1 August 2018

State aid: Commission approves German support scheme for electricity self-suppliers using efficient cogeneration

The European Commission has endorsed under EU State aid rules German plans to reduce renewable energy surcharges for electricity users producing their own electricity using highly efficient cogeneration plants. This will promote energy-efficient cogeneration without unduly distorting competition.

Today's Commission decision follows an agreement in principle reached on 7 May 2018 between Commissioner for Competition, Margrethe Vestager, and the German Minister for Economic Affairs and Energy, Peter Altmaier.

The German Renewable Energy Act ("Erneuerbare Energien Gesetz" - EEG) provides support for the production of renewable electricity. This support is financed through a surcharge, the 'EEG-surcharge', imposed since August 2014 on all electricity users, including users producing their own electricity (self-suppliers). Germany grants reductions to users generating their own electricity by using cogeneration, i.e. combined heat and power (CHP).

The Commission has assessed this support measure under EU State aid rules, in particular the 2014 Guidelines on State aid for environmental protection and energy. These rules allow support to cogeneration installations on condition that the support is necessary to trigger the investment and does not lead to overcompensation.

The German support scheme takes account of several criteria, which influence the self-supplier's profitability: the electro-intensity of the sector in which they are active (in line with the Guidelines), the installed electrical capacity and the number of running hours of the installation. Based on these criteria, the scheme defines several categories of installations and grants an appropriate level of reduction in EEG surcharge.

For installations that entered into operation between August 2014 and December 2017, the Commission in 2014 approved an adjustment plan notified by Germany, ensuring an annual increase of the EEG surcharge until 2017. Under the measure approved today a transitional regime will apply for an additional year 2018, before the same surcharge mechanism applies as for all other installations, in line with the Guidelines.

On this basis, the Commission concluded that the German support scheme is designed to prevent overcompensation of self-suppliers using highly efficient cogeneration and is in line with EU State aid rules, while any distortion of competition caused by the public support is minimised.

European Commission
http://www.europa.eu

2 August 2018

Enel Green Power reaches financial close for five wind projects

Enel Green Power RSA has signed project financing agreements of up to €950 million ($1 billion), with senior lenders Nedbank and Absa for the development of wind projects in South Africa. The facility is inclusive of up to 80% of the overall investment of around €1.2 billion ($1.3 billion) on a portfolio of five new wind projects, totalling roughly 700MW of capacity.

The five projects, namely Nxuba, Oyster Bay, Garob, Karusa and Soetwater, have a capacity of around 140MW each.

Following the signing of the agreements, construction of the first project, Nxuba, is expected to start by the end of 2018. Read more: Enel funnels wind energy to Facebook and Adobe in the US

Antonio Cammisecra, head of Enel's Global Renewable Energies Division Enel Green Power, commented: "We have reached an important milestone in South Africa by achieving financial close on five major wind projects, which confirm our continuing commitment to the country's renewables sector, within a context of sustainable development.

"Enel Green Power will be supporting these processes by generating its emission-free energy in partnership with local shareholders and in cooperation with the local communities, according to our long-term vision of shared value creation."

The company is contributing around €230 million ($267 million) in equity in the construction of the five wind farms.

The Garob, Karusa and Soetwater projects will be constructed in the Northern Cape province, while the Oyster Bay and the Nxuba wind farms will be built in the Eastern Cape province.

The five wind farms were all awarded in round 4 of the South African government's Renewable Energy Independent Power Producer Procurement Programme. Each project is minority-owned by a local partner.

Following the start of construction of Nxuba, construction of Oyster Bay and Garob is expected to start by the first half of 2019 and construction of Soetwater as well as Karusa is expected to start in the second half of the same year.

Nxuba is expected to be operational in the second half of 2020, Oyster Bay in the first half of 2021, while Garob, Soetwater and Karusa in the second half of 2021.

By 2021, all five new wind farms are due to be up-and-running, bringing Enel Green Power's total installed capacity in the country to more than 1.2GW.

Once operational, the five projects are expected to produce around 2.6TWh each year, saving the annual emission of roughly 2.7 million tonnes of CO2 into the atmosphere.

ESI Africa
http://www.esi-africa.com

2 August 2018

Recent heat wave provides stress test for US renewables integration

The increasingly renewables-reliant grid passed a major stress test last month when the heat wave that settled over parts of the country sent grid operators scrambling for electricity supplies and customer conservation. On the whole, there were few major interruptions.

The California ISO issued multiple calls for conservation last week, receiving strong responses that helped to keep the grid stable. But that followed an outage earlier in July that cut power to over 80,000 customers around Los Angeles.

In the Northwest, temperatures have recently hovered in the 90s, but the system performed well despite some resources offline. Talen Energy's Colstrip coal generating facility in Montana shut down a month ago but it generated relatively little news because it resulted in no disruptions.

Utility Dive
http://www.utilitydive.com

3 August 2018

We've been talking about a national grid for years. It might be time to do it.

A massive new study confirms a national energy grid would pay for itself.

The US does not have a national energy grid.

Instead, functionally speaking, it has three grids: the Eastern Interconnection, ERCOT (a Texas grid, basically), and the Western Interconnection. Though there are a few small ties between them, very little energy is exchanged. They mostly operate in isolation.

This doesn't make sense. If there is one thing almost every climate or clean energy analyst agrees on, it's that, when it comes to grids, bigger is better. Sharing energy over a wider geographic area improves efficiency, smooths out peaks and troughs in demand, reduces the use of duplicative backup resources, allows for the integration of more renewable energy, and reduces power prices.

Virtually every scenario that has the US hitting ambitious decarbonization goals involves a massive buildout of transmission to eventually create a national grid.

The virtues of grid expansion apply on every level. Even within the three big grids, coordination and interconnection could certainly be improved. (California is currently deciding whether to link up with a larger Western energy market, in part due to the lure of savings from operating a bigger grid.)

But those virtues especially apply at the national level. If there was any doubt about that, it has been put to rest by the release of a massive new study from the National Renewable Energy Laboratory (NREL).

The Interconnections Seam Study ("Seams") was conducted in partnership with three other national labs, Iowa State University, three regional grid operators (the Southwest Power Pool, Midcontinent Independent System Operator, and Western Area Power Administration), and a technical committee with dozens of utilities and energy companies. Preliminary results were released earlier this month.

It examined the costs and benefits of linking up America's three big grids into a single, functional national grid.

A national grid has been discussed for years, but it might finally be time

Of course, a national grid is an obviously good idea, which is why people have been talking about doing it for decades. Seams cites national-grid studies going all the way back to 1923. Here's a Federal Power Commission study from 1967 (not long after the November 1965 blackout) that recommends greater coordination of bulk power resources over a larger area. Here's 2002 Department of Energy study "to examine the benefits of establishing a national electricity transmission grid and to identify transmission bottlenecks and measures to address them."

So why believe it might actually happen this time? What's changed?

Well, the grid has gotten more vulnerable to weather, which itself is getting weirder, with more heat waves, and more extreme events.

New technologies have commercialized — both solar and wind power, which increase the grid's need for flexibility and size, and high-voltage transmission lines, which are capable of providing flexibility by carrying power over large distances.

Alongside that, computing power has advanced in leaps and bounds, seeing rapid recent advances in artificial intelligence and parallel computing. "Exa-scale computing" means that "100,000 node transmission models can be simulated for an entire year, in a single day," the researchers wrote. Put more simply, researchers are now able to model transmission proposals with a level of detail and granularity that was unthinkable even a few years ago.

Plus, the imperative to decarbonize the electricity system has made the challenge of accommodating more renewable energy more pressing. So regional grid operators and utilities are talking more about the need to coordinate. There are many available partners in the effort, as Seams shows.

In short, it might finally be time to finally do this thing. (Hope springs eternal!)

NREL modeled 3 transmission expansion plans; all were "very attractive"

First, a quick refresher on transmission lines: Alternating current (AC) lines are generally used for shorter distances. High-voltage direct-current (HVDC) lines are more expensive, but carry more power with less loss, so they are typically used for long-distance lines.

So NREL ran modeling on four different plans for a national transmission system and assessed their costs and benefits from the period of 2023 to 2038.

The first plan, Design 1, does not stitch the interconnections together. The existing HVDC ties between the Eastern and Western Interconnections are replaced at their current capacity. However, a bunch of new AC lines are added on either side.

Important note: The study uses Design 1 as a control scenario, against which to compare the benefits of the other scenarios. But keep in mind, Design 1 is pretty ambitious on its own — it's a lot of new AC lines! The benefits of the other three plans, discussed below, aren't so much their benefits relative to doing nothing, but their benefits relative to an AC-only plan.

The three other scenarios are:

•Design 2a: increases the capacity of current HVDC ties across the seam, plus adds a bunch of AC lines.

•Design 2b: adds new HVDC lines across the seam, and adds a few AC lines.

•Design 3: builds a full-on national HVDC grid, along with some AC.

There's a great deal of discussion in the study of assumptions and modeling methodology, along with a great many caveats. My favorite is, "results are known to be imperfect, yet informative." (We should all accomplish as much!)

I will spare you most of those details. The one thing to know is that all four scenarios were run under two separate policy environments, one consisting of current policy, and one with a rising carbon tax that reaches $40 a ton by 2038.

All the scenarios, under both policy environments, meet demand and reliability requirements. They all make energy trading more efficient and smooth out fluctuations in supply and demand. They all reduce the cost of electricity, enough to more than pay for their costs. All designs were deemed “very attractive” by the research team.

In other words, almost any step in the direction of a national grid pays for itself.

One striking result: The cost savings from a national grid rise substantially under a carbon price.

Under current policy, $1 of investment in scenarios 2a, 2b, or 3 yields $1.26, $1.13, and $1.14 of benefits, respectively, relative to the benefits of an AC-only system.

But under carbon policy, the same $1 yields $2.48, $3.30, and $2.52 respectively. The benefits of stitching the country’s grids together rise along with the price on carbon.

And it should be noted that these are conservative estimates, calculating the “net present value” of benefits for only 15 years. As the researchers note, however, investment in a national grid will pay dividends for much longer than that. These are investments in infrastructure meant to last 50 years, 80 years, or even longer.

If we calculated the ratio of costs to total benefits — benefits over the full life span of these transmission assets — then the investment would look so doggone obvious it would seem criminal not to do it.

But we have difficulty looking that far ahead. We’re not very good ancestors.

Maybe the US will have national carbon policy in the next 15 years or maybe it won’t, but it will have something in the next 50. And whether it ever has any or not, a national grid is a no-brainer.

Seams captures neither the full benefits nor the full difficulty of transmission expansion

There are other benefits to a national grid that NREL did not attempt to capture in the Seams research. A national grid could make electricity markets broader and more competitive. It could bring resilience and reliability benefits that are difficult to quantify in advance. And it could spur economic development and jobs.

Many previous studies of grid interconnection and expansion, some of which cover those other benefits, also find a large net present value in grid investments, and many organizations have endorsed the idea:

•Here’s the Southwest Power Pool, a regional grid operator, on “The Benefits of a ‘Transmission Superhighway’.” Here’s some detailed modeling from MISO. And here’s a report from the research consultancy Brattle Group on how to improve ERCOT transmission planning.

•NREL itself has explored the benefits of transmission in this study, and this one. See also the Energy Information Administration (EIA), the Department of Energy, and America’s Power Plan.

But if NREL doesn’t capture the full benefits of a national grid, it also doesn’t begin to capture the difficulties and roadblocks, which are social and political rather than technological — and make the technological challenges look easy. One of the caveats in the study made me chuckle: “All cases imagine a future where it is feasible to build multi-region transmission.”

It is quite difficult to build multiregion transmission. Allocating costs is devilishly difficult and done differently in different states and regions. Zones of transmission planning are balkanized and inefficiently small. Local and state interests opposed to transmission lines are often more motivated to organize than supporters are.

A national grid is, in many ways, a perfect representative of humanity's difficulties in the age of climate change. We know perfectly well, over the long term, in the big picture, that we need one. It makes economic and environmental sense. But we have enormous trouble organizing around long-term, big-picture goals, at least in a way that overcomes the many jurisdictional complications and parochial interests that impede them.

It's difficult to think over the horizon, to organize for the future — to be good ancestors. Doing so means pushing against elements of human nature, the greed of wealthy incumbents, and the sheer inertia of anachronistic mechanisms of governance.

But it's difficult to see how the barriers to a national grid are going to be overcome without a bottom-up, organized political push. Modeling and analysis, however impressively done, will never be enough.

Vox
http://www.vox.com

5 August 2018

Munich Re to back away from coal-related business

Munich Re, the world's biggest reinsurer, will stop investing in bonds and shares of companies that generate more than 30 percent of their sales with coal-related business, its chief executive said, caving to pressure from investors.

"In the individual risk business, where we can see the risks exactly, we will in future in principle no longer insure new coal-fired power plants or mines in industrial countries," Joachim Wenning added in a commentary to be published in German daily Frankfurter Allgemeine Zeitung on Monday.

Policymakers are pushing companies to do more to help meet a target, agreed in Paris in 2015, to limit global warming to below 2 degrees Celsius. Investors are increasingly using their financial muscle to reward those at the forefront of that transition.

Swiss Re, world number two by share value, said in July it would not reinsure any company for which thermal coal represents more than 30 percent of its business, following French peer Scor.

Despite being a vocal supporter of the Paris deal, Munich Re had said as recently as last month that it did not plan to copy Swiss Re in limiting its underwriting of coal companies.

Reuters
http://af.reuters.com

6 August 2018

Robot trial takes SSEN innovation into the fast lane with Williams

Scottish and Southern Electricity Networks (SSEN) has entered into a partnership with Williams Advanced Engineering to design a functional specification for the first live overhead line inspection robot to be used on SSEN's high voltage electricity networks.

Funded by Ofgem's Network Innovation Allowance, the LISAS (Line Inspection by Semi-Autonomous Systems) project will be the first time a highly autonomous robot will be used to inspect electricity networks in the United Kingdom.

The project aims to safely trial a robot system capable of making its own decisions without human control. It will navigate its own route as it moves from overhead line to overhead line, seamlessly navigating from steel tower to steel tower, as it captures critical asset data to inform reinforcement and maintenance requirements.

The deployment of robotics to carry out maintenance inspections on SSEN's overhead lines will enable our teams to carry out this essential work safely whilst the power remains live, helping deliver greater efficiencies and improved network reliability without the need for network outages, while keeping personnel safe.

Stewart Reid, Head of DSO and Innovation at SSEN, said:

"The use of robotics to help us inspect and maintain our network has the potential to provide enormous benefits to our customers and our people, from improvements in safety and network reliability, to reduced costs for our customers. Through Ofgem's innovation funding we have the opportunity to trial this innovative technology on our network, sharing the lessons with our peers across the sector.

"Robotics are already changing the world around us and I am very excited to see this agreement in place with Williams Advanced Engineering. Dedicated to developing the most cutting-edge engineering projects, their team will bring significant technical expertise and knowledge to the project. Our partnership with them represents the extent to which networks companies such as SSEN are embracing new innovation and are adapting to a changing role in the industry."

This innovative technology will minimise potential disruption to SSEN's customers and provide up-to-date asset and safety data, along with photographs and video footage. This data will help inform SSEN's ongoing maintenance and replacement programme, ensuring SSEN continues to provide a safe and reliable supply of electricity to its 3.8 million customers in its north of Scotland and central southern England networks.

The LISAS project calls upon the engineering expertise of Williams Advanced Engineering through a partnership to develop the initial functional specification for the robotic device. A household name, famous for four decades of success in the ultra-competitive environment of Formula One, Williams Advanced Engineering brings world class technical innovation, engineering, testing and manufacturing expertise from which SSEN and the wider energy industry can learn.

Once developed, the specification will be released through a market tender to design and build the first autonomous robot to be used on this scale in the industry. SSEN will trial the technology at various sites across its networks and will share the findings of the project with the wider energy industry, with this collaboration key to help inform new and innovative ways to manage the electricity networks of the future.

Iain Wight, Business Development Director at Williams Advanced Engineering, said:

"This is an exciting project for Williams Advanced Engineering. The capabilities that we have are applicable across industry and our team is delighted to be able to apply them to the energy sector with SSEN. As demand increases for more and more reliable power, not least to power electric vehicles where we are helping lead the way to a more sustainable future, it is essential that we take every step to secure supply and costs. Our

work with SSEN is another significant step towards delivering that for people and for future sustainable mobility."

SSE
http://www.sse.com

6 August 2018

Over 100 acres land allocated for energy storage: Andhra CM

The Indian state of Andhra Pradesh has allocated up to 150 acres (607,000 m2) of land to the development of energy storage facilities.

Andhra Pradesh Chief Minister Chandrababu Naidu said around 100-150 acres of land has been allocated to develop energy storage facilities in the state.

The announcement came at the inauguration of the world's first-ever high energy storage device developed by Bharat Energy storage technology (BEST) earlier in the day.

Speaking on the occasion, Naidu said that as part of the second phase of the power sector reforms, priority was being given for alternative energy sources and storage facilities.

"There is a huge potential for solar energy and no other country can beat India in solar energy. A 1000 MW solar energy plant has been set up in Kurnool district. In addition, solar pump sets were distributed to farmers in Vizianagaram district," he added.

Furthermore, the Chief Minister said Amaravati city would be developed as a green city with 50 per cent green cover and renewable energy, keeping in mind the demand for energy storage in agriculture, industries, transport, telecom and disaster management sectors.

"Smart power grid would be developed in Andhra Pradesh. The state government is giving priority for solar and wind energy in Kadapa, Anantapur and Kurnool," he noted.

On the sidelines of the launch, officials from IIT Roorkee entered into a Memorandum of Agreement with Bharat Energy Storage Technology (BEST) Pvt Ltd on renewable and sustainable energy technologies for research and industrial collaboration.

Australia's Griffith University Australia also entered in a MoU with BEST in the energy storage sector.

Business Standard
http://www.business-standard.com