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# **Energy & Utilities Subcommittee**

**Tuesday, November 15, 2011  
212 Knott Building  
9:00 AM – 11:30 AM**

# **ACTION PACKET**

**Dean Cannon  
Speaker**

**Scott Plakon  
Chair**

**Committee Meeting Notice**  
**HOUSE OF REPRESENTATIVES**

**Energy & Utilities Subcommittee**

**Start Date and Time:** Tuesday, November 15, 2011 09:00 am  
**End Date and Time:** Tuesday, November 15, 2011 11:30 am  
**Location:** Webster Hall (212 Knott)  
**Duration:** 2.50 hrs

Presentations from Providers and Users of Traditional Energy Generation by Fuel Type

**NOTICE FINALIZED on 11/08/2011 16:04 by Sims-Davis.Linda**

# **COMMITTEE MEETING REPORT**

## **Energy & Utilities Subcommittee**

**11/15/2011 9:00:00AM**

**Location:** Webster Hall (212 Knott)

**Summary:** No Bills Considered

**Committee meeting was reported out: Tuesday, November 15, 2011 3:29:01PM**

# COMMITTEE MEETING REPORT

## Energy & Utilities Subcommittee

11/15/2011 9:00:00AM

**Location:** Webster Hall (212 Knott)

**Attendance:**

	<i>Present</i>	<i>Absent</i>	<i>Excused</i>
Scott Plakon (Chair)	X		
Ben Albritton	X		
Lori Berman	X		
Jeff Clemens	X		
Janet Cruz	X		
Daniel Davis	X		
Shawn Harrison	X		
Clay Ingram	X		
George Moraitis, Jr.	X		
Peter Nehr	X		
Kathleen Passidomo	X		
Elizabeth Porter	X		
Michelle Rehwinkel Vasilinda	X		
W. Gregory Steube	X		
Alan Williams			X
<b>Totals:</b>	<b>14</b>	<b>0</b>	<b>1</b>

Committee meeting was reported out: Tuesday, November 15, 2011 3:29:01PM

# COMMITTEE MEETING REPORT

## Energy & Utilities Subcommittee

11/15/2011 9:00:00AM

**Location:** Webster Hall (212 Knott)

### **Presentation/Workshop/Other Business Appearances:**

Providers and Users of Traditional Energy Generation by Fuel Type

Dr. Tim Anderson (State Employee) (At Request Of Chair) - Information Only

FL Energy Systems Consortium, UF

311 Weil Hall

Gainesville Florida 32611-6560

Phone: 352.392.0947

Providers and Users of Traditional Energy Generation by Fuel Type

David Rogers (Lobbyist) (At Request Of Chair) - Information Only

FL Natural Gas Association

PO Box 11026

Tallahassee Florida 32302

Phone: 850.681.0496

Providers and Users of Traditional Energy Generation by Fuel Type

Jeremy Susac (Lobbyist) (At Request Of Chair) - Information Only

400 Royal Palm Way Suite 304

Palm Beach Florida 33480

Phone: 561.313.0979

Providers and Users of Traditional Energy Generation by Fuel Type

Sam Forest (At Request Of Chair) - Information Only

FL Power & Light Company

700 Universe Blvd.

Juno Beach Florida 33408

Phone: 561.694.3510

Providers and Users of Traditional Energy Generation by Fuel Type

PG Para (At Request Of Chair) - Information Only

JEA

21 West Church Street

Jacksonville Florida 32202

Phone: 904.665.6208

Providers and Users of Traditional Energy Generation by Fuel Type

Susan Glickman (Lobbyist) - Information Only

Southern Alliance for Clean Energy

PO Box 1842

Knoxville TN 37901

Phone: 727.595.7314

Providers and Users of Traditional Energy Generation by Fuel Type

T.J. Szelistowski (At Request Of Chair) - Information Only

Tampa Electric Company

702 North Franklin Street

Tampa Florida 33624

Phone: 813.228.1804

Committee meeting was reported out: Tuesday, November 15, 2011 3:29:01PM

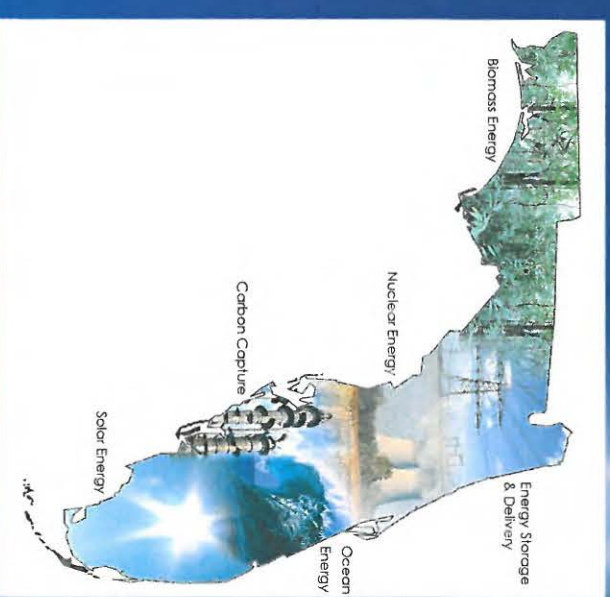


# Florida Energy Systems Consortium

Created by statute in 2008  
Collects Florida's 11 Universities

## Strategic Research Thrusts

- **Understanding Florida's Energy Systems**
- Developing Florida's Biomass Resources
- **Harnessing Florida's Solar Resources**
- Ensuring Nuclear Energy & Carbon Constrained Technologies for Electric Power in Florida
- **Exploiting Florida's Ocean Energy Resources**
- Securing our Energy Storage and Delivery Infrastructure
- **Enhancing Energy Efficiency & Conservation**





# Florida Energy Use and Generation

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- Total Energy (2009): 30% residential, 24% commercial, 12% industrial, 34% transportation
- Net Summer Electricity Generation Capacity: 59 GW
- Florida's per capita residential electricity demand among highest in the country.
- State home of 16% of US geothermal manufacturing



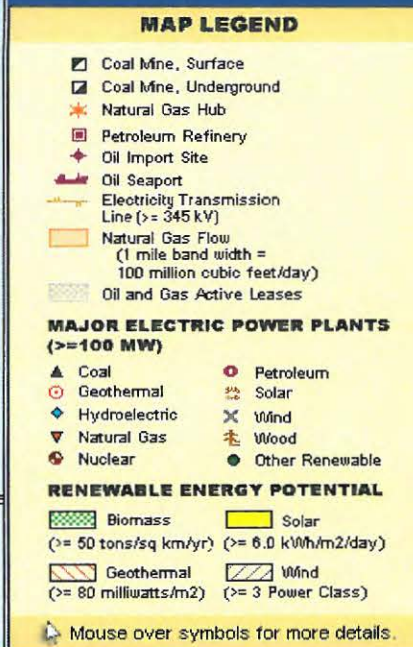
# Florida Energy Characteristics

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- About half the geographical state is winter maximum and half summer maximum.
- More petroleum-fired electricity is generated in Florida than in any other State.
- Florida has more waste to energy facilities than any other State



# Florida Electricity Production (MWhr 2009)



Total Electric Industry	217,952,308
Coal	54,003,072
Petroleum	9,221,017
Natural Gas	118,322,308
Other Gases <sup>3</sup>	6,800
Nuclear	29,117,877
Hydroelectric	208,202
Other Renewables <sup>1</sup>	4,340,332
Other <sup>2</sup>	2,732,701

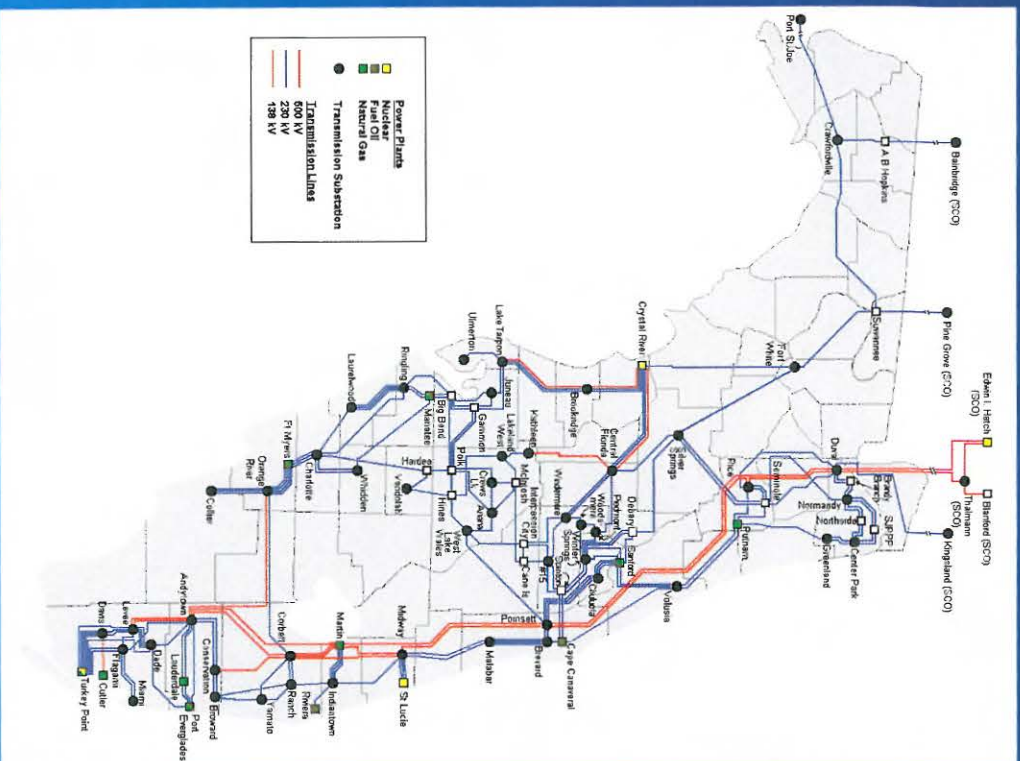
<sup>1</sup>Other Renewables includes wood, black liquor, other wood waste, municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

<sup>2</sup>Other includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels and miscellaneous technologies.

Sources: Energy Information Administration, Form EIA-860, "Annual Electric Generator Report." Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." Energy Information Administration, Form EIA-923, "Power Plant Operations Report" and predecessor forms

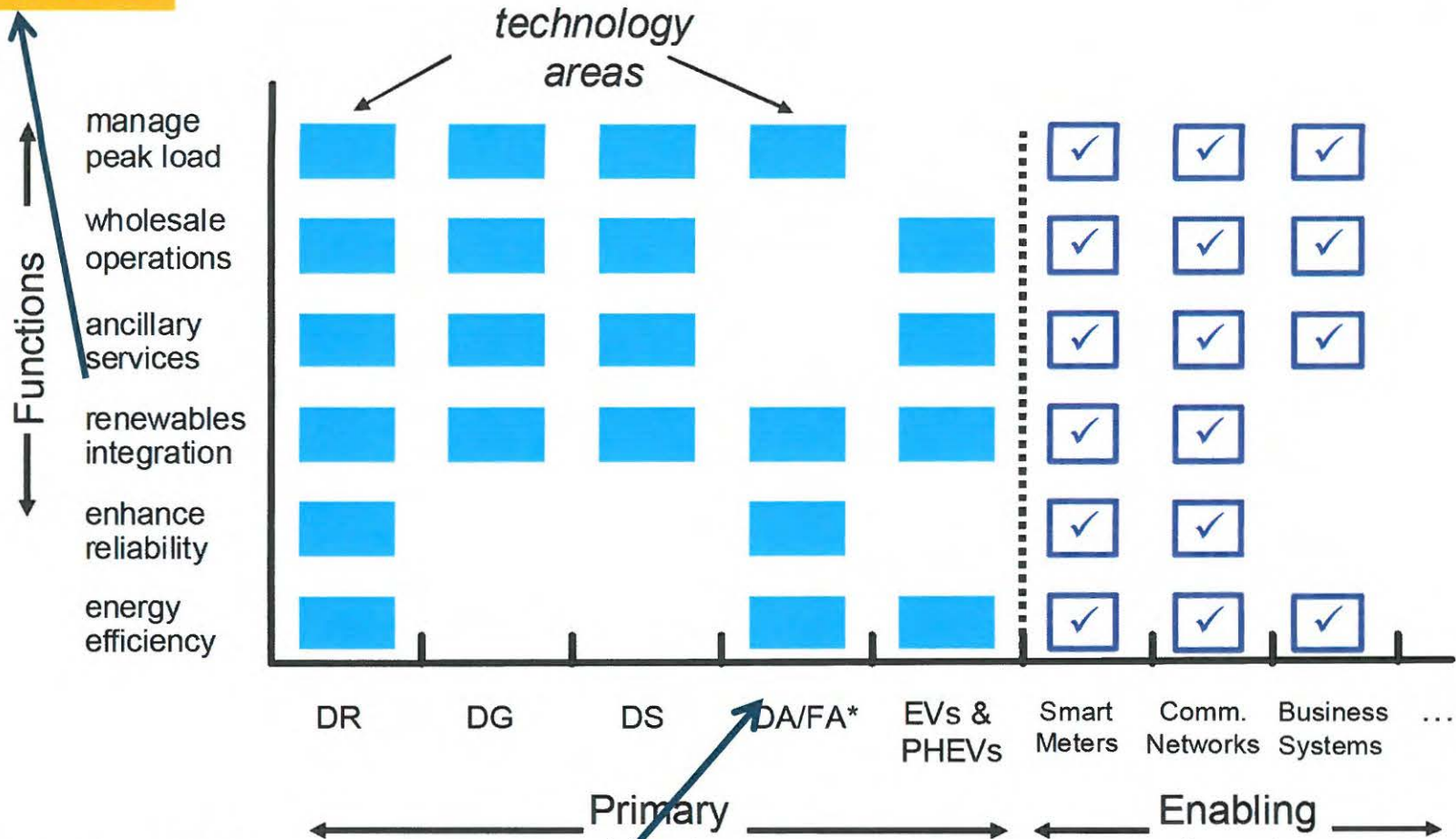


# Florida 'Intelligent Grid'



# Smart Grid – Assets and Functions

Value streams



DR = demand response, DG = distributed generation, DS = distributed storage, DA/FA = distribution automation/feeder automation, EVs & PHEVs = electric vehicles/plug-in hybrid electric vehicles



# Web Site: www.FloridaEnergy.ufl.edu


FESC - Windows Internet Explorer

http://www.floridaenergy.ufl.edu/


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**FESC** Florida Energy Systems Consortium  
Universities Addressing Florida's Energy Needs



UF UNIVERSITY OF FLORIDA UCF USF UNIVERSITY OF SOUTH FLORIDA FAU FLORIDA ATLANTIC UNIVERSITY FLORIDA GULF COAST UNIVERSITY UNF UNIVERSITY OF NORTH FLORIDA UWF

Home	<h3>Bringing Energy Solutions to Florida, the Nation and the World</h3> <p>The Florida Energy Systems Consortium (FESC) was created by the Florida State government to promote collaboration among the energy experts at its 11 supported universities to share energy-related expertise. The consortium assists the state in the development and implementation of an environmentally compatible, sustainable, and efficient energy strategic plan. The Consortium was charged to <i>'perform research and development on innovative energy systems that lead to alternative energy strategies, improved energy efficiencies, and expanded economic development for the state'</i>. The legislature appropriated funding for research at five of the universities as well as support for education, outreach, and technology commercialization. The Consortium reports</p>
About Us	
Florida Energy Facts	
Energy Policy	
Energy Research	
Industry	
Education	
Public Outreach	
Publications	

### NEWS & EVENTS

#### U.S. Requires New Nuclear Reactors to Withstand Plane Crashes

Feb. 17 (Bloomberg) — New nuclear power plants must be built to ensure that a strike by a commercial airplane won't result in a radioactive release, the U.S. Nuclear Regulatory Commission said.

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12:42 AM







# **Florida Power & Light Company**

## **Generation and Fuel Portfolio**

**Sam Forrest**

**Vice President, Energy Marketing & Trading**

**Nov. 15, 2011**

**FPL, one of the largest US electric utilities, provides its customers with affordable, reliable and clean energy solutions**

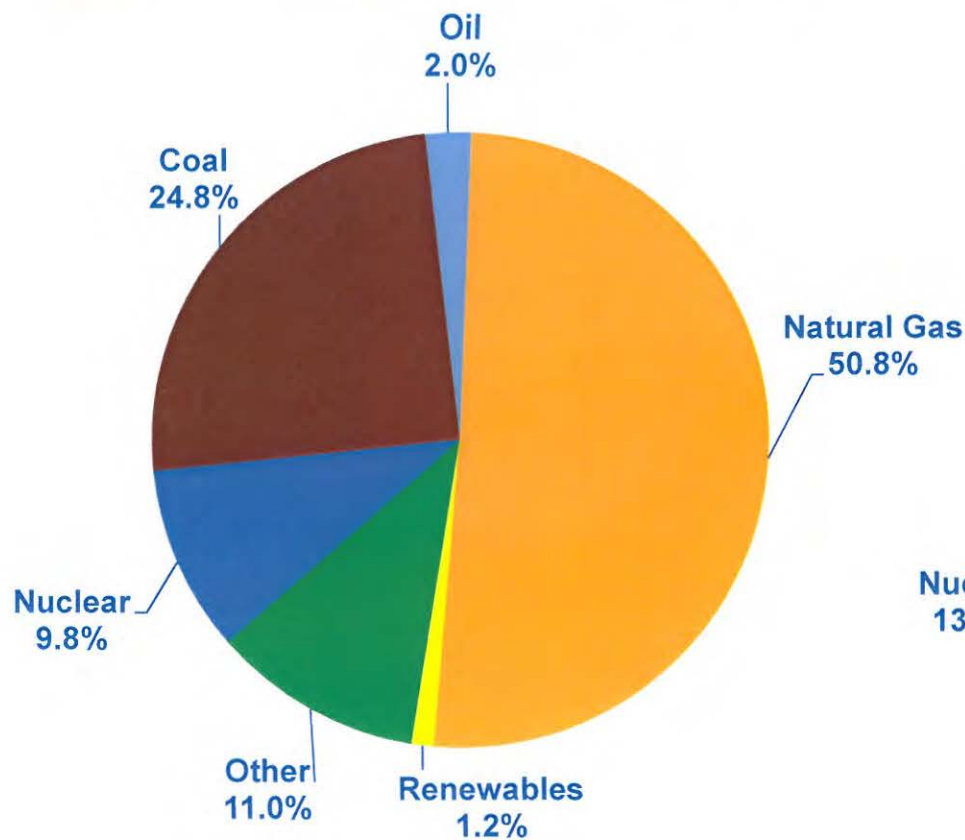
## **Executive Summary**

- **FPL has made significant investments in recent years to improve the efficiency in its generating fleet**
  - Since 2001, FPL's investments have improved the fuel efficiency of its fossil fuel power plants by 17 percent
  - This has saved FPL customers an estimated \$5 billion in fuel costs, including \$3.6 billion in fuel savings in the last five years
- **A significant amount of FPL's investments have been made on natural gas-fired generation**
  - Natural gas prices have fallen dramatically over the past several years due to the downturn in the economy and the proliferation of shale gas development

# More than 75 percent of Florida's generation comes from a combination of coal and natural gas

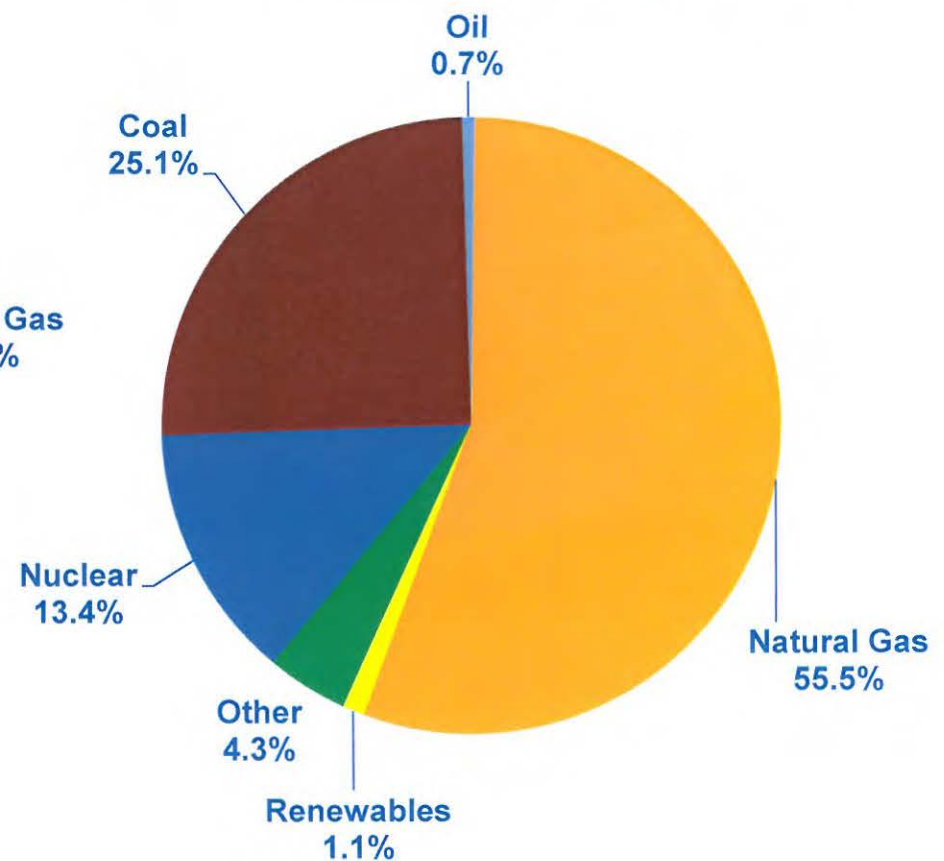
## 2010

### Florida's Electric Power Generation by Fuel Type



## 2020

### Florida's Electric Power Generation by Fuel Type



Source: 2011 Load and Resource Plan (table S-18) issued by the Florida Reliability Council, 07/11

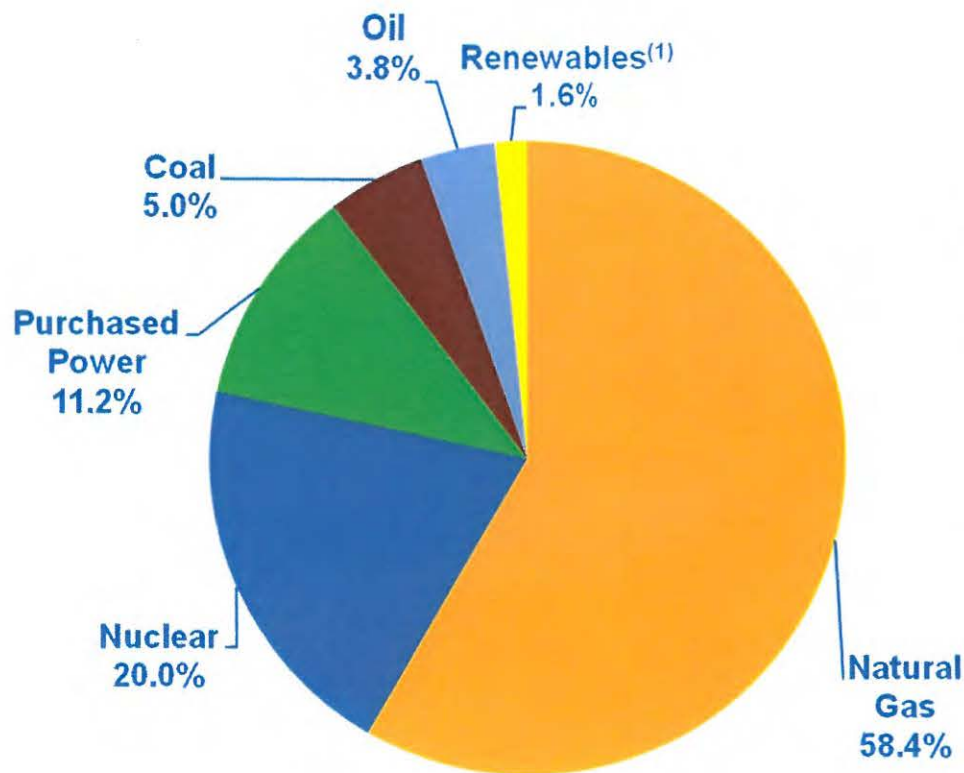




# All of FPL's current generation expansion options indicate a growing dependency on natural gas

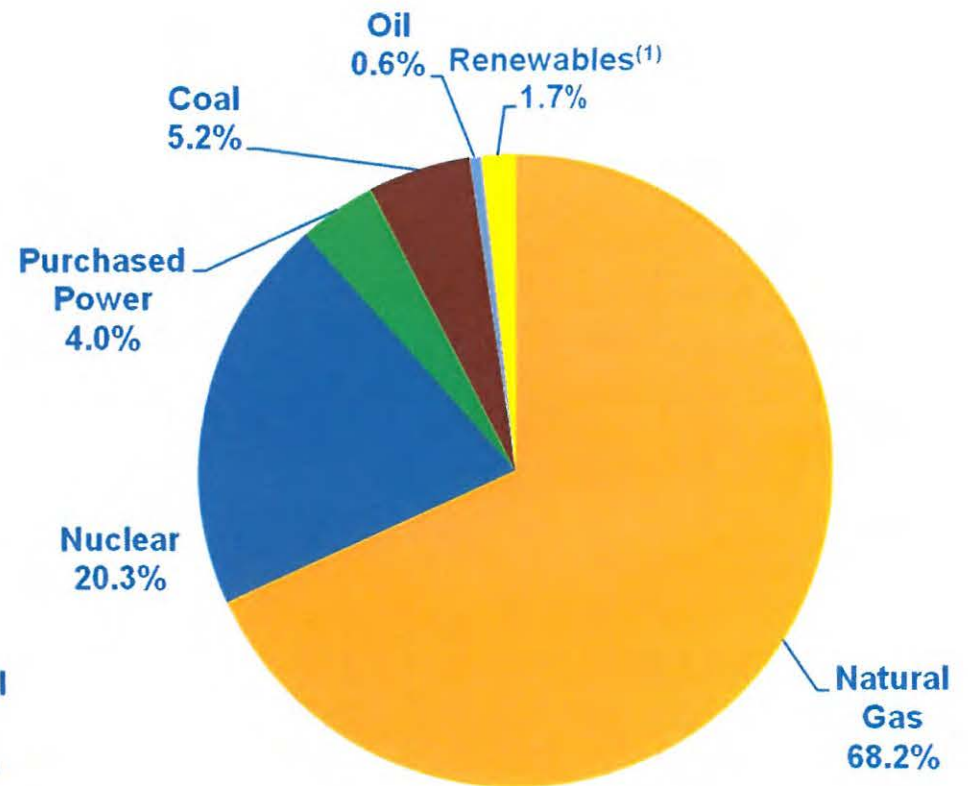
2010

Generation by Fuel Type



2020

Generation by Fuel Type



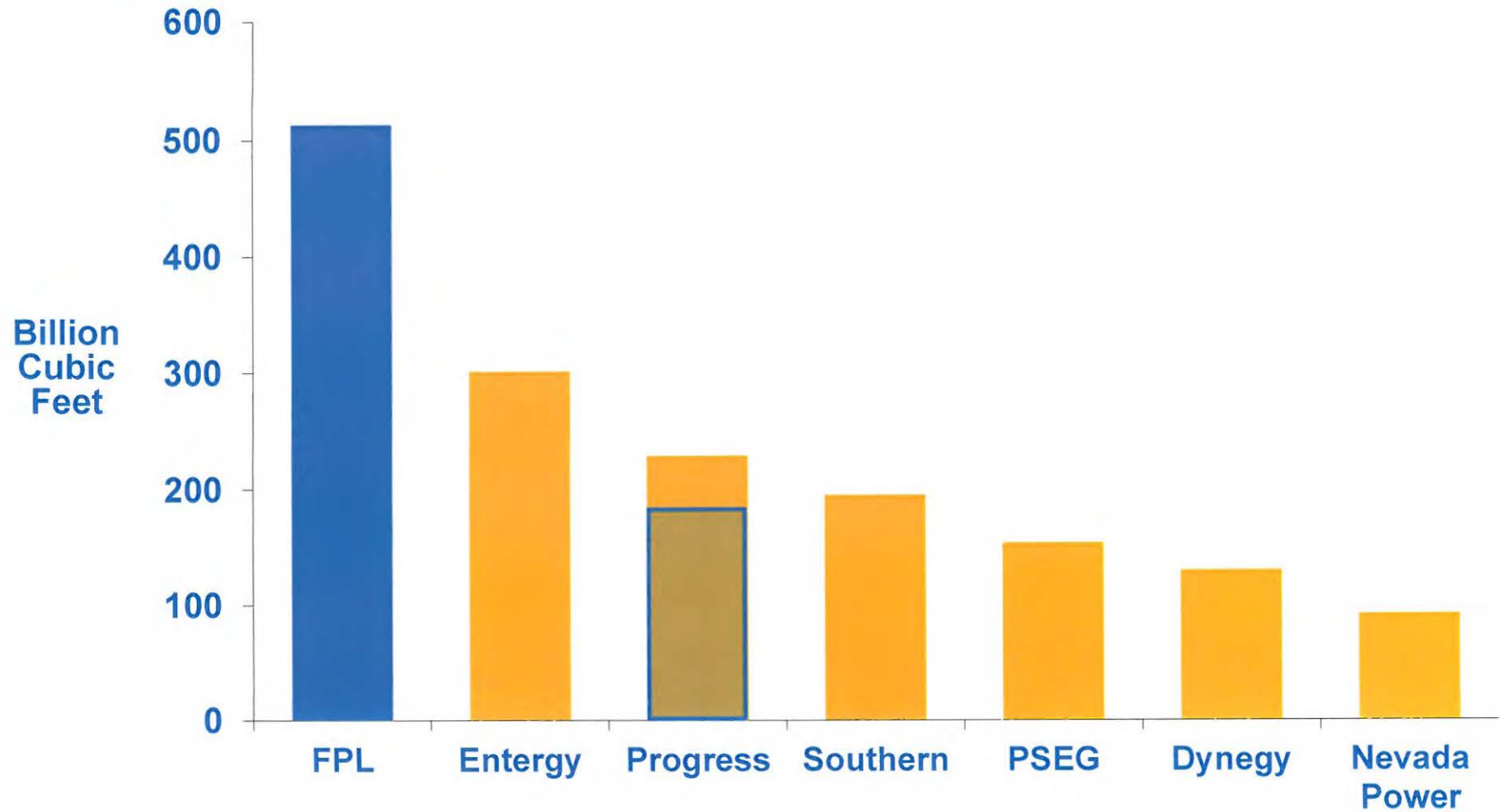
Source: 2011 Ten Year Site Plan.

(1) Includes FPL owned solar plants and purchases from qualifying renewable facilities



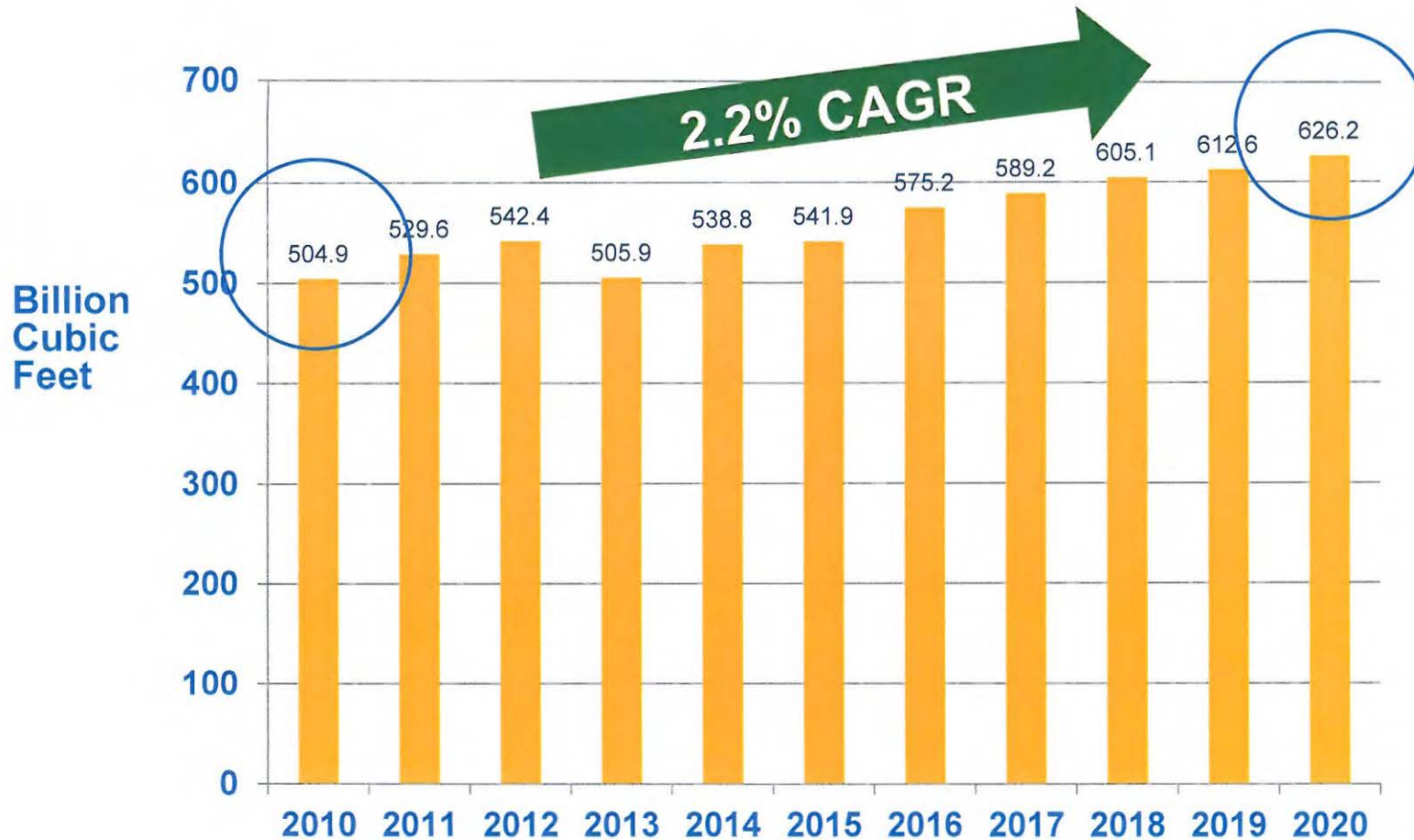
**FPL's natural gas consumption is significantly higher than the next closest utility**

## Investor-Owned Utility Annual Natural Gas Consumption



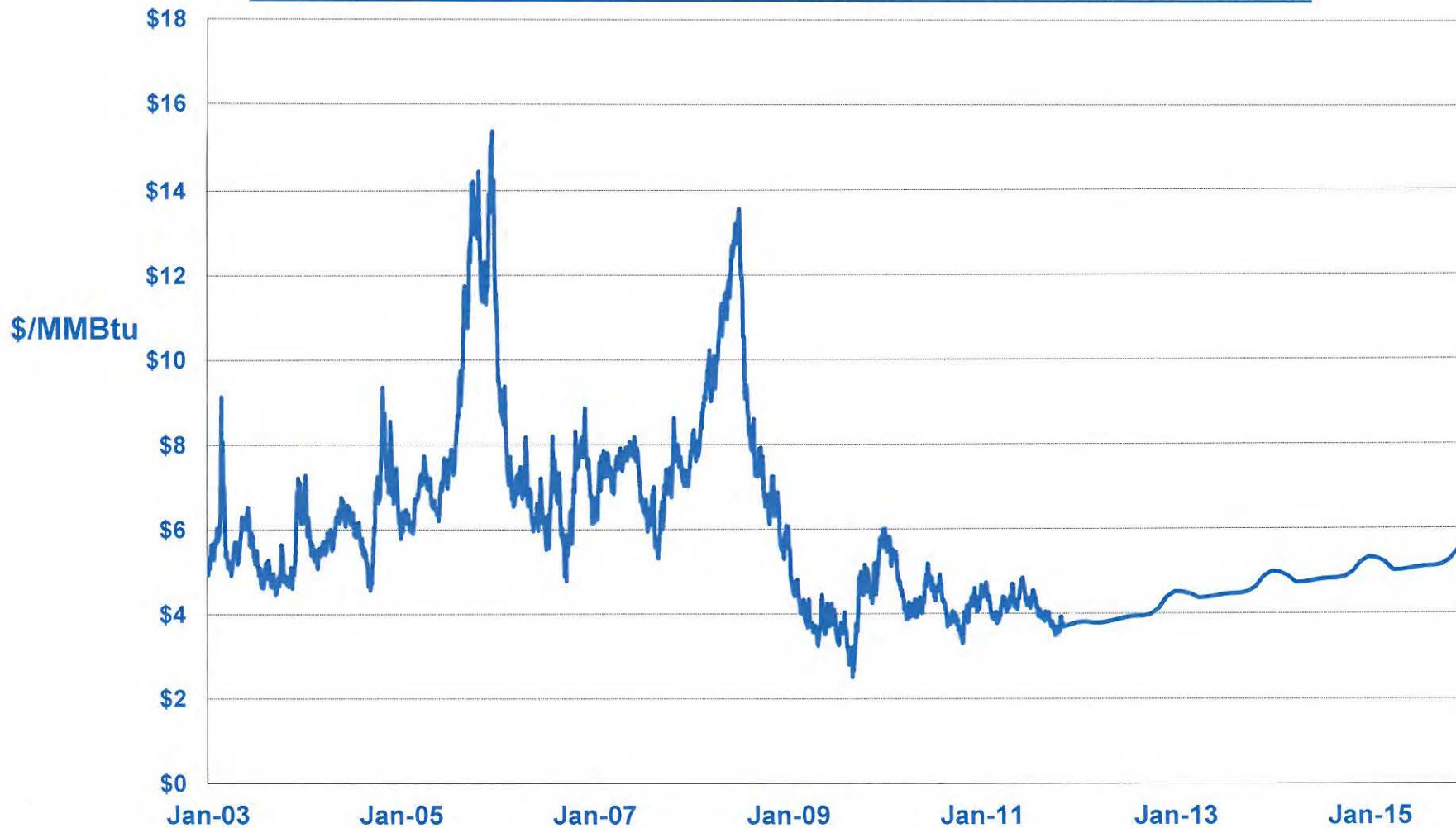
By 2016, FPL's natural gas consumption will grow by 14 percent over 2010 requirements

## FPL Annual Natural Gas Consumption



Natural gas prices have fallen dramatically since 2008 and have remained in a fairly tight range for the past few years

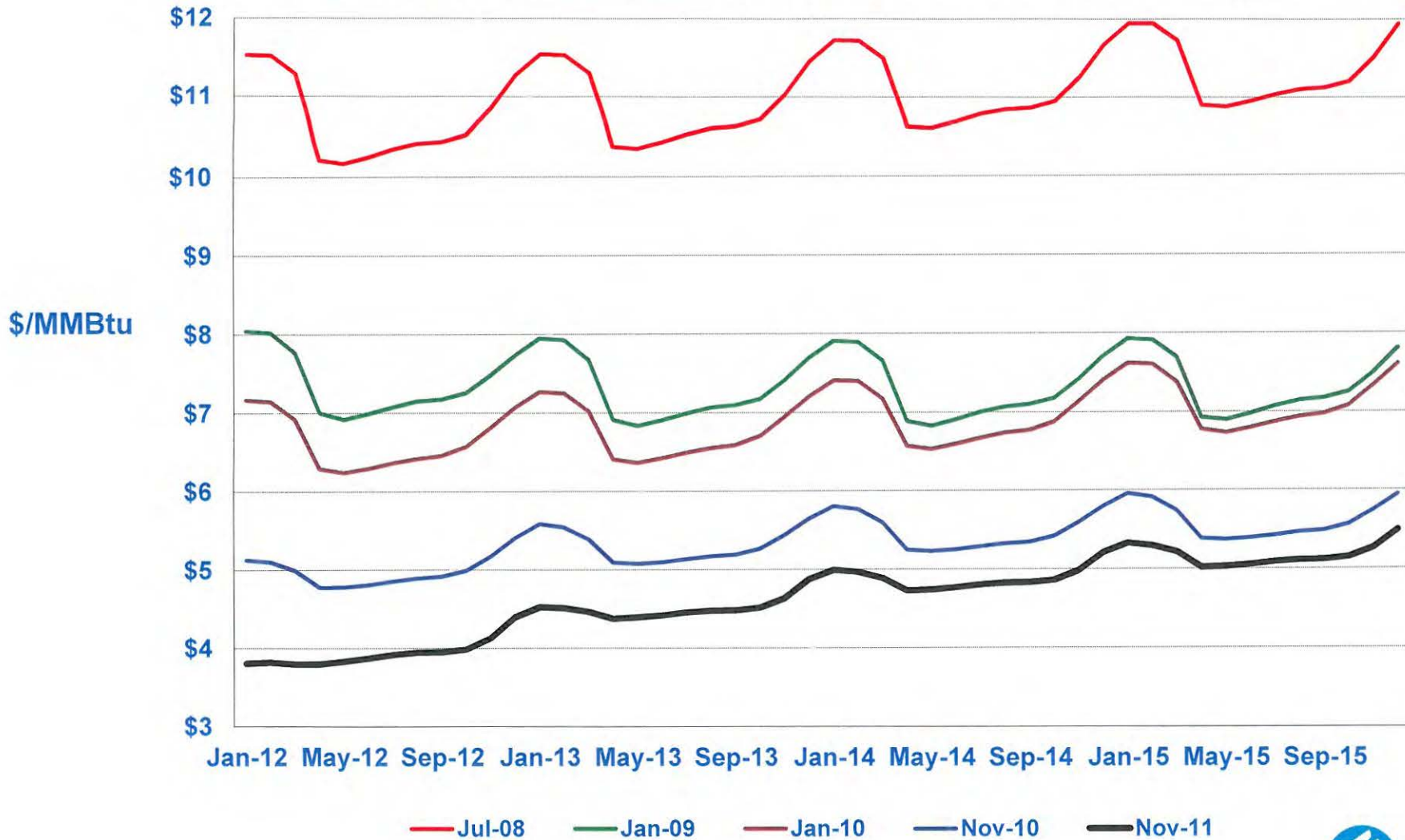
## Natural Gas Historical and Forward Prices





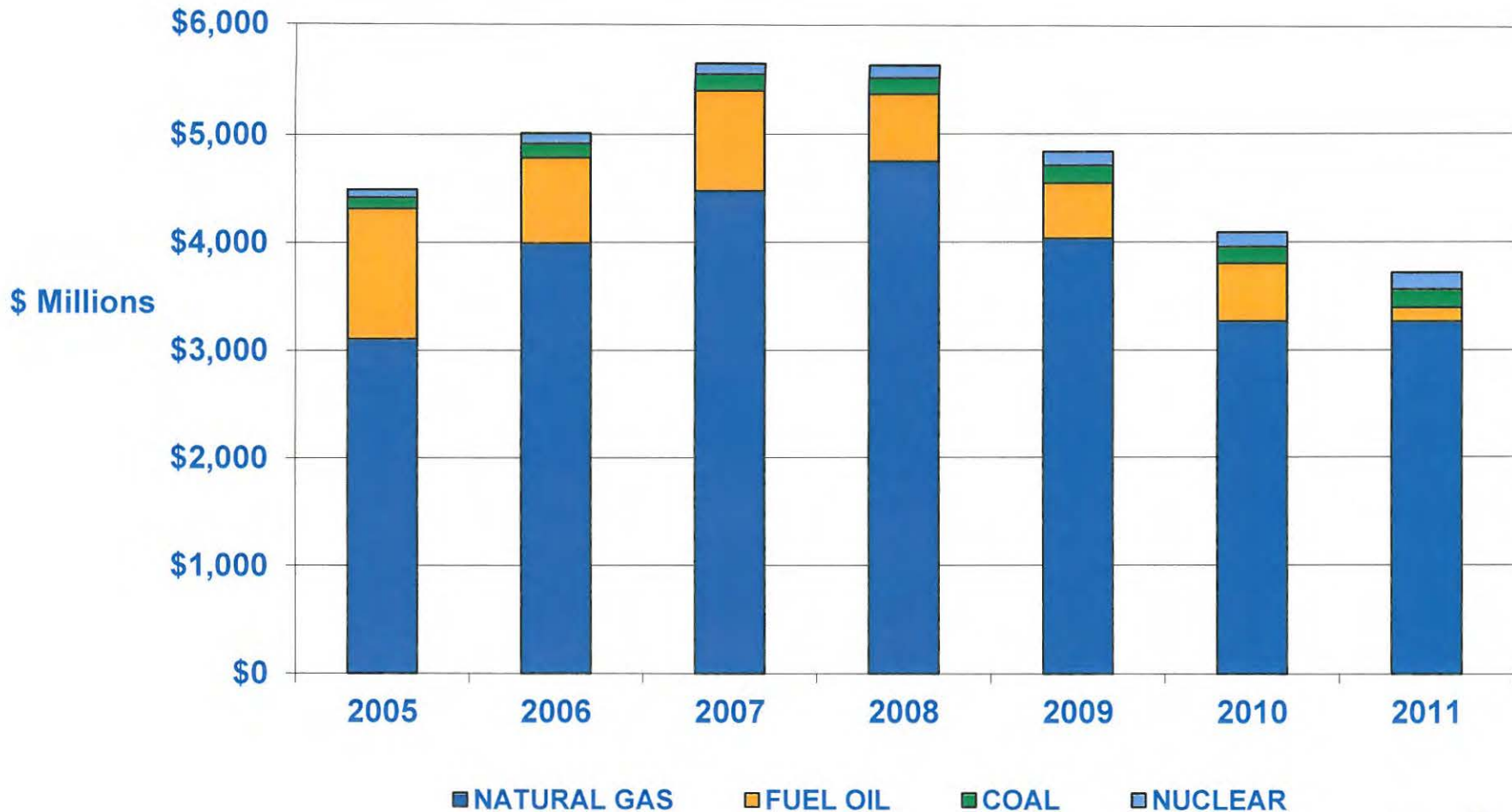
Natural gas prices have been impacted by lower demand and increased supplies from unconventional sources

## Long-Term Forward Natural Gas Price Trend



With increases in efficiency and lower natural gas prices, FPL's fuel bill has decreased dramatically over the last several years

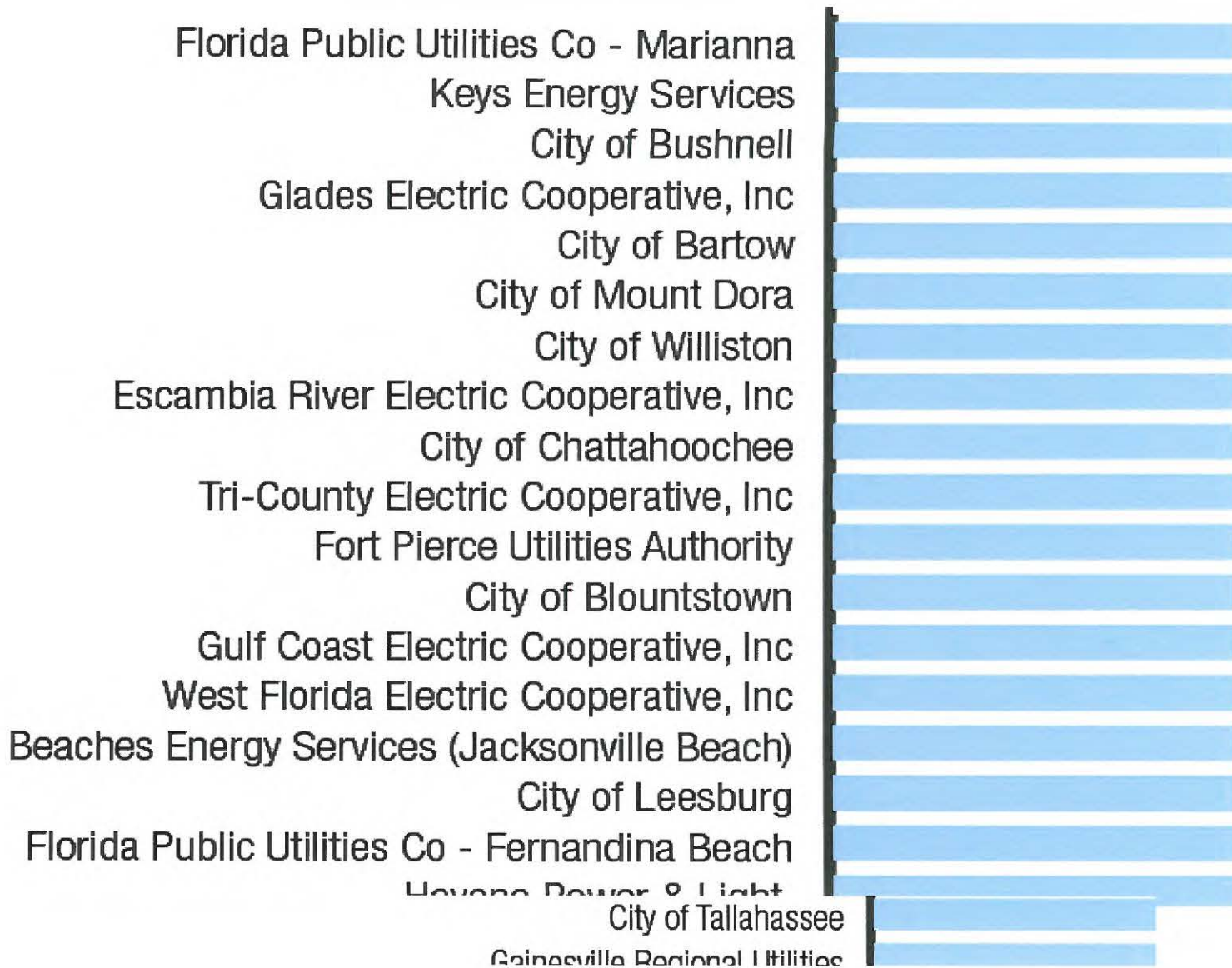
## FPL Annual Fuel Expenses





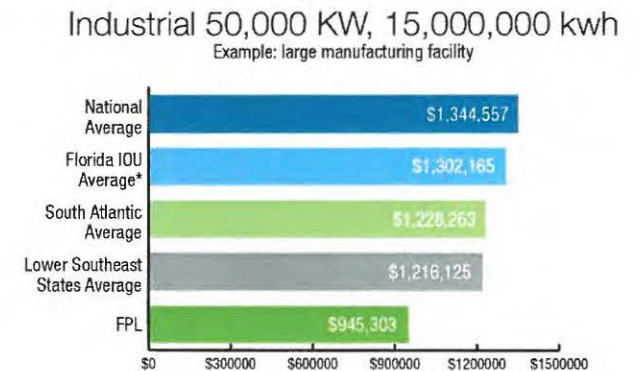
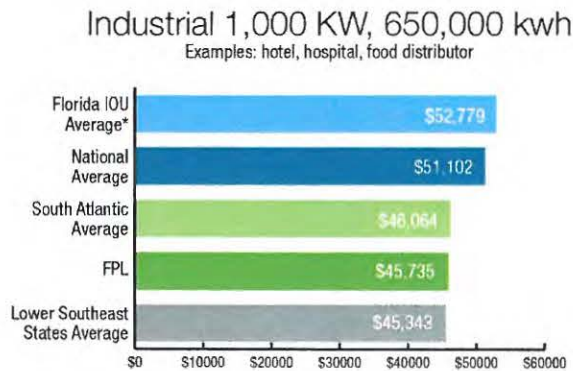
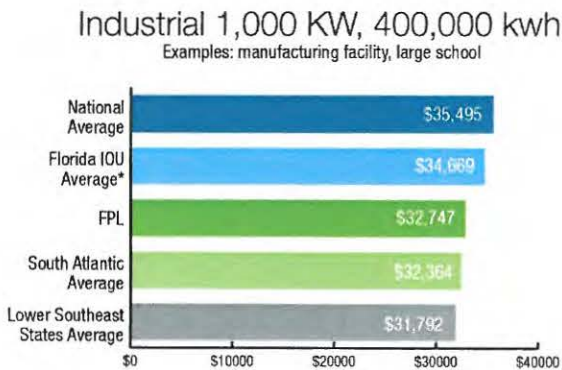
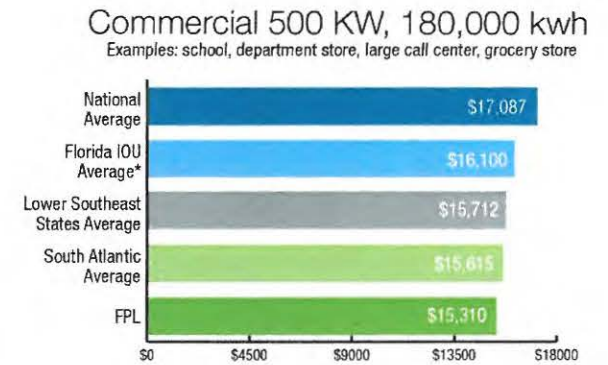
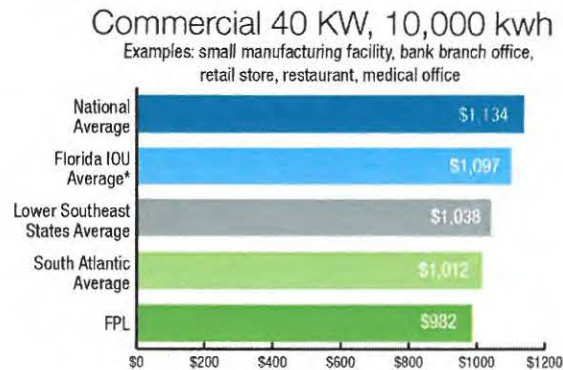
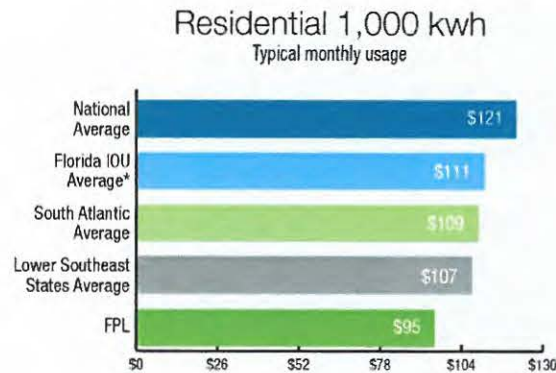
# FPL's typical residential bill is still the lowest among Florida's 55 electric utilities

## FPL Customers Pay Less



# We make it more affordable for our customers to live and work in Florida

## FPL Customers Pay Less



Data source: Edison Electric Institute Typical Bills and Average Rates Report for Winter 2011 – published May 2011.

Lower Southeast States: EEI data for Alabama, Florida, Georgia, Mississippi and South Carolina.

South Atlantic States: EEI data for Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia and West Virginia.

\* Florida IOU Average: EEI data for Florida only includes the investor-owned utilities, which include Florida Power & Light Company, Gulf Power Company, Progress Energy Florida and Tampa Electric Company. It does not include cooperatives or municipalities.





**Florida is heavily dependent on natural gas for electric generation, but has very limited gas infrastructure compared to other states**

## Florida Overview

- **According to the DOE’s Energy Information Administration (EIA), Florida burned over 900 billion cubic feet (Bcf) of natural gas in 2009 to generate electricity**
  - Among the 50 U.S. states, only Texas and California rank higher in their utilization of natural gas for electric generation purposes

Rank	State	Population (Million)	Natural Gas Consumption for Electric Gen (MMBtus)	Underground Natural Gas Storage Capacity (MMCF)	Natural Gas Marketed Production (MMCF)	Dry Natural Gas Reserves (BCF)	Estimated Natural Gas Pipeline Mileage	Natural Gas Percentage for Electric Generation
#1	Texas	25.1	1,827,909,105	766,768	6,818,973	80,424	58,588	47.6%
#2	California	37.3	1,008,594,736	513,005	276,575	2,773	11,770	55.4%
#3	Florida	18.8	956,925,492	-	257	7	4,971	54.3%

- **Despite the heavy dependence on natural gas, Florida has no gas production, no gas storage, and has just two pipelines serving the substantial gas needs of peninsular Florida**

2009 Natural Gas Consumption for Electric Generation, Sources: EIA-923 and EIA-860  
 All data 2009 except for population which is 2010, Source: [www.eia.gov/state/index.cfm](http://www.eia.gov/state/index.cfm)





**FPL has a significant position on both Gulfstream and FGT, both of which are at or near capacity**

## Current Gas Transportation

- **FGT and Gulfstream supply substantially all of the gas needs of the Florida peninsula and FPL has a significant transportation position on each**
  - FGT has a capacity of roughly 3.1 billion cubic feet per day (Bcf/d) with 2.9 Bcf/d contracted <sup>(1)</sup>
    - FPL holds 1.274 Bcf/d of firm transportation on FGT, which represents 41 percent of FGT's capacity
  - Gulfstream has a capacity of 1.3 Bcf/d with 100% contracted
    - FPL currently holds .695 Bcf/d of firm transportation on Gulfstream, which represent 53 percent of Gulfstream's capacity
- **FPL utilized 100 percent of its firm transportation rights more than 50 percent of the time in 2010**

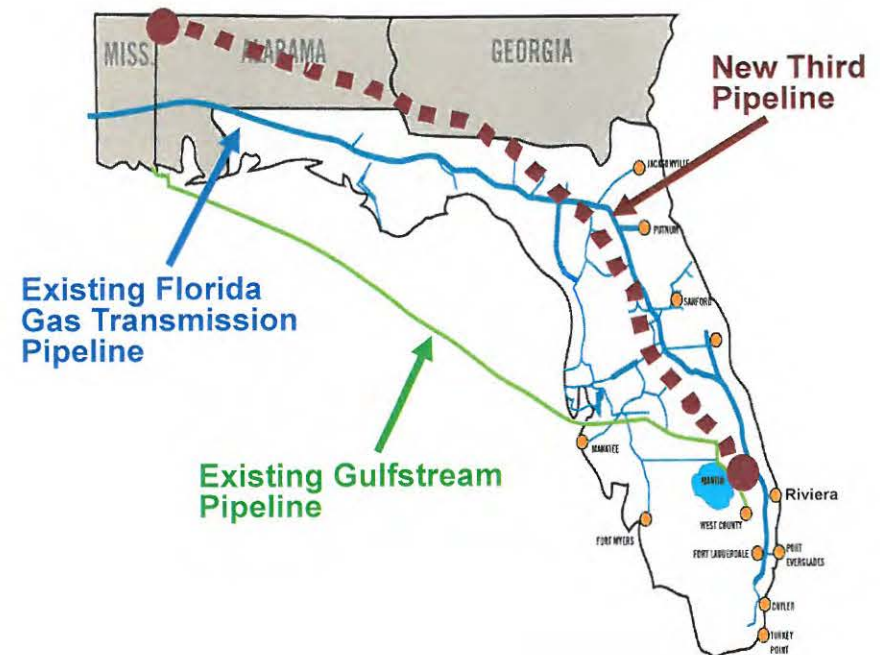
**Expansion of these pipelines may have the lowest apparent upfront cost impact to the customer, but will entail significant reliability and price risk**

1) Varies by season – number shown is peak summer capacity

**Adding a third major pipeline into Florida is the best option to increase reliability and deliverability of incremental gas transportation in the state**

## Addition of a New Third Pipeline into Florida

- **Addition of a third major pipeline**
  - Provides increased reliability, deliverability, and operational flexibility of natural gas transmission within Florida
  - Will likely result in the most cost effective option over a long period of time because future expansions can be made at minimal cost
  - Enhances access to new supply sources



**This is the only effective method to reduce load concentration on two existing pipelines and lower the overall system risk**