As the EU’s power market reform enters the home straight, EURACTIV.com takes a look at so-called “capacity mechanisms” for back-up electricity and whether they help or hinder the EU’s twin objectives of supply security and decarbonisation.
Detractors of capacity mechanisms argue they are mere state aid for dirty fossil fuels that should be eliminated as soon as possible while supporters claim they provide vital back-up in the transition to renewable electricity. The fact that both are correct is leaving Europe in a quandary.

At first glance, the case for capacity mechanisms appears thin. Those national support schemes were put in place to prop up polluting coal or gas-fired power plants that would otherwise be struggling to make a profit in the face of growing shares of cheap electricity coming from wind and solar.

Moreover, they can distort competition, hampering the European Union’s efforts to build a single energy market allowing for the seamless exchange of electricity across borders.

A revision of electricity market rules, tabled by the European Commission in November 2016, is currently being examined by EU legislators. So cutting the lifeline would appear like the obvious thing to do.

The question is how soon this can be done, and at what cost – both financial and political.

“Security of supply and decarbonisation are key objectives” of the reform, said Florian Ermacora, head of unit for wholesale electricity and gas markets at the European Commission.
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Commission's energy directorate.

"And all evidence shows it's the market, not state intervention," which can achieve those twin objectives at the least cost, he told a EURACTIV event on 4 September. For the Commission, the case for more Europe is clear. "It's the European market, not national markets" taken in isolation which is best placed to deliver, Ermacora insisted.

The argument sounds compelling. But that hasn't stopped member states from putting up "capacity mechanisms" in place anyway, claiming they are needed for supply security reasons in the transition to clean energy.

**BACK-UP OR ABUSE?**

"You need confidence in fossil fuels capacity in case renewables aren't available," says Michael Pollitt, a Professor at Cambridge University who is leading a research project on the EU electricity market design for the Centre on Regulation in Europe (CERRE), a think tank.

Counter-intuitively, he argues capacity schemes are actually necessary to accompany the transition to renewables and may even contribute to achieving the EU’s decarbonisation goals under the Paris Agreement.

"The argument in favour of CO2 reduction is that, by providing support for fossil fuel capacity, capacity markets allow EU countries to go towards higher percentages of renewable energy production. It gives them the confidence of having backup capacity when wind and solar are not available," Pollitt told EURACTIV in an interview.

Over time, however, he says the utilisation of capacity mechanisms by fossil fuel energy should decline as the share of renewable energy rises. The whole difficulty is to put safeguards in place to make sure there are no abuses.

"If you keep old dirty plants on the system via a national capacity mechanism, and allow them to continue trading – that's distorting cross-border flows of electricity," Pollitt says, which undermines Europe's clean energy goals.

"For example, a Polish coal plant receiving capacity payments might still produce electricity at times when the system isn't stressed and trade it outside of Poland, even though it may not be necessary from a European point of view," he explains.

"And then you're detracting from the European energy and climate targets. I think that is the danger – that you keep a lot of unnecessary plants on the system from the perspective of the single market," Pollitt says.

The contract length offered to bidders in capacity markets are a key potential source of abuse, he states, arguing overly generous contracts of – say – four years can end up looking like a subsidy.

"The value of these longer-run contracts is not clear to me," Pollitt says. "We need short-term operating reserves in the electricity system – that is true. And some shorter-run contracts would seem to be more suitable to providing that."

**SECURITY OF SUPPLY – A NATIONAL COMPETENCE**

Still, member states can always argue capacity mechanisms are necessary from an energy security perspective – in order to avoid blackouts, or to meet peak demand in winter time.

This is why policing those schemes has felt like herding cats for the European Commission – at the end of the day, capacity mechanisms are about energy security, which is a national responsibility.

"National governments have a responsibility to ensure security of supply,” said Virginie Schwarz, director for Energy in the French ecology ministry. “If there is a blackout, citizens will turn to their government, not to the European Commission,” she told a webinar hosted last week by the Make Power Clean campaign, a business coalition arguing for strict CO2 emission standards in capacity schemes.

Security of supply is indeed a national competence, a point that was stressed again last week by the governments of Poland, France, the UK, Italy, Greece, Hungary and Ireland. “As such it should ultimately be for them [the member states] to determine whether it is necessary to introduce a capacity mechanism within their own market,” the seven countries said in a common position paper.

The European Commission recognises this. But that doesn’t mean member states can “do whatever,” Ermacora said. First, capacity mechanisms must get the approval from the Commission’s department in charge of state aid controls, he reminded, which means observing EU single market rules.

However, Brussels has been forced to adopt a rather lenient approach until now. And EU regulators now want to tighten the screw as part of the proposed electricity market reform.

"I think the Commission has realised that capacity markets are going to happen whether it likes it or not. And it decided it was preferable to get ahead of the issue rather than let capacity markets pop up all over Europe with different designs,” says Michael Pollitt.

**LOOKING BEYOND BORDERS**

One key provision in the Commission proposal is to encourage member states to look beyond their
borders for available electricity instead of relying on back-up power plants at home. The EU Executive wants to “Europeanise” national capacity mechanisms by creating cross-border bidding zones allowing generators in neighbouring countries to participate.

Breaking down national barriers will decrease the need for capacity across Europe and within countries, the Commission argues. And placing a CO2 emission on power plants allowed to bid in capacity markets will speed-up closure of the most polluting coal plants, it says.

Moreover, “regional operational centres” envisaged under the proposed new market rules should look into all cross-border aspects of electricity trade, including rules for the configuration of bidding zones.

However, EU countries seem reluctant to make such a leap forward. Their natural inclination remains to rely on tried and tested national back-up power plants that can be switched on at will.

Lack of cross-border interconnection is part of the explanation. Without physical power lines, cross-border exchanges simply cannot happen.

European countries have postponed an earlier objective of linking up at least 10% of power grids to 2020, which was originally planned for 2010. And a proposal to link up 15% of Europe’s electricity networks by 2030, envisaged in the current reform, might not survive the negotiations.

Even when the infrastructure exists, it is not used to its full extent. According to estimates by the Agency for the Coordination of Energy Regulators (ACER), utilisation currently averages 31% of existing interconnector capacity, leading to inefficiencies.

At worse, EU antitrust authorities have suspected transmission system operators (TSOs) of protecting their national market by systematically restricting cross-border electricity flows.

**A QUESTION OF TRUST – AND COST**

But achieving a truly integrated European market where EU countries have less capacity than their total demand is “a big ask” for a sector obsessed with the risk of blackouts, Pollitt says.

“Virtually no member state is in a position to do that at the moment,” he argues.

The issue boils down to a lack of trust between EU member states. Fabien Roques, an Associate Professor at Paris Dauphine University and consultant with Compass Lexecon, says the technical aspects of grid interconnection and cross-border exchanges can be solved relatively easily.

“The real issue is the political will to be in solidarity when there is a shortage,” he told EURACTIV in e-mailed comments. Which means adopting operational rules to guide the rationing of power at regional level and to align the TSOs responsibilities accordingly.

“That is not an easy issue to solve as this is not just about national sovereignty: this means in practice accepting that customers on one side may be cut off to guarantee supplies on the other side, with potentially significant economic implications...,” Roques says.

Roques believes regional approaches offer part of the solution to greater European energy market integration and solidarity. But he warns that regional coordinators “should not be seen as a substitute for political and operational agreements between member states and TSOs”.

In France for instance, the national Transmission System Operator, RTE, has signalled it will not engage in cross-border exchanges without first signing a bilateral agreement with the neighbouring TSO.

This is why Roques believes a step-by-step approach should be adopted, “building on the current Regional Service Coordinators to gradually extend their role and responsibilities,” in parallel with a broader alignment of policies.

“The risk is to create a disconnect between the operational responsibilities and the underlying regulatory and policy framework,” Roques warns.

In the meantime, the price EU countries are prepared to pay for keeping control of their national electricity system is not small. According to the European Parliament’s third Cost of non-Europe report, a more physically integrated internal energy market could deliver annual efficiency gains of at least €250 billion.

“It is a question of trust and cost,” Pollitt says.

“Are governments willing to pay to have that extra bit of political security? As long as those extra plants are cheap enough, the answer is yes.”
It’s a contradiction that policymakers are currently struggling to resolve. But fossil fuel back-up plants are probably necessary in the short term in order to give EU countries the confidence to bring in higher shares of renewable electricity, says Michael Pollitt.

Michael Pollitt is Joint Academic Director at the Centre on Regulation in Europe (CERRE), an independent think tank based in Brussels that specialises in the energy, mobility and digital sectors. He is Professor of Business Economics at the Judge Business School, University of Cambridge, and Associate Director of the Energy Policy Research Group (EPRG).

INTERVIEW HIGHLIGHTS:
- Capacity schemes give EU countries confidence in fossil fuels availability when renewables aren’t there
- However, they often ignore the

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EU dimension and may support more capacity than needed
• Need for back-up fossil fuel will decrease as storage and other flexibility solutions become available
• Ideally, moving towards an EU-wide standardisation of capacity markets would make sense but it takes time
• In the longer run, there is a case to delegate responsibility to an independent transnational system operator (ISO), like in the United States

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Why does the European Commission want to reform capacity markets? How does that fit with the EU’s broader objectives in the energy transition?

I think the Commission has realised that capacity markets are going to happen whether it likes it or not. And it decided it was preferable to get ahead of the issue rather than let capacity markets pop up all over Europe with different designs.

Can member states just put up capacity mechanisms like this?

Well they have been doing that, haven’t they? And they’re difficult to stop because capacity markets can always be portrayed as energy security measures. They are fundamentally aimed at addressing national concerns about lack of capacity but that often ignores the European supply and demand dimension.

For instance, Germany might be concerned about the closure of their own capacity but the reality is they could probably retire a good part of it if they relied on interconnection with other countries.

So it can conflict with what’s happening at the European level. And in aggregate, these national mechanisms may support far more capacity than is actually needed.

What is the role played by capacity markets in reducing CO2 emissions? Do they help or do they actually increase emissions?

The argument in favour of CO2 reduction is that, by providing support for fossil fuel capacity, capacity markets allow EU countries to go towards higher percentages of renewable energy production. It gives them the confidence of having backup capacity when wind and solar are not available.

That sounds contradictory: Countries need fossil fuels in order to increase their share of renewables...

Not exactly: you need confidence in fossil fuels capacity in case renewables aren’t available. The mechanisms are about capacity, they’re not about energy. And they become more important as the share of fossil energy declines.

Over time, you would expect the utilisation of capacity by fossil fuel energy will decline as the share of renewable energy rises.

And the idea is to end the capacity schemes when renewables will have reached a level where they don’t need backup anymore. Is that right?

There is no absolute requirement that the share of renewables in electricity goes to 100%. It would be nice but it’s technically very challenging given the intermittency of renewables both within the day, across the seasons and even year-to-year. You would need enough storage capacity, combined with renewables or nuclear, to make fossil fuel free electricity possible.

This means capacity markets are here to stay, even with high shares of renewables?

With existing technologies, some fossil fuel backup seems to make a lot of economic sense. Even if you could imagine electrical energy storage becoming very cheap. Or if we had enough pumped storage hydropower.

But that doesn’t answer the question of where the energy would come from when you need it. Even if you had sufficient non-fossil fuel capacity available, you would still need fossil fuels for the foreseeable future to actually give you the energy that you need at certain times.

Capacity mechanisms are sometimes portrayed as a subsidy scheme to help otherwise unprofitable power plants running – often coal or gas-fired. Is this a fair description or a gross exaggeration?

This actually boils down to one question: what are you actually paying for in the capacity mechanism? And what exactly is the capacity product?

One feature which is up for negotiation is the contract length offered to bidders in capacity markets. And often that contract length – say four years – can look like a subsidy. Because you’re offering long-term assurance to some fossil fuel capacity on the grounds that if you don’t give them the long-term contract, they’re going to shut.

But we don’t really know whether some of these contracts are necessary or overly generous. What I’m more convinced of is that we need short-term operating reserves in the electricity system – that is true. And some shorter-run contracts would seem to be more suitable to providing that. The value of these longer-run contracts is not clear to me.

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Do capacity schemes help or hinder the attainment of EU climate goals under the Paris Agreement?

Capacity mechanisms have arisen both in Europe and the United States because politicians get very worried and expect excess capacity to meet peak demand when renewables aren’t available. And that’s a genuine political worry. They seem less keen to rely on high short-term energy prices, short-term operating reserves or short-run ancillary markets (for frequency control, voltage support etc.)

In that sense, capacity markets have gone along with commitments to reduce fossil fuel energy shares. So this may be the price that we have to pay. But maybe there are better ways to do that.

How can the ongoing reform of capacity markets help reaching the goals of the Paris Agreement? Can it prevent unnecessary fossil fuels from being kept artificially alive?

One would expect that the job of the Commission is to keep an eye on total capacity across the Union. Because one of the key aspects of the single market is to economise on capacity and encourage trading.

One of the dangers of national capacity mechanisms is that they keep lots of capacity on the system which could and should be rationalised at the European level. And that could represent a distortion of trade between different countries.

If you keep old dirty plants on the system via a national capacity mechanism, and allow them to continue trading – that’s distorting cross-border flows of electricity. Take an old coal power plant in Poland that the Polish capacity mechanism is paying to stay on the system. That plant can produce electricity at times when the system isn’t stressed and trade it outside of Poland, even though it may not be necessary from a European point of view. And then you’re detracting from the European energy and climate targets. I think that is the danger – that you keep a lot of unnecessary plants on the system from the perspective of the single market.

Does this mean capacity markets don’t give the correct long-term price signals and should therefore be phased out from a sustainability perspective?

The requirement for back-up fossil fuel capacity will fall over time. Electricity storage will become more significant, there should be better integration of the single market, better access to – say – Norwegian hydro, or more flexible demand, which will help decrease the need for capacity. And in the longer term, maybe there could be other options in the form of hydrogen or other long-term storage.

The problem is not capacity, the problem is energy. It’s not that we can’t build enough megawatts that are zero-carbon. The problem is where the energy comes from. If we have a cold, dry, not very windy winter across Europe, where’s our energy coming from?

The divergence of energy mix across EU countries is striking: France relies heavily on nuclear, Poland on coal, Nordic countries on renewables, etc. How can a “Europeanisation” of capacity markets be envisaged with such wide divergences?

This is where you get to the heart of the conflict between member states and the Commission. Everybody is very keen to cooperate on short run optimisation of the electricity system. But actually cooperating on longer-run rationalisation – that is really challenging.

So getting to a situation where you have a European capacity market, meaning several member states would have less capacity than their total demand – that’s a big ask. And virtually no member state is in a position to do that at the moment.

It is a question of trust in a way…

It is a question of trust and cost. Are governments willing to pay to have that extra bit of political security? As long as those extra plants are cheap enough, the answer is yes.

Can capacity mechanisms play a supporting role in the transition to a more European market for electricity? Or do they hinder this goal?

I think they do both. They are a way of reassuring politicians about the dangers of increased renewables shares. So they’re probably good for promoting higher levels of renewables and commitment to decarbonisation. But in the short run, they probably slow down the growth of energy trading between European
It’s a tough calculation to make.

Who is supposed to do this calculation? Is it ENTSO-E in its adequacy forecast? Or is it the Commission?

There is good analysis conducted by ACER on the extent of cross-border trading and the degree of integration between national markets.

Can ACER influence national decisions regarding capacity?

They are a regulatory body. They don’t have a mandate to force member states to change their national energy policy. But clearly, they can draw attention to areas where the Commission might take action.

When discussions took place in the Council, member states were reluctant to hand over more responsibilities to ACER.

Yes, absolutely. This is about subsidiarity. ACER focuses on cross-border issues, not on what happens within the member states.

Would you say that capacity mechanisms increase or reduce costs for final customers? Or is that something that needs to be looked at with each country individually?

At a simple level, they must increase costs. The question is what you get in exchange, whether they promote renewables, decarbonisation, and so on. But they almost certainly do increase costs.

The analysis that the UK government made on the capacity market in Great Britain showed that it did increase costs, i.e. that it would have been cheaper to have relied on an energy-only market in terms of total systems costs.

So are they worth taxpayer’s money or not?

It depends what the alternative is. If the alternative is that politicians don’t commit to higher level of renewables without capacity markets, then it could be a price worth paying.

Over the past two years, the European Commission has given a green light to several capacity mechanisms – including France, Belgium, Germany, Italy and Poland (see DG COMP’s website). The decision to clear the Polish scheme was criticised as an EU blessing for coal subsidies. Is that also how you would describe it?

No. Clearly, any national capacity market is always going to end up supporting whatever capacity is in place at the time. In France, it will support nuclear. And in Poland it will support coal. So it wouldn’t be fair to characterise the Polish scheme in this way.

The real issue is the extent to which national capacity markets perpetuate overcapacity in those countries and whether it should be rationalised at European level.

Looking at the Commission’s individual state aid decisions, the Commission made a distinction between strategic reserves (Belgium, Germany) and capacity markets (Italy, Poland). Was the Commission justified in making this distinction?

In theory it’s always better to support all generation capacity rather than make distinctions between things that fall in the mechanism and others that don’t.

So the mechanism should be targeting all capacity. If the long term end-game is to have a European capacity mechanism where you standardise the rules across all member states, it would be helpful to converge on one definition.

Initially, the Commission probably has to tolerate a number of national

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countries.

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Regarding governance aspects, how should the national, regional and EU level be involved in decisions regarding capacity mechanisms?

Ideally, moving towards EU-wide standardisation of capacity markets would make sense but it takes time. So you need to use existing institutions and think about how you allocate oversight responsibilities.

In Europe, we’ve encouraged electricity trading by setting up regional markets and putting regional security coordinators in place for the use of transmission infrastructure. The question is where the capacity mechanisms fit within these institutional arrangements that we’ve got. And I’m not clear that we’ve yet moved beyond national capacity schemes. So we’re still at an early stage of coordinating them.

Will the ongoing reform change this?

Now that more and more member states have got a capacity scheme in place, one could imagine that member states will move towards greater regional coordination of mechanisms. It would certainly make a lot of sense where there is a lot of interconnection between two countries. So let’s see how things develop.

But politically, if a black-out occurs, it will be national governments taking the blame...

There is an interesting precedent in the United States, where capacity markets like the PJM cover multiple states and is overseen by the independent system operator. The advantage for politicians is that it’s clearly not their responsibility anymore, it’s the responsibility of the independent system operator (ISO). Now, whether voters will see it like that in Europe remains to be seen. But there is a case to delegate this to an independent transnational system operator.

Over time, you could imagine regional ISOs emerging around Europe and being given oversight of capacity mechanisms, along their oversight of ancillary services markets more generally.

Would you say this is a likely perspective?

Well, it’s certainly possible and potentially very desirable. It’s a question of trust but also of technical competence. We’re in a situation where electricity demand in Europe is falling. Shortage of capacity is not the problem. And so it makes sense to rationalise existing capacity, make better use of interconnectors, and increase interconnection to support the increasing share of intermittent renewables.

By 2030, we will probably live in a much more interconnected European electricity system. We will become more conscious that at certain times of the day, week and year, we are more dependent on electricity exchanges between regions.

Regional SOs could be for the next round of reform?

Yes, absolutely. And as we move towards perhaps 50% renewable electricity by 2030 across Europe, you will potentially have a much more interconnected and interdependent electricity system.

And even if governments have a desire to have reserve capacity to satisfy their national market, the reality will be that there will be big power flows across the whole of Europe. So satisfying national demand won’t make sense any more since power flows won’t be respecting national borders, they will be driven by the interaction of weather and demand across Europe.
Mostly out of pragmatism, the European Commission has adopted a rather tolerant approach to “capacity mechanisms” – national schemes that remunerate back-up power plants – accepting that EU countries face different challenges in the energy transition.

How far Europe should tighten the screw as part of the ongoing revision of EU electricity market rules remains a subject of intense debate, however.

Capacity mechanisms are meant to address “a variety of problems” and market situations across Europe, acknowledged Christof Schoser, a senior EU official overseeing state aid controls in the energy sector for the European Commission’s competition directorate.

“So there needs to be sufficient flexibility built in the legislation for member states and other authorities to design capacity mechanisms,” he told a EURACTIV event last week (4 September), supported by PKEE, the Polish electricity industry association.

A multi-year sector inquiry by the Commission’s antitrust directorate, published in November 2016, recognised that “market and regulatory failures” have prevented sending the price signals necessary to address long-term supply security concerns. Capacity mechanisms can address them, by remunerating power plants that remain on standby in case of demand peak, the EU executive said.

In Poland, a scheme cleared by EU antitrust authorities in February is meant to accompany the phase out of coal, whereas a “strategic reserve” in Germany serves as emergency back-
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up during the phase out of both coal and nuclear power plants, which are gradually being taken offline.

However, the need to introduce a capacity scheme must be clearly demonstrated, the Commission argued. And the price must be determined by a competitive bidding process, open to all technologies and providers in other EU countries, it stressed.

“Capacity mechanisms need to match a problem in the market and be open to all technologies and to operators from other EU countries. They must not be backdoor subsidies for a specific technology, such as fossil fuels, or come at too high a price for electricity consumers,” said Margrethe Vestager, the EU competition commissioner, when she presented the result of the inquiry.

“Capacity mechanisms need to fit the situation of a particular member state or market”.

“For example, there is a proposal that strategic reserves should be favoured over market-wide capacity mechanisms,” Schoser pointed out, saying the Commission’s sector inquiry showed those were “two different tools” meant to address different situations.

“So we think there should not be a preference for strategic reserves,” he said, echoing criticism of Germany’s strategic reserve for coal, which Poland denounces as “double standards” because it exempts coal power stations in the reserve from market rules and environmental obligations.

This view is shared by a group of seven countries including Poland, France, the UK, Italy, Greece, Hungary and Ireland. In a joint position paper circulated last week, the group underlined that market-wide capacity mechanisms are “more appropriate where long-term adequacy concerns are identified” whereas strategic reserves “should be limited to operating in only critical situations” – in order to address short term supply issues.

FUTURE MARKET DESIGN
IN THE MAKING

Most importantly, the European Commission also argued that “many of these concerns could be removed” by implementing Europe-wide electricity market reforms which are now being discussed by EU legislators.

Solutions for future schemes, it said, include enabling demand-response technology – so-called “negawatts” – to participate in bids, and widening bidding zones to generators in neighbouring countries in order to make the most of existing power plants instead of building new ones.

But, as often when designing new rules, the devil lies in the detail.

Christof Schoser warned the EU’s new market design “should not be too prescriptive” or “too detailed”, saying amendments currently being discussed in the European Parliament and the EU Council of Ministers were “maybe” intended to “fit the situation of a particular member state or market”.

“Adequacy is a shared issue,” insisted Benedikt Ennser, an official in charge of energy and legal affairs at the Austrian Presidency of the EU, which steers the positions of the 28 member states in the Council of Ministers.

Speaking at the EURACTIV event, Ennser emphasised the Council’s proposal to introduce a national adequacy assessment in addition to the European one. A fundamental point raised by member states is how to finance investments in the long run, Ennser explained, which is why adequacy assessments are important to address the “the missing money issue” identified in the Commission’s sector inquiry.

“The outcome of a European adequacy assessment should not be the deciding factor in whether a capacity mechanism can operate,” the seven-country group said in their position paper. “Rather, it should be used to complement national and regional assessments,” they argued. Even ENTSO-E believes a European adequacy assessment should not replace national assessments, arguing those “will continue having better granularity”.

Which one should “prevail” in case of conflict is still up for discussion, however, said Florian Ermacora, a senior official from the Commission’s energy directorate who also spoke at the EURACTIV event.

Energy companies are concerned in particular about plans to subordinate capacity payments to the results of annual adequacy assessments that may change from one year to the next. This, they warn, would create a “stop-go” phenomenon that would spook investors and undermine long-term supply security objectives.

“There is no one-size-fits-all in this area,” Ennser insisted, calling for

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“flexibility” in order to meet different national circumstances.

**50% RENEWABLES BY 2030**

Ennser showed less flexibility on environmental issues, however, saying the long-term objective of EU policy was to decarbonise the electricity system entirely by 2050.

“By 2030, the objective is to have about half of the electricity coming from renewables,” the Austrian official said. “But if we go beyond that, and have a decarbonised electricity system, the question is whether the market price will be able to deliver the necessary investments.”

In that respect, some of the EU’s existing capacity schemes already fare better at filling some of the EU’s sustainability criteria. In France and Greece for instance, capacity markets were specifically designed to incentivise demand-response technology, which helped offset the unavailability of thermal, nuclear and conventional capacity.

“A properly designed capacity mechanism not aiming for overcapacity systematically leads to social welfare improvement,” argues the French transmission system operator RTE, calling the French scheme “a no-regret option” in this regard.

Others are more sceptical. Florent Marcellesi is a Spanish MEP for the Green group who is shadow rapporteur on the electricity market reform. He said the Parliament’s approach to capacity mechanisms boils down to three simple questions.

- “First, are they really necessary?” he asked. If there is no security of supply issue, then capacity mechanisms should be ruled out, Marcellesi said.
- Second, if there is a security of supply issue, then regulators should promote other ways of addressing it – including demand-side management, energy storage, and cross-border availability of existing capacity such as renewables.
- Finally, “as a last resort”, capacity mechanism can be looked at. But only as a temporary solution, subject to state aid approval, and if it is open to all technologies (except coal) in a competitive bidding process open to cross-border bidders.

“That is the position of the European Parliament, and I hope that will be the position of the Commission until the end,” Marcellesi said.
The European Commission wants to limit state aid for power plants that EU countries remunerate to remain on stand-by in case of demand peak. As negotiations on the EU’s new electricity market enter the home straight, EURACTIV lists the main issues to watch out for in the debate.

The European Commission has made no secret of the fact that it would prefer to see an “energy only” market-based electricity system. In the Commission’s view, capacity mechanisms are, at best, a necessary evil during the EU’s transition to a cleaner energy system.

The EU executive’s competition directorate recently approved a raft of national capacity schemes, after a thorough probe into their legality under the bloc’s state aid rules.

But the fate of such national programmes, which remunerate generators for keeping conventional power plants on line, now hangs in the balance, as lawmakers lock horns over a proposed new Electricity Regulation and Directive.

If it gets its way, the EU executive would severely limit the opportunities for governments to resort to such schemes, while some existing capacity mechanisms would be forced to adapt or close.

Here’s a breakdown of the main issues in the debate.

CO2 CONSTRAINT: THE 550G/KWH QUESTION

This is probably the most visible and hotly contested issue. In its proposal for a Directive on wholesale electricity market design, the Commission has sought to deal with the concerns over shoring up the finances of coal-fired plants.

Although the proposed CO2

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emissions limit of 550g per kilowatt hour met stiff resistance from several countries – led by Poland – it has been retained in the amendment proposals adopted by both the European Parliament and the EU Council.

However, the devil is, as always, in the detail. The widely different effects of small print proposed by the two legislative bodies could dramatically alter the impact of the new wholesale market rule book on both existing and planned capacity mechanisms.

Parliament wants a different limit for schemes designated as ‘strategic reserves’ – a system that Germany, for example, is using to keep some coal plants available for emergency use amid a gradual process of decommissioning.

In such cases, the emissions standard would be 200kg of CO2 per year for each kW of generation capacity made available, effectively limiting the time such plants could run. Meanwhile, the Council says inclusion in capacity schemes – of any type – should be limited to plants “emitting more than 550 gr CO2/kWh of energy or more than 700 kg CO2 on average per year per installed kW”.

The parliament’s proposal would limit the time that typical lignite-fired power stations, the heaviest emitters of greenhouse gases, could run as part of a strategic reserve, to around 200 hours a year. Under the corresponding Council proposal, that figure would rise to 700 hours, or roughly a month of operation, for power stations in any type of capacity mechanism.

One idea gaining traction is to allow all forms of electricity generation to participate in capacity mechanisms, including coal-fired plants. But instead of limiting the number of hours they can run, regulators are now contemplating limits on the total amount of CO2 they can emit in a given year.

At the end of the day, “what matters is the number of tonnes of CO2 emitted,” said Virginie Schwarz, the energy director at the French ecology ministry who addressed a webinar hosted by the Make Power Clean campaign, a business coalition.

**LEGAL CERTAINTY, EXEMPTIONS AND TIMING**

The European Commission proposes that the CO2 emissions limits should apply immediately to new power plants, and from 2025 in the case of existing generation facilities.

However, this is likely to be softened with temporary exemptions and a phase-in period. Where to draw the line is going to be tough as lawmakers comb hundreds of pages of sometimes highly technical jargon.

One example is a paragraph that national governments have introduced in their ‘general approach’ to the market design proposal, stipulating that new EU laws should be “without prejudice to commitments or contracts” concluded before entry into force of the EU’s new regulation.

This would mean the numerous state aid schemes already in place – in Poland, Germany and elsewhere – would not have to comply with the proposed emissions limits and other rules, according to Roland Joebstl, an activist at the European Environmental Bureau (EEB). “This is huge – it’s not even a loophole, it’s more like a tunnel making most of the provisions next to useless,” he said.

In fact, what happens to existing contracts and EU state aid decisions is still under discussion. Poland is pushing hard to obtain “grandfathering” rights for EU state aid decisions that have already been made, saying it is a matter of “legal certainty” for companies which have already passed contracts under the Polish scheme.

Polish energy firms have asked a ten-year “derogations for existing installations” in order to give sufficient time for Poland to adjust its energy mix.

The Council of European Energy Regulators (CEER) has echoed national concerns regarding the status of existing contracts. In a white paper last year, it warned that, while “commendable” in principle, the Commission proposal “does not provide a clear framework to ensure compliance of existing mechanisms with the future regulatory framework.”

**SOVEREIGNTY: WHO DECIDES?**

Capacity mechanisms are essentially national interventions that go against the grain of EU free market rules. They are only permitted under EU state aid guidelines in cases of demonstrable need – in short, when there is a risk of the light going out.

But who should decide on the necessity of a capacity scheme in a given member state is a matter of fierce debate. At its very basis, the decision is informed by an “adequacy assessment” to evaluate whether there is enough supply to meet demand at all times, including during peak hours.

The Commission wants this done under the auspices of the transmission systems operator body ENTSO-E, with oversight from the European energy regulator ACER (itself at the centre of a fractious debate over increased powers and national sovereignty).

State governments see it differently, and insist on a national adequacy assessment to take place alongside the European one.

Which one should prevail in case of conflict is still up for discussion, however.

In the Council, reservations were clearly voiced by seven EU countries – France, Italy, Poland, Hungary, Greece, Ireland and UK. In a position paper, the group argued the outcome of a European adequacy assessment should not be the deciding factor in whether a capacity mechanism can operate, as governments have a “fundamental responsibility” to ensure security of

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supply.

“As such it should ultimately be for them to determine whether it is necessary to introduce a capacity mechanism within their own market, as well as to decide on the most appropriate and proportionate form of mechanism to address the adequacy concern, all subject to state aid approval,” they wrote.

ENTSO-E itself actually believes the European assessment should not replace national ones, arguing those “will continue having better granularity”.

Green lawmakers, for their part, have misgivings about leaving the decision in the hands of national governments. “The adequacy assessments are crucial, as the conclusion will decide the deployment of a capacity mechanism in a given country,” said Florent Marcellesi, the Greens/EFA group’s lead negotiator on the market reform.

“The problem with doing this at the national level is there is a risk of having very little transparency,” he argued. “The assessment could easily be manipulated to allow for a capacity mechanism,” Marcellesi warned.

Adequacy assessments matter because they will guide decisions on how to finance investments in the long run and address the “the missing money issue” identified in the Commission’s sector inquiry. Energy companies fear a “‘stop-go’ phenomenon” that would spook investors and undermine long-term supply security objectives.

Regional assessments have been suggested as a potential solution. But although important and “worth looking forward to” they are currently not sufficiently reliable for governments to make a decision, said Virginie Schwarz, director for energy at the French ecology ministry.

At the end of the day, the methodology used to calculate adequacy might actually be more relevant than whether assessments are made at EU, regional or national level, she said.

REACHING ACROSS BORDERS

A related question is whether cross-border interconnections should be taken into account when deciding whether an EU member state can set up a national capacity mechanism.

“Explicit participation of cross-border capacities can be an efficient way to ensure the desired level of security of supply at the minimum cost for consumers,” the Council of European Energy Regulators said in its white paper.

This would mean member states taking into account all possibilities for importing electricity when national generators cannot cover demand peaks domestically. If a neighbouring country has an excess of generation capacity – as several EU countries do – a member state would have to take into account the potential for imports via high voltage power lines before they could resort to setting up national capacity mechanisms or strategic reserves.

The electricity industry association Eurelectric argues that existing market-based capacity mechanisms can themselves act as a tool for adequacy assessments by explicitly putting a value on generation capacity.

“For instance, if enough capacity is economically viable in the system and able to ensure the adequacy target, the capacity price will tend towards lower levels,” the industry group said.

TIME-LIMITS: A SUNSET CLAUSE IN THE TRANSITION?

National governments claim capacity mechanisms provide vital back-up power in the transition to higher shares of intermittent renewable electricity. “It gives them the confidence of having backup capacity when wind and solar are not available,” according to Michael Pollitt, a Professor at Cambridge University who is leading a research project on the EU electricity market design for the Centre on Regulation in Europe (CERRE), a think tank.

In that sense, capacity mechanisms “may be the price to pay” for renewables, Pollitt argues, saying they will be phased out eventually, when the coal phase-out is completed and the share of renewable electricity has risen.

The European Commission is wary of limiting the transition phase, however, and imposed a number of constraints, such as time limits. Critics argue long-term contracts can create a lock-in effect that keeps polluting plants in the system longer than necessary.

But supporters claim long-term certainty is precisely what investors need to address the supply security concerns that capacity markets were aimed to address in the first place.

Some argue they could even become more of less permanent, saying well-designed capacity markets can stimulate clean energy, cross-border interconnection, and “flexibility” services. In France and Greece for instance, capacity markets were specifically designed to incentivise demand-response technology, which helped offset the unavailability of thermal, nuclear and conventional capacity.

“Regardless of whether there are market failures in energy markets, introducing a capacity mechanism is a no-regret option,” argues RTE, the French transmission system operator. “A properly designed capacity mechanism not aiming for overcapacity systematically leads to social welfare improvement,” it argues.
Capacity mechanisms are crucial to secure the finances of power plants that ensure France’s security of electricity supply. They are also essential to attract investments in new necessary capacity by providing visibility to the market thanks to a long-term price signal, writes Virginie Schwarz.

Virginie Schwarz is Director for Energy at the French Ministry of Ecology, Sustainable Development and Energy (MEDE).

During the 2000s and in the early 2010s, France has seen a significant increase in its winter peak consumption, with a rate superior to the energy demand increase. This led to a historic peak on February 8th 2012, with a total consumption of 102.1 GW.

It is in this context almost 8 years ago, when strong tensions were predicted in the supply-demand balance by 2015, that France made the decision to take up capacity mechanisms, and adopted the NOME law of December 7th 2010. In doing so, security of supply was ensured by obliging energy suppliers to buy capacity guarantees at the level of the total consumption of their client.
As shown by the plurality of such mechanisms implemented across EU countries: the sector inquiry led by the European Commission shows no less than 35 capacity mechanisms listed in the 11 member states examined! The diversity in their form (centralised mechanisms, decentralised obligations, strategic reserves, etc.), linked particularly to the specificities of each member state, is at the heart of the ongoing European debate regarding the adoption of the Clean Energy Package.

In this variety of existing capacity mechanisms, the French one has several advantages to offer: it relies on the market to set the price of capacity guarantees in a decentralised way, and to allow each supplier to cover at the best price the level of capacity obligation resulting from their clients’ consumption. It is technologically neutral, paying each technology according to the amount of its contribution to supply security, while providing for specific rules not to penalise renewable sources, whose production is variable and unpredictable. It provides rules for participation of demand response adapted to the sector’s features. It allows suppliers to reduce the amount of their supply obligations, encouraging reductions in consumption, in particular through price signals.

These advantages do not mean in any way that the capacity mechanism cannot evolve or be improved to face the challenges of constructing a common market for electricity and the ongoing energy transition.

France is working for its capacity mechanism to be better integrated in the European market by opening up to cross-border capacities. As we have committed, these changes are being developed for implementation planned by the end of 2018. This is crucial if we want to co-ordinate the various national initiatives and preserve the integration of the internal market in the sector. Opening all the capacity mechanisms must be the rule, regardless of their form.

France is also committed to addressing European Commission concerns to implement long-term contracts to secure a capacity price for a 7-year period for new capacities. This will serve to reinforce long-term signals in order to drive investments in new capacities.

Finally, using any kind of capacity mechanisms should not be a barrier to the decarbonisation of the European energy mix, by artificially extending the use of highly-emitting thermal power plants. Their implementation should be complemented by the adoption of high environmental standards, consistent with Europe’s climate ambitions.

In the ongoing negotiations for the Clean Energy Package, France holds a common position, along with other European partners, related to the new regulatory framework that must be implemented to ensure the security of electricity supply at European level: this framework should allow member-states to take necessary measures in terms of supply security.

Indeed, member states will be held responsible by their citizens in the event of a crisis. It is essential to ensure sufficient stability in the regulatory framework, to reduce the costs of uncertainty and thus of security of supply for consumers. The new framework should also consider the variety of capacity mechanisms, without favouring one over the other.

It is also necessary to be demanding so that these mechanisms do not lead to artificially keeping unneeded thermal capacities. We need to introduce environment performance criteria that can prevail, not only for new power stations, but also for existing ones and all types of mechanisms, regardless of their form and the moment when they have been (or will be) approved by the European Commission.