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16 July 2018

Argentina suspends 600 MW Chihuidos hydropower project

The Argentine government has suspended plans to build the US\$2.2bn Chihuidos dam, after having reached a US\$50bn agreement with the International Monetary Fund (IMF) and having committed to reduce public works spendings to cut the fiscal deficit to 1.3% of GDP in 2019.

The 600 MW project, located near Zapala in the southern province of Neuquén, was initially proposed in 1970 but never started due to the significant investments required. In 2017, the previous government reached an agreement with German group Voith Hydro to build the project, whose costs would be contributed by German and Italian suppliers and guaranteed by the German export agency Euler Hermes and by the government of Italy. The government of Argentina was due to contribute by 15% to the total package, which is now made impossible by the IMF agreement.

Enerdata

<http://www.enerdata.net>

16 July 2018

India approaches 24GW of PV deployment, 26.5GW of solar parks approved

India hit 23,866MW of solar power deployment as of 30 June this year, according to Ministry of New and Renewable Energy (MNRE) figures.

This was spread into three segments:

Segment	Capacity (MW)
Ground-mount	21,803
Rooftop	1,219
Off-grid / Captive power	737

MNRE has simultaneously released a list of approved solar parks. The scheme had been increased from 20GW to 40GW but the timeline for their implementation was recently extended from 2019/20 to 2021/22.

Tendering focus during 2018 has been far more focused on Interstate Transmission System (ISTS)-connected solar projects, in which developers have to secure their own land, transmission connectivity and project infrastructure, unlike with solar parks.

The list of approved parks, which can be found here, has now reached 26,449MW. Much of the recent figure would have been formed out of the approval of a 5GW solar park at Dholera in Gujarat, which is more than double the size of the next biggest solar park of 2GW at Pavagada in Karnataka.

In other news, Solar Energy Corporation of India (SECI) has also postponed the second pre-bid meeting for its 5GW manufacturing tender with 10GW of solar development until further notice while it prepares certain amendments and clarifications.

PV Tech

<http://www.pv-tech.org>



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New York regulators approve higher crypto mining rates for municipal utility

The New York Public Service Commission last week approved a new rate for Massena Electric Department which will allow cryptocurrency mining operations to purchase power under an individual service agreement that is designed to protect residential customers.

Many mining operations have located in upstate New York to take advantage of the region's abundance of cheap hydropower. Similar trends have been seen in Canada, Iceland and China, where inexpensive electricity can often be combined with cooler weather.

This marks the second time New York regulators have ruled on rates for crypto operations, or "high-density load customers" as the PSC refers to them. The operations use "thousands" of times more electricity than a typical residential customer and have raised rates on some systems.

New York wants to attract new industry, but bitcoin mining doesn't tend to give a whole lot back to the community. It's basically a server farm that eats up cheap power. As more mining operations migrated to upstate New York, residential customer rates rose.

The city of Plattsburgh has about 20,000 residents, and average bills jumped \$10 in January because the city was forced to buy additional energy to compensate for crypto mining. In March, in the commission's first crypto rates ruling, the PSC allowed Plattsburgh and dozens of other municipal utilities to charge higher rates.

Now, Massena Electric will review applications for high-density customers to ensure that they will not raise rates for existing customers while the new load benefits the system, potentially through using the new load to address underutilization of some assets.

"As part of our continuing effort to balance the needs of existing customers with the need to attract new companies, we must ensure that business customers pay a fair price for the electricity that they consume," PSC Chairman John Rhodes said in a statement. "However, given the abundance of low-cost electricity in Upstate New York, there is an opportunity to serve the needs of existing customers and to encourage economic development in the region."

Mining operations will be qualified to apply with Massena if their maximum demand exceeds 300 kW, and the customer provides benefits to the utility. The utility's rates are in the lowest 10%, nationally.

"The potential exists for Massena to receive significant revenues if new cryptocurrency companies set up shop in the community," the commission said in its statement announcing the decision. "If that were to occur, the utility would be required to defer the revenues for the benefit of ratepayers."

Crypto mining operations could fly under the radar in a larger metropolitan area, but in a smaller area (Massena has more than 9,000 customers) they stand out. "These companies are using extraordinary amounts of electricity — typically thousands of times more electricity than an average residential customer would use," the PSC said.

Regulators in other countries are reaching similar decisions. In Canada, Hydro Quebec will begin charging crypto miners \$0.15/kWh — about three times the previous rate they paid, according to the Globe and Mail.



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In the commission's previous decision, regulators allowed the New York Municipal Power Agency (NYMPA), an association of 36 municipal power authorities, to charge higher prices. The new rate focuses on high-density customers that do not qualify for economic development assistance, have a maximum demand exceeding 300 kW and a load density that exceeds 250 kWh per square foot per year.

The commission's March decision allows NYMPA members to directly allocate costs associated with serving mining operations.

Utility Dive

<http://www.utilitydive.com>

16 July 2018

National Grid: the future of energy is local

National Grid has predicted a surge in local generation in its latest Future Energy Scenarios, as Tom Grimwood reports. It's once again the time of year when National Grid gazes deep into its crystal ball and tries to decipher what the future holds for Britain's rapidly changing energy system. The system operator has just published the latest issue of its annual Future Energy Scenarios report, which this year has been reframed around the issue of decentralisation.

In last year's report the four scenarios it painted were divided between those in which progress on decarbonisation is stronger or weaker, and those in which the country is more prosperous or less prosperous.

This time around the scenarios are still split according to the strength of progress towards decarbonisation. However, the other division is now between an energy system which is more centralised or less centralised. All four envision an explosion in generation capacity over the coming decades, much of it local.

The smallest increase is seen in the consumer evolution scenario, in which decarbonisation is sluggish but the energy system is highly decentralised. Capacity rises from 103GW today to 125GW in 2030 and then 178GW in 2050.

The biggest increase comes in the community renewables scenario. This depicts an energy system that is not only highly decentralised but also compatible with the UK's commitments under the Paris agreement. Generation capacity reaches 158GW by 2030, of which 48GW is distributed generation and 23GW is microgeneration. Together they make up 45 per cent of the total.

Capacity continues climbing all the way up to 268GW by 2050, with distributed generation and microgeneration accounting for 65 per cent of the total at 91GW and 82GW respectively.

The scenario with the least local generation is steady progression, one of the two in which the UK fails to fulfil its climate change commitments. Total capacity grows to 189GW by 2050 but only 38 per cent of this is local, consisting of 44GW of distributed generation and 27GW of microgeneration.

However, even in this scenario the energy system is far more decentralised than is currently the case. At the moment, Great Britain has 23GW of distributed generation and 5GW of microgeneration, representing just 27 per cent of total capacity.

Utility Week

<http://www.utilityweek.co.uk>



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17 July 2018

CGN's Yangjiang-5 nuclear reactor enters commercial operation

The Chinese state-run nuclear group China General Nuclear (CGN) has commissioned the Yangjiang-5 ACPR1000 type nuclear reactor (Guangdong, China). The 1,000 MWe pressurized water reactor (PWR) has completed all the required commissioning tests and is entering the commercial operation phase.

In total, six units will be built at the Yangjiang site. The first four units are CPR-1000s, which were commissioned in March 2015, June 2015, January 2016 and March 2017, respectively. The last unit, Yangjiang-6, is an ACPR-1000 and is expected to be fully operational by 2019.

The facility is operated and owned by Yangjiang Nuclear Power Company Limited (YJNPC), which is in turn held by CGN Power subsidiary GNIC (30%), CGN Power (29%), Guangdong Yudean Group (17%), CLP Holdings Limited (17%) and CGN Industry Investment Fund Phase I (7%).

Enerdata

<http://www.enerdata.net>

17 July 2018

AEMO releases inaugural Integrated System Plan for the National Electricity Market

The Australian Energy Market Operator (AEMO) has today released the inaugural Integrated System Plan (ISP) – a comprehensive evaluation of the likely changes that will be occurring over the next 20 years across the National Electricity Market (NEM).

As the independent market and system operator and national transmission planner, AEMO's role is to promote efficient investment in, and efficient operation and use of, electricity services for the longterm interests of consumers. The ISP builds on the work of AEMO's annual National Transmission Network Development Plan, and has been developed in response to the COAG Energy Council's decision in 2017 to adopt the recommendations made in the Independent Review into the Future Security of the National Electricity Market, specifically pertaining to the need for a strategic national plan.

"AEMO's analysis confirms that we are in the midst of transformative and unprecedented rate of change in this sector. We are witnessing disruption across almost every element of the value chain. Due to the vital importance of affordable, reliable and secure power as the engine of a strong economy, care must be taken now more than ever to manage this transformation in order to minimise costs and risks and maximise value to consumers," said AEMO Managing Director and Chief Executive Officer Audrey Zibelman.

The ISP's analysis is predicated on sound engineering and sequenced approaches to investments in the transmission system, providing an identified least cost pathway to managing the transition. The ISP applies probabilistic scenario-based analysis and system optimisation to project the reliability and security needs of the power system while simultaneously identifying the lowest cost combination of resources to meet system and consumer needs. The ISP also incorporates projected Federal emissions policy and State renewable policies.

"The reality of the NEM is that the energy sector is strengthened by an approach that allows regions to work together to take advantage of diversity and size to deliver the best outcome for consumers. The ISP demonstrates that in the future, this feature



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becomes even more critical due to both the footprint required to support renewables, and the value of diversity to support resiliency,” said Ms Zibelman.

AEMO’s analysis displays the fundamental changes occurring in the energy sector:

- Grid demand is flattening due to the growth of rooftop photovoltaic (PV) and increasing use of local storage, as well as overall increases in energy efficiency. This is true even with the anticipated electrification of the transport sector over the period.
- Over the next 20 years, a percentage of the NEM’s existing coal resources will be approaching the end of their technical lives, and will likely be retired, which highlights the importance of mitigating premature retirements as these resources currently provide essential low-cost energy and system support services required for the safe and secure operation of the power system.
- The investment profile and capabilities of various supply resources have changed and are projected to continue to change radically.
- In particular, costs of new renewable plant continue to fall, and advances and availability of storage technologies, particularly pumped hydro, flexible gas-powered generation and distributed energy resources (DER) are emerging as core components to a low cost and reliable energy future.

The ISP finds that a portfolio approach of supply resources includes both retention of existing resources and continued growth of utility-scale renewable generation, energy storage, DER, flexible thermal capacity, including gas-powered generation, and transmission development to be the most efficient approach.

AEMO looked at various transmission reinforcement options, assessing the costs and time to implement these relative to modelled benefits, to determine the optimum immediate investments and staging of future development. The ISP delivers economic benefits under all scenarios. The timing of some elements varies under different assumptions, particularly relating to the rate of change and the progress of proposed major energy storage initiatives.

AEMO

<http://www.aemo.com.au>

19 July 2018

Israel passes law to break up electricity monopoly

Israel passed a law on Thursday to open the electricity sector to new competition and break up the monopoly held by its state-owned power utility. The reform was approved by the cabinet in June after the government, Israel Electric Corp (IEC) and its workers agreed on changes to end a 22-year stand-off.

The legislation passed in parliament in an overnight vote.

IEC, which for decades has managed every aspect of electricity from running power plants to connecting households, agreed to sell 19 production units in five sites over five years and form a subsidiary to manage two yet-to-be-built power stations that will run on natural gas.

System management and planning will be taken away from the utility and sold to a different government-owned company, Israel’s Finance Ministry said in a statement. IEC will remain a monopoly in distribution, but electricity supply will be gradually opened to competition. The company committed to reduce its workforce by 25 percent to about 6,400



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employees over the next eight years. “Israel Electric will become much more efficient with a substantially smaller debt, which is expected to roll over to electricity consumers,” said the ministry’s director general, Shai Babad.

Reuters

<http://www.reuters.com>

23 July 2018

Western RTO could save California \$1.5B per year by 2030, report says

California ratepayers could save \$1.5 billion annually if the state enters into a full regional transmission organization (RTO) with surrounding states, according to a new report from the energy think tank Next 10.

Benefits from a Western RTO include job market growth, opportunities to integrate renewables and further pressure to retire coal plants in the region, according to the report, while also leveraging economies of scale to reduce operating costs.

Opponents worry that expanding the California ISO's jurisdiction could mean a loss of control over the energy California consumes and hamper its ability to meet aggressive climate goals. The state legislature is currently debating a grid regionalization bill that failed last year.

Utility Dive

<http://www.utilitydive.com>

23 July 2018

Major investment in the energy sector in Portugal

The European Investment Bank (EIB) is financing one of the most important energy sector initiatives in Portuguese history. The EU bank will provide a EUR 650m loan to Iberdrola to support a major hydro electrical project that will increase energy storage capacity in the EU, provide services to the Iberian grid operators and ultimately facilitate the increase of the renewable share of the Portuguese energy mix.

This investment will reduce the dependence of the Iberian market on fossil energy as well as CO2 emissions. Through this agreement with Iberdrola, the EIB is contributing to the construction of three new large dams and hydropower plants, including a pump storage plant, which will be located on the Tâmega and the Torno rivers, in northern Portugal. With an investment of around EUR 1.5bn, the new Iberdrola’s new infrastructure will have a total capacity of 1,158 MW and will start operating in 2023. To advance the project's implementation, the EIB and Iberdrola today signed a EUR 500m loan, the first tranche of the total EUR 650m in funds approved to finance this project.

The Portuguese and Spanish electricity markets will benefit from the new infrastructure. By increasing generation and storage capacity, the new plants will provide more flexibility and security of energy supply on the Iberian electricity market.

The dams (Alto Tâmega, Daivões and Gouvães) are located in the Douro River Basin and are expected to provide an average of 1,760 GWh per year to the Iberian market. Located in a European cohesion region, Iberdrola’s project will also foster economic activity and employment. It will create direct and indirect jobs and will contribute to the economic, social and territorial cohesion of the EU. The project will require hiring up to 13,500 people, including direct and indirect jobs, during the entire construction phase



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and several hundred in operational phase. The project is part of the Portuguese National Programme for Dams with High Hydroelectric Potential (PNBEPH). The promoter, Iberdrola, won the concession of the project to design, build and operate the plants following a competitive tendering process.

Iberdrola

<http://www.iberdrola.com>

24 July 2018

PacifiCorp gets final approvals for \$3 billion wind power expansion

PacifiCorp will proceed with a \$3bn wind and related transmission expansion plan after it received two final state approvals needed to advance the Energy Vision 2020 initiative, said officials at the utility holding company. Plans call for adding three new wind projects totaling 1.15 GW of power generation capacity and a new 140-mile (225 km) transmission line in Wyoming, and repowering 900 MW of existing facilities in Washington state and Wyoming.

The new wind projects will increase the amount of owned and contracted wind capacity on PacifiCorp's system by more than 60% and will add enough new wind energy to power more than 400,000 average homes by 2020, according to the utility.

PacifiCorp, which is owned by Warren Buffett's Berkshire Hathaway conglomerate, says that repowering older wind farms will boost electricity output by more than 25% and extend the life of wind turbines.

The final regulatory approvals were from the Utah Public Service Commission on 22 June and Idaho Public Utilities Commission last Friday.

PacifiCorp owns two utilities: Pacific Power, whose service territory includes northern California, Oregon and southeastern Washington; and Rocky Mountain Power, covering eastern Idaho, and much of Utah and Wyoming. PacifiCorp now estimates its total investment for the Energy Vision 2020 projects will be "just over" \$3bn, a reduction from the initial \$3.5bn cost projection estimate when they were first announced in April 2017.

IEEFA

<http://www.ieefa.org>

24 July 2018

The \$3 Billion Plan to Turn Hoover Dam into a Giant Battery

Hoover Dam helped transform the American West, harnessing the force of the Colorado River — along with millions of cubic feet of concrete and tens of millions of pounds of steel — to power millions of homes and businesses. It was one of the great engineering feats of the 20th century.

Now it is the focus of a distinctly 21st-century challenge: turning the dam into a vast reservoir of excess electricity, fed by the solar farms and wind turbines that represent the power sources of the future.

The Los Angeles Department of Water and Power, an original operator of the dam when it was erected in the 1930s, wants to equip it with a \$3 billion pipeline and a pump station powered by solar and wind energy. The pump station, downstream, would help



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regulate the water flow through the dam's generators, sending water back to the top to help manage electricity at times of peak demand.

The net result would be a kind of energy storage — performing much the same function as the giant lithium-ion batteries being developed to absorb and release power.

The Hoover Dam project may help answer a looming question for the energy industry: how to come up with affordable and efficient power storage, which is seen as the key to transforming the industry and helping curb carbon emissions.

Because the sun does not always shine, and winds can be inconsistent, power companies look for ways to bank the electricity generated from those sources for use when their output slacks off. Otherwise, they have to fire up fossil-fuel plants to meet periods of high demand.

And when solar and wind farms produce more electricity than consumers need, California utilities have had to find ways to get rid of it — including giving it away to other states — or risk overloading the electric grid and causing blackouts.

Using Hoover Dam to help manage the electricity grid has been mentioned informally over the last 15 years. But no one pursued the idea seriously until about a year ago, as California began grappling with the need to better manage its soaring alternative-electricity production — part of weaning itself from coal-fired and nuclear power plants.

In California, by far the leading state in solar power production, that has sometimes meant paying other states to take excess electricity. Companies like Tesla have gotten into the picture, making lithium-ion batteries that are deployed by some utilities, but that form of storage generally remains pricey.

Lazard, the financial advisory and asset management firm, has estimated that utility-scale lithium-ion batteries cost 26 cents a kilowatt-hour, compared with 15 cents for a pumped-storage hydroelectric project. The typical household pays about 12.5 cents a kilowatt-hour for electricity.

Some dams already provide a basis for the Hoover Dam proposal. Los Angeles operates a hydroelectric plant at Pyramid Lake, about 50 miles northwest of the city, that stores energy by using the electric grid to spin a turbine backward and pump water back into the lake.

But the Hoover Dam proposal would operate differently. The dam, with its towering 726-foot concrete wall and its 17 power generators that came online in 1936, would not be touched. Instead, engineers propose building a pump station about 20 miles downstream from the main reservoir, Lake Mead, the nation's largest artificial lake. A pipeline would run partly or fully underground, depending on the location ultimately approved.

New York Times
<http://www.nytimes.com>

24 July 2018

TEPCO seeks overseas partners in renewable energy pivot

Fukushima operator plans to move away from nuclear and shrinking Japanese market

Tokyo Electric Power Co. Holdings will pursue renewable energy projects worth tens of billions of dollars in a sharp turn away from nuclear power and an effort that will require finding partners abroad, the power company's president told Nikkei on Monday.



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Tepco aims to develop renewable energy installations in Japan and overseas that produce 6 gigawatts to 7 gigawatts of power, with the operations contributing 100 billion yen (\$8.98 billion) in profit. Renewables accounted for only about 15% of Tepco's power output in the fiscal year ended March 2017, less than at other Japanese electric companies. "We must gain competitive advantage in renewable energy," said President Tomoaki Kobayakawa.

"This is not a case where one company does everything," says Kobayakawa. Japan's largest power producer will need to recruit partners internationally to jointly finance the undertaking to the tune of trillions of yen, he added.

Tepco will mostly focus on offshore wind power. "I would like to decide on partners in one year from a wide breadth at home and abroad," said Kobayakawa.

Not only will Tepco construct traditional wind turbine units built into the sea floor, said Kobayakawa, the company will also "take up the challenge" of building floating turbines. Because Japan has deep coastal waters, which do not support fixed-foundation wind farms, floating turbines are expected to take off as a solution.

Tepco's wind farms will first be built around Japan, such as off Chiba Prefecture, where a demonstration project has launched. The company will then expand to other parts of Asia and Europe.

For hydroelectric power, Tepco will develop sites in Southeast Asia as there are few places in Japan that would support a new facility. That will form the third prong of the renewables operation, together with the overseas and domestic wind power businesses. Tepco is looking to have each of the three components generate at least 2 GW of power.

Kobayakawa pointed out that Toyota Motor and Hitachi generate a large chunk of their consolidated sales abroad. "As a domestic energy company, there are two actions we must take against the declining population and the advancement of energy conservation," he said. One route would be to expand the domestic footprint in gas and similar operations, and the other is to develop overseas power markets. "We will increase our foreign share," said Kobayakawa.

Tepco's radical change in direction comes in a business environment where a higher earning potential has become harder to find. The company's nuclear power business was able to generate power at relatively low cost, but the Fukushima Daiichi disaster in 2011 forced the shutdown of every single Tepco reactor, which continues to this day.

Reactors 6 and 7 at the Kashiwazaki-Kariwa plant in Niigata Prefecture received approval to restart operations last year, but the units remain dormant in the face of resistance from locals. Masahiro Sakurai, the mayor of Kashiwazaki, said in June last year that Tepco has two years to present a plan to decommission reactors 1 through 5 or he won't agree to reactivate the other two.

"I'm aware that this is a problem in which some kind of reply is needed," Kobayakawa said, indicating that Tepco plans to gain local support by providing answers that will satisfy safety concerns and address contributions to the local economy. Kobayakawa declined to offer a concrete proposal, only saying that he understands that Sakurai is not asking to decommission every reactor or scrap them immediately.

It will take 16 trillion yen to cover compensation and decommission costs for Fukushima Daiichi. Tepco said in June that it is exploring dismantling the sister Fukushima Daini plant as well, but Kobayakawa said the company is still weighing a final decision.



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"I don't think the risk is high enough for us lay our hands on Fukushima Daiichi to the point of delaying the work on Fukushima Daiichi," Kobayakawa added.

Tepeco is still waiting for the government's answer on what to do with the tritium-contaminated water produced by the reactor cooling process at Daiichi. Kobayakawa said his company will offer the best solution based on the government's recommendation, but offered no further details.

Nikkei Asian Review
<http://asia.nikkei.com>

25 July 2018

Belgium establishes a capacity market system to offset nuclear phase-out

The Belgian government has agreed to subsidize new electricity capacity to offset the country's nuclear phase-out in 2025. A capacity remuneration mechanism (CRM) has been approved and is set to replace the strategic reserve programme, which was implemented since the winter 2014-2015. A two-tier auction system should be implemented by 2021, to give enough time to project developers to build new gas-fired power plants (based on an average 4-year construction length) before the nuclear phase out of 2025. Both existing and new power plants will be able to participate in the scheme and no technology is excluded except nuclear power. According to the government, foreign capacity may also participate but under well-defined conditions.

The first auction should be organized in 2021. Besides, the government will also organise yearly auctions to adjust fluctuating needs for capacity. This scheme will enable the government to subsidise capacity in a bid to guarantee security of supply. By 2025, the scheme is estimated to cost Belgian consumers an annual €345m. According to a study unveiled by the domestic grid operator Elia, 3.6 GW of new thermal capacity will be needed to offset the closure of the country's nuclear plants.

Enerdata
<http://www.enerdata.net>

25 July 2018

DHS: 2017 Russian Probes Hit Hundreds of Energy Cos.

Russian hackers gained the ability to manipulate U.S. utilities' industrial control systems (ICS), federal officials said in a briefing Wednesday that offered the most detailed account yet of a campaign that compromised hundreds of energy companies last summer.

The campaign, which began with phishing attacks and watering hole exploits to capture the credentials of vendors trusted by the utilities, did not result in any physical impact. But it was nonetheless troubling because of the length of time the hackers lingered in the utilities' systems and the access they gained, officials said.

The Department of Homeland Security's "Awareness Briefing" indicated the hackers had access to the same type of human-machine interfaces that suspected Russian agents used to cause blackouts in Ukraine in 2015.

"The punch line is this: In this campaign so far, the effect has been limited to being able to access the systems — to gain fairly sophisticated level access into the systems," said Jon Homer, chief of the industrial systems control group for the Hunt & Incident Response Team at DHS's National Cybersecurity & Communications Integration Center.



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“But ... they have not caused physical impact as a result of that access. So, they had access to be able to do it, but they haven’t actually caused any physical [damage].”

Jeannette Manfra, assistant secretary for DHS’s Office of Cybersecurity and Communications, said the detection of the infiltrations — the subject of a March 15 DHS alert — was the result of the “partnership” among DHS, the power industry, the Department of Energy, the intelligence community and the FBI.

“We were able to work very closely as soon as we identified a threat and respond to that and ensure that in this case the Russians were not able to achieve any significant goal in terms of actually disrupting infrastructure,” she continued. “To be clear, there was no threat for the electrical grid to go down. ... While they were in a position to be able to manipulate some systems, there wasn’t a broader threat to our entire electric grid.”

DHS held Wednesday’s webinar “to raise awareness more broadly so that others could defend against this,” Manfra said. Additional briefings are scheduled for July 30 and Aug. 1.

Homer said the campaign was “an advanced persistent threat in its classic definition. We’re looking at someone at an organization that got in and stuck around.” He said the campaign targeted or affected “hundreds of victims” focused on electric generation, transmission and distribution. “But there were also victims ... in the nuclear sector, in the aviation sector, critical manufacturing, government entities.”

The targets — none of which were identified — included small, medium and large organizations selected for their “strategic placement,” Homer said. DHS said the targets’ names “align with open-source lists (organized by subject-matter areas) published by third-party industry organizations.”

Homer said the power generation, transmission and distribution companies were penetrated despite having “good, sophisticated networks from a cyber defense perspective. They have the right tools. They have the budgets. They have the capabilities to defend their networks from this effort.”

The campaign began in early 2016 with the penetration of the first of many “staging targets,” small organizations with less sophisticated networks such as vendors, integrators and strategic R&D partners.

“They were selected because of their preexisting relationship with the intended target,” Homer said. “This is not a target of opportunity-type campaign. This is not one where the threat actor went around and said, ‘Who forgot to patch their systems last month?’”

The campaign was dormant for more than a year after the first penetration, until early 2017, when a second vendor network was compromised. That network was used to launch a phishing attack against another vendor and government entity, allowing the hackers to move to another vendor, which was used to phish operators at the utilities. Later, the first compromised vendor was used to access several utilities and IT service providers.

Homer said the hackers used the staging targets’ networks, so when the intended targets reviewed activity logs it appeared “as if the traffic or the code was originating from ... one of their trusted partners.”

Because control systems are customized for their application, it takes utilities’ technicians months to learn how to operate them. “In the same regard a threat actor who

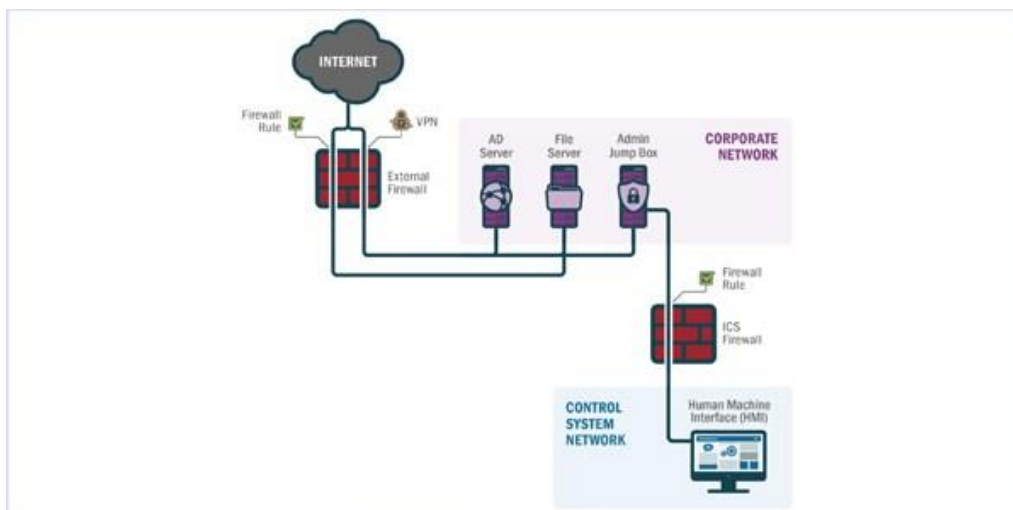
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wished to manipulate a control system has to understand that particular setup, architecture and design,” Homer said. Thus, the hackers scoured file servers “for specific file names and specific keywords — things pertaining to vendor information and reference documents.”

The hackers were aided because some of the companies’ “jump boxes” — computers used to authenticate access to the ICS — contained files with information such as IP addresses, ports and default user names. The hackers also were aided by publicity photographs on some companies’ websites that inadvertently revealed security information.

“These are things like ... cutting a ribbon or something like that, and there’s the CEO talking to the mayor,” Homer explained. “But in the background of the picture are control systems, and on these control systems are very important things like set points and safety guards and configurations and diagrams and all these kinds of things. All of this is very valuable information, but it’s in the background and the organization didn’t realize what they had published.”

The campaign ultimately allowed the hackers to get across the ICS firewalls and gain control of the human-machine interfaces used by the utilities’ system operators.



Graphic shows how Russian hackers accessed control system networks after first penetrating the corporate networks. The hackers’ techniques included compromised credentials, the exfiltration of vendor reference documents from corporate servers, remote access profiles downloaded from “jump boxes” and configuration data and screenshots downloaded from human-machine interfaces. | National Cybersecurity & Communications Integration Center.

DHS officials concluded the initial access to corporate networks came primarily through the capture of legitimate credentials. All victims had externally-facing, single-factor authenticated systems. Intrusions came via virtual private networks, Microsoft Outlook web access and remote desktops.

Officials said the investigation illustrated the need to require multi-factor authentication for all external interfaces and to block all external server message block (SMB) network traffic. “There’s really not a good business justification for having external SMB outbound,” Homer said.



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25 July 2018

EDF's Flamanville reactor start again delayed to 2020

Problems with weldings have forced French utility EDF (EDF.PA) to delay the start-up date for its troubled Flamanville 3 nuclear reactor to the second quarter of 2020 and pushed its cost estimate up to three times the original budget.

When construction started in 2007, the target launch date was 2012, but the project has suffered a string of serious technical problems - including the discovery of weak spots in its reactor vessel cover - and has been delayed several times.

The cost estimate is now up by another 400 million euros to 10.9 billion euros (\$12.75 billion), EDF said in a statement. It said that loading of the nuclear fuel, last set for the fourth quarter of 2018, was now scheduled for the fourth quarter of 2019.

On a call with reporters, Flamanville project director Laurent Thieffry said that repairs to the weldings would start at the end of this month and continue till summer 2019.

He added that the reactor would be connected to the grid in the first quarter of 2020 and its commercial start at full power was now scheduled for the second quarter of 2020.

"The new planning for the EPR reactor in Flamanville is totally realistic," EDF head of new nuclear projects Xavier Ursat said. But he added that the startup schedule would depend on the go-ahead of nuclear regulator ASN.

EDF said the 400 million euro extra cost consisted of 60 to 70 million euros in cost directly related to the welding repairs, with the rest due to the impact of the delay on the entire project.

EDF shares were down 0.9 percent in early trading on a virtually flat French bourse.

The utility said a total of 53 weldings on the reactor's secondary circuit would have to be redone, while for another 10 it is confident that it can convince regulator ASN that they are fit for service. Another 85 weldings were in line with specifications and needed no repairs, it said.

The secondary circuit consists of 360 meters of 50-95 cm diameter piping that conducts steam from the reactor's four steam generators to the plant's turbine, and pumps condensed water back to the steam generators.

Four to five centimeters thick, the pipes require high-tech welding that needs to go around each pipe 100 times and takes eight weeks per welding.

EDF said the 400 million euro extra cost consisted of 60 to 70 million euros directly related to the welding repairs, with the rest due to the impact of the delay on the entire project. EDF said it would closely supervise and control the welding work on the reactor itself. A parliament report about nuclear security released this month said that excessive reliance on outsourcing was causing safety issues in EDF's reactors.

France relies on nuclear energy for 75 percent of its electricity. The EPR reactor is the first new reactor to be built on its soil in decades.

The French government wants to reduce the country's reliance on nuclear to 50 percent and will decide later this year by when this target should be reached.

Reuters
<http://www.reuters.com>



1 August 2018

25 July 2018

Siemens and partners complete 14.4GW power projects in Egypt

Siemens and its consortium partners have completed the Egypt Megaproject that can deliver a total of 14.4GW of power through 12 combined cycle power facilities.

Siemens' consortium partners include Orascom Construction and Elsewedy Electric. The total power generated by the plants will be enough to be supplied to as many as 40 million people in Egypt.

The partners have announced the combined cycle commissioning and the start of operations at the Beni Suef, Burullus and New Capital power plants.

Siemens president and CEO Joe Kaeser said: "The record-breaking completion of our Megaproject in Egypt will not only transform the power landscape in Egypt, but will also serve as a blueprint for building up power infrastructure in the Middle East and all over the world.

This Megaproject is also setting the benchmark for trustful and reliable cooperation with our customer and our partners. The leadership of President al Sisi and his team in this project has been remarkable. We look forward to apply this unique performance model also to other countries in their efforts towards reliable, affordable and sustainable power systems."

The three inaugurated plants are powered by eight of Siemens' SGT5-8000 H-class gas turbines, four steam turbines, 12 generators, eight Siemens heat recovery steam generators, 12 transformers as well as a 500-kilovolt gas-insulated switchgear.

To enhance the resilience of Egypt's grid, Siemens has energized six substations that will transmit electricity generated from the new power plants.

Siemens power and gas division global sales head Karim Amin said: "Today, we are proud that Siemens technology will generate power at the three combined cycle plants, reaching a total net efficiency of over 61 percent, ensuring the power generated is reliable and benefits millions of Egyptians. Our efficient H-class gas turbine technology will also help the country save over \$1 billion in annual fuel costs through better fuel utilization."

COMPELO energy
<http://www.compelo.com>

30 July 2018

Ofgem gives go-ahead to National Grid for Hinkley project

Britain's energy market regulator has given the go-ahead to National Grid (NG.L) to build a power grid upgrade to connect the new Hinkley Point C nuclear power station in Somerset.

However, Ofgem said it will set the revenue National Grid can earn from the upgrade based partly on the regulator's experience in tendering contracts to own new transmission links to offshore wind farms.

The Hinkley–Seabank (HSB) project will cost £650 million and allow for the safe connection of EDF Energy's (EDF.PA) planned Hinkley Point C nuclear power station. The project will also provide additional capability and relieve transmission constraints in the South West of England.



1 August 2018

National Grid said it will review Ofgem's decision and consider all options before Ofgem formalises its proposals in the grid operator's licence later this year or early in 2019. "Ofgem's decision does not affect our commitment to delivering HSB to time and to quality as per our licence obligations," it added.

Ofgem expects to deliver savings of more than 5 billion pounds to consumers through tougher price controls for energy networks.

The price controls set the revenue monopoly network owners can earn from charges to consumers.

Reuters
<http://www.reuters.com>