



# GTTSi

Serving the Nuclear and Energy Industry  
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## March 2018

### March 2018 Newsletter



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**May your DAY's be filled with BLESSINGS  
like the Sun that lights the sky!  
And may YOU always have the COURAGE  
to spread your wings and FLY .....**

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## Will Ohio Lawmakers Save First Energy's Struggling Power Plants?



***“Ohio state lawmakers are struggling over concerns centered around Senate Bill 155; SB 155 was proposed in 2017 and if implemented would prop up FirstEnergy’s Perry and Davis-Besse nuclear power plants by creating a “zero emissions credit”. if the “zero emissions credit” were implemented it has been estimated the cost would only raise a customer’s electric bill by about \$5 a month, saving thousands of jobs while continuing to keep Davis-Besse (pictured above) and Perry (pictured below) operating.”***

Ohio state lawmakers are struggling over concerns centered around Senate Bill 155; SB 155 was proposed in 2017 and if implemented would prop up FirstEnergy’s Perry and Davis-Besse nuclear power plants by creating a “zero emissions credit”.

A “zero emissions credit” is based on the fact that these two Ohio nuclear power plants provide clean zero-carbon emission electricity, helping Ohio achieve its greenhouse gas emissions goals for the future.

However, cheaper sources, such as natural gas and coal do not, and if a “zero emissions credit” were implemented it has been estimated the cost would only raise a customer’s electric bill by about \$5 a month, save thousands of jobs while continuing to provide reliable resilient electricity.

Passage of this bill or something similar to it is critical to FirstEnergy’s survival based on testimony from FirstEnergy’s CEO, Chuck

Jones, who said before a Senate subcommittee, that this proposal could save the company from bankruptcy.

The Akron-based company is struggling to compete with the cheaper cost of natural gas and will have to sell or close its two Ohio nuclear plants as it looks to exit the competitive energy generation business unless something can be done to help them. Moody’s Investors Services downgraded the bond rating of FirstEnergy Solutions — the subsidiary that owns these two Ohio plants — Moody’s stated it is highly likely the subsidiary will default on a \$100 million bond payment in early April that will result in bondholders losing a significant percentage of their investments.

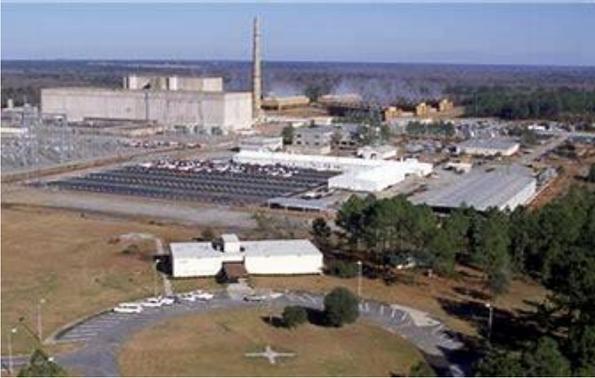
In January, the Federal Energy Regulatory Commission (FERC) voted against a proposal from U.S. Energy Secretary Rick Perry to provide assistance for coal and nuclear energy

generators. In its decision, FERC pushed the issue down to the regional energy markets, which in Ohio’s case would be the PJM Interconnection. FERC directed the operators of the regional wholesale power markets to “provide information as to whether FERC and the markets needed to take additional action on the resilience of the bulk power system.”

People in northeast Ohio understand the important role that Perry Nuclear Power Plant has played in the community. That includes Senate Minority Leader Kenny Yuko, who was part of the team of workers that helped build the facility back in the 70’s. Senate President Larry Obhof, says they need to consider all the cause and effects these plant closures could bring to Ohio. For example; if these plants close we lose 11% of our electric generation, thousands of jobs, loss of tax revenue, and eventually driving up taxes and the cost of electricity.



## GNF Accident Tolerant Fuel Assemblies to be Tested at Plant Hatch



***“Lead Test Assemblies of Accident Tolerant Fuel (IronClad & ARMOR) are planned for installation at Plant Hatch during their next fuel load outage. Two variants of the IronClad assemblies, as well as, ARMOR lead test assemblies will be installed and tested. Plant Hatch is a two-unit BWR (Boiling Water Reactor) located in south-western Georgia, owned by Georgia Power, Oglethorpe Power, MEAG Power and Dalton Utilities, and is operated by Southern Nuclear.”***

You may recall some of our articles concerning Accident Tolerant Fuel (ATF), the last article was in October 2017. This program began in 2012 when the Department of Energy (DOE) launched an ATF Development Program supported financially by the DOE (80%) and our nuclear industry (20%). Since then, the program has advanced past the safety aspects and into improvements with the fuel's performance, while also being economically attractive.

The overall goal was to develop new cladding materials and new fuel materials that could better tolerate the loss of active cooling in the core, while maintaining or improving fuel performance and economics during normal plant operation.

Three concepts for advanced fuels are currently under development and qualification, with three fuel vendors – GNF (Global Nuclear Fuels), Framatome, and Westinghouse - supported by shared funding from the DOE. Framatome's

concept involves using a chromium-coated zirconium alloy cladding combined with chromia-doped fuel pellets, while the initial phase of Westinghouse's EnCore Fuel product consists of coated cladding containing uranium silicide pellets.

Independent of the DOE program, US-based Lightbridge is working on what they call an accident-tolerant advanced metallic fuel. They just recently launched the Enfission joint venture with Framatome to commercialize their product.

Accident-tolerant nuclear reactor fuels are a potential game-changer for the industry, according to the US Nuclear Energy Institute (NEI). The capabilities of these more robust fuel designs are showing enough promise that the US nuclear industry wants to accelerate their development and possible deployment.

GNF (Global Nuclear Fuels) recently announced that they are working with Southern Nuclear and Exelon Generation to insert lead test assemblies using an iron-chromium-aluminum fuel cladding material, known as IronClad, and coated zirconium fuel cladding, known as ARMOR, into several operating reactors.

The IronClad material is designed to provide oxidation resistance and demonstrate "excellent material behavior" over a

range of conditions, such as, low oxidation rates at higher temperatures; improving the operating safety limit margin, an accident tolerant fuel characteristic. In addition, GNF has been working with suppliers, vendors, laboratories, and utilities establish a more robust fabrication process for the cladding and also assessing the economic benefits of ferritic steel-clad fuel rods.

The ARMOR coating is applied to a standard zirconium clad fuel rod. It enhances the fuel rod's protection against debris fretting, and provides greater resistance to oxidation, also improving the fuel rod's operating safety limit margin.

Two variants of the IronClad material will be installed at Plant Hatch during their next fuel load outage: one in a fuel rod form without fuel inside, and one in the form of a solid bar segment.

ARMOR lead test assemblies that contain fuel will be installed in the same reload. Lead test assemblies containing fuelled versions of both rods are planned to be installed at Exelon's Clinton power plant in 2019.

GNF is a GE-led joint venture with Hitachi and operates primarily through Global Nuclear Fuel-Americas in Wilmington, North Carolina, and Global Nuclear Fuel-Japan Co, in Kurihama, Japan.

## Decommissioning - NRC Proposes Rules / Lawmakers Bills



***“As the NRC proposes rule changes to streamline the decommissioning process, our Lawmakers introduce bills they believe will transform the process that is weighted almost entirely toward the power plant licensees. Lawmakers are looking for a balance between licensees and the impacted communities. Currently we have several nuclear plants undergoing decommissioning (Crystal River 3, San Onofre 2&3, Kewaunee, Vermont Yankee, and Fort Calhoun).”***

The Nuclear Regulatory Commission (NRC) recently published a 180-page analysis of areas up for amendment concerning the rules for nuclear plant decommissioning. .

One of the goals of these changes, expected to be finalized in 2019, is to cut down on the large number of exemptions and amendments that owners of decommissioning reactors seek.

The NRC Staff said, “For decommissioning reactors, the number of potential accidents is fewer and the risks of radiological releases are reduced when compared to an operating reactor, therefore, decommissioning licensees request certain amendments to their licenses and certain exemptions from the NRC’s operating regulations that reflect this reduction in risk.”

The reactors currently undergoing decommissioning (**Crystal River 3, San Onofre 2&3, Kewaunee, Vermont Yankee, and Fort Calhoun**), have to date, submitted 49 requests for exemptions and license amendments.

These requests range from the elimination of the 10-mile emergency planning zones surrounding plants to reductions in required liability insurance for off-site problems, a shrinking of security staff and the ability to dip into the decommissioning trust

funds for expenses that could be incurred beyond dismantling of the plant.

As the NRC moved forward on approval of streamlining plant decommissioning regulations, Senators Edward Markey, D-MA, Kamala Harris, D-CA, Bernie Sanders, I-VT, and Kirsten Gillibrand, D-NY introduced federal legislation they claim will improve safety at nuclear plants permanently closed down and undergoing decommissioning.

The Safe and Secure Decommissioning Act of 2018, introduced by Harris and co-sponsored by those other senators, would prohibit the Nuclear Regulatory Commission from issuing waivers or granting exemptions from compliance with safety and emergency preparedness regulations laid out in the Atomic Energy Act of 1954, until spent fuel from the reactor has been transferred into dry casks.

The Nuclear Plant Decommissioning Act of 2018, introduced by Sanders and co-sponsored by Markey, Harris and Gillibrand, would allow state and local communities to participate in the drafting plans associated with decommissioning of a retiring plant(s) in their area. The act would also require the Nuclear Regulatory Commission to publicly approve or reject the decommissioning plans — a process the

agency is currently not required to follow.

Last year Markey introduced the Dry Cask Storage Act, co-sponsored by those other senators, that would require highly radioactive spent fuel to be transferred from the spent fuel pool into dry cask storage within seven years of a licensee presenting its plan to the NRC. The Act also provided funding to help the reactor licensees implement these plans and it expanded the emergency planning zones for non-complying reactors out to 50 miles.

Overcrowded spent nuclear fuel pools are a disaster waiting to happen, according to Markey. He said, Pilgrim’s spent fuel pool contains nearly four times the amount of radioactive waste it was originally designed to hold. We need the NRC to post a DANGER sign outside these fuel pools and ensure dangerous nuclear waste is moved to safer storage before a nuclear disaster occurs.

These lawmakers believe the Nuclear Plant Decommissioning Act of 2018 would transform this process that they believe is weighted almost entirely toward the power plant licensees into one that strikes a reasonable balance between licensees and the impacted communities.

## Looking for a Good Job? – Do you have the Skills for a Utility Worker?



***“The electrical power industry needs workers; not robots. They need technicians who can oversee equipment in substations and power plants, engineers who can plan and design the power systems of tomorrow, and line-workers, men and women who become heroes each time they make a repair to damaged infrastructure. It is estimated that 1.5 million new power industry jobs will be needed by 2030. Today’s electrical power worker needs to fully understand the structure of the existing grid, designed 50 - 80 years ago; not to manage it but to change it.”***

The electrical power industry needs workers; not robots. Even as the electrical utilities are building a smarter—and yes, more automated—grid, the industry needs more workers and they are aggressively seeking qualified experts to replace a mass exodus of the “baby boomers”.

They need technicians who can oversee equipment in substations and power plants, engineers who can plan and design the power systems of tomorrow, and line-workers, men and women who become heroes each time they make a repair to damaged infrastructure. Nearly half of all line-workers are expected to retire over the next five years.

These constitute good-paying, career-launching jobs that Americans want and need but in most cases these jobs remain open for months, if not indefinitely.

It is not due to a “lack of interest, it is due to a “lack

of “qualifications” and /or “skills”. Plenty of people apply but according to the U.S. Department of Energy (DOE), 7 out of 10 power industry firms are struggling to find candidates that can meet the necessary experience, education, and skills required for these “high paying” jobs.

It is estimated that 1.5 million new power industry jobs will be needed by 2030. Over the next 10 years, an estimated \$757 billion – 268% more than was spent in the prior two decades – will be spent on our grid infrastructure. We are not just talking about replacing aging assets, making an old system new. We are talking about making the 21<sup>st</sup> century grid a profoundly different machine than its predecessor.

The shift towards renewable energy and the incorporation of digital technologies required to manage them are now working together to create a grid that is much more

complex to manage and operate.

The industry needs workers with comparable skills to the men and women needed to be replaced – but also have an even higher level of technical know-how. Simply put, they need analog and digital skills, along with a background in information technology systems and digital infrastructure. These kind of skills have not been prominently featured in technical training programs – however, today they are essential.

Today’s electrical power worker, also needs to fully understand the structure of the existing grid, designed 50 - 80 years ago; not to manage it but to change it. They will need to apply their knowledge of smart technologies to guide the power industry into the future.

It has never been more important to provide classroom and hands-on training that can provide these skills, for example; simulated computer programs that teach students how to master software applications and how to operate the equipment in a “virtual setting” that reduces the risk of injury and results in no service disruptions.

Yes ... our electrical power grid is getting smarter, but it will never be smart enough to run without workers who can manage it.

**Did You Know?**



**“That FERC predicts the following through the end of 2020 for solar, wind, and natural gas: 116 GW of wind and solar combined, with 72.5 GW’s attributed to wind in 465 units, 43.5 GW’s of solar in 1,913 units, and 92.5 GW’s in 387 units from natural gas. Coal is expected to keep shrinking, with 20.7 GW’s of retirements in the same timeframe. However, 1,927 MW of new coal capacity in four units has been proposed. They also noted that renewable retirements were also expected; 68 MW’s with two wind units and 2 MW’s with five solar units.”**

<p><b>DOE to establish CESER Office (Cyber Security, Energy Security, and Emergency Response)</b></p>	<p>That the <b>DOE (Department of Energy) plans to establish an Office of Cyber Security, Energy Security, and Emergency Response (CESER Office)</b>. \$96 million in funding for the CESER Office is included in the FY19 budget request. The CESER office will be led by an Assistant Secretary that will focus on energy infrastructure security, support the expanded national security responsibilities assigned to the Department, and report to the Under Secretary of Energy.</p>
<p><b>Virginia’s so called “Utility Monopoly Bill” remains unsolved.</b></p>	<p>That <b>Dominion Energy wants to limit the state’s regulatory ability to lower rates</b> as part of an overhaul it says is needed to increase spending on grid upgrades and renewable energy. This bill being called the “Utility Monopoly Bill”, previously passed by the Senate, was agreed to between Governor Northam and Dominion, however, the Virginia House recently passed an amendment that would prevent Dominion from effectively charging customers’ twice for some capital spending, a significant change to the previously passed legislation. <b>It is unclear what the final legislation will look like and the so called “Utility Monopoly Bill” remains unsolved.</b></p>
<p><b>Community holds a “Save the Perry Nuclear Power Plant” rally</b></p>	<p>That the <b>community surrounding Perry Nuclear Station held a rally on February 17, 2018?</b> It was called the <b>“Save the Perry Nuclear Power Plant” rally</b>, and <b>held at 11 am in Perry High School’s Godwin Theater. It was hosted by Perry Schools Superintendent Jack Thompson and Lake County Commissioner Jerry Cirino.</b> The future of Perry Nuclear Power Plant in North Perry and the Davis-Besse Nuclear Power Plant in Ottawa County remains uncertain as FirstEnergy is looking to sell or close them.</p>
<p><b>two-year budget deal included a production tax credit extension</b></p>	<p>That the <b>two-year budget deal</b> recently approved by the House and Senate and then signed by President Trump, <b>included a production tax credit extension that will revive the \$0.018 per-kWh credit for nuclear power plants over 6,000MW.</b> This tax credit extension specifically affects the two new-generation nuclear power plants being built in Georgia, at Southern Company’s Plant Vogtle Site, near Waynesboro.</p>
<p><b>New Mexico House has approved a tax credit for solar</b></p>	<p>That the <b>New Mexico House has approved a tax credit that would offset costs of solar energy systems for households, small businesses and farms.</b> The bill reinstates tax credits that expired in 2016 and cap annual credits at \$5 million. The new credit would gradually decline from 10% to 6% over a 15-year period.</p>
<p><b>power grid upgrade; two 115 kV transmission lines and a new substation</b></p>	<p>That National Grid has proposed an <b>upgrade for the power grid in Buffalo, NY to the New York Public Service Commission. The upgrade would include two 115 kV transmission lines (Line 145 and Line 146) that would provide a dual supply to a proposed new substation, Ohio Street Substation.</b> Included with the new transmission lines and substation is the upgrade of existing structures and transmission lines that were originally built in the 60’s and 70’s’.</p>

## U.S. Nuclear Renaissance Watch Update



<i>License Applicant</i>	<i>Reactor(s)</i>	<i>Location</i>	<i>Model</i>	<i>Startup Target</i>	<i>Licensing Status</i>	<i>Commercial Status</i>
Dominion	North Anna 3	Mineral, VA	ESBWR	Indefinite	FEIS, FSER Issued; COL Issued 5.31.17	<b>Term sheet with vendor GE Hitachi</b>
DTE Electric	Fermi 3	Monroe, MI	ESBWR	Indefinite	COL Issued 5.1.15	<b>No commitment</b>
Duke-Energy	Harris 2 & 3	New Hill, NC	AP1000	Indefinite	Suspended at applicants request	<b>Duke not moving forward</b>
	Lee 1 & 2	Gaffney, SC	AP1000	2024, 2026	COL's Issued 12.19.16	<b>Duke not moving forward</b>
	Levy 1 & 2	Levy County, FL	AP1000	2024, 2025-2026	COL's Issued 10.26.16	<b>Duke not moving forward</b>
FPL Energy	Turkey Point 6 & 7	Florida City, FL	AP1000	2022, 2023	FEIS, FSER Issued; COL pending	<b>Vendor negotiations</b>
Luminant (Vistra)	Comanche Peak 3& 4	Glen Rose, TX	US-APWR	Indefinite	Slowed at applicants request	<b>Not moving forward</b>
NINA / STPNOC	South Texas 3 & 4	Palacios, TX	ABWR	Indefinite	COL's issued 2.12.16	<b>EPC contracts signed</b>
SCANA / Santee Cooper	V.C. Summer 2 & 3	Parr, SC	AP1000	2019, 2020	COL's issued 3.30.12	<b>Project Abandoned</b>
Southern Nuclear	Vogtle 3 & 4	Waynesboro, GA	AP1000	2021, 2022	COL's issued 2.10.12	<b>Construction continued</b>

The ABWR is a Boiling Water Reactor design that is available from either GE Hitachi Nuclear Energy or Toshiba; Toshiba Advanced Boiling Water Reactor design was certified by the NRC in 2012.

The AP1000 is a Pressurized Water Reactor design that is available from Westinghouse; certified by the NRC in 2011.

The ESBWR is a Boiling Water Reactor design that is available from GE Hitachi Nuclear Energy; certified by the NRC in 2014.

The US-APWR is Pressurized Water Reactor design that is available from Mitsubishi; design certification application is under review by the NRC.

The US EPR is a Pressurized Water Reactor design that is available from Areva; design certification application is under review by the NRC.

The two Westinghouse AP 1000 units being built at V.C. Summer were abandoned on July 31, 2017.



# GTTSi Joins Georgia / Carolinas PCI Group



Representing GTTSi at the PCI Meeting in Charleston, SC were Mrs. Kaye Browder (*Technical Staffing Manager*) and Mr. Sid Crouch (*VP, Technical Operations*).

GTTSi recently joined the Georgia/Carolinas PCI organization which services the three-state region of Georgia, North Carolina, and South Carolina. GTTSi will provide professional staffing services to PCI producers and associates; an elite group committed to the growth and profitability of the Precast Industry. Georgia/Carolinas PCI represents 12 Certified Precast Producers with 18 plants and over 50 associate/supplier members that produce a variety of concrete industry related products and services.

GTTSi is located in the South Carolina "upstate" not far from Clemson University in Seneca, SC and they have been providing professional staffing services to the electrical utilities (*both nuclear and non-nuclear*) since 1980.

In 2010, several utility clients needed construction services due to several new-build projects that were undergoing. So, GTTSi answered this need and began offering construction services, such as; construction work planners, work cost estimators, engineers, project managers, employee concerns coordinator, construction safety specialist, construction compliance oversight for civil, mechanical/welding, and electrical/I&C, to name a few.

Now that GTTSi has this construction services background, we have joined the Georgia/Carolinas PCI Group because we share the same high standards and can provide them with the professional staffing services they need.

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## GTTSi

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