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EDF's Taishan-1 nuclear reactor enters commercial operation

The 1,660 MWe Taishan-1 EPR nuclear reactor in Guangdong (China) has entered commercial operation after achieving all prerequisite conditions for the reactor's safe operation, including in particular the final statutory functional test of continuous operation at full power for 168 hours. It becomes the world's first EPR to come online. It will deliver up to 24 TWh/year of electricity, which corresponds to the annual electricity consumption of 5 million Chinese users.

The Taishan nuclear project is developed by the Guangdong Taishan Nuclear Power Joint Venture Company Limited, a joint venture between China General Nuclear Power Group (CGN), who holds a 51% stake, French state-run energy company EDF (30%) and the provincial Chinese electricity company Yuedian (19%). The project will feature two Areva's EPR reactors of 1,660 MWe net (1,750 MWe gross) each, namely Taishan-1 and Taishan-2. The second reactor is still under construction and is expected to be commissioned in 2019.

The EPR technology is also being deployed in Olkiluoto (Finland, one reactor expected in early 2020 instead of 2009), in Flamanville (France, one reactor expected in 2019 instead of 2012) and at Hinkley Point (United Kingdom, two reactors expected in 2027).

Enerdata

<http://www.enerdata.net>

17 December 2018

12 GW Indian solar plan shelved

Citing a recent dip in solar tariffs, the central government has withdrawn a plan to install 12 GW of PV capacity – out of total 15 GW envisaged – via the state-owned NTPC Ltd. The government had launched the state-specific bundling scheme for implementing 15 GW of grid-connected solar PV power plants under the National Solar Mission (NSM). The idea was that NTPC would install the projects over a five-year period, between 2014-15 and 2018-19, in three tranches.

Of the 3 GW already auctioned – the entire capacity of Tranche I – 2.75 GW have been commissioned, while 0.25 GW are under construction.

“Since the solar power price has fallen recently, it is not proposed to take up Tranche II (5GW) and III (7GW),” RK Singh, Minister of New & Renewable Energy recently informed the Lower House of the Parliament.

When the ambitious 15 GW plan was initially announced in April 2015, solar tariffs were high, and the government planned to bundle expensive solar power with cheaper thermal power, to make it financially viable.

However, with tariffs touching a historic low of Rs 2.44 (US\$0.034) per unit last year, and remaining under Rs 3.00 (\$0.042) in most auctions, the bundling exercise is no longer necessary.

“A cumulative renewable energy capacity of 73.35 GW has been installed in the country including a total of 37.83 GW added in the past four years and the current year (up to October 2018).



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“To achieve the balance target of 101.65 GW, an investment of about Rs 5.12 lakh crore (including Rs 3.78 lakh crore for solar energy) has been estimated as per average current capital cost,” the minister added.

India has set a target for installing 175 GW of renewable energy capacity by the year 2022, comprising 100 GW from solar, 60 GW from wind, 10 GW from biomass and 5 GW from small hydropower.

To achieve this by 2022, the government said it will tender a further 60 GW of solar and 20 GW of wind capacity in 2018-19 and 2019-20.

PV Magazine
<http://www.pv-magazine.com>

18 December 2018

NERC Releases ‘Stress Test’ Analysis of Gen Retirements

NERC on Tuesday warned that faster-than-expected coal and nuclear plant retirements could jeopardize reliability if grid operators are not prepared.

“If these retirements happen faster than the system can respond with replacement generation, including any necessary transmission facilities or replacement fuel infrastructure, significant reliability problems could occur,” NERC said in a special reliability assessment report. “Therefore, resource planners at the state and provincial level, as well as wholesale electricity market operators, should use their full suite of tools to manage the pace of retirements and ensure replacement infrastructure can be developed and placed in service.”

Calling it a “stress test” of the bulk power system, the organization used data from the U.S. Energy Information Administration to identify generators set to retire through 2025 in 10 areas where coal-fired and nuclear generation make up a significant portion of the resource mix. It then analyzed the impacts of those generators retiring earlier, in 2022.

The analysis found four areas — SPP, SERC-East, WECC-RMRG and WECC-SRSG — in which currently planned generation resources would not be sufficient to make up for the accelerated retirements. NERC determined this by comparing projected planning reserve margins for 2022 under the scenario to projected peak load levels for the year. The organization used data from its 2017 Long-Term Reliability Assessment to determine projected reserve margins under currently confirmed retirements through 2022, to which it factored in the accelerated retirements. It also used the LTRA to determine the projected peak loads.

‘Unlikely’ Scenario

Both the report and John Moura, NERC director of reliability assessment and system analysis, repeatedly emphasized that the analysis was not a prediction.

“I think it’s really important that stakeholders understand that this is a stress-case scenario,” Moura said in a conference call with reporters Tuesday morning. “We’re not necessarily making any recommendations or calls for any additional financial support beyond that which market operators think are required. We completely acknowledge that the scenario as tested is unlikely.”

He noted the organization also analyzes the impacts of geomagnetic disturbances and simultaneous, highly coordinated physical and cyberattacks on the grid. “These are



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things that we don't believe will happen, but we think it's instructive, when we break a system, to understand what are the potential mitigations and see how to get it working."

"NERC's stress-test scenario is not a prediction of future generation retirements nor does it evaluate how states, provinces or market operators are managing this transition," the report says. "Instead, the scenario constitutes an extreme stress-test to allow for the analysis and understanding of potential future reliability risks that could arise from an unmanaged or poorly managed transition."

Moura also noted that the report doesn't criticize capacity markets or out-of-market subsidies. "We're simply saying that these tools need to be monitored and tested in planning," he said.

Fears of Politicization

NERC was criticized by some stakeholders in early November, when it briefed its Members Representatives Committee on the report. They feared it would be politicized, and that the press and public would misunderstand it as a warning of things to come. (See LaFleur, Stakeholders Anxious over NERC Retirement Study.)

"Policymakers and regulators should not interpret this study as justifying interventions to artificially retain unprofitable power plants, as these actions deter the economic transition in the power generation fleet, undermine innovation and raise costs to America's businesses and families," Devin Hartman, CEO of the Electricity Consumers Resource Council, said in a statement Tuesday.

"As NERC itself states, the report looks at unlikely scenarios that go far beyond either announced or projected power plant retirements to determine at what point there might be some risk for reliability," said Jeff Dennis, general counsel for regulatory affairs at Advanced Energy Economy. "The report does not provide evidence of any imminent threat to the reliability of the bulk power system. Nor does it suggest that competitive wholesale energy markets aren't up to the job of ensuring reliability as the resource mix changes."

The report "relies on too many extremes to be enlightening about real-world grid reliability," the Natural Gas Supply Association said.

Tuesday's report did not include a detailed analysis of natural gas infrastructure; however, NERC said "additional midstream natural gas infrastructure could be required" to respond to early retirements.

In a November 2017 assessment, NERC had recommended industry consider the loss of key natural gas infrastructure in their planning studies under NERC reliability standard TPL-001-4. (See NERC: Natural Gas Dependence Alters Reliability Planning.)

Although NERC sees risks to increasing dependence on renewables and gas-fired generation, Tuesday's report said that "successfully managed, the changing resource mix can provide ... potential benefits to reliability and security of the BPS. Less reliance on large, centralized generation stations and greater use of dispersed networks comprised of smaller diversified generation resources can provide operating and planning flexibility. Additionally, some fuel assurance risks diminish with the changing resource mix. The effects of adverse weather on coal stockpiles or fossil fuel resupply infrastructure may be reduced when natural gas pipelines supply a greater proportion of the generating fleet. Attaining reliability enhancements associated with the changing resource mix is possible when the different challenges to fuel assurance and [essential reliability services] are addressed."



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Recommendations

NERC included several suggestions to stakeholders, regulators and policymakers in the report, among them a recommendation to incorporate fuel assurance analyses in generator retirement assessments. This would mean factoring in fuel supply infrastructure, new infrastructure requirements for replacement resources, and firm vs. non-firm fuel delivery contracts.

It also recommended that regulators and policymakers consider ways to speed up approvals of infrastructure. “When a generator’s planned retirement is delayed to allow for completion of transmission system upgrades, expedited regulatory proceedings can help minimize the delay,” the report says. “Where more natural gas generation is needed, more natural gas pipeline capacity will likely also be needed.”

But Moura also noted that the report doesn’t make any specific recommendations for the four areas identified by the report as being at risk under the scenario. “We have a lot of confidence in how these areas plan their systems,” he said.

RTO Insider

<http://www.rtoinsider.com>

18 December 2018

MONITA Project: Nexans Delivers Montenegro – Italy Link

Nexans has completed the installation and testing of its 445 km submarine and land mass-impregnated HVDC interconnector linking the Cepagatti converter station in Pescara, Italy, to the Kotor converter station near Budva in Montenegro. In 2012, Nexans was awarded a €340-million contract by Terna, the transmission system operator of Italy’s power network, to supply one of the two 500 kV high-voltage direct current (HVDC) cables for the so-called MONITA interconnector.

The MONITA (MONtenegro – ITAly) project is the largest turnkey submarine project that Nexans has completed to date. The cable supplied by Nexans comprises 423 km of aluminium conductor subsea cable and 22 km of copper conductor onshore cable.

The submarine cable was transported and laid in three separate marine campaigns of approximately 160 km each by Nexans’ own cable-laying vessel Nexans Skagerrak. Around 130 km of the subsea cable was laid in water depths deeper than 700 m, of which 40 km of cable was installed at depths of 1,200 m. The subsea cable is mainly protected through trenching into the seabed by Nexans’ specialized Capjet trenching system. The use of HVDC submarine cable with an aluminium conductor was an essential aspect of the MONITA project due to the extreme water depths at which the cable was being installed. Aluminium is around three times lighter than copper, which allows for a safer cable installation by avoiding a very large dead weight hanging below the cable-laying vessel during installation.

The land cables were delivered by Nexans Norway from Halden, Norway to Italy and Montenegro on cable reels, spooled in lengths of approximately 800 m. The cable sections were jointed on site by Nexans Norway teams. During HVDC testing, the entire cable length, which will operate normally at 500 kV, was subjected to 700kV test voltage. The cable system including accessories were also subject to testing program which comprised, for the very first-time, earthquake testing on the terminations.

Subsea World News

<http://www.subseaworldnews.com>



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Commission welcomes political agreement on conclusion of the Clean Energy for All Europeans package

New rules for making the EU's electricity market work better have been provisionally agreed by negotiators from the Council, the European Parliament and the European Commission.

This concludes the political negotiations on the Clean Energy for All Europeans package and is a major step towards completing the Energy Union and combatting climate change, delivering on the priorities of the Juncker Commission. Negotiators were able to reach political agreement on the new Electricity Regulation and Electricity Directive. This agreement follows previous agreements on the Governance proposal, the revised Energy Efficiency Directive, the revised Renewable Energy Directive, the Energy Performance in Buildings Directive and the Regulations on Risk Preparedness and the Agency for the Cooperation of Energy Regulators (ACER).

Commissioner for Climate Action and Energy Miguel Arias Cañete said: Today's deal marks the completion of negotiations on the Clean Energy for All Europeans package, putting the EU in the lead in terms of rules to accelerate and facilitate the clean energy transition. This takes us a step closer towards delivering the Energy Union, one of the priorities President Juncker set out for this Commission at the start of the mandate. Today's agreement on the future electricity market design is a vital part of the package. The new market will be more flexible and facilitate the integration of a greater share of renewable energy. An integrated EU energy market is the most cost-effective way to ensure secure and affordable supplies to all EU citizens. The new rules will create more competition and will allow consumers to participate more actively in the market and play their part in the clean energy transition. I am particularly pleased that we agreed on a balanced approach to limit capacity mechanisms and reconcile security of supply with our climate objectives. Capacity mechanisms will not be used as a backdoor subsidy of high-polluting fossil fuels as that would go against our climate objectives."

The new electricity market design proposals, a Directive and a Regulation, aim to adapt the current market rules to new market realities. They introduce a new limit for powerplants eligible to receive subsidies as capacity mechanisms. Subsidies to generation capacity emitting 550gr CO₂/kWh or more will be phased out under the new rules. Furthermore, the consumer is put at the centre of the clean energy transition. The new rules enable the active participation of consumers whilst putting in place a strong framework for consumer protection. By allowing electricity to move freely to where it is most needed, society will increasingly benefit from cross-border trade and competition. They will drive the investments necessary to provide security of supply, whilst decarbonising the European energy system. The new market design also contributes to the EU's goal of being the world leader in energy production from renewable energy sources by allowing more flexibility to accommodate an increasing share of renewable energy in the grid. The shift to renewables and increased electrification is crucial to achieve carbon neutrality by 2050. The new electricity market design will also contribute to the creation of jobs and growth, and attract investments.

Next steps

Following this political agreement, the texts of the Directive and Regulation will be prepared in all EU languages and then have to be formally approved by the European



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Parliament and the Council. Once endorsed by both co-legislators in the coming months, the new laws will be published in the Official Journal of the Union. The Regulation will enter into force immediately and the Directive will have to be transposed into national law within 18 months.

European Commission
<http://www.europa.eu>

19 December 2018

DC passes 'most ambitious' mandate for 100% renewables by 2032

The city council of Washington, D.C. unanimously voted to approve a 100% renewable energy mandate by 2032, which would put the federal district on a faster path than any U.S. state to achieve the ambitious clean energy goal.

The "Clean Energy DC Omnibus Amendment Act of 2018" would increase fees on fossil fuel resources, set up building energy efficiency standards, establish vehicle electrification incentives and strengthen low-income bill programs. The "biggest question" going into the vote was how utility ownership of generation assets would be defined in the bill, Mike Healy, CEO of New Columbia Solar, told Utility Dive.

The bill carves out a solar mandate requiring 10% of the district's electricity come from local solar generation by 2041, while the rest of the city's power would come from purchased renewable energy credits (RECs). The District has used RECs to meet previous clean energy goals, and solar within the District currently makes up just over 1% of generation, according to Healy.

Utility Dive
<http://www.utilitydive.com>