



GTTSI

Serving the Nuclear and Energy Industry
Since 1980; now serving
Georgia-Carolinas PCI Group

December 2018

December 2018 Newsletter



Individual Highlights:

- Inverse Condemnation & Negligence Claims – High Stakes for PG&E pg#2
- Renewable Initiatives Suffer Resistance During 2018 Mid-Terms pg#3
- KRUSTY – Kilopower Reactor Using Stirling Technology pg#4
- Finally! – Weapons-Grade Plutonium Leaving South Carolina pg#4
- “Liberty Eclipse Exercise” Implemented – Lessons Learned to Come! pg#5
- Did You Know? pg#6
- The Struggle to Complete Bellefonte Continues – Is It a Go or No Go? pg#7
- Chrissy Mulay Receives 15 Year Award pg#8

Global Technical Training Services, Inc. 807 Bypass 123 – Suite 31 Seneca, South Carolina 29678

Telephone: 864-882-3111

Email: ginfo@gtsi.com



✉ Sid Crouch, Vice President, Technical Operations

✉ Kaye Browder, Technical Staffing Manager

✉ Chrissy Mulay, Technical Staffing Specialist

✉ Pat McHale, Consultant

✉ Ken Schaaf, NRC Consultant

✉ Jackie Pate, Administration

*Wishing YOU
A Merry Christmas
and a very
happy, prosperous
New Year!*



Disclaimer: The views expressed in any article or advertisement appearing on this website or newsletter do not necessarily represent those of GTTSI and GTTSI accepts no responsibility for them.

Inverse Condemnation & Negligence Claims – High Stakes for PG&E



"The stakes are high for the state's largest utility since Cal Fire determined that PG&E equipment caused 17 major wildfires across Northern California in October 2017. The agency has not yet released a report on the historic Tubbs fire, the most destructive wildfire in state history which destroyed about 5,300 homes and caused nearly \$8 billion of insured property damage in Sonoma County. But, on November 2, 2018 California Governor Jerry Brown signed a measure allowing utilities to bill their customers to pay for future legal settlements stemming from the devastating 2017 wildfires, even if the blazes are blamed on the company's mismanagement."

Shortly after fires raged across Napa and Sonoma Counties, in California - in 2017 (Atlas Peak Fire, Tubbs Fire, Nuns Fire, and Patrick Fire) a Pacific Gas & Electric Co. (PG&E) spokesman claimed that winds, during that timeframe, were hurricane strength. Weather records did not support that statement. For example: a weather station near the Atlas Peak Station, registered winds at 32 mph NNE at 9:29 p.m. on October 8, 2017, and a weather station where the Tubbs fire originated, registered peak wind gusts at 30 mph at 9:29 p.m. and one hour later at 41 mph.

Back in 2015, an investigation by the California Public Utilities Commission into the Butte County Fires found PG&E did not have the required minimum clearance around its equipment, and they failed to maintain its overhead conductors safely and properly. Resulting in a gray pine tree contacting a PG&E 12-kilovolt overhead electric conductor and igniting the fire on September 9, 2015.

In 2018, a Superior Court Judge found PG&E responsible for the 2015 Butte County Fire under the legal doctrine of **inverse condemnation**. Thus, allowing property owners to sue for loss of real estate and personal property.

PUC General Order 95 requires PG&E to comply with clearances for trees, pole strength, etc. So, if those responsible for tree trimming fail to do a reasonable job of it, or if the crews do not properly attach their equipment, they can be held legally responsible; based on **negligence**.

Therefore, **inverse condemnation** and **negligence** suits were and are being filed against PG&E.

The stakes are high for the state's largest utility since Cal Fire determined PG&E equipment caused 17 major wildfires across Northern California in October 2017, destroyed thousands of homes, and killed 22 people.

But, on November 2, 2018 California Governor Jerry Brown signed a measure allowing utilities to bill their customers to pay for future legal settlements stemming from the devastating 2017 wildfires, even if the blazes are blamed on the company's mismanagement.

The bill was aimed at preventing bankruptcy or other serious financial troubles for PG&E. It gives PG&E precedent-setting

relief, allowing it for the first time to tap ratepayers for a portion of last year's wildfire costs that the embattled utility anticipates could reach \$17 billion.

The California Public Utilities Commission was ordered to apply a financial "stress test" determining the specific amount PG&E can pay without harming ratepayers or affecting power service. PG&E can then recoup any additional amount through sales of state-sponsored bonds, which will be repaid by the utility's customers through charges on their monthly bills. According to PG&E, the average residential customer would pay about \$5 more a year for every billion dollars in financing over the life of the bonds.

Critics call it a bailout for PG&E investors.

"Wildfires in California aren't going away, and we have to do everything possible to prevent them," Brown said in a statement. "This bill is complex and requires investment - but it's absolutely necessary."

For fires sparked in the future, the bill allows the Public Utilities Commission to consider a variety of factors — including weather conditions, a utility's efforts to prevent fires and findings of mismanagement — to decide whether electric companies can pass costs to consumers.

Renewable Initiatives Suffer Resistance During 2018 Mid-Terms



“During the 2018 mid-terms, a number of renewable energy propositions and initiatives were on the ballot. But, only ONE victory in Nevada was realized. Nevada’s Question 6 - it passed with ~60% of the voters agreeing that the state utility companies should meet 50% of their energy generation through renewable sources by 2030. Arizona had a similar initiative to Nevada’s Question 6; it was Arizona’s Proposition 127. However, Proposition 127 was rejected by voters”

During the 2018 mid-terms, a number of renewable energy propositions and initiatives were on the ballot. But, only a victory in Nevada was realized. It was Nevada’s Question 6 - it passed with ~60% of the voters agreeing that the state utility companies should meet 50% of their energy generation through renewable sources by 2030.

Before the vote, Nevada electric utilities were mandated to deliver 25% of their electricity from renewable sources by 2025. Now, with Question 6 passage Nevada electric utility companies will be required to generate or acquire 50% of their electricity from renewable sources by 2030.

However - in Nevada, an initiated constitutional amendment needs approval in two even-numbered election years. Therefore, this same initiative will require approval again in 2020 before it will be required.

Although NV advocacy groups hailed the

achievement, claiming that it brings Nevada “back up to speed”. Heartland Institute’s senior fellow for energy policy - James Taylor – noted that the Brookings Institution determined that passage of this initiative will result in a significant increase in electricity costs. He said, the Brookings Institute compared costs between various energy sources and found that if you replace conventional power with wind power, electricity prices go up 50%; if you replace conventional power with solar power, electricity prices TRIPLE.

Another proposal on the Nevada ballot was Question 3. It was rejected but it would have required the state legislature to establish “an open, competitive retail electric energy market”, thereby effectively eliminating NV Energy’s monopoly on electricity distribution by 2023.

The *Reno Gazette Journal* reported that NV Energy, sponsored by billionaire investor Warren Buffet, spent \$63 million on a campaign to reject Question 3. Proponents of the initiative said a ‘Yes’ vote would increase choice for consumers and result in reduced costs of \$11 per month per consumer. However, the opposition argued that states with deregulated energy markets are facing higher costs, and in Nevada they were facing a \$25 increase in their monthly energy bill.

Arizona had a similar initiative to Nevada’s Question 6; it was Arizona’s Proposition 127. However, Proposition 127 was rejected by voters.

Arizona Public Service Electric Company (APS) opposed this measure and chief executive Don Brandt said: “We’ve said throughout this campaign there is a better way to create a clean-energy future for Arizona that is also affordable and reliable.”

However, Arizona environmentalist remain optimistic; Environment Arizona’s ‘Go Solar’ campaign director Bret Fanshaw said: “As even Prop 127’s opponents noted during the campaign, Arizonans do want renewable energy. Solar power is wildly popular because it’s clean, it’s cheap and it’s homegrown. And it’s a key component of a livable future in Arizona.”

But is solar really cheaper? Based on the Brooking Institute comparison - I wonder!

Once the subsidies and tax breaks are gone – 2022 - what will it cost? In Europe where subsidies and tax breaks do not exist - electrical rates are more than double those in the states. As of November 1, the national average was 13.15 ¢/kw-hr.

In NV = 11.67 ¢/kw-hr

AZ = 13.10 ¢/kw-hr

CA = 19.90 ¢/kw-hr

SC = 12.91 ¢/kw-hr

KRUSTY – “Kilopower” Reactor Using Stirling Technology



“KRUSTY experiment successful – ENDED with a 28hr Full Power Test of the nuclear reactor power system called “Kilopower” - the future for space travel.”

NASA together with the National Nuclear Security Administration (subset of DOE) has been working on a nuclear reactor power system that could "enable long-duration crewed missions to the Moon, Mars, and destinations beyond."

This nuclear reactor power system contains a small, lightweight fission reactor; the entire power system is called "Kilopower". It can provide up to 10 kilowatts of electrical power. This, NASA says, is "enough to run several average households," continuously, for "at least 10 years."

Lee Mason, a NASA

technologist, explained why it was so important to develop new sources of power for spaceflight. "Most of our current spacecraft are powered by solar arrays and batteries which depend, obviously, on sunlight, but we want to go to missions in which there is no sunlight available – permanently shadowed craters on the Moon, the northern latitudes of Mars where sunlight is very limited. It's in those applications that we see Kilopower really fitting well."

In May 2018, NASA demonstrated KRUSTY-Kilopower Reactor

Using Stirling Technology and the experiment ended with a 28-hour full power test; simulating a mission which included a reactor start-up, "ramp" to full power, steady operation and shut down.

"The test demonstrated that the reactor could do exactly what it needs to do on a mission, as far as operating at the power levels that we need it to, staying stable during all the operations and then being able to supply all the power that's needed for specific missions that come up in the future," said Mark Gibson, Kilopower's lead engineer.

Finally! – Weapons-Grade Plutonium Leaving South Carolina



“NNSA says, about half of the metric ton, weapons-grade plutonium, at the Savannah River Site in SC, designated for removal, will be shipped out this year - the remaining half will follow, next year.”

Our November 2017 newsletter had an article, *South Carolina Sues DOE Again Over MOX Facility*, that disclosed how the South Carolina Attorney General, Alan Wilson, had filed suit against the DOE (Department of Energy) for its failure to remove one ton of weapons-grade plutonium from the Savannah River Site (SRS), in accordance with 50 USC Section 2566.

Later, that December, District Court Judge J. Michelle Childs issued an injunction, which required the U.S. Department of Energy to remove at least 1 metric ton of defense plutonium from South Carolina by the start of 2020.

However, the DOE appealed the ruling, citing

that the task was an impossibility and on October 26th the 4th U.S. Circuit Court of Appeals sided with South Carolina, reaffirming Childs' injunction. Judge Robert B. King, in his written opinion, described the injunction as "appropriately" and "carefully" crafted and considered.

This summer, Michael Budney - SRS Manager said the DOE Office of Environmental Management had shifted some of its site resources to help with plutonium removal efforts, and the SRS had finished the downblend, planned for now, and have shifted focus to help the NNSA prepare for removal of the weapons-grade plutonium.

The National Nuclear Security Administration (NNSA), a subset of the DOE - in charge of the nation's nuclear complex and its related nonproliferation - said they are "actively working" to remove weapons-grade plutonium from South Carolina.

About half of the one metric ton of weapons-grade plutonium, will be shipped out this year - the remaining half will follow - next year. Plans are to move it to Texas, at the Pantex Plant, or to Nevada, at the Nevada National Security Site, for staging, afterwards on to New Mexico, at the Los Alamos National Laboratory for weapons program integration.

"Liberty Eclipse Exercise" Implemented – Lessons Learned to Come!



"The "Liberty Eclipse Exercise" brought in realism unattainable in a lab setting or a simulator; 18 substations, two utilities, two command centers, and two generation sources to start-up - establish a cranking path and synchronize. The exercise was designed to throw everything imaginable at DARPA's Rapid Attack Detection, Isolation, and Characterization Systems (RADICS) - because it was created to ensure that U.S. utilities can bounce back from a blackout brought on by a cyberattack."

September Newsletter had an article titled, *DOE Plans "Liberty Eclipse Exercise" in November*.

It happened; not by the DOE but the Defense Advanced Research Projects Agency (DARPA) - on a small island, about 1.5 miles offshore from Long Island, called Plum Island.

Imagine a scenario where you hear the breakers tripping in all of the low-voltage substations for your electrical plant's grid. Now, the plant itself, is plunged into darkness, and to make things worse the country's grid has been offline for a month, exhausting battery backups at power plants and substations alike.

What would, or could you do - if you were in that utility command center? Turn up everything all at once? Turn up smaller pieces of the grid and put them into a protected environment to run cyber-forensics to keep them from potentially spreading whatever malware was used in the attack?

These are the kinds of questions typically confined to a lab setting or a table top scenario. But in this case, DARPA brought this scenario to life.

Plum Island, currently run by the Department of Homeland Security (DHS) has its own fire department, power plant, water treatment plant, and security. It's a mixture of industrial infrastructure –

~70 buildings, isolated, unpeopled, wind-swept, and undeveloped - you couldn't find a better spot to stage an actual attack.

They had 18 substations, two utilities, two command centers, and two generation sources that had to be started-up to bring up a cranking path and synchronize. Using this location brought in realism that you couldn't find in lab environment or simulator – It made all participating to rethink their approach.

The week-long exercise, dubbed "Liberty Eclipse," was designed to throw everything imaginable at DARPA's Rapid Attack Detection, Isolation and Characterization Systems (RADICS). The RADICS program was created to ensure that US utilities can bounce back from a blackout brought on by a cyberattack.

The Liberty Eclipse Exercise was designed to test RADICS defenses under dire, black-start conditions, in which a cyberattack wrestles the power grid to its knees and forces operators to start from scratch.

It wasn't just staging of a cyberattack; project planners made it as real as possible, tossing a variety of situations into the mix, including a steady onslaught of simulated cyber and physical attacks. At one point, they introduced a data "wiper," modeled on real-world cases of ransomware,

which could send grid operators back to square one if they weren't careful.

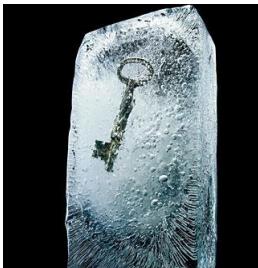
Although not planned, the weather played a role; rainy days and high winds made it difficult to take the ferry back and forth to the island, which hampered physical work on the grid. These conditions brought out the limitations of balloons, as a recovery tool, to seek out indications of live power.

DARPA is working on a public after-action report and the DOE is also drafting its own set of takeaways, which includes the tabletop exercise performed - just days before the Plum Island event. Representatives from major utilities and industry groups were also present during both activities.

As a result - DARPA plans to run another, even more sophisticated exercise, in May. Ultimately, Energy Secretary, Rick Perry, wants the DOE to take over the exercises and incorporate them into their preparedness training for government workers and the nations utilities.

Nearly half of utility CEO's believe a U.S. utility will soon experience a cyber-attack. They believe it is a matter of "when" and not "if". Amid the intense scrutiny, they feel prepared to identify new cyber threats, and in the event of a cyber-attack to manage and contain the impact on strategic operations.

Did You Know?



"That the Midwest lost smart grid jobs, about 1,000 energy storage, grid management and microgrid positions, between 2016 and 2017. The decrease is another sign of how the relatively low cost of power in the region remains a deterrent for utilities and other companies to invest in

advanced grid technology, especially when compared to states along the West Coast and in the Northeast, where power is more expensive."



<p>Dominion offered to cut SCE&G's electric bills \$10/month, plus a \$1,000 refund or drop the \$1,000 refund in favor of a deeper, \$20 a month rate cut, but they will withdraw if the S.C. PSC insists on a bigger rate cut!</p>	<p>That Dominion Energy chief executive Tom Farrell testified before the S.C. Public Service Commission that his company's offer to buy out SCANA and lower its customer's electric rates is the best solution for South Carolina's \$9 billion nuclear fiasco. However, he went on to say that Dominion would withdraw that offer and leave town if the S.C. Public Service Commission sides with the state's utility watchdog and orders a bigger cut in electric rates than Dominion has suggested. In January, Dominion announced it had reached a deal to buy SCANA, cut SCE&G's electric bills by about \$10 a month, and pay a \$1,000 nuclear-related refund to SCE&G's average residential customers. Since, S.C. regulators and other groups involved with the PSC case want a bigger rate cut, Dominion recently offered an alternative to that proposal; they would drop the \$1,000 partial refund in favor of a deeper, \$20 a month rate cut.</p>
<p>If the merger of SCANA and Virginia-based Dominion Energy occurs, then NextEra would be transporting gas for a new Dominion subsidiary</p>	<p>That Juno Beach-based conglomerate, NextEra, attempted to buy North Carolina-based PSNC Energy from SCANA for \$2 billion. PSNC Energy provides natural gas service to an estimated 550,000 customers in the Tar Heel State, and with the natural gas business booming, they are undertaking a massive pipeline project to meet the growing demand. Incidentally, NextEra is also a co-owner of the company building the pipeline – If the merger of SCANA and Virginia-based Dominion Energy occurs, then NextEra would be transporting gas for a new Dominion subsidiary rather than owning the company that will be using its new pipeline. Why? Because PSNC Energy is part of the deal - If the Dominion-SCANA merger occurs.</p>
<p>Andrew Wheeler has been named as head of the EPA. The nomination will require Senate confirmation - he was approved as the agency's deputy administrator in a 53-45 vote last April.</p>	<p>That Andrew Wheeler, "acting chief" for the Environmental Protection Agency has been named as permanent head of the EPA. The grandson of a coal miner, Wheeler told staffers in his first days as the agency's acting head this summer that he was proud of his roots in coal country. Wheeler has a reputation for producing regulatory rewrites more likely to stand up to court challenges. A veteran on Capitol Hill, Wheeler worked from 1995 to 2009 as a staffer for Republican Sen. Jim Inhofe of Oklahoma, and then for the Senate Environment and Public Works Committee. The nomination will require Senate confirmation - he was approved as the agency's deputy administrator in a 53-45 vote last April.</p>
<p>Entergy Arkansas will stop using coal at two plants and cease operation at a gas plant</p>	<p>That Arkansas' largest electric utility, Entergy Arkansas, announced it has reached a settlement with the Sierra Club and National Parks Conservation Association. It will stop using coal no later than the end of 2028 at its White Bluff Coal-Fired Plant and by the end of 2030 at its Independence Coal-Fired Plant and cease operation of its Lake Catherine Natural Gas Plant by the end of 2027.</p>

The Struggle to Complete Bellefonte Continues – Is It a Go or No Go?



"In order for Nuclear Development, LLC to obtain a DOE loan and close on the deal to complete Bellefonte they need an updated letter of intent (LOI) from Memphis Light, Gas & Water (MLGW). Nuclear Development, said they can save MLGW customers \$487 million a year for the next 30 years if MLGW purchases their power from them, rather than TVA. MLGW is under new leadership and they are pushing away from signing such an agreement. Therefore, the hope of seeing Bellefonte completed is fading!"

In January, Memphis Light, Gas & Water (MLGW) signed a non-binding agreement to purchase power from Nuclear Development LLC (ND) when Bellefonte nuclear plant becomes operational, supplying electricity to the grid.

This burst into the public view in October, when ND presented their case to the Memphis City Council to obtain an updated ***letter of intent*** (LOI).

ND has offered to sell up to 1,340 MW to MLGW at ~ \$39 per megawatt hour - stating that at this cost, it could save MLGW customers \$487 million a year over the course of the next 30 years.

Since January, Memphis Light, Gas & Water's leadership has changed, and they are pushing away from such an agreement. They have expressed skepticism about whether the plant could ever be completed, and they are waiting on a study of their options, scheduled to be completed in December,

well beyond the supposed November deadline.

A DOE spokesman, speaking to the industry publication *Utility Dive*, said the department doesn't have deadlines for loan applicants to meet, and that most deadlines are driven by the applicant.

A TVA spokesman said the power to extend the closing date rest with the TVA board and their CEO, Bill Johnson.

What TVA will do if asked to extend the deadline, is unknown. However, the economic incentives facing TVA are clear. MLGW represents about 10% of TVA's operating revenue, according to Securities and Exchange Commission filings. TVA just completed and opened the Allen Natural Gas plant — a \$900 million investment — that replaced the old Allen Fossil Plant near Presidents Island. Losing MGLW would impact TVA's bottom line, not only now but also, for the future.

Without an extension it seems the deal would be DOA, since Nuclear Development believes an updated ***letter of intent*** (LOI) from MLGW is necessary to obtain the DOE loan, and since ~\$12 billion is still needed to complete the plant, without the DOE loan the plant cannot be completed.

Smart City Memphis said

the \$487 million in savings could be used to reduce property taxes to nothing "and still have tens of millions left over" or they could do something else with the savings, but however the city uses the money, the deal could be a game-changer for Memphis and its citizens and therefore, must be seriously considered.

The deal is a big risk! If the plant isn't finished by 2023, as planned, it could result in higher electricity rates for MLGW - rightly concerning for Memphians.

Bellefonte advocates say the letter of intent is non-binding, but realize it is needed for ND to advance the plant's application for the DOE loan. But, MLGW is saying an updated letter of intent would be binding, although it seems likely that MGLW wouldn't be on the hook until officials signed a purchase agreement.

Regardless of who is right or wrong, citizens of Memphis are asking MLGW to study the offer and agreement carefully - in full view of the public. However, they are also saying if the deal dies prematurely because MLGW President J.T. Young didn't sign a letter of intent, he should be prepared to explain to them ... ***why!***





Ms. Chrissy Mulay - Receives 15-Year Award



Ms. Chrissy Mulay – GTTSi Technical Staffing Specialist recently received an AWARD for 15-years of service.

The award was presented to her during our Semi-Annual Staff Meeting at the Home Office in Seneca, SC.

Chrissy is an integral part of the GTTSi TEAM. Her experience in management, accounting, and administration has been so valuable to the company's SUCCESS. We call her our "**Super Specialist**".

She supports daily operations which includes QA/QC, recruiting activities, employee contact and communications, field support, customer fulfillment, payroll support, website, BLOG, and IT implementation.

As a previous General Manager - her experience in hiring and training other managers was a great fit for GTTSi. She was immediately productive in recruiting and put her creativity to work in adding value for our clients, by presenting our employees' skills and attributes in a way that saves the client time and immediately directs them to the specifics needed for the job. Her background in finance has been a real PLUS, and over the past few months, you may have noticed her involvement with timesheets and payroll.

Outside of her work, Chrissy enjoys cooking, exercise, reading, and she is an avid "dog lover". If you find time, please reach out and congratulate her on this achievement!

GTTSi
P.O. Box 307
Hartsville, SC 29550-0307

GTTSi
807 Bypass 123 – Suite 31
Seneca, SC 29678
Phone: 864-882-3111
Email: ginfo@gtsi.com

Jackie Pate
Administration
Phone: 864.882.3111
Fax: 864.882.1026
jackie.pate@gtsi.com

Sid Crouch
Vice President, Technical Operations
Phone: 843.339.9874
Fax: 843.339.9528
sid.crouch@gtsi.com

Kaye Browder
Technical Staffing Manager
Phone: 864.631.9325
Fax: 864.882.1026
kaye.browder@gtsi.com

Chrissy Mulay
Technical Staffing Specialist
Phone: 864.506.4647
Fax: 716.604.1948
chrissy.mulay@gtsi.com

Pat McHale
Consultant
Phone: 864.882.3111
pat.mchale@gtsi.com

Ken Schaaf
NRC Consultant
Phone: 864.882.3111
kenneth.schaaf@gtsi.com



COMPANY OR PERSON's NAME
STREET ADDRESS
CITY, STATE, ZIP

We're on the Web!
See us at:
www.gtsi.com



***Disclaimer:** The views expressed in any article or advertisement appearing on this website or newsletter do not necessarily represent those of GTTSi and GTTSi accepts no responsibility for them.*