

Charting a Course to Energy Independence

Providence, RI
August 9-12, 2009

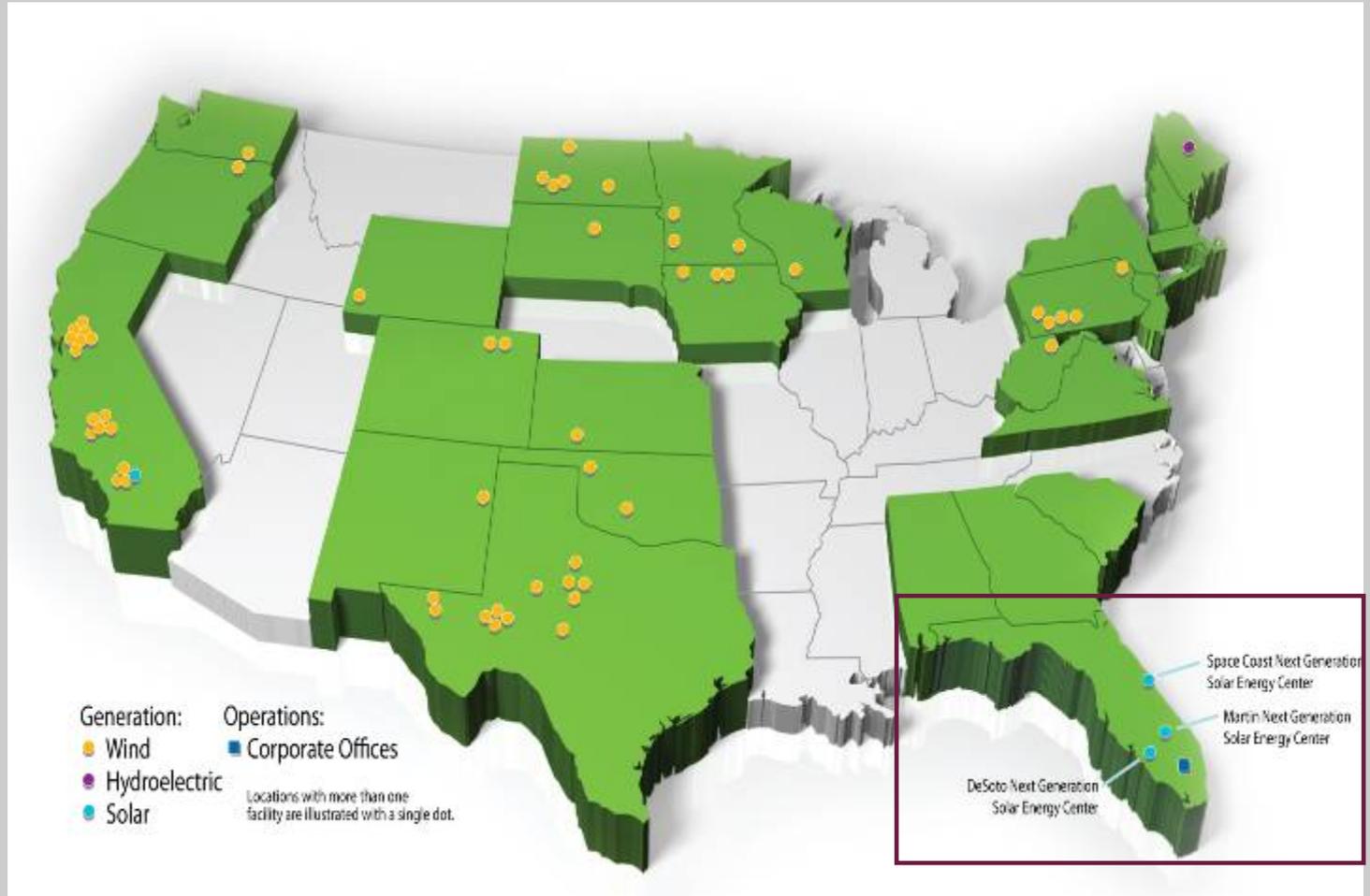
Project Development Case Study:
***FPL's Space Coast Next Generation
Solar Energy Center***

Kathryn S. Salvador, P.E.
Manager, Project Development
Florida Power & Light Company





FPL Group is the world leader in renewable energy





Our renewable portfolio has recently expanded into Florida with three utility scale solar facilities

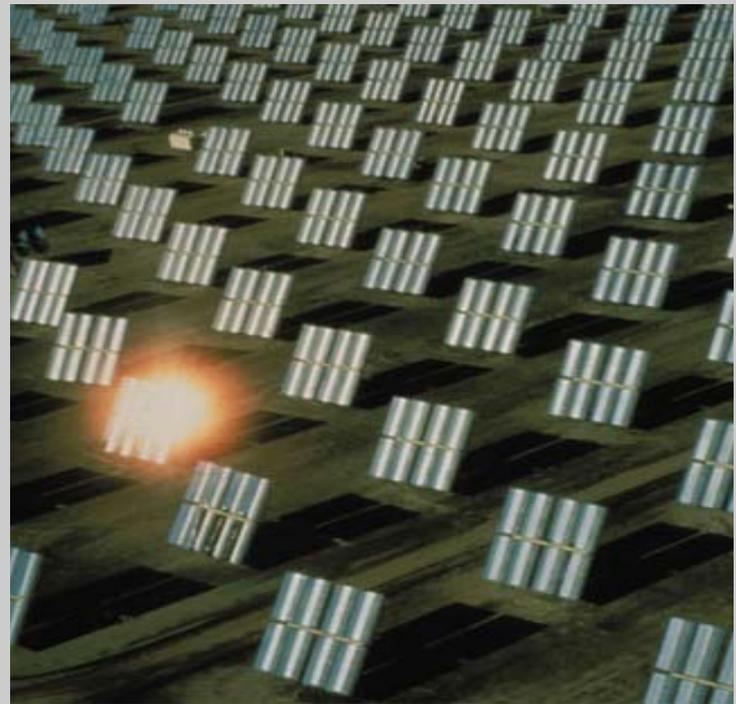
•Martin County

- ☐ The first hybrid solar facility in the world to connect to an existing combined-cycle power plant



•DeSoto County

- ☐ Nation's largest solar photovoltaic facility



•Kennedy Space Center

- ☐ First private/public partnership on solar in the U.S.



We recently broke ground on the Space Coast Solar Energy Center at NASA's KSC



Solar Field = 60 acres
Solar Panels = 37,500
Capacity = 10 MW



Project Development Case Study: Space Coast Next Generation Solar Energy Center

Why Renewables on the Space Coast?

- Moving towards Governor's Executive Order of 20% renewable energy by 2020
- Vast amounts of available land
- Expand KSC Business Opportunities
- NASA has history and experience with using Renewables
- Long/Strong Project Partnership with NASA and FPL

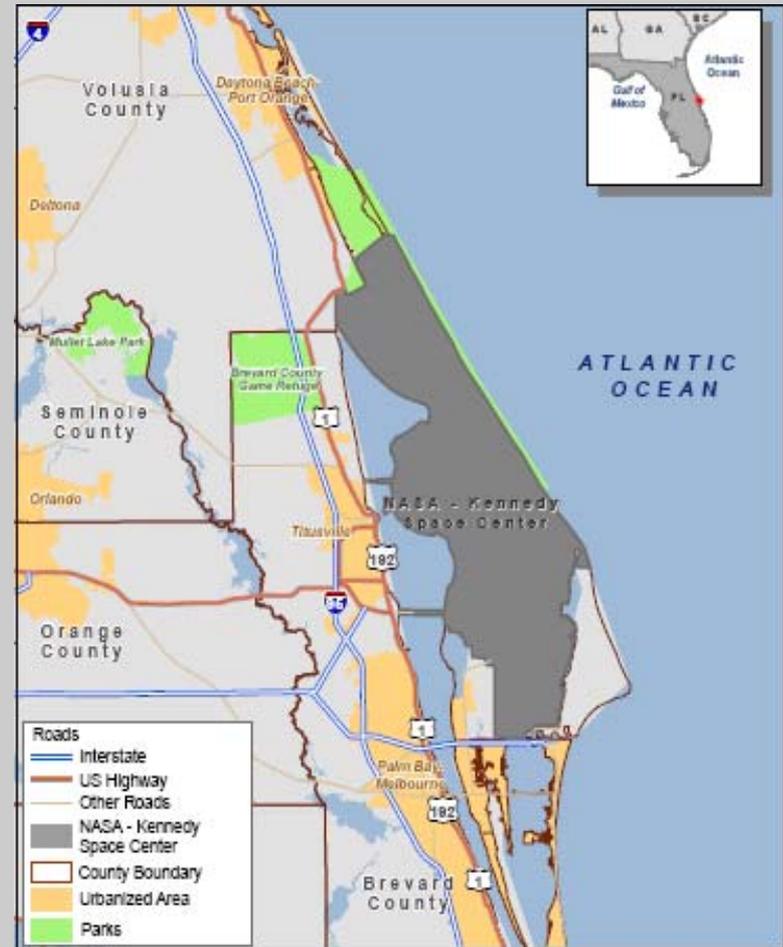




Project Development Case Study: Space Coast Next Generation Solar Energy Center

So how did we get here?

- Commercial Aspects
 - ☐ MOU and EUL with NASA - covered in forthcoming EUL session
- Project Development Aspects
 - ☐ Siting
 - ☐ Permitting and Regulatory Approvals
 - ☐ Engineering Design
 - ☐ Construction
- **TEAMWORK!**





Project Development Case Study: Space Coast Next Generation Solar Energy Center

Project Development - Siting

- FPL and NASA agreed to pursue a 10 MW Solar PV project at KSC
- NASA identified available sites for consideration
- A National Environmental Policy Act (NEPA) Environmental Assessment (EA) was conducted and a preferred site selected
 - ▢ Finding of No Significant Impact
 - ▢ Electrical interconnection key driver
- Selected site was former orange grove that recently ceased operations





Project Development Case Study: Space Coast Next Generation Solar Energy Center

Project Development – Permitting and Regulatory Approvals

- Environmental Resource Permit
 - ☐ St John's River Water Management District: submitted application in July 2008 and obtained permit in April 2009
- Army Corps of Engineers Permit
 - ☐ Nationwide permit (<0.5 ac wetlands): submitted application in August 2008 and obtained permit in December 2008
- Florida Public Service Commission Approval
 - ☐ 2008 Energy Bill provided enabling legislation for this project

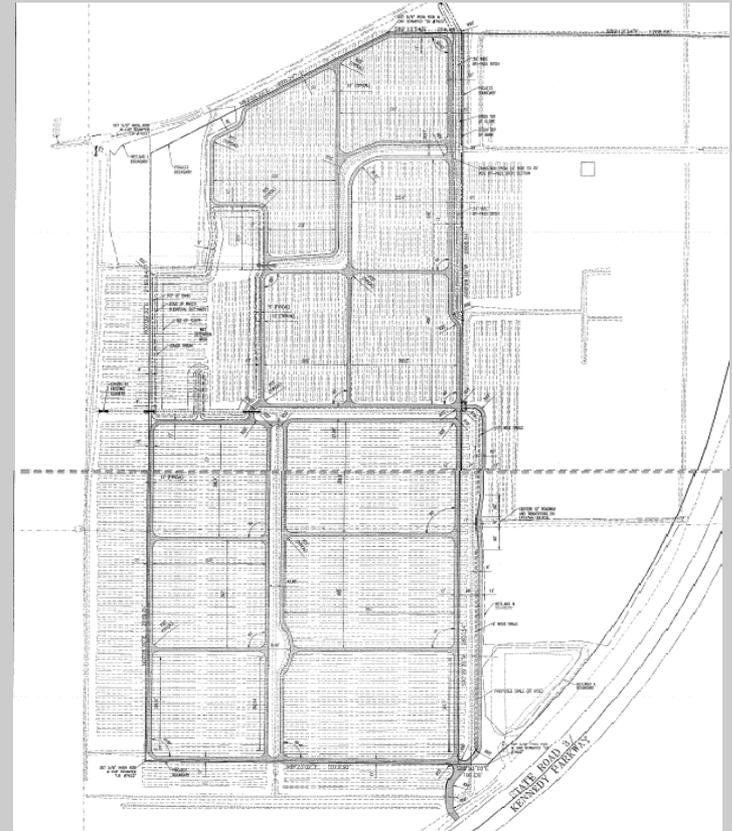




Project Development Case Study: Space Coast Next Generation Solar Energy Center

Project Development –Engineering Design

- Approx. 37,500 SunPower 305 watt solar panels on 60 acres
- 18.7% panel conversion efficiency, highest commercially available
- Fixed tilt design due to wind load considerations
- Estimated Net Capacity Factor of 19.4%
- Annual estimated generation of 16,000 megawatt hours
- Electrical Interconnection
 - ☐ dc to ac through Siemens Inverters
 - ☐ 13.8 kv collection system into existing FPL substation
 - ☐ From substation to existing 115 kV transmission system





Project Development Case Study: Space Coast Next Generation Solar Energy Center

Project Development –Construction

- Construction start 01 June 2009 with site clearing and grubbing
- Burning restrictions due to proximity of space shuttle resulted in use of air curtain incinerator
- Archeological find during construction; temporary delay
 - legbone from extinct species of llama; species went extinct about 10,000 years ago
- Construction completion 2Q 2010





Project Development Case Study: Space Coast Next Generation Solar Energy Center

Project Benefits

- Emission free renewable energy
- No cooling water required
- Estimated fuel savings:
 - ☐ 2.8 billion ft³ of natural gas and 122,000 barrels of oil
- Expected reduction of GHG emissions:
 - ☐ 227,000 tons over 30 years
 - ☐ Equivalent to taking 1,800 cars off the road every year
- Will serve approximately 2,600 people
- Over 100 construction jobs created





Project Development Case Study: Space Coast Next Generation Solar Energy Center

Keys to Success

- #1 Focused Team
 - ☐ Support from KSC Center Director and FPL VP/Chief Development Officer
 - ☐ Dedicated NASA/FPL Project Team
- #2 Shared Goals
 - ☐ Increase Renewable Energy Usage
 - ☐ Strengthen Relationship
 - ☐ Broaden Business Opportunities
- #3 EUL Opportunity:
 - ☐ Discussed in next session...



Charting a Course to Energy Independence

Providence, RI
August 9-12, 2009

Project Development Case Study:
***FPL's Space Coast Next Generation
Solar Energy Center***

Kathryn S. Salvador, P.E.
Manager, Project Development
Florida Power & Light Company

