



Global Technical Training Services, Inc. Newsletter



The State of the Industry

Sid Crouch, GTTSi Chief Technical Consultant

Our so-called “**nuclear renaissance**” is at a crossroads - 1 out of 4 nuclear employees are going to retire within the next 10 years. A lot of experience and “lessons learned” walking away. 25% of our workforce is over 55, compared to 20% in the oil and gas industry, and only 10% in the renewable energy sector. And 9% are already 65 and above. The fight to hire experienced employees is fierce - trying to find skilled power plant workers is like looking for a needle in a haystack. This has forced the utility operators to use technology to reduce potential effects, gradually digitize their work processes, and find ways to preserve informal know-how, thereby reducing the learning curve for new hires. Highly specialized workers are one of the critical issues. A great example of this issue is welders – their average age is 55 – they are in high demand. The “**nuclear renaissance**” will require many more of them and this experience cannot be taught in the classroom or even in the lab but comes from doing the job. This kind of experience is earned, and welders are just one example of the specialized worker dilemma. Despite the industry’s shift to automation and digitization, finding employees for the future will require a massive undergoing. Here in the U.S., it is estimated that we will need five times the current number of employees to reach our 2050 net-zero goals. This seems unattainable based on the number of engineering students we see in our colleges and universities but hope springs eternal. Understanding the problem is the first step in finding a solution.

I welcome your comments or questions - sid.crouch@gttsi.com

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DID YOU KNOW?

GTTSi Job Board Update



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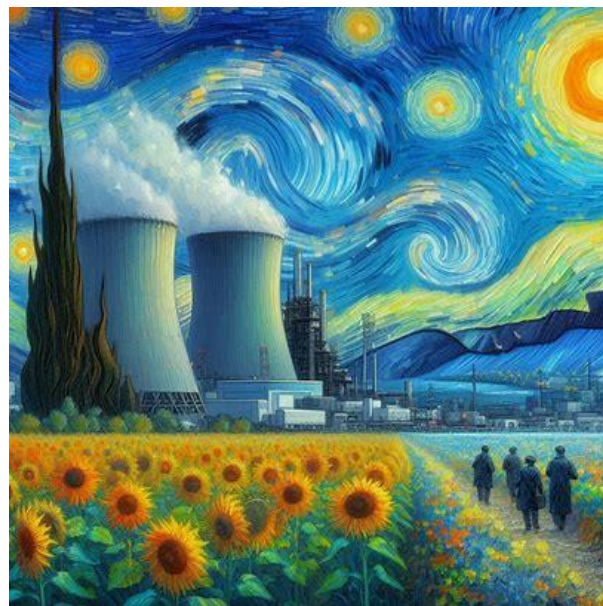
NUCLEAR RENAISSANCE-TO BE OR NOT TO BE

by Jose Dubon

The issue of additional nuclear power plants to achieve clean energy has a lot of people talking and a lot of people dreaming. This month Mr. Joseph (Jose) R. Dubon is a guest GTTSi Newsletter article writer. Mr. Dubon is a Senior Construction / Procurement Engineer PM / Licensing Engineer and has been in the nuclear power industry for 40 years. He shares his thoughts on the nuclear industry below.

There is more to the licensing and timely construction of a nuclear power plant than meets the eye. First is the decision to select an NSSS (**nuclear steam supply system**). We have two proven USNRC Certified Light Water Reactor (**LWR**) designs that have been working for more than 40 years – the PWR (**pressurized water reactor**) and the BWR (**boiling water reactor**). In our industry we know how to design and construct containment buildings. We know how to erect turbines and their buildings. We know how to construct intake structures. We know how to construct and maintain spent fuel pools. We know how to fabricate reactor vessels that last for more than 60 years. We have a Conduct of Engineering, Conduct of Operations, Conduct of Maintenance, Conduct of Systems Engineering, Conduct of Training, and Conduct of QA that has resulted in safer plant operations with a proven track record of safety.

Therefore, I pose this question ... Why is there so much desire and effort spent on trying to come up with a new NSSS design? If the issue is to **save** the planet from the effects of fossil fuels, why are we wasting time on new, unproven, untested, and non-viable nuclear technologies? Why? Those technologies will



take at least another 15 years to be viable for producing electricity. Those professing that we will have operating modular reactors in less than five years are the dreamers in the crowd.

Instead, I suggest we take the best operating nuclear power design with the safest records, copy it and build it again in the same location as that one. There is plenty of land around it. The tie to the grid is already there. The source of cooling is already there. The environmental impact analysis is there with a start. There is no need to populate the landscape with modular reactors in remote places requiring new transmission lines to connect to the grid. This has already been accomplished if we use these existing sites. The supply chain for nuclear fuel fabrication is already there and has been working for a long time. The conduct of operations, maintenance, engineering, security, refueling, training, and management models are already there. Why reinvent the wheel? Simply add to what has *(continued)*

already been working for years while we wait on the entrepreneurs to develop and certify other forms of nuclear to generate electricity.

I'm afraid we will run out of time if we wait for design and licensing completion of these new technologies that are unproven and may never work. SMR (**small modular reactor**) designs, like NuScale, plan to transport 1,200-ton reactor modules on the backs of trucks to the construction sites through the nooks and crannies of our decaying road and bridge infrastructure throughout the states. Just ask the Wind Turbine Industry about the difficulty they have encountered in transporting large and heavy objects through the remote areas of this country. According to the news, there are




Mr. Joseph (Jose) R. Dubon has worked at sites including Vogtle, VC Summer, Innsbrook, TVA, Peach Bottom, and for companies including Bechtel, PG&E, and the Department of Energy



Boiling Water Reactors (BWRs) and Pressurized Water Reactors (PWRs) have been in existence since the 1950s. The first commercial BWR, Dresden-1 (pictured above) began operation in 1960, while the first commercial PWR, Shippingport Atomic Power Station, started in 1957. These reactor designs emerged from early nuclear research and development efforts, primarily in the United States, and have since become the most common types of nuclear reactors used worldwide for electricity generation.

several recent examples of nuclear power technologies that will never work. Although they work on paper or in the mind of a university professor, they are not realistic. Operating systems at temperatures above 1,200 degrees F for power generation is risky and dangerous and the fabrication of components will be very expensive.


Continuing to place all efforts into modular designs to battle the ill effects of global warming and damage from fossil fuels is insane. The SMR fuel has yet to be designed, fabricated, tested, and approved by the NRC. Way too far into the future. Let's make an agreement to bring back nuclear energy from the designs that are currently working and start the design, reviews, approvals, and licensing before it's too late. In addition, there are a few reactors that could be brought back from decommissioning like Holtec is doing with Palisades. "Doesn't it make more sense to stick with what we know works and is somewhat more readily available?" 

THERE YOU HAVE IT: BEN CARLIN SAYS THANK YOU



Ben Carlin is an AOV L2 Test Engineer who has been working on the Vogtle 3&4 Project for GTTSi. He has been involved with the project for more than 4 years. Below are his thoughts about this experience.

“There you have it. Unit 4 100% Commercial operations on the grid. 4 Units up and running and Vogtle now is the largest nuclear provided of carbon free energy site in the country. We have finally reached the completion and operation of Unit 3 and Unit 4 AP1000s. It has been a wild experience working alongside some of the brightest hard-working men and women I have ever worked with. From all different groups, procedures compliance, engineers, operators, mechanics, carpenters, electricians,

I&C techs, testers, riggers, QC, labors... etc... I thank you all. Over the past 4 years and some odd months, I have been part of this Rebirth of the nuclear Renaissance. Working insane long hours and 90% of it on Night Shift. To say that this has been one of the hardest things I have ever done in my career and life would be no far stretch from the truth. I am incredibly grateful to my company GTTSi, granting me the opportunity to be part of this amazing achievement. My time and completion within the initial test program department is slowly ending. I cannot wait to see what happens next. I hope and dream that we continue the path to creating more carbon-free nuclear energy and building more for the generations of the future.” 

SIERRA CLUB'S PROPOSAL STRIKES OUT WITH THE PJM

Talen Energy is part of the PJM (*Pennsylvania-New Jersey–Maryland*) Interconnection, a regional transmission organization (*RTO*) that coordinates the movement of wholesale electricity in 13 states and the District of Columbia. Several years ago, Talen Energy announced their plans to retire the Brandon Shores 1,280 MW coal-fired power plant (pictured below), located near Baltimore, by June 1, 2025.

As a result, the PJM conducted an analysis concerning the loss of this capacity on their network and found that shuttering the plant would cause major reliability problems that could be resolved, but would require building new transmission lines to help maintain grid voltage and prevent thermal overloads.

The Sierra Club was not keen on PJM's resolution and proposed an 800-MW, four-hour battery to replace the Brandon Shores Power Plant. The PJM reviewed the Sierra Club proposal and just recently said their battery storage solution failed to address all reliability problems with the planned shutdown and probably couldn't be built in time.



“While a large battery could reduce the severity of the reliability concerns in the Baltimore Gas & Electric system following the eventual retirement of the Brandon Shores and Wagner units, the battery concept would not replace the need for [a reliability must-run] agreement or address the system reliability needs in the near and longer term,” PJM said.

The Federal Energy Regulatory Commission has already approved a \$796 million transmission project package to address the retirements of the Brandon Shores and Wagner coal-fired power plants; however, the PJM doesn't expect these projects to be completed until 2028. With that consideration, they have entered into an RMR (*Reliability Must-Run*) contract with Talen Energy to keep Brandon Shores, along with two units totaling about 700 MW at its Wagner Power Plant, operating until the transmission projects are online. 🌍



ON THE ROAD: GTTSI AT COMANCHE PEAK



Comanche Peak Wall of Fame (License Classes at Comanche Peak)



Class Instruction

Comanche Peak Nuclear Power Plant is located near Glen Rose, Texas, and consists of two operational pressurized water reactors. Owned and operated by Luminant, a subsidiary of Vistra Corp, the plant provides significant electrical output, contributing to the stability and reliability of the Texas electrical grid. Operational since the early 1990s, Comanche Peak plays a crucial role in supplying clean, low-emission energy, aligning with broader efforts to reduce carbon footprints. It is one of the key components of Texas's diverse energy portfolio, balancing the state's heavy reliance on fossil fuels and renewables.

Given the importance of Comanche Peak as a valued GTTSi client, several of the GTTSi team recently visited Comanche Peak – Clay Schile (Vice-President), Chrissy Mulay (Technical Staffing Manager) and Sid Crouch (Chief Technical Consultant). The visit included discussions with the Comanche Peak team, observation of classroom instruction, and observation of simulator instruction. Thank you to the GTTSi team members at site for the important work that you do.



Dinner at Hoffbrau Steak and Grill



In the Simulator

DID YOU KNOW?



*STP (South Texas Nuclear Project)
Photo Credit: CPS Energy*

CPS Energy, the nation's largest community-owned provider of electric and natural services, has acquired an additional 2% ownership of the South Texas Nuclear Project (**STP**) from Constellation. This gives CPS Energy 42% ownership of STP and an additional 52 MW (**megawatts**) of carbon free dispatchable generation to its portfolio. In addition, CPS Energy entered into a long-term Purchase Power Agreement (**PPA**) for an additional 200 MW of firm capacity – just in time for their customers this summer.

Twenty-three states - Alaska, Arkansas, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and West Virginia along with a handful of trade groups, filed separate lawsuits in the U.S. Court of Appeals for the D.C. Circuit, challenging parts of the Environmental Protection Agency's (**EPA**) suite of new environmental regulations targeting fossil-fired power plants. The EPA rules include final Carbon Pollution Standards, which broadly seek to curb greenhouse gas emissions from the nation's fleet of coal plants and - for the first time - establish greenhouse gas emissions limits from new natural gas-fired power plants. The agency also issued a strengthened Mercury and Air Toxics Standards (**MATS**), which targets coal power emissions of hazardous air pollutants. Separately, the EPA finalized the Effluent Limitations Guidelines and Standards, which aim to drastically reduce pollutants discharged by steam power plants through wastewater. Finally, the suite of regulations includes a final rule governing legacy coal combustion residuals.



It's been over 40 years since America had its first grid-connected solar installation (**1973**). Now, there are over 5 million solar installations, increasing from just 1 million in 2016. 25% of these installations have come online since the Inflation Reduction Act became law 21 months ago. This includes installations on homes, businesses, and ground-mounted arrays across the country. Today 7% of the homes in the United States have solar, and this number will grow to over 15% by 2030.

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GTTSi Job Board

GTTSi has been providing professional services to the energy and nuclear industry since 1980. We are an MWBE (*minority woman-owned business enterprise*) and have served over 80% of the US commercial nuclear facilities, 8 Federal agencies and prime contractors, and one foreign government. If you are qualified and interested in any of the job opportunities listed below, please contact us at ginfo@gttsi.com or call **864.882.3111**.



- BWR SRO Instructor -Cooper Nuclear Plant
- I&C Instructor – Southeast
- Civil / Structural Design Engineer, Remote
- Mechanical Design Engineer, Remote
- Renewable Project Estimator, Remote

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