



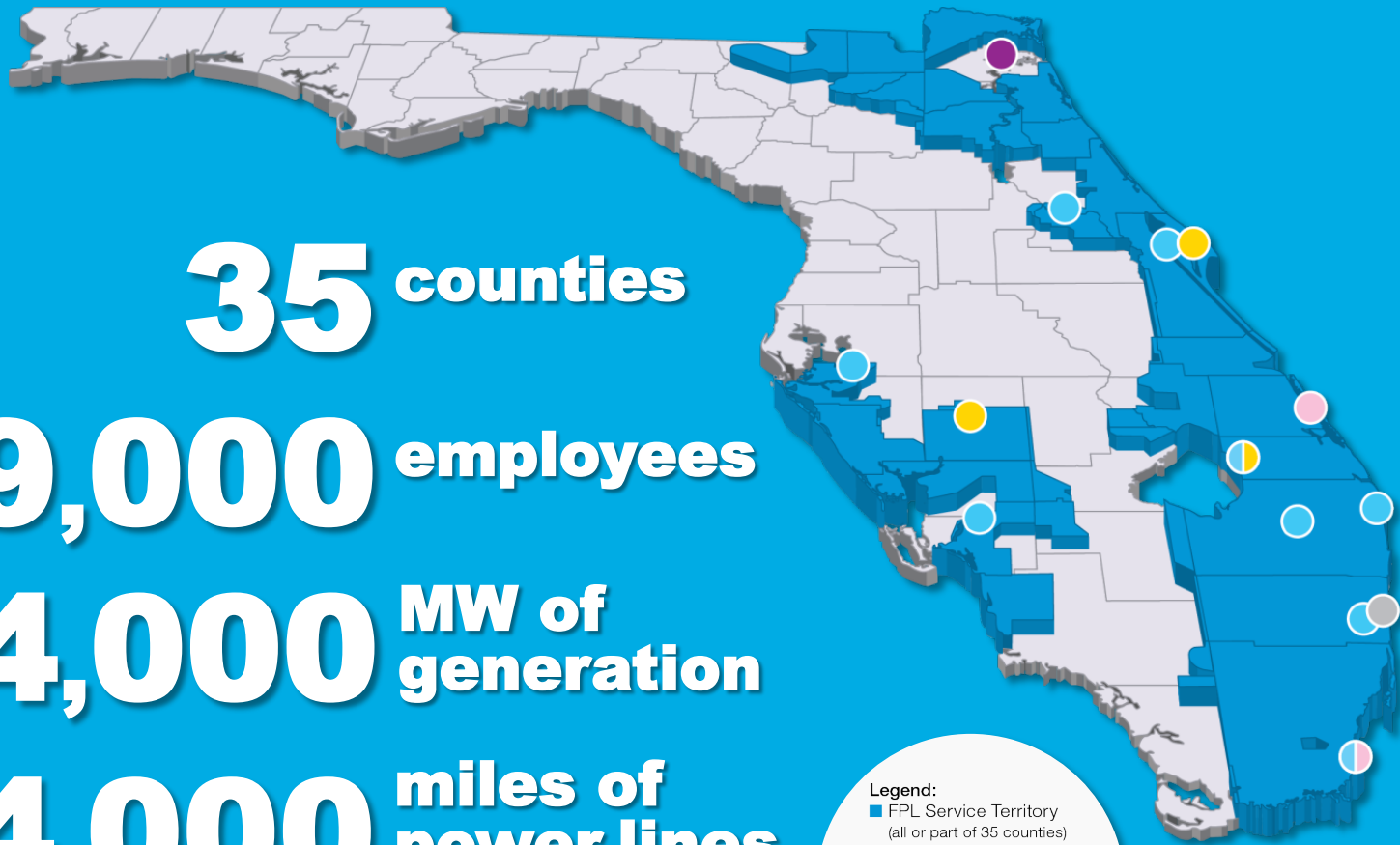
# University of Florida “State of Energy” Presentation



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Senior Director – Project Development  
Florida Power & Light Company

March 23, 2016



**35** counties

**9,000** employees

**24,000** MW of generation

**74,000** miles of power lines

**4.8 million** customer accounts

Serve more than half of Florida

**Legend:**

■ FPL Service Territory  
(all or part of 35 counties)  
Data as of Dec. 31, 2014.

**Primary Fuels:**

● Natural Gas  
● Natural Gas Modernization  
● Nuclear  
● Solar  
● Other

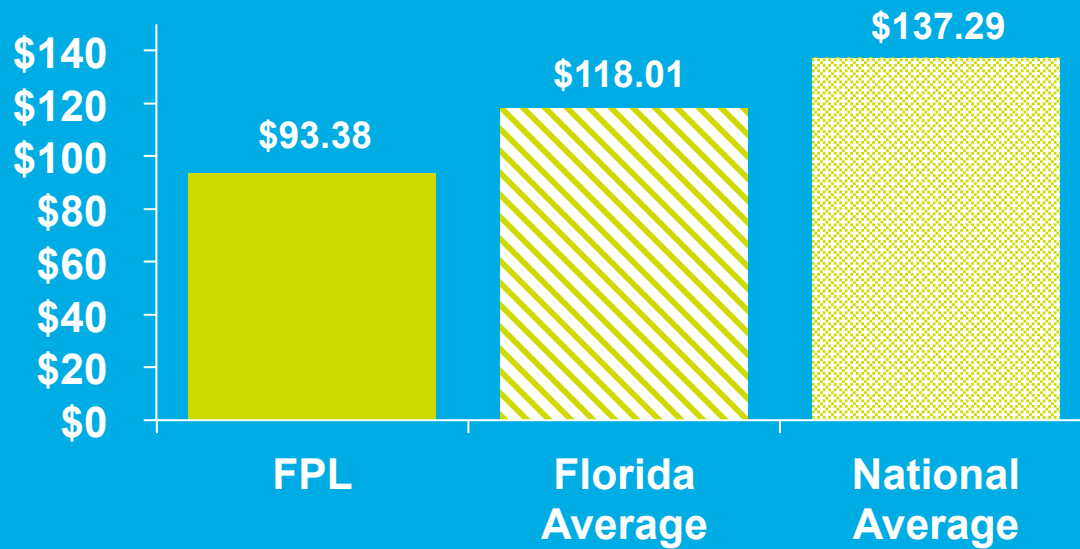


CHANGING THE CURRENT.. FPL.

# Delivering Clean, Affordable Power

## ► Our affordable clean energy strategy leverages

- » high-efficiency natural gas;
- » zero-emissions nuclear;
- » and large-scale solar



**35%**  
lower CO<sub>2</sub> emissions

typical 1,000-kWh  
residential bill is  
approximately

**30%  
lower**

than the U.S.  
average



# Port Everglades



- State-of-the-art, high-efficiency, combined-cycle technology
- Producing up to 1,277 megawatts of electricity
- Enough power for approximately 260,000 FPL customers
- 90 percent reduction in air emissions
- Carbon dioxide emissions rate cut in half



# Florida Energy Fundamentals

Solar is easy to over-simplify, but responsible advancement must rely on facts, context and economics

## Resource

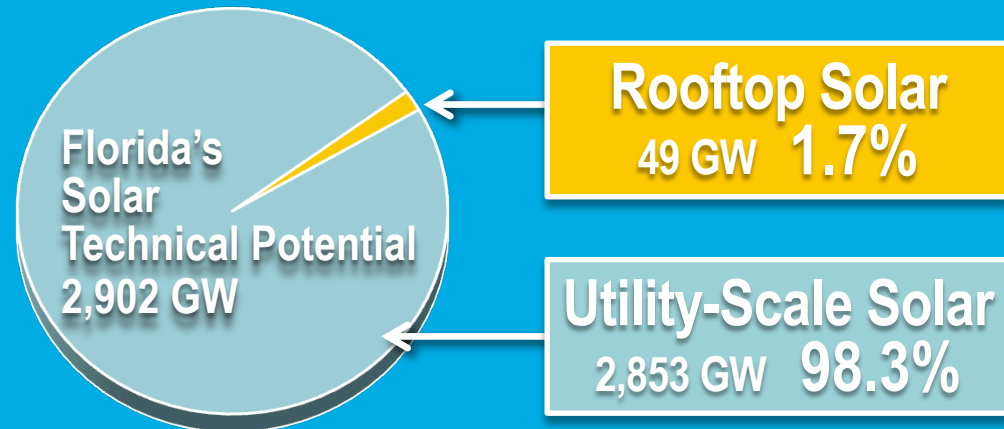
- ☀ Intensity of sun's rays reaching an area – affects ability of panels to generate electricity

Solar Resource Strength		
State	Solar Resource (kWh/m2/day)	Rank
Arizona	6.58	1
New Mexico	6.43	2
Nevada	6.11	3
California	6.08	4
Utah	5.90	5
Colorado	5.73	6
Texas	5.65	7
Hawaii	5.47	8
Florida	5.44	9
Kansas	5.43	10

- ☀ Solar resource variances make a difference: Southwest Florida's stronger solar resource provides a 3% to 5% edge in production

## Technical Potential

- ☀ Estimate of the theoretical amount an energy source can produce in a given area
- ☀ More than 98% of Florida's solar technical potential is large-scale



# Advancing Solar in Florida

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- ☀ **FPL supports solar policies and programs that make sense for all of our customers**
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## Key Principles for Advancing Solar

- ☀ **Prioritize projects that deliver the greatest benefits for our customers' dollar**
  - Focus on cost-effective investments that provide more solar energy faster without impacting rates
- ☀ **Strive for fairness to all customers**
  - Minimize subsidization to keep rates low and fair for all customers, whether or not they have solar
  - Ensure all customers pay their fair share for use of the grid
  - Compensate solar customers fairly for the electricity they sell back to the grid
- ☀ **Protect Florida consumers**
  - Maintain the safety and reliability of the grid for all customers
  - Preserve the customer's right to have solar for their own use
  - Support the safe interconnection of solar customers' systems

# Advancing Solar in Florida (continued)

## ☀️ Prioritize projects that deliver the greatest benefits for our customers' dollar

By leveraging multiple advantages to bring the cost down, FPL is developing **cost-effective large-scale solar**, enabling the plant's fuel savings to effectively offset the costs

- ☀️ Building on FPL sites with prior permitting/development work
- ☀️ Close proximity to transmission infrastructure with sufficient capacity, minimizing operating costs
- ☀️ Located in Southwest Florida where stronger solar resource provides 3% to 5% edge in energy production
- ☀️ Economies of scale because plants are more than ~50 MW
- ☀️ Targeting completion for late 2016 to take advantage of falling panel prices while still qualifying for 30% investment tax credit
- ☀️ Tax and fee incentives from local communities

**FPL takes pride in its excellent track record of building power plants efficiently, which saves customers money**

# Advancing Solar in Florida (continued)

- ☀️ **Prioritize projects that deliver the greatest benefits for our customers' dollar**

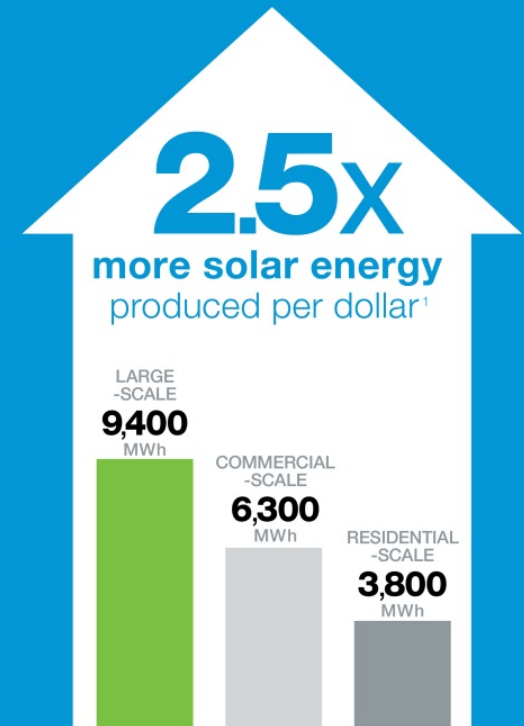
## Key Advantages of Large-scale Solar

- ☀️ **Economies of scale**
- ☀️ **System design**
- ☀️ **Better orientation & less shading**

### Large-Scale vs. Rooftop

- **Large-scale solar generates about 2.5 times as much clean energy per dollar as residential rooftop**
- **Large-scale solar costs ~50% less than rooftop, according to the Solar Energy Installers Association**

**Large-scale solar delivers more for the money**





# Advancing Solar in Florida (continued)

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FPL has been working to advance solar affordably in Florida for more than a decade

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- ☀ Built Florida's first solar power plant in 2009 and two more in 2010
- ☀ Steep decline in the cost of solar is making it possible to do more without increasing electricity costs for customers
- ☀ FPL is targeting completion for late 2016 to take advantage of decreasing solar-panel prices while still qualifying for 30% federal tax credit

**Cost-effective large-scale solar becoming a reality for the first time in Florida**

# Advancing Solar in Florida (continued)

- ☀️ **Prioritize projects that deliver the greatest benefits for our customers' dollar**

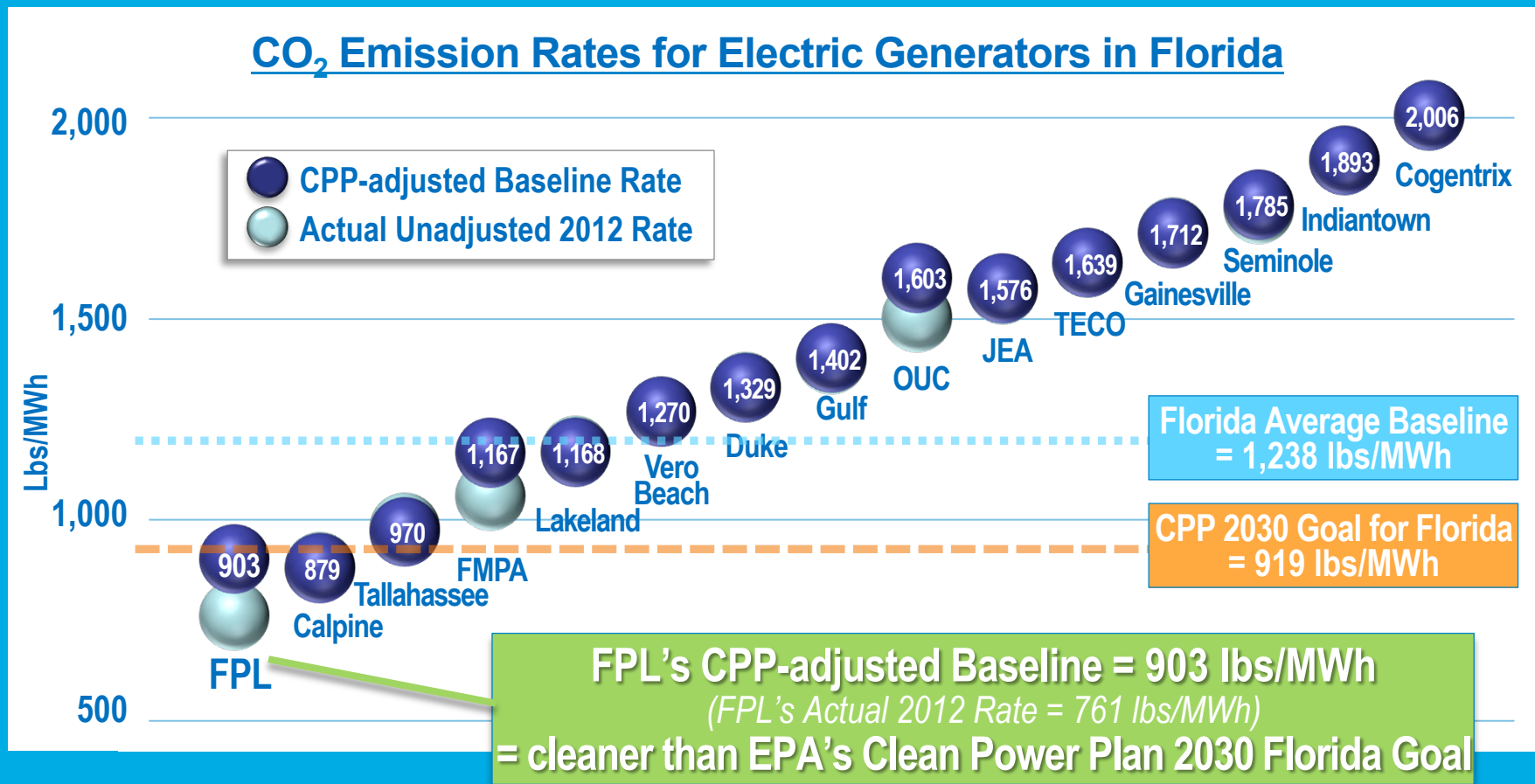
## Large-Scale vs. Rooftop

- ☀️ By the end of 2016, FPL will have ~335 MW of large-scale solar in operation at **six** sites
- ☀️ For perspective, this is the equivalent of about **65,000** residential rooftop installations

**6**  
**FPL sites**  
**=**  
**65,000**  
**residential**  
**rooftops**

# FPL's Affordable Clean Energy Strategy

☀ **FPL's carbon dioxide emission rate is already lower** than the U.S. EPA's Clean Power Plan goal for Florida to meet by 2030.



# FPL's Affordable Clean Energy Strategy (continued)

We are big believers in the power of the sun

Today, FPL operates three solar power plants in Florida

## FPL DeSoto Solar Energy Center

- ☀ 25 megawatts, built in 2009
- ☀ **Florida's first large-scale solar plant**

## FPL Space Coast Solar Energy Center

- ☀ 10 megawatts, built in 2010
- ☀ Partnership with NASA's Kennedy Space Center

## FPL Martin Clean Energy Center

- ☀ 75 megawatts of solar, built in 2010; connected to natural gas power plant
- ☀ **World's first hybrid solar-natural gas energy center**





# FPL's Affordable Clean Energy Strategy (continued)

We are on track to triple our current solar capacity by the end of next year with no net-cost to customers

## FPL Solar Power Plants Timeline



**TRIPLING  
SOLAR  
CAPACITY  
BY END  
OF 2016**

# 2016 FPL Large-Scale Solar Projects

- ▶ Close proximity to transmission infrastructure
- ▶ Late 2016 completion
  - » 30% ITC
  - » Declining panel prices
- ▶ Economies of scale
  - » Plants are larger than ~50 MW
- ▶ Prior permitting and development work
- ▶ Tax and fee incentives from local communities

Leveraging multiple advantages to bring cost-effective solar to Florida for the first time

**Manatee Solar:**  
near existing natural gas plant



**Citrus Solar:**  
close to state's first large-scale PV project



**Babcock Ranch Solar:**  
near planned community



# FPL Babcock Ranch Solar Energy Center

~74 MW solar plant, partnership with Babcock Ranch development

- ☀️ **440 acres donated by Babcock Ranch developer Syd Kitson**
- ☀️ **Key site-specific cost-saving advantages:**
  - ☀️ Tax incentive from Charlotte County
  - ☀️ Babcock Ranch Independent Special District 3% franchise fee
  - ☀️ Initial permitting completed in 2011; only modifications needed





# FPL Citrus Solar Energy Center

~74 MW solar plant, near Florida's first large-scale solar plant

☀️ **841 acres of FPL-owned property**

☀️ **Key site-specific cost-saving advantages:**

☀️ Tax incentive from DeSoto County

☀️ Permitting began in 2009; only modifications required

☀️ Existing transmission capacity availability





# FPL Manatee Solar Energy Center

~74 MW solar plant adjacent to FPL Manatee natural gas plant

☀️ 762 acres of FPL-owned property

☀️ Key site-specific cost-saving advantages:

☀️ Use of existing substation

☀️ Tax incentive from Manatee County

☀️ Key permits were initiated several years ago and now only need to be modified



**Leveraging existing infrastructure and permitting at all three sites is key to cost-effectiveness of projects**

# Understanding Impacts of Solar

☀️ **Prioritize projects that deliver the greatest benefits for our customers' dollar**

**Although large-scale solar is the most economical, we also recognize the role of small-scale distributed generation**



## **FPL SolarNow Community-Supported, Small-Scale Solar Pilot Program**

- ☀️ Bringing solar into local communities
- ☀️ Supported by voluntary contributions from customers
- ☀️ Avoids cross-subsidies from customers who choose not to participate

## **Grid Impact Research Initiative**

- ☀️ Conducting critical research to prepare grid for customer-owned solar growth
- ☀️ Partnering with Daytona International Speedway, Florida International Univ. and other commercial customers





**Thank You**