



U.S. NUCLEAR OUTAGES DROP TO LOWEST IN NEARLY 2 YRS

U.S. nuclear power plant outages fell to the lowest level in almost two years in mid July, 2013, in time to meet peak summer demand for air conditioning, according to Reuters data. Nuclear outages dropped to 3,947 MW out on Wednesday from 5,426 MW out on Tuesday, the data said. That's the lowest number of nuclear outages since August 2011, when about 3,668 MW of capacity were out of service, the data said. Last year, there were about 6,800 MW out at this time and the five-year average out was 4,200 MW. Over the next week or so, the number of nuclear outages is expected to decline further as Constellation Energy Nuclear Group's 630-MW Nine Mile Point 1 reactor in New York, FirstEnergy Corp's 894-MW Davis-Besse reactor in Ohio and Xcel Energy Inc's 554-MW Monticello reactor in Minnesota are expected to return to service. Even if the reactors return as expected and nothing shuts unexpectedly, a couple of other units will likely remain shut, keeping total nuclear outages well above the lowest level seen in at least five years of just 314 MW in July 2008, according to Reuters data. The two reactors expected to remain shut until at least later in 2013 are Entergy Corp's 842-MW Arkansas 1 in Arkansas and Omaha Public Power District's 482-MW Fort Calhoun in Nebraska. There are 100 operating nuclear reactors in the United States capable of generating over 97,800 MW, enough to power about 80 million homes. Nuclear reactors produce about 20 percent of the country's generation and operate around the clock as base load facilities, providing some of the lowest-cost power. (Reuters)

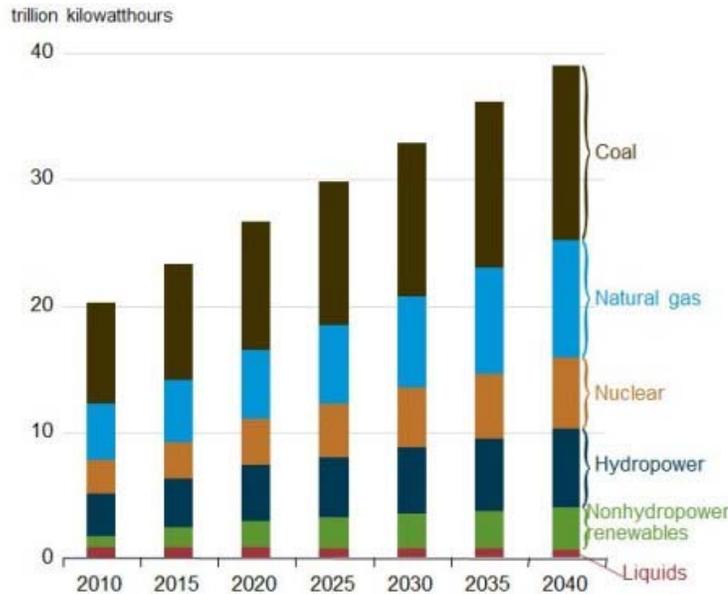
EXELON GENERATION SEEKING 20-YEAR LICENSE RENEWALS FOR BYRON & BRAIDWOOD

CHICAGO — Exelon Generation said that it has applied to the Nuclear Regulatory Commission for 20-year license extensions at its Byron and Braidwood generating stations, which would allow the plants to operate into the middle of the century. The two reactors at the Braidwood plant, about 60 miles southwest of Chicago, currently are licensed to operate until 2026 and 2027. The Byron plant, about 95 miles northwest of Chicago, also has two reactors, licensed until 2024 and 2026. Exelon spokesman Paul Dempsey said companies can start the renewal process, which the NRC said typically takes two to three years, anytime within 20 years of license expiration. He said Exelon

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Asian growth to boost global energy demand



World electricity generation by fuel, 2010-2040

July 26, 2013—World energy consumption will increase by 56% between 2010 and 2040, according to the US Energy Information Administration. Nuclear power generation is expected to double over that period, but coal will remain the dominant fuel for electricity.

Newly released highlights from the reference case in the EIA's *International Energy Outlook 2013* suggest that total world energy use will increase from 524 quadrillion British thermal units (Btu) in 2010 to 820 quadrillion Btu in 2040.

Most of that growth will occur in Asian and Middle Eastern countries outside the OECD: total energy demand in non-OECD countries is seen to increase by 90% by 2040. India and China together will account for half of this growth up to 2040. Energy use in OECD countries, meanwhile, is expected to increase only by 17%.

"Rising prosperity in China and India is a major factor in the outlook for global energy demand," said EIA administrator Adam Sieminski. "This will have a profound effect on the development of world energy markets." Electricity output

World electricity generation is set to grow by 93% from the 2010 level to 39,000 TWh by 2040, according to the EIA - the statistical and analytical agency of the US Department of Energy. The fastest growing sources of world energy are renewables (including hydro, wind and solar) and nuclear power, each of which is expected to grow 2.5% annually between 2010 and 2040.

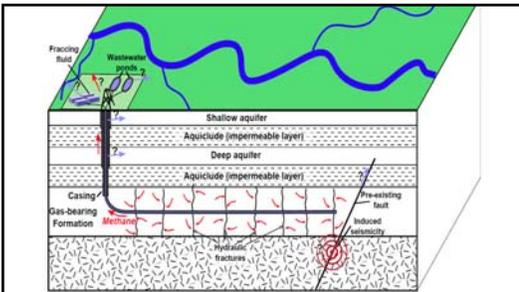
Electricity generation from nuclear power plants is forecast to increase from 2620 TWh in 2010 to 5492 TWh in 2040. Substantial increases in nuclear generating capacity are projected, including 149 GWe in China, 47 GWe in India, 31 GWe in Russia and 27 GWe in South Korea. However, nuclear's share of global electricity production will only grow from 13% to 14%.

The share of renewables, meanwhile, is forecast to increase from 21% in 2010 to 25% in 2040, while the natural gas share will grow from 22% to 24%. The coal-fired share will drop from 40% to 36% as countries move to cleaner sources of energy.

"The outlook for coal, however, could be altered substantially by any future national policies or international agreements aimed at reducing or limiting the growth of greenhouse gas emissions," the EIA suggested. However, coal will remain the single biggest fuel source for electricity production up to 2040.

"Given current policies and regulations limiting fossil fuel use, worldwide energy-related carbon dioxide emissions rise from about 31 billion tonnes in 2010 to 45 billion tonnes in 2040, a 46% increase," the EIA said. It noted that coal will continue to account for the largest share of these emissions.

Thanks to cheap natural gas, America's nuclear renaissance is on hold



Schematic depiction of hydraulic fracturing for shale gas.

June 1, 2013, BURKE COUNTY, GEORGIA - It is the sort of thing you would expect to see in China, not in the pine forests of rural Georgia. On the banks of the sluggish Savannah river towers one of the world's biggest cranes. It is helping build two nuclear reactors, to add to the two already up and running at the Vogtle power plant. It testifies to the mammoth efforts that have been made in recent years to revive America's nuclear industry—and to the disappointing results.

The half-built reactors at Vogtle are the first new ones to be approved in America since 1979, when a radioactive leak from Three Mile Island, a nuclear plant in Pennsylvania, ruined the industry's already troubled reputation.

A consortium of local utilities is paying for the plant; Westinghouse, a subsidiary of Toshiba, a Japanese conglomerate, designed the reactors and is helping build them. It is one of the biggest infrastructure projects in the country, according to Southern Company, a utility which owns 46% of the new plant.

Deep foundations have been dug. The massive steel-and-concrete bowl in which the nuclear parts will sit is almost finished. Prefabricated bits of the "containment vessel"—more steel—are ready to be lowered into place by the gargantuan crane. To one side, shrink-wrapped in blue plastic, sits the reactor itself, an innocuous-looking package the size of a small lorry, which could power 250,000 homes. Car parks worthy of an airport will cater to 5,000 or so construction workers. All this is impressive, but Vogtle and two more reactors being built across the river in South Carolina are the last vestiges of what was heralded, four or five years ago, as America's "nuclear renaissance".

Renaissance postponed

The Nuclear Regulatory Commission (NRC) has received applications for 24 more reactors, to add to the 104 already running (see table). But none is likely to be built soon. Some are backed by consortia that have fallen apart; others have been withdrawn. In early May, for example, Duke Energy, another utility, told the NRC, which must approve new plants, that it was calling off two of the six reactors it had planned. Far from building new reactors, utilities are closing existing ones. Also in May, Dominion power shut a nuclear plant in Wisconsin that was licensed for another 20 years, "based purely on economics". The culprit is the price of natural gas, which fell from over \$13 per million British thermal units in 2008, when many of the applications to build new nuclear plants were lodged, to just \$2 last year. Although it has since recovered to over \$4, America's huge reserves of shale gas should stop it from rising much for years to come. That makes some old nuclear plants costlier to run than gas-fired ones. Factoring in the massive expense of building new reactors—the pair at Vogtle will cost around \$15 billion—makes nuclear power even less competitive. David Crane, the boss of NRG Energy, which scrapped plans to build two reactors in Texas in 2011 after sinking \$331m into the project, estimates that new gas-fired generation costs \$0.04 per kilowatt-hour, against at least \$0.10 for nuclear. It was not supposed to be this way. In 2005 Congress approved subsidies to bolster the nuclear industry and encourage the construction of new plants. It extended a law limiting owner liability in case of accidents and, for the first few new reactors, offered \$18 billion in loan guarantees, \$2 billion in indemnification against cost overruns and \$1 billion in tax breaks. The NRC streamlined its licensing procedures, hoping to avoid the years of delays that inflated costs for earlier nuclear plants. (Southern ended up paying \$8.7 billion for the existing reactors at Vogtle, a far cry from the \$660m originally projected.)

None of this has worked as advertised. Because the subsidies are short-lived, the NRC has been swamped with applications, which it has processed more slowly than it had hoped. It has quarrelled with (Continued on Page 4)

Thanks to cheap natural gas, America's nuclear renaissance is on hold

(Continued From Page 3)

the Vogtle consortium over the design, causing unexpected costs and delays. The plant is now perhaps 18 months behind schedule and \$737m over budget. That does not include a further \$900m that is the subject of legal dispute, plus the extra financing costs that will come with these overruns. Meanwhile, the consortium is struggling to agree on the terms of loan guarantees with the Department of Energy and says it may not take them up at all.

Southern shrugs. Over a 40- or 60-year lifespan, it says, the plant is the best option for customers. They will be insulated from the gyrations of the natural-gas price, immune from new rules to curb fossil fuels and spared the intermittency of solar and wind power. The firm can already borrow cheaply, thanks to its heft and regulations that allow it to charge captive customers for all "reasonable" expenses, plus a fixed profit margin. Georgia passed a law in 2009 allowing it to recoup some costs from customers during construction, before the new reactors toast a single Pop-Tart.

Few states have such generous rules and they are controversial. Florida recently modified a similar law, under which some companies are earning regulated profits on nuclear plants they have not even begun to build. The projected cost of one of these plants has risen to almost \$25 billion.

Then there is the question of what to do with spent nuclear fuel. Barack Obama's energy department scrapped a plan to bury the stuff in Nevada. (After careful study, it realized that the Senate majority leader is from that state.) It has not proposed an alternative. The nuclear accident in Japan in 2011 has made investors more nervous about nuclear power. Politicians have done little to address such fears, but continue to insist that America needs an "all-of-the-above" energy policy.

EXELON GENERATION SEEKING 20-YEAR LICENSE RENEWALS FOR BYRON & BRAIDWOOD NUCLEAR PLANTS IN ILLINOIS

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thought "it was a good idea" to apply for extensions at the same time because they are similar and began operating about the same time. The Braidwood and Byron plants are among the company's newest in Illinois — Braidwood's reactors began commercial operation in 1988 and Byron's in 1985 and 1987, respectively. Exelon said the plants together generate enough electricity to power more than 4 million homes. Nuclear plants initially are licensed for 40 years, after which they can receive 20-year extensions. Approval is not unusual, because companies are continually maintaining and upgrading plants, so many can last longer, NRC spokeswoman Viktoria Mitlyng said. She said the agency first must accept Exelon's the applications for review. After that, the company's application, including documentation, will become public. The time frame for review could be extended if there are petitions from the public or others to intervene in the process, she said. "It's a really thorough and very involved process," and will include reviews of company documents as well as on-site inspections, Mitlyng said. She said the NRC will consider the company's ability to manage safety equipment as it ages but not past problems — including leaks of radioactive tritium at Braidwood and Byron — because those issues are dealt with separately.

Exelon owns six nuclear plants in Illinois, with a total of 11 reactors, more than any other state in the U.S.

Hinkley Point nuclear project plods forward with new loan guarantee



July 1, 2013—Electricite de France SA (EDF) has received a \$15 billion loan guarantee from the UK government from the proposed new nuclear build at Hinkley Point, Bloomberg reports.

The announcement came amid other notices that the wind and solar projects in the UK would receive electricity price guarantees of 100 or more pounds per MWh. This news bodes well for the Hinkley Point nuclear project, as EDF has said it needs a guaranteed price of around at least 95 pounds per MWh to make the project economical. According to *Bloomberg*, UK Prime Minister David Cameron is expected to announce incentives strong enough to entice EDF for take on the project.

Entergy to cut jobs, mulls future of wholesale nuclear

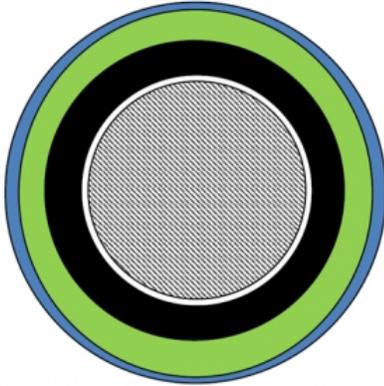
July 30, 2013, HOUSTON – Power company Entergy Corp is mulling the future of its wholesale nuclear operation and plans to cut 800 jobs to save up to \$250 million by 2016, Chief Executive Officer Leo Denault told investors on Tuesday. As part of his reorganization plan to simplify Entergy's corporate structure, Denault said the company is studying options for its non-utility owned power plants, mainly its aging nuclear plants operating in the U.S. Northeast which face falling wholesale prices and a difficult regulatory environment. "As we consider strategic alternatives for (Entergy Wholesale), all options are on the table," Denault said. Denault, who took the reins of New Orleans-based Entergy earlier this year after the retirement of J. Wayne Leonard, outlined seven strategic imperatives he said he hopes will make the company easier "to follow, predict and value."

Denault's top priority is to complete the integration of Entergy's transmission grid into the Midcontinent Independent System Operator, or MISO, and to obtain approval of the divestiture of the transmission assets to ITC Holdings Inc from state regulators by year end. The transaction, a spin-off and merger, has received approval from federal regulators, but regulators in four states have questioned whether the plan would increase transmission rates for Entergy customers without providing sufficient benefits. To satisfy state regulators, Entergy's utility units and ITC are offering a total of \$453 million in rate mitigation to customers to offset ITC's request for a higher rate of return. "We believe that the benefits for our customers, employees and communities are real," Denault said. "This rate mitigation plan puts us and ITC on the hook to deliver them."

Entergy also said its 834-megawatt Unit 1 at its Arkansas nuclear power plant may return to service in August, several months ahead of the company's last estimate. The unit has been shut since late March after an industrial accident during a refueling outage killed one worker. The plant is located near Russellville about 75 miles northwest of Little Rock.

(Reporting by Eileen O'Grady in Houston; Editing by Terry Wade and Marguerita Choy)

Improved nuclear fuel-rod cladding might prevent future Fukushimas



Fuel
 Gas gap
 Monolith

Composite
 Environmental Barrier Coating (EBC)

In the aftermath of Japan's earthquake and tsunami in March 2011, the Fukushima Daiichi nuclear plant was initially driven into shutdown by the magnitude 9.0 quake; its emergency generators then failed because they were inundated by the tsunami. But the greatest damage to the complex, and the greatest release of radiation, may have been caused by explosions of hydrogen gas that built up inside some of the reactors. That hydrogen buildup was the result of hot steam coming into contact with overheated nuclear fuel rods covered by a cladding of zirconium alloy, or "zircaloy" — the material used as fuel-rod cladding in all water-cooled nuclear reactors, which constitute more than 90 percent of the world's power reactors. When it gets hot enough, zircaloy reacts with steam to produce hydrogen, a hazard in any loss-of-coolant nuclear accident.

A team of researchers at MIT is developing an alternative that could provide similar protection for nuclear fuel, while reducing the risk of hydrogen production by roughly a thousandfold. Tests of the new cladding material, a ceramic compound called silicon carbide (SiC), are described in a series of papers [1|2] appearing in the journal *Nuclear Technology*. "We are looking at all sides of the issue, regarding replacing the metallic cladding with ceramic," says Mujid Kazimi, the TEPCO Professor of Nuclear Engineering at MIT, who is senior author of the papers. Because of the harsh environment fuel rods are exposed to — heat, steam, and neutrons that emanate from nuclear reactions — extensive further testing will be needed on any new cladding for use in commercial reactors, Kazimi says. SiC is "very promising, but not at the moment ready for adoption" by the nuclear industry, he adds. Other groups have suggested the use of SiC for cladding, but the material had never been subjected to the detailed tests and simulations that the MIT team carried out. Kazimi and his colleagues not only tested the material's response under normal operating conditions, with temperatures of 300 degrees Celsius (572 degrees Fahrenheit), but also under the more extreme conditions of an accident, with temperatures up to 1500 C (2732 F). Nuclear fuel rods are made of hundreds of small pellets of enriched uranium placed end-to-end inside hollow tubes of zircaloy that are about a half-inch across. The tubes are filled with inert helium gas to improve the heat conduction from the pellets to cladding that is cooled by the water that circulates outside the tubes. These tubes are then packed together in bundles that are inserted into the reactor core, where they heat water to produce steam to drive a turbine generator to produce electricity.

To test SiC cladding under normal operating conditions, the MIT team used a three-layer cladding design that features a middle layer made of a composite of SiC fibers reinforced with more SiC. The tubes were tested inside MIT's research reactor in special loops that replicate the coolant temperature and chemistry conditions in large power reactors. The irradiation apparatus was designed by MIT research scientist David Carpenter and research engineer Gordon Kohse. The effects of irradiation were studied by graduate student John Stempien and others, working with Kazimi. The results showed good strength retention during mechanical testing, Stempien says.

Graduate student Youho Lee and research scientist Tom McKrell conducted high-temperature oxidation studies on SiC. Under the extreme conditions of an accident, the corrosion rate was 100 to 1,000 times less than that of zircaloy. While zircaloy loses strength as temperature increases — becoming 2 percent weaker for every 10 C increase in temperature and losing all strength at about 1300 C, Stempien says — the strength of the SiC ceramic remains essentially constant to temperatures well above 1500 C. The potential advantages of SiC cladding extend beyond reducing the risks in an accident, Kazimi explains. Because SiC reacts slowly with water, even under normal conditions it degrades less and can remain in a reactor core longer. That could allow reactor operators to squeeze extra energy out of fuel rods before refueling: The rods are typically replaced after four or five years in a reactor, and degradation of the cladding is a major limitation on their longevity. In addition, the ability to leave fuel rods in place longer would reduce the spent fuel produced by each reactor, resulting in less volume for disposal, Kazimi says. There are still further tests to be done: In particular, while zircaloy tubes can have their ends capped by welding a metal disk onto each end, ceramic can't be welded, so a suitable bonding agent will need to be found. "We need to join the ceramic to ceramic in a way

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Both nuclear units at SONGS to be retired



Jun 7, 2013—Southern California Edison (SCE) said it will retire units 2 and 3 at the San Onofre Nuclear Generating Station (SONGS) in California. “SONGS has served this region for over 40 years,” said Ted Craver, Chairman and CEO of Edison International, parent company of SCE, “but we have concluded that the continuing uncertainty about when or if SONGS might return to service was not good for our customers, our investors, or the need to plan for our region’s long-term electricity needs.” Both SONGS units have been shut down safely since January 2012. Unit 2 was taken out of service January 9, 2012, for a planned routine outage. Unit 3 was safely taken offline January 31, 2012, after station operators detected a leak in a tube inside a steam generator manufactured by Mitsubishi Heavy Industries (MHI). Two steam generators manufactured by MHI were installed in Unit 2 in 2009

and two more were installed in Unit 3 in 2010, one of which developed the leak.

In connection with the decision, SCE estimates that it will record a charge in the second quarter of between \$450 million and \$650 million before taxes (\$300 million — \$425 million after tax), in accordance with accounting requirements. After months of analysis and tests, SCE submitted a restart plan to the Nuclear Regulatory Commission (NRC) in October 2012. SCE proposed to safely restart Unit 2 at a reduced power level (70 percent) for an initial period of about five months. That plan was based on work done by engineering groups from three independent firms with expertise in steam generator design and manufacturing. The NRC has been reviewing SCE’s plans for restart of Unit 2 for the last eight months, during which several public meetings have been held. A recent ruling by an adjudicatory arm of the NRC, the Atomic Safety and Licensing Board, creates further uncertainty regarding when a final decision might be made on restarting Unit 2. Additional administrative processes and appeals could result in delay of more than a year. During this period, the costs of maintaining SONGS in a state of readiness to restart and the costs to replace the power SONGS previously provided would continue. Moreover, it is uneconomic for SCE and its customers to bear the long-term repair costs for returning SONGS to full power operation without restart of Unit 2. SCE has concluded that efforts are better focused on planning for the replacement generation and transmission resources that will be required for grid reliability. In connection with the retirement of Units 2 and 3, San Onofre anticipates reducing staff over the next year from about 1,500 to about 400 employees, subject to applicable regulatory approvals. The majority of such reductions are expected to occur in 2013. Full retirement of the units prior to decommissioning will take some years in accordance with customary practices. Actual decommissioning will take many years until completion. Such activities will remain subject to the continued oversight of the NRC. SCE intends to pursue recovery of damages from Mitsubishi Heavy Industries, the supplier of the replacement steam generators, as well as recovery of amounts under applicable insurance policies.

This article was originally published on Electric Light & Power/POWERGRID International.

Improved nuclear fuel-rod cladding might prevent future Fukushimas

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that can withstand the conditions in the nuclear core,” Kazimi says. “That’s not as perfected a science as it is for metals.” Other details, such as the optimal thickness of the tubes for durability and for heat transfer, also need to be determined. In addition, the material needs to be tested further to determine its response to various stresses. “The fracture behavior is different,” co-author Lee says. In particular, while metal deforms predictably under pressure, a ceramic tends to fracture in a way that is “more statistical,” he says: It can only be predicted as a statistical likelihood of certain failure modes. Regis Matzie, a former vice president and chief technology officer at Westinghouse, says that while SiC cladding has been investigated previously, such research “has only increased in importance after the core-melting and hydrogen explosions at the Fukushima site.” The three-layer design developed by the MIT team “appears to be the most promising of the new reactor fuel materials being proposed and investigated,” he says, adding that this is “very important research to the eventual implementation of the new cladding material.”

Reversing Trend: Opting for 12-Month Cycle At Clinton Power Station

This article withdrawn

at the request of the author.

NRC issues post-Fukushima safety rule



June 6, 2013— A new safety rule developed in the aftermath of the disaster at Japan's Fukushima power station is being handed down to nuclear plants. The Nuclear Regulatory Commission (NRC) on Thursday directed 31 reactors to improve the way they let off pressure from the containment buildings that house reactor cores.

The new requirements are meant to ensure that the vents can withstand the pressure, temperatures, radiation and amounts of hydrogen from a damaged reactor. In an emergency, they would stop

pressure from building up inside the reactor. In a statement, NRC Chairwoman Allison Macfarlane said the rule "will help these plants continue to protect the public and the environment even if emergency systems can't immediately stop an accident." She added, "By safely releasing built-up pressure and hydrogen, the plants will preserve the buildings that contain radioactive material."

The commission believes that the new requirements will allow plant staff to operate the vents safely if the reactor core is damaged. The nuclear industry commended the rule. In a statement to The Hill, Nuclear Energy Institute spokesman Steve Kerekes said it was "in line with the industry's ideas on the most effective means to address the venting issue, and we consider the timing of the phased approach to be achievable."

Plants will have different deadlines to comply with the requirements depending on their refueling schedules, but the first plants will need to have completed some improvements by June 2014. The new regulation is part of a series of orders developed after the 2011 disaster at the Fukushima Daiichi nuclear plant. A Platts survey of companies released on Thursday estimated that power plant operators could spend up to \$3.6 billion over the next three to five years in response to the tragedy. In March, the NRC delayed issuing new standards for systems to filter out radioactive material from any gases vented during an accident. Those systems could cost as much as \$45 million each, according to industry groups, though proponents say they are necessary to prevent the kind of catastrophe that occurred at Fukushima.

Read more: <http://thehill.com/blogs/regwatch/energyenvironment/304021-nrc-issues-post-fukushima-safety-rule>

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FALL 2013
VOLUME 9 ISSUE 4

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Building steam in Chinese nuclear

May 10, 2013—Steam generators have been installed at new nuclear power reactors in Ningde and Fangjiashan in Fujian and Zhejiang provinces respectively.

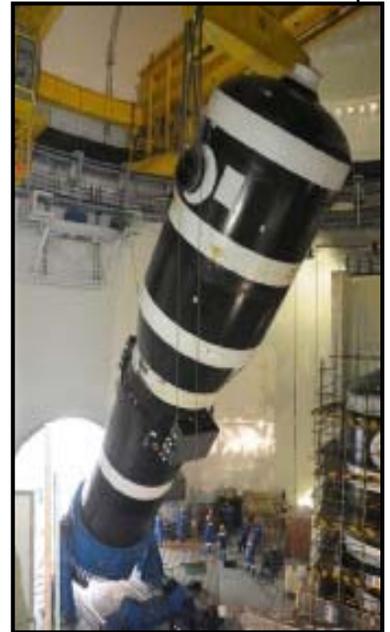
Four CPR-1000 pressurized water reactors are planned for Ningde. The first began operation last month, while on 3 May the third unit finished installing its 345 tonne steam generators on schedule for startup at the end of this year. By 2015 all four reactors should be in operation at Ningde, with authorities considering adding two more advanced ACPR-1000 units.

A similar operation to install steam generators was completed at Fangjiashan 2 on 7 May. That site, which is adjacent to the Qinshan and Qinshan Phase II nuclear power plants, is only currently slated for two CPR-1000s. These are expected to start operation in December this year and October next year.

Steam generators are major components in a pressurized water reactor system which transfer heat from the primary reactor coolant circuit to a secondary circuit, turning water into steam to drive a turbine and generator.

Across China some 28 nuclear power reactors are under construction. National plans will see China's fleet surpass that of France in terms of generating capacity by around 2020 and reach double the size of the current American fleet by 2030.

Researched and written by World Nuclear News



At Fangjiashan 2 a steam generator is raised to vertical position (Image: CNECC)

NWI Supports Cruse In Fundraiser - July 2013



NWI participated in “Benefit Car Cruise In Car Show for Miracle Max” on July 13, 2013. The benefit was to help support the medical costs for Miracle Max, a baby who has survived brain surgery and many other complications. His mother was a teller at Tennessee State Bank in Seymour and worked another part time job. His father works at Wal-Mart, and is a student. Since Max got sick Mother Jessica had to quit both jobs and Father David had to quit this semester for school because Max required 24/7 care. Besides the Brain tumor that was removed by his surgery - Max is dealing with the side effects of having a stroke

the day before his surgery due to fluids that accumulated on his brain. They are working on his breathing and motor skills daily.

During all of this, their bills did not stop coming in, and medical bills piled up including costs of coming and going to the hospital, eating, etc. At the fundraiser, along with a car show, there was food/drinks and a silent auction was for 2 night stay at a Smokey Mountain, show tickets, gifts, & other services. Donations for the auction directly helped this family. ALL MONEY RAISED went to the Hurst family!



NWI News Board

- Assisting Monticello in preparation for their upcoming EPU outage in the design engineering and project management areas.
- Supporting Oversight & Chemistry activities at Grand Gulf.
- Providing CAP/ Engineering support at PPL’s Susquehanna Steam Electric Station.
- Supporting Entergy’s Nuclear Safety Review Board.
- Offering CAP expertise and insights to OPPD Ft. Calhoun and TVA Browns Ferry nuclear plants.
- Conducting NPPD Cooper Independent Nuclear Safety Culture Assessment support.
- Providing project closure support for causal analysis and CAP recovery activities for Ft. Calhoun.
- Supporting upgrade activities for River Bend Maintenance Training improvement efforts.
- Providing project management support at Xcel Energy’s Prairie Island Nuclear Power Plant.
- Providing RCA support for Southern Company’s Vogtle Plant

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- NPPD Cooper Nuclear Station
- PPL Susquehanna Steam Electric Station
- Southern Co. Nuclear Operations Vogtle Plant
- TVA’s Browns Ferry Nuclear Plant
- Xcel Energy’s Monticello & Prairie Island Plants



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