

Scenic Watch



News
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Leu Gardens Holiday Blooms



Photo: Willie J. Allen Jr., Orlando Sentinel

"Holiday Blooms at Leu brings the holiday spirit and thousands of vibrant poinsettias and other seasonal favorites to the 50-acre botanical oasis in Orlando, Fla., starting

Wednesday, Nov. 30, 2022."



Photo: Willie J. Allen Jr., Orlando Sentinel

"The Holiday Blooms at Leu also features a mistletoe station that is included with daytime garden admission until Jan. 2, 2023."



Photo: Willie J. Allen Jr., Orlando Sentinel

-- Willie J. Allen Jr., Orlando Sentinel

[See entire photo gallery here](#)

"Distribution Goal: 50% Underground by 2040"



Photo: In T & D World

"As ambitious goals are set for clean electricity, the same must be done for the distribution grid that delivers the electricity.

Goals have been set for renewables, net-zero and carbon-free energy. These resource-related goals and the U.S. vision for electrification will require a 21st century distribution grid that is reliable, resilient and still affordable. Will it be the distribution grid of our grandparents? Absolutely not.

The electric distribution grid of the future will be a modern, integrated grid that accommodates distributed energy resources like rooftop solar, fuel cells, storage and vehicle-to-grid electric vehicles. This increasingly complex grid that delivers the clean electricity needed for the future must be fundamentally transformed into a new and dynamic technological wonder.

Underground electric distribution lines will be an important part of this transformation. Therefore, as ambitious goals are set for clean electricity, the same must be done for the distribution grid that delivers the electricity. [Editor's note: this

article was written in first person by Mike Beehler, credited as usual below] I submit that we need to achieve 50% underground by 2040.

Where We Stand

The electric distribution system in America today is approximately 20% underground. Some public power utilities — like Ft. Collins and Colorado Springs, Colorado, and Anaheim, California — have had underground ordinances for years. They have beautified their cities and improved the performance of their systems. Fort Collins is 99% underground and 99.9% reliable. Colorado Springs started in the 1970s and is 77% underground today with 99.9% reliability. The public power utility estimates its entire system can be underground with another US\$2.2 billion investment.

Anaheim has been engaged in its Home Underground (HUG) program since 1990, with excellent results. The phone and cable TV utilities in Anaheim paid to go underground, as well.

For years, investor-owned utilities (IOUs) have put new neighborhoods underground. Now, many large IOUs — like Pacific Gas and Electric Co. (PG&E), Florida Power & Light Co. (FPL), WEC Energy Group and Dominion Energy — are engaged in multiyear, multibillion-dollar programs to strategically underground laterals and other key parts of their systems.

PG&E's Strategy

PG&E will spend US\$ 15 billion to US\$ 30 billion to underground the first 10% of its system. The utility plans to have 3600 miles (5794 km) of line placed underground by 2026, bringing it one-third of the way to its 10,000-mile (16,093-km) goal. CEO Patti Poppe has said PG&E is being rebuilt from the 'underground up...'

FPL's Focus

FPL will ramp up in 2025 to \$1 billion per year spend on converting overhead laterals to underground. Its three-year Storm Secure pilot program was so successful in terms of system resiliency and customer acceptance the Florida Public Service Commission is allowing Duke Energy Corp. and Tampa Electric (TECO) to implement similar undergrounding programs.

'After the historic hurricane seasons of 2004-05, when seven hurricanes affected our customers, FPL began making significant investments to strengthen our electric system and make the grid more resilient to severe weather,' according to the FPL website. 'When Hurricane Irma struck in 2017, our hardening efforts helped significantly reduce damage to the grid and speed restoration for our customers. Still, we saw that the No. 1 cause of outages during Irma was debris blowing into and trees falling onto our power lines.'

WEC's Way Forward

WEC Energy Group's Wisconsin Public Service has undergrounded 2000 miles (3219 km) of overhead lines in the last eight years, increasing its percent underground from 27% to 39%, with very high customer satisfaction and customer willingness to pay for the underground. This success will carry over to WEC Energy's other companies as part of its progressive Delivering the Future initiative.

Paul Gogan, director of electric distribution asset management for WEC Energy Group, said, 'The underground projects have been a game-changer for WEC Energy Group. They have exceeded expectations, improved reliability and increased customer satisfaction. The projects have resulted in more than a 97% reduction in electric outage minutes in those areas where overhead lines have been replaced with underground circuits...'

Dominion's Outreach

Dominion Energy started its strategic undergrounding program almost 10 years ago. Today, it has achieved better system resiliency supported by empirical data. The utility often shares its lessons learned and best practices, especially when it comes to customer involvement and satisfaction...

Defining Reliability

These utilities are starting to understand the total value of underground over the life of the asset. The data used to understand total value includes capital costs, reduced operations and maintenance (O&M) cost, lost local GDP, and safety exposure, customer satisfaction, reliability measured in minutes and resiliency measured by total time of line restoration.

Resiliency is defined as the ability to withstand a high-impact, low-probability (HILP) event with little or no customer outages. Like reliability, there is value in resiliency. Planners and engineers must do the total cost of ownership analysis and quantify the value of resiliency when possible. It is their responsibility to make prudent system evaluations that support fundamental business decisions for utility executives, regulators and, ultimately, customers. Increasingly, they are doing just that.

However, not everyone is an early adopter or fast follower. Tucson Electric Power (TEP), Hawaiian Electric Co. (HECO) and Puget Sound Energy (PSE) want to build controversial overhead power lines in scenic communities with neighbors that do not want the large poles.

TEP's Overhead Pushback Citizens question TEP's cost estimates for undergrounding a 7-mile (11-km) 138 kV line, citing examples that cost as little as half of the utility's approximately \$13 million per mile, or \$90 million, estimate. Citizens also question TEP's assertion is that maintenance costs of underground lines would be much higher

than overhead lines," according to Tucson Electric Overhead Power Line Plan Runs Afoul of Neighbors, City, an article published in March 2022 by the Arizona Daily Star on Tucson.com.

Property values are an issue for citizens, as well. According to the article, TEP admits the studies it reviewed indicate that '...though short-term impacts to property values can occur, long-term property values are not greatly affected by transmission lines.'

The article also states that TEP suggested the city consider forming an underground taxing district to have affected property owners pay for the undergrounding. 'That's asking people TEP is damaging to pay for TEP not damaging them,' said one citizen quoted in the article...

HECO's Estimate

Should 46 kV in a beautiful new master planned community in paradise be underground or overhead? According to HECO, the cost to install overhead power lines would be US\$ 6.7 million while undergrounding would cost \$25 million. However, that is its estimate of capital cost. Some questions must be asked about the estimate:

What is the total cost of ownership of these overhead lines compared to underground lines for the life of the asset? How much will vegetation management and tree-related outages really cost 20 years from now? What is the cost to utility and customer safety? What is the gross domestic product cost of an outage for small businesses?

PSE's 10-Year Request

Puget Sound Energy (PSE) issued the first project-need report for its Energy East transmission upgrade project in February 2012. Today, more than 10 years later, PSE is one permit away from getting approval to build a 230-kV line in place of the existing 115-kV line. However, is the need the same? Do better alternatives exist now, 10 years later? Did anyone evaluate the lost goodwill and reputation of a utility that battles its customers for 10 years?...

Time Will Tell

There must be a better way to build electric infrastructure in communities. What is the customer cost in lost local gross domestic product of an outage? What will the cost of tree trimming be in 5 and 10 years from now? How can truck rolls be reduced and environment, social and governance (ESG) improved? How can worker and public safety be improved? How can the streetscape be beautified and the quality of life of customers improved? What can be a new and positive part of improved customer service? Electric utilities are asking these questions and, increasingly, the answer is underground.

As demonstrated, some utilities are leading the industry – like public power

underground advocates in Anaheim, Ft. Collins and Colorado Springs as well as IOUs like PG&E, Dominion Energy, WEC Energy and FPL — with customer-focused, progressive ideas for planning, design and construction of large underground programs. Some utilities choose not to lead, but their time will come.

So, is 50% underground by 2040 an unreasonable goal? Of course not. In fact, it might be too low. Are the goals for renewables, net zero and carbon free energy unreasonable? Again, no, but the nation will need a state-of-the art electric T&D grid to support the ambitious clean resource goals of the future.

Will the electric utility industry drive real cost out of O&M? Will the industry specify an underground grid with better equipment, cables, splices and terminations? Will the latest construction methods and technologies be embraced? Will we use factory-comparable field-quality control tests and underground-line-sensing technology married with artificial intelligence to verify systems are installed correctly, according to their cable specifications? Will 50% be transformational or would more like 75% underground be needed to achieve our electrification, reliability and resiliency goals and significantly impact shareholder and customer value?

These issues will be addressed in the year to come. The industry needs to have a debate. Will 50% underground by 2040 be enough? Will electric utility stakeholders agree? Time will tell."

-- Mike Beehler, T & D World

[Read entire article](#)

Santa Fe Springs Celebration: Paddle Florida Trip

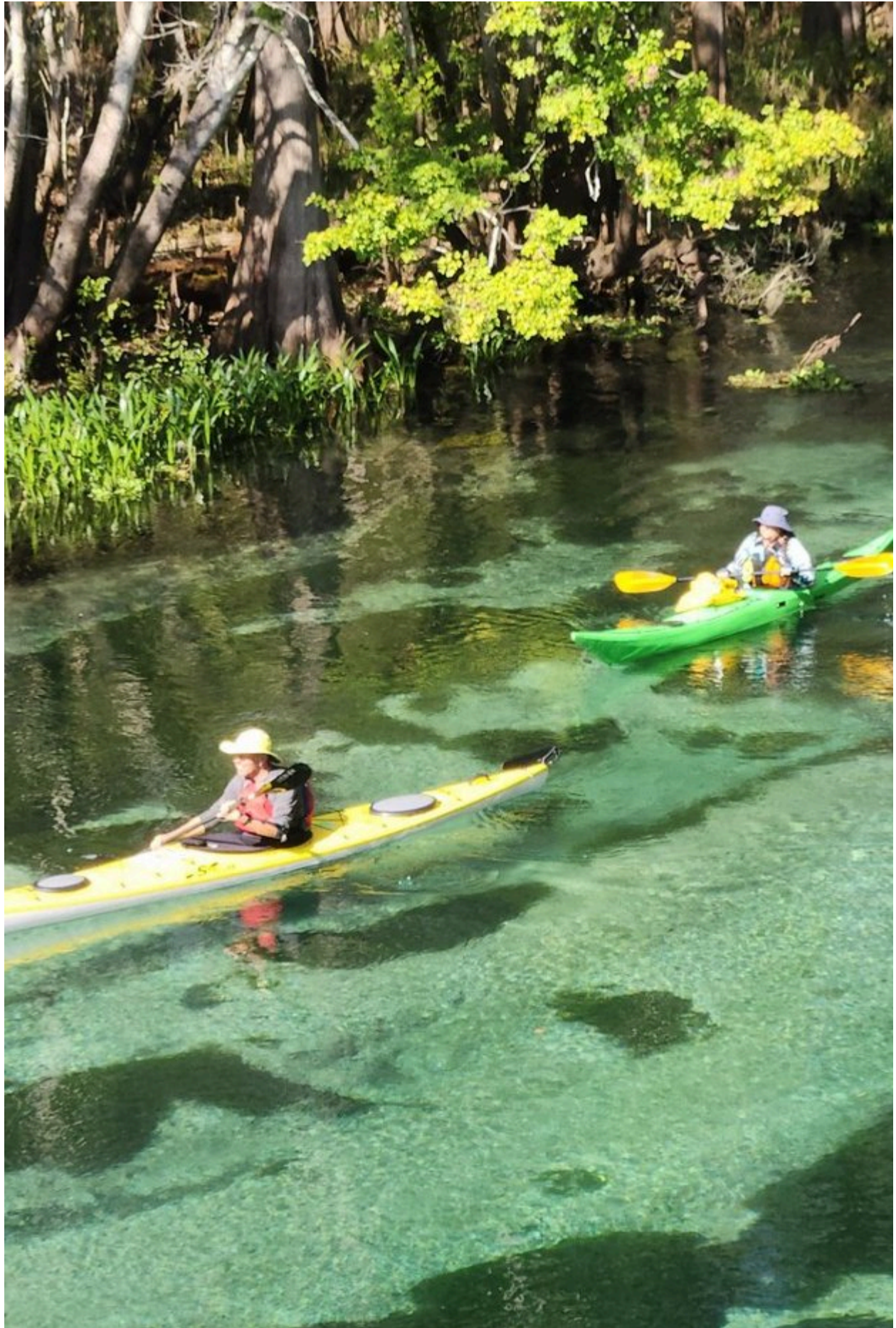


Photo: The Happy Paddler

Photo: The Happy Paddler

"Paddle Florida has just returned from their inaugural Santa Fe Springs Celebration! Four days, three rivers, countless springs and the great food, spa and pool at Ellie Ray's made this trip a great experience for all."

For a day by day journal of the trip with great photos please visit:
<https://www.paddleflorida.org/santa-fe-springs-celebration>

Background on Santa Fe river and it's springs

<https://www.floridastateparks.org/learn/santa-fe-river-and-sink>
<https://www.904happyhour.com/article/explore-the-santa-fe-river--over-20-springs>

-- The Happy Paddler, Paddle Florida

[Visit Paddle Florida](#)

"Highway study calls for underground power lines"



Photo: T & D World Article about WEC Energy Group's Zoo Interchange Project

"Higher efficiency plus broadband without unsightly towers

Major highways connecting cities across the country could someday be used to deliver

green energy and high-speed internet service.

Wisconsin already has the 'playbook' to make it happen, says a new study by the Wisconsin Technology Center that calls for the use of underground high-voltage power lines and broad-band cable along highway rights of way.

Underground power systems, aimed at delivering wind-generated electricity from rural areas to cities, could address several problems, said WTC President, Tom Still.

First, the buried lines would draw fewer objections from property owners facing the prospect of above ground towers and wires running across their land.

Second, the lines would be less vulnerable to storms, and even terrorist attacks that could cause widespread power outages.

Third, fiber internet cable could be bundled in the same trenches as the power lines to deliver internet service to rural areas.

The US electric grid is a complex web of power lines reaching nearly everywhere. It has been largely based on alternating current (AC) technology that for decades has proven safe and reliable.

'However, the AC power lines that criss-cross the nation are tangled and ill-suited to quickly move large amounts of renewable power from energy-producing regions with low demand, such as the Midwest and Southwest, to large population centers', says the Federation of American Scientists.

A better choice would be high-voltage direct current (HVDC) systems that lose less power over long distances. Those systems would also support along-the-road charging of electric vehicles and advanced communications needed for autonomous vehicles.

One of the first underground HVDC systems has been planned for railroad rights-of-way from Mason City, Iowa, to the Chicago area."

-- This article by Charlie Mitchell is excerpts from a Milwaukee Journal Sentinel article by Rick Barrett

[Read entire article at Scenic Wisconsin](#)

[Additional Article about a Non-Traditional Undergrounding Project](#)

Commercial Use of Public Parking: "St. Pete Beach restaurant granted outdoor dining 'parklet'"

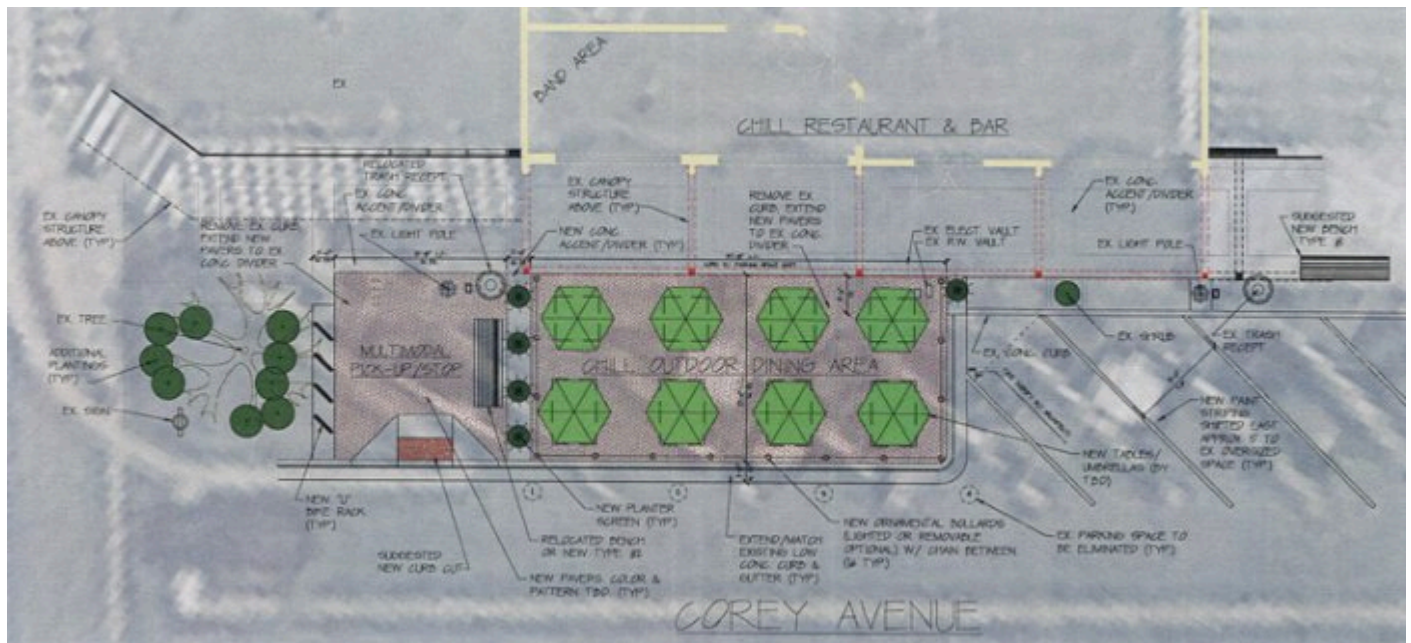


Illustration: City of St. Pete Beach

"After a series of commission meetings and design changes, Chill Restaurant at 357 Corey Ave., which bills itself as an American fusion-style eatery and bar, was finally granted permission to have permanent outdoor dining using a so-called parklet.

During a hearing at the commission's Nov. 15 meeting, debate and discussion by some residents centered around whether Chill should be able to use three or four city-owned parking spaces in front of the restaurant, as well as whether the city should use taxpayer money to defray some of the cost of building the outdoor seating area.

At the height of the COVID-19 pandemic, the city granted some restaurants and bars temporary permission to offer outdoor dining, since indoor seating was restricted and not favored by patrons.

Now, with outdoor dining still gaining in popularity, the city has provided a way for restaurants and taverns to offer outdoor seating in 'parklets' on a permanent basis. Chill subsequently applied to feature permanent parklet seating in front of the eatery.

City Manager Alex Rey said the Chill parklet has been redesigned so the city will lose only four parking spaces instead of five...

Commissioner Mark Grill, who opposes using public funds to defray the cost of the parklet, noted the permanent parklet would cost \$100,000, while the semi-permanent option would be \$50,000.

With the \$50,000 option, Chill would pay the \$50,000, with the parklet structure

belonging to the eatery. Chill would be able to take four parking spaces for its outdoor seating and pay rent of \$1,500 a month, or 10 percent of the revenue from outdoor tables, for three years of the contract.

With the \$100,000 permanent option, Chill would pay \$50,000 with the city making up the difference up to almost \$100,000. In this scenario, the city would own the parklet.

Grill said in speaking with the city manager he was told the permanent parklet will be nicer looking and constructed with more sturdy materials. It will also include curbing with a multimodal bump-out and improved drainage.

Mayor Al Johnson added, 'It will be aesthetically a lot better.'...

Responding to criticism by a member of the public as to why the city is giving a private business an interest-free loan with taxpayer money, Johnson said, 'This is like any public-private partnership. We're creating an asset for the city, partially paid for by the client and partially by us, and it's going to be an income-generating asset, so I don't see a problem with it.'...

After discussion, the commission voted 3-1 to give permission for Chill Restaurant to install a permanent outdoor dining parklet, with Grill casting a dissenting vote and commissioner Melinda Pletcher absent."

-- MARK SCHANTZ, TBN

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Citizens for a Scenic Florida
www.scenicflorida.org
Citizens for a Scenic Florida, Inc. P.O. Box 8952
Jacksonville, FL 32239