is no delivery to perform or to settle (there is a position that can be used or not).

d. A PPA constitutes a framework agreement, by its nature implies a continues service to be rendered along the time, where supply, in this case, cannot be understood as the sum of several (actual) sale and purchase agreements as it is defined in the CC (as with subsequent considerations relating to contractual obligations, transfer and, responsibility), but as an assignment of future credits, where the right (position) is transferred to the buyer, as soon it is constituted, but also having obligational effects from the contracting date.

e. If using the grid, what is being traded is not a given quantity of electricity but a position, or interest on the total amount injected by all market participants (joint ownership), that comprises the total amount minus the losses, of a given dispatch, managed by a third party and subject to rules set an adhered by all participants).

f. Access to infrastructure as a central element, as without it, it makes impossible to deliver the contracted electricity. System (market and infrastructure), the structure of the market (as electricity contracting is under MIBEL, where its settlement, even as agreed out of the market, cannot have different effects as the one negotiated in the market) and, its physical infrastructure (explicitly the right to use and allocate capacity, the overall System safety - as the being a dangerous activity by nature - so as its interconnections may affect third parties).

g. Intermittency and backup systems, due to the nature of RES, balancing functions play a central role. Intermittency is part of the own business risk and such risk should be taken into consideration, not only considering curtailment provisions (as its compensation) but also regarding potential liability due to uncertain delivery. In the case of renewables, intermittent resource issues (as "non-dispatchable") demand the existence of either backup systems or agreements with third parties to be able to provide a continuous supply of electricity to the buyer.

h. The idea of the economic unit - or the group of assets and contracts that enable electricity to be generated and sold to third parties - is also important, as a PPA, without the relative contracts, either to the use and enjoyment of the land, connection to the electricity infrastructure, the system itself (which generates electricity), ends up being, either in terms of assignment or even "remedies" (where the termination of the contract is not useful), in the event of breach of contract, the least damaging option, comparing with any pecuniary compensation that would not be sufficient on the long-term.

i. Still, electricity, is subject to similar problem observed in transportation and communications sectors, besides sharing the treats of extreme fungibility, time is also a scalar, when defining energy and its transfer. All have similar components: availability (use of infrastructure), a certain amount used, price related to capacity and the actual use of such available capacity, given work measurable in a time-related unit, so as ancillary services.

j. The solution may be, in the underlying meaning of word *currēns*, of to run, to circulate, to move, where currency and current derived (concept wither water and electricity share). As power, current and voltage are not interchangeable terms, so as money, currency and value. There is no confusion with the abstract value, with the form how it is transported and represented.

k. The understanding of substance and its categories, as in the Aristotelian philosophy, namely *potentia* (potentiality) and energy (actuality in potentiality), so as its subjective imputation, is not by chance that finds correspondence with the term currently used as power (the potential use), in kVA, and electricity in kWh, a measure of work being done, for a certain period. It could be generalised that most credits are disposing of the future (as a potentiality) and rights *in rem* are actualities (thing or fact already existing), where individuals are free to dispose of the future (cause) as equality for the present. Other interpretation would imply the non-recognition of the autonomy of the will, that can only exist linked to Kant's moral responsibility. Energy puts at the test the deterministic view of Seabra, kept in Code of 1966 and, with the paternalist character of the old regime, present in some assumptions of the current Civil Code (where *dominium - as the ability, faculty, power* - is inherent to each individual, does not need any "attribution" *prior*).

l. The Heisenberg's uncertainty principle in most interpretations *ā priorī* (codification when defining concepts) or, *ā posteriōrī* (jurisprudence) is neglected, when applying and interpreting such concepts on a given *rēs*.

Annexes

What is energy[258]

Energy definition

Energy is the capacity that a given system has to change the state of other systems (as changing the velocity or the temperature). All changes that occur in nature are induced by some form of energy exchange, as such, there is always a transference between systems and cannot be created or destroyed (energy conservation principle). There are many forms of energy, but they can all be: a) potential energy (Potential energy describes the forms in which energy is stored in a system, like nuclear, chemical, gravitational, thermal) and, b) kinetic energy describes the forms in which energy is transferred like work (mechanical or electrical); c) heat, or; d) others.

Power definition

Power is the rate at which energy is transferred from or to a system, and its unit is the Watt (which corresponds to 1 J per second). Energy is a scalar unit and in the International System of Units (SI) is measured in joule (J). 1 joule is the energy exchanged, i.e., while applying a force of 1 newton (N) to move a body for 1 meter (m), or passing a current of 1 ampere (A) in a resistance of 1 ohm (O) for 1 second (s) or, heating 1 gram (g) of air to increase 1 Kelvin (K). When referring electricity, the kilowatt-hour (kWh) is the most used unit.

Concept of electricity

Electricity can be described as the flow of electric charges (electric current measured in amperes). The amount of work that this flow can perform depends on the electric potential difference per unit of charge (voltage measured in volts) between two points of the electric flow. Consequently, the overall electric power of a circuit (measured in Watts) is given by the product of the current and the voltage. Like in any physical system, not all the electrical power is useful. In the case of electric circuits, we have the active power measured in Watts as the power that is really used by the circuit, the reactive power measured in VAR as the non-useful power and the apparent power measured in VA as the sum of the active and reactive power vectors. Notice that although the appliances only require active power to work, the electricity that is needed to be generated is the apparent power.

Energy System Concept

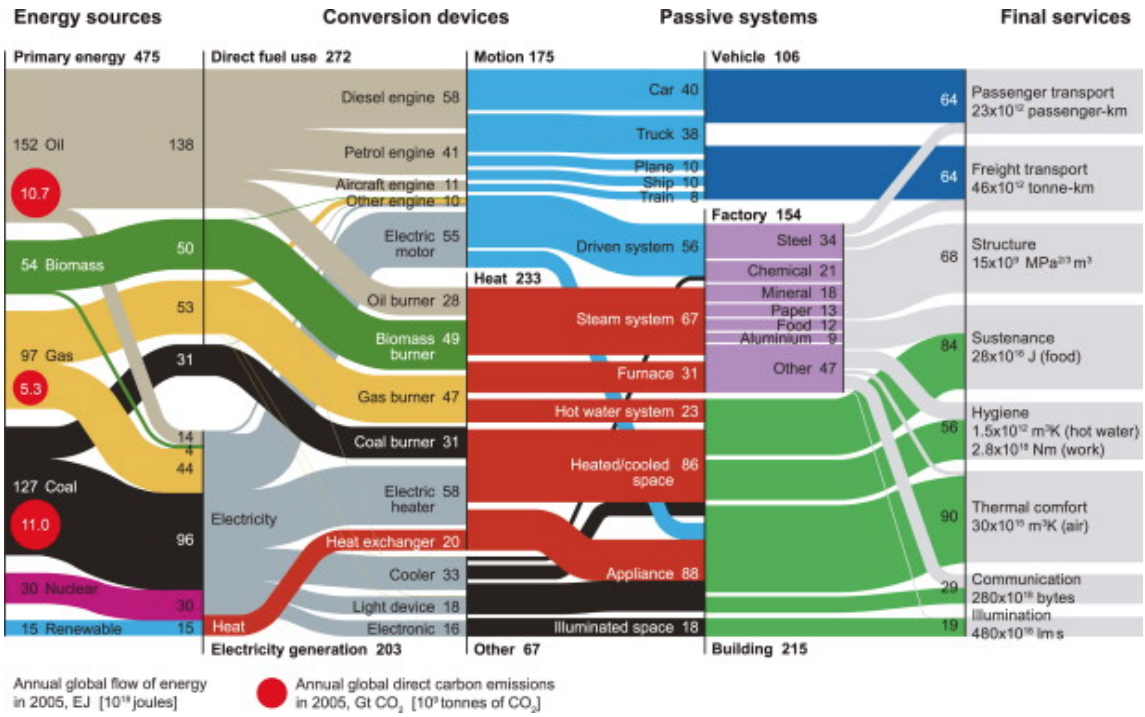
An Energy system is a well-defined system in which energy flows enter the system to perform certain activities. It can be converted into multiple forms: the energy output, and (according to the second law of thermodynamics), a fraction of it is always lost in the conversion process. In any energy system, there is some energy conversion process, which is the process of changing one form of energy to another. The metric that measures the energy conversion efficiency is the ratio between the Energy Output over the Energy Input (system efficiency). The reference energy system is a framework that describes the energy flows, the energy conversion technologies and the energy outputs. In practice, the reference energy system, is a diagram that represents technologies and processes and the energy flows between these.

Primary, Final and Useful energy

The breakdown of primary to final to useful energy is very relevant because it with each conversion step some energy is always lost. Moreover, the design of an efficient energy system consists in avoiding unnecessary losses. Aiming to eliminate unnecessary steps in the flow of energy. So, primary energy is the energy embodied in natural resources which involve extraction, such as oil and coal, but also wind and solar. Final energy is the energy embodied in commodities which involve human transformation (e.g. electricity or gasoline). Useful energy is the energy actually spent at the end-use technologies, e.g., depending on the technology conversion, electricity becomes, light, mechanical energy or heat.

[258] This section encompasses the notes and transcripts of the lectures given in Energy Services/Energy Management (Instituto Superior Técnico, Universidade de Lisboa), in 2016 and 2017, by Professor Carlos Augusto Santos Silva.

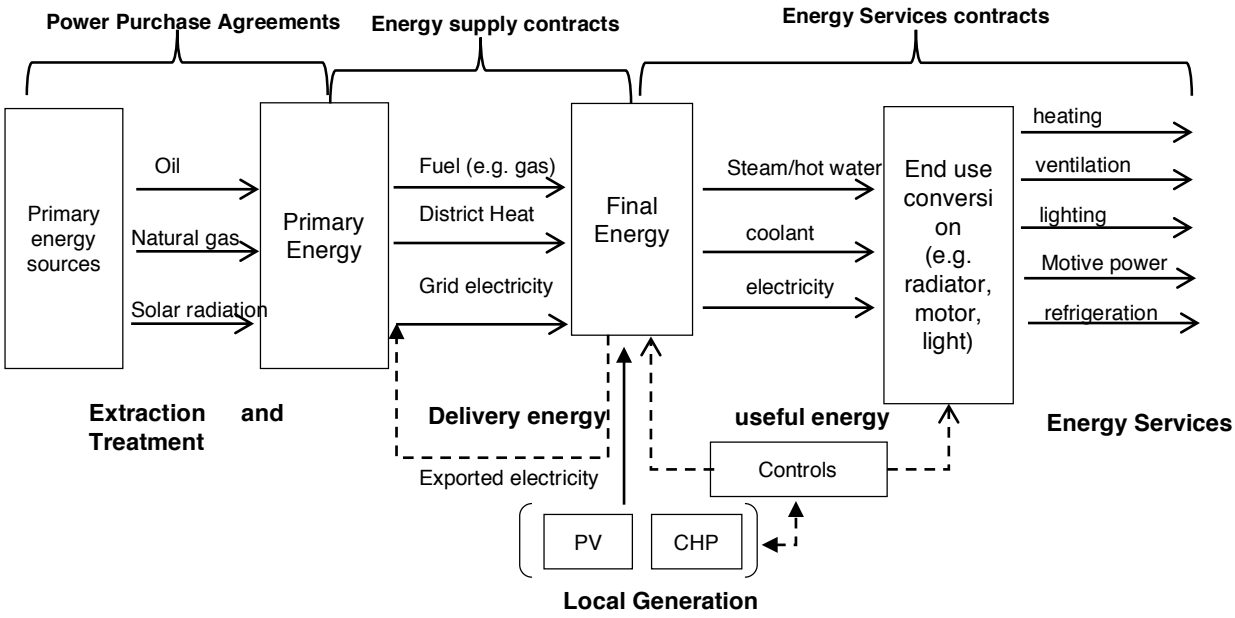
Figure 24 - Cullen et Allwood, Sankey diagram of the world extended to the final energy service



In this example by Cullen et Allwood[259], the Sankey diagram of the world, extended to the final energy service levels and the corresponding useful energy flows.

From raw fuel to energy end use

Figure 25 – Primary energy Source to Energy End (contracting across chain)



[259] Jonathan M. Cullen, Julian M. Allwood, The efficient use of energy: Tracing the global flow of energy from fuel to service, In Energy Policy, Volume 38, Issue 1, 2010, Pages 75-81, ISSN 0301-4215, https://doi.org/10.1016/j.enpol.2009.08.054. (http://www.sciencedirect.com/science/article/pii/S0301421509006429)

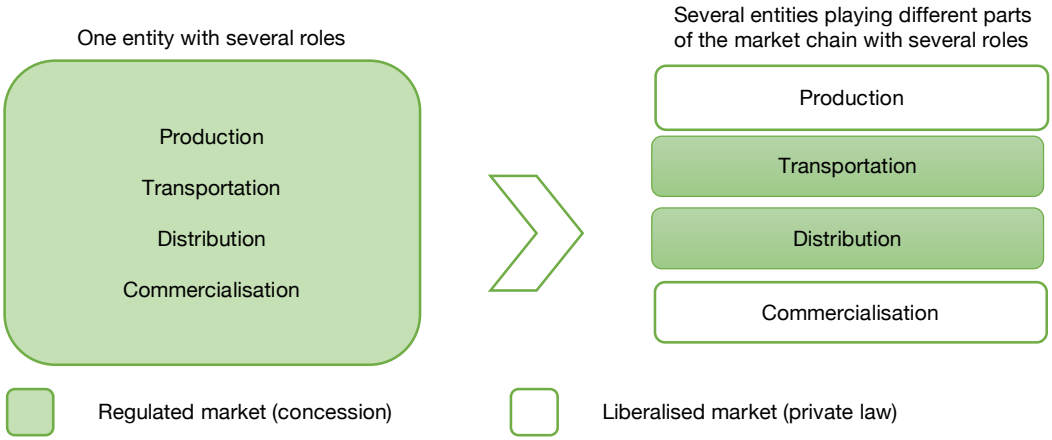
Looking to the energy flow, from Primary Energy Source to Energy End use, the total useful energy can be added by other supplementary sources, as integration with PV, CHP, that can self-generate for own consumption.

Some of these sources cannot be stored efficiently, so when there's deficient it may have to use the one contracted to be delivered by the grid, and when are generating and not using, the excess is exported, or absorbed by the grid. The Control systems refer either allocate demand and supply (e.g. performing a certain task, one may set up its activity in line with your available generation timelines) and, for safety and balancing.

Market Design

When analysing the market design, there is a shift from a centralised model (monopoly) to a liberalised (distributed) market.

Figure 26 - Market Design Shift



To have to a fully liberalised market, Europe has chosen[260] an ownership unbundling model, where infrastructure access plays a central role (or activities where building an infrastructure by each player would not be feasible, so they all share the same, namely when dealing with industries that have a common infrastructure, as utilities - which includes energy and water - and, telecoms).[261] The Regulation of the infrastructure access' prices, also takes into consideration the guarantee of fair access to infrastructure and the need to guarantee safety so as sustainability of supply, to accomplish a fully integrated Energy Market[262].

The ownership unbundling model (and the regulation of the infrastructure access´ prices) is one model used where:

- Infrastructure assets belong to the State (even if concession may be considered for long periods of time, under public interest) and must be a complete separation of who manages and control generation, transport, distribution and commercialisation).

[260] Cf. Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity.
[261] Cf. On distribution network access Case C-7/97 (1998) (Oscar Bronner GmbH & Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint) url: Anzeigengesellschaft mbH & Co. KG. url: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61997CJ0007
[262] Cf. Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010. Cf. CEF Energy policy Interactive map of Projects of Common Interest (PCI) http://ec.europa.eu/energy/infrastructure/transparency_platform/map-viewer/main.html and The Trans-European Networks for Energy (TEN-E) strategy is focused on linking the energy infrastructure of EU countries, namely North-south electricity interconnections in western Europe ('NSI West Electricity'): Interconnections between EU countries in this region and with the Mediterranean area (https://ec.europa.eu/energy/en/topics/infrastructure/interconnections-south-west-europe) including the Iberian peninsula, in particular to integrate electricity from renewable energy sources and reinforce internal grid infrastructures to promote market integration in the region. (Madrid Declaration, available https://ec.europa.eu/energy/sites/ener/files/documents/Madrid%20declaration.pdf)

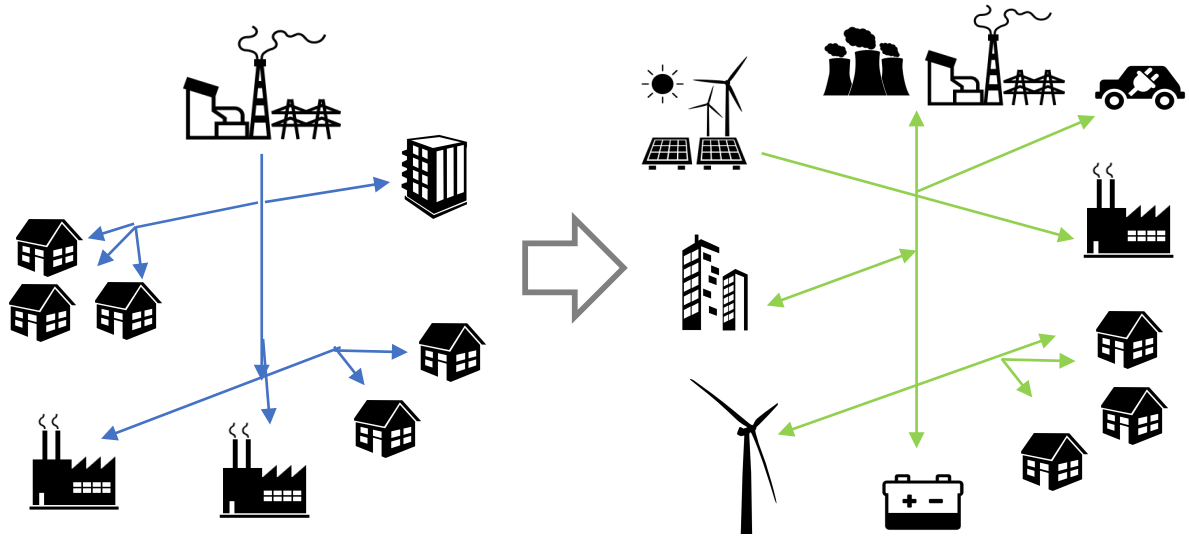
- There is the coexistence of free market and last resort suppliers, so the need to regulate relationships between liberalised market and last resort supplier so as these two with the end users.
- There are several pricing mechanisms (of using the grid), such as historical cost, incremental costs, retail Minus, free access, price caps, among others.[263]

Besides the market design shift of a single player to a competitive market, is moving to:

- Distributed generation where is needed to consider the Security of Supply (namely with the increase of RES integration in the Energy Mix, issues like intermittency, "backup" systems and overcapacity increase complexity when managing energy flows;
- More self-consumption (e.g. cooperatives (UK and Germany), where issues like if the end user pay for using the grid emerge and taxation (incentive to not use this mechanism, as in Spain).

Consequently, forecasting the inflows and outflows of the grid (demand and supply side management; performing balancing function) presents more challenges. Adding the integration of the EU Market (currently there is a poor interconnection, e.g., MIBEL). Lastly, the increase of complexity cannot jeopardise safety standards and security of supply.

Figure 27 - Market Shift



Analysing these illustrations is quite clear the challenges and opportunities of this new market model. The first thing that may be noticed is going from a centralised and top-down approach (monopoly) to a decentralised[264] model (liberalised market).

With the growth of distributed generation, namely RES, but also with the current technologies as CHP, storage, Electric Cars (EV), the grid management tends to go from a top-down approach to complex network management. Besides supply and demand players, there's the existence of regulators, DSO's and TSO´s and, entities that their role is to make sure supply always meet demand.

Players

When dealing with a model where all players share the same infrastructure (the electricity grid), there are several attributions to take in consideration: Distribution and Transmission, Reliability and availability, Access to the grid, Last resort supplier and Backup Systems.

[263] Estache, Antonio ,The Theory of Access Pricing: An Overview for Infrastructure Regulators, World Bank, November 1999 https://doi.org/10.1596/1813-9450-2097
[264] Cf. P. Baran, "On Distributed Communications Networks," (1964) https://www.rand.org/content/dam/rand/pubs/research_memoranda/2006/RM3420.pdf

The main players in energy markets are:

- **Governments**, which are responsible for planning, and have the ultimate responsibility to oversee that all players develop their activity within the rules;
- **National Regulatory Authorities (NRAs):** which are responsible for monitoring and supervising the activities of all agents;
- **Transmission System Operator (TSO):** lead role (but co-operating with national authorities and NRAs). The TSO is responsible for managing the physical infrastructures (overhead electricity lines, substations) responsible for transporting the bulk energy, in very high voltage, between the power plants and cities or between countries.
- **Distribution System Operator (DSO´s):** Distribution (HV (more than 60 kVA) & LV (less than 60 kVA). The DSO is responsible for managing the physical infrastructures (overhead electricity lines, pipelines, substations) and responsible for transporting the energy between the transmission infrastructure and the final users;
- **Suppliers (under-regulated, liberalised market or, both**), which are responsible for supplying the energy to the energy system (power plants, refineries) with guaranteed purchase, licenses or under market conditions
- **Supplier of last resort** – default supplier to guarantee the security of supply (namely with RES);
- **System Operator** – may be the competence of TSO or DSO. The role of the System Operator in a wholesale market is to manage the security of the power system in real time and coordinate the supply and demand for electricity, in a manner that avoids fluctuations in frequency or interruptions of supply.

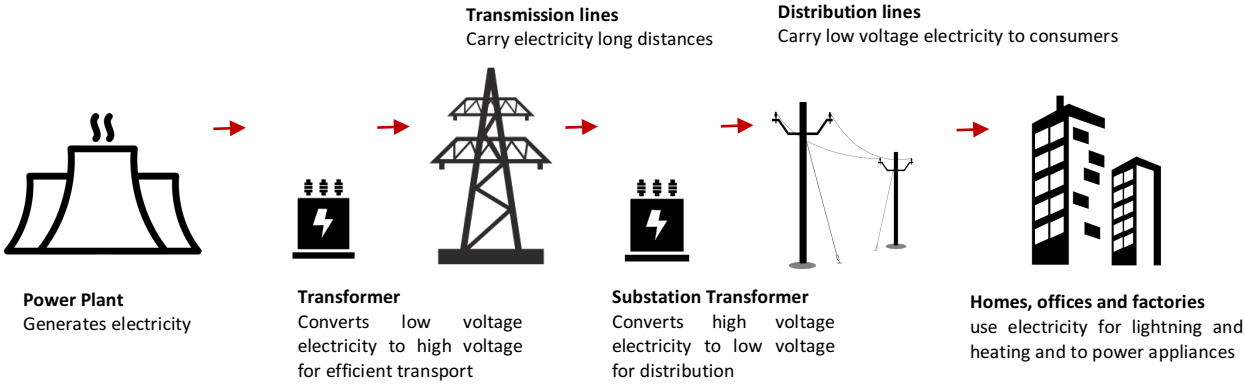
The System Operator is required to maintain a continuous balance between electricity supply from power stations and demand from consumers, and ensure the provision of reserves that will allow for unexpected contingencies. This can be achieved by determining the optimal combination of generating stations and reserve providers for each market trading period, instructing generators when and how much electricity to generate, and managing any contingent events, that cause the balance between supply and demand to be disrupted. System Operations undertake this work using energy modelling and communications systems, where real-time data plays a central role to carry this task.

Besides to its roles of real-time dispatch of generation and managing security of the infrastructure, the System Operator also carries out research and planning to ensure that supply can meet demand and system security can be maintained during future periods (i.e. coordinating generator and transmission outages, facilitating commissioning of new generating plant and procuring ancillary services to support power system operations).

Infrastructure and Supply Chain

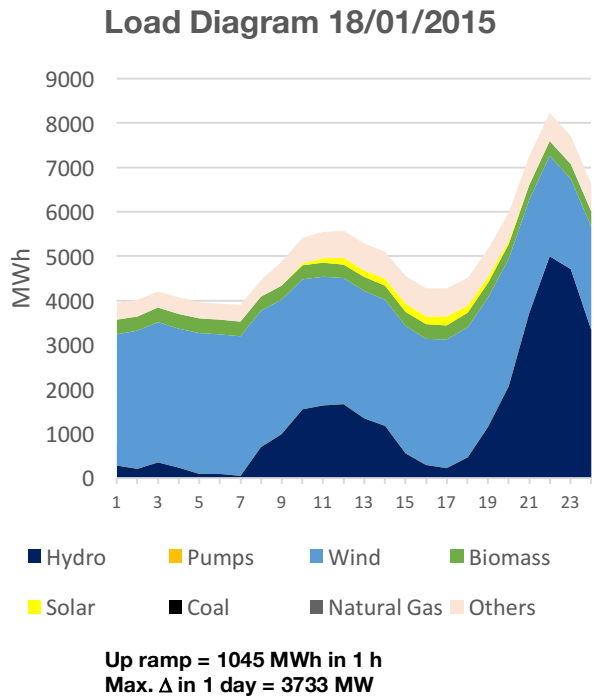
Transmission and Distribution

Figure 28 - Simplified diagram of AC Electricity distribution from generation to consumers

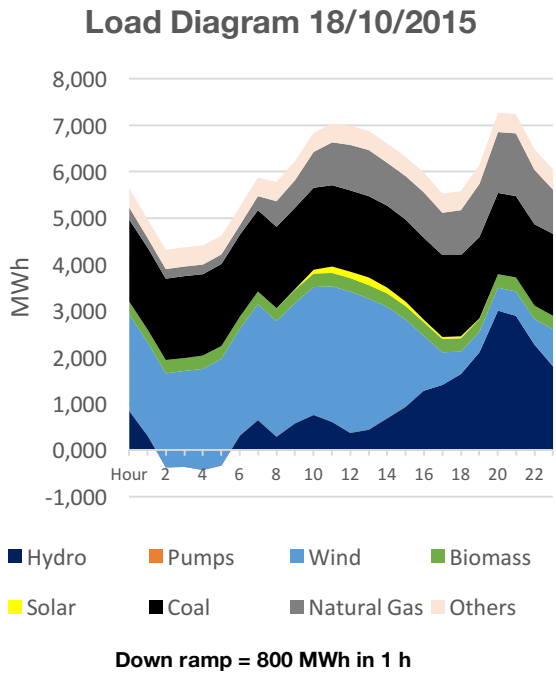


Looking to the transport and distribution of electricity, considering the figure 28 *supra*, from generation to final use, the role of the physical infrastructure is a central element for making the sale and purchase of electricity, or for its transfer take place.

Figure 29 - Daily Load (extreme delta) MWh Source: REN[265]

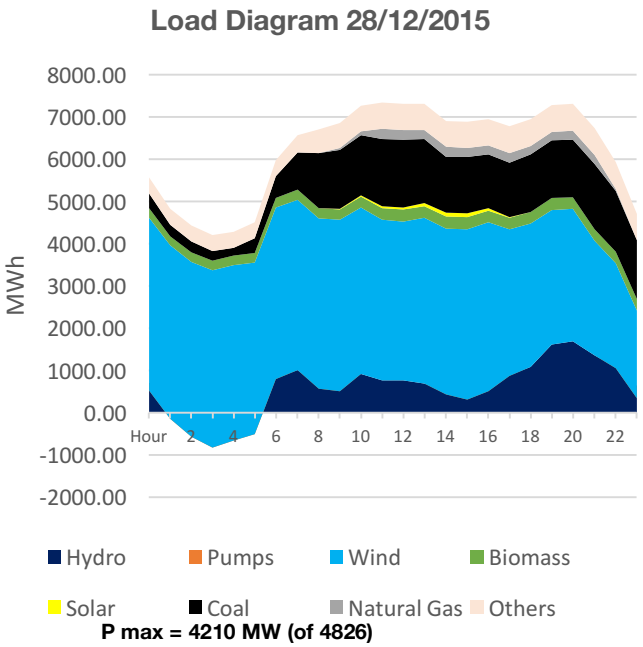


Up ramp = 1045 MWh in 1 h
Max. Δ in 1 day = 3733 MW

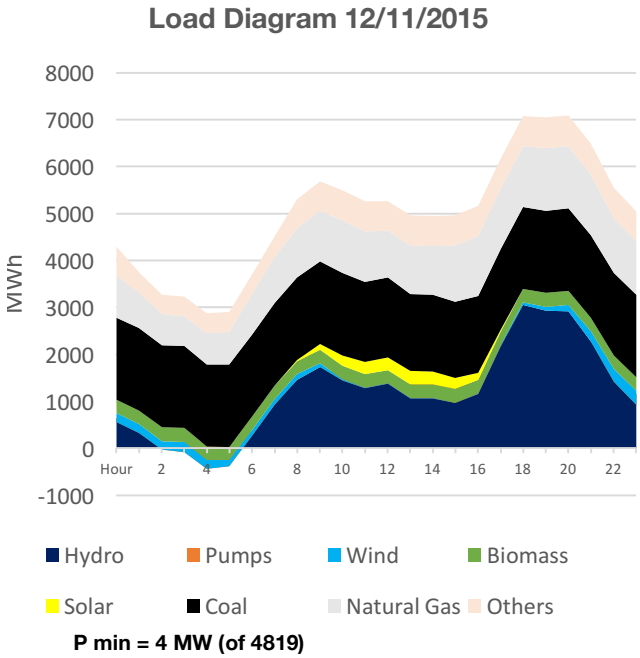


Down ramp = 800 MWh in 1 h

Figure 30 - Daily Load (extreme ramp events[266]) MWh Source: REN[267]



P max = 4210 MW (of 4826)
Wind > Consumption for 3 h



P min = 4 MW (of 4819)

[265] REN, Sistema de REN, Informação de Mercados, available at: http://www.mercado.ren.pt/EN/Electr/MarketInfo/Gen/Pages/Actual.aspx
[266] Cf. Sevlian, Raffi and Ram Rajagopal "Wind power ramps: Detection and statistics," *2012 IEEE Power and Energy Society General Meeting*, San Diego, CA, 2012, pp. 1-8. doi: 10.1109/PESGM.2012.6344969
[267] REN, Sistema de REN, Informação de Mercados, available at: http://www.mercado.ren.pt/EN/Electr/MarketInfo/Gen/Pages/Actual.aspx

The rapidly growing share of RES generation in the power system poses new challenges for the current transmission grid (changes in line flows due to fluctuations). One of the significant problems is incurred by the deviations of power generated from its estimated value. These deviations can have a significant impact on the optimal and secure planning of the generation and transmission schedules performed by TSOs. In comparison with conventional generation units, such as thermal, hydro and nuclear power plants, wind and solar power distinguishes by two unique characteristics: intermittency and volatility. Intermittency refers to the unavailability of (e.g. wind or solar) power during certain times due to the nature of the resource.

Consequently, wind and solar generators are beyond the control scheme of TSOs and are thus considered to be" non-dispatchable" production (and poses challenges to the power system). One example is power system operational planning, where the TSO needs to take this increasing amount of uncertainty into account (e.g. Reserve Capacity when dispatching).

The main drivers of energy prices can be analysed through two main indicators: energy mix and imports. Put in another way: where (internal and external) and type (of fuel) energy needs are fulfilled. Considering the energy mix, or primary energy consumption by type of fuel. The energy mix is the group of different primary energy sources from which secondary energy for direct use - i.e. electricity - is generated.

Portuguese Electrical System - Sistema Elétrico Nacional (SEN)

The legal framework governing the Portuguese National Electrical System ("SEN"), understood as the set of principles, organisations, agents and electrical installations related to the production, transportation, distribution and sale of electricity and other activities (Article 10.º of DL 29/2006), is essentially governed by two diplomas:

i. DL n. º 29/2006, of February 15 (as amended by DL. Nº 104/2010, on September 29, 78/2011, of June 20, 75/2012, of March 26, 112/2012, of May 23, and finally, by DL. no. 215-A / 2012, of October 8, which establishes the general grounds of the organisation and operation of the SEN and its stakeholders, and

ii. DL n. º 172/2006, of August 23 (as amended by DL n. ºs. 237-B/2006, of December 18, 199/2007, of May 18, nº 264/2007, of July 24, nº 23/2009, of January 20, nº 104/2010, of September 29 and by DL nº 215-B/2012, of October 8, embodying the general principles listed in DL nº 29/2006.

The framework establishes an integrated national electricity system in which production and commercialisation activities are carried out under free competition and, where transport and distribution activities are exercised through the award of public service concessions. These activities shall be carried out considering the rationality of the means to be used and the protection of the environment, in particular, through EE and the promotion of RES and without prejudice to public service obligations. Furthermore, according to art. 42.º (DL n. º 29/2006), is under free competition:

i. The exercise of the activity of commercialisation of electricity is free, being subject to license and the other conditions established in complementary legislation (para. 1 of art. 42.º);
ii. The exercise of the activity of commercialisation of electricity consists of the purchase and sale of electricity for sale to final customers or other agents, through the conclusion of bilateral contracts or participation in other markets (para. 2 of art. 42.º).

There is the legal separation of activity (art. 43.º), by stating that the activity of electricity commercialisation is legally separate from other activities, without prejudice of last resort suppliers (para. 3 of art. 36.º).

The activities of transport, distribution and commercialization of electricity, as well as those management of organized markets, are subject to regulation, (para. 1 of art. 57.º), of: Regulatory Authority for Energy Services (ERSE), without prejudice to the powers conferred on the Directorate-General for Geology and Energy (DGEG), the Competition Authority (AdC), CMVM (under the terms of the agreement establishing the MIBEL. Article 10.º of

the Santiago Agreement[268]) and other administrative entities, within the specific field of competence. It also should be mentioned the Agency for the Cooperation of Energy Regulators (ACER).

Parties

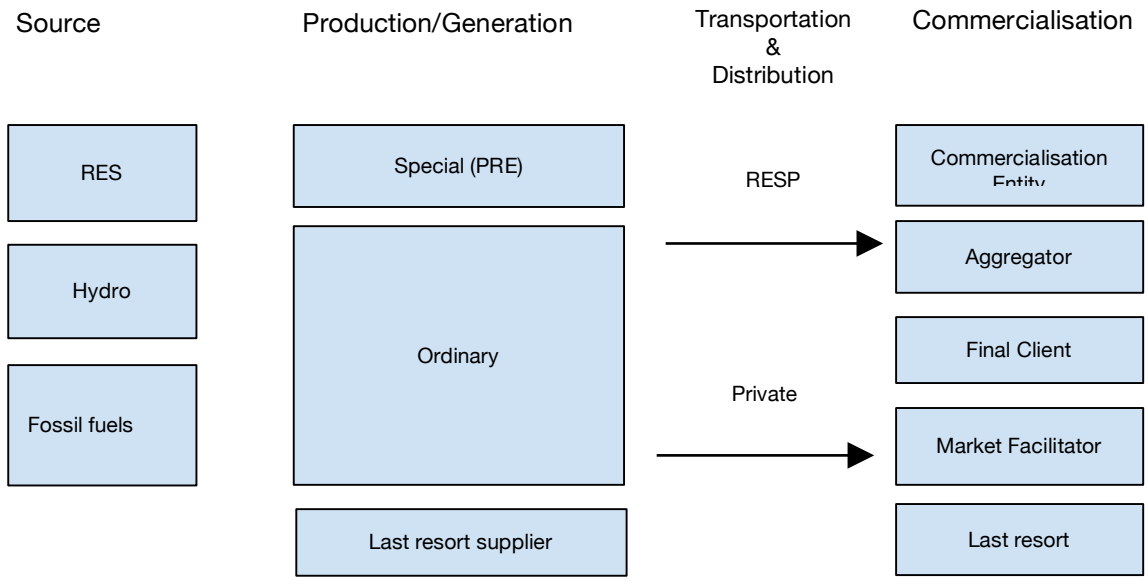
In the preamble of the DL n. º 29/2006 states: "The electricity commercialisation activity is free, but is subject to the allocation of a license by the competent administrative entity, clearly defining the list of rights and duties intending to a transparent exercise of the activity. In the course of their business, commercialisation entities can freely buy and sell electricity. To that end, they have the right of access to the electricity transmission and distribution networks, subject to the payment of regulated tariffs. Consumers, recipients of electricity services, may, under market conditions, freely choose their supplier. To this end, consumers are the holders of the right of access to the network".

The main actors per function in the supply chain:

- Producers:
  - Ordinary
  - Special Regime
- Transmission System Operator (REN)
- Distribution System Operator (LV, MV and HV), (EDP Distribuição)
- commercialisation entity:
  - Liberalized market
  - Last resort (EDP Universal)

Per counterparty in the SEN, from generation to delivery:

Figure 31 - Main actors per function in the supply chain



The relationship between producers of electricity under the ordinary regime (para. 1 of art. 19.º) can be through the following modalities of commercial relationship:

a) Conclusion of bilateral contracts with final customers and with electricity commercialisation entities; (heading a) para. 1 of art. 19.º);
b) Participation in organised markets; (heading b) para. 1 of art. 19.º).

[268] para. 1 of art. 10.º (Supervision) "The supervision entities of MIBEL are, for Portugal, the Energy Services Regulatory Authority ('ERSE') and the Securities Market Commission (''CMVM') and, for Spain, the National Energy Commission ('CNE') and the Securities Market Commission ('CNMV')."

The RRC lays down the wholesale market (cf. heading b) of art. 38.º RRC) regime is the contracting of electricity through the following modalities (151.º RRC):

a) Contracting of electric energy or derivative financial products by means of the trading platforms of organised markets.
b) Conclusion of a bilateral agreement with entities legally qualified to supply electric energy.
c) Contracting of electric energy or derivative financial products through electricity or unregulated platforms, even if it is done for non-standard products.
d) Contracting of the purchase and sale of electric energy by commercialisation entity for the purposes of aggregation or representation of producers under the special regime with market remuneration.
e) Participation in regulated mechanisms for the purchase and sale of electricity.
f) Wholesale contracting of electric energy transportation capacity, including by use of products derived from physical or financial delivery.
g) Participation in markets for system services for contracting power and electricity.

The access to the wholesale market regime is defined in art. 152.º, where is law down that either the entities with the status of a market agent, which is not registered under Regulation (EU) n. º 1227/2011, of October 25, are entitled to access to the wholesale market regime. (para. 1 of art. 152.º) or also allows to entities may acquire or become effective market agent status as (para. 2 of art. 152.º):

a. Producer;
b. Commercialisation entity the under the market system;
c. Commercialisation entity of last resort;
d. Commercialisation entity acting as market facilitator;
e. Commercial Agent;
f. Other agents of organised markets;
g. Customer (where for this case sets the fulfilment of the status of market agent is dependent on the verification several conditions, namely adhering to same contracts and regulation, as other Market Agents).

Furthermore, for the case of physical delivery of contracted electrical energy, this is formalised with the adhesion to the System Services Market Agreement, and the user of the networks that is a market agent must comply with the conditions established therein (para. 4 of art. 152.º).

Ordinary regime

The ordinary regime sets that the (Purchase and sale of electricity) by the Commercial Agent acquires electric power to the producers with a PPA “CAE” (para. 1 of art. 88.º of RRC) or that the commercialisation entity is responsible for the acquisition of electric energy to supply the aggregate customers’ consumption in its portfolio, as well as for the satisfaction of contracts bilateral in acting as selling agent (para. 1 or art. 89.º of RRC). The commercialisation entity may purchase or sell electric energy through contracting arrangements in the market system defined in the said regulation (para. 2 of art. 89.º of RRC).

The commercial relationship between the commercialisation entity and the network operators is established through the conclusion of contracts for the use of the networks, in accordance with RARI (para 3. of art 90.º RRC) and, with the transportation, within the scope of the Global System Management activity, is established through the adhesion to the System Services Market Agreement (para. 3 of art. 90.º RRC).

MIBEL

The functioning of the wholesale electricity market in the framework of MIBEL is based on the existence of a set of complementary contracting modalities. In this way, the wholesale market of MIBEL currently comprises:

- A futures market, which establishes future commitments for the production and purchase of electricity. This market may carry out physical settlement or financial settlement.
- A spot market with a daily contracting component and an intraday adjustment component, which establishes programs for the sale (production) and purchase of electricity for the day following the trading day.
- A system services market that balances electricity production and consumption and operates in real time.
- A bilateral contracting market, where agents contract for the various time horizons the purchase and sale of electricity.

It should be noted that part of the forward contracts has physical delivery of electricity, so that these volumes are also reflected in the volumes of energy traded in the spot market (to be settled). Bilateral contracting may also include the settlement of other types of market instruments, such as capacity auctions.

Under REMIT defines as 'non-standard contract' as a contract concerning any wholesale energy product that is not a standard contract; that defines as "a contract concerning a wholesale energy product admitted to trading at an organised market place, irrespective of whether the transaction actually takes place on that market place".

Concession of the electricity infrastructure

Public domain assets

Some assets related to the distribution of electricity in the SEN are subject to the public domain regime. These tangible assets are related to the activity of the DSO[269] and TSO, which can freely manage them although, within the scope of the private legal trade, it cannot dispose them, as long as they remain, in the public domain. The premises of RESP are considered, for all purposes, of public utility (para. 1 of art 12.º).

Distribution

The electricity distribution business essentially comprises three types of activities:

- Ensure the electricity supply: dispatch the energy of producers and supply the retailer's customers, meeting the regulatory objectives regarding power quality, number and duration of power outages; restore the supply in the event of network failures;
- Ensure the expansion and reliability of the network: planning, developing, operating and maintaining the distribution network; make connections to the distribution network of customers and producers;
- Provide services to suppliers: changes in commercialisation entities (switching), cuts, power changes, readings, among others.

In High and Medium Voltage

The distribution of electricity is carried out through the exploitation of the National Distribution Network (RND), which comprises the network in medium and high voltage and low voltage distribution networks, and is also exercised through exclusive public service concession contracts. The concession for the exploration of the RND in medium and high voltages was attributed by the Portuguese Government to EDP Distribuição for a 35 years' term, starting on February 25, 2009[270] (para. 1 of art. 70.º of DL n. º 29/2006).

[269] Besides EDP Distribuição, there are also small entities, in very specific cases, where the concession was not granted to EDP Distribuição, e.g. Junta de Freguesia de Cortes do Meio, Cooperativa Eléctrica de Vale D'Este, cf: ERSE website http://www.erse.pt/pt/electricidade/agentesdosector/pequenosdistribuidoresembaixatensao(cooperativas)/Paginas/default.aspx
[270] EDP Distribuição - Annual Report and Accounts 2012 63: notes to the financial statements

In Low Voltage

According to specific legislation (DL n. º 344-B/82[271]), the right to distribute, in low voltage, electricity is attributed to municipalities. However, through the conclusion of concession agreements, for periods that generally amount to 20 years, this right was granted to EDP Distribuição and other small cooperatives (para. 1 of art 71.º of DL n. º 29/2006).

ERSE published the Guide on the Distribution of Electricity in LV, (February 8, 2018), as the public tenders for the new LV distribution concessions will be launched by the municipalities, as established in Law n. º 31/2017. The term of the current distribution concessions was set at 20 years from the beginning of each contract, ending the majority between 2021 and 2022.

Transportation

In very high voltage

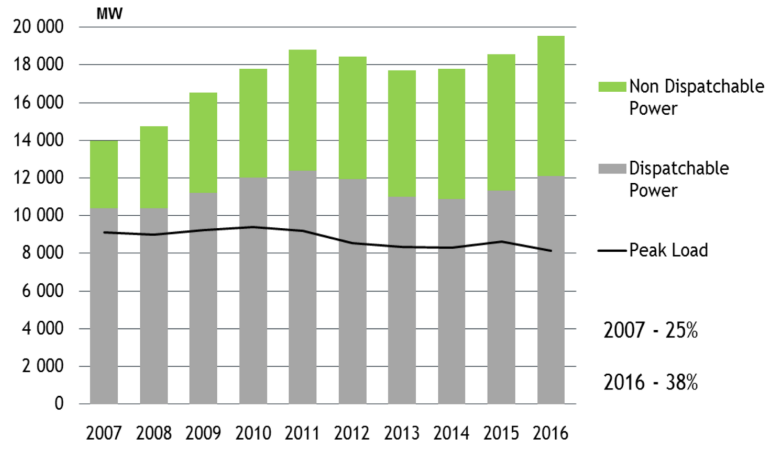
The assets assigned to the concession are: very high voltage networks, interconnectors and system manager installations, namely related to the centralised dispatch and the overall management of the National Electrical System (SEP), and the National Dispatch (art.22º of DL n. º 29/2006). REN retains the right to explore the assets assigned to the concession until its extinction (para. 1 of art 69.º of DL n. º 29/2006).

The assets may only be used for the purpose for which the concession was granted. On the date the concession expires, the assets shall revert to the State under the terms of the agreement, which includes the receipt of compensation corresponding to the net book value of the assets assigned to the concession.

RES Flexibility in the overall system

Capacity markets are becoming a structural component of the market design. Due to the nature of the natural resource and its intermittency and volatility, several methods may be used, namely managers of the electricity infrastructure to secure the safety and integrity of the grid. Considering the ability to decide when to dispatch or not, RES can be classified as dispatchable and non-dispatchable.

Figure 32 - "Non-dispatchable" Capacity (2007 – 2016)



Source: REN

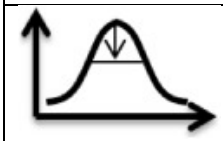
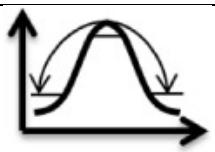
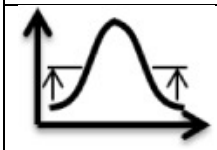
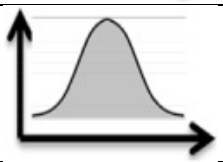
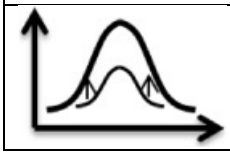
[271] The DL 344-B/82 of September 1 set that the distribution of low voltage electricity is the responsibility of the municipalities, which may exercise it under direct exploitation or concession regime. (para. 1 of art. 1.º) or through Direct operation by municipalities includes the exploration for municipal services or associations of municipalities, including federations (para. 2 of art. 1.º). Also, limited the exercise of this activity to Electricidade de Portugal (EDP), E.P. and public companies of local or regional scope, created in the terms that will be defined by law. (para. 3 of art. 1.º).

Most common methods to manage the electricity grid (and its flows) may include:

- Curtailment – right to curtail a given generation source when there is an excess generation;
- Storage – Ability to store energy, to store the excess to be used when the is an absence or fewer resources;
- Demand Side Management (DSM) - doing the best allocation of resources (price) to needs (quantity), considering that prices vary depending on supply and some consumption.

At the network level, DSM may facilitate the integration of more renewable intermittent power sources, eases network congestion, reduces reserve capacity and therefore increases grid efficiency and reduction in carbon emissions.

Figure 33 - Adjusted load shapes as a result of DSM[272]

Load shape	DR type	Load shape	DR type
	Peak Clipping		Load Shifting
	Valley Filling		Flexible load shapes (dynamic energy management)
	Load Building (Strategic Load Growth)		Strategic Conservation (energy efficiency)

RES has the problem of being considered: non-dispatchable so several strategies can be employed: curtailment or storage (supply side) or Demand Response (on demand side). Still, there is no perfect match for the supply or demand or can easily shift supply forward, to when will be a higher consumption. Taking, e.g., the total daily consumption diagram gives essential information as: total consumption, total supply, excess or deficient of supply at a given time and, imports or exports due to the last.

Breaking down the daily supply, it is also noticed that supply varies quite differently depending on each source, where solar has a peak around midday, wind late nights, hydro depends on weather and available capacity, combustion plants most of the times need few hours to be in full steam (dependant on technology used) and are also used as a backup system, when RES is not available. Due to the intermittency, and to can to secure that supply always meet demand, grid operators have the task: a) Securing supply to match demand; b) Trying to match and manage all available energy sources, according to timely and future needs; and c) real-time dispatch of generation and managing security.

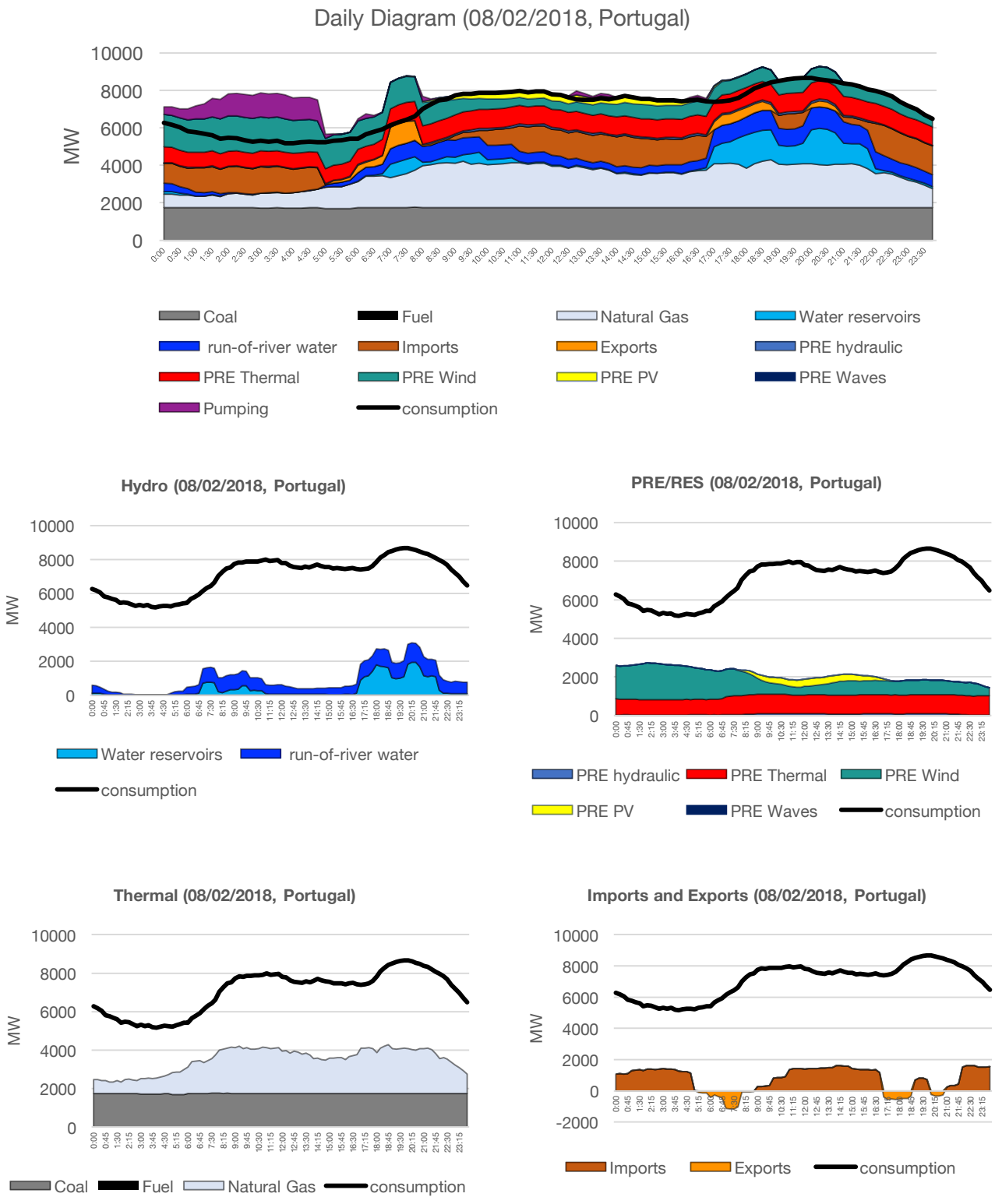
The importance of having more real-time monitoring and more data points in the infrastructure gains special importance, to either provide information to accommodate consumption to market (supply). The integration of renewables into the power system requires for their intermittency to be balanced, where a continuous and efficient information exchange is necessary at various stages[273], between an increasing number of players, namely TSOs, DSOs, besides suppliers.

[272] "Adjusted load shapes as a result of DSM" (Chuang and Gellings, 2008; Gellings, 1985; Hakvoort and Koliou, 2014) as quoted in Cherrelle Eid, Elta Koliou, Mercedes Valles, Javier Reneses, Rudi Hakvoort,Time-based pricing and electricity demand response: Existing barriers and next steps,Utilities Policy,Volume 40,2016,Pages 15-25, ISSN 0957-1787,https://doi.org/10.1016/j.jup.2016.04.001.

[273] Cf. https://www.entsoe.eu/major-projects/common-information-model-cim/Pages/default.aspx

Such information exchanges have become indispensable in network planning for power system operations, (real-time information on the generation output and balancing control[274]), and market operations (schedules, trades, settlement and reserve capacity).

Figure 34 - Total Consumption Daily Diagram (08/02/2018, Portugal (Source: REN)



[274] Cf. Definitions regarding balancing and dispatch models on the CE (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (at. 2.º) so as Art 12.º (Publication of information), namely time and format of information.

Previous framework

Most energy (as electricity) is still embedded the previous paradigm, of state-owned oil and gas companies (using either Build-Own-Operate-Transfer (BOOT) or concession project models, namely the concern was security of supply and Governments, in most of the cases, had a centralized planning), where a BOOT operator would do a PPA with Governments for long periods and the last obliged to purchase all energy generated by the ES. Consequently, e.g. using the World Bank[275] or EIB[276] databases, most appear as a type of PPP or infrastructure projects.

Former wholesale PPA´s ("Contrato de Aquisição de Energia", CAE)[277], under article 15.º of DL n.º. 182/95 of 27 July, were long-term contracts through which bounded producers ("Vinculado") to the public electricity service, have pledged exclusively to supply the concessionary entity of the national transmission network (RNT), selling it all the electricity produced in the respective power generation units.[278]

These contracts recognised both the expected income (tariffs) of the producers and the compensation to which the parties were entitled in case of non-performance, change or termination, remunerating themselves, in accordance with the provisions of para. 5 of art. 15.º of DL nº 182/95, and following amendments (for non-RES except large Hydro) were also considered the fixed costs or charges of the power plants, allowing the recovery of variable costs or charges to produce electric energy by the producers.

""Contrato de vinculação" - a long-term contract under which, under the operating rules of the SEP, a producer undertakes to deliver to SEP all the electricity produced by it or a distributor undertakes to distribute, within the scope of the SEP, of the electricity it receives from it" (para c) of art. 4.º DL n. º 182/95, SEN non-RES)

Under DL 182/95, of July 27, the subject matter and scope (Non-RES plus Hydro > 10 KVA):

"1 - Holders of "licenças vinculadas" have the right, as producers, to sell to SEP the available power and the electric energy produced under the terms of the respective contracts and, as distributors, to acquire from it the electric power they need to satisfy their consumption requested" (para. 1 of art. 38.º DL 182/95, of July 27)

Concerning RES, the DL 168/99, of May 18, reviewed the regime applicable to the activity of electric power generation, within the scope of the Independent Electric System, which is based on the use of renewable resources or industrial, agricultural or urban waste. Republished entirety under the Decree-Law 189/88 of May 27, as amended, namely:

Art. 22.º (DL 182/95, of July 27)

1 - Electricity producers covered by this decree-law enjoy an obligation for the public network to purchase energy produced during the period of validity of the licenses provided for in this law.
2 - The tariff of the sale of the energy produced by the producer centre to the public network must be based on a sum of parcels that contemplate:
a) The costs avoided by the Public Electric System with the start-up and operation of the electric power plant, including:
i) The investment avoided in new production centres;
(ii) transport, operation and maintenance costs, including the purchase of raw materials;
b) The environmental benefits provided by the use of the endogenous resources used in the producer centre.

[275] Cf. World bank https://ppp.worldbank.org/public-private-partnership/sector/energy/energy-power-agreements/power-purchase-agreements and http://ppi-re.worldbank.org/
[276] Cf. EIB database, e.g.:http://www.eib.org/projects/pipelines/pipeline/20090615 (Eólicas de Portugal SFF II) and http://www.eib.org/projects/pipelines/pipeline/20150240 (WINDFLOAT INNOVFIN FDP)
[277] In the mid-2000s, it was necessary to adjust the organisation of the national electricity system to the electricity market liberalisation process arising from the EU Directive on Internal Electricity Market. Pego (Tejo Energia) and Tapada do Outeiro (Turbogás) power plants maintained their respective CAE, and the production output was put on the market by REN. As a consequence of the early termination of the PPAs, the Producer was entitled to receive compensations "Contractual Balance Maintenance Costs ("CMEC"). The CMECs are intended to obtain economic benefits equivalent to those provided by the PPAs that are not assured through expected market revenues.
[278] REN Trading, under DL no. 172/2006, of August 23, succeeded to the RNT's concessionaire in its contractual position in respect of contracts not terminated in accordance with the mechanisms established in DL no. 240/2004, of December 26.

3 - The tariff of the sale of electric energy by the producer centre to the public network is fixed according to the terms of annexe II to the present diploma, of which it forms an integral part, which also determines the provisions regarding the period of validity of the modalities of this tariff.

PPA also should not be disregarded from its investment, or construction of a given energy system, where the first aims to guarantee a revenue stream to remunerate the last. Due to the nature of the object, the use of the infrastructure also plays a central role, namely in liberalised markets[279]. Lastly, focusing on RES, so additional challenges emerge on this setup.

Considering the previous framework for RES, namely DL n. º 168/99 of May 18:

Article 19.º
(Tariff of the sale of electric energy)

1 - Electricity producers covered by this decree-law enjoy an obligation for the public network to purchase energy produced during the period of validity of the licenses provided for in this law.
2 - The tariff of the sale of the energy produced by the producer centre to the public network must be based on a sum of parcels that contemplate:
2 - The tariff of the sale of the energy produced by the producer centre to the public network must be based on a sum of parcels that contemplate:
a) The costs avoided by the Public Electric System with the start-up and operation of the electric power plant, including:
(i) The investment avoided in new production centres;
(ii) transport, operation and maintenance costs, including the purchase of raw materials; b) The environmental benefits provided by the use of the endogenous resources used in the producer centre.
3 - The tariff of sale of electric energy by the producer centre to the public network is fixed according to the terms of annexe II to the present diploma, of which it forms an integral part, which also determines the provisions regarding the period of validity of the modalities of this tariff.
(…)
5 - For contractual purposes, the connection to the receiving network located at the terminals of the network side, of the cutting member placed at the beginning of the branch, on the side of the production facility shall be considered.

Where this Tariff was guarantee by the State "During the first eight years of the amortisation period of the investment, the State guarantees the producer a revenue, for the energy supplied, equal to that which would result from the application of TP and energy rates TE (index p), TE (index c) and TE (index v) equal to 90% of the rates in force on the day the contract is signed between the producer and the receiving entity" (para. 1 of art. 23.º of DL n. º 168/99 of May 18).

[279] For more detailed analysis of the issues involved in PPAs of this type, see the IFC guide to power purchase agreements (1996) - found at Annex 2 (page 160) of the World Bank Concessions Toolkit(pdf).

Subject matter - Energy (electricity)

General opinions

According to para.1 of art. 1302.º CC, the subject matter of property right is *"the corporeal things, movable or immovable, can be object of the property right regulated in this code."* where *"the owner enjoys full and exclusive rights to use, enjoyment and dispose the things that belong to him, within the limits of the law and with observance of the restrictions imposed by it."* (art. 1305.º concerning the inherent right to the property of things).

The definition has been drawn by four essential characteristics that, although varying in doctrine or its name or their definition, are widely accepted. These are the absence of legal personality, autonomy or individuality, utility, and finally, the susceptibility of exclusive ownership[280].

The corporeal things have as a specific characteristic pointed out by the generality of the doctrine, the fact that they are "*those that are revealed by the senses*".[281] [282] Oliveira Ascensão[283] explains that *"not only include material goods that can be directly apprehended by the physical organs of the Human Being, such as those realities that, belonging to the natural world - such as electricity or any other physical manifestations - are likely to be perceived by any person using any measurement device as physical realities."*

Menezes Leitão writes that "*corporeal things are those that exist in the natural world, and consequently physical existence, regardless of whether they take on the nature of matter (land, buildings, objects, liquids, gases or other material elements) or energy electricity or nuclear energy)".*[284]

Mota Pinto considerers that the physical criterion is not rigorous and should be considered, the art. 202.º CC "*It is something all that can be an object of legal relations*." He writes "*We can define as things in the legal sense as*" *goods of static character, devoid of personality and not integrating the necessary content of this, susceptible of being an object of legal bounds*". *The criterion defined is: a) autonomous or separate existence; b) Possibility of exclusive appropriation by someone (things are not things such as for example and for the time being, stars, flat panels, etc. or those that, due to lack of ability to delimit or capture, are necessarily used by all men, e.g. the atmospheric layer, sunlight etc.) c) ability to satisfy human interests or needs"*. Still, the author adds that conversely, *"it is not necessary: That they are goods of a corporeal nature (electricity is something like the objects of copyright and industrial property); That they are interchangeable goods, that is, with the exchange value of goods are actually appropriated".*[285]

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[280] In a divergent sense, Menezes Cordeiro argues that "that only the law can consider a thing as in commerce or outside it" , arguing that "anything by definition can be appropriate, individually or collectively" because "appropriation may be purely legal: it is enough to imagine that an entity claimed the right to charge a" price "for the air breathed, for the aesthetic use of the stars , or that one reserved the exclusive use of solar energy to conclude that, after all, all things can be dealt with by law and in terms of appropriation » Cordeiro, Menezes, Direitos Reais, Reprint, in Lex, 1993 (1979 edit.) pp. 212-213.

[281] António Menezes Cordeiro states "From the beginning, corporeal things have an external existence, being perceived by the senses. On the contrary, the incorporeal ones correspond to mere creations of spirit. Although omitted in the field of "official" classifications of things, the Civil Code presupposes the present classification and in important sections. Thus according to Article 1302: Only corporeal things, movable or immovable, can be subject to the property right regulated in this Code. The "right of property" is used, here in the middle sense of "real rights." (...). In short: corporeal things are susceptible of possession. Possession beyond material control involves a corollary: by translating a physical exercise into a thing that can be perceived by the senses "(...) The corporeal things embrace, from the outset, the limited portions of matter in a solid state. But - on the contrary, perhaps, of a certain common use of the expression - corporeal things are also liquids and gases. Their automatization will, however, require a receptacle or a continuum where they can be stored or limited: the banks of a river or a lake, or a bottle of oxygen." Tratado de Direito Civil Português, I - Tomo III, Almedina, 2º Ed. Coimbra, 2002, pp. 106-108

[282] Criticising this criterion of distinction Menezes Leitão maintains that "At present, however, the criterion of apprehension by the senses cannot be followed, since many things with physical existence, such as gases or electricity, are not apprehensible by the senses. On the other hand, rights cannot be seen as intangible things, since they do not allow rights over rights. Intangible things only cover intellectual property, which is the subject of copyright and industrial property." Leitão, Direitos Reais, 2 ed. Almedina, 2011 p. 58.
José Alberto Vieira maintains that "contrary to Roman thought, and although a good part of contemporary doctrine continues to consider, rights are not the object of other rights, much less things, even intangible. (...) as intangible things we now find only intellectual property, creative expression, usually called literary and artistic work, invention, the trademark, the design, the logotype, etc. Vieira, José Alberto, Direitos Reais, Coimbra Editora, Coimbra, 2008, p. 138

[283] Ascensão, Direito Civil - Teoria Geral, p. 352

[284] Leitão, Direitos Reais, 2 ed. Almedina, 2011, pp. 57-58, Similarly, cf. Cordeiro, Direitos Reais, Reprint, in Lex, 1993 (1979 edit.) pp. 191-192

[285] Pinto, Carlos Alberto Mota, Teoria Geral do Direito Civil, 4ª Edição 2005 Coimbra Editora, pp. 341-343

Following similar reasoning, Almeida Costa states that "*the civil code is directed to private things. That is why it deals only with those things which may be the subject of private rights" i.e., of things in commerce, which is opposed to things outside commerce, as is the case of those in the public domain as he complemented*[286] *adding "static realities (that can be object of legal positions, except personality and personal rights)."*

These authors distinguish this characteristic from the exclusion of goods that are "out of the trade" made by para. 2 of art. 202.º of the CC because in this case, it is a legal exclusion as the good of the quality of thing for the purpose of private trade. In this sense, Carvalho Fernandes maintains that "*the expression things out of the trade cannot be understood literally, because things outside the legal commerce, at all, could not, without contradictio in adjecto, be things, given the notion of thing adopted. Basically, the complete designation of the category in question would be that of things outside private trade ".*[287]

Rui Pinto Duarte states that "*From art. 1302 it is not legitimate to conclude that the property right can only have as its object corporeal things ... It can only be deduced that the rules of the Civil Code on property apply only to such figures in the alternative and subject to paragraph 2 of art. 1302. (...) it is the Civil Code itself which, expressly, in several cases, states that certain rights in rem can be considered as rights; (Article 666, paragraphs 1 and 679 et seq.) and usufruct (Article 1439). Article 1302 applies only to the right of ownership, not to real rights in genera*l."[288]

Rui Pinto Duarte complements this idea by connecting with the use of public goods "*To emphasise that Article 202 (2) cannot be understood as excluding the possibility for individuals to use the public domain, in particular to be granted a private use of goods in the public domain. What can be discussed – and it is discussed - when this use, it is the title of the same, namely the public or private character of these rights and their actual or obligational structure (...) This is the case of art. 1267, paragraph 1, heading b) that it is withdrawn that there is no possession on matters outside the legal trade, and of art. 668 (1) (d)), which allows for the payment of the right resulting from concessions of public domain assets, but does not allow for the observance of the "provisions on the transfer of rights granted" (although it is significant that the law refers to the right resulting from concessions and not the goods themselves)".*[289]

Roman Law

As Nicosia wrote "Correlatively, of the *res incorporales*, precisely because *tangi non possunt*, Gaius repeatedly states (and in two different works) '*traditionem non recipere manifestum est*': G. 2.28: *(…)* using the expression traditionem container refers to *possessio*; as it is further confirmed by the fact that in D. 41.1.43.1 Gaio alongside the *traditio* the *usucapio*, which also relies on *possessio*."[290]

Yan Thomas notes that the terminology of ancient Roman law makes no clear distinction between persons and things. *Patrimonium* means[291] "the legal status of pater", i.e., as a social extension.[292]

Ulpian commented that *rēs* comprises both legal relations and rights (D. 50.16.23). Even freedom could be considered a thing, but a thing without a price (Ulpian, D. 50.17.106: *res inaestimabilis*). Most of all, *rēs* refers to any economic asset.[293] All objects and contents of a person's patrimony are things. In the law of contracts, *rēs*

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[286] Costa, Mário Júlio de Almeida, Noções Fundamentais de Direito Civil, Almedina, 5. Ed (Rev.), 2009, p. 423

[287] Fernandes, Teoria Geral do Direito Civil, 6th Ed. Rev, UCP, 2012, pp. 671-674

[288] Duarte, Rui Pinto, Curso de Direitos Reais, 2nd Edition, Principia, 2007, pp. 31- 32, cf. Alves Moreira: "That if the use is intended of the public waters, navigable or fluctuating, it may depend on permanent or temporary construction, it cannot be done without the prior authorisation of the competent administrative authority (COD civ, 432, cit reg. 1892, art. 206, 260 and 261) Moreira, Alves Guilherme, Instituições de Direito Civil Português, Tomo 03, 1907, p. 114

[289] Duarte, Rui Pinto, Curso de Direitos Reais, 2ª Edição, Principia, 2007, pp. 33-34

[290] Nicosia, Giovanni, Possessio e res incorporales, Estratto dagli ANNALI DEL SEMINARIO GIURIDICO DELL'UNIVERSITÀ DEGLI STUDI DI PALERMO (AUPA) Volume LVI (2013), G. Giappichelli Editore, 2013. p. 280, available at: http://www1.unipa.it/~dipstdir/pub/annali/ANNALI%202013/Nicosia%20Giovanni.pdf

[291] The word patrimony comes from *pātrimōonium*, (from *pater familliās*) and refers to all the objects that belonged to the *pater familiās*. *Bona* is a term for patrimony from *praetorian āctiō* or *aequitās*. Currently means the aggregate of things owned by a person, also the groups of assets that respond for the liabilities. Initially, from the Roman Law, and limited to things which may be inherited. Contrary to the modern systems, in Roman law there is no single term to designate patrimony with its specific contents, but rather there is several different expressions for patrimony, most important of which are familia, *pecūnia* (derived from the word *pecus*, which means cattle), *pātrimōnium* and *bona*. *Pecūnia* (or patrimony) should not be confused with money, its representation wither as "*argentum*" (from silver) or "dēnārius", as the principal silver coin among Romans, equal to ten asses (from *as*, the earliest denomination of money, and the constant unit of value, in the Roman coinages, was made of the mixed metal called *aes*).

[292] Thomas, Yan, Res, chose et patrimoine," Archives de Philosophie du Droit, 25 1980 p. 422

[293] Cf. on the Institutes of Justinian, under, Title II. of Incorporeal Things:

refers not only to the object, but to its physical delivery (*rē contrahēre*) to the other party. Romans did not consider the human body a thing, because the human person was not the "owner of her own limbs" (Ulpian, D. 9.2.13 pr.[294]).

Because "ownership has nothing in common with possession" (Ulpian, D. 41.2.12.1), Praetorian (interdictal) possession was protected by the praetor by means of possessory interdicts — quick provisory remedies granted by the praetor to protect the *status quo*. The praetor protected the praetorian possessor because the latter had a specific relation to an item that demanded protection separate from the protection given to the owner.[295]

Dominium dīrectum et ūtile[296] "complete and absolute dominion in property"; i.e. the union of the title and the exclusive use, where *dominium dīrectum*: the right to direct in the disposition of an asset, includes the right of the holder to keep any income or profit derived from the asset. *Dominium ūtile*: the right of use and utility of an asset, and to keep the benefits (such as the right to live on the land, and to keep the profits. The holder of a *dominium ūtile* has no right of transfer (however, there were usually conditions allowed for, such as transfer to a son in the event of death). The holder of the *dominium dīrectum* is considered the superior to the holder of the *dominium ūtile*. The transfer of the *dominium dīrectum* does not affect the rights of any holders of *dominium ūtile.*

Bartolus de Saxoferrato's definition of ownership in context, showing the anachronism of many modern interpretations. It argues that, properly understood, Bartolus' definition is perfectly compatible with feudal realities and the medieval concept of *dominium ūtile*.

Under Roman Law "Bartolus linked *dominium* explicitly with *iurisdictio*. There was, as he put it, a functional equivalence of meaning – or *an aequiparatio* – between the concepts of *iurisdictio* and *dominium* (*aequiparatio de iurisdictione ad dominium*), such that anybody with *iusridicitio*, in the sense that Ulpian, Papanian, and Paul described in the Digest, could also be said to have *dominium* as well. Thus, a magistrate with an *ordinaria iurisdictio* can be said to *dominium* – namely, a *domimium utile*. (…) For Bartolus, the two terms, *dominium* and *iurisdictio*, were identical, or perhaps two sides of the same coin, both expressing in common the notion of a legal right which "applied equally to private property and Public power."[297]

By defining ownership as *perfecte disponendī* Bartolus had the intention to make a distinction between the rights of *dominium* on the one hand and the right of possession on the other hand. In contrast to the Glossators, Bartolus distinguished three forms of ownership; *dominium dīrectum,* dominium ūtile *and quasi dominium*.[298]

"Some things again are corporeal, and others incorporeal.
2 Things incorporeal are such as are intangible: rights, for instance, such as inheritance, usufruct, and obligations, however acquired. And it is no objection to this definition that an inheritance comprises things which are corporeal; for the fruits of land enjoyed by a usufructuary are corporeal too, and obligations generally relate to the conveyance of something corporeal, such as land, slaves, or money, and yet the right of succession, the right of usufruct, and the right existing in every obligation, are incorporeal.
3 So too the rights appurtenant to land, whether in town or country, which are usually called servitudes, are incorporeal things.", available at: http://www.gutenberg.org/files/5983/5983-h/5983-h.htm#link2H_4_0030

[294] Cf. https://droitromain.univ-grenoble-alpes.fr/Corpus/d-09.htm

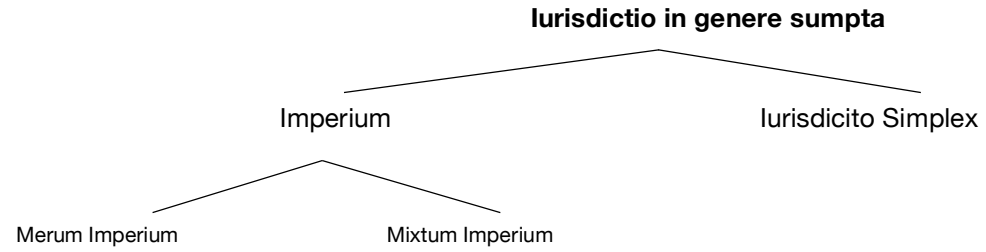
[295] "Jus honorarium created another form of property, the property called pretoria or bona and that developing the legal protection of ownership, also the possessor of good faith is a quasi-real owner" Cf. Moncada, Luís Cabral, Elementos de História do Direito Romano (Fontes e instituições), 1923, pp.182-183

[296] The terms derive from Latin *dominium* (domain, dominion), *dīrectum* (direction, in the sense of leadership), and ū*tile* (use, utility).

[297] Lee, D., Popular Sovereignty in Early Modern Constitutional Thought, OUP Oxford, 2016, p. 96
Similarly, "The concept of real right, is that of a right, not so much of man, abstractly and individually considered, about the common thing of the external world, as of the Roman *paterfamilias* on the special category of things that constitute the habitual patrimony of a family" Moncada, Luís Cabral, Elementos de História do Direito Romano (Fontes e instituições), 1923, p. 81, "patrimony is also, as has already been said, the result of all juridical-economic activity of the individual subject of rights, or the complex of juridical relations of a pecuniary nature in which the individual can be both active and passive subject", and "There is thus a concept of active "patrimony" which is the common guarantee of the creditors of the subject of law and can be executed by them, forming, as the law says, "all goods" ,"sum of goods and credits " for all" present and future goods, with the exception of purely personal rights; and a concept of "active and passive" patrimony, which is also a common guarantee of the heirs' creditors, but also includes the debts and liabilities of the defendant, constituting a unit, and even its concrete position in all their juridical relations, as if a continuation of the personality were here still beyond death." Moncada, Luís Cabral, Lições de Direito Civil (Parte geral), Volume 01, 1932, p. 71

[298] Rüfner, T., The Roman Concept of Ownership and the Medieval Doctrine of Dominium Utile. In J. Cairns & P. Du Plessis (Eds.), The Creation of the Ius Commune: From Casus to Regula, Edinburgh University Press, 2010, pp. 127-142

Figure 35 - Lee (Arbor iurisdictionum, "Tree of Jurisdictions", according to Bartolus)



Source: Lee, D., Popular Sovereignty in Early Modern Constitutional Thought, OUP Oxford, 2016, p. 97, figure 3.1 [299]

The same Author adds "What made this construction possible was Bartolus' innovative doctrine that dominium – not as a property concept, but as a generic concept – may be inclusive, in the broadest possible terms, of any right over any kind of thing, and not simply in a narrow legalistic sense of ownership of private property. While Bartolus certainly allowed there to be a dominium not simply over tangible objects of private property in classical law, such as land, movables, or even notional or "incorporeal rights" such as "the estate of a deceased person, a usufruct, and obligation however taken on, "he expanded the scope of dominium to include every conceivable thing in the world – movables, persons, lands, whole kingdoms and cities – and even the whole world itself. Perhaps more important, however, was Bartolus´ insistence that both iurisctio and domimium were actional legal rights or attributes attached to persons."[300]

According to Maiolo, *Dominium; Imperium; iūrisdictiō*, was "A widely accepted hypothesis is that in medieval sources, the term *iurisdictio* appeared as synonymous with *dominium*, as well as *imperium*, and that in both cases it denoted *potestās*."[301] Another difference, pointed by Constantin Fasolt, would be the fact that in the simple jurisdiction only private utility (*ūtilitās prīvāta*) was conferred, while in the empire it would be treated of a wider public utility (*ūtilitās pūblica*).[302]

Dominium applied to things the lord owned as his private property. Jurisdiction, however, applied to the territory over which the lord exercised his lordship. Maiolo writes, "The existence of individual dominium and universal dominium does not presuppose the existence of a conflict between them. Both are applied to the same *res*, however, in different relationships. In the first case, a part of a whole would be under the influence of dominium, while in the second it would be the totality of a good. This would also apply to things and territories. Things would be individual units that can undergo two different types of powers: direct dominium, each belonging to a person, and the jurisdiction that governs the territory in which they are inserted."[303] [304]

Previous Civil Code

Under the old Código de Seabra[305], property was defined as the "The right of appropriation consists in the faculty of adjusting everything that is conducive to the conservation of existence and the maintenance and improvement of the condition itself. This right considered objectively, is what is called property." The civil law only recognises the appropriation, when it is made by title or legitimate mode (art. 366.º).

Under Title II, with the heading "Of the things that can be appropriated and their different species, in relation to the nature of the same things or people to whom they belong", used the similar criterion of art 207.º CC, or old Roman distinction of *rēs in commerciō* and *rēs extra commercium*. Where "all things, which are not outside of commerce, may be appropriated. (art. 370.º), contraposing with, "out of the trade that cannot be possessed by

[299] "This image appears in Bartulus'Commentaria on the Digest and, later, in Godefroy´s edition of the *Corpus Iuris Civilis*. It follows Azo´s basic analysis of *iurisdictio*, but it introduces an important categorical distinction between two different species of generic iurisdictio – imperium and (what he called) iurisdicitio simplex", Lee, D., Popular Sovereignty in Early Modern Constitutional Thought, OUP Oxford, 2016, p. 97, figure 3.1

[300] Lee, D., Popular Sovereignty in Early Modern Constitutional Thought, OUP Oxford, 2016, p. 97

[301] Maiolo, Francesco. Medieval Sovereignty: Marsilius of Padua and Bartolus of Saxoferrato. Delft: Eburon, 2007, p. 143

[302] Cf. Constantin Fasolt, The Limits of History, University of Chicago Press, 2004, p.180

[303] Maiolo, Francesco. Medieval Sovereignty: Marsilius of Padua and Bartolus of Saxoferrato. Delft: Eburon, 2007

[304] "ius designates the order that regulates the mutual relations between people in the community. To this end it attributes to the individual and the community certain powers and, at the same time, establishes limits to these faculties for the good of other subjects of law and of the community. The ius covers, in the aspect objective, the juridical norms and institutions, that is the juridical order and its elements and, in the subjective aspect, the faculties attributed to the individual by the juridical order, the "rights" (...) the Romans use ius also in the sense of legal situation, legal position." Kaser, Max, Direito Privado Romano, Trans. of Samuel Rodrigues and Ferdinand Hämmerle, Lisboa, Fundação Calouste Gulbenkian, 1999, p. 45

[305] Código de Seabra, 1887

an individual exclusively (art. 372.º)". Although, "Movable, movable goods or goods, will only understand the material objects, that by their maturity are movable (art. 377.º), respectively.

Under a different section had the provision related to work, namely by stating as general principle, that "the product or value of the lawful work and industry of any person is his property and is governed by the laws of property in general, with no express exception to the contrary (569.º), where existed a special provisions for literary and artistic work (art. 570 *et seq.* where its assignment was possible, namely under 577.º), ownership of inventions (613.º), so as stating that the "of the property derives the exclusive right to produce or manufacture objects (614.º).

What would be considered as the law of obligations, as related to "The rights acquired by fact and will of themselves and others jointly (art. 714.º *et seq.*), where, considering the provisions to deliver things ("*da prestação de cousas*"), could comprise either the alienation of the thing or the right to use or enjoy a certain thing. Its transfer was defined in the art. 715.º (if determined) having a mediate effect or art. 716.º (when not determined), to be defined by the parties.

Title and mode[306]

In the mode system (implies separation), the validity and effectiveness of the second legal transaction (real business) necessarily depends on the validity of the first. With respect to immovable things consensualism operated only *inter partes*; as regards the third-party effectiveness of the buyer's right, "it would all depend on the third party beneficiary of a second sale having or not registering. The buyer who did not register would not have any right against the buyer of the second sale, if he had registered his purchase, which would seem to form a system in which the registration functions as a condition for the effectiveness of the right against third parties, a solution that led some Italian authors talking about a relative property within the Italian legal system, which provided for a similar regime".

It is certain that the art. 1578 of the same code stated: "if the same thing is sold by the same seller to several persons, the following shall be observed: if the thing sold is movable, the oldest sale shall prevail; if it is not possible to verify the date priority, the sale made to whoever is in possession of the thing shall prevail".[307]

Incorporeal Property

Using the Intellectual Property (the other category of choses in action), what is protected is a given right to exploit a given invention or creation, where is granted a licence to use this right[308], although being classified as an asset. Using the example of software or databases (namely if it should be protected by Copyright or under Patent rights), the origin and function of these rights is different, they have economic and social value, aiming its exploitation, e.g., in software was is being granted is a right to use a given process (not the output of that process, neither the exclusive right over the right of that process or, the ownership of set of things (e.g. industrial unit) to generated such assets.

Even in trademarks, namely considering NICE classification of goods and services, it is known the discrepancies considering software and information (database is just a type of information[309]), where the initial consideration that software as a good (class 9) or as a service (class 42) raises several questions, where the distinction relies on "downloadable", in some countries. Considering its use, the CD is just the "shell" (or the *corpus mēchanicum*, the tangible object in *strictō sensū*) to store a given process (*corpus mysticum*, or the substance wrapped within the prior).

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[306] Vieira, José Alberto C., Direitos Reais Coimbra: Coimbra Editora, 2008, p. 231. "in the pre-Justinian period, with the decline of the *mancipatio* and the *in iure cessio*, accompanied by the disappearance of the distinction of things *in mancipi* and *nec mancipi*, the purchase and sale and the donation became simultaneously real and obligational, also transferring ownership. With Justinian, however, a return to the solution of the classical period occurred and the *traditio* was again required for the transfer of the real right." Vieira, José Alberto C., Ibid., pp. 231-232

[307] The current CC presents similar rules, such as art. 407.º (the personal rights of enjoyment) and art. 697.º (mortgage)

[308] In IP rights classification, there is also similar discussion as the question if a given process, a trademark could be subject of appropriation, where some authors refer to a right of exclusive exploitation, granted for certain period.

[309] As Gallager wrote "Before 1948, there was only the fuzziest idea of what a message was. There was some rudimentary understanding of how to transmit a waveform and process a received waveform, but there was essentially no understanding of how to turn a message into a transmitted waveform. There was some rudimentary understanding of various modulation techniques, such as amplitude modulation, frequency modulation, and pulse code modulation (PCM), but little basis on which to compare them." Gallager, Claude Shannon: A Retrospective, 2001 pg. 2683, available at http://www.mast.queensu.ca/~math474/gallager-on-shannon-it2001.pdf and the original Shanon´s paper. http://math.harvard.edu/~ctm/home/text/others/shannon/entropy/entropy.pdf Reprinted with corrections from The Bell System Technical Journal, Vol. 27, pp. 379–423, 623–656, July, October 1948. A Mathematical Theory of Communication by C. E. Shannon

The reference to the materiality of the good still prevents a possible debate on the question if the notion of good also includes the goods which form the *corpus mēchanicus* in which the immaterial good consisting in work. On "The opposition between *mysticum corpus* and *corpus mechanicum*, Kant affirmed then that the *opus mechanicum* is a thing (*Sache*) and therefore *poioumenon, opus*. This explains why works of art can be successfully imitated on the basis of a unique original exemplar. The *corpus mysticum*, is instead an action (*Handlung*) and therefore *praxis, actio, opera, operatio*, and can never be imitated because it is an action that the author acted only once and in his name. Consequently, if it is true that opera can exist as things for itself, the *operae* can exist only within one person."[310]

For example, most software is under a licence agreement, or a right to use, where it is irrelevant if it is in a CD or a server. Also, IP, similarly to immovable property, exists the registration to either recognize (or as a medium to publicity so third parties could oppose) a given right, (or to operate its transfer, there is nothing more than a central deposit of records, to either accomplish the publicity and safety function of the overall market or third parties and, also do avoid conflicting rights over the same abstract reality).[311]

Although, the remedies under IP are purely obligational[312] (not *ergā omnēs*, as, e.g., fruits after separation), or as in the case, of copyright, the inherent right ("to copy" does not hold with a given defined (or possible to defined) quantity (as electricity, shares, money) or, the use by one does not conflict with the use of another, as the number of copies is virtually unlimited.

Only very strictly does the regime of property rights over corporeal things extend to any other industrial property rights and copyright [313]- indeed, institutes such as accession, occupation, possession, etc. are inconceivable outside the realm of property over corporeal things. On the other hand, the analogy in question can be made in relation to the patrimonial legal situations, derived from the recognition of industrial property rights or copyright, which basically consisted of the legitimacy to achieve the corresponding economic performance.[314]

Royalties (as initially in oil and gas), by virtue of the acquisition of the right of ownership over the extracted oil (movable assets), are equity income (from a right to exploit an asset), appearing as a "special real right." Initially as a privilege, like in the initial joint ownership companies, where first company what build under the Charter[315] with certain monopolies to exploit. Out of this work, it is if emerged as a "tax" (of use), or a fee per extracted barrel (that would leave to the classification on *rēs commūne* or *rēs prīvāta*, also emerging in the right to use waters, depending on its classification. There is a right to use (that does not comprise an actual transfer), and royalties applied to its fruits (where the incorporation – by accession - is materialised). The legitimacy of its incorporation emerges on the use (as it could be accessed in the case of a rental, wherein immovable there is a lease for a certain use). With incorporation and actual separation, emerges a royalty.

Using the characterisation as a movable thing

Most authors seem to define electricity as a "movable thing", where is not clear on the reasoning or basis of such understanding. Using, Menezes Cordeiro's quote, *"Natural energy was not once considered a thing. The development of its economic significance soon altered this state of affairs, being now peacefully admitted as such.*

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[310] Pozzo, Riccardo. Immanuel Kant on intellectual property. Trans/Form/Ação [online]. 2006, vol.29, n.2, pp.11-18. Available from:http://www.scielo.br/pdf/trans/v29n2/v29n2a02.pdf Cf. KANT, I. Gesammelte Schriften (KGS). Band I-, Königlich Preussichen Akademie der Wissenschaften. Berlim: Walter de Grunter & Co, 1902-., Cf. Pievatolo, Maria Chiara, Freedom, ownership and copyright: why does Kant reject the concept of intellectual property? 07-02-2010, url http://bfp.sp.unipi.it/chiara/lm/kantpisa1.html
Kant on Freedom, Law and Happiness (Cambridge: Cambridge University Press, 2000), http://assets.cambridge.org/97805216/52780/sample/9780521652780wsn01.pdf

[311] Cf. Ascensão, José de Oliveira, "Valor Mobiliário e título de crédito", OA, 845-846 Oliveira Ascensão explored the issues of securities, namely the prevalence of form over substance in the CVM, against the general principle of the CC.

[312] what could be questioned is if out of tort or contract.

[313] "Objectification, Commoditisation are some terms to refer to the extension of property rights to Personal Rights. The object of property relations also includes the rights to various intangible intellectual results and the rights based on credit-based transactions (claims). Similarly, the holder of the new legal relation can also dispose of this right by a legal act. Thus, the right is circulated between different holders.

[314] Wiegand: "Property Law takes an independent position in the system design. It ends on the one hand against the law of obligations and family law, on the other hand, against inheritance law. Its independence depends essentially on the contrast between the objective and the personal Right.", " Insight into the nature of the disposition is opposite to the Obligation that served as mediation and preparation about the same has, that the real rights have a direct direction on the matter and only indirectly a personal direction.", Wiegand, Wolfgang. "Die Entwicklung Des Sachenrechts Im Verhältnis Zum Schuldrecht." Archiv Für Die Civilistische Praxis, vol. 190, no. 1/2, 1990, pp. 112–138. JSTOR, www.jstor.org/stable/40995431

[315] E.g., Vereenigde Oostindische Compagnie (VOC), or "Dutch East India Company" (1602) or, the Charter granted by Queen Elizabeth to the East India Company (1600) and its subsequent acts.

Authors do exist, however, who consider it as an incorporeal thing. We think that without reason: the energy clearly belongs to the field of external things and not to those of the creations of spirit. Aliases, it should be remembered that modern physics has established the traditional delimitations between matter and energy. Unlike the Italian Code (Article 814), the Portuguese Civil Code does not expressly state energy as a mobile thing; it must, however, be considered as such in the light of Articles 204 and 205"[316]. Seems to fail a deeper understanding, energy is not mass. On modern physics is not clear the basis of such statement or inference, even in classical mechanics, energy was not defined as matter.[317] The problem, as it is analysed, by inserting electricity as a "movable thing", may bring several problems when applying the regime for movable things for a dynamic phenomenon, *in extremis,* would be plausible to support the idea of a right of tracing over a charge passing in a given current or heat (as it is also energy). As a reflection, in the metering regulation (GMLDD, p. 31 *et seq*.), there are provisions related to the determination of the consumption, in case of fraudulent procedure (as an alteration on the metering devices) and profiles loads. As in the case of use without a title, the only root would be, if nothing stated, under the unjustified enrichment (473.ºCC), as can be returned something already used. It is not the question if an event or fact occurred, but how to estimate a past event to make the correction.

The concept of "thing" under the German Law is "Only corporeal objects[318] are things as defined by law. (§90 BGB) where "Fungible things as defined by law are movable things that in business dealings are customarily specified by number, measure or weight (§91 BGB). Due to this classification, the "Theft of electrical energy", was included, but on the German Criminal Code (§248c).

Under the French Code, the concept includes rights (as usufruct), incorporeal things, so as debts, as all are goods "Biens" (art. 1100.º *et seq*.). Under Italian Civil Code, Energy "Si considerano beni mobili le energie naturali che hanno valore economico." (Art. 814 – Energie) – is a classified as a movable thing and, a good (*beni*) that can be an object of rights.[319]

Furthermore, a PPA is not equivalent to electricity supply contract, or the question was what is the difference between an electricity supply contract and a PPA, regardless of the scale (that would not change the elements of the contract). When looking, carefully, a potential answer is also given in art. 138.º or the RRC, where states, indirectly (by subjective imputation):

a) Retail market, which comprises the activity of commercialisation of electric energy to final customers, as well as the operation of the change of commercialisation entity (heading a) para. 1 of art 138.º RRC);
b) Wholesale market, which includes the contracting of electricity, transport capacity, power or products derived there from (heading b) para. 1 of art 138.º RRC).

The origin of a PPA was always referend to wholesale, not the ordinary supply to end users, in some way, they were related to same reality, still, from opposite sides.

Court Cases

Most authors consider[320] the supply of electricity gives rise to a generic quantity obligation whose determination depends on the measurement. After passing through the meter and its concentration (art. 541.º CC) the determination occurs, completing the contract. The ownership of electricity is transfer to the buyer, at the moment

[316] Cordeiro, Menezes Direitos Reais, Reprint, in Lex, 1993 (1979 edit.) pp. 191-192

[317] As one example the second law of motion (Newton), or kinetic energy of rigid bodies. In classical mechanics, the kinetic energy of a point object (an object so small that its mass can be assumed to exist at one point), or a non-rotating rigid body depends on the mass of the body as well as its speed. The kinetic energy (E_k) is equal to 1/2 the product of the mass and the square of the speed. Or: $E_k = \frac{1}{2}mv^2$, where *m* is the mass and *v* is the speed (or the velocity) of the body. Interestedly, even when Kant writes the Metaphysical Foundations of Natural Science, based on Newtonian mechanics and Euclidian geometry (prior to metaphysics of the morals, had a better understanding that energy was not mass and even the first is the typical example of knowledge *ā priorī*, cf. Kant, Metaphysical Foundations of Natural Science, Editor and Translator: Michael Friedman, Stanford University, California, September 2004, http://www.cambridge.org/pt/academic/subjects/philosophy/philosophy-texts/kant-metaphysical-foundations-natural-science#U3LFuMjUSgDt00vt.99 also available at: http://assets.cambridge.org/97805215/44757/frontmatter/9780521544757_frontmatter.pdf
On the adaption to quantic mechanics and relativity: Friedman, M. (1998), Kantian Themes in Contemporary Philosophy: Michael Friedman. Aristotelian Society Supplementary Volume, 72: 111-130. doi:10.1111/1467-8349.00038 Cf. By motion, Aristotle understands (in *Physics)* any kind of change, as the actuality of a potentiality. Cf. also, Leibniz's Theoretical Shift in the Phoranomus and Dynamica de Potentia, based on *dunamis* and also referred to it as the "new science of power and action" (Latin "*potentia et effectu*").

[318] The BGB does not recognise that an incorporeal object such as a contractual right can be the object of a real right. German civil law considers it illogical to apply the concept of property right or right of dominion (*Beherrschungsrecht*), which involves a direct dominium over the object of the right, to intangible or incorporeal property.

[319] "Sono beni le cose che possono formare oggetto di diritti" (Art. 810) of Italian Civil Code, under the Tittle of "*Proprietà*"

[320] In line with the classification of electricity as a movable thing.

of the delivery, also transferring the risk that can result in the perishment or loss of electricity (art. 796.º CC). Thus, in the event of losses, the buyer will be responsible for paying the electricity that has been delivered, but not has consumed. This has been the general and unanimous interpretation given, either by the opinions written in court decisions.

If most courts agree that an electricity supply contract is a contract of sale and purchase of movable thing, with a price defined per unit rate. Moreover, defined as a unitary long-term relationship, not a recurrent sale and purchase agreement, afterwards exists some evolution in the opinions held to characterise the contract (but most assume that is a corporeal thing). Concerning the moment of completion of the contract (and subsequent application of the regime of determinate of indeterminate thing), several considerations were drawn.

Ac. STJ of 17/06/1999[321], used the concept of instalments, as a unitary obligation divided per several instalments of the same contract (for application of the expiration date to claim the difference any difference in price between the actual consumption and the invoiced consumption).

Using two contradictory elements: by stating "However, it is not a repeated obligational relationship but 'a unitary long-term obligational relationship' with 'the fact that the scope of the benefits of the two parties does not depend only on the time duration but also, within the singular periods, and hence of the will of the consumer"

The discussion goes if should be applied the regime of the art. 887.º CC (sale *ad mensuram*) and 888.º CC (for sale *ad corpus*), for the purpose of application of Section III of the regime of sale and purchase of the CC.

Going further, in general, most when defining as non-recurrent sale or period obligations, in general to have a unitary performance, either by assuming a moment of when the thing is determined or the possibility to be determinable, using the referred Vaz Serra´s construction, where *"the object of the sale may be determined by generic signs, and then there is a purchase and sale of generic things"*, that *"the successive supply contract is a sub-type* '*concludes that*' *the contract for the supply of water, gas or electricity appears to be a unitary contract for the purchase and sale of things determined by a gender"*.

Ac. STJ 10/11/1993 [322] and Ac. STJ 14/03/1972[323], considered that was a determined thing, i.e. *"The supply of electric energy that the law itself qualifies as sale (of determined thing), with price fixed per unit - kilowatt, and thus, under the terms of article 887 of the Civil Code is due the price proportional to the real number of kilowatts sold, even if the contract declares a different quantity (given the successive nature of the business the contract should be understood as the set of monthly invoices).[324]"* where both considered the right to receive the price difference (under para. 1 of art. 890.º), which expires within 6 months (due to the prior classification as a movable thing).

Ac. STJ 26/05/1998[325] and in Ac. STJ 30/01/1997[326] got similar conclusions as defining that the electricity supply translates into a contract of sale of indeterminate thing in its measure and quantity, not being consequently applicable to the provisions of articles 887.º to 890.º of the CC that only refer to the sale of certain things.

[321] Ac. STJ 17/06/1999 (Lopes Pinto), Proc. n. º 99A1125, available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/879766a58848b3f780256b1000593c21?OpenDocument (consulted in 18/01/2018)

[322] Ac. STJ 10/11/1993 (Santos Monteiro), Proc. n.º 084349, available at : http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/737725a6b14e3641802568fc003aa8d1?OpenDocument (consulted in 18/01/2018)

[323] Ac. STJ 14/03/1972 (Arala Chaves), Proc. n. º 063918 available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/867438ea03cf9fe4802568fc0039a1e4?OpenDocument (consulted in 18/01/2018)

[324] "I - O fornecimento de energia eléctrica que a própria lei qualifica de venda (de coisa determinada), com preço fixado a tanto por unidade - o quilovátio, e assim, nos termos do artigo 887 do Código Civil é devido o preço proporcional ao número real de quilovátios vendidos, ainda que no contrato se declare quantidade diferente (dada a natureza sucessiva do negócio deve entender-se por contrato o conjunto das facturas mensais)."

[325] Ac. STJ 26/05/1998 (Fernando Fabião, Proc. n. º 98A429, available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/a677f84e938e7e3b802568fc003b6b6b?OpenDocument (consulted in 18/01/2018)

[326] Ac. STJ 30/01/1997 (Sousa Inês), Proc. n. º 96B709, available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/d34bde179adc03d0802568fc003b362a?OpenDocument (consulted in 18/01/2018)

Other used the argument of a durable unitary contract, not a recurrent service to rule out the application of art. 890.º of CC (i.e. Ac. STJ 22/02/2000[327] and Ac. STJ 31/05/1994[328]).

Considering the subsequent determination (or settlement) would agree that the provision of art. 890.º is applicable (as is also expressed wither for consumers and producers that have a given period to contest the readings or settlement notes). What is not possible to apply, both, at the same moment (as a Schrödinger's cat paradox, where would be determined (real) and undetermined (potential) at the same time).

As such is not subject to the provisions of sale and purchase agreement of movable things[329] as most seem to argue or, that could be linked to initial contracts of supply of raw materials to generate electricity or heat. As there is no appropriation of time as it would be reasonable as stating a lease contract, as that only would be completed each moment the lessee uses the thing.

By analogy with systems, although may seem distant, in the abstract, if reduced to its fundamental characteristics and functions, may be quite similar. Although, electricity does not have the storage (excluding few options) elements as a currency (from "currēns"[330]) does (as storage of value to not be confused with its representation), like the ability to inject electricity at any moment (that is dependent on the capacity of the electricity grid), or the "commons".

Other legal systems

Regarding the difference between the transfer of property (i.e. personal property) and the Sale and purchase agreement (namely Portugal and the UK).[331]

Personal property is all property that isn't real property (as land and buildings). It can be further divided into two subgroups: choses in possession (corporeal) and intangibles (choses in action), where the first can be movable (good) or money.[332]

The mere existence of Intangibles property (e.g. licenses, IPR such as patents, copyrights, and trademarks, securities, promissory notes, and similar documents that aren't themselves valuable but merely represent intangible rights; currency is sometimes treated as an intangible) in this case, property most accurately refers to legal rights, not to things.

As per English Law, electricity may not be included under the definition of "goods" for the purpose of Sale of Goods Act. Moreover, the legal possession of electrical energy is a challenging proposition as "it is capable of being kept or stored only by changing the physical or chemical state of other property which is itself the subject of possession." i.e. the subject matter of contract, if existing or future goods (art. 5) Sale of Goods Act 1979 (wherein 2015, was partially replaced by the Consumer Act):
1) The goods which form the subject of a contract of sale may be either existing goods, owned or possessed by the seller, or goods to be manufactured or acquired by him after the making of the contract of sale, in this Act called future goods.
3) Where by a contract of sale the seller purports to effect a present sale of future goods, the contract operates as an agreement to sell the goods.

As also noted by Mäntysaari[333], the applicability of sale of goods laws depends on what is being bought. Electricity supply contracts can be regarded as the contract of sales of goods if electricity is regarded as "movable goods", as referred can be either sale of movable goods, provision of a service or regarded a particular type of contract. The Author when looking to different jurisdictions. As pointed out on the "exclusions" of GISG, electricity poses unique problems comparing with other commodities, as gas or crude oil.[334]

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[327] Ac. STJ 22/02/2000 (Lopes Pinto), Proc. n.º 99A1125, available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/879766a58848b3f780256b1000593c21?OpenDocument (consulted in 18/01/2018)
[328] Ac. STJ 31/05/1994 (Martins da Fonseca), Proc. n.º 085051 available at: http://www.dgsi.pt/jstj.nsf/954f0ce6ad9dd8b980256b5f003fa814/39a8582b593faba4802568fc003a801e?OpenDocument (consulted in 18/01/2018)
[329] i.e. Lima, Pires e Antunes Varela, Código Civil Anotado, Volume II, p. 162
[330] From Latin "currere", "to run".
[331] Cristas, Assunção, Mariana França Gouveia, Transmissao da Propriedade e Contrato de Compra e venda, Assunção Cristas, Mariana França Gouveia e Vítor Pereira Neves, Transmissão da Propriedade e Contrato, Coimbra, 2001, p. 31 *et seq*, 87 *et seq*
[332] Ibid., p. 32
[333] Mäntysaari P. (2015) Setting the Scene. In: EU Electricity Trade Law. Springer, Cham p. 71
[334] Mäntysaari P. (2015) Setting the Scene. In: EU Electricity Trade Law. Springer, Cham p. 71-72

Also, the DCFR [335], under Chapter 1, Scope IV, removes the contract for the sale of electricity (a), but also securities in general (b), incorporeal property, including rights to the performance of obligations, industrial and IP rights and other transferable rights (c), from the provision for the sale of goods and associated consumer guarantees. It also removes the application to the acquisition, loss and protection of ownership of goods and to specific related issues to electricity a) and securities (v) (Book VIII), although, considering money (c) does not apply the same rules with appropriate adaptations, to banknotes and coins that are current legal tender. Lastly, considering the accountability for damage caused by defective products inserts electricity as a "Product" means a movable, even if incorporated into another movable or an immovable, or electricity to be considered under this provisions). Agreeing that this document lack clarity on the classification given to electricity. [336]

In the US case, referred, e.g. in *Zoller v Niagara Mohawk Power Corp, considered*

"[U]tility companies are not absolved from liability for ordinary negligence claimed as the result of the supply or use of electricity, as opposed to damages caused by the interruption of the supply of service"[337]

Supreme Court of Ohio in *Otte v Dayton Power & Light Co.* (37 Ohio St.3d 33, 523 N.E.2d 835) although (involves stray voltage), the court considered:

"Electricity is the flow of electrically charged particles along a conductor. The utility does not "manufacture" electrically charged particles, "but rather, sets in motion the necessary elements that allow the flow of electricity" The consumer pays for electricity by kilowatt hour, that is, the length of time electricity flows through the system. There is no individual product. Instead, the consumer pays for use of the electricity."

Other courts used a similar approach to Portugal - Electricity and Metering as "Raw" to goods after the Meter (measurement), as in Schriner v. Pa. Power & Light Co. 348 Pa. Superior Ct. 177 (1985) 501 A.2d 1128, where:

"In other words, while still in the distribution system, electricity is a service, not a product; electricity only becomes a product, for purposes of strict liability, once it passes through the customer's meter and into the stream of commerce"[338]

Supply gas, namely heat, on the other has been considered as a services contract, when referring to long term power supply agreements.[339]

Bailey,[340] on the application of art. 2.º of US Commercial Code, where it is analysed if electricity is "transaction in goods." or "service", considered:

"*Article 2 of the Uniform Commercial Code (UCC) applies to "transactions in goods," unless the "context otherwise requires" and with other exceptions. The most common transaction covered is a sale of goods in which the title passes from the seller to the buyer for a price, and a contract to sell something at a future time. Goods, with some exceptions, are defined as "all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale*".

There are 3 tests that the courts use to access the application of art. 2 of the UCC, namely:

- Gravamen of the Action Test,
- The Btu Test;
- Helvey case (concedes that electricity is legally considered to be personal property, that it is subject to ownership, and that it may be bartered and sold).

That same Author, uses several examples as (transcribing):

"In Williams v. Detroit Edison Co.," the Court determined that electricity was a service, and so Article 2 did not apply.

Courts are split whether competitive power purchase contracts are "transactions in goods." In In re Pacific Gas & Electric Co., TM the Court held that an electricity transaction between two utilities is a "transaction in goods" and Article 2 applied. The Court determined that electricity is a "transaction in goods" because the electricity passes through a customer's meter, is marketed, is a commodity, is manufactured, transported and sold." The Court also applied the Helvey test finding that a contract for the purchase of electricity is a "transaction in goods."

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[335] Under http://ec.europa.eu/justice/policies/civil/docs/dcfr_outline_edition_en.pdf Principles, Definitions and Model Rules of European Private Law Draft Common Frame of Reference (DCFR)

[336] Mäntysaari P. (2015) In: EU Electricity Trade Law. Springer, Cham p. 78

[337] *Zoller v Niagara Mohawk Power Corp.*, 137 A.D.2d 947, 950 https://www.gpo.gov/fdsys/granule/USCOURTS-nynd-5_02-cv-00749/USCOURTS-nynd-5_02-cv-00749-1

[338] Mäntysaari P. (2015) In: EU Electricity Trade Law. Springer, Cham p. 78

[339] Mäntysaari P. (2015) In: EU Electricity Trade Law. Springer, Cham p. 463

[340] Koby Bailey, Comment, Energy "Goods": Should Article 2 of the Uniform Commercial Code Apply to Energy Sales in a Deregulated Environment?, 37 J. Marshall L. Rev. 281 (2003) available at: https://repository.jmls.edu/cgi/viewcontent.cgi?article=1392&context=lawreview

The court in Rural Electric Convenience Cooperative Co. v. Soyland Power Cooperative" held that the sale of electricity is not a "transaction in goods" even if the voltage level is reduced to usable levels and the power is measurable through the customer's meter." Similarly, in New York, courts hold that Article 2 does not apply to purchase contracts between independent power producers and utilities because the sale of electricity is a service not a "transaction in goods."

Distribution-related problems of voltage surges, electrical shock distribution-related power outages, and other service-related problems would be services under the gravamen of the action test. "Contract-related problems, such as the failure to deliver or render payment, would have the electricity contract treated as a "transaction in goods."

Under the gravamen of the action test, a court must assess the part of the contract that caused a breach or injury. Ann Lousin, Symposium on Revised Article 1 and Proposed Revised Article 2 of the Uniform Commercial Code: Proposed UCC 2-103 of the 2000 Version of the Revision of Article 2, 54 SMU L. REV. 913, 916 (2001).

Singer Co. v. Baltimore Gas & Electric Co., held that because power interruptions occur before the electricity reached the customer's meter the power was in an "unmarketed and unmarketable" state in the utility's distribution system, therefore, no "transactions in goods" took place.

Given the historical context of deregulation, one can compare deregulated gas sales as goods to deregulated electricity sales as goods and services."' Utility services, particularly natural gas utilities, share common elements with electric utilities. (…) Apart from parallels of distribution, electricity and natural gas are fungible." The energy moves through displacement along an integrated distribution and transmission grid where a customer can purchase it. Perhaps the most important similarity between electricity and natural gas is that they are a means of delivering "Btus."While not perfect substitutes for each other, electricity and natural gas are exchangeable in that they both provide usable energy to the customer's premises. From a consumer's point of view, the delivery of either meets her heating or energy demands."

The definition of commodities in wholesale energy markets

Wholesale energy product is defined in para. 4 of Article 2 of Regulation (EU) No 1227/2011 (art. 4.º (58) of MiFID II[341], as the following contracts and derivatives, irrespective of where and how they are traded:

a) contracts for the supply of electricity or natural gas where delivery is in the Union;
b) derivatives relating to electricity or natural gas produced, traded or delivered in the Union.

Contracts for the supply and distribution of electricity or natural gas for the use of final customers are not wholesale energy products (less than 600 GWh per year).

As pointed out by the FCA, "*The fact that energy products, such as gas or electricity, may be "delivered" by way of a notification to an energy network (such as notifications under the Network Code or the Balancing and Settlement Code) does not prevent them being "capable of being delivered" for these purposes. If a good is freely replaceable by another of a similar nature or kind for the purposes of the relevant contract (or is normally regarded as such in the market), the two goods will be fungible in nature for these purposes. Gold bars are a classic example of fungible goods. In our view, the concept of commodity does not include services or other items that are not goods, such as currencies or rights in real estate, or that are entirely intangible (recital 26 of the MiFID Regulation)".*[342] Commodity within the MiFID framework means "*any goods of a fungible nature that are capable of being delivered, including metals and their ores and alloys, agricultural products, and energy such as electricity*" (Article 2(1) of the Regulation (EC) No 1287/2006 of 10 August 2006 implementing Directive 2004/39/EC. The definition (applicable under MiFID I) is used in the MiFID II legal framework - Article 2(6).

Section C6 of Annex I of MiFID II excludes wholesale energy products within the scope of REMIT that are traded on an OTF and, that must be physically settled. Therefore, these excluded wholesale energy products do not qualify as financial instruments and are consequently outside the scope of MiFID, EMIR and the CRD IV package ("REMIT carve-out").

Indeed, REMIT created an almost entirely self-standing legal framework for wholesale energy products and, in the absence of the REMIT carve-out, these measures would be, at least partially, overlapping. The EU regulation defines not only what (electricity) but also how they are traded, using the concept of future sales (typical spot and futures) and forwards (where defines as "bilateral contracting", or "OTC" transactions in comparison with standardised operations). It does not distinguish if electricity can be traded as a financial product (where what is being traded is a given position) or supply, assume all as part of the same reality. Also assume same reporting obligations, where the origin of such transaction (market or OTC) is indifferent.

[341] Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency
[342] FCA, Handbook, Q33. What is a commodity for the purposes of MiFID? Available at https://www.handbook.fca.org.uk/handbook/PERG/13/4.html

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(The electricity volumes allocated by law to the nuclear power plants in 2002 and 2010 do not constitute, in and of themselves, stand-alone property rights enjoying protection of property; given that they are significant parameters for the use of the power plants, the electricity volumes do, however, benefit from protection of ownership of the power plants)
1. b) A licence granted under public law does not generally constitute property.
8. Under certain conditions, Article 14 sec. 1 of the Basic Law protects legitimate expectation in the stability of a legal situation as a basis for investments in property and its use.

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“Whilst the physical medium and the rights are treated as property, the information itself has never been. As to this, see most recently per Lord Walker in *OBG Ltd v Allan* [2007] UKHL 21, [2008] 1 AC 1 at [275], where he is dealing with the appeal in *Douglas v Hello,* and the discussion of this topic in *Green & Randall, The Tort of Conversion* at pages 141-144. If Mr. Cogley were right that the database could be possessed and could be the subject of a lien and that its possession could be withheld until payment and released or transferred upon payment, one would be coming close to treating information as property.” Available at: http://www.bailii.org/ew/cases/EWCA/Civ/2014/281.html

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