

POLICY PAPER

MAKING THE EU POWER MARKET FIT FOR THE NEW ENERGY WORLD



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On 15 July, the Commission will publish a "consultative communication" outlining key questions related to the reform of the electricity market design. This consultation will touch upon issues which are crucial to **make the power market "fit for renewables" and energy efficiency**, and above all open to **active consumer participation**.

This public consultation is a unique opportunity for those interested in the emergence of a new energy world - citizens, cities, progressive businesses, RES and energy efficiency suppliers and service providers, progressive governments, MPs and MEPs - to get organised and help the emergence of a fair, renewables-centred, efficient power market.

Introduction

Phasing out harmful subsidies and building up a new market for modern energy services

The EU electricity system is at a turning point. Cost reductions achieved in the wind and photovoltaic sectors, combined with performing ICT equipment to interconnect millions of prosumers and the grid, create a new paradigm: instead of a centrally planned inflexible power plants operated by a "happy few" gang of energy oligopolies, the energy system is moving towards a system where wind and solar are at the centre, where flexible options like demand-side management, storage and fast ramping up and down are rewarded by new balancing and ancillary services markets. Old conventional coal and nuclear power plants are not only a threat for people and for the planet but they are also rather expensive for the energy system because of their rigidity. Ending their privileges in order to progressively phase them out of the power market is the most urgent task for EU decision-makers.

In order to accompany and organise this change, the market must be deeply reformed in line with the following priorities:

1. Outline all legislative and state aid policy initiatives that the Commission intends to take to reduce unfair market subsidies for coal and nuclear (**chapter 1**);
2. Indicate which legislative and state aid measures will the Commission adopt to avoid capacity payments which largely benefit to old power plants and dominant power suppliers, in a context marked by significant over-capacity (**chapter 2**);

3. Design effective markets to incentivise flexibility (demand-side, storage, fast ramping up and down of power supply) and to allow consumers to play a more pro-active role in markets through a reform of the retail markets and guidelines for self-generation and the appropriate treatment of energy efficiency (**chapter 3**);
4. Identify the right governance structure to reap the potential of macro-regional power markets and of more effective surveillance structures (ACER) and coordination structures (ENTSO-E) as well as European trading platforms (**chapter 4**);
5. As today's market structure does not guarantee sufficient investments, propose effective solutions and, until these are successfully implemented, maintain national binding renewable target, priority access and dispatch and stable support schemes which are the only means to ensure investors' confidence (**chapter 5**).

This structural change is an opportunity for the European economy, for citizens, for the environment. But at the same time, it puts under stress the business model of the old energy world, keen to retain their privileges. The combination of shrinking electricity demand, growing shares of renewables, the emergence of thousands of new actors (citizens, energy cooperatives, farmers, SMEs, local authorities), and more open markets with more competition has taken the old energy world by surprise. Some of them like E.on (and the newly-established "E.off") try to adapt to this new energy world, but most of them rather concentrate on their lobbying activities to have governments designing the rules fitting their interest. Beyond their traditional lobby umbrella organisation (Eurelectric), ENGIE (ex-GDF Suez), Endesa, Iberdrola, CEZ, RWE, E.on, Vattenfall gathered into a new organisation called the **Magritte Goup**, promoting the following agenda for the market design reform:

- Keep privileges for coal and nuclear;
- Create new subsidies through so-called "capacity payments";
- Make variable renewables pay for the inflexible old power plants of their competitors;
- Create new barriers against demand-side management, self-generation and storage;
- Repeal all RES friendly regulatory support such as priority access and dispatch and dismantle feed-in and premium systems.

As these requests are difficult to be publicly expressed, the Margritte group is hiding their attack against renewables under the slogan "**make RES fit for the market**". Instead of going for a real change of paradigm, the Commission might rather decide to follow the agenda of these oligopolies in their attempt to make renewables fit for the biased and dysfunctional power market structure we currently experience. Making **renewables to be "fit for the market"** and not the market "fit for renewables" is not only a semantic difference. The Commission language was recently quite harsh against support schemes for renewables, referring to them as market distortions and overcompensations. We are concerned that a biased revision of the market design is turned into a renewables-bashing exercise, calling them expensive and over-subsidised. For this reason, the upcoming Commission's communication is not only a document addressing technical issues. It should not be a fuzzy combination of nice rhetoric and technical complexity which would hide the real debate on the market structure. On the contrary, it must underpin a highly political discussion and ensure that harmful subsidies to coal and nuclear are dismantled. The new Commission has to position itself. We hope that president Juncker (who wants Europe to be world number one in renewables) and commissioner Vestager (from a country without nuclear and coal assets to defend) will break with the state aid policy of Barroso/Oettinger/Almunia and put an end to the previous Commission' motto: **soft on coal, blind on nuclear, tough against renewables**.

In this context, market design is not a technical question but a highly political choice: does the EU want to stay in the old energy world, or does the EU want to lead the world to a highly-efficient renewables-based system thanks to a fair market structure?

1. State aids: soft on fossil fuels, blind in nuclear, tough against renewables

The new Commission made a first attempt of transparency by publishing in November 2014 a study realised by Ecofys on the electricity prices, costs and subsidies.¹ This was achieved thanks to a change in the leadership, after Commissioner Oettinger's desperate attempts to grossly manipulate the figures of public subsidies to nuclear and fossil fuels, as outlined in an article published by the Süddeutsche Zeitung in October 2013 and entitled "*Schön - schöner-geschönt*".²

Although "*the true cost of nuclear power is very likely a lot higher than stated in the study and may be used to misguide EU energy policy*", this study from Ecofys "*makes a more robust first assessment of fossil fuel subsidies and costs and should therefore still be considered as a first step in the right direction*".³ Clearly, the report outlines the **fossil fuel industry as the biggest beneficiary of historical public support**, for up to € 580 billion, followed by nuclear (€ 485 billion), far above the amount of subsidies granted to renewables (€ 250 billions).

We believe that president Juncker and commissioner Vestager should strongly support renewables, phase-out coal support and **shed light on the true costs of nuclear**. This would represent a shift compared to the legacy of the previous Commission's unfair management of State aid and the internal energy market under the leadership of commissioners Almunia and Oettinger.

a. Soft on fossil fuels

Unfortunately, the pro-fossil fuels and pro-nuclear bias of European Commission has a long and sad track record. Coal and gas are the typical free riders of European electricity markets. Firstly, the heavy **health costs** induced by the combustion of fossil fuels have never been internalised in the electricity price. These gigantic costs amounted to some € 42.8 billion annually in 2013 for the whole EU.⁴

Secondly, **free allocations** granted to the fossil industry under the first and second phase of the ETS resulted in massive windfall profits for big utilities, which can be considered implicit capacity payments. It is estimated that these implicit capacity payments ranged from 3 to 36 €/kW in 2013 and 2014. Lignite-fired power plants received in average the highest implicit capacity payments (approx. 14 €/kW). Hard coal-based power plants received in average implicit capacity payments of 8 to 10 €/kW.⁵

Thirdly, market distortions such as coal **subsidies** are more than ever granted by member states, as shown by a few examples below.

In **Germany**, the government is intending to grant a large-scale subsidy to old coal power plants in order to place them into a "reserve". Mainly two companies will be receiving billions of Euro - the exact amount of money being negotiated between the German government and the energy suppliers RWE and Vattenfall.

In **Poland**, the energy sector received almost 7,5 billion Polish zlotys (1,82 billion €) between 2005 and 2012 to support co-firing coal with biomass, out of which almost 5 billion (1,22 billion €) had no economic justification.

Still in Poland, in response to a looming bankruptcy of the fully state-owned hard coal mining company Kompania Węglowa, the government recently prepared a restructuring plan for Kompania Węglowa, including direct aid to unprofitable mines.

In **Spain**, the government adopted in 2010 a bill to impose on ten electricity generators the use of domestically-produced coal to generate at least 23.35 TWh of electricity per year and priority dispatch for this electricity generated from domestic coal. This obligation is topped-up by a financial support to compensate the additional generation costs. This scheme costs € 400 million per year. It was approved by the Commission and by the Court in a judgment of 3 December 2014.

In **Croatia**, the state-owned electricity company, HEP, announced on 2 March 2015 the signature of an exclusivity agreement with the Japanese corporation Marubeni for the construction and management of the €800 million coal-fired thermal power plant Plomin C. The government is planning to give a State aid to HEP through a purchasing agreement of more than 50% of electricity generated by any individual power plant, what is not allowed in the EU.

What will be the attitude of the new Juncker Commission? For climate reasons, for internal energy market reasons, the phasing-out of coal is ineluctable. Why waiting longer? We agree that "*an opportunity exists to permanently shut coal power stations*", as many European power plants will become unnecessary following of the decrease of the electricity consumption.⁶ To phase-in renewables, the Commission should have the courage to phase-out coal. Neither the market stability reserve nor the reform of the ETS for the fourth phase will be sufficient to create a level-playing field and a meaningful price signal. Getting lignite out of the market through market mechanisms is nothing more than wishful thinking. Hence, the ETS should be accompanied by other environmentally-driven regulations.

Commission and member states should:

- *Phase-out subsidies to coal power plants and coal mines;*
- *Abolish the limit of 15% of the national electricity consumption to impose obligations for domestic fuel sources in the electricity market directive;*
- *Design a reform of the ETS stopping over-allocation and free allocations;*
- *Adopt ambitious emission performance standards for medium- and large-scale combustion plants and other policy instruments such as mercury limits.*

b. Blind on nuclear

- ***Still no segregated fund to cover decommissioning costs: the nuclear debt***

In addition, segregated funds to ensure the availability of money to cover decommissioning costs are still not always established in Europe. In 2003, in the last hours of the trilogue on the second internal energy market package, the European Parliament withdrew their amendment imposing segregated nuclear decommission fund to each operator, in exchange with a written declaration which was annexed to the final decision. A year later, British Energy (the company running all nuclear reactors in the UK) got busted. With the bankruptcy, part of the money "set aside" for the waste management and decommissioning of nuclear reactors in UK went away and the UK government announced that public sources would top-up the Nuclear Liability Fund if it was not sufficient to cover all liabilities. It is likely to be the case as British civil nuclear liabilities are estimated to some £ 48 bn⁷ while the NLF currently reports £ 8.6 bn assets.⁸ Even in Germany, the availability of funds to entirely cover decommissioning is questioned: the CEO of RWE acknowledged in an interview on 12 May 2015 that "*we need the money we still earn with lignite so we can fulfil promises. The same is true for the demolition of nuclear plants and waste disposal. All of this requires money which needs to be earned – if we can't earn it with lignite, it will be difficult to pay for it all*".⁹

- ***A limited liability regime***

The possible impacts on the environment and on the health of a nuclear accident are not taken into consideration in the MWh price: this reveals the **absence of a strong liability regime**. The nuclear accident in Fukushima left at least € 100 billion liability,¹⁰ not all covered by the operator. In the EU too, we are still awaiting the accomplishment of Oettinger's post-Fukushima commitment to propose liability obligations for nuclear operators. The nuclear lobby seems powerful enough to prevent the Commission from going this way: while every solar panel, while every wind turbine onshore or offshore can only go to market with a full liability insurance, why is nuclear not bound by similar obligations?

- ***Massive public subsidies are accepted by the Commission***

Under the Illustrative Nuclear Programme (PINC) revised in 2008, the importance "*to ensure in the EU that nuclear energy projects do not benefit from any State subsidy*" is acknowledged. Thus the Commission policy under Article 40 of the Euratom Treaty **excludes the use of State aid for the construction of new nuclear plants**. Nevertheless, the Barroso II mandate ended with the biggest state aid ever in the energy sector granted to Hinkley Point C. The Commission departed from its own policy under the 2007-2008 PINC. As the HPC decision is challenged in Courts, the new PINC announced in the energy union communication should not be used to ratify this change of approach and the Commission should not take any initiative that could pre-empt the Court's decision.

Commission and member states should:

- *Open a sectoral investigation on public subsidies to nuclear;*
- *Impose to each operator the establishment of segregated funds to cover decommissioning and waste management costs;*
- *Develop a full liability regime in case of nuclear accident;*
- *Refrain from publishing a revised PINC until the Court settles the Hinkley Point case.*

c. Tough against renewables

- ***Spreading the "Dutch flu" all over Europe***

Both commissioner Almunia and commissioner Oettinger systematically attacked national support schemes for renewables although article 3 (3) of the RES directive had explicitly cleared the way for their development. It is even inviting member states to establish joint support schemes in its article 11.¹¹ In the decision on State aid guidelines in 2014,¹² the successful feed-in price systems were drastically limited and the unsuccessful Dutch support system of **technology neutral auctioning/tendering** imposed to all EU countries. This move from the Commission was bold, in a context where very little feedback was available about the potential impact of this approach, only implemented in the Netherlands. We would like to make a strong statement against this widespread technology neutral approach, which can be called a "Dutch flu". On the one hand, the Dutch model allows reaching very low costs. On the other hand, it completely fails to deliver volume. As a result, the Netherlands is only displaying a 4.5% share of renewables in 2013, way below their indicative trajectory of 5.9% and far from their 14% target for 2020. The Commission itself is thus inviting the country to "*assess whether their policies and tools are sufficient and effective in meeting their renewable energy objectives*".¹³ The Dutch Minister for Economic Affairs itself, Mr Kamp, stated on 13 June 2013 in the Dutch Parliament that this system is far from ideal since it fails to support those technologies with reduced market readiness. Isn't it contradictory to spread the "Dutch flu" across Europe while all stakeholders now agree to describe this model as poorly designed?

- **Limited protecting for small-scale installations**

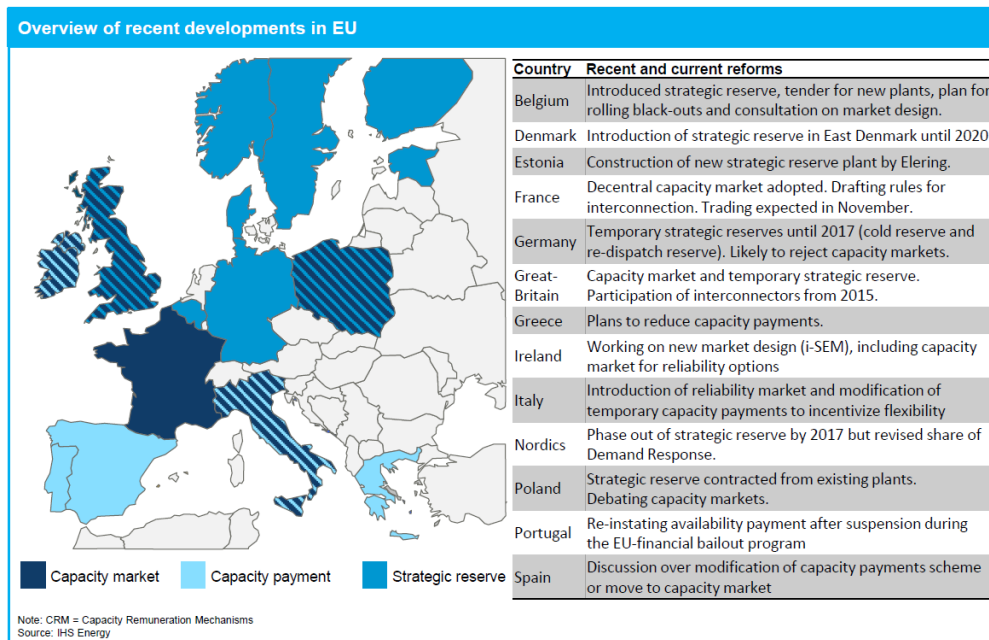
Chapter 3.3.2.1 of the revised Guidelines entitled "aid for electricity from renewable energy sources" includes paragraph 127 which defines exemptions to the bidding process to be applied from January 2017 onwards. Paragraph 127 reads as follows: "Aid may be granted without a competitive bidding process as described in paragraph (126) to installations with an installed electricity capacity of less than 1 MW, or demonstration projects, except for electricity from wind energy, for installations with an installed electricity capacity of up to 6 MW or 6 generation units". Setting **these thresholds allows maintaining a large diversity of economic actors** including SMEs, cities and local governments as well as citizen's cooperatives as active market actors. We see however that the implementation in member states tends to be more restrictive than the EU guidelines. Germany for example, the champion country in renewables development thanks to a stable and long-term support mechanism (FiT), is shifting away from this successful approach towards bidding for all installations above two units. France put the ceiling at a very low level of 100 kW for photovoltaic while Spain chose a full-bidding approach without any exemptions.

Commission and member states should:

- Allow technology specific auctions for renewables;
- Reopen the possibility to establish investors friendly support schemes like feed in premium and technology specific auctions for renewables;
- Use the full protection of the "de minimis" clause for small-scale renewables projects.

2. No capacity payments in times of over-capacity

In order to complete the internal energy market, the Commission needs to address the issue of capacity mechanisms. Usually, national electricity markets generate revenues only for the energy provided: these are called "energy-only" markets. Capacity mechanisms are aimed to provide further compensation for installed capacities that are currently not in use but held on stand-by as "back-ups". Depending on political and economic circumstances, these capacity mechanisms can be applied in various ways. In form of a price-based solution, power suppliers are compensated with a fixed amount. A volume-based solution includes a fixed long-term contracting of reserve capacity. Such strategic reserves and capacity payments are instruments within the existing energy-only-market. The implementation of a capacity market - another volume-based approach - implies the introduction of a new market for trading capacity as a good in form of certificates that are for example sold on capacity auctions.



Overview of recent developments in the EU Source: Winzer 2015, p.6

We strongly refuse the introduction of capacity mechanisms in European countries. They are unnecessary as the European **electricity market is characterised by excess capacity amounting to 100 GW**.¹⁴ And other mechanisms proved their contribution to the grid stability such as better interconnections where necessary and demand-side management. Regional deficits are mostly caused by inadequate grid expansion and could therefore not be solved by capacity markets. Most of the big energy utilities only advocate in favour of capacity mechanisms because they are subsidies for old fossil-fuel power plants that otherwise would become increasingly unprofitable. Keeping them on the market is slowing down the energy transition.

Nevertheless, capacity mechanisms are on the rise in several European countries (see annex). The Commission is expected to address the issue as commissioner Vestager recently launched an investigation. We call on the Commission to subsequently put an end to the uncoordinated development of harmful capacity payments throughout Europe.

- *Member states should refrain from establishing capacity payments or systems and in a moment where Europe displays a 100 GW over-capacity and Commission should take legal actions against them.*

3. Rewarding flexibility and promoting self-generation¹⁵

Overall, we believe that the review of the market design is an opportunity to implement the "**efficiency first**" principle via "*an obligation on national energy regulators to fully account for energy efficiency in energy market arrangements, and equal treatment for energy efficiency in any legislation*".

Demand-side response should also be valued, together with **self-generation** and other mechanisms incentivising consumers to actively participate to the market. All barriers constituting hidden obstacles to self-consumption should be removed. We recommend that administrative constraints are limited to the lowest possible level: for example, self-generation should only be notified to relevant administrative authorities rather than subject to lengthy and uncertain authorisation procedures. In addition, regulatory barriers should also disappear, such as the obligation to inject electricity into the grid before re-buying it (French system) or the limitation of the size of an installation falling under the scope of self-generation, even if differentiation on these criteria should be possible through cost-reflective network pricing (see chapter 2). Disproportionate grid charges and taxes imposed to prosumers in some member states such as Spain should be dismantled.

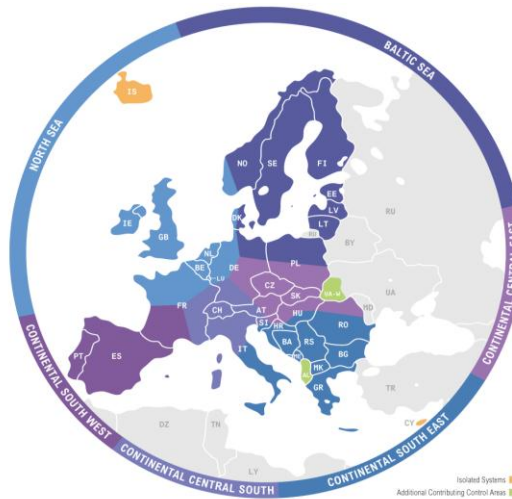
Commission and member states should:

- *Always consider energy efficiency measures as the first element when reviewing market design;*
- *Set-up a framework rewarding prosumers participation and self-generation.*

4. Regional cooperation to achieve systemic cost-optimisation

In order to overcome these renationalisation tendencies and to build trust beyond borders between governments and stakeholders, we propose to push for a rapid uptake of macro-regional power and gas markets. Regional approaches for a more interconnected power and gas markets will allow **cost-savings and system optimisation**. The macro-regions should have a variable geometry and be inspired from already existing initiatives such as the Pentalateral Forum (Benelux, Germany, France) or the enlarged BEMIP, the Baltic Energy Market Interconnection Plan updated in June 2015. Such a strong regional cooperation could also fill the dangerous actual energy political vacuum left in South East Europe

(struggles around the South Stream gas pipeline decision). There is currently too little leadership on south-east Europe despite the huge opportunities to work together on energy efficiency and also on renewables. The Balkans have great potentials in wind (Black Sea Region), in sun (Bulgaria becoming world's number 1 in PV per capita) and hydro (e.g. Albania reached a 100% renewable mix thanks to hydro). If well interconnected, this could give this whole region a new energy and economic potential. A recent study reached the conclusion that "existing regional initiatives provide a valuable starting point for addressing the EU's energy policy objectives, but need to be reformed".¹⁶ Some academics estimate that "moving to a regional, strategic approach to grid planning with full resource sharing could save €25 - €75 billion in the period to 2040, compared to the current incremental member-state approach".¹⁷



A starting point: the ENTSO-E development committee regional groups (source ENTSO-E)

Commission and member states should:

- Come up with concrete governance ideas on macro-regional power and gas market;
- Mobilise financial means channelled through the EU budget to incentivise regional cooperation.

5. Financing renewables: where is the money?

Renewables are following a **stunning learning curves** achieved **tremendous cost-reductions**. Cost of power from large scale photovoltaic installations in Germany fell from over € 40 ct/kWh in 2005 to 9ct/kWh in 2014.¹⁸ The Levelised Cost of Energy (LCoE) of offshore wind has reduced by 11% during the period 2010-2014.¹⁹ At the same time the nuclear learning curve is going the exact opposite way. The European nuclear industries flagship EPR has gone up from announced € 3 billion to more than 8,5 billion and the Hinkley Point C project will cost £ 24.5 bn to British taxpayers.²⁰ One can say that renewables are winning the race, as for the first time in 2012 more renewables were installed worldwide than conventional generation capacity.²¹

However, this does not mean that investors in wind and PV will be able to refinance their investments in our market structure, also known as an energy-only market. Indeed, **prices on the wholesale energy market reached an historically low level**: below 30 €/MWh in NordPool, below 40 €/MWh in EEX, the Paris/Leipzig/Amsterdam market place. These prices are almost equivalent to the ones observed on PJM, the biggest US market place. These levels of prices are expected to stay steady in the near future as ETS price will not significantly increase and the European over-capacity will largely remain in place.

But academics have shown that even if ETS prices went up dramatically (simulations have been run at 200 €/ton) and if overcapacity disappeared, variable renewables like wind and PV would not be able to refinance their investments because of the intrinsic nature of the energy-only market itself.²² The so-called "**merit order effect**" means that in the very moment when the wind turbines are the most active and during the most sunny hours of the day, when investors could earn money for their investment to payback, prices are falling below average and can even go to negative values.

The merit order effect

When the wind blows, hundreds of wind turbines produce electricity. When the sun shines, millions of solar power systems produce electricity. In these moments, the "merit order" (meaning the order of the power plants selected by the market) changes. Wind and PV enter the market and push the most expensive power plant out of the market with the result that market prices go down. Zero or negative price formation is favoured by the rigid conventional power plants which are too slow to adapt. The combination of the three effects means that despite ever lower costs for wind and PV, the market pricing mechanism in the European power market is inducing a gap between the minimum which an investor needs for investing in a wind or PV and the actual market price.

Some of the measures proposed in the market design communication, such as a more liquid intraday market, broader geographical coverage of the markets, additional revenues from ancillary services like balancing markets or new market products are good steps. Nevertheless, they will take years to be implemented and their impact is likely not to be important enough to counter the loss of revenue induced by the merit order effect. Long-term power purchasing contracts as they exist in Chile or Mexico or in the US are standing against the very core principle of a market driven by marginal costs of operation as we know it in Europe.

Commission and member states should:

- *Maintain stable support schemes including cost-effective feed-in tariffs and premium;*
- *Continue with priority access, priority dispatch and binding national targets which are essential to investors' confidence.*

To conclude, stating that renewables can refinance themselves on the market without support schemes is either a proof of ignorance of the reality of an energy-only market, or a strategy backing an ideological stance against the development of renewables. It has to be acknowledged that this financing problem is also existing for other sectors. For example, why did EDF refuse to integrate the Magritte group at first? The answer is crystal clear: EDF perfectly knew that in order to take a rational investment decision at Hinkley Point C, they needed an additional revenue stream higher than market prices.

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United Kingdom

Facing the energy trilemma - decarbonising electricity, keeping prices affordable and ensuring security of supply - the UK lays its focus on the latter²³. The introduction of a capacity market plays a central role: it is expected to ensure a sufficient power generating capacity to cover the demand as well as to compensate fluctuating renewable energies²⁴. The centralised design of this capacity market implies that the needed capacity is determined by the government and subsequently sold to companies at a set price provided that they keep a particular amount of electricity available. The price is agreed during a "descending auction", conducted by the government, where the lowest bidder receives the right to sell and deliver the electricity. The first auction concerning the capacity for 2018/19 took place in December 2014 and involved a capacity of 50 GW²⁵. Furthermore, because of the decrease of capacity margins in the next decade, a supplemental balancing reserve should compensate operators with £19.40 per kW to keep fossil fuel power plants available as "back-ups" for periods of increased demand²⁶.

France

France is a country relying heavily on electric heating and whose power system is therefore very sensitive to variations in temperature: already a one-degree-fall can lead up to extra 2.4 GW of power demand - equal to the capacity of more than two nuclear power plants²⁷. In order to further secure electricity supply, France followed the UK in introducing a capacity market with a decentralised design in spring 2015²⁸. On 1 April, the national grid operator RTE started a capacity mechanism that rewards power producers for keeping sufficient electricity available to prevent blackouts during periods of peak. From 15 October on, electricity suppliers are obliged to hold a certain amount of capacity certificates that are calculated each year and are based on the peak consumption of the customers²⁹. To guarantee a constant provision of sufficient power, suppliers have to buy these certificates that are granted by the RTE to the operators and can be traded.

Germany

For a long time there was a big debate in Germany about the introduction of capacity markets. Two types of remuneration mechanisms were intensively discussed: first, the French customer-based approach, in which the amount of capacity needed is defined by the customer's demand for reliable supply; and second, the English central buyer approach, in which State authorities are defining the capacity amount³⁰. Supporters of the general concept are big energy companies like RWE and E.ON as well as the Association of Energy and Water Industries (BDEW), Germany's most influential lobby organisation for the power sector. However, the German Renewable Energy Federation (BEE) strongly rejects capacity markets, arguing that they provide a subsidy for old fossil-fuel power plants that cost a lot for consumers, block the transformation of the energy system and, additionally, do not create new jobs³¹. The government also remains sceptical by saying that capacity mechanisms would "carry the risk of costs spiralling out of control" and are too complex for effective market supervision. A document from the energy ministry and chancellor Merkel - leaked this year in March - states that the government has already rejected to provide a financial support for fossil-fuel power plants to keep them as back-ups for fluctuating renewable energies through capacity market.³² However strategic reserves are being put in place (see chapter 2 of this paper).

Spain/Portugal

There are no proper capacity mechanisms in Spain, but two other incentive mechanisms have been introduced by the government to keep available a certain amount of capacity: first, payments for compensating investments in new capacity; and second, remuneration payments to existing units depending on their installed capacity and their availability³³. This resulted in the establishment of massive subsidies to the coal sector. In 2010, Portugal initially adopted the same scheme³⁴. Due to the economic crisis, the payments in both countries had to be reduced in 2012. At the moment there are discussions about further modifications of the capacity payments scheme or to introduce a real capacity market in the country³⁵.

Italy

In Italy, the combination of decreasing power demand due to the economic crisis and efficiency policies as well as the growth of conventional and renewables capacities lead - like in many other European countries - to energy overcapacities and low wholesale market prices. To provide sufficient energy and prevent potential blackouts, the Italian grid operator Terna prepared a capacity payment model that is similar to the British auction model. This model has been approved on 30 June 2014 and includes the determination of the capacity level to be made available by Terna. The exactly amount is dependent on the reserve requirements and the consumption expected for the next year. In the next step, Terna manages specific supply auctions, where power producers can sell option contracts to companies that are covering the estimated back-up capacity. These option contracts of the power producers must guarantee a certain available capacity, so Terna can rely on these plants in case of emergency. The system is divided in three separate parts: the main auction, the complementary auction (for additional capacities) and the adjustment auction (for modifications of long-term positions)³⁶. In addition, power producers are allowed to trade the contracts they purchased at the auction.

¹ Ecofys, [Subsidies and costs of EU energy](#), 11 November 2014.

² Sueddeutsche Zeitung, [Schön - schöner-geschönt](#), 14 October 2013.

³ R. Andreas Kramer, *Commentary - Subsidies and costs of the EU energy focusing on the nuclear sector*, 27 February 2015.

⁴ Figures for EU member states (27 at the time), in [The Unpaid Health Bill: How coal power plants make us sick](#), the Health and Environment Alliance, March 2013.

⁵ Felix Matthes, *Free allocation to electricity generators as (implicit) capacity payments*, July 2015.

⁶ Sandbag, [Forecasting the EU ETS to 2020](#), October 2014.

⁷ [The Nuclear Legacy. A strategy for action](#), UK Department for Trade and Industry, 2002.

⁸ <http://nlf.uk.net/history.html>

⁹ [Nichts mehr für Atomkraft?](#), interview of Peter Terium by ARD.

¹⁰ Luxemburger Wort, [Fukushima disaster costs estimated at 100 billion euros](#), 7 November 2012.

¹¹ [Directive 2009/28/EC](#) on the promotion of the use of energy from renewable sources.

¹² [Guidelines on State aid for environmental protection and energy 2014-2020](#), (2014/C 200/01), 28 June 2014.

¹³ [Renewable energy progress report](#), COM(2015) 293 of 15 June 2015.

¹⁴ Bundesministerium für Wirtschaft und Energie, [Grünbuch: Ein Strommarkt für die Energiewende](#), October 2014.

¹⁵ See my policy paper on the subject, *From consumers to prosumers*.

¹⁶ Katharina Umpfenbach, Andreas Graf, Camilla Bausch, [Regional cooperation in the context of the new 2030 energy governance](#), Ecologic, 30 January 2015.

¹⁷ Anna Dimitrova, Christian Egenhofer and Igor Taranic, [Regional Energy Policy Initiatives to achieve EU energy policy objectives](#), 15 January 2015, quoting Skillings & Gaventha 2014.

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- ¹⁸ Fraunhofer ISE, [Current and Future Cost of Photovoltaics. Long-term Scenarios for Market Development, System Prices and LCOE of Utility-Scale PV Systems](#). Study on behalf of Agora Energiewende, January 2015.
- ¹⁹ ORE Catapult, [Cost Reduction Monitoring Framework](#), February 2015.
- ²⁰ The Telegraph, [Hinkley Point nuclear plant to cost £24.5bn](#), 8 October 2014.
- ²¹ IRENA, [REthinking Energy](#), 2014.
- ²² Dr. Patrick Graichen, [Insights from Germany's Energiewende](#), 11 June 2013.
- ²³ Salmon Burges, [Electricity market reformed: the Capacity Market explained](#), 4 February 2014.
- ²⁴ Mat Hope, [Capacity market secures some new gas while providing stay of execution to old coal](#), 19 December 2014
- ²⁵ Graphic: Platts.com, [Overview of EU capacity remuneration mechanisms](#), 2014.
- ²⁶ Caldecott/McDaniels [Stranded generation assets: Implications for European capacity mechanisms, energy markets and climate policy](#), January 2014.
- ²⁷ Reuters, [France launches capacity mechanism to insure against blackouts](#), 24 March 2015.
- ²⁸ Jakob Schlandt, [Capacity markets around the world](#), 28 November 2014.
- ²⁹ Linklaters, [Capacity Mechanisms. Reigniting Europe's energy markets](#), 2014.
- ³⁰ Graphic Platts.com, [Germany debates capacity remuneration mechanisms](#), 2014.
- ³¹ Bundesverband Erneuerbare Energie (BEE), [BEE-Stellungnahme zum Diskussionspapier des Bundesministeriums für Wirtschaft und Energie \(Grünbuch\) – Ein Strommarkt für die Energiewende](#), 27 February 2015.
- ³² Jakob Schlandt, [New power market design without capacity mechanism in ministry plans](#), 20 March 2015.
- ³³ Linklaters, [Capacity Mechanisms. Reigniting Europe's energy markets](#), 2014.
- ³⁴ Graphic: Platts.com, [Overview of EU capacity remuneration mechanisms](#), 2014.
- ³⁵ Christian Winzer (IHS Energy), [Capacity markets in Europe](#), March 2015.
- ³⁶ Umberto Penco Salvi, [Capacity payment in Italy and the German case](#), April 2015.