From: [redacted]
To: [redacted]@vng.de [redacted]@eliagroup.eu; SIKOW-MAGNY Catharina (ENER); [redacted] (COMP); [redacted] (HLD REI) [redacted]@edf.fr; SLINGENBERG Yvon (CLIMA); [redacted]@elia.be; [redacted]@tennet.eu; [redacted]r@orsted.com; [redacted]@tennet.eu; [redacted]; [redacted]; [redacted] (COMP); [redacted]
Subject: Re: Briefing for next Stanhope meeting and Draft paper
Date: lundi 3 octobre 2022 14:45:18
Attachments: Briefing_October_4_Stanhope_Group.pdf
Market design-4Oct.docx
Market design-4Oct.pdf

With attachments

From: [redacted]@ceps.eu>
Date: Monday, 3 October 2022 at 16:37
To: [redacted]@vng.de [redacted]@vng.de>, [redacted]@eliagroup.eu [redacted]@eliagroup.eu>, [redacted]@ec.europa.eu>, [redacted]@ec.europa.eu>, [redacted] (HLD REI) [redacted]@enel.com>, [redacted]@edf.fr [redacted]@edf.fr>, Yvon Slingenberg <yvon.slingenberg@ec.europa.eu>, [redacted]@elia.be [redacted]@elia.be>, [redacted]@tennet.eu [redacted]@tennet.eu>, [redacted]@ec.europa.eu [redacted]@ec.europa.eu>, [redacted]@orsted.com [redacted]@orsted.com>, [redacted]@tennet.eu [redacted]@tennet.eu>, [redacted]@elia.be>, [redacted]@vng.de>
Cc: [redacted]@fortyeight.brussels>
Subject: Briefing for next Stanhope meeting and Draft paper

Dear Stanhope colleagues,
Please find attached the following:

- Background briefing an main questions for tomorrow's meeting.
- Draft report (both as PDF and Word.doc) for final comments.

Unfortunately, I won't be able to join the next Stanhope lunch due to teaching obligations. Since 4 October was the date with far most people able to join, [redacted] and I decided that he will host you alone. Online participation in the lunch debate unfortunately does not work.
We hope that you will provide input to the draft paper we have circulated. Following the lunch, we want to speedily publish it. It seems to be the right moment.
I hope will enjoy the discussions and the lunch tomorrow.
Next time I will join.
Best

[redacted] CEPS, [redacted]

The Stanhope Group
High-level Reflection Group on

The agenda for the long-term reform of the EU electricity market

Background Note for the Lunch Discussion on

Long Term Electricity Market Design Reform

October 4th, 2022

12:30-14:30H
Stanhope Hotel, 9 rue du Commerce, 1000 Brussels

European Commission:
- **Catarina Sikow Magny**, Director, DG ENER
- [redacted] DG COMP
- **Yvon Slingenberg**, Director, DG CLIMA

Industry:
- [redacted], Tennet
- [redacted], EDF Europe
- [redacted] ENEL Europe & ME
- [redacted] Elia Group
- [redacted] VNG AG
- [redacted] Ørsted

The seriousness of the European energy crisis can be hardly underestimated. If one has to trust forward EU electricity and gas prices, the current price levels are here to stay. The longer this situation will last, the worse the impact on both economy and inflation.

The European Union has been pushed into unchartered territory and embarked on a series of unprecedented, both politically and legislatively, decisions encompassing mandatory gas and electricity demand reduction targets, inframarginal revenues cap scheme, a solidarity contribution for the fossil sector and new measures on regulated prices.

Both the European Commission and the Council have however clearly stated that what has been done so far is not enough. What is evidently "not enough" is that the risk of instigating a highly damaging intra-EU split over energy policy and a consequent erosion of the internal energy market is as painfully acute today as it was 3 or 6 months ago. In the current scenario, moreover, any split over energy policy and the ways to tackle energy prices is destined to morph, very quickly, into a split over fiscal Union and intra-EU solidarity. In particular, 3 elements pose a risk to the Union's internal market and, ultimately, its internal cohesion:

1. Uncoordinated national measures to tackle energy prices at both retail or wholesale market level or implementing existing Council Regulations

2. The clash between expansionary fiscal policies, in some Countries more than in others, to support citizens and business and a contractionary monetary policy
3. The persistent member States tendency to overbidding each other in new gas delivery contracts

October, with the announced EC new initiative on gas prices, two Energy Councils and, above all, two European Councils, is the moment of truth for the Union, where the National approaches, incomplete Union solutions and the unsustainable unbalances that result from, will collide. Something will have to give.

October however is, most likely, not be the month where the long-standing issue of reforming electricity market design will be settled. And market design is the core of this Stanhope edition.

The Stanhope paper "The agenda for the long-term reform of the EU electricity market" that has been distributed ahead of the meeting provides, somehow, the general background for the discussions. However, these are some of the main issues highlighted in the paper that could be interesting to debate:

1. What is the main, driving rational to reform the design of the EU electricity markets
   a. Establish a new, meaningful and informative Long-term price signal → the Investment perspective
      - When policy prevails, the electricity system becomes constrained by a collective obligation to delivering specific investments, in specific technologies at predefined volumes and timelines. In this context, is a market-generated price for investment really needed?

   b. Decoupling gas and electricity prices → the "inflationary" perspective
      - What are the limits of the energy policy in tackling rising energy prices? Can the European system be effectively insulated from the actions of the Union's main suppliers and the overall price dynamic of the energy international markets?
2. The "mother of all questions": are all electrons created equal?
   - Yes: the new market design is, in fact, the old market design and price will keep on being the same for all technologies and be formed in a unified market that relies on the system marginal pricing rule. In order for this system to work effectively for long-term investment, a series of *ex-post* adjustments might be needed
     - How to reign over extreme price volatility
     - Where the price is effectively formed, in the wholesale market or new markets shall be established
   - No: capex-dominated technologies are priced according to a notion of their costs, insulating them from the price dynamic in the wholesale market that will be reserved essentially to fossil-based back-up generation. This option raises the following issues:
     - Are, for example, LCOEs a valid option?
     - What is the overlapping between this scenario and State Aid policy?
     - How to ensure physical flowing of the electrons among the markets and the geographies?
3. Infrastructures are not simply enablers of the energy transitions, but rather an essential component of the overhaul price dynamic
   - How to "use" infrastructure for a more efficient pricing?
   - What is the business model to effectively finance infrastructures?

And finally:

4. What is the best way to design National measures to ensure gas and electricity demand reduction? What is the angle of State Aid in this?

The agenda for the long-term reform of the EU electricity market

[redacted] CEPS & [redacted] FortyEight Brussels

This report is intended to identify and the main issues emerging from the ongoing EU debate over a new Long Term Market Design for electricity markets to respond to EU priority: ensure an unprecedented level deployment of renewable generation at affordable prices for both households and industry, while ensuring security of supply. While this report sets out the agenda for the ensuing debate, further contributions and publications will progressively dive deeper into specific questions.

Introduction

Over the course of the last fifteen years, climate change-oriented policies have upheld a radical transformation in the energy sector. The 2007-08 climate and energy package introduced for the first time a 20% legally-binding renewable target. This triggered the deployment of very large volumes of renewable energy, mainly solar and wind. Through scale effects, the new installations have been instrumental in reducing costs associated with renewable technologies. This has led – temporarily – to unprecedently low electricity wholesale prices as subsequent required closure for example of coal plants were delayed.

At the same time, energy-climate policy has *de facto* dictated the electricity mix evolution by engineering a partial shift from competition *in*, to competition *for* the market. This was done on the back of Member State support for investments via different long-term mechanisms: support mechanisms for renewables energy, contracts for differences for low-carbon technologies (for example in the UK), capacity renumeration mechanisms and strategic reserves for new or existing capacity to ensure adequacy, or the like. DG Competition Guidelines on State Aid gradually adjusted to this situation and as a result provided an ever more granular framework for competition. Some have even suggested that DG Competition is becoming the new EU energy regulator for wholesale markets (Georgiev, 2019)[1] with national regulators focusing mainly on retail markets. Short-term energy markets have focused on optimising dispatching of essentially existing assets.

This shift may be permanent, thereby changing short term energy markets: day-ahead, intraday, balancing and dispatching markets as well as altering for good the nature of the merit order principle. Ever bigger penetration of variable renewable generation in the electricity mix, coupled with a stable contribution of nuclear, has and will continue to transform the economics of the power sector. By 2030, a very high share, possibly close to or in excess of 80% of electricity output – renewables and nuclear combined – will have zero marginal costs. Renewables impact wholesale, day-ahead as well as intraday markets while requiring an ever-

[1] Georgiev, Atanas. (2019). 'DG Competition – The new European energy regulator?' Foreign Policy Research Paper No. 11, Diplomatic Institute, Ministry of Foreign Affairs, Bulgaria.

increasing level of system flexibility, and a much more performing grid both at transmission and distribution level. It will also mean that capital costs will dictate volumes and rhythm of the new investments in new generation capacities with an intensity unknown to fossil-based assets.

There is a presumption that ultimately, the electricity sector will be transformed to such an extent that four of the constituent parts of the EU's electricity system are almost, if not entirely, CAPEX driven: i) generation, ii) demand-side management, iii) storage, iv) grids. Or put in the other way round, only backup generation carry still important OPEX costs – as well as grids. Should solar PV combined with battery technology become competitive with gas peakers, the remaining OPEX-dominated back-up generation will be disappearing.

1. The changing challenges of the electricity markets

During the introduction of the first energy packages the focus was not economic efficiency in. a cross-border perspective. The market design focused on mechanism that allow market participant to reveal their true short-term marginal cost, i.e. day-ahead market with system marginal costs.

Around the time of the 2007/8 Climate and Energy Package, the main challenge was to reduce, via volumes, the costs of renewable technologies. This has been solved by feed-in tariffs initially and later by feed-in premiums. The success of this policy meant a very substantial increase of retail prices, mainly for household (tariff) customers, who paid for the subsidies – renewables support and grid costs – to the tune of around € 1 trillion over the years[2] by a surcharge of the retail price. The policy debate on how to reduce electricity prices and who was to pay for the renewable subsidies had begun.

Subsequently, the debate focuses on integration renewables into the market by exposing them to price signals though, essentially, increasingly sophisticated contract for differences schemes as well as long-term power purchasing agreements (PPAs)[3]. In parallel, the large volumes of capacity additions of renewable energy in the absence of parallel closures[4], led to very low wholesale electricity prices, which risked challenging the economic viability of electricity generation. While the root causes have been the massive capacity increases (of renewable energy) not being matched by corresponding closures, the situation was aggravated by a very low CO_2 price under the EU ETS, unable to give a price signal strong enough to ensure closure of coal power generation. The fear was that this undermines the long-term investment signal and thereby the stability of the electricity system[5]. The corresponding policy question was how to ensure long-term investment incentives. Only once the ETS price moved above 40 EUR, switching from coal to gas took place, resulting in coal plant closures. Some member states, notably German decided on phasing out coal via administrative measures in addition.

The resulting and largely foreseen challenges that ever-increasing levels of renewables pose for system stability was addressed in the 2019 Clean Energy Package. If focused largely on dispatching, deliberately not addressing long-term investment signals. The increase of CO_2

[2] *([redacted] to add reference to Commission source)*
[3] (reference to CEPS report)
[4] Add references
[5] (Add reference to first Stanhope paper).

prices under EU ETS to almost € 100 t/CO_2 alleviated fears about the lack of long-term investment signals at least to an extent and temporarily.

Finally, and largely unexpectable, more recently as a result of the massive increase of EU and global natural gas prices, the question on the contagion effect[6] imposed itself on the EU agenda, as a combination of the global post-COVID shift in the worldwide supply markets and the Russian invasion of Ukraine.

2. Market design debate in 2022: should all electrons be treated the same?

A very basic, yet fundamental question the discussion on new market design should be whether all electrons should be priced in the same way or whether different pricing methodologies, e.g. depending on different categories, such as functionalities, e.g. flexibility, base-load etc. or depending on how CAPEX or OPEX intensive technologies are. If so, the collateral is that policy has been and will be dictating the evolution of investments through policy measures such as targets, sub-targets, disincentives or subsidies; it will be foremost the policy, the EU policy most notably, that will keep on defining the specific volumes for each technology and its final uses.

While in the past, this has been driven by a mandate that relied solely on the urge of decarbonisation; the war in the Ukraine has accelerated the need to phase out fossil fuels while at the same time, to ensure security of supply.

In this context the issue is not to have, or not to have, forward guidance of prices, but *which kind* of prices are indeed able to inform investment decisions and what the best balance with – inevitable – politically driven mandates is. Judging from past experiences, policy makers may revert to hybrid solutions. However, too many times the "in-between" solutions have been used as an excuse to avoid the discussion on the structural decisions the EU is asked, or forced, to collectively assume. A polarisation of the options may be able to allow most clarity to emerge.

In a nutshell: when policy prevails, the electricity system becomes constrained by a collective obligation to delivering specific investments, in specific technologies at predefined volumes and timelines. How will these decisions be taken? If purely on the basis of political expediency, based on Member States national, regional or even local preferences and choices, can the internal energy market still survive? If so, what will be the glue to keep it together, an integrated wholesale market, a more integrated and Europeanised grid or policy co-ordination? To answer these questions, it is helpful to consider the two most contrary options.

[6] To be explained.

Option 1. All electrons are treated and priced equally

In this option, the new market design is, in fact, the old market design and price will keep on being the same for all technologies and be formed in a unified market that relies on the system marginal pricing rule. In order for this system to work effectively for long-term investment, a series of *ex-post* adjustments might be needed.

Extreme price volatility

One would be to address extreme price volatility. In a market where gas or coal, both internationally priced commodities, set the system price, measures to reduce 'extreme' price volatility are a necessity. There are some solutions, to what the European Council calls "the contagion effect", some *ex-post*, others *ex-ante*. Measures include for example long-term power purchasing agreements (PPAs). Long-term PPAs can be delinked from spot prices, provided that these contracts pay for the full costs of supply, e.g. flexibility, ancillary services etc. If so, PPA contracts should be standardised to access a volume/price de-risking tool provided by, e.g. the EIB. A pan-EU demand-supply platform for long term PPAs could help driving up the share of long-term pricing. To kick-start this, one could think of an obligation (target) for a share of PPAs, forcing generators to hedge.

Another measure could be the introduction of a mandatory share of RES-E purchase at EU level, coupled with a two-ways CfDs obligation, to further support the de-linking of a significant proportion of European electricity production from gas price volatility.

Thirdly, to isolate vulnerable customers from spot market effects, Member States could buy the required volumes of electricity that vulnerable customers need directly from generators. This would work by applying one-sided CfDs with governments paying the difference between the strike price and the market price[7]. Hence the government would be buying electricity long-term "delinked" from spot prices to serve vulnerable customers, meaning that the government subsidy would be lower than if customers are compensated ex post.

To address the current issue triggered by 'extreme' gas import prices, a price cap on gas seems a solution the EU is debating since March and over which no clear consensus has yet emerged. No other short-term fixing has been put forward so far. REPowerEU provides for a, at best, medium term solution of the contagion effect by accelerating the phasing out of gas in the EU energy mix.

The point of pricing (where pricing occurs)

Should the solution rest on pricing mechanisms, an interesting debate is whether the main electricity price is best generated in the wholesale market or other markets should be created for this purpose. (To be discussed during 4 October meeting and then expanded)

[7] Practically, this measure could cover customers that are currently under flexible or dynamic contracts.

Option 2. Capex-technologies are different

In this scenario, the long-term signal will price capex-dominated technologies in the four or possibly five CAPEX driven segments of the market- - renewable generation, demand-side management, storage, grids, and possible solar PV combined with batteries as peakers – according to a notion of their costs, insulating them from the price dynamic in the wholesale market that will be reserved essentially to fossil-based back-up generation, should it continue to play a major role. Auctions, national or EU-based, would then be the main tool to remunerate investors for market-based assets, while also the grids should receive appropriate long-term signals (via the applicable regulatory framework). Dispatching will continue to be arranged through wholesale markets. This option raises the following issues:

- The first is about the price formation mechanism. It seems evident that this scenario relies upon a sort of administrated price. The essential issue then becomes which notion of pricing to endorse, e.g. average cost of technology, LCOEs. In any case infra-marginal rents will be reduced to zero, raising the question on how to renumerate investors generators.
- If prices are fixed administratively for all CAPEX-technologies, how to ensure free flow of electron within the EU internal energy market?
- In this scenario, it is very likely that State Aid policy will *de facto* represents the bedrock of the EU electricity market. This raises the follow-on political question on whether the current Guidelines are fit for purpose and if not, how they would need to be adapted. For example, is it opportune, in this scenario, to think about Auctions no longer as a State Aid measure but as a market on its own? And is yes, what is the role of Competition Policy in it?

Four further questions emerge:

- Price volatility in the spot markets: The Wholesale market is destined to become more illiquid than today, as more and more generation will be coming from CAPEX-technologies. Relatively illiquid markets are prone to price volatility.
- How to link the LT and spot markets: The CAPEX-based auctions and the spot markets will generate two different set of prices. Spot prices will be anyhow relevant for some contracts and for operational decisions. So the two markets will not be mutually exclusive. The basic issue becomes how to arrange dispatching when all supply bid at zero?
- How the different long-term mechanisms (CfDs, CRMs, hedging tools) will coexist with each other, as they respond to different policy objectives and how to design them so the unwanted impact in the short-term markets is minimized/avoided.
- How to still allow for price volatility in the short-term markets (e.g. to activate demand-flexibility) while avoiding sustained high prices/extreme volatility.

The role of Monetary Policy in the energy markets

Across the two scenarios, at least one common element emerges. In the absence of a completed EU capital and banking union, in this CAPEX-heavy environment, large differences in costs of capital across the EU will most likely reinforce energy – i.e. for electricity and green hydrogen –-differentials. Persistent divergence in the cost of investments will turn inevitably in divergences in the volumes of the investments themselves across the Member States. This may not only put pressure on the EU's internal energy market but on the internal market in general. The resulting policy question is what the role of monetary policy in energy investments will be.

3. Efficient use of infrastructure

The connection of the new renewable production, be it offshore wind or decentral solar farms, requires new grid infrastructure. Another key element to the energy transition is electrification of industry, space heating and transport. Again, this requires grid reinforcement and expansion. This is a major exercise that cannot always be realized at the desired speed. For most countries this will mean that the optimal use of the available infrastructure will be a challenge that has to be addressed with new methods and new tools. Better incentives that reflect the scarcity of grid capacity to the users of the capacity at times where it occurs will have to be developed. Feeding back the cost for congestion management to inflexible users could be a means to achieve this. Sophisticated contracts for interruptible load or perhaps a development towards a nodal system could also be alternatives that could considered.

4. Conclusions (to be reviewed after the October 4th meeting)

Within the context of this technological, political and regulatory transformation, the overriding new question is which market design is able to ensure the long-term objective of long-term efficient capital allocation steering investment, dispatching or flexibility.

Since around the mid-2010s, we have witnessed a debate on whether the energy-only market is still fit for purpose, whether it should be complemented with additional elements, or a fundamental overhaul is rather required. Positions continue to differ with no resolution in sight.

Agreement however was on the need to reform dispatching, which has been achieved by the Clean Energy Package. An additional layer is on the implications of the fact that in the new 'market', demand drives generation, reversing the old relationship where generation followed consumption. If so, what are the implications?

The third fundamental argument orbits around the discussion on the 'new' relationship between retail and wholesale market and consequently, the question on whether reform should (mainly) be undertaken at the retail or wholesale market level. Where and how do we price flexibility? Zonal rather than nodal? Demand-side response, is a contractual issue or is a system-level feature? Do we need a market or a negative auctioning system?

It was generally assumed that this debate will need maturing before being addressed by the next European Commission. However, the increase of EU and global natural gas prices, already before the Russian invasion of Ukraine and the co-called contagion effect of on electricity prices, has added a new political urgency to the market-design debate. While obviously linked, the contagion effect, however, is fundamentally different in its origin and in its possible solution than the other elements of the electricity market design debate. Cause for the contagion effect are global commodity prices, which the EU cannot control.

Hence a tailor-made solution will need to be found for the contagion effect. After months of intense debate with a host of proposals, the EU and its Member States failed to reach a common assessment whether a price cap on gas is a technically suitable and politically acceptable solution. No other short-term fixing has been put forward so far. RePowerEU provides for a, at best, medium term solution of the contagion effect by accelerating the phasing out of gas in the EU energy mix.

The result of the stall is that, for the time being, the EU response to the contagion effect of gas pricing on electricity will keep on being of fiscal nature only, nationally-based and almost entirely focused on compensating scheme for retail markets. This, considering the different fiscal capacities of the Member States, is likely to question, via increased price dynamic divergence, the survival of the internal energy market.

Whichever way the EU and its Member States will tend in the end, both solutions will negatively impact the market. The price cap on gas will undermine proper functioning of natural gas markets. Compensation will to an extent 'abolish' price signals and may lead to 'overconsumption'.