

ELECTRICITY IN TRANSITION

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Northern European countries are more eager to make the energy transition than their southern neighbours. [Alexander Savin/Flickr]

Winter package leaves doubts hanging over Europe's energy future

The European Commission's winter package is an awkward attempt at blending diverging national energy strategies and satisfy the advocates of coal, nuclear and renewables. EurActiv France reports.

Energy industry lobbyists and green activists alike are eagerly awaiting the publication of these 1,000 pages of EU legislation, due on 30 November.

Divided into eight texts, this "jumbo package" should have been slightly slimmer. The revised renewable energies directive was supposed to be presented early in October, but was delayed by divisions between member states.

Diverging views across Europe forced the EU executive to adopt a more imaginative approach, which led to a surprising and somewhat contradictory conclusion: the Commission's frequent calls for higher targets in international climate negotiations are not matched by its own actions.

A leak seen by EurActiv.fr last

week suggests that the winter package will make priority grid access for renewable energies a thing of the past, while extending subsidies for fossil fuels through new so-called "capacity mechanisms".

"Our proposals are based on a broad consultation and still have to be finalised and approved by the College of Commissioners," Climate Commissioner Miguel Arias Cañete said at the COP22 in Marrakesh.

"What is certain is that we will push for the highest ambition in our energy policies, particularly on energy efficiency," he said, implying the leaked document could still change.

Renewable energies coming of age

When it comes to renewable energies like wind, the end of priority grid access is not only bad news but also comes as recognition that the sector has matured and doesn't need support to stand on its feet.

"Renewables nowadays are typically being produced at zero marginal cost so they will be called in first," says Georg Zachmann, a senior fellow at Bruegel, an economic think tank based in Brussels. In other words, renewables are now the cheapest option, meaning they would get priority grid access anyway, based on price only.

"Renewables have come from a niche technology to the mainstream.

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More than half of the capacity additions in Europe have been renewable technologies. So the idea is that they start playing by the same rules as everybody else," Zachmann explained.

Ending priority grid access for renewables even has virtues because it places more responsibility on producers to place wind turbines where they are most needed. For example, adding more wind capacity on Germany's northern coast provides less and less value because the turbines all run at the same time, when the wind is blowing, Zachmann pointed out. And it would be extremely costly to build a transmission system that can bring all this electricity to the South where it might be needed.

"So it would be good to have a market signal for building wind turbines also in the Black Forest for example," Zachmann told EurActiv, saying new technology allows wind turbines to run efficiently at lower speeds.

The physical nature of renewable energies – more variable, unpredictable and decentralised than traditional generation – also "requires an adaptation of market and grid operation rules to the more flexible nature of the market," the Commission says in a draft memo accompanying its winter package.

Clean energy for all?

If renewable energies tend to grab headlines, the upcoming winter package also contains revisions to other crucial texts – including the directives on energy efficiency and energy performance of buildings, the internal energy market as well as regulations on Energy Union governance, the internal energy market, security of supply and cooperation of energy regulators (ACER).

But the very size of this package is a source of concern in itself. "It is quite difficult to exercise parliamentary control when you are given so many texts to swallow in one go," one MEP said.

The European Commission has already driven home its communications message. Baptising the package "Clean Energy For All", the executive insists that consumers will be placed at the heart of the EU's energy strategy by enabling them to produce their own energy. Energy efficiency and the energy consumption of buildings will also be major issues, according to Brussels.

"Two third of current European housing does not take energy efficiency into account," Cañete said at a conference on the energy transition.

"This is a war between watermelons and raspberries. The watermelon is the huge, old fashioned power station and the raspberry is the new means of electricity production. We have to change the way we consume and produce energy," said Gilles Vermot Desroche from Schneider Electric.

One electricity market, 28 national strategies

Simplifying Europe's energy landscape is one of the current Commission's biggest challenges. Originally, the idea of creating an Energy Union was aimed at smoothing the energy transition. But the question of energy independence took precedence following Russian threats to cut gas supply to certain countries.

This context lends more credibility to the arguments put forward by France and Poland that their energy independence should trump environmental concerns over their main energy sources (nuclear for France and coal for Poland).

The package also aims to increase the cross-border exchange of electricity, a goal that requires a certain amount of harmonisation. Here again, this objective has been undermined by differences between northern member states, many of which are eager to transition to renewable energies quickly, and the southern and eastern member states, which demand more time.

But other issues are also at stake in

this debate. For example, Spain now has a surplus of renewable energy capacity and is looking for new markets to sell into, but France is dragging its feet on interconnection in order to protect its nuclear power industry.

Heavily criticised by the EU for its fossil fuel-heavy energy mix, Poland continues to defend its use of coal, saying it has managed to cut CO2 emissions by 33% since 1990. And Germany's plan to eliminate coal from its energy mix by 2023 has disappeared from its 2050 climate plan.

Capacity mechanisms

At the end of the day, EU member states can still subsidise whichever energy project they want, based on the principle that nation-states remain in charge of their energy mix – as long as European targets on renewables and decarbonisation are met.

"There is a common electricity market but member states – almost all of them – do what they want," said Georg Zachmann of Bruegel, citing the UK's nuclear project at Hinkley Point and German subsidies for lignite power plants as examples.

"And that is recognition of the fact that member states can strong-arm Brussels on energy policy, whether based on the EU treaty or for other reasons."

According to Zachmann, the internal electricity market will remain broken, even if the Commission manages to impose strict conditions on the approval of so-called "capacity mechanisms" that currently allow member states to subsidise energy projects for security of supply reasons.

In such a context, Zachmann says EU efforts at curtailing capacity mechanisms via state aid rules "is like window-dressing on the fringes of it".

"I think we are in a different game, the heads of states and government

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need to come together at the highest level to discuss the Energy Union setting. They need to discuss whether they really want a European coordination of the power plant park.”

No targets, no controversy

Of all the divisive issues in the winter package, energy efficiency is the least controversial, “because the EU has not fixed any binding targets on the subject,” an expert source said. Not only do energy efficiency improvements save consumers money, but Brussels also hopes new energy saving technologies will create a large number of jobs.

The full deployment of smart meters are expected to take a central role in this context, enabling households to take control of their energy bills in a decentralised energy system where consumers can also become energy producers.

“Digitalisation and the rapid development of internet-based metering and trading solutions enable industry, businesses and even households to generate and store electricity, as well as participate in electricity markets via so-called ‘demand response’ solutions,” the Commission says in its explanatory memo.

Among the other upheavals expected by the energy industry in the coming months are changes to the EU’s carbon market.

The subject never fails to provoke lively debate in the European Parliament. The weaknesses of the current market are well known, and it is a generally accepted truth that the low price of €6 per tonne of CO₂ makes the system inefficient.

But the possibilities for reform are highly contested and there is little prospect of the debate being concluded in the near future.

INTERVIEW

Eurelectric boss: ‘Orchestrated’ power markets must end

If European Union leaders don’t believe markets can work, then there’s no point having a carbon price to encourage renewable energies. And the energy market will always be “orchestrated” by national governments keeping fossil fuels subsidised, says Hans Ten Berge.

Hans Ten Berge is secretary general of Eurelectric, the association of the electricity industry in Europe, including the likes of EDF and E.ON.

Ten Berge spoke to EurActiv’s Publisher and Editor, Frédéric Simon.

The European Commission said it will put pro-active consumers and citizens at the heart of the electricity market in its upcoming “winter package” of energy legislation. Do you support this vision? And what do you think should be the main elements of the EU’s approach on this?

We very much subscribe to that. However, it’s not just a question of equipping consumers with a smart meter and so that they can adapt their behaviour when prices can fluctuate very strongly. It’s also a question of giving a ‘pure’ energy price.

If you look at energy bills in Germany, the wholesale energy price for instance, is 3 euro cents per kilowatt hour (Kw/h) when the total retail bill is 30 euro cents. So consumers have 27 euro cents on the bill that have nothing to do with energy as such: it is network charges and policy support charges. This means that when energy is saved, the burden of these

costs is shifted from one customer to the other. These regulated charges can represent around 50% of charges in consumers’ electricity bills on average in Europe.

So before empowering the customer, I would plead for the Commission to make sure customers are empowered for their energy bill and not empowered to avoid taxes and policy charges.

The vision of a decentralised energy production system implies lots of small energy producers – typically citizens with solar panel on their roofs – who produce their own energy and sell it back to the grid at a guaranteed price. Are electricity producers ready for such a revolution?

The problem is that the guaranteed prices are always higher than the market price. And who would pay for that? The tax payer.

So yes, we are ready for full and fair competition. But I would say what the Commission is thinking about is more stimulation of decentralised generation at the expense of the majority of customers.

Are grid operators in your view adapting sufficiently fast to a more decentralised energy system? And related to this, are electricity markets adapted to deal with real-time price signals?

If you look at decentralised, it’s mainly solar power. Now, imagine you install solar panels in a certain area, they will all generate electricity at the same time, when the sun is shining. That’s roughly 15-20% of the time at best that they would generate power; the remaining 80% of the time, they would not generate much because the sun is not always shining.

When solar panels all generate at the same time, this represents so much electricity flowing into the grid that you have to get rid of the surplus. And

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when the power is actually needed, in the evening let's say, it's the other way round – solar panels don't generate enough and you need to get your power from other sources.

So what do we do with the grids to deal with this? I think we first have to value decentralised power in the same way as centralised power. As long as that's not done, you will get arbitrage between the two. And that means constant tensions on the grid so that's my main criticism of the upcoming package.

Are we against decentralised generation? No. But you need fair economics to underpin it, which are not there at the moment.

At the moment the electricity system is very centralised, so if you want to encourage decentralisation, you probably need to put incentives in place, don't you? And that means some kind of arbitrage.

Why would you want to encourage solar decentralised over wind centralised?

It's a political objective.

If decentralisation is a political objective, it should also make sense for the consumer, it should not come at the expense of other forms of energy. For the moment, DG Competition says the volumes of power generated by decentralised solar are so small they don't worry about it. But as soon as it reaches bigger volumes, they will have to look at it again.

Another element of the winter package is a new directive on renewable energies. There has been considerable speculation on whether renewable energies should continue receiving priority access to the grid. Should this stop or continue?

Most renewable energies nowadays – hydro, wind, solar – have a variable



cost of zero so they would beat any fossil fuel anyway. Whether or not they have priority access to the grid, renewables would go first simply on economic grounds because they're cheaper.

So why give priority access and do a lot of dispatching if renewables go first anyway on economic grounds? I understand the Winter Package goes in the direction of abolishing priority access, but not fully yet.

Does this mean you support priority grid access or not?

No, I wouldn't support it if there is no reason for it. If you look at the newest wind farms which are built for 5 euro cents per kilowatt hour with a variable cost of close to zero, what is the sense of giving priority access to them? There is no gas plant, no coal plant, no nuclear plant that could ever beat that. And if something beats it, it would be solar or hydro with also zero cost.

So priority grid access is simply not needed?

It's not needed. And if it is needed, it is probably for those with a higher variable cost, such as biomass. There it would be needed if you want to promote biomass at the expense of gas plants.

The Magritte Group of energy CEOs have asked for an end to renewable energy

subsidies, saying they add too much power to an already depressed market struggling with overcapacity. Do you support these calls or do you believe some subsidies should be kept for renewables?

The reason for buying renewable energies is the value they have for decarbonisation and limiting fossil fuels. So I think there should be no subsidies for fossil fuels and that CO2 prices should be increased to further the decarbonisation agenda. That will ensure that renewables have the right value on the market and justify cutting subsidies for them.

And because the CO2 price is so low, this means the subsidy for renewables should be kept?

Yes, but let's not take that for a target. The target should be to decarbonise and prevent CO2 prices from staying low. That, in turn, will stimulate renewables.

A the same time, the Magritte Group is also pushing for "capacity mechanisms" to subsidise coal, gas and nuclear power, claiming they're necessary for security of supply reasons. Is this not a case of double standards – asking subsidies for fossil fuels and nuclear but none for renewables?

I don't think so. I think the flexibility

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to make sure electricity is there at the moment you need it has a value. And that is irrespective of whether the energy comes from coal, wind, solar, nuclear or hydro.

So my question is, how do you value availability? For renewables, you do that by covering part of their investment cost and capacity payment upfront. And if you do it for one type of energy generation, should do it for all.

This, however, should be done on the condition that there is a decent CO2 price. I am not in favour of sponsoring gas plants or other types of energy sources specifically. The capacity can be done with a hydro-wind combination, a gas-solar combination or a nuclear-biomass combination. These could all deliver decent capacity availability. And I think they should be valued for that if they are on stand-by and available tomorrow.

But capacity is not only provided by the generation side alone, it's also on the demand side. If you reduce your demand when there is limited volume of electricity on the market, you should be rewarded with exactly the same capacity fee as a coal or gas plant.

If the capacity is delivered from abroad through an interconnector, you should give the same capacity value to these plants or demand response from abroad as you would give to a gas plant within your borders.

Future systems will be completely in tune with this valuation of capacity. And at the end of the day, one of the best capacity providers might come from household batteries. A battery might give you the capacity needed when the sun is out or the wind not blowing. That also has to be valued somewhere in the system, just like generation capacity. That would be an alternative or complement for gas or hydro plants.

So having a capacity price is not necessarily a subsidy for fossil fuel plants, this is nonsense. It can also be done by reducing your demand or with

renewables, foreign capacity, storage – whatever you have. France by the way has a decentralized capacity market on the retail level, which I like very much.

Can you give examples of capacity mechanisms that you believe should be approved and others that should not?

You have a capacity mechanism in the UK for example where demand-side response and cross-border participation are included, which I support. There is also the capacity mechanism in France which is decentralised and involves retailers, which I told you about.

I would not however support tenders to build new electricity generation for a strategic reserve and administrative capacity payments, as it is happening in several EU countries at the moment. As far as I know, there are more than 28 capacity mechanisms in 11 EU member states at the moment – it's time that we harmonise that.

Or, if you don't like it, accept that scarcity pricing is done to the full extent and accept the level of security of supply that comes from the energy-only market, which implies accepting temporary extreme price rises – that's also a possibility.

Nowadays, I see our member states are not willing to do that. As soon as they are short of power, they immediately throw money to build extra capacity.

Can you be a bit more specific about capacity mechanisms you don't support?

I do not support administrative capacity payments, where the price is not defined by the market and the payment is allocated to everyone. This is not a solution for the future!

We have to be careful with strategic reserves that get oversized and used to build new capacity. In Germany, they have all kinds of reserves which have a significant size and can impact the market. In some Nordic countries they also have strategic reserves.

These reserves can be a solution to address short-term adequacy issues: they should be used exceptionally and their size has to be limited. They also cannot be used to contract new capacities into the system because then the distortion is clear.

So that's not the way to go?

These are conflicting national systems. If you want to value capacity in a correct way, there should be a competitive European market for capacity or at least common features and cross-border participation. Or if you go to the extreme, you should say it's all in kw/h price and nowhere is a capacity market allowed. But as you're aware, DG Competition and DG energy have allowed capacity mechanisms, it's already the second package.

Do you expect the Winter Package to provide solutions on capacity mechanisms?

Something I like very much in draft versions of the Winter Package – and I hope it will survive – are regional markets for capacity through cross-border participation. In Germany and the Netherlands for example, you would procure capacity in order to cover for a shortage in Belgium, so it's not national anymore.

And it also implies having interconnectors in place, which is not always the case currently.

That's right. This is a constraint that you have to take into account when assessing capacity on a regional basis.

Talking about markets, Marie Donnelly, a senior Commission official, admitted recently that EU electricity markets were “broken” because of continued subsidies to coal, gas and nuclear power. In her view, the energy union is chiefly policy-driven,

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not market-driven. Do you agree with that statement?

It's correct. About 50% of our revenue is going through the market and 50% is going around the market, but the list of technologies mentioned by Marie is not accurate.

How does that make you feel?

Sad. You go to your government and ask for a capacity fee, a balancing fee, a renewables fee, a nuclear fee, and tell your government 'If you don't give it to me, the lights will go out'.

And if you look at all the subsidies – for renewables, capacity, re-dispatch and priority access – I think close to 50% of the money is going around the market.

Europe is slowing down the pace of renewable energy roll-out for 2030 compared to the current decade where capacity is expected to double. This is happening at a time when most renewable energy capacity is being installed outside of Europe, notably in China. Are you concerned at all that Europe might be losing the global race on renewables?

No. We have to go to 40% decarbonisation, up from 20% currently. The most economical way to go there is to go over 50% decarbonised, including high shares of renewables – with or without subsidies. So if we stick to the decarbonisation targets, we will build the renewables, there is no way out. Nuclear plants can contribute too although I'm not so sure nuclear plants would be competitive with wind and solar at this moment.

There is no way out of renewables. And that's why we at Eurelectric are pushing very much to get the ETS market back in balance, and get the surplus CO2 allocations out of the market so we can get a decent carbon price. As soon as you have a decent carbon price, you don't

need incentives for renewables anymore – they are clearly more competitive than gas or coal.

The ETS has been up for more than a decade now and the price of carbon has only gone down...

It's reduced carbon emissions by 20%.

Well, the economic crisis might have played a bigger part.

Yes, but there is no way back. I agree, the crisis has resulted in a surplus of carbon allocations. So let's take them out of the market as quickly as possible. It makes no sense to keep this system in a surplus situation. This is why we support the ETS reform currently going through the European Parliament and the report drafted by Ian Duncan MEP.

To conclude, E.ON took a bold decision last year by splitting its fossil fuel assets into a separate company called Uniper and now plans to divest entirely from coal. Do you see coal divestment as a growing trend now in the power sector?

Yes. At the moment, we're losing roughly 6% per year of the fossil fuel plants – not only coal by the way, but gas also. And the reason is purely economic – they do not cover their fixed costs.

The coal industry keeps saying coal is cheap and abundant. Is this not the case?

Why are we closing then?

Because of political reasons, maybe...?

No, this is purely economic.

So your fossil fuel divestment is now irreversible in your view?

You can have a long debate about this. Just look at the numbers: At the moment the German government is

trying to keep coal alive instead of stopping it, via its strategic reserves. Why would the German government do that? Because they're afraid of going out of balance. So they keep the coal on stand-by. And if they didn't do that, the investment climate for decarbonised capacity would be much better.

How is Eurelectric helping in the transition away from coal and fossil fuels?

There are three things we do: Ensure the markets are working, decarbonise, and use clean power for transport, heating and cooling. Functioning markets implies no subsidies, no interference – just straightforward competition.

But that cannot happen in such a politicised environment where everything is subsidised. It sounds rather idealistic.

True, but if you don't believe markets can work, then there's no point having a carbon price to encourage renewables. And you will never get an energy market, you will always have a market orchestrated by the governments.

I am hopeful that there will be a day when carbon prices will be so high that fossil fuels will be too expensive. And you will have to choose between decarbonised assets and there will be competition between biomass, solar, tidal, wind, nuclear you call it. That would be a good environment in my opinion.

INTERVIEW

Analyst: 'Member states can strong-arm Brussels on energy policy'

From nuclear plants in the UK and Hungary to coal-fired power stations in Germany, member states always manage to forge ahead with their energy projects, according to Georg Zachmann, who calls on EU leaders to sit down and seriously discuss the Energy Union's governance.

Georg Zachmann is a senior fellow at Bruegel, an economic policy think tank based in Brussels.

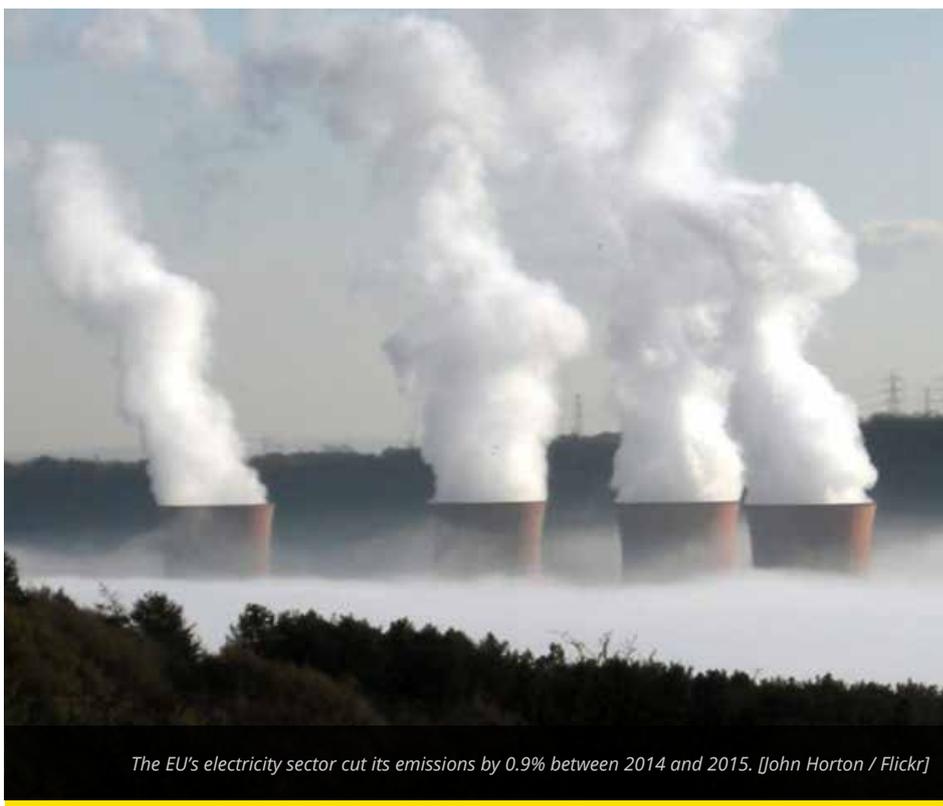
Zachmann spoke to EurActiv.com's Publisher and Editor, Frédéric Simon.

Renewables won't be offered priority grid access anymore under leaked versions of the revised renewable energy directive that will be presented as part of the European Commission's upcoming Winter Package of legislation. What's the logic for doing that?

Renewables have come from a niche technology to the mainstream. More than half of the capacity additions in Europe have been renewable technologies. So the idea is that they start playing by the same rules as everybody else.

It might make sense to expose renewables to signals from the electricity market, not to discriminate against renewables, but to make sure investors are incentivised to place new installations in the right place – and run them at the most suitable time when they provide the highest value.

Just to give you one example, adding



The EU's electricity sector cut its emissions by 0.9% between 2014 and 2015. [John Horton / Flickr]

more wind capacity on Germany's northern coast provides less and less value because the turbines all run at the same time when the wind is blowing. And it would be extremely costly to build a transmission system that can bring all this electricity to the south where it might be needed. So it would be good to have a market signal for building wind turbines also in the Black Forest for example.

So you're saying that ending priority grid access would make a more efficient allocation of renewable energy production?

Yes. But obviously, it comes at a cost for the renewables industry. They would have to start thinking about things they didn't have to worry about much before. Technology has also improved, wind turbines can now work at lower wind speeds in an efficient way so you're not forced to place them always in the same regions where the wind is strongest. Remote control systems now allow you to use wind turbines to stabilise the electricity system. So for some technology providers, it might actually be interesting that the wind sector is a

bit more responsive to the needs of the network than before.

You're saying stopping priority grid access is recognition that renewables have reached a sufficient level of maturity. Still, environmentalists cry foul about it, so you think they are not justified?

I think it's a package deal. On the one hand, you're putting more responsibility on renewable producers, which might have a cost. On the other hand, they should be compensated somewhat for achieving the EU's renewable targets.

One interesting statistic from my country, Germany, is the "Marktwertfaktor" or Market Value Factor for electricity. Beforehand, when the sun was shining in Germany, it usually coincided with high demand times. So the megawatt-hour (MWh) of solar electricity was typically worth more than the average power exchange price. And now this Marktwertfaktor has started to decline because when the sun is shining, there is so much electricity coming into the system that prices start

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decreasing. So the price at the power exchange also goes down.

And there starts to be a cycle of self-cannibalisation, where more solar is added to the grid but actually comes at a time when prices are already low. And here again, it would make sense to have a less concentrated production of solar. Spreading it out over a wider area would help reduce the cost of system integration quite substantially.

And in the end, it's not in the interest of green lobby groups to push all the cost of system integration on the network. Because in the end, it's the population who is going to pay for that. And people don't actually care whether they pay more for the renewables subsidies or for network integration.

So in the end, exposing renewables to the same grid access rules won't make such a big difference?

No, I don't think it will be significant. On the other hand, for conventional energy producers at the other end of the network, there might be a benefit. Because priority dispatch for renewables meant you had to stop nuclear power plants when the wind was blowing for some hours. And that is a technically difficult and costly exercise.

Isn't that reversing the hierarchy? It used to be renewables first and then nuclear, coal and gas to make up for the difference. Now, it's the opposite?

There might be situations where something like that might happen, yes. But renewables nowadays are typically being produced at zero marginal cost so they will be called in first. So from a pure market perspective, if you're pretty sure there is going to be a lot of wind tomorrow, you offer it at the power exchange. Other plants then become more expensive so they will choose to save fuel a bit and decrease production while renewables take over.

So the market will do the balancing on its own?

Initially, yes. In the very short term, grid balance can be maintained by curtailing wind generation, in order to prevent overproduction from overwhelming the grid. But they get compensated for that so it's unlikely they will lose much money.

Another contentious issue in the Winter Package is capacity mechanisms, which are often portrayed as a subsidy to fossil fuels. DG Competition has approved a good number of them, but at the same time, DG Energy seems to want to curtail them. How do you see this taking shape? What can the Winter Package achieve to put the situation straight?

I think the Winter Package has limited room for improvement here. It's more to do with the member states and the types of projects they want to push through – which types of plants they want to build, etc.

And they will make those plans happen irrespective of what Brussels says. This is the experience of the last ten years. There is a common electricity market but member states – almost all of them – do what they want, unfortunately. Just look at the UK with Hinkley Point C, Hungary with the Paks nuclear plant, Germany with its lignite power plants, and France with its gas plant tender in Brittany. All the member states have their projects in mind and manage to play Brussels to get above-market returns for them approved.

And that is recognition of the fact that member states can strong-arm Brussels on energy policy, whether based on the EU treaty or for other reasons. In the end, the internal energy market will not work, even if Brussels manages to have a nice compromise wording on capacity mechanisms that stipulates strict conditions for approving them.

I think we are in a different game,

the heads of states and government need to come together at the highest level to discuss the Energy Union setting. They need to discuss whether they really want a European coordination of the power plant park, either through a market or through inter-governmental coordination and how this should be institutionalised. I think that is the question we're facing at the moment. And then playing around with capacity mechanisms or state aid rules is like window-dressing on the fringes of it.

The initial intention was to build a European wholesale electricity market and carbon price, but member states can easily undermine that with their national rules. Brussels can always try to put the genie back into the bottle, but it's like a Sisyphian task.

It's frustrating because, in political terms, Brussels is always portrayed as the bad guy for blocking a particular project in a member state, based on some principled decision. That's not a role that Brussels can sustain politically for a very long time.

So instead of trying to regulate capacity mechanisms, the way forward to put the electricity market back on its feet is to reform the EU's Emissions Trading Scheme? That would have the advantage of further incentivising renewables and pricing out fossil fuels.

Carbon markets are a European tool, but member states decided they don't like it and overruled the market outcome with their national instruments. And that's the way it is.

The only way out of that would be to have an agreement between the member states. Brussels can always come up with new state aid rules or instruments to regulate capacity mechanisms but this is unlikely to make a big difference at this stage.

Targets for renewables have been

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set at 27% for 2030, which represents a considerable slowdown compared to the 2020 target of 20%. Is Europe taking a step back on its leadership on renewables?

For 2030, the compromise was indeed to go essentially for business as usual.

What do you make of the Commission's intention to promote decentralised energy, with solar panels on the rooftops of households, etc? How do you see this taking shape?

For me, the most interesting question in the decentralisation debate is who is in charge of managing the system. There is a big struggle happening at the moment between very unlikely players – the telecoms industry, IT companies like Google, the DSOs, and TSOs, as well as technology providers, who are all fighting to get in there.

There needs to be some coordination, which is currently unthinkable without some kind of entity in the middle of it. And that entity can be a lot of different players, including those I just mentioned. Essentially it's an entity that gets all the information it needs to make the market. And that role would obviously be a very powerful one in the future electricity system.

Interestingly, it's not only about decentralisation, it's also about convergence. We see electricity services and IT services converging, we see transportation and electricity converging (with electric vehicles), heat and electricity converging (with heat pumps). So there needs to be some sort of arbitrage point at which the optimal use and investment decisions are incentivised, potentially through price signals. But somebody needs to be the spider at the centre of this.

Are you talking about a strengthened regulator?

No, I'm talking more about a market entity – the market maker, or the London Stock Exchange of this electricity-gas-heating and cooling-transport nexus that is going to evolve into very small local areas.

Because you have different prices for electricity or heating from city to city, different infrastructure for storage, etc. And everybody at the consumer end is potentially becoming a storer of electricity and heat. Lobbyists are now struggling to make sure their sector or their company is taking this central role but this big game is not over and we don't know in which direction it will develop.

So you see a kind of 'Google of energy' emerging?

Yes, exactly. And such a central player could optimise the system, making considerable efficiency gains to the whole electricity system.

But whether it will be Google, Deutsche Telekom, Schneider Electric or your local electricity provider doing that is not set in stone at this stage.

The alternative would be trying to design a market first but this would be very complex to do in such a dynamic environment where everyone is competing against each other. So as a regulator, you wouldn't really know what it is that you're actually trying to optimise. Which is why I don't think the Commission will go into that.

You're saying regulators can't put the cart before the horse: design a market first, and then hope players will thrive in it. It happens the other way round.

At least that's how network businesses have evolved in the past. Just look at railways in the 19th century, or electricity for that matter or gas. It was typically private companies that did vertically-integrated businesses and put the whole thing together. And then later on the state took over to regulate what

had become a natural monopoly.

Now, what will happen with the convergence of electricity, transport and ICT remains to be seen. It's a super exciting field but there are more questions than answers at this stage.

OPINIONS

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A successful Energy Union can sell benefits of EU to the masses

Policymakers from the member states have praised the European Commission's Energy Union initiative. But this unanimous assent has raised eyebrows at a time when the idea of the EU itself is under attack, writes Dr Nikolas Wölfing.

Dr Nikolas Wölfing is a researcher at the Centre for European Economic Research (ZEW).

The Energy Union has gained seemingly undivided support in the political sphere and the Commission's vice president is set to deliver a "jumbo package", as he likes to phrase it.

Europe's energy policy has worked for decades under the premise of a strict division of competencies: the Union acts on the harmonisation and reform of regulation, while member states are free in their choice of the fuel mix, the system, and the technologies employed.

Targets for renewable energies are somewhat the exception proving the rule. Article 194 of the Lisbon treaty has set this principle in stone.

In practice, this arrangement has provided the framework for ground-breaking achievements on the one hand, but also for a steady evolution towards energy systems and policies foiling just these very achievements on the other.

To explain, let me take a small



Taxes now make up 36% of EU energy bills. [Peter O'Connor aka anemoneprojector/Flickr]

detour to a very basic economic insight. Economists consider most energy carriers to be almost perfect examples for the concept of homogenous goods.

And what we know about such goods is that well-designed markets can bring up extremely efficient allocations. In most cases, the European energy policy has put this lesson into practice.

Take the internal market for electricity as an example: we have seen the emergence of a coupled market spanning from Portugal to Finland. The principles of market coupling are just a one-to-one implementation of what economists describe as a welfare maximising solution to a trading problem.

These welfare gains are real and they are large. And they are distributed across generators, consumers and nations.

Unfortunately, this achievement largely lost its economic relevance just shortly after being installed. Looking at Germany alone, wholesale prices for electric power amount to 2 to 3 cents per kilowatt hour.

Timely variations of such prices do not matter much when surcharges for renewables, capacity payments or grid charges amount to multiples. The big turnover is not in the wholesale market anymore, but in a multi-layer system of administered and regulated charges.

The signal a price can provide to coordinate demand and supply on short

notice is buried under these levies which are applied independently of actual scarcities.

Moreover, with changes in the installed generation capacities but no adjustment of the high voltage grid, there are increasing locational scarcities in the system which are yet not priced.

Loop flows destabilise the grids of neighbouring countries. Poland and the Czech Republic decided to install phase shifters on their borders as barriers against inflows from the German grid – not what a well-working integrated market should look like, right?

And Germany is not alone with its energy policy, inconsiderate of any European framework. In the rest of Europe, we see the implementation of capacity markets with various designs on the national level in a largely uncoordinated manner.

The proposals and implementations of these markets cannot hide their intention to implement instruments that give power and money to national actors in a very national setting.

So in brief, while wholesale markets have become more European, energy policies have become more national and money is being shifted away from the European markets towards national systems.

As a result, actual problems increasingly arise on a regional or even

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local level. This is not the right track towards the Energy Union.

My concern is that policy makers in the member states will only realise the importance of the Energy Union beyond being a topic for emphatic speeches when it is too late.

Take a look at the gas market where progress on integration has been smaller compared to the electricity sector. To ensure energy security, it is key to coordinate actions, to create flexible markets providing timely and relevant price signals, and to install infrastructure which creates liquidity in these markets, even in times of import disruptions.

A well working Energy Union could be a strong argument for the benefits of the European Union, when voters see that gas supply in times of crisis is secured by the links to neighbouring member states.

But to this end, the union has to be operational before we are in crisis. Thus, it is more than urgent that national governments start taking the European framework more seriously, than they have done lately with regard to the electricity and the carbon market.

EU throws in the towel over national energy support schemes

EU member states have pressed ahead with a variety of schemes to remunerate energy generators for keeping power plants on stand-by, despite warnings from Brussels. It now seems certain that such “capacity mechanisms” will remain a fact of life, at least for the foreseeable future.

When it opened its initial consultation in July 2015 on a new design for Europe’s electricity market, the EU executive called for “an effective regulatory and governance framework which reduces the need for interventions such as capacity mechanisms”.

The European Commission had in mind national schemes that effectively pay the owners of power plants, many of which might otherwise be unprofitable, to continue operating them in the interest of security of supply, in order to “keep the lights on”.

Officials from the Commission’s energy directorate have been warning for years that such interventions could lead to the fragmentation of the planned single European market for electricity, even before it is completed.

However, many member states have pressed ahead with a variety of schemes to remunerate generators for keeping power plants on stand-by. It now seems certain that capacity mechanisms will be a fact of life, at least for the foreseeable future.

This is confirmed by a leaked draft of a forthcoming proposal for a new electricity market design, part of a “Winter Package” of legislative proposals due to be published on 30 November.

Rather than block such market

interventions entirely, the Commission appears to have chosen to push for strict limits on capacity schemes, and ensure that they are open across national borders. The energy directorate also looks set to call for regional, rather than a purely national, assessments of generation adequacy.

Environmentalists have criticised capacity mechanisms for effectively allowing member states to subsidise the construction of fossil fuel plants remaining on stand-by, in case the wind is not blowing or the sun not shining.

But the electricity industry argues there is a value to that.

“I think the flexibility to make sure electricity is there at the moment you need it has a value. And that is irrespective of whether the energy comes from coal, wind, solar, nuclear or hydro,” said Hans Ten Berge, the secretary-general of Eurelectric, the EU association representing the electricity industry.

“So having a capacity price is not necessarily a subsidy for fossil fuel plants, this is nonsense. It can also be done by reducing your demand or with renewables, foreign capacity, storage – whatever you have,” Ten Berge told EurActiv in an interview.

Europe-wide probe

The EU’s reform of national energy support schemes comes against the backdrop of a “sector inquiry” into capacity mechanisms, launched by Competition Commissioner Margrethe Vestager in April last year.

The first concrete result of the new probe came this month with the approval of a French capacity mechanism. Under the scheme, generators are issued with tradeable certificates that suppliers are obliged to buy to cover the peak demand of their customers. France was required to revise its plan, however, notably by opening the scheme to generators

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outside France.

“It is the first mechanism to explicitly include and remunerate foreign capacities, thereby also contributing to building an Energy Union in Europe,” Vestager’s office said.

The competition directorate’s inquiry initially focused on 11 countries that either had or were planning to implement some form of capacity mechanism: Belgium, Croatia, Denmark, France, Germany, Ireland, Italy, Poland, Portugal, Spain and Sweden.

An interim report issued in April this year concluded that member states need to be “more thorough” in assessing whether such schemes are cost-effective or distort the market, and indeed whether they are necessary at all. However, the EU executive would divulge no specifics of possible further infringement probes.

“We cannot prejudge the opening of any further investigations at this stage,” a spokesman told EurActiv. Nor would the Commission confirm whether its final report will be released along with the Winter Package, saying only that it would be out “before the end of the year”.

UK capacity auction

In fact, a UK capacity auction scheme had already received approval from EU competition officials before the sector inquiry was launched. The second auction under the British scheme, held last December, saw the scheme opened to capacity outside the UK. It resulted in contracts awarded for a total of 1.9 GW of capacity via two high-voltage undersea cables (BritNed to the Netherlands and the IFA to France).

Even combined, this represented less than 1% of the capacity procured in the auction. By contrast, some 4.4 GW went to coal-fired plants, while the largest share – almost half of the 46 GW of capacity – went to existing gas-fired plants.



Coal power plant in Germany. [martin/Flickr]

UK regulator Ofgem said in a report published just weeks before the Brexit vote in June that “it can be expected that interconnectors will potentially play a larger role in future capacity market auctions”.

Eurelectric boss Hans Ten Berge believes this provides an interesting way forward to “Europeanise” the market for capacity mechanisms.

“If the capacity is delivered from abroad through an interconnector, you should give the same capacity value to these plants or demand response from abroad as you would give to a gas plant within your borders,” he said.

New rules

The UK auction scheme came under fire from environmentalists, who said the government’s “technology neutral” approach favoured fossil fuel plants over green solutions such as wind generation, or “demand side response” schemes aimed at reducing consumption rather than boosting production. Moreover, the clearing price of £18/kW/year was seen as too low to encourage investment in new, cleaner power plants.

What the leaked documents from the Commission’s Winter Package have to say about plans for capacity mechanisms has also provoked an angry response. The draft rules would permit capacity mechanisms where they are

deemed necessary to ensure security of supply, and would allow the use of “all resources” capable of meeting the needs for electricity supply.

The Luxembourg Green MEP Claude Turmes argued that this could pave the way for state support to polluting coal-fired generation and jeopardise the goal of increasing the share of renewable power.

Poland, which relies on coal for over 80% of its power generation, has long been pushing for the right to implement a state scheme to support domestic coal-fired generation. The right-wing Law and Justice (PiS) government held in July a public consultation on a planned capacity market in which the first tender could be launched as early as 2017.

“We have to call on the European Commission for a system of financing conventional generation. If we do not build around 7 gigawatts of new capacities in six years, then we will have to...regulate electricity consumption,” argued Krzysztof Tchorzewski, Poland’s energy minister.

Even Eurelectric, the EU power sector trade association, believes strict limits should be placed on national capacity schemes, because they undermine efforts at building an EU power market.

“We have to be careful with strategic reserves that get oversized and used

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to build new capacity,” said Hans Ten Berge, referring to German schemes for coal-fired generation.

“As far as I know, there are more than 28 capacity mechanisms in 11 EU member states at the moment – it’s time that we harmonise that.”

But he doubts member states are willing to do it. “As soon as they are short of power, they immediately throw money to build extra capacity,” he lamented.

Limited room for improvement

The Commission formerly championed a fully functioning “energy only market” in which national interventions would be unnecessary.

Now, policy making is no longer about a grand design for a Europe-wide wholesale market. It is more

about whether individual problems can be solved with small tweaks, said Georg Zachmann, a senior fellow at the Brussels-based think tank Bruegel.

“Rather than risk 28 different national energy policies, the EU executive now appears to view transparent, well regulated capacity mechanisms as a lesser evil,” Zachmann said.

However, Zachmann believes the Winter Package has “limited room for improvement” on capacity markets, saying EU member states will forge ahead with their favoured energy projects “irrespective of what Brussels says.”

“There is a common electricity market but member states – almost all of them – do what they want, unfortunately,” Zachmann told EurActiv.com, citing Britain’s plans for a new nuclear plant at Hinkley Point and German subsidies for coal as examples.

“And that is recognition of the fact that member states can strong-arm Brussels on energy policy,” he said.

According to Zachmann, the only way out would be to have an agreement between EU member states at the highest level on how they want the Energy Union to move forward.

“They need to discuss whether they really want a European coordination of the power plant park, either through a market or through inter-governmental coordination and how this should be institutionalised,” Zachmann said.

“I think that is the question we’re facing at the moment. And then playing around with capacity mechanisms or state aid rules is like window-dressing on the fringes of it. Brussels can always come up with new state aid rules or instruments to regulate capacity mechanisms but this is unlikely to make a big difference at this stage.”

European power grid on cusp of storage revolution

An electricity market revamp could see battery storage go mainstream. But questions remain over who will put the infrastructure in place.

The proposal for a new EU electricity market design that the European Commission is due to unveil on 30 November as part of a Winter Package of Energy Union legislation promises to put consumers in the driving seat.

The goal is to create a market fit for a growing share of power from intermittent renewable sources, chiefly wind and solar. Coinciding with rapid progress in the development of rechargeable batteries and electric vehicles, this could signal a rapid growth in the role storage plays in the power grid of the future.



Electric car charging spot. [Pat Joyce / Flickr]

“At the end of the day, one of the best capacity providers might come from household batteries,” said Hans Ten Berge, secretary-general of Eurelectric, the EU electricity industry association.

“A battery might give you the capacity needed when the sun is out or the wind not blowing,” Ten Berge told EurActiv.com in an interview, saying this could come as an alternative or complement for gas or hydro plants.

“Future systems will be completely in tune with this valuation of capacity,” he said.

DSOs in the limelight

While the Brussels bubble awaits the Commission’s final proposal, one thing already seems certain: the 2,700

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firms that have quietly been making sure the power carried through high voltage cables is delivered to customers through local networks are set to be thrust into the limelight.

Distribution Service Operators, or DSOs, are set to act as the interface between newly empowered end users and the (as yet incomplete) EU-wide wholesale electricity market envisaged by the 2009 Third Energy Package.

The European Commission last year promised a “new deal for consumers”. Speaking at an industry event earlier this month, the Commission’s internal energy market director Klaus-Dieter Borchardt said the new design would do away with all forms of price regulation. Consumers will be exposed to price fluctuations, but also empowered to react to them, for example by moderating consumption during peak times and buying kilowatt-hours when demand, and prices, are low.

DSOs will be key to providing the technical infrastructure for this so-called “demand response,” Borchardt said.

Storing power

One area that looks set for rapid growth on the back of these changes is battery storage, which could enable consumers to buy electricity when it is going cheap, and use it later when peak demand pushes prices up.

Advocates claim batteries offer a solution to the conundrum that has dogged renewables since Europe put in place mandatory deployment targets: what to do with the power that is generated during times of low demand.

The 2030 target of 27% of Europe’s energy consumption being met by renewable sources translates into 46% of all electricity coming from green sources by 2030, according to Commission estimates. Entrepreneurs and established energy firms are looking for ways to capitalise on the possibilities offered by an increasingly decentralised

power market.

Distributors themselves may be forced to stand aside as the expected growth market for battery storage takes off. Borchardt told DSOs on 7 November that they should expect to be disappointed over a joint call for permission to own an operate storage facilities. This disappointment was reinforced by the leak the following week of a draft proposal to revise electricity market rules, which held that “distribution system operators shall not be allowed to own, develop, manage or operate energy storage facilities”.

However, the leaked documents showed there would be exceptions in cases where a public tender fails to find an investor, or where DSOs use storage only to ensure secure operation of the grid.

Similar restrictions would apply to DSOs owning electric vehicle recharging facilities, with exemptions again subject to regulatory approval. For Carmen Gimeno, who heads the trade association GEODE, this was “better than expected” in the wake of the Borchardt’s comments.

“Of course we would prefer a general rule allowing us to own storage and not only as an exception,” Gimeno told EurActiv.

No lack of competition

But there may be no shortage of firms hoping for a slice of the growth market for high-performance batteries. They see potential demand driven both by home consumers and by the need for larger scale local storage facilities that could stabilise regional grids by absorbing surplus power and feeding it back in at times of high demand.

One such company is the utility giant E.On, which like its peers across Europe has been struggling to adapt to a new reality where owning a series of huge conventional power plants is no longer a guarantee of long-term profit.

The German firm, which has

branched out into domestic batteries and recently won a contract to provide a 10MW storage facility for the UK’s National Grid, does not believe the growth of the battery market is dependent on who is or is not allowed to own storage facilities.

“The market is driven by the need for flexibility, which will not change,” said spokesman Markus Nitschke. “The business models will be different, but not the size of the market,” he said.

“On top of this, it is worthwhile noting most of the applications are expected to be ‘behind the meter’ rather than ‘in front of the meter’ – in other words onsite, decentralised, rather than on the grid,” Nitschke said.

The trade association Eurobat argued in a June report that battery storage should be a “fourth component of the energy system, after generation, transmission and distribution”. The group sees the potential block on DSOs entering the market as a worrying signal. EU affairs officer Francesco Gattiglio told EurActiv that distributors have so far shown the most interest in offering services as “aggregators” and providing large-scale battery back up on the grid.

Whatever form the market ultimately takes, Gattiglio believes batteries will provide the only means to prevent having to curtail output from wind and solar when the grid is oversupplied.

“If we are serious about growing renewables in the energy mix, battery storage is the only way to prevent a lot of curtailment, which is energy wasted,” he said, adding that the technology is already there, or developing fast. For Gattiglio, there is also a lot of potential for decentralised storage in the form of batteries in households, and even electric vehicles connected to the grid when recharging.

“The schoolbooks say the main problem with electricity is that it cannot be stored. This is no longer the case,” Gattiglio said.

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Critical mass

Europe's distribution service operators will soon know what role the Commission wants to allow them in this new market environment. Gimeno sees a need for DSOs to participate in rolling out the infrastructure for electric vehicle charging, arguing that cooperation between authorities and market players might be necessary until a "critical mass" is deployed and the market become self-sustaining.

"In this regard, it might be an option that DSOs are allowed to invest, own and operate charging stations to overcome this obstacle," Gimeno said.

Another thing is certain: the legislative process will not end on 30 November, when the EU executive intends to publish its Winter Package. That will only be a prelude to months or even years of negotiations between member states and the European Parliament before the full legislation is finally in place.

Borchardt also confirmed that the Commission wants to set up a new EU body comprised of experts from the DSOs themselves, tasked with producing the first draft of "secondary legislation". This would set out the nuts and bolts of how the newly flexible and demand-responsive electricity market will be operated and regulated.

A similar body made up of transmission system operators (TSOs) was called into being by the 2009 energy market legislation. The "network codes" that governing the functioning of Europe's wholesale power market are only now nearing completion.

Lawmakers eye excluding coal from EU energy transition funds

Provisions in the EU's carbon market designed to help poorer countries move to low carbon energy are being abused to subsidise fossil fuels and need to be dropped, 31 organisations and networks campaigning to end coal have said.



The Belchatow power station is set to benefit from investment through EU emissions rules, according to Carbon Market Watch. [Jacek/Flickr]

In an open letter to members of the European Parliament committee in charge of the revision of the Emissions Trading System (ETS), the NGOs said that Article 10c of the directive should be ditched from 2020.

Article 10c allows lower income countries to give free carbon allowances to electricity installations on condition they invest an equivalent amount in the modernisation and diversification of their energy systems.

The funding is open to ten countries whose GDP is under 60% of the EU average – Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia.

Backers of the scheme say the money is necessary to modernise the power sector, while keeping energy prices affordable for households and industry consumers.

But campaigners have argued that the cash has been used to modernise polluting fossil fuel industries that

generate electricity from burning coal.

Rather than drop the scheme entirely, EurActiv understands that lawmakers plan to make amendments that would expressly forbid the money to be invested in the modernisation of coal-powered electricity plants.

This is more stringent than the European Commission's initial plan, which proposed forbidding using the fund for building new coal installations.

ETS in desperate need of reform

The ETS is a central plank of the bloc's strategy to cut carbon emissions and keep the commitment it made in the Paris Agreement on climate change.

World leaders vowed to cap global warming at no more than two degrees above pre-industrial levels in the landmark UN deal, which entered into force on 4 November.

Regulated businesses measure and report their carbon emissions, handing in one allowance for each tonne they release. Permits can be traded on the markets as an incentive for companies to reduce emissions.

But stubbornly low carbon prices fed by a surfeit of free allowances has left the ETS in desperate need of reform.

Hans Ten Berge, secretary general of industry association Eurelectric, said there was a surplus of carbon allocations that prevented the ETS from filling its task of decarbonising the power sector. "So let's take them out of the market as quickly as possible," he said.

"The target should be to decarbonise and prevent CO2 prices from staying low. That, in turn, will stimulate renewables," Ten Berge said, adding "I think there should be no subsidies for fossil fuels and that CO2 prices should be increased to further the decarbonisation agenda."

In July 2015, the European Commission proposed its reforms for the post 2020 period. The bill is now under scrutiny by the European

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Parliament, led by British Conservative Ian Duncan.

Fossil fuel subsidy?

Carbon Market Watch, a green NGO network, warned in an April briefing that Article 10c clause was being used to subsidise polluting fossil fuels.

The European Commission has approved allowances worth about €12 billion for the 2013-2019 period. Carbon Market Watch cited independent analysis of planned investments, which revealed Article 10c money is being used to support electricity production by subsidising coal power.

Poland's Belchatow lignite-fire power station, the second largest fossil fuel power station in the world, is one facility set to benefit, according to the report.

Rather than using the cash to diversify their energy sources, Poland, the Czech Republic and Romania will use the investment in new coal consumption, the research said.

The organisations that wrote to the European Parliament this week, included unions and green NGOs such as Climate Action Network, the European Environmental Bureau and WWF.

They argued that Article 10c was always meant to be a temporary derogation – an exception – and that it should be “folded into” the bloc's Modernisation Fund, set up in Article 10d.

“By combining resources, member states can avoid the administrative burden and complexity of implementing two programmes with overlapping objectives and benefit from less fragmentation and more effective use of public resources,” the letter said.

“Continuing free allocation could distort the internal energy market and endanger the climate friendly transition.”

The European Commission suggested the creation of the fund in its July 2015 proposal for revisions to the

ETS.

All member states will contribute to the fund which will benefit ten countries: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia.

A governance structure for the fund involving member states, the Commission and the European Investment Bank, will be established.

Two separate funds?

Ian Duncan, the lead MEP on the bill, said that all options were being explored.

“It looks as if the funds will be kept separate but nothing is agreed until everything is agreed,” he said yesterday.

While some sources told EurActiv the push had support from a number of MEPs, others doubted that the benefitting countries would be ready to sacrifice the clause.

One insider said that losing EU law guaranteeing the modernisation of their energy systems was too much for some member states' MEPs. The source added that there was a push to insert binding language in a compromise amendment that would explicitly forbid any Article 10c cash went to coal.

But beneficiaries of Article 10c say making coal plants more efficient is the best way of cutting CO2 while keeping electricity prices affordable.

“The most cost efficient way to reduce emissions is to retrofit existing power plants – in many cases, in particular in Poland, coal power plants,” said Pawel Wrobel from PKEE, the Polish electricity industry association.

“One should not forget that the main purpose of the EU ETS is greenhouse gas reduction, not phase out of coal,” he said, arguing the ETS should be “technologically neutral” and refrain from specifying how the emission reductions are achieved.

While the fund has so far benefitted former communist countries in Central and Eastern Europe, other EU countries like Greece are now also pushing to be

included in Article 10c of the revised ETS.

Greek energy analysts say the Hellenic Republic had lost 27% of its GDP in the last seven years. But because of an EU decision that set the GDP base at 2013 levels, Greece has been unable to take advantage of the clause.

Cost-benefit analysis

The Polish power sector, which is heavily reliant on coal, also insists that significant funding has to be made available to support the country's decarbonisation efforts.

Reducing greenhouse gas emissions by 30% in the power sector will cost around €60 billion, according to analysis by consulting firm EY for PKEE, the Polish electricity sector association. And going for a 45% GHG reduction will inflate the bill to around €90 billion.

These figures correspond to EU-wide targets, which foresee a reduction in greenhouse gas emissions of at least 40% for 2030.

However, free carbon allocations and the planned Modernisation Fund can only cover around 10% to 15% of these costs, according to estimates in the EY study.

“This is why we call on EU institutions to present an in-depth analysis which shows benefit and costs country by country,” said Pawel Wrobel, from PKEE. “Our owners, shareholders and clients should be aware about the consequences of EU ETS reform.”

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