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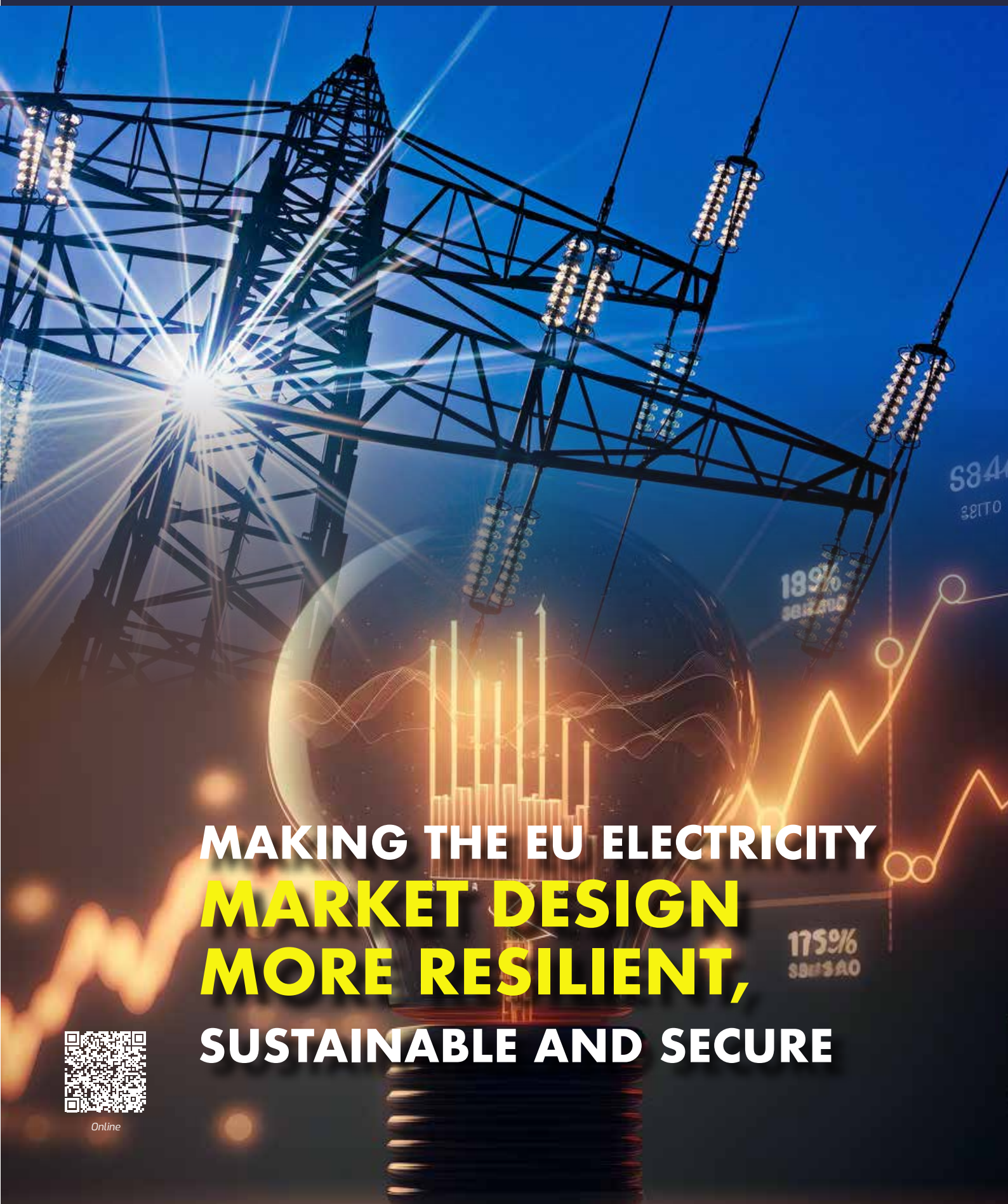

MAKING THE EU ELECTRICITY MARKET DESIGN MORE RESILIENT, SUSTAINABLE AND SECURE

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EDITORIAL

MAKING THE EU ELECTRICITY MARKET DESIGN MORE RESILIENT, SUSTAINABLE AND SECURE

In March 2023, the European Commission unveiled an ambitious reform of the European Union's electricity market, presenting a response to the energy crisis exacerbated by the Russian invasion of Ukraine. This initiative aims to accelerate the transition to renewable energies and reduce dependence on gas, emphasizing the urgency of adjusting the electricity market to support the green transition and provide widespread access to low-carbon and affordable electricity.

The EU electricity market, well-established for over twenty years, has been effective, but recent energy challenges and irrational price levels following the Russo-Ukrainian crisis have prompted the Commission to propose legislative reform. This reform, affecting regulations such as electricity regulation and the electricity directive, encourages long-term contracts with non-fossil energy sources, particularly to combat price volatility and reduce the impact of fossil fuels on consumers. It aims to maintain fair competition by improving market transparency and integrity.

The central goal of the reform is to shift towards an energy system focused on renewable and low-carbon sources, crucial for reducing costs for consumers and achieving the goals of the European Green Deal and the REPowerEU plan. It aligns with the Green Deal industrial plan, providing the European industry with a supply of renewable, non-fossil, and affordable energy. The reform also emphasizes consumer protection by offering diverse contract choices and clear information to stabilize prices and reduce supplier failure risks.

To enhance the flexibility of the electrical system, member states will need to assess their needs and set goals to increase non-fossil flexibility, introducing support schemes for demand-response and storage adaptation. The proposal also aims to strengthen market integrity and transparency through stricter regulation by the Agency for the Cooperation of Energy Regulators (ACER) and national regulators.

The European Parliament has settled its positions to empower citizens and businesses to better manage price shocks. The focus is on a truly European vision to prevent market fragmentation and strengthen the internal market, with immediate benefits for consumers centered on empowerment, protection, and mandatory measures in case of new electricity price crises.

The reform of the electricity market design has also sparked complex debates within the Council, especially regarding the treatment of state aid to electricity producers through Contracts for Difference (CfD). Discussions aim to find a compromise ensuring fair competition conditions while protecting the interests of Member States.

The reform still needs approval from the Council and the European Parliament. It represents a crucial step to address the flaws in the system revealed during the recent energy crisis, aiming to strengthen a European electricity market to make it more resilient, sustainable, and secure by the end of the current legislative term.

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TABLE OF CONTENTS

MAKING THE EU ELECTRICITY MARKET DESIGN
MORE RESILIENT, SUSTAINABLE AND SECURE

The **future** of **EU electricity market** – the **importance** of **electricity** grids keeping up the pace

KADRI SIMSON

EU Commissioner for Energy

While 2022 will be remembered by many as the year that energy prices spiralled to record levels as Europe paid the price for being over-dependent on imports of Russian fossil fuels, it is also possible that it will go down as a turning point in many aspects of the clean energy transition.

Last year, the EU witnessed a record surge in wind and solar power. 3 million heat pumps were installed. Nearly one in four new cars is now electric. This progress is in good part thanks to the European Green Deal, further strengthened by our efforts under REPowerEU to end imports of Russian fossil fuels. I recall that *the Economist* wrote earlier in the year that the Russian invasion of Ukraine may well have accelerated the decarbonisation process by 5-10 years.

With electricity supply and demand booming across Europe, we now need to ensure that we can cope with this new reality. While our updated Electricity Market Design rules are still under negotiation, we should already look at the next steps. It is clear that a strong internal market can shield end-users from price spikes, as it always uses clean power production to the maximum, for both affordability, and decarbonisation objectives. But we also need to guarantee that clean electricity is not blocked by network constraints. Electricity consumption is expected to rise by roughly 60% between now and the end of the decade. Europe will only ensure its energy security and deliver on climate ambitions if our power infrastructure is ready. As well as storage and demand response, European grids must be ready.

Our 11 million kilometres of grids need to grow to serve increasing demand, but also change. With millions of rooftop solar panels and electric vehicles, electrolysers producing green hydrogen, and local energy communities sharing resources, we will need flexibility, speed and digitalisation. The deployment of more than 100 GW of offshore renewables by 2030 – from 16 GW in 2022 – will require the necessary grids offshore and onshore.

Today, renewable projects can face long delays before being connected to the grid. Securing permitting for grid reinforcements can take as long as 10 years. It is paradoxical that we have seen installations of new solar panels – the fastest way to switch to cheap renewable power – having to be suspended in some areas due to grid congestion. Even existing renewables plants are often penalised. Solar panels are the first technology to be 'switched off' when grids are overloaded, because they are flexible and easy to manage. This is wasteful and costly.

Throughout Europe, network development projects are delayed due to cost overruns, inflation and rising interest rates. Waiting times for equipment like cables or sub-stations can already go beyond the end of this decade. By placing a stronger focus on our transmission and distribution grids, Europe

can turn a potential barrier into a powerful enabler.

Our regulatory framework has reduced permitting for electricity transmission priority projects to under 3.5 years on average, and we are working to adapt it further and tackle regulatory barriers. Last year's emergency legislation accelerated authorisation of new renewable projects, and this principle is now included in the freshly agreed Renewable Energy Directive, which will enter into force by the end of the year. I strongly believe that this will help address one of the major bottlenecks, fast-tracking without cutting corners on environmental safeguards. More technical assistance and sharing of best practices could also help national administrations to move faster.

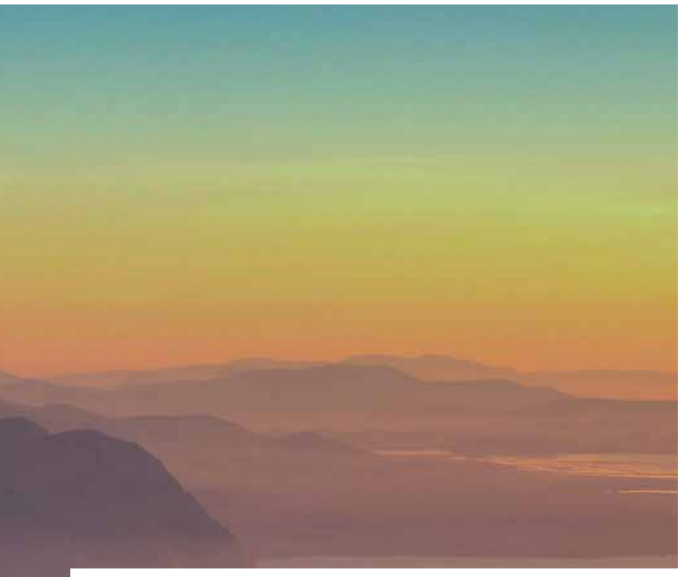
We must also invest more and smarter. Europe needs to invest 584 billion euros in its grids by 2030. In July, the EIB increased financing by 50% to help mobilise over 150 billion euros in new green investments. A timely agreement on the new Electricity Market Design rules mentioned above would also help change the remuneration mechanisms for grids projects, boosting anticipatory investments to deliver the benefits of the transition much faster.

Making progress on cross border interconnections where they lag behind, would also increase security of supply, bring down prices, and enable the integration of renewables.

A focus on grids brings industrial and commercial opportunities for Europe.

The world's three largest cable manufacturers are European and can tap into the global surge in renewables. 80 million kilometres of new grids are needed worldwide by 2030. The EU Net Zero Industry Act will support cable manufacturing along with other clean technologies, for our domestic and export markets.

Europe faces a fundamental challenge to ensure its energy independence and deliver on its climate goals. As we accelerate the roll out of renewables, it is time to bring the grids issue to the forefront of the debate. Upgrading the power grid will plug Europe into a sustainable future.



How will this short-term **reform benefit consumers**?

NICOLÁS GONZÁLEZ CASARES

MEP (S&D Group -Spain), Rapporteur on the reform of the electricity market design

The recent record level energy prices dealt a significant blow to European citizens. Russian aggression towards Ukraine has further emphasized the importance of reducing our reliance on fossil fuels and preparing the European energy system for decarbonization. It has become clear that shifting away from fossil fuels is not only essential for addressing the climate crisis, but it also presents an opportunity to benefit from domestic, cost-effective, and safe clean energy sources.

The electricity sector plays a crucial role in the process of decarbonization. It is a sector where integrating renewable energy and eliminating fossil fuels can be done more quickly and cost-effectively. Therefore, a significant increase in the electrification of the supply and demand is essential for achieving climate neutrality. However, the unprecedented energy price crisis has exposed the deficiencies of the current Union regulatory framework and the need to reform the design of the electricity market.

Considering these circumstances and the available time, the Commission has put forward valuable proposals to respond to the abovementioned challenges. Nevertheless, it is important to note that some of these measures, such as the promotion of contracts for differences (CfDs) or power purchase agreements (PPAs) to prevent price volatility, while appropriate, may not have a significant impact - if a sufficient volume of deployment is not achieved - in the first years of implementation. Therefore, taking short-term solid measures to respond to new possible price turbulence is essential.

The European Parliament agreed to provide citizens and companies with more tools to handle potential price shocks. Building on the Commission's proposal, we have ensured that the reform has a truly European vision that benefits all Member States, regardless of their budget or starting position. This unifying approach will prevent market fragmentation and strengthen the internal market. In order to ensure that consumers benefit from the very beginning of the implementation, it is crucial to have instruments that support this goal. To achieve this, we have reinforced the proposal to provide consumers with immediate benefits. The Parliament has worked on three key points to improve the Commission's proposal in this regard:

Empowering consumers

We are committed to empowering consumers by implementing measures that encourage the use of PPAs through aggregation, as well as promoting more active consumer participation in the electricity system. Our efforts to establish these measures include promoting flexibility and demand response. Furthermore, we are committed to ensuring that consumers have the right to share energy. This means that they can sell surplus renewable electricity, like solar power generated from their roofs, to other active consumers, not just their supplier.

Better consumer protection

The crisis has highlighted the need to strengthen the protection of consumers of electricity, especially the more vulnerable ones. In this regard, the Parliament has strengthened the proposal by adding that Member States must prohibit any disconnection of vulnerable customers, including those affected by energy poverty. In addition, while the Commission's proposal to introduce a fixed-price electricity supply contract for consumers is a step in the right direction, it is crucial to complement this measure by including obligations to ensure that suppliers do not unilaterally change the terms of the contract or the conditions.

Obligatory electricity price crisis measures

The price crisis has shown that the current market design's protection and stabilization measures are insufficient in the face of severe disturbances. Therefore, it is a positive step that the Commission is proposing conditions under which an "electricity price crisis" can be declared, along with measures for such periods e.g. the possibility of introducing regulated tariffs, even if the prices are below cost. However, the conditions outlined by the Commission are not specific enough. The Parliament has made the crisis declaration mandatory when the criteria are met and introduced clearer criteria. As a complement, the Parliament proposes that the Commission shall evaluate different options for establishing a "temporary relief valve mechanism" by June 2024 at the latest and present a legislative proposal.

The proposed reform is a step towards addressing the defects in the system that were exposed during the recent crisis. While it does not challenge the foundations of the system, it entails a crucial and necessary reform that will help to prevent similar crises from occurring in the future.

Ensuring that the EU electricity market is more resilient, sustainable, and secure by the end of this legislature will be challenging given the scope and complexity of the reform and the time we have left to achieve it. However, as the Parliament's Rapporteur on this regulation, I believe that is possible and I'm committed to making it happen.

ENGIE's Vision for Europe's 2050 Energy Transition:

CLAIRE WAYSAND

Executive Vice President ENGIE

Accelerating, pushing on all levers to achieve European goals

Global warming, energy crisis... clearly the world, and Europe, need to accelerate the transition towards carbon neutrality and energy companies have a key role to play. ENGIE will continue to invest 75% of its growth capex into renewable energy sources, energy efficiency and decarbonation solutions. The Energy transition will require **the combination of energy efficiency and sobriety, to curb energy needs, and the acceleration of production of renewable molecules and electrons**. ENGIE recently unveiled its scenario for Europe´s energy transition towards 2050. This scenario, described below, best ensures the competitiveness and resilience of European economy and provides views on concrete solutions and recommendations to meet European ambition.

I – ENGIE scenario - Key findings

How to best achieve an affordable and resilient energy transition?

We will need to multiply by 4 the current pace of emission reduction to achieve the "Net zero emissions" goal by 2050. Our scenario underlines the importance of **activating all decarbonization levers available**. This acceleration as well as the inclusion of all energy vectors will be crucial to achieve the climate targets. In a strive to put in place the most effective strategies during the transition, **flexibility will be a much needed tool**.

We need both to better consume energy, and to consume a greener energy.

Meeting European climate commitments entails **making significant efforts in energy savings and efficiency**. This is true both for consumption, and production processes. Overall, our scenario relies on a 34% reduction in energy consumption by 2050, despite moderate population growth (+2%), an increase in the number of households (+12%), and an expected GDP increase (+1.3%/y). In order to attain this objective, different levers will need to be used – including notably a widespread renovation of buildings.

What about the greening of energy ?

Our scenario stresses the **importance of a rapid increase in the deployment and use of renewable energy sources.** It goes without saying that renewable energy sources will play a pivotal role in the energy transition. This is true both for electrons and molecules.

Our works highlight the role of **wind and solar power** in achieving European climate objectives. As the European demand for electricity is expected to increase by 80% by 2050, it is essential that a majority of this demand is provided by these sources. With this in mind, European wind and solar power production must in turn increase by more than 3 times by 2035, and by 6 times by 2050. A "stress test" included in our scenario indicated that a delay of five years in the development of wind and solar power would have huge financial, political and environmental impacts, such as not attaining our legally binding European decarbonization goals. This drastic growth in the production and use of renewable energies is therefore an absolute necessity to support the electrification trend.

ENGIE's scenario insists on the **central role of flexibility solutions**, in order to face fluctuations triggered by renewable energy sources and demand. This is why we advocate for **the development of an additional 600 GW of flexibility capacity**, around a four-fold increase compared to current levels. These flexibility solutions include a wide range of technologies

to cover the different needs: battery storage, pumped storage or combined-cycle gas turbines burning renewable gases as well as more and more demand based flexibility coming from EV's batteries or hybrid heat pumps. This way, European energy markets will be more resilient and able to face the speedy rise of intermittent renewable energies.

Turning to **molecules, they will continue to be needed, together with renewable heat, for hard to abate sectors and for the flexibility they provide.** Their main purpose will be to decarbonize uses that are hard, i.e.. too costly, or impossible to decarbonize otherwise and to act as a support for renewable energies.

In this perspective, our scenario envisions a complete decarbonisation of gas by 2050. **Green electrons** will account for 41% of the final energy mix in 2050. Methane demand will be halved and completely decarbonized via green and low-carbon methane by 2050. For instance, taking the example of France, by 2050, two-thirds of the demand will be covered by biomethane, as the sector is continually expanding and the most dynamic of the continent. In order to decarbonise hard-to-abate sectors (such as aviation, maritime transportation and high temperature heat in industries), the production of synthetic molecules including hydrogen will be multiplied by eight.

Finally, the energy transition wouldn't be conceivable without **massive investments in infrastructures**. The inevitable expansion of renewable electricity makes investment in infrastructure a necessity. In this context, improving and investing in electricity infrastructure must become a priority for all stakeholders, as it would also help to optimise long-term costs. We estimate these investments at €39 billion/year between now and 2040. In addition, existing gas infrastructures will continue to play a crucial role in meeting demand peaks and making the energy system more flexible, as well as facilitating the transport of biomethane and hydrogen. Here the additional infrastructure investment will be much more moderate - €6 billion/year.

II- Policy recommendations

In order to facilitate Europe's transition to more sustainable energy production technologies, we have set out a range of policy recommendations destined to European decision-makers and experts. These recommendations go hand-in-hand with our previously mentioned findings.

Firstly, policy-makers should even more prioritise the **mass development of all renewable energy sources**, whether based on electrons or molecules. As stated above, this would allow to cover for the increasing electricity demand. In this sense, policy-makers can stabilize the investment framework to attract more investors, accelerate grid connections and rationalise permitting processes for renewable energy projects.

The development of renewable energies creates **increased needs for flexibility solutions**, as their intermittent nature cannot ensure baseload energy production, both on demand and on supply side. In particular, it will be essential to create appropriate remuneration schemes for flexible capacity solutions such as batteries and decarbonised combined-cycle gas turbines. As already mentioned, the rationalization and acceleration of permitting for relevant projects is also necessary. On demand side, solutions such as hybrid heat pumps do provide the needed flexibility.

Moreover, given the essential role that decarbonized molecules will play in the energy transition, **the development of the hydrogen sector should be supported in an effective way, in a sufficiently pragmatic approach**. Decision-makers must firstly finalise the European regulatory framework for the hydrogen industry and networks in particular but also allocate adequate public support schemes and invest in the conversion of gas infrastructures to accommodate hydrogen.

Supporting the production of biomethane in Europe is a no-regret and essential lever for achieving an efficient decarbonization. Establishing effective support mechanisms for biomethane production in terms of pricing and inputs could help further develop this sector, and ultimately provide an accessible, low-carbon and circular energy source.

Biomethane would also come in useful in the **decarbonization of the building sector**. Implementing mass thermic renovation, developing connections to green heating networks and prioritizing the use of biomethane will drastically reduce the emissions of this sector. Relying on hybrid solutions for heating systems, alongside heat pumps, will also play a key role in both decarbonization and the resilience of the energy system.

Finally, **supporting industrial decarbonization** is a necessary step to reduce our overall greenhouse gas emissions. Decarbonizing the industrial sector will especially go hand in hand with the development of renewable hydrogen industry. Decision-makers must also accelerate the utilization of wasted fatal energy and renewable heat, ensure more sustainable funding and maintain biomass as a source of renewable energy.

III- Conclusion

In conclusion, we are convinced that, despite the challenges we face, **it is possible to achieve the European decarbonization targets, provided that we remove the regulatory obstacles that still exist and secure the public and private investment needed** to drive the energy transition **through clear and pragmatic frameworks**. ENGIE intends to fully play its role !

Electricity Market Design. For the planet and for the people

MARIA DA GRAÇA CARVALHO

MEP (EPP Group-Portugal) and EPP's negotiator on EMD

After tough negotiations, a considerable amount of resistance from certain interest groups and even some last-minute drama, with an attempt by a minority of MEPs to change the compromises during the September plenary session, the European Parliament has finally approved the mandate for trilogue negotiations on the Electricity Market Design (EMD) Reform.

Now, the ball is in the hands of the Council, where the discussions between Member States are being equally demanding, to say the least.

The main point of disagreement is how state-aid to electricity producers will be addressed, through a mechanism known as Contracts for Difference (CfDs); which involves subsidies to energy projects. Some Member States, notably France, want these contracts to be applied to existing projects while others, such as Germany, insist that their use must be limited to new projects.

The main concern, for those defending this last position, is that France will use these contracts to subsidise its prolific nuclear power industry, existing plants included, thus creating a supply of cheaper electricity for the French European industry and households. This would create competition issues and could potentially undermine the investment in other technologies, such as solar and hydroelectric.

Now, the Spanish Presidency is trying to propose a solution that would create a level-playing field and be acceptable to all Member States. One possibility is allowing these subsidies to be given to existing projects while, at the same time, establishing a limit for the state-aid given to each sector. However, for the time being, there are no news of an imminent agreement.

Keeping the eyes on the goal

It is very important that Member States overcome this impasse as soon as possible, considering the European Commission's ambition of having this file closed before the end of the current legislature and, more importantly, the urgent need to have in place the changes introduced by this reform.

This revision of the Electricity Market Design is based on three major goals: reinforcement of the energy internal market, acceleration of the investments for the energy transition and consumers' protection.

We had a good basis with the European Commission's proposal and, at the European Parliament, where I was the EPP negotiator on this file, we managed to introduce important improvements.

This reform places consumers at the centre, by enhancing protection, empowerment and hedging against price fluctuations. It creates the conditions for more incentives

for investments, encouraging a better and wider use of instruments for longer-term investments, such as power purchase agreements and the mentioned CfDs. Finally, it strengthens the internal energy market, by stressing the importance of an efficient grid development, the need of further investments in the networks and related infrastructures and by preparing the energy market for the future (innovation, digitalisation and decentralisation).

Perhaps the Council can find some inspiration in the discussions that took place at the European Parliament, where we managed to find solutions for our differences. For example, we did not introduce any measure that could bring to distort and fragment the EU market, such as the cap on revenues for electricity produced with inframarginal technologies (from renewables). We were also able to maintain solid criteria for a declaration of an energy emergency, in order to avoid living in a crisis mode for long periods and justify ad hoc national measures risking to damage integration, competition and investments. On other aspects, the shadows from other politic groups and I, had to make more compromises, always keeping in mind that the bottom line is that we need a well-balanced reform that, once implemented, will be positive for our sustainability goals and for the Europeans.

A final note to mention the revision of the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT), of which I was rapporteur. Although treated separately, this file was an important part of the Electricity Market Design Reform, notably in regards to avoid market manipulation, improve security of supply and ensure more stability to the electricity prices. The solution we found, reinforcing the investigative powers of ACER, the European Agency for the Cooperation of the national regulators, while respecting the role of national competent authorities, will help protect Europe from attempts to abuse the mechanisms determining energy prices and, hopefully, prevent situations such as the one we witnessed in the past years.

Electricity Market Design: Let's enable investments in renewables

DR. MARKUS KREBBER
CEO of RWE AG

Standing together in extraordinary circumstances

Extraordinary challenges need extraordinary solutions. Hardly anything has made this as clear as the Russian war of aggression against Ukraine, to which the institutions of the European Union have responded with unprecedented determination. Sanctions that would have been unthinkable before have been taken against Russia – and rightly so. Also, a whole host of emergency measures were implemented in record time to avert the energy supply crisis triggered by the Russian attack. Filling gas storage facilities, reducing gas consumption, easing state aid rules to allow support for citizens and businesses suffering from soaring prices – all of this was needed. Once again, Europe has proven that cooperation and joint action is the way forward.

Especially in energy policy, a cornerstone of European integration since the beginning, we should continue to look at the commonalities and not so much at the differences. This is even more crucial when it comes to the ongoing reform of the electricity market design: the European single market for electricity is a great achievement – even in tough times electricity was traded and delivered across European borders. Member States supported each other and the efficient allocation helped to ease the price increases as much as possible. Our electricity market should thus be handled with great care and respect. Therefore, the European Commission was right in proposing a very targeted and balanced reform of the market design. The agreement amongst the Energy Ministers in October has now made it possible for the Council and the European Parliament to finalise this reform quickly, thus bringing us a step closer to a successful energy transition in Europe.

A supply shortage, not a failed market design

The consequences of the war of aggression against Ukraine made it abundantly clear to us Europeans how dependent we had been on Russian natural gas. It was the shortage in gas supply, and also unexpected electricity generation shortages in some Member States, that caused the soaring energy prices – not a failed regulatory framework. So, due to insufficient generation capacities, we were and we remain confronted with a supply crisis and not a market design crisis. On the contrary, the electricity wholesale market has proven that it can deliver affordable prices: before the energy crisis last year, we had many years of very low electricity prices. We should keep in mind that this was a result of our integrated and well-functioning European electricity market. There is no need for fundamental changes – we already have a very good market design. Let's further develop it – first and foremost by enabling investments in new power generation capacity, be it renewable energy or climate neutral firm capacity.

Let's invest ourselves out of the crisis

The quick and massive build-out of clean generation capacity is the only way to reduce scarcity of electricity and thus ensure affordable prices for households and industry. Huge investments in renewable energy and, in perspective, CO_2-free firm capacity are needed to ensure a secure and sustainable electricity supply as well as stable electricity prices for all consumers. To mitigate risks and enable these huge investments, a stable and predictable framework which preserves the fundamentals of liberalised and integrated electricity markets in Europe is required.

The expansion of renewables is the top priority as it is crucial for Europe to achieve its ambitious climate targets. Ramping up renewables is what makes the phaseout of fossil fuels possible in the first place. But at the same time this does not reduce the need to maintain sufficient firm electricity generation capacities at all times for when the wind is not blowing and the sun is not shining. All the more so in view of the growing demand for electricity. In some Member States which evolve to a more and more renewables-based energy system, having firm capacity requires building highly modern power plants that react particularly flexibly to demand and are operated with hydrogen or can at least be converted to hydrogen firing easily.

Key requirements for a future-proof market design

Against this background, the ongoing reform of the electricity market design tackles the right issues: protecting consumers on the one hand, while facilitating new investments on the other. The Commission's proposal as well as many compromises that are emerging in the amendments of the Council of Ministers and the European Parliament will further improve the regulatory framework. In light of the ongoing negotiations of the legislators, the following elements are key:

- In order to accelerate the expansion of renewables, both the merchant route via Power Purchase Agreements (PPAs) and direct support via two-sided Contracts for Difference (CfDs) are needed. CfDs are an appropriate and well proven instrument that protect the developer of renewable projects against low electricity prices and at the same time private and industrial consumers against high electricity prices. It is thus right to make two-sided CfDs the standard instrument for direct public support for the new-build of renewables in Europe. However, many Member States already have other support instruments in place for at least parts of their renewables build-out. Auctions and other

financing rounds for renewables are often planned well in advance. To avoid disruptions that could create uncertainty for investors, the future EU rules should allow for a transitional period of up to three years to switch all renewables support schemes to two-sided CfDs.

- Only Capacity Remuneration Mechanisms (CRM) – payments for ensuring power plants are available - ensure sufficient and timely investments in firm and flexible capacity. Therefore, CRMs should become a structural feature of the electricity market design as soon as possible.
- Revenue caps for so-called inframarginal technologies - mainly renewable capacities – were designed and implemented in an extraordinary emergency situation. Such an instrument – even just as an option with a clear end date – should not form part of the market design. Revenue caps create uncertainty for investors and will harm the further deployment of renewables, instead of promoting it.
- Interventions in short-term electricity trading should be avoided. Namely, requests for information for the day-ahead and intraday markets at the level of generation units should be evaluated with great caution: this could lead to the implementation of unit-based bidding and would lead to further complexity for all market participants. Without there being any evidence of benefits of such an instrument, this could have a counterproductive effect by curtailing liquidity.
- Also, mandating the introduction of so-called regional virtual hubs in Europe does not appear to address the needs of market participants. It will at best have no effect but at worst could cause a reduction in liquidity on the existing hubs. Parliament and the Council are right to ask for an impact assessment before introducing regional virtual hubs. Such a verification has to be carried out in an open-ended process without pre-establishing the introduction of such a far-reaching change.
- A special regime is required to unleash the huge potential of offshore wind that Europe has in the North and Baltic Seas. Offshore hybrid wind farms that are connected to more than one Member State face additional financial risks when their ability to export electricity is limited by the Transmission System Operator for reasons wind farm operators cannot manage or anticipate, e.g. structural congestion on the onshore grid. Therefore, we need an effective compensation mechanism to mitigate this unmanageable risk. The Transmission Access Guarantees proposed by the Commission and supported by both the Council and Parliament could provide adequate risk mitigation if the Council and Parliament further fine tune the effectiveness of the design.

Don't forget: grid expansion and healthy supply chains

At RWE we are fully committed to develop in line with the European Green Deal and within an even better EU Electricity Market Design: RWE will be climate-neutral by 2040. With our investment and growth strategy 'Growing Green', we will be investing billions in the years to come in offshore and onshore wind, solar, batteries, flexible generation, and hydrogen.

So yes, we are accelerating the expansion of renewables. However, we also need to accelerate the modernisation and expansion of our grid infrastructure. There is a real risk that grid capacity will become more and more of a bottleneck in the coming years. Electricity demand will rise due to increasing electrification. We need to ensure that green electricity can be delivered across the continent – from North to South, from East to West. Everyone needs access to offshore wind, and the grid must be able to handle a huge share of intermittent renewable energy.

And there is another risk to be tackled: the supply chain for renewables is in a critical condition. The European wind manufacturers are struggling, while for Solar PV we have depended on third countries for a long time. We will need up to 45 billion Euros in supply chain investments by 2030. Time and money are of the essence to prevent bottlenecks and shortages of relevant equipment and to ensure that the necessary expansion of production capacities also creates good industrial jobs in Europe and that we become more independent in terms of technologies.

Boosting the energy transition in Europe

In order to make our European electricity market future-proof, we need to see the bigger picture: a better renewables auction design and scaling up of the supply chain, as well as grid expansion and faster permitting - all need to go hand in hand, and all supported by the right skills.

The EU co-legislators have big tasks ahead – the energy industry will support them in this endeavour. For now, the best chance to boost the energy transition in Europe is a quick and pragmatic reform of the market design that prevents fragmentation of the Internal Electricity Market and enables the necessary investments in renewable energy and, in perspective, CO_2-free firm capacity. Our industry is ready to deliver. All we need is a stable and predictable investment framework which preserves the fundamentals of liberalised and integrated electricity markets in Europe.

DR CHRISITIAN EHLER

MEP (EPP Group – Germany), ITRE Committee Member

EMD reform: one key piece of the puzzle to secure stable market conditions for **European industry**

Since Russia´s unprecedented war of aggression against Ukraine in February 2022, prices for gas and oil imports are on higher levels on European markets, thereby not only driving electricity prices, but also overall inflation due to increased input prices for goods and services. This has caused enormous uncertainty among market actors both in the energy sector, as well as in the wider industry, leading to a decrease of investment decisions, especially in renewable energy generation capacities and storage. This decrease, however, is very bad for Europe. We need to secure enough investments into renewable energy sources and storage facilities to deliver and secure a series of goals we have to achieve: first, for the sake of our planet and of future generations, we need to fulfil the climate targets set out by the EU, where the energy sector is still a main source of emissions. Second, we also need to deliver on the promise that with increased share of renewables and storage the price of electricity for the industry and households decreases over time. Furthermore, we have to secure enough hydrogen production and supply to decarbonise especially the hard-to-abate industrial sectors, which are the backbone of EU´s economic wealth. Fourth, all these conditions above and the electricity market in general need to provide a predictable investment framework condition to attract not only renewable energy and storage developers, but also energy-intensive industries to invest in Europe. The Electricity Market Directive reform launched this year is therefore the key piece in the puzzle to encourage further investments to secure stable market conditions for the European energy industry and thereby creating favourable market conditions for the industry in general. For us as the EPP Group in the European Parliament, this was the main priority during the negotiations of the file: enable the right market framework, which helps investors to expand their renewable energy and storage portfolios while not trying to reinvent the wheel all over again. Thus, public interventions into price settings and into investment cases must be avoided. It creates harm to stable market conditions, which are necessary to properly attract investments and thereby secure an investment case for other energy-intensive industries to stay, expand or newly invest in Europe.

While the EMD reform is the key piece for the puzzle towards a stable energy market, other hurdles need to be overcome as well

to create an overall flourishing Single Market in Europe. The acceleration of the permitting process is important to unlock the full potential of renewables, especially for offshore wind parks. Network investments and expansions of the European transmission and distribution grids are necessary to cope with the increase number of volatile electricity in the system. Cross-border infrastructure projects are necessary to complete the Energy Union but also to help each other in times of crises and decreased availability of electricity across Member States. Allowing more sector-coupling, especially with the gas and hydrogen markets is a cornerstone to make the energy transition a reality. Additionally, there is one key piece for the complete puzzle that complements the ambitions to expand renewable energy generation capacities and storage: it is the availability of the technologies necessary for the production of electricity and for decarbonized industrial processes. And here, the Net-Zero-Industry-Act comes into play. With this piece of industrial policy legislation, we are changing the way we see the industrial production of net-zero technologies in the EU. The production of such technologies is necessary to achieve our climate targets in 2050 and to support our industrial base to have a business case in Europe. This law helps to establish more favourable market conditions in the Single Market for businesses via permitting and access to funding, which also will influence their decision-making on investments.

To summarize, a reform of the electricity market is not a stand-alone issue for the electricity sector. It is one key puzzle for the whole picture of Europe´s economy in 2050. We need to make this right.

French Hydrogen Strategy: Where Do We Stand?

PHILIPPE **BOUCLY**

President of France Hydrogène

In November 2022, the Minister of Energy Transition, Agnès Pannier-Runacher, and the Minister of Industry, Roland Lescure, announced a revision of the national hydrogen strategy. Three years after its presentation in September 2020 by Ministers Bruno Le Maire and Barbara Pompili, it is appropriate to take stock of the initial milestones and address any potential shortcomings in the envisioned plan.

First and foremost, we should acknowledge the efforts made over the past three years, which have led to significant progress in deploying hydrogen technologies. Several projects have been initiated, such as the ZEV project in Auvergne-Rhône-Alpes and the H2 Corridor in Occitanie. Within local communities, bus projects have multiplied. At the European level, hydrogen has been recognized as a strategic value chain, leading to an Important Project of Common European Interest (IPCEI). Two waves of projects have already been published. For the first wave, known as Hy2Tech[1], which focuses on the components of the value chain, ten French projects (out of a total of 41) have been selected, which will notably enable the construction of gigafactories for electrolyzers, fuel cells, and hydrogen tanks in France. Subsequent waves are expected to lead to the development of significant projects.

Concurrently, the French Environment and Energy Management Agency (Ademe) has supported the development of over 35 ecosystems[2] through two calls for projects, with a total funding of 320 million euros, resulting in 80 megawatts of electrolyzer capacity. Furthermore, in late August, the Minister of Energy Transition announced the establishment of a support mechanism for renewable or low-carbon hydrogen production, aiming to deploy one gigawatt of electrolysis through calls for tenders of 150, 250, and 600 megawatts from 2024 to 2026. An amount of 4 billion euros has been allocated to this support within the overall 9.2 billion euros promised to the hydrogen sector by 2030.

During the past year, France Hydrogène collected all the projects envisaged by industry players in the hydrogen sector in France. In total, 250 projects[3] are expected to develop, particularly within seven geographical clusters, including ports, the Seine and Rhône valleys, and regions bordering Spain and Germany. During the first half of this year, the collection of needs from the various industry sector strategic committees, representing different components of the French industry, led to an estimate of hydrogen demand by 2030 ranging from 680,000 to 870,000 tonnes. This confirms the need for an electrolysis capacity of 6.5 gigawatts by 2030, in line with the initial objectives of the national strategy.

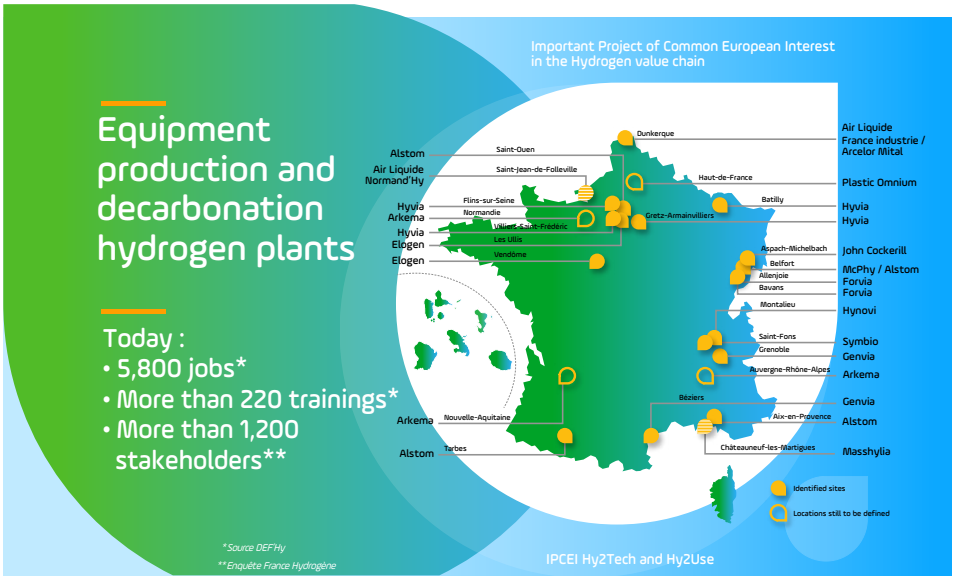
While we can rightfully celebrate these significant advancements in hydrogen technology implementation in France, it is crucial to recognize that few projects have been decisively initiated to date. The reasons for this hesitancy, if not outright delays in decision-making, are numerous. Beyond inflation affecting business plans and supply chain issues causing delays in equipment delivery, the revision of the national strategy offers an opportunity to examine the underlying reasons for these delays.

Firstly, there is insufficient demand stimulation. The mechanisms in place so far have favored the upstream side, which includes

1 https://www.gouvernement.fr/upload/media/content/0001/04/f57787ae7992c05af12e572effa135cb8a08dadb.pdf

2 https://librairie.ademe.fr/mobilite-et-transport/6057-les-premiers-ecosystemes-hydrogene.html

3 https://www.france-hydrogene.org/publication/trajectoire-pour-une-grande-ambition-hydrogene-a-2030-industriels-et-territoires-concretisent-les-ambitions/



the production of materials across the entire value chain and hydrogen production itself, but have not sufficiently addressed the utilization of hydrogen in industrial processes or mobility. To reduce costs and promote hydrogen development, France Hydrogène advocates for the establishment of large-scale territorial ecosystems, bringing together various industrial and mobility applications within a cluster, reaching a minimum capacity of 20 megawatts, beyond which economies of scale become less pronounced.

To encourage stakeholders to commit more decisively to their projects, providing them with visibility is absolutely necessary. Generally, the legislative and regulatory framework is being established progressively but far too slowly. Regarding electricity prices, a major component of hydrogen production costs by electrolysis, the ongoing discussions in Brussels on the Market Design for electricity are undoubtedly the first step to provide the essential visibility needed for hydrogen production. In this regard, the agreement reached within the Council on October 17 represents a remarkable step forward and should enable Member States to define the modalities for supplying electricity to electrolysis hydrogen producers while adhering to competition rules.

Furthermore, we must also welcome the progress made in recognizing decarbonized nuclear electricity at the European level for hydrogen production. In a world where electricity is becoming increasingly important and demanding significant quantities, we should avoid dogmatism and not exclude any clean energy sources, including nuclear electricity, as well as biomass resources that contribute through processes like thermolysis or pyrogasification to achieving our goals. It is unnecessary to emphasize, as highlighted in the International Energy Agency's (IEA) latest report, "World Energy Outlook," that all clean hydrogen production methods need to be accelerated. In France, the two acceleration laws related to nuclear and renewable energies should contribute to this effort, particularly by reducing administrative authorization and permitting delays.

Additionally, the growth of renewable energies necessitates increased flexibility in managing the electrical system. Given the role they will play in the production system (10 to 12 gigawatts by 2035), considering electrolyzers as flexible consumers will contribute to providing the necessary grid flexibility. However, to ensure continuity and security of supply for consumers, alternative sources of hydrogen must be available in case of electrolyzer shutdown. A joint study, published this summer, by the two French electricity and gas network operators, RTE and GRTgaz, demonstrates the benefits of seeking synergies between the two networks and swiftly developing a network of pipelines to connect production sites, large hydrogen storage facilities, and consumers to ensure security of supply.

The collection of needs from various sectors conducted by France Hydrogène during the first half of this year highlighted the significant quantities of alternative fuels required to decarbonize the aviation and maritime industries. This includes substantial amounts of ammonia, methanol, and Sustainable Aviation Fuel (SAF) to meet the requirements of the FuelEU Maritime and ReFuelEU Aviation regulations. The quantities involved may necessitate imports. However, France Hydrogène believes that establishing a national base for producing these alternative fuels is essential, given France's expertise, industry players, and resources. Nevertheless, to ensure fair competition in the production of these alternative fuels, it will be necessary to implement a global certification system that enforces the same rules for all. Additionally, with regard to the production of these alternative fuels, it is unfortunate that the capture of carbon dioxide beyond December 31, 2040, from industrial installations for synthetic fuel production, such as methanol or SAF, is not recognized. This is particularly regrettable considering that processes in certain industries, such as cement or lime production, inevitably emit carbon dioxide, even when using the best decarbonized fuel in their kilns. Direct Air Capture (DAC), which some advocate for to obtain large quantities of CO_2 necessary for synthetic fuel production, will capture carbon dioxide from industrial chimneys…

Lastly, the implementation of hydrogen technologies should be carried out while avoiding new dependencies. Research efforts continue to reduce the need for platinum-group metals (platinum and iridium) in fuel cell and PEM electrolyzer production. The "Net Zero Industry Act" and the "Critical Raw Material Act," currently under discussion, should provide the essential framework to maintain technological and economic sovereignty in this field. Furthermore, ongoing progress in recycling will make a significant contribution to the supply of raw materials necessary for production chains.

As a conclusion, the revision of the national hydrogen strategy gave rise, and it is to be welcomed, to a broad consultation of the different stakeholders, and in particular the industrial sectors, who were thus able to express their needs. From the consultation, it appears that the development by 2030 of an electrolysis power of 6.5 gigawatts is a "no regrets" decision. By 2035, this power will have to be increased beyond 10 gigawatts in order to meet the very significant needs identified and which will probably have to be supplemented by imports of hydrogen or derived products. This complementarity between domestic production and imports will be clarified in the revised national strategy which is expected within a few months.

In order to ensure the credibility of the approach, it is important, beyond economic or sovereignty considerations, to take temporalities into account. The deployment of technologies, whether at the level of electricity production (renewable or nuclear energy) or at the level of energy transport and hydrogen distribution infrastructures, requires time that one must obviously try to reduce as much as possible in this necessary acceleration phase to fight against climate change.

Finally, we must continue to reconcile decarbonization and reindustrialization[4] and ensure that the fight against climate change, perceived as a constraint, becomes an opportunity for French industry to redeploy in technologies of the future. In particular, this requires developing skills and training now so as to have the operators, technicians and engineers needed for the deployment of hydrogen technologies as quickly as possible.

4 https://s3.production.france-hydrogene.org/uploads/sites/4/2023/10/France-Hydrogene_National-Hydrogen-Strategy_EN.pdf

Energy Market Design: a big step towards a green energy union

MORTEN **HELVEG PETERSEN**

MEP (Renew Europe- Denmark), Vice-Chair ITRE Committee

Balancing the act of getting rid of Putin's gas, while at the same time protecting consumers against rising energy bills caused the European Commission to present the proposal for a reform of the Electricity Market Design (EMD) in March. The parliament insisted to be a part of the negotiations in order to secure a sound legal basis rather than ad hoc emergency measures, and proved in the process that we able to get things done at record speed. The broad EMD compromise text was referred to trilogue negotiations last Thursday.

Green transition and economical protection

The reform of the Electricity Market Design set out to offer more cost protection to EU citizens, and quickly became an exercise in balancing this goal against a well-functioning market able to deliver on our climate targets.

Reaching the bloc's target of an overall energy overall renewables energy mix of 42.5 percent by 2030 - against 17 percent today - requires a tremendous scaling, which can only be reached if investors are offered transparency and predictability, while we work our way towards a true energy union where the green electricity flows freely across the borders. Solving our challenges requires a steep increase in cross-border trade, a scene where Spain and Italy will increase its green energy exports when the sun is shining, and Northern European countries will do the same when the wind blows over the North Sea.

As an Italian expression says: "One hand washes the other, and together they wash the face." That is Europe's energy union. It will be another milestone of a European Union founded on the energy trade, and it will effectively work to crunch the many problems of today: climate crisis, energy dependence, price inflation.

What we need to achieve an internal market for electricity are massive investments in the electricity grid and renewables. Transparency and predictability is the foundation of this.

Secure flexibility

Flexibility in the EMD has been a red line to me. We expanded this idea by opening up for new economic models in projects supported by state funding, rather than limiting Member States to the much-discussed CfDs. It is rather straightforward: If we fail on offering flexibility and relies on a 'one size fits all'-model renewables projects will simply fail to materialise.

To provide an example: In Denmark, plans for the so-called Energy Island Bornholm

based on an economic model with a simple price supplement that goes to the state, and will be re-invested in the very expensive cable infrastructure required for the gigantic offshore energy plans in the Baltic Sea. This model offers little in terms of consumer protection, but it matters little in Denmark where a high level of energy self-supply leaves little exposure to price increases.

It is an example of the need for flexibility. European countries have vastly different energy infrastructure and starting points.

Secure competitiveness

The EMD also secures offshore hybrids, dealing with the complex issues of redistributing energy to any number of countries from the common sea basin. This follows the trail of the EU Offshore Renewables Strategy that I negotiated on behalf of the European Parliament in 2021. Furthermore, we added to the legislation a push for a new European energy auction scheme. A similar initiative has since been picked up by the European Commission in the Wind Power Package, announced by Ursula von der Leyen during the State of the European Union speech.

Being independent from Russia and China

It is positive that EMD ended up without cap on revenues. While intentions are good, it turned out to bring all the wrong things to the market, namely non-transparency and unpredictability for investors. By all means, we should avoid doing damage to a market design that is basically working and has served us well for decades.

Investing in the green energy transition and reaching a true energy union as soon as possible is the best possible protection Europe can offer its consumers. The EMD also makes it possible to use revenues from CfDs for investment in the transmission network. The electricity grid will become a major challenge going forward as the electricity consumption is bound to sharply rise in the coming years. We want to ensure that we can integrate renewables in our electricity systems.

With the EMD we take a big step towards the energy union state leaders agreed on back in 2016. The energy union will make life safer, greener and richer for consumers as well as businesses, and the broad compromise behind the parliament's position sends a clear signal: It is time to wash away the stains of fossil fuels from our collective face and make the energy union happen.

Public control of **electricity** is the only way to **secure price stability** for **consumers**

MARINA **MESURE**

MEP (GUE/NGL - France), Shadow Rapporteur on the reform of the electricity market design

Unlike other political groups and the Commission itself, my proposals for the electricity market called for a complete restructuring of how electricity production and retail is organised and governed.

What conclusion any reasonable economist would draw from the electricity crisis ? Electricity being an essential good, price volatility affects the entire economy as economic actors no longer are able to foresee their fixed costs. It drives skyrocketing inflation and generally weakens competitiveness.

A market-based electricity sector is intrinsically subject to price fluctuations, especially when based on a marginalist approach. Ursula Van der Leyen actually recognised it publically during the previous speech on the State of the Union in 2022. To ensure price stability, the pricing system needs to reflect actual costs of production. To ensure that profits are only redistributed for the needs of the grid and production and do not constitute a driver of price instability and inflation, electricity production and retail shall not be market-based. Hence, a publicly owned monopoly on production is essential to achieve this goal, to protect family's bargaining power, public finances and companies' competitiveness.

Public control shall also concern retail of electricity. Indeed, another challenge of the electricity system is to ensure that we produce enough green electricity for the needs of the green transition. How can we ensure that we channel enough funds for a rapid increase of electricity production ? By using people's bills towards this goal, instead of using this money to ensure profits of shareholders of energy companies. Private entities capacity to finance electricity production is also limited by skyrocketing interest rates, thus they have limited incentive to invest in capital-intensive assets. Geothermal energy is an example of

how short-term profits as a sole incentive limits the development of promising sources of renewable energy that have the capacity to ensure Europe's sovereignty.

An integrated system, from electricity production to consumer billing was the prevailing system before the liberalisation of the sector. Why ? Because it is simply common sense that such an essential good, produced by a network industry, must be managed centrally by a public actor. It is the only way to promote price stability and price equalization between all consumers as well as prices that reflect the real costs of production of electricity. Industrial competitiveness of several countries, such as France, has been built on this model. Today, the United-States decides to implement IRA, which clearly undermines our industry's competitiveness. Let's protect it and its millions of jobs by taking back control on this essential sector. An essential sector needed for green transition.

Public control does not mean focusing on a State level. It could also be achieved at a European level. And even if Member States were to manage their own electricity system, I am in favour of a clause of solidarity between them to ensure that taking back control does not mean not helping your neighbour if it is facing electricity shortages.

Promoting long-term **investment** in **Europe's electricity market**

CRISTIAN BUSOÏ

(EPP Group - Romania)
Chair ITRE Committee

As we steadily approach the end of what many could call the most tumultuous legislative term of the Union's history, the European Parliament and, concretely, its Industry, Research and Energy Committee are hard at work to finish up all the remaining open issues ahead of the upcoming European Elections in 2024.

If something has become evident in the past three years is that having the right energy policy in place is fundamental to ensure economic prosperity, the welfare of our citizens, climate neutrality and for achieving high levels of strategic autonomy at Union level. Whether it was a pandemic leading to a global lockdown, supply chain disruptions, energy markets' foreign interference or an unjustified war in our continent, the external shocks that have befallen on the Union since 2020 have put our energy systems to the test to extreme levels.

On the positive side we can say that our energy market has proven to be able to stand the test but we have also to admit that we have had to deal with several shortcomings of the present system. In this regard the ITRE Committee that I have the honour to Chair, has been working very hard to ensure that the Union's energy policy delivers a well functioning, properly interconnected and integrated energy market that will provide citizens and companies/industries access to clean, competitive and abundant energy. These ambitious goals require a faster pace of electrification of our economy, which, in turn, needs us to ramp up investments in the short term, but sustain those investments in the long-term.

Under normal circumstances, the Union has an energy market that benefits the generation of low carbon energy and that has, over time, ensured that the share of indigenous low carbon energy is becoming larger and on target to reach our 2050 goals. However, it is important to acknowledge that this part year and a half we have been living under extraordinary circumstances where the prices of energy have been heavily impacted by market manipulations by Russia before February last year and the war after that. Instability is the biggest enemy of a stable investment

framework, we therefore have been looking at way to ensure that investors see in the Union as a safe, stable and secure place to invest in much needed infrastructure and energy services in the long term.

The war in Ukraine has in any case has only confirmed the need we have to quickly transition to a decarbonised economy based, mostly, on indigenous low carbon and renewable power generation so as to protect our way of life and reduce the Union's vulnerability to external shocks. We have to recognise that energy is of strategic importance to us and therefore provide the guarantees needed to develop and sustain an economic model based on the principles of sustainability, competitiveness and security of supply.

It is important to clarify that the current electricity market design has served very well its purpose of promoting the generation of indigenous renewable and low carbon electricity generation, which is and will be essential in our 2050 carbon neutral future. But of course the legislation in force was thought about for peace time and it was not taking into consideration supply shocks as the ones we have been living with since the war started. Therefore, some measures will have to be considered to ensure the vulnerabilities and price volatilities we have discovered will not be repeated in the future. In this regard, as IEA Executive Director Fatih Birol stated during his exchange of views with us earlier this year, the Union reacted to the war swiftly and successfully on energy matters but our transition to a carbon neutral economy also needs an industrial transformation that will ensure the supply chain of materials necessary to boost our renewable generation, supply routes that are diversified and suppliers that are trustworthy. Electrification will be felt in generation but also in buildings, in transport, in charging infrastructure. It will impact a rampant hydrogen market, it will require massive scale investments in electrolysers.

But electrification only makes sense if the power generated is clean from greenhouse gas emissions.

We need therefore to continue our efforts to ensure adequate private and public investments are made in low carbon and renewable electricity generation, in grid update infrastructure with particular emphasis on interconnection capacity and making our transmission systems able to deal with increased injections and multidirectional electricity distribution.

The last couple of months have demonstrated that the European energy system is adaptable and robust in the face of challenges, be it economic, environmental, or social.

On our side, the European institutions are doing all in their power to bring a legislative framework that will increase stability and a clear vision, which are main drivers for sustainable and significant investments.

The work is ongoing. However, let's not forget that the main driver of uncertainty in the markets is the ongoing Russian war of aggression against Ukraine. While we continue our work as legislators to ensure the Union's legal framework is as solid as it as it can be, we need to continue the proper investments into the energy sector, and be aware of its underscoring role in creating a more sustainable, united, and resilient Europe.

Energy Trading – A European way of making our energy trilemma a reality

JÉRÔME LE PAGE

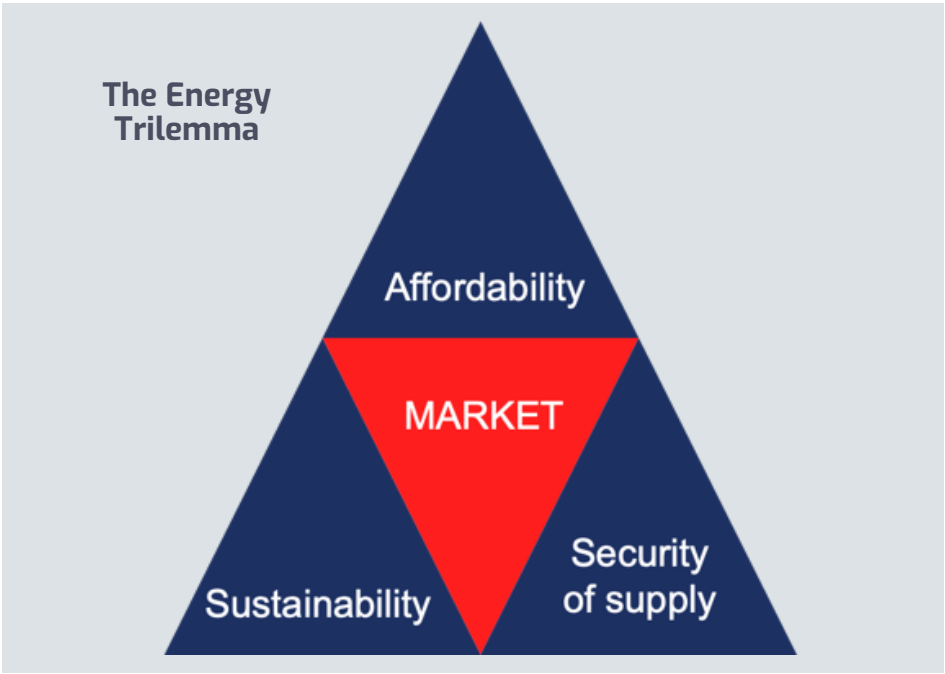
Chair of the EFET Electricity Committee

Across the fascinating insights in this series, you will read about the need to provide stable prices to electricity consumers; to boost the energy transition; to promote security of supply; and to ensure industrial competitiveness. You will have read less about the way to make those – often competing – policy goals a reality, or about the mechanism that has been allowing this for the past 25 years. So this article focusses on the way that the Internal Energy Market and efficient, well-regulated energy trading benefits citizens across Europe.

The Internal Energy Market is the perfect illustration of the benefits of a simple, European approach to complex questions. This market pools together all electricity production resources in the EU – by using the capacity of our networks efficiently – and allows all European consumers to access them on an equal footing.

More prosaically, the market boils down to a single set of rules designed to find the economic optimum to produce and supply energy to European citizens. And this set of rules is bound by three overarching objectives: affordability, sustainability, and security of supply – the so-called "energy trilemma". The market is the tool that balances these objectives. And with the right balance between them, it results in more competition in retail offers to consumers, a more stable system than can accommodate more renewables and a more attractive investment environment that guarantees our security of supply.

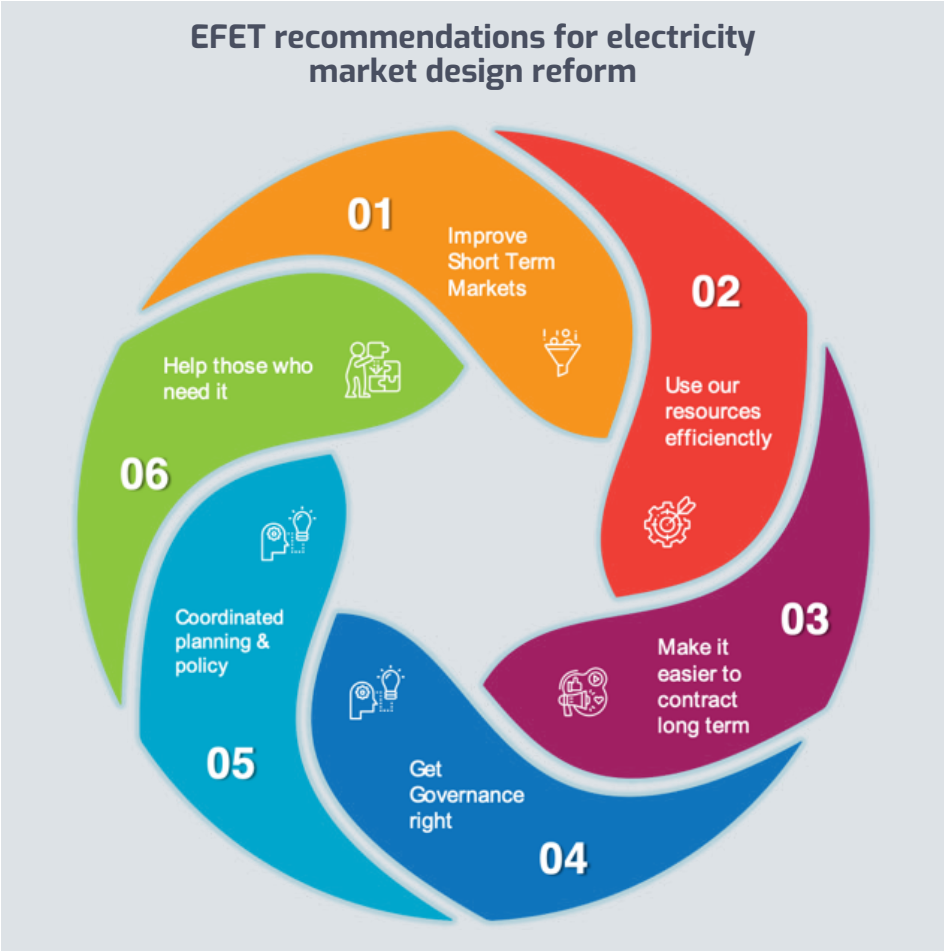
The Internal Energy Market comes to life through trading, i.e. when buyers and sellers of electricity come together. When many buyers and sellers do this in the same market, reliable prices emerge which benefit the system as a whole.



Trading is undertaken by all sorts of different actors: electricity producers; large industrials; retail suppliers buying on behalf of domestic consumers; and intermediaries that are neither producers or consumers. An intermediary's role is to take some or all of the risks linked to the evolution of energy prices over time, which producers and consumers want to reduce or avoid altogether.

The added value of trading companies in relieving producers and consumers from financial risks over extended periods of time is best illustrated by an example: to provide fixed price contracts to domestic consumers, suppliers will need to secure a certain amount of energy at a stable price. They will therefore want to sign a forward contract to guarantee that price – with an intermediary taking and managing the risk of daily price fluctuations. This is what we call hedging, i.e. the continuous process of buying energy in advance – in 2019, 88% of EU electricity transactions were in forward markets – and reacting to any changes in events. This activity of covering risks long before the delivery of energy is at the heart of electricity trading. And it makes the overall energy system more stable and less volatile.

This is much more than a theoretical argument. The electricity market has been through a series of crisis over the past 25 years: the debt crisis the early 2010s; the Covid crisis in 2020; and of course, the energy price surge of 2022. Through all these difficult times, the Internal Electricity Market contributed to keeping the lights on by allocating resources – sometimes scarce, sometimes over-abundant – as efficiently as possible. Europe has created a flexible and responsive system which adapts to changes at a moment's notice – including by incentivising demand reduction when needed. Anything which can cope with a pandemic followed by



energy crisis must have something going for it!

Trading can often be both maligned and misunderstood. Accusations of 'speculation' and 'profiteering' are often levelled at trading companies – despite, rightly, Europe having the most stringent set of rules of any liberalised energy market in the world. The reality is much different: compliance and risk management are the core business of any company trading power in Europe. While it's undeniable that companies which are successful make money (and pay tax on that money), it is because they take on risks which not everyone is able to manage.

The views outlined in this note are perhaps not held by all politicians or consumers. This is obvious in calls by some to make radical interventions in the way the Internal Energy Market works. However, the benefits of that market are well documented – EUR 34 billion savings in 2022 only says the Agency for the Cooperation of Energy Regulators. Surely, there will always be unknowns and there will always be challenges in delivering the energy trilemma in the years to come. But Europe's Internal Electricity Market – the largest and best functioning of its kind in the world – is the best tool to adapt quickly and meet these challenges.

Which is why we must be careful not to undermine its effectiveness. If we move back to national approaches, if we introduce significant changes without sufficient analysis or if we fail to recognise the benefits of the system we have built collectively, then citizens across Europe will suffer. So our advice to policy makers considering the Union's electricity market design is simple: do whatever you can to make the Internal Energy Market even more effective.

The EMD reform, a driving force behind the **energy transition**

NIELS FUGLSANG

MEP (S&D group)
Member of the ITRE committee

Today, we can hardly imagine a life without washing machines, dishwashers, computers, stoves or many of the other electricity consuming products that makes our everyday easier and more convenient.

Behind these everyday routines runs an enormous machine that provides us with energy 24/7. The electricity system. Power production in the Southern Europe is combined throughout through a sophisticated electricity net with consumers in north and vice versa.

In Europe we have through the years managed to a large extend to uphold a stable and affordable energy supply, the main principles behind security of supply.

As electrification will have to increase, our electricity market will play an even bigger role. Getting it right is what will critically support us in getting to net-zero.

A European energy system under pressure

Not less than ¾ of the total global greenhouse gasses stems from our energy consumption. On a global plan, this is mainly due to the big consumption of coal, natural gas and oil to power production and fuels to cars, ships and planes.

This need to change.

The energy transition will require a massive change to our power system. First, the system itself must move away from dependency on fossil fuels. Secondly, the system will have to provide renewable power to a completely new group of consumer; cars, ships and planes.

Renewable power will in other words become the new big demand product.

At the same time, Europe's energy system is under pressure. You have to go back to the 1970s oil crises to find a comparison to what has happened in the last years.

The combination of Putin's chokehold on gas supplies, the most severe drought on record and a failing conventional power fleet are creating the conditions for a perfect storm.

Households, businesses and governments have been hit by ever-increasing energy bills, which in turn are driving inflation, devaluing the Euro and forcing central banks to increase interest rates and borrowing costs.

So what can we do about it? The answer is resilient and flexible European energy system based on renewables and energy efficiency.

This is what the electricity market must support to be a driving force behind the energy transition.

An energy market ready for purpose

The energy market today should serve us several purposes.

It should support the role out of renewables. It should enact and support energy efficiency measures. As well, it should support households and industry with affordable energy.

To a large extend, this is what the marginal price mechanism delivers today; investment incentives to producers, energy efficiency incentives for consumers, as well as incentives for flexibility that is essential to integrate renewable energy and reduce price spikes.

Short-term market is working and securing low prices and green energy.

The latest shock to the energy system was mainly driven by a sharp increase in natural gas prices provoked by Russia's war on Ukraine.

As fossil fuels generates around 39 % (2022) of power generation in the EU and natural gas is around half of this, it had a major impact on power prices.[1]

If we want to avoid future backlashes, we need to build a system that runs on 100 % renewables.

That will however require some more work.

Double push

The shift away from fossil fuels and the following increasing demand in power production requires not only a major roll out of renewables, but also of demand response. Therefore we critically need to develop demand response and storage technologies.

More demand response will in return foster further investments in renewable energy as this will further exploit their potential.

As well, a more well-functioning long term market could help support long term securing prices.

Therefore, a revised electricity market should allow Member States to design innovative support schemes that would create a double push - a push for both for renewables and demand-response.

Push Member States to assess the flexibility of their power system and make clear objectives for how to increase demand-response.

Developing the offshore electricity market

One of the critical areas where an advanced electricity market must evolve is offshore. As we are looking into a new scene of a massive roll out of offshore wind that will require innovative solutions, the right regulatory framework must support this roll out.

In this very innovative environment, striking the balance between being on time with the right regulation and learning by doing is important. Building the right incentives around the offshore energy market is therefore crucial for building the powerhouse that offshore energy offers.

For example, the complexity of building major power production islands offshore with interconnectors to different countries and more than one bidding zone creates new risk for investors.

These risks needs to be carefully addressed in the marked model, as to secure a fair cost sharing between involved actors.

As electrification will be rolled out to decarbonise our energy system, a robust and adaptable electricity market system will be crucial.

Building on what we got, while introducing targeted reforms will get us closer to a net zero world.

1 https://www.consilium.europa.eu/en/infographics/how-is-eu-electricity-produced-and-sold/

Back to basics: how to break the impasse of the **EU electricity market reform**

KRISTIAN **RUBY**

Secretary General, EURELECTRIC

The EU is only a few months away from elections and a new political cycle. While we can celebrate the adoption of several historical climate and energy acts, which will help accelerate the transition to a cleaner and more electric EU economy, the fate of the electricity market itself still hangs in the balance. For months, a stalemate in the Council has prevented the EU from achieving progress on the reform of the electricity market, raising questions as to whether a reform can still be completed before the end of the current political mandate.

A matter of priorities

Before going into the details of the spat, let's spend a moment on the root causes driving the debate on electricity markets. The Russian-induced gas crunch and energy crisis shocked the European economy. In 2022, gas and electricity prices reached unsustainable levels both for businesses and private citizens.

For energy-intensive industries, the situation was particularly difficult. Power was so expensive that many were forced to curtail production. In 2022, EU aluminium, zinc, and silicon production dropped between 35% to 45%, with the risk of permanent smelter closures and deindustrialisation.

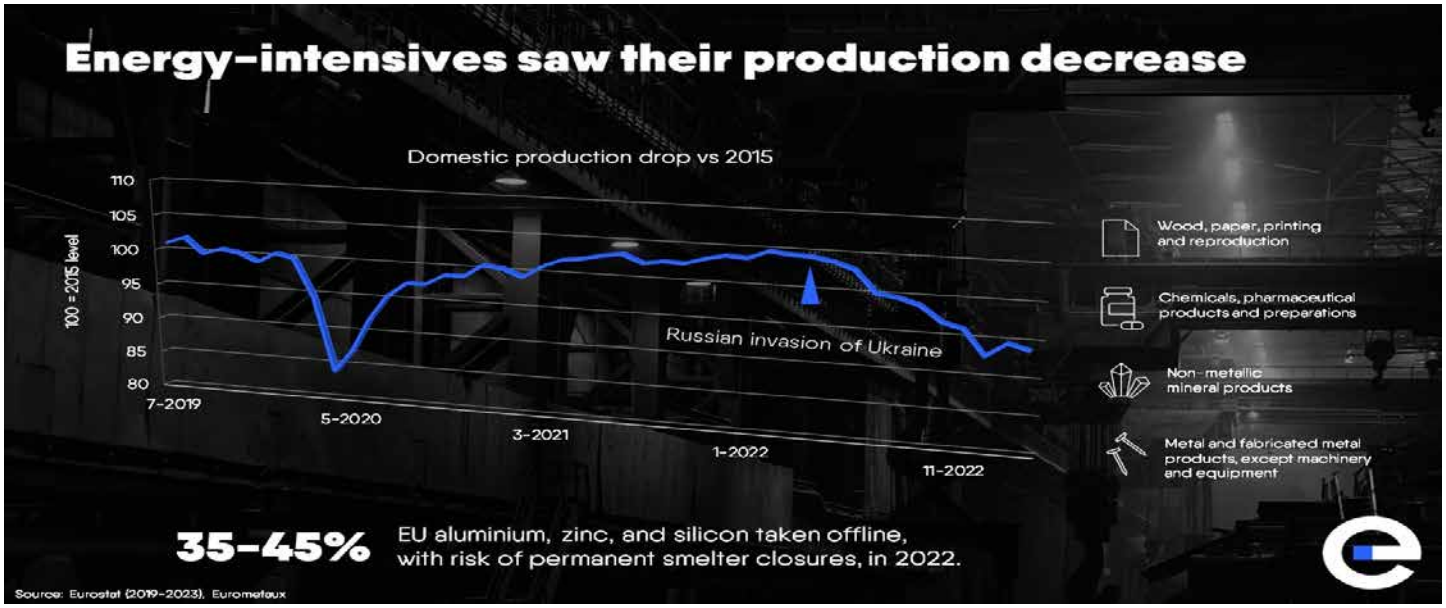
Governments across Europe shelled out funds of almost €650 billion to households and businesses to mitigate the effects of soaring energy prices. On this background, it is no wonder that governments considered remedial action.

The reform of the internal electricity market stemmed from the need to ensure security of supply by providing clear long-term investment signals and reducing the exposure of customers to excessively volatile spot markets. The aim was to better shield consumers against future price shocks while providing price signals that attract more investment in cheaper homegrown clean and renewable electricity.

Over the course of the negotiations, an additional dimension has been added: the wish of individual Member States to ensure access of their respective industries to competitively priced electricity. Germany and France are at the centre of the debate in the Council with Germany advocating an industry tariff and France demanding the possibility to steer prices by introducing fixed-price contracts for existing power plants.

Whereas the power industry is firmly in favour of maintaining a strong, diversified industrial base in the EU, we don't believe this is the right way forward. Bending the electricity market design negotiations to the national industrial policy of large Member States would set a problematic precedent among EU countries and potentially skew the playing field.

Industry should thrive across all of the EU. The solution needs to work for all Member States and take into account that there are European countries that won't be able to provide national subsidies at the same level as the leading industrial power houses.



When in doubt leave it out

The reform, as proposed by the European Commission, promotes an evolution of the EU market that maintains a well-performing marginal pricing mechanism and leaves counterproductive national market interventions out of the picture. Importantly, it recognises that clean and renewable power, matched by storage, flexibility and supported by a modernised electricity grid is the best structural way out of Europe's foreign fuels dependence and the best structural way into more affordable energy bills and a competitive industry.

To this end, it enhances access to power purchase agreements, contracts for difference on new assets, more liquid forward markets, anticipatory investments for grids and capacity mechanisms to provide the long-term visibility needed to attract new investments in clean generation and infrastructure.

While some important adjustments could still be made to further improve the reform – such as avoiding mandatory hedging for retailers and dropping a counter-productive ban on disconnection of vulnerable customers – the Parliament's text strikes a good overall balance. To unleash its benefits, however, the Council must quickly follow suit with its General Approach. Adopting the current market reform before a new Commission is formed would bring immediate certainty for investors and consumers and limit further speculation.

The competitiveness of individual national industries should not stand in the way of the broader tool of European competitiveness: a deeply integrated European market. The clock is ticking. It is time to leave the narrow national interest behind and instead focus on delivering a well-balanced agreement that works for all the countries of the EU.

Getting the **EU Electricity Market** Design over the line

NAOMI CHEVILLARD

Head of Regulatory Affairs at SolarPower Europe

The 14th of March 2023 was a historic day, when the EU proposed a revision of the Electricity Market Design rules. Its goal? To give a European answer to the energy price crisis, and offer both citizens and companies a wider toolbox to shield themselves from higher energy prices, in the longer term.

There's room for improvement for this deal as it goes through negotiations. Concerningly, the text prolongs the status quo on market caps. However, we see new energy sharing proposals which literally put the power in citizens hands, and help with the grid integration of local renewables. The text also allows businesses to access Power Purchase Agreements (PPAs) more easily, and encourages a flexible application of Contracts for Difference (CfDs).

The latest developments in EU negotiations are encouraging. On 17th October, EU Energy Ministers agreed on the EU Council negotiating position on the regulation, allowing them to launch negotiations with the Parliament and Commission. However, a rapid conclusion of the file is absolutely necessary to deliver legal certainty to invest in new renewables, and reach our climate and energy targets.

Over the next few months, it will be crucial to accelerate discussions, and guarantee an industry and market-friendly Electricity Market Design regulation. We need a deal before the end of the year.

State of Play

The Commission's initial proposal did not prolong market revenue caps. Market caps were introduced by some Member States, and later recognised and regulated by the EU Council in an emergency decision limited to June 2023. The European Parliament have not endorsed making the market revenue cap a permanent feature of the electricity market; EU Energy Ministers have continued with the status quo, prolonging the current measures until June 2024.

However, the measure has led to a mix of various national implementation, offering a fragmented electricity market and a Frankenstein-like patchwork of rules. In several cases, market caps also don't not properly account for renewable derivative contracts based on the electricity market i.e. corporate renewable power purchasing agreements. This puts investors and developers in a position where they need to navigate 27 different regulations without any certainty on

their possibility to invest in future projects. We're scaring off investors at a time when they're most needed. It's not just industry sharing these concerns, EU energy regulators have also highlighted the inefficiencies of the market cap. The European Commission has even warned that there is no need to continue the revenue caps.

On another issue, the negotiations risk taking a step backward on fighting climate change. The Council proposes to allow Member States to continue subsidising fossil assets until the end of 2028, by introducing an exemption to the CO_2 threshold of 550g/kWh for capacity mechanisms.

Undoubtedly, this is a missed opportunity. The idea is that coal generation could support balancing electricity supply and demand. In effect, this gives coal a backdoor to continue generating emissions, even as our net-zero deadline looms. The better choice is to double-down political attention and support towards reinforcing the grid and flexibility – delivering 24/7 renewables.

More positively, the text reinforces consumers' direct access to low-cost and stable electricity, shielding them from high energy prices. The EU Market Design framework already included a right to self-consume the electricity produced by one's renewable system; this new revision went a step further and laid out new rules for people to share low-cost solar energy with their neighbours. Energy sharing, or collective self-consumption, is already in place in Spain, Portugal, and France. The concept empowers households to directly benefit from reductions on their energy bills, while supporting the grid integration of solar. For example, people can benefit from the solar electricity produced from their local school during the weekend, or share energy with their neighbouring shop during the day. In negotiations, the Parliament has improved the provision, notably by broadening its access to industrial clusters, or factories' large rooftops.

For larger consumers, the text proposes tools to support their access to Power Purchase Agreements, ensuring a low-cost, stable, and green electricity price over 5 to 20 years. The text proposes bank guarantees for those consumers with the most credit risk, something which is endorsed by the EU institutions. Some amendments in the Parliament propose to unnecessarily further standardise or regulate those contracts, which are fundamentally business-driven and tailor-made.

In parallel, the text reinforces support mechanisms to invest into solar PV, by using CfDs (i.e. state-backed investment schemes for clean energy projects) which will provide remuneration certainty for solar constructors to invest into projects, while granting extra revenues when appropriate. The design rules of CfDs are smart, and left sufficiently flexible to cater to national realities. On the other hand, administratively placing existing solar plants into CfDs would have the complete opposite effect, and force developers to look backwards into the cost-revenue structure of past installations, slowing down our transition. The final text needs to make it very clear that CfDs must remain voluntary, competitive, and apply only to new investments.

The Electricity Market Design revision will also help modernise the electricity system, and boost storage solutions to replace fossil flexibilities. Flexibility resources are assets that are capable to respond to a system stress, like a battery that charges or discharges. They are urgently needed to accompany the grid integration of renewables and electric vehicles, and make the system independent from fossil assets. The text requires all grid operators to assess their needs, and develop a national target for flexibility growth. It also encourages anticipatory investments in grid infrastructure and requires Distribution System Operators (DSOs) to make more information about their grid capacity available. This is with the objective of accelerating solar connections. The Commission should lead the implementation of these proposals. However, they will also need to be complemented by further policy actions through the upcoming Grids Action Plan.

What next?

Discussions in Council will likely continue to be difficult, especially between between Germany and France on the use of CfDs, and revenues to support vulnerable energy consumers. Over the next few months, it will be critical to preserve a market-based electricity system. Regulated electricity markets are used across the world, and are the only way to organise a complex power system through powerful price signals. Direct and private renewable electricity supply solutions, such as PPAs, must be preserved. They are flexible and can adapt to consumers' needs. At the same time, they foster innovation on the generation side, and they immediately channel private investments into renewable assets. As a result, public resources can be focused on other projects, and certain vulnerable or strategic consumers, can benefit from competitive electricity prices. This is necessary to preserve a business-friendly environment, one that is flexible for innovators, and provides a stable framework for investors.

Ultimately, we have to establish new electricity market rules before EU elections next year. We? need to invest in new renewables now. The Market Design proposal revision is a momentous opportunity; we cannot let it slip away.

A **REVISED EU ELECTRICITY MARKET DESIGN** TO BOOST RENEWABLES, BETTER PROTECT CONSUMERS AND ENHANCE INDUSTRIAL COMPETITIVENESS

March 2023

The EU has had an **efficient, well-integrated electricity market** for over twenty years, allowing consumers to reap the **economic benefits** of a **single energy market**, ensuring **security of supply** and stimulating the **decarbonisation** process.

The energy crisis spurred by Russia's invasion of Ukraine highlighted the importance to make consumers benefit from the green transition. Accelerating the deployment of domestic renewable energy presents an **opportunity for the EU to boost its energy security and reduce fossil fuel imports**, making **consumer bills less dependent on volatile fossil fuel prices**.

The Commission is thus proposing changes to make the **EU's electricity market design fit for the future** and to:

Boost renewable energy investments

Better protect and empower EU consumers

Enhance the competitiveness of EU industry

STABLE ELECTRICITY BILLS WITH LESS FOSSIL FUELS

The reform will make electricity bills **less dependent on fossil fuel prices**, by promoting long-term contracts for renewable energy and bringing more flexibility into the system

This will **protect consumers**, **stabilise prices**, and **ensure** that **the lower cost** of renewable electricity is better reflected in electricity bills

A RENEWABLES-BASED ENERGY SYSTEM

The reform will **boost investment in renewables** through stable long-term pricing agreements, backed by governments, companies and citizens

This will build a **more renewables-based energy system** which is crucial to lower energy bills and ensure a sustainable and independent energy supply

MAKING EU INDUSTRY CLEAN AND COMPETITIVE

The reform will **support the electrification of industry** and boost Europe's position as a global leader in net-zero technologies

This will ensure that European industry has **access to clean and affordable energy** as the foundation for the green transition

A unique network of public affairs professionals

The Brussels Sustainability Club is a unique network gathering over 150 public affairs professionals representing leading organisations including multinational companies and trade associations from across sectors as well as environmental NGOs who share a common interest in sustainability policies.

Our platform aims to foster networking, sharing of information, and a constructive dialogue with policymakers and business leaders on sustainability issues. Our club brings together a diverse group of professionals from all seniority levels working in Brussels.

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