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CLEAN ENERGY STANDARD AND INDUSTRY HIGHLIGHTS

Clean Energy Standard and Industry Highlights

NWI

NEW YORK APPROVES CLEAN ENERGY STANDARD

02 August 2016—The New York State Public Service Commission (PSC) has formally approved a Clean Energy Standard (CES) that explicitly recognizes the zero-carbon contribution of nuclear power plants and will help ensure their continued operation as it strives to reach ambitious clean energy goals Governor Andrew Cuomo announced the PSC's approval of the standard, which will require 50% of New York's electricity to come from renewable sources by 2030, as "the most comprehensive and ambitious clean energy mandate in the state's history". The CES explicitly recognizes the carbon-free generation provided by New York's upstate nuclear power plants - two units at Nine Mile Point and single units at RE Ginna and James A Fitzpatrick - as critical in enabling it to meet its climate change targets. However, the plants' continued operation had been at risk because of the economic challenges from the short-term nature of the deregulated market they operate in and competition from low-cost gas and federally subsidized wind power. Under the standard, the state's investor-owned utilities and other energy suppliers will be required to purchase Zero-Emission Credits to pay for "the intrinsic value of carbon-free emissions from nuclear power plants". This will allow the so-called upstate nuclear plants to remain in operation during the state's transition period. The publicly owned New York Power Authority and Long Island Power Authority are also expected to adopt the same requirements. The CES will enforce the development of renewable energy capacity by requiring energy suppliers to obtain Renewal Energy Credits, which will be paid to developers to help finance such development. Other directives included in the CES decision include the development of a "New York-certified clean electric product", giving consumers the ability to purchase "100% clean power" should they wish to; support for the expansion of energy efficiency measures; a "blueprint" for offshore wind energy; and commitments to pursue developments and investments in storage, transmission and other technologies. Triennial reviews will be performed to ensure economic and clean energy goals are being achieved. "New York has taken bold action to become a national leader in the clean energy economy and is taking concrete, cost-effective steps today to safeguard this state's environment for decades to come," Cuomo said. "This Clean Energy Standard shows you can generate the power necessary for supporting the modern economy while combatting climate change."

Exelon Investments - Exelon, operator of Ginna and Nine Mile Point, confirmed that it intends to reinvest about $200 million in the plants early next year now that the CES has been approved. It also said that negotiations on a potential purchase of Fitzpatrick from Entergy will now be able to continue, providing an opportunity to keep the boiling water reactor in operation. Entergy has previously announced plans to close Fitzpatrick, which is licensed to operate until 2034, in January 2017.
Without the CES, Ginna and Nine Mile Point would have been at risk of closure, the company said. "Today is a historic day for New York and the energy industry, and we applaud

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NEW YORK APPROVES CLEAN ENERGY STANDARD

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Supporters of the CES celebrate its approval (Image: Environmental Progress)

Governor Andrew Cuomo and his Administration for their leadership," said Exelon CEO Chris Crane. "Approval of the Clean Energy Standard makes New York a true leader in terms of support for zero-emissions energy, including both renewables and nuclear power." The Washington, DC-based Nuclear Energy Institute (NEI) welcomed the New York CES as "visionary", establishing an important precedent for carbon reduction efforts at the state policy level. "Gov Cuomo and the Public Service Commission correctly acknowledge nuclear power plants as indispensable sources of emissions-free power, meriting explicit valuation by the state as a clean energy source.

Other states should strongly consider emulating New York's new energy standard," NEI CEO Marv Fertel said. "Reactors elsewhere in the country are under financial stress today, because their attributes are not fully valued while at the same time natural gas prices are at historic lows and renewable energy sources are subsidized via tax credits and/or mandated additions of wind and solar capacity. Policymakers and leaders in other states should closely review New York's Clean Energy Standard and work expeditiously to enact comparable policies that preserve these vital clean energy assets," he added. More to do...Climate scientist James Hansen, of Columbia University, was among those who endorsed the PSC's decision, describing it as "an important victory" to protect New York's nuclear power plants. "Doing the right thing is sometimes controversial, and that was the case here," he said, adding that Cuomo and the PSC's commission was "an act of courage, putting the common good ahead of public expediency".

"California, Illinois, Massachusetts, Nebraska, Ohio and other states around the nation should take notice of what real climate action looks like," he said. Mike Shellenberger, head of the Environmental Progress environmental research and policy organization, said the New York initiative should be "an inspiration" to environmentalists and workers fighting to save at-risk nuclear plants in Illinois, California and elsewhere. At the same time, he said, the measure "still discrimates against nuclear" by not including it in longer term clean-energy mandates. "If New York included nuclear in an expanded goal, it could come much closer to 100% clean power in 2030 and beyond," he said, noting that renewables would still receive more in subsidies than nuclear under the CES. "While we thank Governor Cuomo and the Public Service Commissioners for a positive step forward, environmentalists concerned about the climate should recognize this as a temporary victory," said Shellenberger. (World Nuclear News)

Cuomo Accepts Nuclear Is Clean For Upstate New York

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02 August 2016— The New York Public Service Commission (PSC) voted to approve a provision within the Clean Energy Standard (CES) that would value the emission-free energy that Upstate New York's nuclear energy plants provide, finally recognizing that these plants are essential to meeting the state's goal of reducing greenhouse gas emissions 40% by 2030. Since everyone agrees that this goal would be impossible to achieve without retaining the state's existing nuclear power, this provision was critical. New York's new Clean Energy Standard includes the following:

- increase renewable electricity supply to achieve the "50% renewable by 2030" goal,
- support construction of new renewable generation in New York State by providing up to 4.5¢/kWh in federal and state subsidies,
- prevent closure of emissions-free nuclear facilities by providing a 1.7¢/kWh subsidy to upstate nuclear reactors, and
- promote the progress of energy market reforms.

Cuomo Accepts Nuclear Is Clean For Upstate New York

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Utilities and energy service companies would be required to procure a percentage of their electricity from three tiers, or categories, of energy resources: existing renewables, existing nuclear, or new renewables. Both anti-nuclear and pronuclear protesters were in Albany in force yesterday to demonstrate what they thought about nuclear as a clean energy source. Nuclear generates the most carbon-free electricity in New York, even more than hydro, and about ten times more than any renewable.

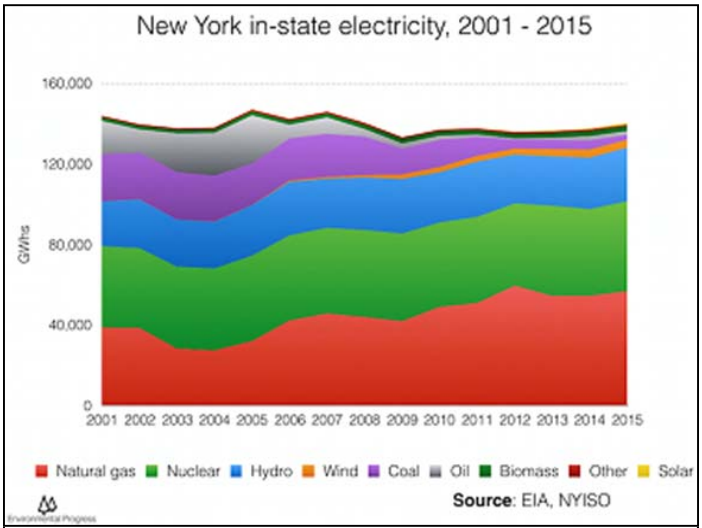


Figure 1. Change in New York State's energy mix since 2000. Mostly natural gas, along with some hydro and a small amount of wind and other renewables, has replaced most of the coal and oil. Nuclear has stayed steady as the most abundant low-carbon energy source in the state. There is little chance that natural gas will not continue to rise, especially if nuclear is not sustained. Source: EIA, NYISO, Environmental Progress

"The need to reduce carbon emissions is a priority in the state of New York and across the country," said Nuclear Matters co-chair former Senator Judd Gregg (R-NH). "Yet, as we work to obtain a cleaner energy future, too many existing nuclear plants, which are responsible for the bulk of our carbon-free power, have had to shutter due to the fact that they have not been properly valued for the reliable and clean energy that they produce. As of today, though, this may no longer be the case."

Currently, New York gets 40% of its electricity from natural gas, 32% from nuclear, and 19% from hydro, 3% from wind, 2% from coal, and 4% from other sources. The nuclear and hydro portion of this mix makes the per-capita power greenhouse emissions from New York just one fourth of the nation's average. The drop in state emissions have come overwhelming from natural gas displacing oil and coal since 2000. Non-hydro renewables have not yet done much to lower emissions, and the idea that they could replace a majority of natural gas, let alone nuclear, over the next 15 years is not borne out by the past 15 years with all its pro-renewable policies (see Figure 2). It is likely that renewables will replace the small amount of coal and oil left in the state, but not much of the natural gas.

Even Governor Cuomo realizes his state will fail in its carbon goals if nuclear is not retained. "In addition to ensuring ample opportunity for more wind, solar, and energy efficiency, the state, in recognizing the important role of existing carbon-free nuclear power, can set the standard for a comprehensive approach to a low-carbon energy portfolio and will encourage other policymakers and regulators to similarly value nuclear energy for its clean air benefits," said Carol Browner, former EPA Administrator and Nuclear Matters Leadership Council member. "Governor Cuomo importantly recognizes the role that all types of carbon-free power can and must play in helping us achieve our clean energy goals." But passing this provision is a small victory, and limited in scope. While renewable subsidies amount to 2.2¢/kWh from the Federal Production Tax Credit, and 2.3¢/kWh from New York State (NYSERDA), the provision supporting nuclear only provides those reactors in Upstate New York with 1.7¢/kWh, and only for a couple of years. Nuclear plants not in Upstate New York get nothing. But it's a beginning.

The move to retain, and even expand nuclear, is critical in addressing climate change. The NYTimes reported that pursuing renewable energy to the exclusion of other low carbon sources is counterproductive to addressing global warming. The world's top four climate scientists, Dr. James Hansen, Dr. Tom Wigley, Dr. Ken Caldeira and Dr. Kerry Emanuel, stressed that only a combined strategy of employing all the major sustainable clean energy options, including renewables, nuclear, efficiency and conservation, can prevent the worst effects of climate change by the end of this century. We can see this in effect around the world throughout the last 60 years. In all countries that have ramped up low-carbon sources to replace their fossil fuels, only nuclear was able to accomplish this in countries that replaced most of their fossil

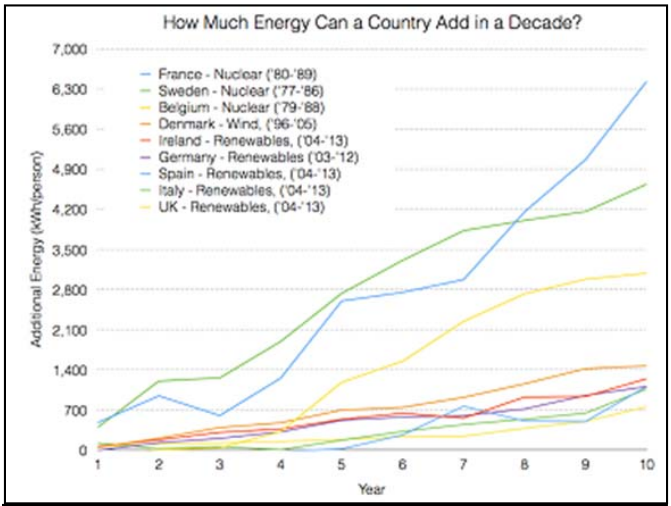


Figure 3. Various countries have tried to aggressively replace fossil fuel with low-carbon sources, but only nuclear has succeeded in replacing a majority of fossil fuels in some of those countries. Source: Environmental Progress

Cuomo Accepts Nuclear Is Clean For Upstate New York

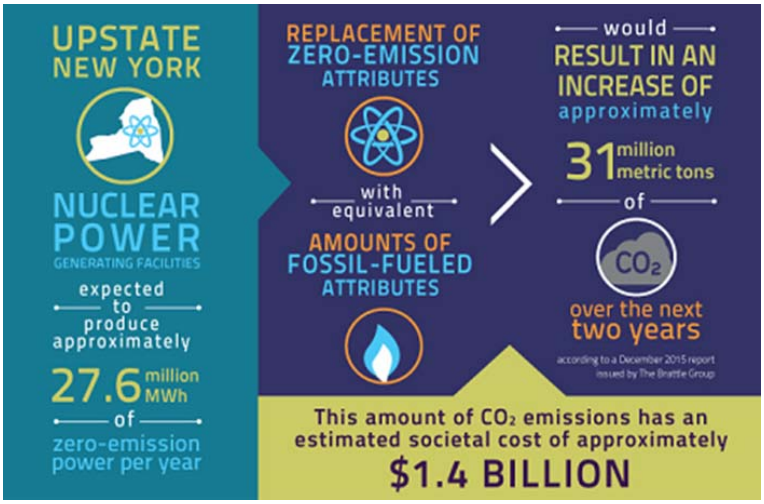
(Continued From Page 3)

fuels (see Figure 3), because only nuclear power has sufficient energy density, a high enough capacity factor and an extremely small footprint. The business community, necessary for this whole move away from fossil fuels to take place, agrees and are influencing state renewable policies. Maryland Governor Larry Hogan (R-MD) recently vetoed a bill to raise his state's renewable portfolio standards (RPS). Last year, West Virginia and Kansas repealed their RPS. The year before that, Ohio froze its RPS. Currently, proposed legislation exists in numerous statehouses to cut or scrap their RPS. According to Energy Information Administration data, residential electricity prices are currently 29% higher in states with a mandatory RPS than in states without them. So it's about time we instituted a true national Clean Energy Standard that promotes all low-carbon energy rather than continuing with multiple Renewable Energy Standards that are narrowly-focused on wind and solar, and that do not seem to be helping us reach our goals.

If you care about climate change, and don't just have an ideological stand on a particular energy source, then you know that we need all low-carbon sources, especially nuclear and hydro as fast as possible, to have any hope of reigning in the most adverse environmental effects of burning fossil fuels.

(FORBES/Energy/ James Conca - Contributor)

Clean Energy Standard a Breakthrough for New York's Environment, Economy
Timely Intervention Preserves State's Most Important Low-Carbon Tool



01 August 2016— New York's first-ever Clean Energy Standard, a policy championed by Gov. Andrew Cuomo which explicitly recognizes the role nuclear plants play as carbon-free sources of power, was approved August 1, 2016. The following is a statement from Marvin Fertel, president and chief executive officer at the Nuclear Energy Institute. "New York's visionary Clean Energy Standard blazes a vitally important public policy path. It establishes an important state policy precedent for efforts to achieve significant carbon reductions from all clean energy sources while maintaining a healthy economy.

Governor Cuomo and the Public Service Commission correctly acknowledge nuclear power plants as indispensable sources of emissions-free power, meriting explicit valuation by the state as a clean energy source. Other states should strongly consider emulating New York's new energy standard. This program provides enormous cost savings to New York's consumers. The Public Service Commission staff estimates that the benefits of retaining the state's nuclear plants in the first two years of the program, valued at $5 billion, dramatically outweigh the estimated costs of less than $1 billion.'

New York's six reactors produce nearly 60 percent of the state's carbon-free electricity. With the state's aggressive carbon reduction goals, the state's leadership acted swiftly and emphatically to ensure preservation of its most significant low-carbon tool. The New York Public Service Commission's action today will assure New Yorkers of a future that protects the environment while maintaining facilities that are linchpins of local economies. Reactors elsewhere in the country are under financial stress today, because their attributes are not fully valued while at the same time natural gas prices are at historic lows and renewable energy sources are subsidized via tax credits and/or mandated additions of wind and solar capacity. Policymakers and leaders in other states should closely review New York's Clean Energy Standard and work expeditiously to enact comparable policies that preserve these vital clean energy assets.

(Nuclear Energy Institute)

FitzPatrick Nuclear Plant Purchased by Exelon

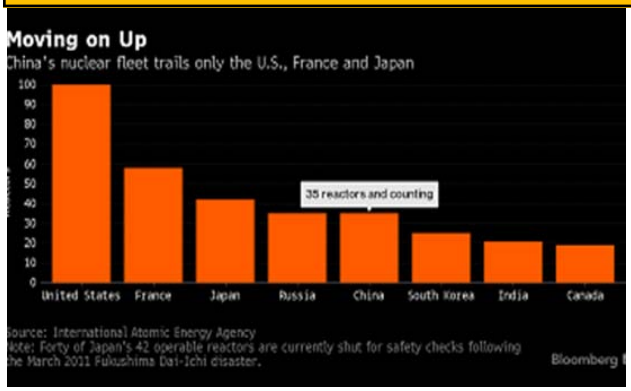
10 August 2016—The James A. FitzPatrick Nuclear Power Plant will continue its operations, as it was purchased by Exelon Generation. The company agreed to assume ownership and management of the 838 megawatt plant from Entergy Corp. in a deal worth $110 million. Exelon said it will refuel the plant in January, and does not expect immediate changes to the plant's staffing, currently about 600 people. "We are pleased to have reached an agreement for the continued operation of FitzPatrick," said Exelon President and Chief Executive Officer Chris Crane, in a statement. "We look forward to bringing FitzPatrick's highly skilled team of professionals into the Exelon Generation nuclear program, and to continue delivering to New York the environmental, economic and grid reliability benefits of this important energy asset." The deal was buoyed by the state Public Service Commission's adoption of a Clean Energy Standard that benefited nuclear operations around the state. "Saving FitzPatrick is an enormous win for Central New York and the entire state, preserving hundreds of jobs and maintaining a reliable, carbon-free power source for New Yorkers," said Gov. Andrew M. Cuomo, in a statement. The closure of the transaction is contingent on regulatory review from agencies including the U.S. Department of Justice, the Nuclear Regulatory Commission, the Federal Energy Regulatory Commission and the New York State Public Service Commission. The deal is expected to be finalized in the second quarter of 2017. Among those backing the sale was state Sen. Patricia A. Ritchie, R-Heuvelton, who expressed gratitude to Gov. Cuomo, the energy companies and the plant's workers. FitzPatrick has been a vital part of Central New York for decades—and I am excited that it will remain that way for many years to come," she said in a statement. Assemblywoman Addie J. Russell, D-Theresa, noted the impact of the state commission's energy standard. "The supports provided in that decision keep the FitzPatrick plant viable and that means its hundreds of employees will still have jobs after January," she said in a statement. Entergy was planning on closing the plant in January 2017."I would like specifically to thank our employees who have continued to operate this plant safely and reliably, despite the uncertainty they have faced about a potential shutdown," said Entergy Chairman and Chief Executive Officer Leo Denault, in a statement. "The pending sale of FitzPatrick is in the best interests of all of our stakeholders: employees, owners, customers and communities, including New Yorkers who will benefit from the plant's continued clean, safe and reliable energy production."

(Watertown Daily Times, Gordon Block)

Exelon's Most Infamous Nuclear Power Plant Is Stuck in Limbo

10 August 2016—As Exelon Corp. shutters some of its nuclear reactors and keeps others running amid competition from cheap natural gas, its most notorious plant remains in limbo: Three Mile Island. Exelon is considering steps that might stem losses at the Pennsylvania power station, Chief Executive Officer Chris Crane said in an interview Wednesday. Three Mile Island failed to win contracts in the last two regional auctions for electric generating capacity. The plant has had only one reactor operating since 1979, when Unit 2 partially melted down during the worst accident in the history of U.S. commercial nuclear energy. Exelon's fleet of nuclear plants, the nation's largest, have come under competitive pressure from renewable energy and a flood of natural gas from shale formations. The gas glut has sent prices for the fuel tumbling, pummeling nuclear generators amid weak demand and rising operational costs. "We hope something comes to fruition before more plants get shut down," Crane said Wednesday at the company's analyst day in Philadelphia. The company plans to close the Clinton and Quad Cities plants in Illinois after they lost $800 million over the past seven years and state lawmakers failed to pass legislation to raise the reactors' revenue. While the process of closing the plants has begun, the decision could be reversed as late as December if a bill is passed. Lawmakers are scheduled to meet for six days after this year's election, Crane said. Exelon will keep two of its New York plants operating and buy a third from Entergy Corp. after state regulators approved nuclear subsidies totaling about $500 million year, the company said earlier this month. The financial aid is based in part on the U.S. government's estimate of the social cost of heat-trapping carbon dioxide emissions, a formula that might be applied in other states or in wholesale power markets, Crane said. (Bloomberg News, Jim Polson)

China Atomic Reactors Equal Russia as World's 4th Largest: Chart



China connected its 35th nuclear reactor to the power grid last month, tying with Russia for the fourth-largest fleet of nuclear reactors in the world, according to data from the International Atomic Energy Agency.

The world's second-biggest economy connected four reactors to the grid this year and with another 20 under construction, China will rival France by the end of the decade.

(Bloomberg, Stephen Stapczynski)

Poland Revives Nuclear Power Plant Plan, Ready in 10 years

2 August 2016-Poland plans to revitalize a plan to build its first nuclear power plant with capacity of around 1 gigawatts in the next 10 years, its energy ministry stated. Poland, which generates most of its electricity from highly polluting coal, launched the project in 2009 launched but it hit numerous delays due to falling power prices and Japan's 2011 Fukushima nuclear accident, which drained public support. "Currently the ministry is preparing a plan to construct the first nuclear unit of around 1 GW, which will be built in the next 10 years," the ministry said in a statement. "Modern and low-emission coal-fuelled power plants" will remain Poland's major source of energy, the ministry also said. It added that apart from Poland's current five projects to build coal-fuelled generation units totalling at above 5 GW, Poland needs three more coal-based units for its energy security. Poland's installed power capacity amounts at around 40 GW, most of which in outdated coal-fuelled power plants.

(Reuters, Agnieszka Barteczko)

Bruce Power Touts Regulatory Report Card

19 August 2016-Bruce Power said it had received its "best-ever" report card from the Canadian Nuclear Safety Commission, the independent regulator that oversees nuclear facilities. Both Bruce A and B received "Fully Satisfactory" marks in the regulator's Integrated Plant Ratings, which the regulator compares to an "A+" in past media reports, the company announced. The two facilities were deemed fully satisfactory for four critical areas of plant operations: Operating Performance, Conventional Health and Safety, Waste Management and Security. In 10 other areas of plant functions, the two stations were given "Satisfactory" grades. This is the equivalent of an A score.

Bruce Power Chief Nuclear Officer Len Clewett commended Bruce A for joining Bruce B in the ranking he termed "prestigious." "Since the Units 1 and 2 refurbishment project was completed in 2012, the staff have worked extremely hard to improve reliability of Bruce A, while always maintaining our No. 1 value of Safety First," he said in a statement. Clewett said the goal was to aim for "Fully Satisfactory" ratings in all 16 categories in both Bruce A and Bruce B.

"A nuclear power plant is only as good as its last week, day and hour," Clewett said. "We live and work in a culture of continuous improvement," he said

(NUCLEAR STREET)

TVA Cuts Staff 15 percent, Uses Cheaper Fuels to Reduce Power Bills Over the Past Five Years

3 August 2016-Cheaper fuel and a leaner staff are helping TVA cut the cost of electricity in the Tennessee Valley. Despite higher power bills for many homeowners last month due to the July heatwave, the average cost of TVA power in its seven-state region has declined by more than 8 percent in the past five years. Although TVA has adopted nominal base rate increases every year for the past three years — and is likely to do so again when the TVA board meets on Aug. 25 in Knoxville to set its fiscal 2017 budget — the overall price of delivered power has continued to decline. The drop in natural gas, coal and purchased power costs reflected in TVA's monthly fuel cost adjustments have more than offset TVA base rate hikes and cut the delivered price of power to an average 6.6 cents per kilowatthour — down 2.9 percent from the 6.8 cents-per-kilowatthour price of a year ago and and 8.3 percent below TVA's price of 7.2 cents per kilowatthour in 2011. "The cost efficiencies we've achieved in the past few years, combined with our diversified power fleet, are keeping power prices lower for our customers," TVA President Bill Johnson told analysts Tuesday during the utility's quarterly financial report. "TVA was able to take advantage of lower fuel prices and lower-price generation sources during the first nine months of the year, resulting in lower fuel and purchased power expenses compared with last year." A milder winter cut the amount of electricity most consumers used in early 2016, although power sales were more normal in the spring period, TVA reported Tuesday in its quarterly report filed with the U.S. Securities and Exchange Commission. In the spring period, TVA cut its operating expenses by more than 15 percent from a year ago, which helped TVA to book $291 million in net income in the three-month period — or nine times the $32 million in net income earned in the same period in 2015. So far this year, TVA has cut its fuel costs by $406 million compared with the previous year. In the three months ended June 30, TVA's operating expenses were down by 15.1 percent, or $339 million, compared with a year ago. The drop in operating expenses more than offset the 3.1 percent decline in revenues due to a drop in electric rates due to the decline in TVA's fuel cost adjustments. TVA has shifted more of its energy generation from coal to natural gas and nuclear power over the past decade and in the past three years the utility has cut its staff by 15 percent, eliminating 1,825 jobs from its payroll, as part of a $600 million reduction in TVA's annual operating expenses. TVA's current staff of 10,792 is the lowest since 1934, just a year after TVA was established as part of Franklin Roosevelt's New Deal. TVA's staffing levels are expected to decline even more in the next couple of months in its 3,500-employee nuclear power division. Johnson said TVA has largely completed the construction and startup testing for the Unit 2 reactor at its Watts Bar Nuclear Power Plant near Spring City, Tenn. Watts Bar was generating more than 700 megawatts of power this week on its way toward 100 percent of its 1,150 megawatt potential later this month. With the $4.7 billion Watts Bar project complete and no plans for any additional major power plants for the next two decades, TVA plans to trim much of the engineering and design staff it has employed to build its seven operating nuclear reactors over three decades. TVA is offering a week's pay in severance for every year of employment for those who volunteer to retire or resign. Workers had until last Friday to sign up for the voluntary reduction in force, but Johnson said Tuesday it is still too early to talk about how many employees will be leaving TVA this fall. TVA has cut its staff and is phasing out operations at nearly two dozen coal-fired units to help limit costs and meet federal pollution standards. "TVA has positioned its generation fleet to benefit from lower fuel prices," TVA Chief Financial Officer John Thomas said. "In addition, TVA's efforts to reduce operating and maintenance costs in recent years are helping us provide the Tennessee Valley with power rates among the lowest in the nation." Despite the improvement in the spring quarter, however, TVA's net income for the first three quarters of the current fiscal year was still below last year's results. For the first nine months of its fiscal year, TVA power sales were down 5 percent from a year ago due to the milder winter this year compared with the record-setting cold temperatures in 2015. As a result, net income so far this year for TVA totaled $572 million, down $37 million from the same period a year ago. "Even though the Tennessee Valley experienced a warm spring, it was not enough to offset a very mild winter in terms of revenue," Johnson said. Johnson said with consumers replacing incandescent light bulbs and old furnaces, dryers and air conditioners with LED lights and more energy-efficient appliances, household demand for electricity is stagnate, or in some instances, declining. "Most of the decline we've seen in power sales this year is weather related, but there is a long-term trend of declining usage due to energy efficiency," Johnson said. "We've seen essentially flat loads over the last five years and we don't expect to see a lot of growth over the next decade." The completion of Watts Bar Unit 2 will add enough generating capacity for about two cities the size of Chattanooga. That should be sufficient for TVA's power load for the next two decades, according to TVA's long-range power forecasts. Once it is declared commercial later this year, TVA will begin to amortize what it has spent on Watts Bar since construction began in 1973. That could push up the average cost of power, but not significantly, Johnson has said. The $4.7 billion price tag to finish Watts Bar Unit 2 over the past seven years was more than originally forecast but still less than half the cost of other new nuclear reactors being built in Georgia and South Carolina. TVA also is building new natural gas-fired facilities at the Paradise site in Kentucky and the Allen site in Tennessee, and clean air equipment at TVA's Gallatin, Tenn., fossil plant. The Paradise project is approximately 75 percent complete and is expected to be online in the spring of 2017. TVA plans to install two selective catalytic reduction ("SCR") devices at its Gallatin coal plant by next spring and install the final two SCRs in the fall of 2017.

(Times Free Press, Dave Flessner)

Third Reactor Vessel Installed at UAEs Barakah Plant

20 July 2016 - The third reactor vessel has been installed at the Barakah nuclear power plant in the Western Region. The completion of the Unit 3 Reactor Vessel is a critical step towards finishing the country's first nuclear power plant, which by 2020 is expected to provide up to a quarter of the UAE's electricity. The Unit 1 and Unit 2 reactor vessels were installed in 2014 and 2015, respectively. The vessels weigh more than 400 tonnes and are nearly 15 metres in height, and are built to contain the controlled nuclear reaction generating energy for the UAE grid, the Emirates Nuclear Energy Corporation (Enec) said on Wednesday. "The phased approach to completing each unit with a substantial amount of time between each one means each unit's development adopts the efficiencies learnt from the previous one," said Mohammed Al Hammadi, Enec's chief executive, as quoted by state news agency Wam. The construction of the four total units is now more than 65 per cent complete, Enec said. The completion of the Unit 3 Reactor Vessel is a critical step towards finishing the country's first nuclear power plant, which by 2020 is expected to provide up to a quarter of the UAE's electricity. The Unit 1 and Unit 2 reactor vessels were installed in 2014 and 2015, respectively. The vessels weigh more than 400 tonnes and are nearly 15 metres in height, and are built to contain the controlled nuclear reaction generating energy for the UAE grid, the Emirates Nuclear Energy Corporation (Enec) said on Wednesday. "The phased approach to completing each unit with a substantial amount of time between each one means each unit's development adopts the efficiencies learnt from the previous one," said Mohammed Al Hammadi, Enec's chief executive, as quoted by state news agency Wam. The construction of the four total units is now more than 65 per cent complete, Enec said.

(THE NATIONAL UAE)

British Reactor Takes Record for Longest Continuous Operation

02 August 2016-Unit 2 of the Heysham II nuclear power plant on the north west coast of England yesterday broke the world record for the continuous operation of a commercial nuclear power reactor. The reactor is due to be taken offline next month for maintenance. As of 1 August, the Advanced Gas-cooled Reactor (AGR) achieved 895 days of continuous operation, having operated non-stop since 18 February 2014. The reactor is scheduled to continue operating until 16 September, when it will be taken offline for a planned maintenance and inspection outage. Assuming the unit carries on operating until that time, it would have run continuously for 941 days. The reactor, operated by EDF Energy, has generated 13.495 TWh of electricity so far during this continuous operation, taking its lifetime generation to 115.46 TWh. AGRs, which are cooled with carbon dioxide, graphite-moderated and fuelled with enriched uranium, are designed to be refuelled without being shut down first. During the current run, 123 fuel channels have so far been refuelled. In a letter to plant staff, station director John Munro said the performance of the Heysham II 2 reactor "represents world class, safe and reliable nuclear plant operation, achieving 0.3% UCFL [unplanned capability loss factor] for the period". He added, "We are absolutely right to feel very proud of this excellent performance." The previous record was held by unit 7 of the Pickering plant in Ontario, Canada, which had an 894-day continuous run between 26 April 1992 and 7 October 1994. This is a Candu pressurized heavy water reactor (PHWR), also designed to be refuelled during operation. Torness 2 in Scotland - also an AGR - ran for 825 days between 4 August 1997 and 7 November 1999, now making it the third longest running reactor. Unit 5 at India's Rajasthan Atomic Power Project, a PHWR, achieved continuous operation of 765 days on 6 September 2014. The current operating run of Torness 1, another AGR, currently exceeds 740 days, but the unit is not scheduled to be taken offline for maintenance until next April. The world record for continuous operation of light water reactors, which need to be shut down for refuelling, resides with Exelon's LaSalle 2 boiling water reactor. In February 2007 this unit was shut down after a run of 739 days, shortly after unit 1 at the plant completed a 711 days of uninterrupted generation. Calvert Cliffs 2 set a world record for continuous operation of a pressurized water reactor in February 2009, having operated without interruption for 693 days..

(World Nuclear News)

Sheffield Forgemasters and NuScale Collaborate on SMRs

08 July 2016 -Sheffield Forgemasters International Ltd (SFIL) and NuScale have announced they will work together to develop the manufacturing techniques required for the future deployment of small modular reactors in the UK. SFIL will forge a large civil nuclear reactor vessel head by the end of 2017, as part of a program supported by Innovate UK, the UK's innovation agency, to develop and validate innovative forging and fabrication solutions for the nuclear industry. NuScale Power said it is providing funding to support the use of the geometries required by its innovative SMR design. Tom Mundy, NuScale Power's managing director for the UK and Europe said: "Our vision of seeing the NuScale SMR deployed in, and exported from, the UK can and will only be achieved in partnership with Britain's renowned engineering and industrial base. Sheffield Forgemasters' skill, expertise and heritage is known the world over. Working together now is, I hope, the starting point of a lasting relationship that will ultimately see UK-manufactured SMRs generating clean reliable power for the UK grid by the 2020s." Graham Honeyman, SFIL Chief Executive, added: "Small Modular Reactors could revolutionize the civil nuclear power industry, by creating more flexible power generation solutions. The efficient factory manufacture of major components will be crucial to seeing them deployed cost-effectively and Sheffield Forgemasters has an unparalleled track record in the production of civil nuclear forgings of this size." NuScale Power will be holding a Supplier Day at the Advanced Manufacturing Research Centre in Sheffield on 13 July aimed at giving UK-based engineering, manufacturing and construction companies the opportunity to learn about the company's program of work. NuScale is also participating in the UK government's competition to choose the best value SMR, aimed at seeing SMRs deployed in the UK in the 2020s. In the USA, NuScale says it is "at an advanced stage" of development compared to its nearest competitors. NuScale is the only SMR developer to be currently receiving US Department of Energy match funding ($217 million over five years), the only SMR developer to be close to submitting a Design Certification Application to the US Nuclear Regulatory Commission - which NuScale says will happen later this year - and it has "multiple active customer deployment projects under way". The first NuScale facility is planned to be in operation in 2024 in the state of Idaho. The announcement with SFIL builds on an Innovate UK Energy Catalyst project designed to develop innovative forging and fabrication solutions for the nuclear industry. The project budget is £4 million, running over 2.5 years from June 2015 to Dec 2017. It is led by SFIL and has five contributing partners - Rolls Royce Plc, The Welding Institute, The University of Sheffield, Sheffield Hallam University and the Nuclear Advanced Manufacturing Research Centre. NuScale Power will be an observer in the project and is providing additional funding to support the use of its reactor vessel head geometry for the demonstration forging. Catalysts are run jointly by Innovate UK and the Research Councils. A Catalyst is a form of research and development funding which focuses on a specific priority area and aims to help take projects from research to as close to commercial viability as possible. (World Nuclear News)

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