

Energy & Utilities Subcommittee

Wednesday, October 23, 2019
9:00 AM - 11:00 AM
Mashburn Hall (306 HOB)

Meeting Packet

Jose Oliva
Speaker

Charlie Stone
Chair

Committee Meeting Notice

HOUSE OF REPRESENTATIVES

Energy & Utilities Subcommittee

Start Date and Time:	Wednesday, October 23, 2019 09:00 am
End Date and Time:	Wednesday, October 23, 2019 11:00 am
Location:	Mashburn Hall (306 HOB)
Duration:	2.00 hrs

Discussion of Trends in Advanced Energy Technologies

NOTICE FINALIZED on 10/16/2019 4:05PM by Rigas.Amanda

The Florida House of Representatives

Commerce Committee

Energy & Utilities Subcommittee

Jose Oliva
Speaker

Charlie Stone
Chair

AGENDA

Wednesday, October 23, 2019
Mashburn Hall (306 HOB)
9:00 AM – 11:00 AM

I. Call to Order & Roll Call

II. Welcoming Remarks

III. Discussion of Trends in Advanced Energy Technologies

Workforce Trends and Trends in Solar Energy Technology
Dylan Reed – Director, Advanced Energy Economy

EV Infrastructure Technology and Trends
Josh Cohen – Director of Policy, Greenlots

Electrification of Mass Transit/Buses
Eric McCarthy – Senior Vice President, Proterra

Energy Management Services
Andrew Apgar – Business Development, Schneider Electric

IV. Adjournment

303 House Office Building, 402 South Monroe Street, Tallahassee, Florida 32399-1300
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Workforce Trends & Trends
in Solar Energy Technology

Florida Advanced Energy Outlook

Dylan Reed, Director
Advanced Energy Economy

What is Advanced Energy?

Energy Supply

Electricity Generation

- Hydropower
- Gas turbines
- Solar
- Wind
- Geothermal
- Marine
- Waste
- Biomass
- Nuclear
- Other DG

Electricity Delivery & Management

- Transmission
- Distribution
- AMI
- Micro-grids
- EV Charging Infrastructure
- Energy Storage
- Enabling IT

Fuel Production

- Ethanol & Butanol
- Biodiesel
- Biogas
- Synthetic Diesel & Gasoline
- Bio-oil
- CNG & LNG
- Hydrogen

Fuel Delivery

- Fuel Transportation Infrastructure
- Fueling Stations

Energy Demand

Buildings

- Building Design
- Building Envelope
- HVAC
- District Energy, CHP, CCHP
- Water Heating
- Lighting
- Appliances & Electronics
- Enabling IT

Transportation

- Propulsion Systems
- Vehicle Design & Materials
- Freight Logistics
- Land Use & Infrastructure Design
- Enabling IT

Industry

- Manufacturing Machinery & Process Equipment
- Industrial Combined Heat & Power

2019 Florida Jobs Fact Sheet

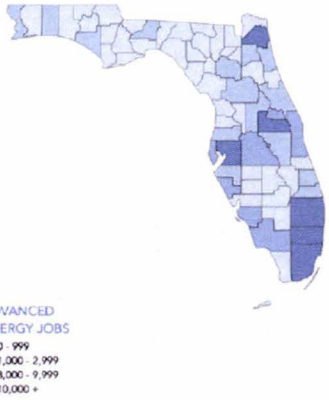
- 174,100 Advanced Energy Jobs
- 3x Jobs in Agriculture, More Than Real Estate
- Employment by Geography & Segment

Download at aee.net

ADVANCED ENERGY ECONOMY

Advanced Energy Employs 174,100 in Florida

Three Times the Jobs of Agriculture; More than Real Estate



5%
Job Growth 2017-18

5%
Growth Expected in 2019

49%
Of Employers Say It's Very Difficult to Find Qualified Candidates for Advanced Energy Jobs

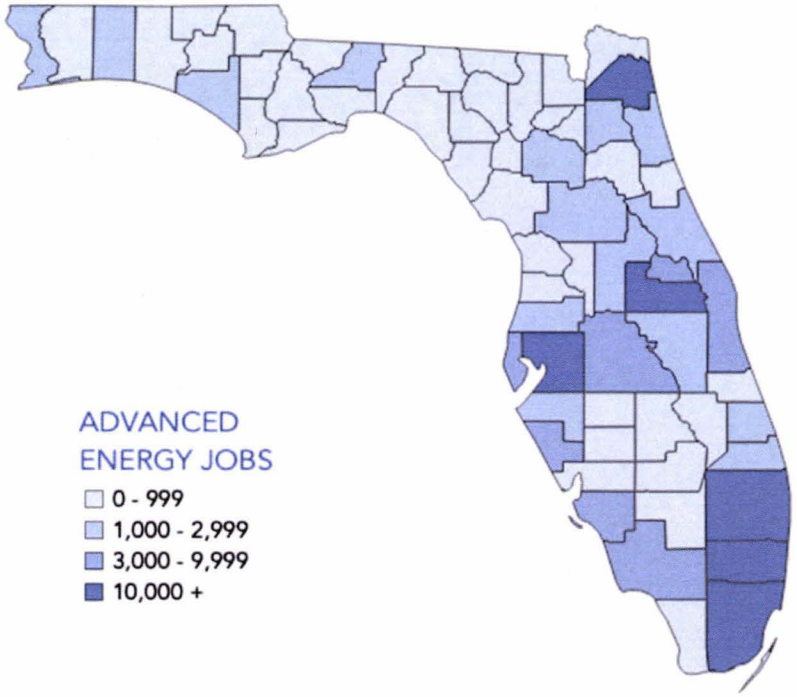
TOP 5 COUNTIES FOR ADVANCED ENERGY JOBS

Miami-Dade County	19,700
Palm Beach County	16,800
Hillsborough County	16,100
Broward County	15,800
Orange County	14,300

ADVANCED ENERGY SUPPORTS 3.5 MILLION U.S. JOBS

Advanced energy encompasses the best available technologies for meeting energy needs today and tomorrow. These include electric and plug-in hybrid vehicles, natural gas-fueled trucks, high-performance building energy technologies, energy-saving industrial processes, wind turbines, onsite and large-scale solar installations, hydro and nuclear power, and energy storage. Advanced energy technologies are driving our economy toward a prosperous future powered by energy that is secure, clean, and affordable. For more, see **This Is Advanced Energy** at info.aee.net/reports.

Closer Look: Advanced Energy Employment by County

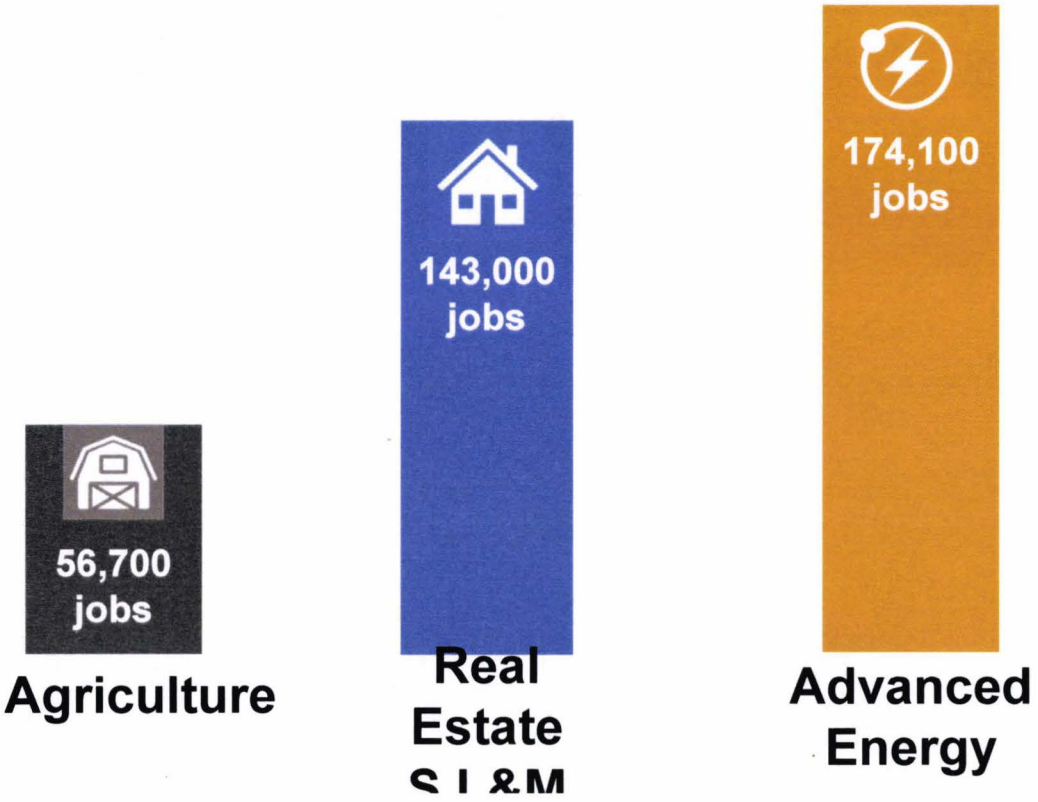


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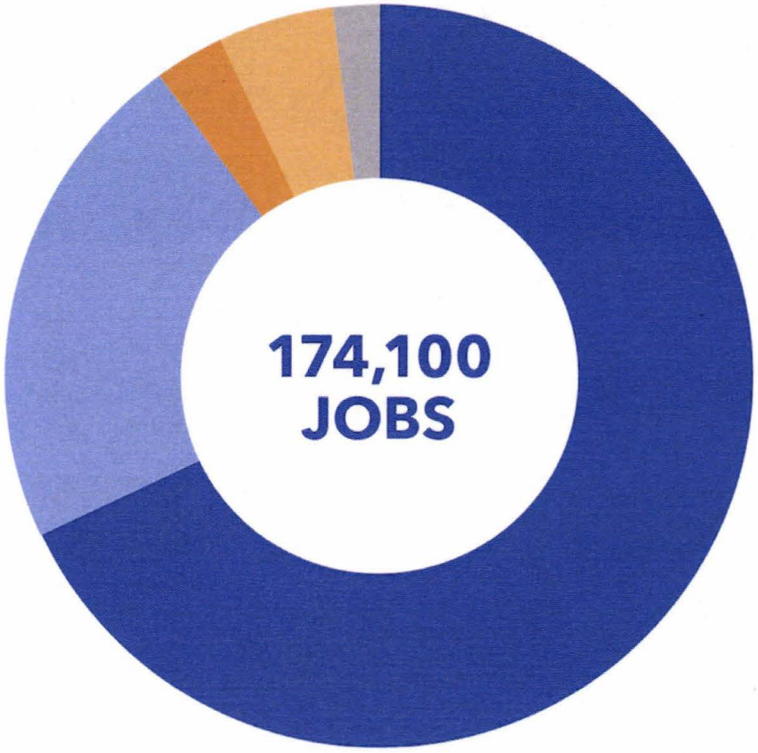
Advanced Energy is a Large Sector that is Growing Quickly

Employment in Florida, 2018



Growth Rate
○ 2017-2018: 5%
○ 2019 Expected: 5%

Largest Sectors Are Efficiency and Advanced Generation

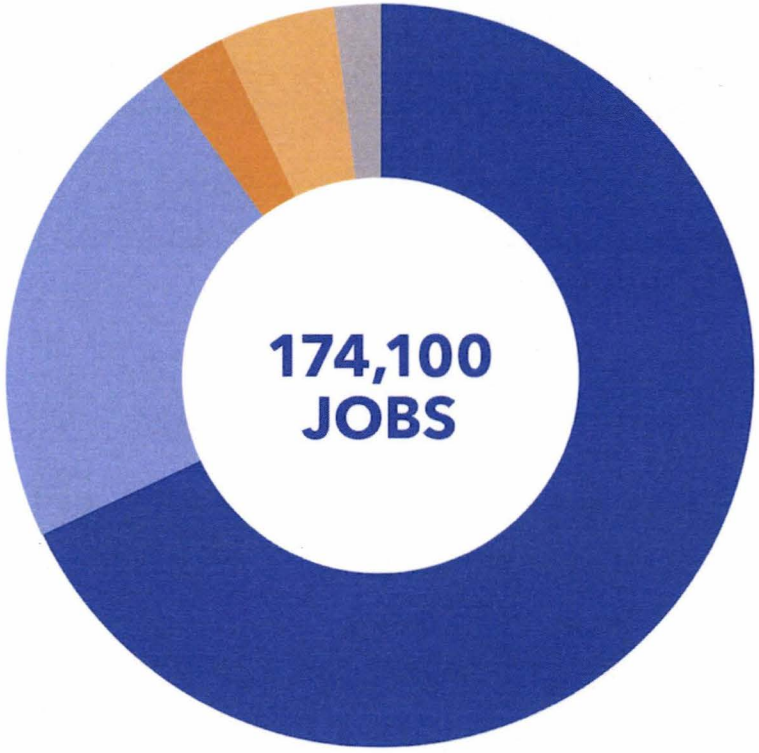


- **Energy Efficiency** 68%
- **Advanced Generation** 21%
- **Advanced Grid** 3%
- **Advanced Vehicles** 5%
- **Advanced Fuels** 2%

Largest Sectors

- EE: 118,000
- Adv Gen: 36,600

Some Smaller Sectors Are the Fastest Growing



- **Energy Efficiency** 68%
- **Advanced Generation** 21%
- **Advanced Grid** 3%
- **Advanced Vehicles** 5%
- **Advanced Fuels** 2%

Fastest Growing

- Adv Vehicles: 18%
- Adv Grid & Storage: 17%

Biggest Opportunities for Florida Advanced Energy

Solar Procurement

Solar is one of the most affordable energy resources

- Growing interest from large energy users to meet renewable energy goals
- Opportunity to offer programs to meet this interest

Energy Efficiency

"The cheapest megawatt hour is the one you don't use"

- Lowest cost resource for businesses and households
- Enhances grid reliability
- Reduces energy bills

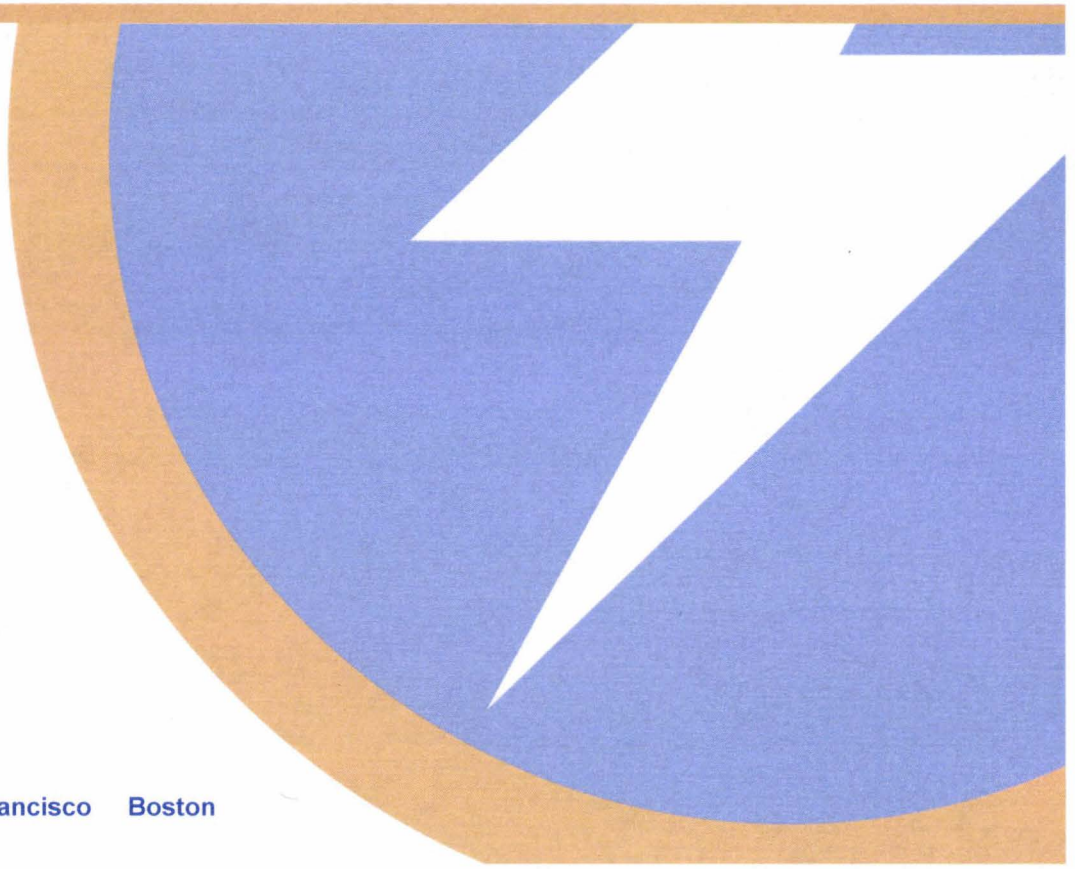
Electric Vehicles

Florida is ranked 4th nationally in EV sales, over 40K EVs sold in 2018

Barriers to Adoption

- Upfront vehicle cost
- Lack of consumer awareness

Thank you for your attention. Any questions?



Dylan Reed, Director, AEE

dreed@aee.net

Energy Management Services

Schneider Electric

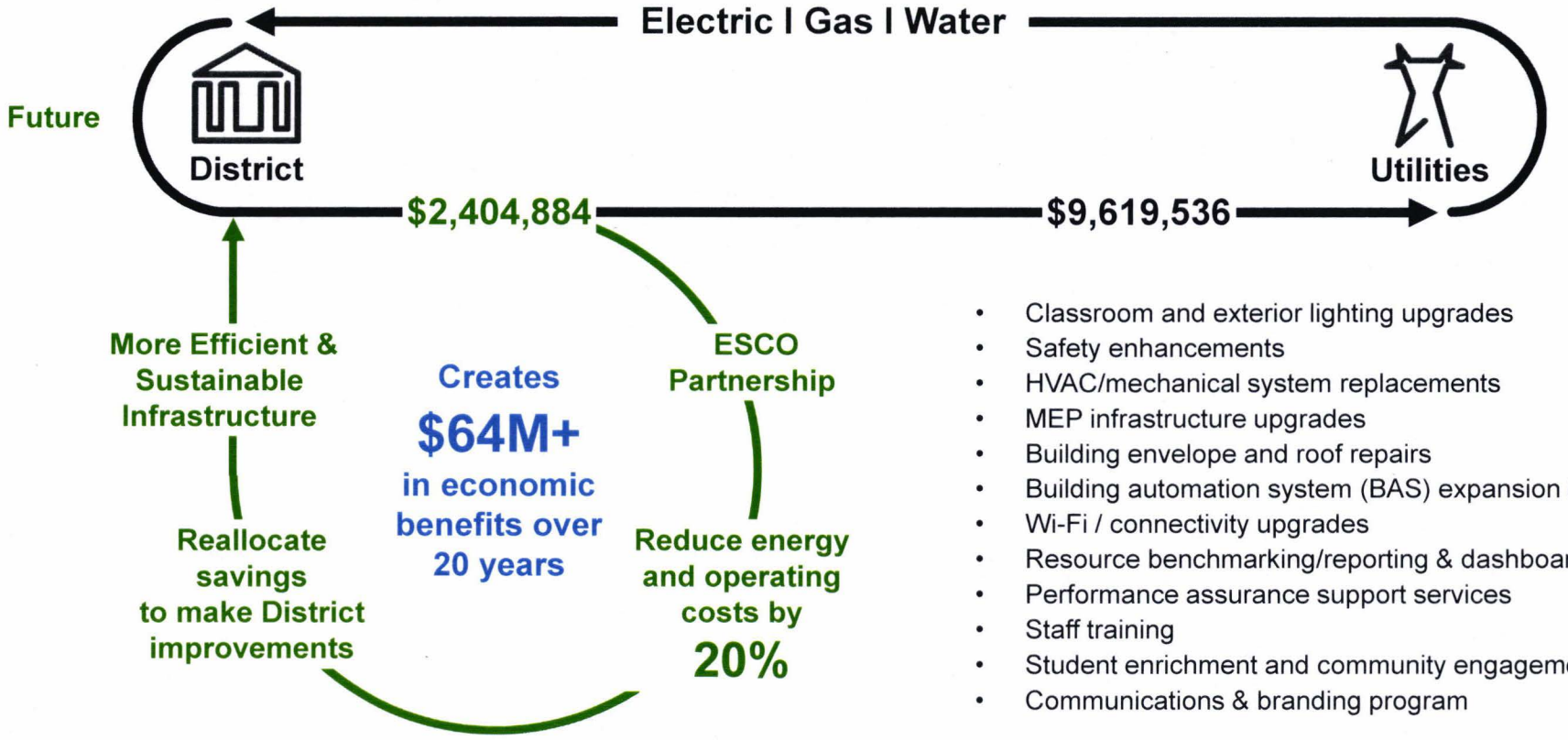
Energy & Sustainability Services Leader

- $28 billion NAESCO-accredited energy services company
- Recognized as one of the World's Most Ethical Companies for nine (9) consecutive years
- Ranked #1 Energy Services Company (ESCO) and #1 Energy-as-a-Service (EaaS) Provider by *Navigant Research*
- 2018 ENERGY STAR Partner of the Year
- Named to Global 100 Most Sustainable Companies in the World
- Project portfolio of more than $2.6 billion

Life Is On Schneider Electric

Program Overview





- Classroom and exterior lighting upgrades
- Safety enhancements
- HVAC/mechanical system replacements
- MEP infrastructure upgrades
- Building envelope and roof repairs
- Building automation system (BAS) expansion & optimization
- Wi-Fi / connectivity upgrades
- Resource benchmarking/reporting & dashboards
- Performance assurance support services
- Staff training
- Student enrichment and community engagement
- Communications & branding program

Citrus County Board of County Commissioners

Facility & Infrastructure Renewal

- Program created $4 million in total economic benefits
- Reduced annual utility expenses by 28%
- Funded $3 million in critical infrastructure renewal projects to address failing and aging equipment
- Improved indoor environmental quality and comfort in County facilities
- Enabled Citrus County to provide better and more cost-effective services to its residents
- Created sustainability partnership for the future



"Working with Schneider Electric on this project was a true pleasure. We were able to take advantage of utility savings to offset the costs of new equipment and the savings continue long after the project completion. Citrus County would highly recommend Schneider Electric and will use them in the near future for additional work."

Carl Hall
Director of Facilities Management

Life Is On Schneider Electric

City of Lakeland

Sustainability & Economic Development

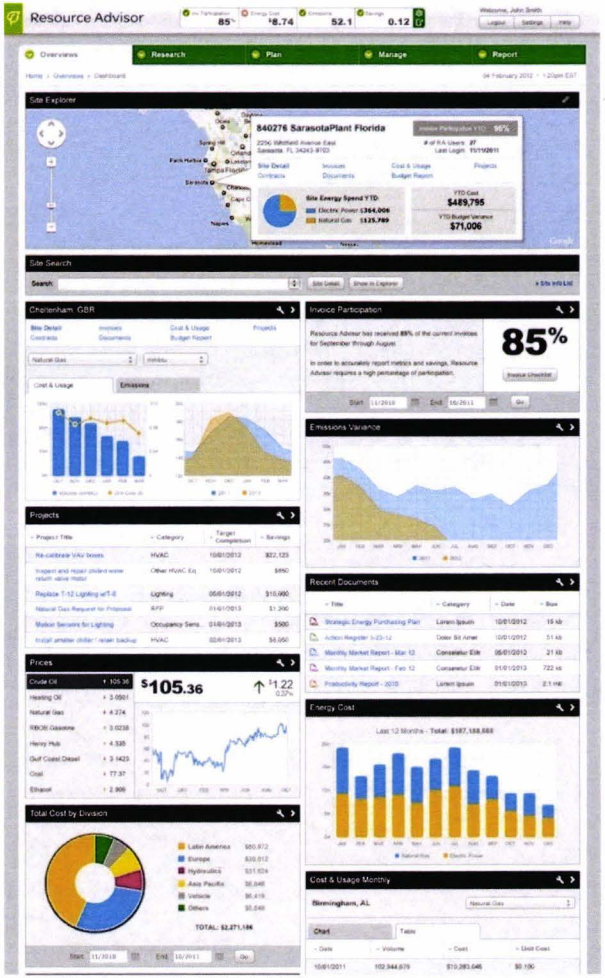
- Program created $14 million in total economic benefits
- Reduced energy footprint at main wastewater treatment facility by 40%
- Funded $11.2 million project to capture, condition and use biogas as a fuel source, and optimize current treatment processes
- Demonstrates leadership in the areas of environmental and financial stewardship
- Enables Lakeland to offer new incentives to compete for businesses looking to relocate to Central Florida
- Nominated for EPA PISCES Award



Charter Schools USA

Resource Management & Visibility

- Implemented Resource Advisor
- Provides data visibility of utility accounts at 51 schools
- Enables CSUSA to benchmark facility performance against established goals
- Includes user-driven dashboards, enhanced analytical tools and reporting functions
- Ability to expand to other areas of resource performance measurement



Life Is On Schneider Electric