



Florida Energy Systems Consortium

October 2015 Issue

FESC Highlights

Florida Energy News

U.S. Energy News

Funding Opportunities

Upcoming Events

The First International Symposium on Sustainable Human-Building Ecosystems | October 5 - 7 | Pittsburgh, PA

Florida Green School Awards: Celebrating and Recognizing Environmental Excellence in Florida's Schools and Districts | October 8, 2015 | Streamsong Resort, Polk Co., Florida

3rd Annual Go SOLAR & Renewable Energy Fest | October 9 - 10, 2015 | Ft. Lauderdale, FL

2015 Florida Energy Summit | October 14 - 16, 2015 | Jacksonville, FL

BuildingEnergy NYC 2015 | October 15, 2015 | New York, NY

National Advanced Biofuels Conference & Expo | October 26-28, 2015 | Omaha, Nebraska

SmartGridComm 2015 | November 2 - 5 | Miami, FL

Advanced Bioeconomy Leadership Conference (ABLNext) | November 2 - 5 | San Francisco, CA

Power Up Energy Expo | Fall 2015 | South Walton, FL

2016 Capitol Days | January 13, 2016 - January 15, 2016 | Tallahassee, FL

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The Florida Energy Summit is a forum for the brightest minds from academic institutions and private industries, as well as public officials on the local, state and federal levels, to discuss the future of energy in Florida.

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WORLD NEWS

Polarled Pipeline, First to cross the Arctic Circle

On Friday 21 August the Polarled gas pipeline crossed 66 degrees and 33 minutes north of the equator and became the first pipeline to cross the Arctic Circle. This pipeline will open an entirely new gas highway from the Norwegian Sea to Europe.

The 482-kilometre long and 36-inch wide pipeline will run from Nyhamna in western Norway to the Aasta Hansteen field in the Norwegian Sea. The world's largest pipelaying vessel, Solitaire from Allseas, is carrying out the job and is advancing slowly, exactly 24.4 metres at a time, every sixth minute or so, around the clock.

Good progress

During the start-up in March the pipeline was pulled in to Nyhamna. During September the vessel will arrive at the Aasta Hansteen field, if weather permits. Even early in the autumn high waves and strong wind leading to interruptions must be expected. The weather has been good for a long period now:

«We are progressing well at the moment, conditions have been good for more than 50 days in a row, and at the end of July we set a record of laying 4.8 kilometres of pipes in one day,” says Kenneth Aksel Kristensen, one of Statoil (STO \$17.99) ’s company representatives on board the vessel.



Being from northern Norway he is particularly proud of helping lay the very first pipeline across the Arctic Circle. Polarled will also be the deepest pipeline on the Norwegian continental shelf – by the Aasta Hansteen field the water depth is 1260 metres. Furthermore, it will be the first time a 36-inch wide pipe is laid in such deep waters anywhere in the world.

Shuttle traffic

The vessel is a huge, well-oiled pipelaying machine which needs constant supply of pipes. Every pipe is 12.2 metres long and the vessel is laying around four kilometres of pipes a day. This means that it needs a supply of more than 300 pipes a day, filling two to three boats every day.

Two cranes are working hard like busy ants as they are lifting hundreds of pipes on board the vessel. One by one the 12-15-tonne heavy pipes are lifted on board – and when one boat is empty it only takes a few hours before the next boat arrives with more pipes. There are six boats in shuttle traffic transporting pipes.

«The pipes arrive from Wasco in the city of Mo i Rana, where they are coated. This means that they have been given a concrete layer to protect them from trawling and make them heavier,” explains Kristensen.

Assembly line

When a pipe is lifted on board the Solitaire it enters a huge assembly line. The pipe is sent from station to station through the factory of the 397-metre long and 41-metre wide vessel, where specialised operators perform their tasks. They are welding, checking, welding some more and checking some more before the welded joints are protected and the pipe becomes part of the long tail behind the Solitaire.

The pipeline is not laid in a straight line:

“We have examined the seabed thoroughly in advance to find the best route and also to avoid corals and large rocks,” says Arne Fosse, Statoil’s head of the Polarled construction work.

Saving money

In his office in Stavanger project manager Alfred Øijord has reason to smile. After some periods of bad weather right after the pull-in to Nyhamna in March, the project is progressing well – also financially.

«We are currently expecting to deliver way below budget,» he says. “The original investment budget for the pipeline project was NOK 11.1 billion. We are now expecting an investment level of around NOK 7.5 billion, due to good planning, good market knowledge and good execution. We have also had favourable market conditions with regard to capacity and price.”

Building for the future

At start-up the gas from Aasta Hansteen will be the only gas passing through Polarled, but the pipeline has a diameter of 36 inches and capacity for more gas:

“We have therefore installed six connection points, call it future slip roads to the new gas highway,” says Håkon Ivarjord, Statoil’s project venture manager for the Polarled development project. “Polarled will open up for gas export to Europe from a completely new gas province, and with the infrastructure in place it will also be more attractive to explore the surrounding area.”

24-hour operation

The Solitaire crew is working around the clock. It takes around 90 minutes from a pipe is lifted on board and enters production until it has become part of the ever-extending Polarled pipeline. There are 410 people on board the vessel, including two asset owner representatives from Statoil and eight people from DNV GL – who are also part of the day and night operation.

In a control room aft Max Misund is busy studying his computer screen – around every sixth minute he receives the result of the automatic ultrasound inspection made inside the vessel. Also this weld is approved.

The welding quality is good, he says:

“We have now checked more than 14,000 welds and the repair rate is 0.6%. That is an excellent result!»

The pipelaying work had to wait on weather for a couple of days, and gave the crew a welcome break.

“Laying several hundred kilometres almost without weather interruptions is very unusual. It is good to have a break to perform necessary maintenance on the pipelaying equipment, and not least to give the crew a welcome break before completing the pipelaying in 1260 metres of water,” concludes Arne Fosse.

This autumn the new highway for gas from the [Norwegian Sea will](#) be ready for use – on time and well below budget.

Australia's Biggest Solar Project Nearing Completion

The first photovoltaic panels have been installed at Moree Solar Farm (MSF), Australia’s largest solar array currently under construction.

The farm, on 280 hectares in [northern New South Wales](#), will supply 140,000 megawatt-hours (MWh) per year – [enough electricity](#) to power 15,000 homes and abate 95,000 tons of carbon pollution each year. It will use a single-axis horizontal tracking system, allowing 222,880 solar panels to follow the sun for maximum efficiency.



The first panels were installed in June and at last count almost 100,000 had been put in place.

The \$164 million project has been part-funded by ARENA with a \$102 million grant. \$47 million in debt financing has also been provided by the Clean Energy Finance Corporation.

The high-performance polycrystalline panels are being supplied by leading manufacturer JA Solar, which hailed

the project a significant step in its involvement in the [Australian renewable](#) energy sector.

“We firmly believe that the launch of MSF will serve as a foundation for potential opportunities to co-operate on large-scale solar projects in Australia in the future,” said the President and Chief Operating Officer of JA Solar, Xie Jian.

Construction of the Moree Solar Farm is expected to be completed by early 2016.

Recharge During The Commute: England's New Motorways Power Electric Cars In Motion

England may just be building the highways of the future.

This month, the Brits announced a pilot for electric motorways. Yes, that’s correct. You can charge your electric vehicle while driving, minimizing stop times at charging stations and making it easier to do a road trip in a Tesla.

The UK is not the first country to try this concept. The Netherlands has been researching “smart highways,” which go beyond electric-powered streets to a host of new technologies. South Korea already has a 15-mile stretch of road that’s powered with electric cables. The UK hopes to build a more expansive network but will begin with an 18-month pilot.



The UK has been pumping money into new technologies for its aging infrastructure. [Highways England](#), the government agency responsible for the country’s motorways, is already committed to placing plug-in charging stations every 20 miles along its major A1 roads. This is part of the government’s [Road Investment Strategy](#), in which the government will spend \$17 billion to modernize its transit systems.

Electric vehicles are also [becoming popular](#) in the UK, making it an ideal time for the government to fund this infrastructure. About 9,000 new low-emissions vehicles were registered in the UK in the first quarter of this year. The most popular models were the Nissan Leaf and the Mitsubishi Outlander. Much of this new-found love for low-emissions vehicles can be attributed to the [The Go Ultra Low campaign](#), which will award four British

cities with a share of \$35 million for having the lightest carbon footprint. In 2014, over 14,000 low emissions cars were sold and more than 20 electric models are now available to buy in the UK market.

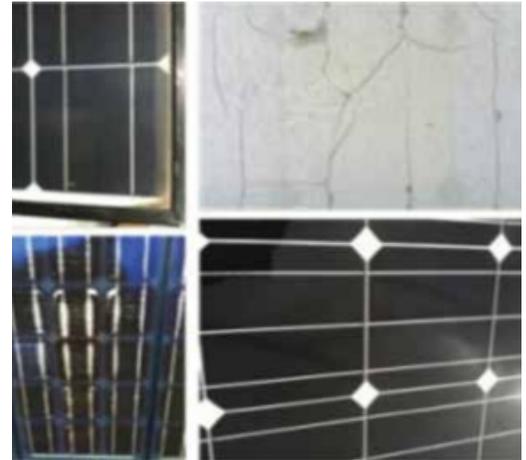
Transport Minister Andrew Jones is elated with these new technologies. "The potential to recharge low emission vehicles on the move offers exciting possibilities. The government is already committing £500 million over the next five years to keep Britain at the forefront of this technology, which will help boost jobs and growth in the sector," he said.

In the pilot, [electric cars](#) will be connected to wifi and tested on roads that have cables and "below ground technology" implanted; details of the technology are to be disclosed a bit later in the year. But the first round of tests will be done on a fake highway. Then, if all goes well, it'll be scaled further and could be tested on real roads.

The UK government isn't stopping at the roads. They've committed to at least \$780 million by 2020 to make low-emission vehicles mainstream.

Materials Can Be Key to Differences in Module Durability

DuPont Photovoltaic Solutions recently completed a five-year study of commercial crystalline silicon PV systems, amassing a wealth of new information about PV system field experience and PV module defects. Principal investigator Alexander Bradley discusses the findings, which, in addition to supporting the company's ongoing analysis of materials performance, are expected to provide benefits across the industry. Building on the industry knowledge pool contributes towards the standardisation of performance expectations across the solar industry, enables the development of more stringent risk mitigation techniques, and helps purchasers of solar power systems make educated and informed materials assessments.



Click [here](#) to view the full report.

FESC HIGHLIGHTS

FIU: Confronting Weather Extremes through Infrastructure Resiliency

South Florida's predisposition to weather extremes renders the region's infrastructure acutely vulnerable.

But weather extremes are not exclusive to South Florida. The Urban Resilience to Extreme Weather-Related Events Sustainability Research Network (UREx SRN), a newly

formed team of researchers, is addressing these challenges on an international scale. FIU **biologists** Evelyn Gaiser, John Kominoski and Tiffany Troxler are part of the 50-member team of researchers.

Hurricanes, flooding, droughts, heat waves and other extreme events can cripple crucial infrastructure that enables transit, electricity, water and other services in urban areas. With these types of events becoming more common, it is increasingly important to develop infrastructure in different, more sustainable ways.

Representing 15 institutions from nine cities in North and South America, the researchers will evaluate the social, ecological

and technical systems related to infrastructure. Their efforts will take into account key stakeholders, including citizens who rely on the infrastructure and city officials, as well as the natural environment in which the infrastructure operates.

The team will evaluate available technology and develop a suite of tools to support the development of urban infrastructure that is resilient and tailored to particular cities.

The **National Science Foundation** has awarded the network a \$12 million grant through its Sustainability Research Networks (SRN) program to support the initiative. FIU was also awarded a second SRN grant this year as part of the national consortium dedicated to urban water crises.

“The goal of SRNs is to bring together multidisciplinary teams of researchers, educators, managers, policymakers and other stakeholders to conduct collaborative research that addresses fundamental challenges in sustainability,” said Gaiser, who also serves as executive director of FIU’s **School of Environment, Arts and Society**.

“This approach to solution-oriented science is at the heart of FIU research philosophy, and these programs will help us make a positive impact on our community’s ability to adapt in the face of sea level rise and freshwater shortages.”

Each of the nine UREx SRN teams includes an engineer, a social scientist and an environmental scientist, ensuring a rich understanding of infrastructure needs and impacts across cities and cultures. In addition to Miami, teams will be based in Baltimore, Md.; New York; Portland, Ore.; Syracuse, N.Y.; Hermosillo, Mexico; San Juan, Puerto Rico; and Valdivia, Chile.

“Extreme events present a great challenge to global sustainability, and urban areas are particularly vulnerable to these events, often due to their location, interdependent infrastructure and people concentration,” said Georgia Kosmopoulou, NSF program director in economics. “The geographical breadth of the proposal is an advantage; cities that represent alternative cultural backgrounds can offer new ideas about socio-ecological-technological infrastructure.”

Arizona State University is leading the initiative.



FIU: Sea Level Solutions Center launches



With rising seas threatening coastal communities all across the world, FIU has launched the Sea Level Solutions Center to help people understand, adapt and persevere. FIU ecologist **Tiffany Troxler** will serve as director.

The center combines expertise in the natural, physical and social sciences, along with architecture, engineering, computer sciences, law, communications, business, health and tourism management to

develop long-term strategies in the face of rising seas. FIU's Miami location will be key in advancing the center's mission. South Florida is particularly vulnerable because of the large number of assets exposed to the effects of sea level rise.

"Rising seas are a topic of grave concern around the world, and most societies will feel the effects," said FIU President Mark B. Rosenberg. "While successful adaptation to sea level rise is local in nature, it will take international, national, regional, as well as local cooperation to develop and implement the necessary policies and strategies to address this global threat."

The FIU Sea Level Solutions Center will focus on envisioning and designing safe, resilient, prosperous and sustainable 22nd century coastal communities by focusing on the science behind the rising seas, preservation of governance systems, infrastructure challenges and solutions, business impacts, supply chain challenges, ecosystem dependencies, and personal assets. It will work with local governments, business and community leaders to accelerate adaption planning.

The center will support efforts to finance and implement plans through local, state and federal funding sources while drawing on collaborations with governments and the private sector, leveraging existing partnerships and creating new ones. The center is also dedicated to training a new generation of scientists, planners, designers, engineers, architects and communicators to develop sustainable solutions to this and other climate change impacts.

"Through its support for the Sea Level Solutions Center, Florida is poised to tackle challenges and advance opportunities brought forward by rising sea level," Troxler said. "Collaborative efforts fostered by the center will advance science-based actions to mitigate rising concentrations of greenhouse gases and discover transdisciplinary sea level rise adaptation solutions to serve regional, national and global communities."

FIU has been leading initiatives in South Florida to advance the science of sea level rise, including fostering strong partnerships with municipalities and other stakeholders to develop and implement mitigation and adaptation plans. The Sea Level Solutions Center will bring these multi-disciplinary efforts together in ways that will foster creative solutions to the complex issues of climate change through collaborative research, education, public outreach and engagement. Key partners in all of these activities will include researchers from other universities, the **Florida Climate Institute**, scientists, practitioners, business leaders, community leaders and the general public.

Troxler is a research scientist with **FIU's Southeast Environmental Research Center** and **Department of Biological Sciences**. Her research focuses on informing

management and restoration of coastal and freshwater wetland ecosystems. Some of the projects she leads include collaborative efforts that examine the effects of salinity inundation on soil carbon balance in Everglades coastal wetlands. She is a national greenhouse gas inventories review expert for the United National Framework Convention on Climate Change in the Land Use, Land-Use Change and Forestry sector. Troxler is project collaborator and working group co-lead in the **Florida Coastal Everglades LTER program**. She works to foster local, national and international collaborative research with the aim of addressing local to global-scale sustainability challenges.

UF Receives Record \$706.8 Million in Research Funding in 2015

The University of Florida received \$706.8 million in research awards last year, surpassing the previous record set in fiscal year 2014 by \$5.1 million. Among the highlights of the 2015 fiscal year, which ended June 30, was a record \$102 million in funding from industry, a 41 percent increase over 2014.

"The success of our relationships with industry last year are a testament to our researchers' ability to move new discoveries from conceptualization to commercialization," said David Norton, UF's vice president for research. "Leading engineering, health and agricultural companies know UF can help them advance the science of their industries more effectively."

Funding from the federal government topped \$432 million in 2015, led by the National Institutes of Health, with \$152 million, up 7 percent over 2014, and the National Science Foundation, also up 7 percent to \$47 million. State of Florida and local government agencies provided another \$46.9 million. Foundations and non-profits awarded \$90.4 million.

The College of Medicine in Gainesville and Jacksonville brought in \$268.3 million; the Institute of Food and Agricultural Sciences, or IFAS, received \$125.8 million; the College of Engineering was at \$79.7 million; and the College of Liberal Arts and Sciences received \$34.8 million. The remaining colleges had a combined \$198.2 million.

The new total marks a 32 percent increase in UF research awards since 2005-06.

Notable awards during the year included nearly \$5 million in funding from the National Science Foundation and industry to create the Multi-functional Integrated System Technology, or MIST, Center in the College of Engineering to research the next generation of "smart" electronics. As a designated NSF Industry/University Cooperative Research Center, the MIST Center will receive over \$880,000 from NSF and upwards of \$4 million from industry and government partners to help power the "Internet of Things."

The College of Engineering also received \$2.7 million from the Defense Advanced Research Projects Agency, or DARPA, to test neural implants designed to offer more intuitive control of prosthetics on military veteran and civilian volunteers.

"This research will directly impact the quality of life for a number of our veterans," engineering Dean Cammy Abernathy said, "and in doing so, we will further develop our faculty's already outstanding work in neuroprosthetics. This kind of research exemplifies how UF works for the 'Gator Good.'"

IFAS researchers were awarded more than \$13.4 million for four studies to help fight

citrus greening, the devastating disease that threatens Florida's \$10 billion citrus industry.

"UF/IFAS has more than 150 scientists working to find viable solutions for Florida citrus producers," said Jack Payne, senior vice president for agriculture and natural resources. "These funds support research that has shown promise for both short- and long-term methods to fight greening. They are an investment in the future of the industry."

The College of Medicine secured a total of \$8.4 million in funding for hepatitis C research from seven pharmaceutical industry leaders—Janssen Pharmaceuticals, Gilead Sciences, Merck, Bristol Myers Squibb, Genentech, Glaxo Smithkline and Roche Molecular Systems. This funding is largely concentrated in support of the international HCV-TARGET project, which collaborates with multiple pharmaceutical companies and the FDA to gather data from thousands of hepatitis C patients as part of an ongoing effort to cure the liver disease.

"Leading liver doctors across the country have joined HCV-TARGET to study and navigate rapidly evolving treatment options for hepatitis C," said medicine Professor David Nelson, UF's principal investigator on HCV-TARGET. "We see a healthier future for patients battling this virus and formed HCV-TARGET to help guide the way."

HCV-TARGET is led jointly by Nelson and Michael W. Fried, a professor of medicine at the University of North Carolina at Chapel Hill.

Innovation Hub to Double with Federal Grant and UF Match

The University of Florida will double the size of the Florida Innovation Hub with another \$8 million grant from the U.S. Economic Development Administration, providing more space for technology companies to start and grow.

The EDA and UF announced the grant Tuesday, which includes a \$9 million match from the university.

Hub Director Jane Muir said UF has three years to build the addition, according to the grant terms. The current building at 747 SW Second Ave. between campus and downtown was completed in 26 months on the parking lot of the former Shands at AGH hospital, which has since been demolished.

The three-story, 48,000-square-foot building opened in October 2011, built by an \$8.2 million EDA grant and a \$5 million match from UF, with funding from licensing royalties from research inventions. The building was designed with expansion in mind, and the addition, to be LEED certified, will be built on the west side over a parking lot. The addition will include more leasable space for tech startups — up to 45 companies — than the current building since it will not need to duplicate the lobby, elevators and loading docks, Muir said. It will include office space, and wet and dry lab space for new companies and for companies in the current building that expect to grow significantly but are not yet ready for commercial space, she said.

Phase II will also include an Entrepreneurial Women's Center to provide mentoring to go with the training provided through the Ewits, or Empowering Women in Technology

Startups, program Muir created at the Hub to prepare women for leadership positions in technology fields in which women are underrepresented, she said.

"It's a recognition that we have to do more to ensure that all members of the community are able to participate equally in creating and participating in tech-based startups," she said.

The Hub is home to about 30 startup companies, and another 30 have "graduated" out, including companies that have licensed inventions from UF, student startups and entrepreneurs from the community. The companies have created more than 760 jobs and drawn more than \$50 million in private investment funds, according to data the Hub reported to the EDA in July.

UF officials are confident the second phase will continue to do as well, a news release issued Tuesday evening said.

The Hub provides lab and office space, events and workshops, and access to mentors and pro bono consulting from resident partners that include accountants, attorneys, venture capitalists and marketers.

"We had to bring a lot of people together to create Innovation Hub Phase I, so the community has really embraced the whole idea of using innovation to create those high-wage jobs, so I think Phase II just adds to that momentum to really create a community that is being recognized as a place that is really using innovation to make a difference," Muir said.

Muir said the grants are for economic development tied to federal emergency management allocations by region and state. The new grant was tied to Tropical Storm Fay spreading citrus greening disease as it touched down four times between the Florida Keys to the Panhandle in 2008 and potentially destroying a 75,000-worker industry. The grant proposed a solution to create jobs if and when those jobs go away, she said.

"Tech-based jobs are considered disaster-resistant," she said.

UF President Kent Fuchs is quoted in the news release saying, "The expansion of the Innovation Hub will enable UF to excel further in its mission to create and grow innovative, high-tech companies that will drive future economic growth within the state of Florida."

UNF Professors Awarded NSF Grant for Nanomanufacturing Research

Researchers in the departments of Chemistry and Physics at the University of North Florida were recently awarded a three-year research grant totaling \$250,000 by the National Science Foundation (NSF) to develop new nanomanufacturing techniques for the electronics and communications industries.

Facilities required to generate complex nanostructures routinely cost billions of dollars. Motivation for this research stems from the observation that traditional patterning techniques for making integrated circuits for small electrical devices have steadily increased in cost and complexity.

With this funding, Dr. Thomas J. Mullen, UNF assistant professor of chemistry, Dr.

Corey P. Causey, UNF assistant professor of chemistry, and Dr. Daniel F. Santavicca, UNF assistant professor of physics, will collaborate to develop a nanoscale, or minute, form of lithography that will complement the traditional approach by allowing better precision and resolution, resulting in more powerful and compact electronics.

“While UNF has committed substantial resources to enable research efforts by faculty members, this grant represents an opportunity to establish the University as a place where impactful and meaningful research is being performed,” said Mullen. “The research assists with preparing our students for their future endeavors all the while making meaningful contributions to the scientific community.”

Undergraduate research students will assist with the project, providing them additional involvement with experimental techniques, ranging from organic synthesis to fabrication, and will allow them to see a project from development to conception.

The area of nanoscience research is an emerging strength at the University. In addition to this grant, the Department of Physics, in collaboration with the Massachusetts Institute of Technology, were recently awarded a three-year NSF research grant totaling nearly \$500,000 to advance research in the fields of nanotechnology and nanoscience. UNF has also received three other NSF grants in the last year.

The mission of the Department of Chemistry is to provide excellent educational experiences to foster a solid background in the foundational aspects of chemistry, an understanding of the scientific methods of inquiry, and an appreciation of the significance and relevance of chemistry in daily life.

The mission of the Department of Physics is to provide excellent educational experiences in physics, astronomy and geological science, as well as to advance knowledge in physics through research and service to the University, public and our profession.

UNF, a [nationally ranked](#) university located on an environmentally beautiful campus, offers students who are dedicated to enriching the lives of others the opportunity to build their own futures through a well-rounded education.

FLORIDA ENERGY NEWS

Tampa Electric Announces Its Sale to Canadian Company Emera

The parent of Tampa Electric Co. and Peoples Gas announced late Friday it had reached an agreement to sell the Tampa-headquartered utility to Canada-based Emera Inc. in a \$10.4 billion transaction.

The deal by TECO Energy, expected to close by mid 2016, would be one of the largest involving a Tampa Bay company if it is approved by federal authorities. It affects just over 1 million TECO and Peoples customers in Tampa Bay and throughout Florida. The sale marks the closing chapter of a veritable Hillsborough County institution whose roots go back 115 years when the company got its start managing Tampa's electric trolley system. TECO becomes a wholly owned subsidiary of Emera, which is headquartered in Halifax, Nova Scotia.

Hillsborough community leaders were already lamenting TECO's departure as an independent local institution.

Former Tampa Mayor Dick Greco recalled his close friendships with past TECO presidents and how its top leaders were always close with everyone who worked for them.

"They were always willing to do whatever the city needed. All that's going to be bygones now," Greco said. "Tampa Electric has just been a household name since I was a kid. It just feels funny."

But Emera president and CEO Chris Huskilson and TECO chief John Ramil took pains at a Tampa news conference to provide reassurance that little will change once the merger is done.

"Tampa Electric will continue to be the area's hometown electric company," said Ramil, noting the utility would not even change its name.

Huskilson said existing electric rates will not change, no job losses are anticipated, and the TECO employees and executives will remain an integral part of the communities where they live and work.

"We recognize that TECO and its employees are a vital presence in many communities," Huskilson said. "I love the phrase that TECO will continue to be the hometown electric utility for its customers. That's exactly what we want it to be."

In fact, rates can't change without approval by state utility regulators.

TECO announced earlier this week that it was proposing that its 2016 residential electric rates be reduced by \$2.25 per 1,000 kilowatt hours, a drop of 2.1 percent to \$106.22 for a typical residence. The rate decrease, which is because of lower natural gas prices, is expected to be approved by state utility regulators in November.

The all-cash deal still requires several federal approvals, including a review by the Department of Justice and shareholders of the two utilities. The combined company will have 2.4 million customers and \$20 billion in combined assets, making it one of the 20 biggest utilities in North America.

TECO's board of directors had met several times in recent days to consider the deal. Final board approval came shortly after the stock market closed at 4 p.m. Both TECO and Emera's board unanimously approved the transaction.

The sale comes less than two months after TECO Energy confirmed rumors that it was considering a sale. The rapid conclusion of TECO's search for a suitor affects 700,000 customers mostly in Hillsborough and Polk counties and another 350,000 Peoples Gas Systems customers throughout Tampa Bay and Florida.

The sale also includes TECO's New Mexico Gas Co., which has 510,000 customers across that state.

Hillsborough County Commissioner Sandy Murman said she was disappointed to see TECO absorbed by a larger company.

"Obviously my reaction to the sale of TECO is about the same feelings I had when Maas Brothers went away," Murman said. "I'm very saddened that we're losing such a fixture to our community, a great community partner. ... I will miss calling TECO, but I do look forward to getting to know Emera."

Former Tampa Mayor Sandy Freedman said she was concerned to see TECO absorbed by a company without local roots.

"As a public official you want to know who to make a call to over there if there is a problem," she said. "Now you're going to have a whole new set of players that nobody knows."

Perhaps to head off just that sort of concern, Emera said as part of its commitment to the communities it serves, a local "operating board" would be established with local representation. It was not immediately clear what the duties of such a board would be. While Emera is a utility based in Canada, it also owns assets in New England. With the acquisition of TECO, 71 percent of Emera's assets will be in the United States.

The companies said TECO shareholders would receive \$27.55 per common share, which is 48 percent above TECO's stock price on July 15, which is the day before TECO confirmed Internet reports that it was exploring a possible sale. TECO stock closed at \$21.07 when markets closed at 4 p.m. Friday.

The \$10.4 billion deal includes the assumption of \$3.9 billion in debt.

TECO's unusual confirmation in mid July that it was considering a possible sale didn't provide much detail, except that it was "exploring strategic alternatives" and had retained Morgan Stanley to help weigh its options.

Ramil said negotiations with Emera had not begun at that point. He confirmed that TECO fielded several additional offers from other utilities. But he said confidentiality agreements barred him from identifying them.

Two of the state's utility giants, Duke Energy Florida and Florida Power & Light, surround TECO's electricity service area, which led to speculation that one of those players might acquire the Tampa-based utility. Emera was a name that was absent in speculation.

A smaller utility is seen as being particularly appealing to bigger neighbors eyeing an opportunity to consolidate operations and bolster revenue.

TECO's Tampa Electric, besides its large base in Hillsborough and Polk, also serves a handful of customers in the Oldsmar area of Pinellas and a small number in eastern Pasco County.

In recent months, TECO has moved to sell off its coal business, which operates coal-production facilities in Kentucky, Tennessee and Virginia. Emera officials said they supported the move to divest those coal assets. The officials said they expected those efforts to continue.

Freedman, on hearing Emera was based in Nova Scotia, joked: "That's a nice place, I've been to Nova Scotia. The lights were on, so that's a good sign."

Jupiter Biotech Firm Wins Bioenergy Grant

Dyadic International's Dutch subsidiary won a 1 million euro (\$1.14 million) grant for bioenergy research.

The Jupiter-based company (OTCBB: DYAI) said the European Commission's Horizon 2020 program selected its Dyadic Netherlands B.V. subsidiary, the Compagnie

Industrielle de Matière Végétale, and five other research partners to build a large facility to produce ethanol from biomass. The project is called 2G BIOPIIC.

Dyadic owns a C1 enzyme that can rapidly produce proteins for biofuel, manufacturing chemicals, biopharmaceuticals and animal feed.

"We are pleased to continue working closely with CIMV, and believe that Dyadic's C1 enzymes will play a critical role in the 2G BIOPIIC project success," Dyadic COO [Danai Brooks](#) said in a news release. "The aim of 2G BIOPIIC is to demonstrate the performance, reliability and sustainability of producing bioethanol from agriculture waste and wood. The demonstration plant built in the 2G BIOPIIC program will process one ton of biomass per hour, or about 50 times the size of the CIMV pilot plant upon which the project is based."

The grant will pay Dyadic 1 million euros (\$1.14 million) over three years, including an upfront payment of 439,819 euros (\$499,570).

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The sale marks the closing chapter of a veritable Hillsborough County institution whose roots go back 115 years when the company got its start

managing Tampa's electric trolley system. TECO becomes a wholly owned subsidiary of Emera, which is headquartered in Halifax, Nova Scotia.

Hillsborough community leaders were already lamenting TECO's departure as an independent local institution.

Former Tampa Mayor Dick Greco recalled his close friendships with past TECO presidents and how its top leaders were always close with everyone who worked for them.

"They were always willing to do whatever the city needed. All that's going to be bygones now," Greco said. "Tampa Electric has just been a household name since I was a kid. It just feels funny."

But Emera president and CEO Chris Huskilson and TECO chief John Ramil took pains at a Tampa news conference to provide reassurance that little will change once the merger is done.

"Tampa Electric will continue to be the area's hometown electric company," said Ramil, noting the utility would not even change its name.

Huskilson said existing electric rates will not change, no job losses are anticipated, and the TECO employees and executives will remain an integral part of the communities where they live and work.

"We recognize that TECO and its employees are a vital presence in many communities," Huskilson said. "I love the phrase that TECO will continue to be the hometown electric utility for its customers. That's exactly what we want it to be."

In fact, rates can't change without approval by state utility regulators.

TECO announced earlier this week that it was proposing that its 2016 residential electric rates be reduced by \$2.25 per 1,000 kilowatt hours, a drop of 2.1 percent to \$106.22 for a typical residence. The rate decrease, which is because of lower natural gas prices, is expected to be approved by state utility regulators in November.

The all-cash deal still requires several federal approvals, including a review by the Department of Justice and shareholders of the two utilities. The combined company will have 2.4 million customers and \$20 billion in combined assets, making it one of the 20 biggest utilities in North America.

TECO's board of directors had met several times in recent days to consider the deal. Final board approval came shortly after the stock market closed at 4 p.m. Both TECO and Emera's board unanimously approved the transaction.

The sale comes less than two months after TECO Energy confirmed rumors that it was considering a sale. The rapid conclusion of TECO's search for a suitor affects 700,000 customers mostly in Hillsborough and Polk counties and another 350,000 Peoples Gas Systems customers throughout Tampa Bay and Florida.

The sale also includes TECO's New Mexico Gas Co., which has 510,000 customers across that state.

Hillsborough County Commissioner Sandy Murman said she was disappointed to see TECO absorbed by a larger company.

"Obviously my reaction to the sale of TECO is about the same feelings I had when Maas Brothers went away," Murman said. "I'm very saddened that we're losing such a fixture to our community, a great community partner. ... I will miss calling TECO, but I do look forward to getting to know Emera."

Former Tampa Mayor Sandy Freedman said she was concerned to see TECO absorbed by a company without local roots.

"As a public official you want to know who to make a call to over there if there is a problem," she said. "Now you're going to have a whole new set of players that nobody knows."

Perhaps to head off just that sort of concern, Emera said as part of its commitment to the communities it serves, a local "operating board" would be established with local representation. It was not immediately clear what the duties of such a board would be.

While Emera is a utility based in Canada, it also owns assets in New England. With the acquisition of TECO, 71 percent of Emera's assets will be in the United States.

The companies said TECO shareholders would receive \$27.55 per common share, which is 48 percent above TECO's stock price on July 15, which is the day before TECO confirmed Internet reports that it was exploring a possible sale. TECO stock closed at \$21.07 when markets closed at 4 p.m. Friday.

The \$10.4 billion deal includes the assumption of \$3.9 billion in debt.

TECO's unusual confirmation in mid July that it was considering a possible sale didn't provide much detail, except that it was "exploring strategic alternatives" and had retained Morgan Stanley to help weigh its options.

Ramil said negotiations with Emera had not begun at that point. He confirmed that TECO fielded several additional offers from other utilities. But he said confidentiality agreements barred him from identifying them.

Two of the state's utility giants, Duke Energy Florida and Florida Power & Light, surround TECO's electricity service area, which led to speculation that one of those players might acquire the Tampa-based utility. Emera was a name that was absent in speculation.

A smaller utility is seen as being particularly appealing to bigger neighbors eyeing an opportunity to consolidate operations and bolster revenue.

TECO's Tampa Electric, besides its large base in Hillsborough and Polk, also serves a handful of customers in the Oldsmar area of Pinellas and a small number in eastern Pasco County.

In recent months, TECO has moved to sell off its coal business, which operates coal-production facilities in Kentucky, Tennessee and Virginia. Emera officials said they supported the move to divest those coal assets. The officials said they expected those efforts to continue.

Freedman, on hearing Emera was based in Nova Scotia, joked: "That's a nice place, I've been to Nova Scotia. The lights were on, so that's a good sign."

Harris Corporation Signs As Partner At Osceola High-Tech Center

Melbourne-based Harris Corp. signed a letter of intent to be the first formal industry member of the Osceola high-tech center being developed by ICAMR, or International Consortium for Advanced Manufacturing Research.



Harris, (NYSE: HRS) a defense contractor focused on radio and satellite communication, is on board for a multi-year program to accelerate development and sale of next-generation semiconductor technology.

With Harris involved, the prospect of creating jobs at the center becomes more real. With a hub for high-tech manufacturing, the region could stand to attract more high-paying jobs in related fields.

The center itself is called the Florida Advanced Manufacturing Research Center. The Sentinel [has covered the project in numerous stories](#) since it was announced in June 2014.

U.S. ENERGY NEWS

U.S. Deploys 40.7 Megawatts of Energy Storage in Second Quarter of 2015

In the second quarter of 2015, the U.S. energy storage market had its best quarter in two and a half years, installing 40.7 megawatts (MW) of capacity, according to the Energy Storage Association (ESA). While the figure is a nine-fold increase year-over-year, this increase was mainly driven by one large utility project, although underlying trends show great promise for other markets. The ESA projects that 2015 will be the biggest year yet for energy storage, with a total of 220 MW planned or already deployed. See the [PDF](#).

The current results largely reflect a 31.5-MW storage project installed in Illinois by Invenergy LLC, which plans to install a similar project in West Virginia later this year. Such installations on the utility's side of the power meter accounted for 87% of storage deployments in the second quarter. Likewise, the energy storage market's best quarter was the fourth quarter of 2012, when Duke Energy brought the 36-MW Notrees project online in Texas with the help of Energy Department funding.

According to the report, the largest driver of the growth was the interconnection of a 31.5-megawatt project in the PJM region. It's the single largest project to come on-line since the fourth quarter of 2012, when the 36-megawatt Notrees project was interconnected in Texas. The front-of-meter segment accounted for 87 percent of storage deployments during the second quarter of the year.

Looking behind the meter, the non-residential market had its best quarter in history, deploying 4.9 megawatts. A big share of this growth came from California, where the massive pipeline of SGIP-approved projects finally began to be interconnected. The residential market grew an impressive 61 percent over last quarter. However, it's

coming from a much smaller base than the utility and non-residential market segments and represented just 1 percent of the quarter's deployments.

The majority of storage deployed in the United States is concentrated in a few markets. The report notes that California is the largest market for both the residential and non-residential market segments. Since the first quarter of 2013, 1.3 megawatts of residential and 10.8 megawatts of non-residential storage have been deployed in California.

During the same time period, PJM (excluding New Jersey) saw the deployment of 100 megawatts of utility-scale storage. That's more than four times what California, the second-ranked utility-scale market, has deployed since the first quarter of 2013. According to the report, PJM and California will continue to be regional leaders for storage in the foreseeable future. However, the report is following policies across all U.S. states and highlights exciting advancements in Maryland, Oregon and Washington.

"It is promising to see that outside of PJM and California, 10 states had significant activity related to energy storage policies and programs in the last three months," said Ravi Manghani, GTM Research senior energy storage analyst and lead author of the report. "This is a good sign for the industry, which has leaned on a handful of markets for its growth to date. We have states like Minnesota and Washington that are looking to grow their storage industries, while others like Massachusetts and New Jersey are using storage to modernize the grid and make it more resilient."

"The number of different states that are actively engaging in energy storage shows that regulators, legislators and utilities are seeking innovative ways to deploy systems," said Matt Roberts, executive director of the Energy Storage Association. "Advanced storage systems are being leveraged to increase reliability and resiliency in the Northeast, offset the need for 'peaker plants' in the Southwest, and help replace capacity and integrate renewables across the West. It's a dynamic addition to the grid, and provides all of these benefits with each system install."

Southern Buys AGL In \$12B Deal To Capitalize On Obama's Clean Power Plan

Big deal is just the beginning of a re-shuffling to abide by new low-carbon rules.

Southern Company, America's third largest utility owner and natural-gas distributor [AGL Resources](#) ngIf: ticker GAS +0.21% ngIf: show_card end ngIf: ticker announced a merger agreement on Monday with an enterprise value of \$12 billion and a total equity value of \$8 billion. The deal, which is expected to close in the latter half of 2016, would make [Southern Co](#) ngIf: ticker SO +0.30% ngIf: show_card end ngIf: ticker the second largest electric and natural gas utility company in the U.S.

[Southern Co.](#) reports the transaction, which promises AGL shareholders a premium of \$66 per share, would expand the utility giant's based to approximately 9 million customers spanning 9 states, 11 electric and natural gas distribution companies and approximately \$50 billion in regulated rate base. Furthermore, it would also bring a total of 200,000 miles of electric transmission and distribution lines and more than 80,000 miles of gas pipelines under operational control.

On a day that has brought devastation to many energy-related stocks, AGL is up 29% in midday trading.

Under the terms of the agreement, AGL Resources will retain its own headquarters, management team, and Board of Directors while operating as a fully owned subsidiary of Southern Co. The transaction still hinges upon clearance under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and approval of AGL shareholders.



This transaction is seen as first of the many market adjustments to President Obama's Clean Power Plan announced several weeks ago. Given the phasing out of coal, natural gas is set to make the most gains and has attracted the attention of many electric utility providers. It appears Southern Co. hopes to ride out future price fluctuation in natural gas by expanding operations to production companies and faculties, giving it wider market reach and a larger foothold overall.

Renewable Jet Fuel Is Taking Flight

It's been one year since we at the Energy Department ramped up our efforts to develop renewable jet fuel for the military and commercial aviation industry. The Department's Bioenergy Technologies Office (BETO) joined **Farm to Fly 2.0**—a partnership with the U.S. Department of Agriculture (USDA), the Transportation Department's Federal Aviation Administration, and commercial airlines partners to develop a commercially viable aviation biofuel industry. We also partnered with USDA and the Navy to fund **three new commercial-scale biorefinery projects** for advanced biofuels, which can be utilized by both the military and civil aviation sectors.

Since then, renewable jet fuel efforts have been taking off. Private companies have made agreements with our biorefinery partners and with one of our national laboratories.

1. FEDEX AND SOUTHWEST AIRLINES AGREE TO PURCHASE FUEL FROM RED ROCK BIOFUELS

In July, **FedEx entered into an agreement** to purchase bio-derived jet fuel from the Red Rock Biofuels biorefinery in Lakeview, Oregon. This facility is being built with **cost-shared** government funding and will produce 12 million gallons of renewable jet, diesel, and naphtha fuel from forest residues. **Southwest Airlines also signed a fuel off-take agreement** with Red Rock in September 2014. Using forest residues as the feedstock can decrease the risk of destructive wildfires in the western United States.

2. UNITED AND CATHAY PACIFIC INVEST IN FULCRUM

In June, **United Airlines announced** a \$30 million investment in Fulcrum Bioenergy—the largest investment by a domestic airline in the alternative fuels market. This adds to Hong Kong-based airline Cathay Pacific's equity investment in Fulcrum in 2014. **Cathay Pacific entered into a long-term jet fuel supply agreement** with Fulcrum for 375 million gallons of fuel over 10 years. Fulcrum is constructing a biorefinery in McCarran, Nevada, to produce 10 million gallons per year of biofuels from municipal solid waste—

such as everyday household garbage.

3. LANZATECH AND IMPERIUM PARTNER WITH PACIFIC NORTHWEST NATIONAL LABORATORY

LanzaTech and Imperium Aviation Fuels (which is now part of **Renewable Energy Group, Inc.**) are working with researchers at Pacific Northwest National Laboratory to advance a technology that converts ethanol from gas fermentation to drop-in jet fuel through thermochemical conversion. LanzaTech's proprietary gas fermentation technology provides an economic route to create fuels and high-value chemicals from carbon in waste streams. This solution mitigates carbon emissions while displacing fossil resources needed for fuel and chemical production. See a **Pacific Northwest National Laboratory video** on aviation biofuels.

All these achievements—in only one year—show significant interest by the commercial aviation industry for developing a renewable jet fuel market. Fuel is the largest expense for the commercial airlines industry. Biofuels can provide an alternative, stable supply of fuel that also has lower life-cycle greenhouse gas emissions.

That's an idea that can really take flight.

FUNDING OPPORTUNITIES

FESC office tracks the energy related funding opportunities, shares them with faculty and industry partners, facilitates the submission of multi-faculty, multi-SUS university competitive proposals in response to solicitations for major research programs. The most recent funding opportunities are listed below. For a complete list please visit the [funding opportunities page](#) on the FESC website.

DEPARTMENT OF ENERGY

DE-FOA-0001366: SBIR/STTR FY 2016 Phase I Release 1

Application Deadline: October 19, 2015

DE-FOA-0001386: Early Career Research Program

Closing Date for Applications: November 19, 2015

DE-FOA-0001387: Photovoltaics research and Development (PVRD)

Submission Deadline for Letter of Intent: October 7, 2015

Submission Deadline for Concept Papers: October 19, 2015

Submission Deadline for Full Application: January 11, 2016

DE-FOA-0001400: Sunshot Technology to Market (Incubator Round 11, Solarmat Round 4)

Submission Deadline for Letter of Intent: November 2, 2015

Submission Deadline for Concept Papers: November 18, 2015

Submission Deadline for Full Application: February 3, 2016

DE-FOA-0001282: Scientific Infrastructure Support for Consolidated Innovative Nuclear Research

Application Deadline: Feb 18, 2016

DE-FOA-0001281: FY2016 Scientific Infrastructure Support for CINR

Letter of Intent Due Date: August 27, 2015 at 8:00 p.m. ET

Full Application Due Date: February 18, 2016 at 8:00 p.m. ET

Berkeley Cleantech University Prize (CUP)

Closing Date for Applications: TBD

H2 Refuel H-Prize Competition

Deadline: 10/31/2016

DE-FOA-0001203 - Assisting Federal Facilities with Energy Conservation Technologies, Fiscal Year 2015 (RFI)

Application Due Date: TBD

SPOTIR-0000018: Technologist-In-Residence Pilot: Laboratory Call for Proposals

Application Due Date: TDB

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NATIONAL SCIENCE FOUNDATION

NSF PD 13-7607: Energy, Power, Control and Networks (EPCN)

Full Proposal Window: October 1, 2015 - November 3, 2015

October 1 - November 1, Annually Thereafter

PD-15-7644: Energy for Sustainability

October 1, 2015 - October 20, 2015

October 1 - October 20, Annually Thereafter

NSF 15-601: NSF/DOE Partnership in Basic Plasma Science and Engineering

Full Proposal Target Date(s):

November 19, 2015

October 21, 2016

Third Friday in October, Annually Thereafter

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The US-Israel Binational Agricultural Research and Development Fund (BARD)

Submission Date: Yearly, Mid September

ABB Research Award in Honor of Hubertus von Grunberg

The application deadline for the first award is Jan. 29, 2016.

N00167-15-BAA-01 - Energy Conservation Applications for the US Navy

Response Date: 11/30/2016

[Read more at our website>>](#)

UPCOMING EVENTS

[The First International Symposium on Sustainable Human-Building Ecosystems](#)

October 5 - 7, 2015
Pittsburgh, PA

The Steering Committee of the NSF funded Research Coordination Network (RCN) on Sustainable partnership with the Carnegie Mellon University, cordially invites you to participate in the First Human-Building Ecosystems (ISSHBE).

The symposium provides an opportunity to share cutting edge findings in the integration of economic sciences with building design, engineering and metrology for better understanding environmental impacts and occupant comfort.

Click [here](#) for more information.

Florida Green School Awards: Celebrating and Recognizing Environmental Excellence

October 8, 2015
Streamsong Resort, Polk Co., Florida

With nearly 50 nominations of outstanding efforts to teach and live green, the 6th Annual Florida Green School Awards will honor a number of remarkable individuals to serve on the panel of judges. After an eligibility check and nomination was reviewed by three judges. Scores were tabulated and aggregated. The top 10 nominations in each category were selected. The highest scoring project in each category was selected as the state winner.

Click [here](#) for more information.

Third Annual Go SOLAR & Renewable Energy Fest

October 9 - 10, 2015
Ft. Lauderdale, FL

Go SOLAR Florida will host the Third Annual Go SOLAR and Renewable Energy Fest at the Gumbo Convention Center, in Fort Lauderdale. This FREE event will feature the latest information on solar and renewable energy and quickly becoming the premier event in South Florida to promote renewable energy and learn about various sources of energy.

Click [here](#) for more information.

2015 Florida Energy Summit

October 14 - 16, 2015
Jacksonville, FL

This year the summit will be held in Jacksonville, Florida, to showcase how Northeast Florida is growing an economy that will serve its residents today and allow future generations to thrive. Please click [here](#) for the full agenda of the summit.

Click [here](#) for more information.

BuildingEnergy NYC 2015

October 15, 2015
New York, NY

BuildingEnergy NYC is a rapidly growing, cross-disciplinary conference that offers practical, environmental, legal, and maintenance challenges facing NYC building owners and practitioners. Conceived in 2012 and nearly doubling in size yearly, BuildingEnergy NYC sets itself apart as a building industry come together to learn from each other how to make the buildings of this city. BuildingEnergy NYC offers six tracks and 24 fully accredited sessions to start the conversation on energy savings in multifamily retrofits, the bigger picture on policy and where it's driving the building industry. House yet, out on Roosevelt Island.

Click [here](#) for more information.

National Advanced Biofuels Conference & Expo

The 5th annual National Advanced Biofuels Conference & Expo will take place October 26-28 in Lincoln, Nebraska.

Produced by BBI International, this national event will feature the world of advanced biofuels, from up, project finance, policy, national markets and more-with a core focus on the industrial, production and the national advanced biofuels industry.

With a vertically integrated program and audience, the National Advanced Biofuels Conference is engaged in producing, developing and deploying advanced biofuels, biobased platform chemical molecules that have the potential to meet or exceed the performance of petroleum-derived fuels.

Click [here](#) for more information.

The 6th International Conference on Smart Grid Communications (SmartGridComm 2015)

November 2-5, 2015
Miami, FL

The Organizing Committee is pleased to invite your participation in 6th IEEE International Conference on Smart Grid Communications (SmartGridComm 2015). This conference seeks to bring together researchers and practitioners developing Information and Communication technology for the Intelligent Grid with attendant benefits.

We look forward to sharing the innovative technologies and approaches being used to enable smart grid applications, fault isolation and power outages restoration, renewable energy integration and consumer energy management.

SmartGridComm 2015 will be held in Miami Florida , USA on November 2-5, 2015. Miami is a city with rich cultural diversity and offering many opportunities for leisure and exploration. IEEE SmartGridComm 2015 program centered around four thematic symposia, namely Communications and Networks for Smart Grids, Privacy, Architectures, Control and Operation for Smart Grids and Microgrids and Data Management for Smart Grids.

We warmly invite you to participate in the IEEE SmartGridComm 2015 program of activities. We believe the program to be enriching, enlightening and rewarding.

Click [here](#) for more information.

Advanced Bioeconomy Leadership Conference (ABLCNext)

November 2-5, 2015

San Francisco, CA

ABLCNext is the largest gathering of advanced bioeconomy senior leadership on the West Coast covering energy, chemicals, and materials, advanced foods, seed and trait development, crop & soil technology.

What happens at ABLCNext? Companies coming out of stealth, product and project milestones, press releases, media coverage of all of the above; tons of networking re: finance, public-private partnerships, and new products and technologies are showcased both on stage, via TV and in the NEXT STC.

Click [here](#) for more information.

Power Up Energy Expo

Fall, 2015

South Walton, FL



The Premier Energy Conference along the Gulf Coast, Power Up offers a great opportunity to generate new business leads for your business.

Click [here](#) for more information.

2016 Capitol Days

January 13, 2016 - January 15, 2016 @ All Day
FSU Turnbull Conference Center
Tallahassee, FL

Reserve your space to attend the Florida Chamber's Capitol Days and kick-off the 2016 Legislative session with executives, legislators and state leaders with an event that focuses on:

- Florida's Business Agenda - The business communities 2016 legislative priorities,
- Securing Florida's future through private-sector job creation and economic development,
- Innovation, lawsuit abuse reform, healthcare, regulatory reform, talent supply, and water
- State-of-the-State Update and more.

Register today and be a part of the conversation to secure Florida's future.

Click [here](#) for more information.

EUEC 2016: ENERGY, UTILITY & ENVIRONMENT CONFERENCE

February 3, 2016 - February 5, 2016 @ All Day San Diego, CA

The 19th Annual EUEC 2016, is USA's largest professional networking & educational event for energy and utility professionals and 400 speakers in 10 tracks.

Click [here](#) for more information.

ESCC 2015: 3rd International Conference on Energy, Sustainability and Climate Change

July 10th - 16th, 2016

Marathon, Athens, Greece

ESCC series aims on bringing together leading experts in the fields of optimization and computational energy systems, energy storage, energy efficiency, energy policy, energy economics, energy law, energy technology advancements and trending topics.

Click [here](#) for more information.

Note from the Editor

Thank you for reading Florida Energy Systems Consortium Newsletter and sharing this newsletter with your colleagues. We try to highlight developments in renewable energy technology and research all across Florida and the world. If you have any news you would like to see featured in the Newsletter, or events you would like to announce, feel free to e-mail floridaenergysystems@gmail.com for posting in the next newsletter and on the **FESC website**: www.floridaenergy.ufl.edu