

FLORIDA'S ENERGY FUTURE

2015 FESC WORKSHOP
MAY 20-21, 2015

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University of Florida Levin
College of Law



The left side of the slide features a series of vertical stripes in shades of brown, tan, and grey. Overlaid on these stripes are several orange circles of varying sizes, arranged in a cluster that tapers towards the bottom.

STATE ENERGY PROFILE: FLORIDA

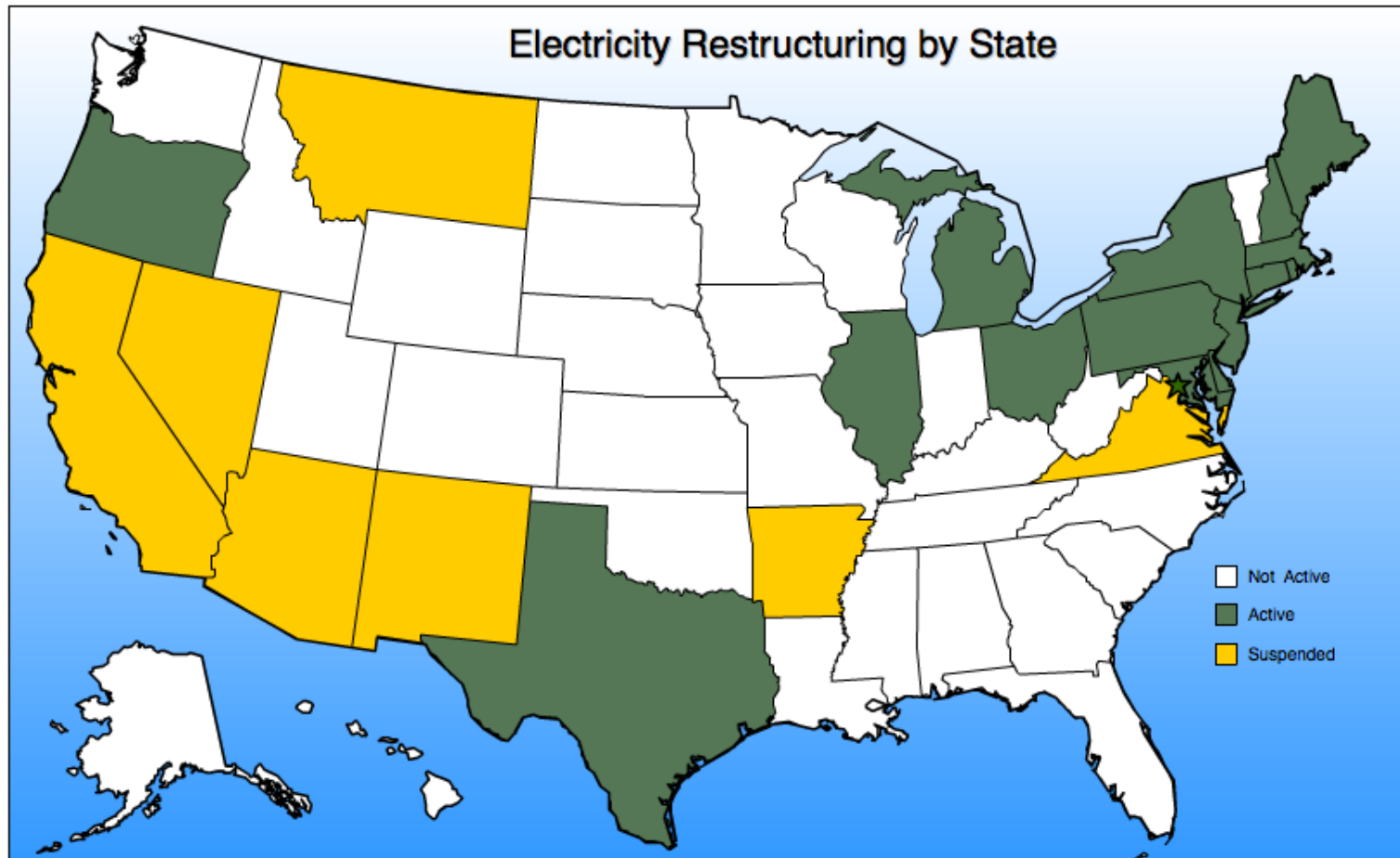
FLORIDA AS A NATIONAL RESOURCE

- 4th largest economy in US
- 3rd most populous
- 18 sea ports
- Vital trade and transportation
- Prominent service industry
- Important agriculture producer
- World-renowned natural areas



FLORIDA UTILITIES REMAIN VERTICALLY INTEGRATED

- The map below shows information on the electric industry restructuring. Click on a State for details.
- Restructuring means that a monopoly system of electric utilities has been replaced with competing sellers.



Source: Energy Information Administration

FLORIDA IS NOT PART OF AN RTO/ISO

North American Regional Transmission Organizations

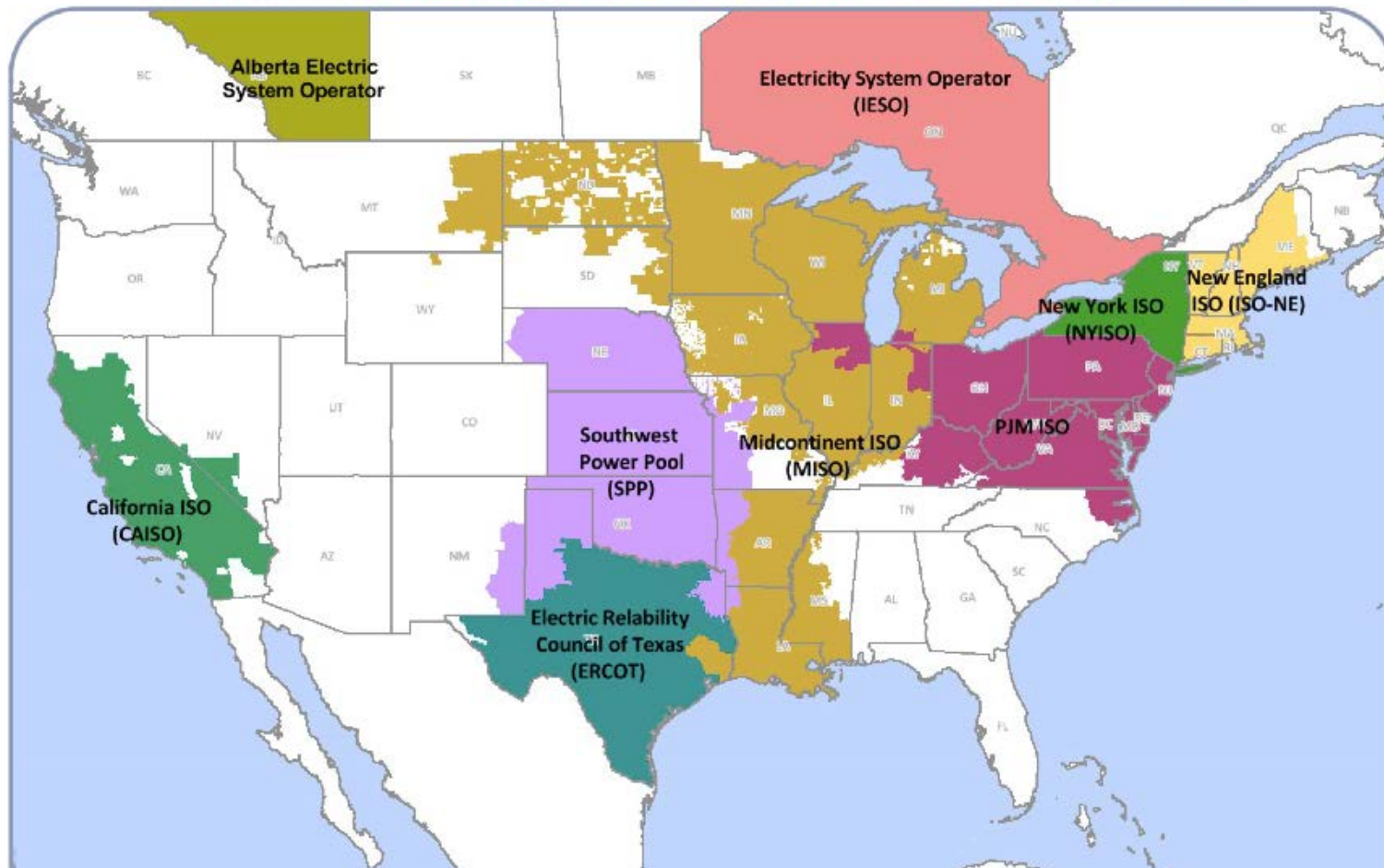


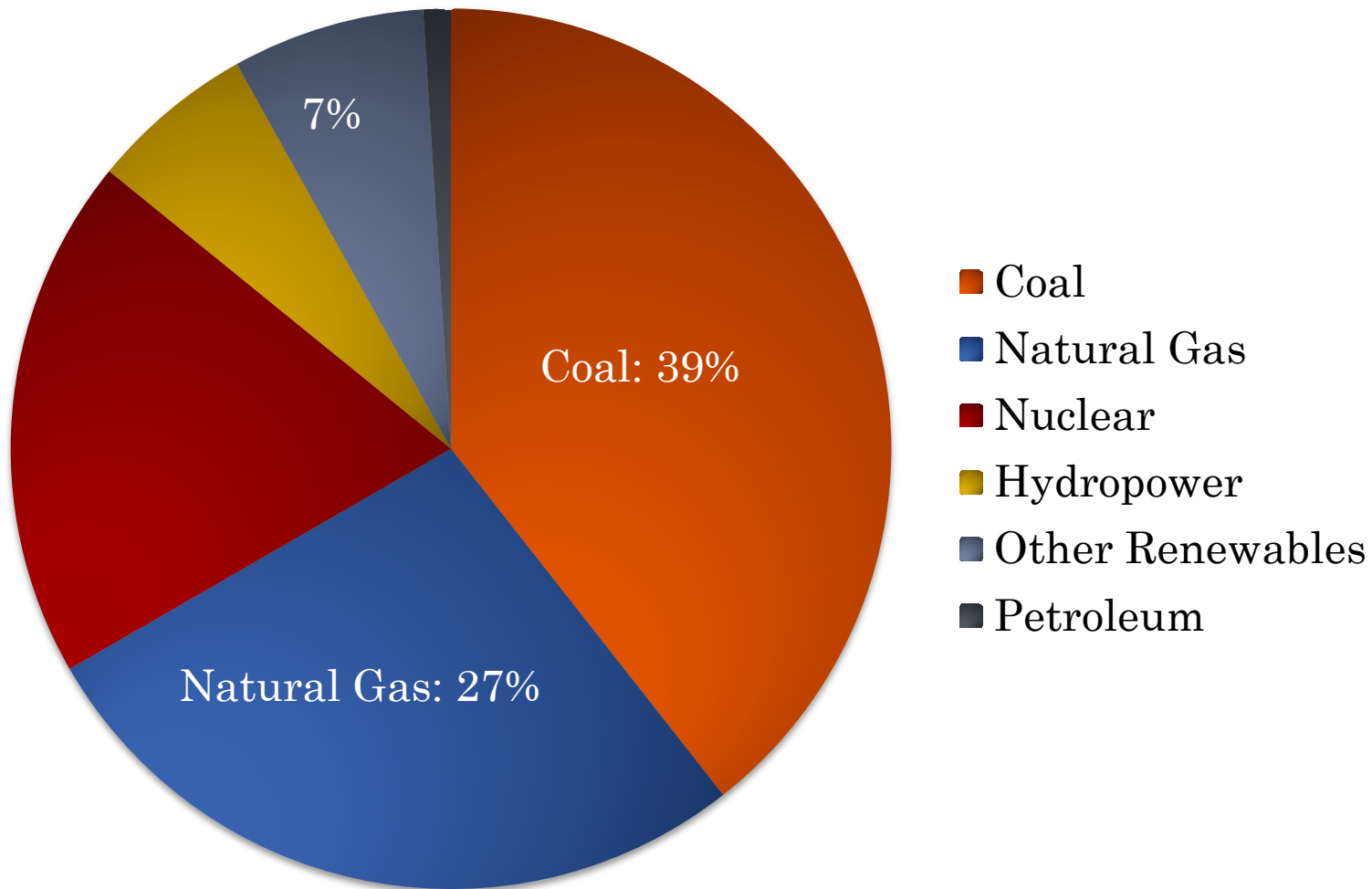
Table 1. Energy Sales by Florida's FEECA Utilities in 2012

Florida's FEECA Utilities	Energy Sales GWh	% of Total Energy Sales
Florida Power & Light Company	102,226	48.1
Duke Energy Florida	36,381	17.9
Tampa Electric Company	18,412	8.8
Gulf Power Company	10,663	5.2
Florida Public Utilities Company	661	0.3
JEA	11,663	5.9
Orlando Utilities Commission	5,916	2.8
FEECA Utilities' Total	185,922	90.4
Non-FEECA Utilities' Total	29,969	9.6
Total Statewide Energy Sales	215,891	100.0

Source: FEECA Utility's Ten Year Site Plans and responses to staff's data requests

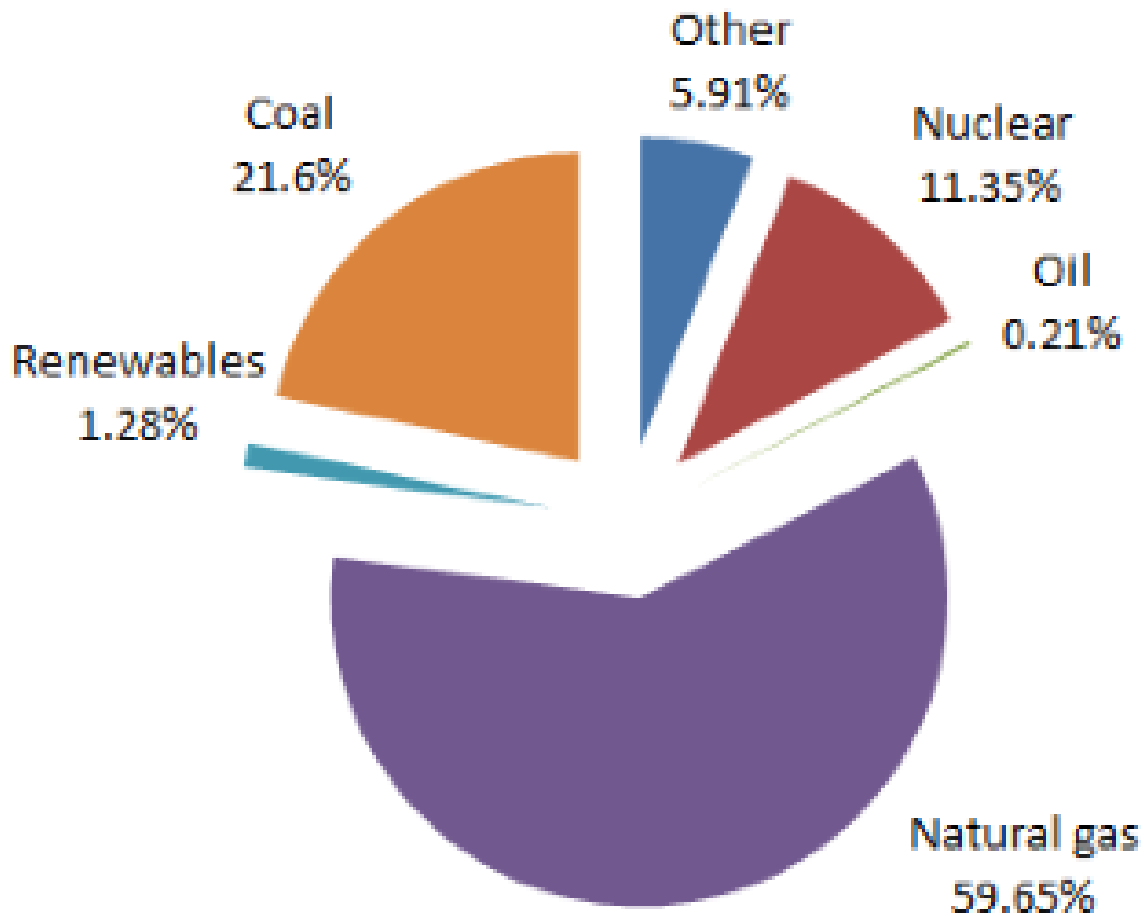


U.S. ELECTRICITY GENERATION 2014

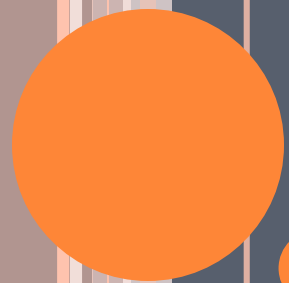


Source: EIA, <http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>

FLORIDA ELECTRICITY GENERATION 2013



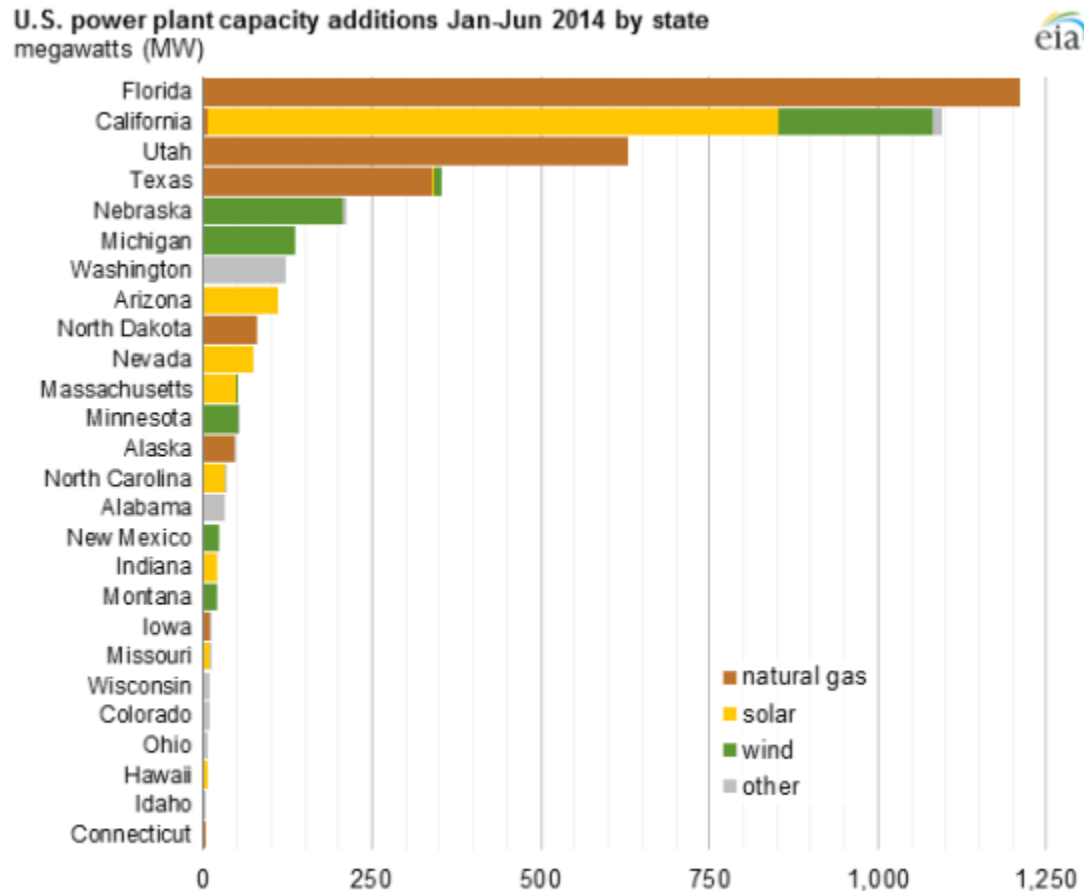
Source: Florida PSC, <http://www.psc.state.fl.us/publications/pdf/general/factsandfigures2015.pdf>



FOSSIL FUELS



FLORIDA TOPS LIST OF NEW CAPACITY ADDITIONS NATIONWIDE



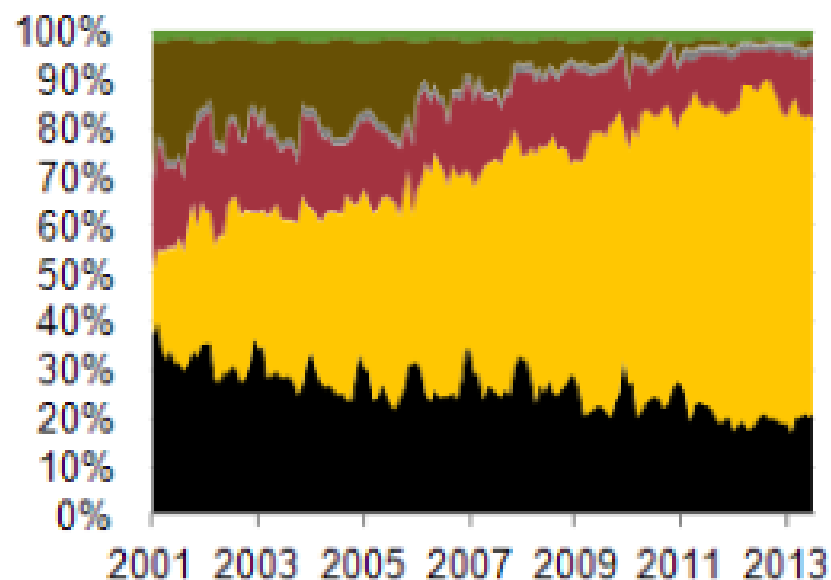
Source: U.S. Energy Information Administration, [Electric Power Monthly](#), August 2014 edition with June 2014 data
Note: Data include facilities with a net summer capacity of 1 MW and above only.



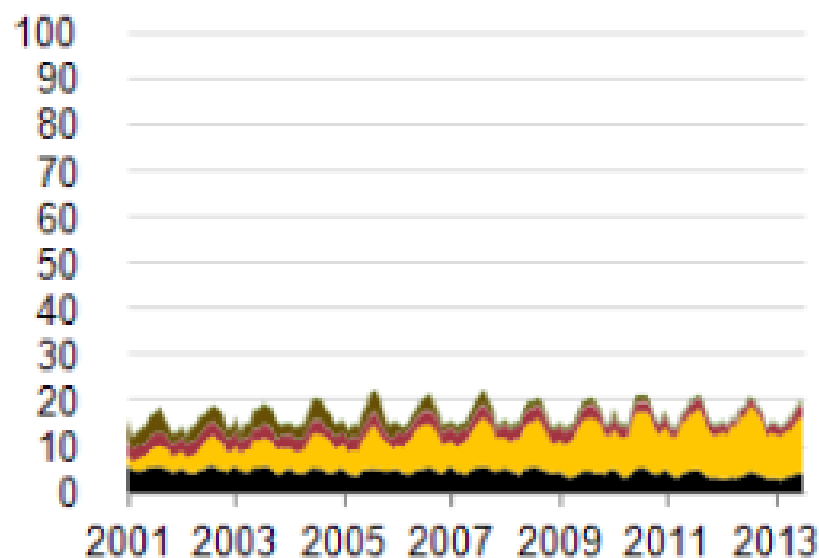
NATURAL GAS BOOMING

Fuel shares of total electricity generation in Florida

share of total



total generation (terawatthours)

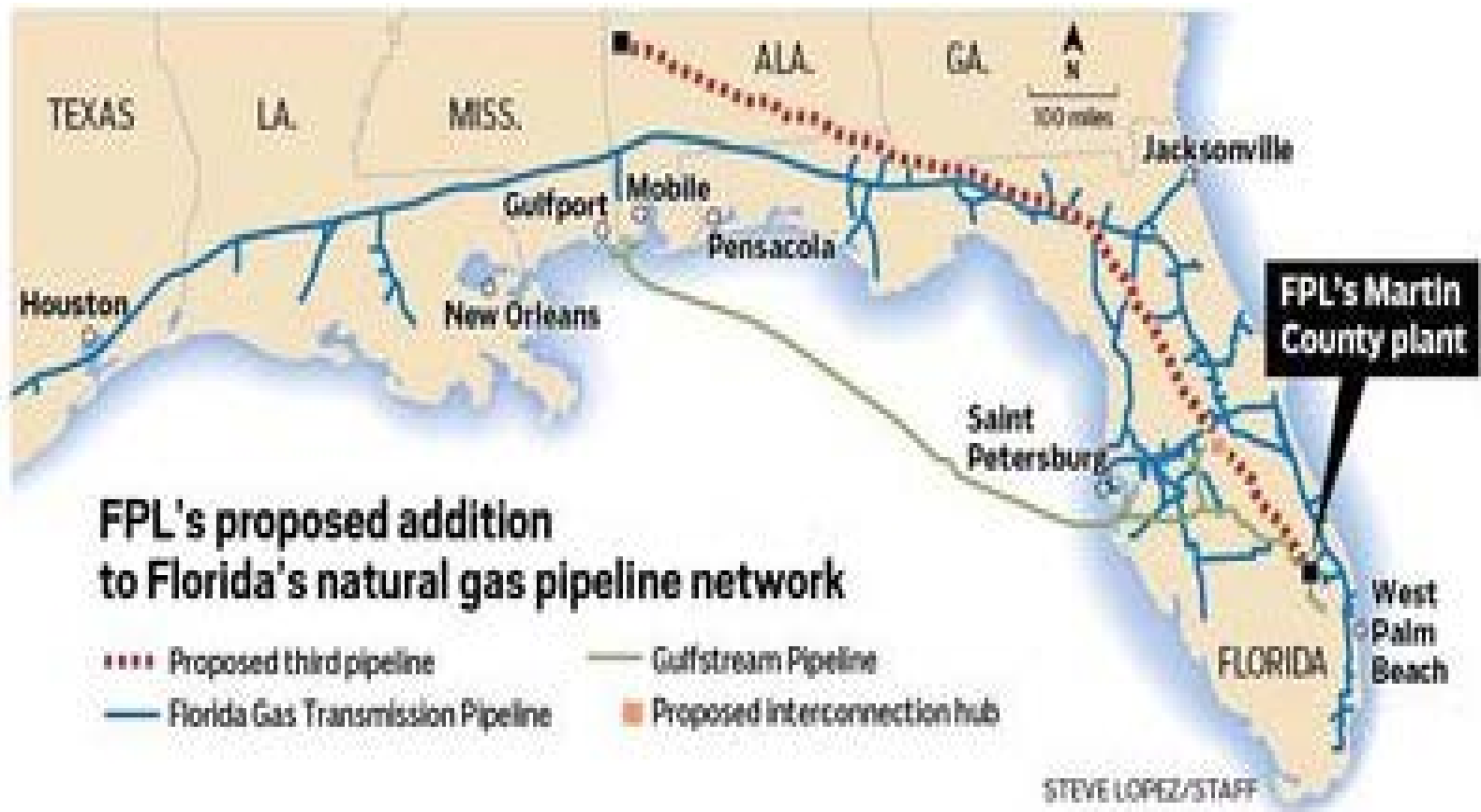


■ coal ■ hydro ■ natural gas ■ nuclear ■ petroleum ■ non-hydro renewable ■ other

Source: U.S. Energy Information Administration, [Electricity Monthly Update](#)



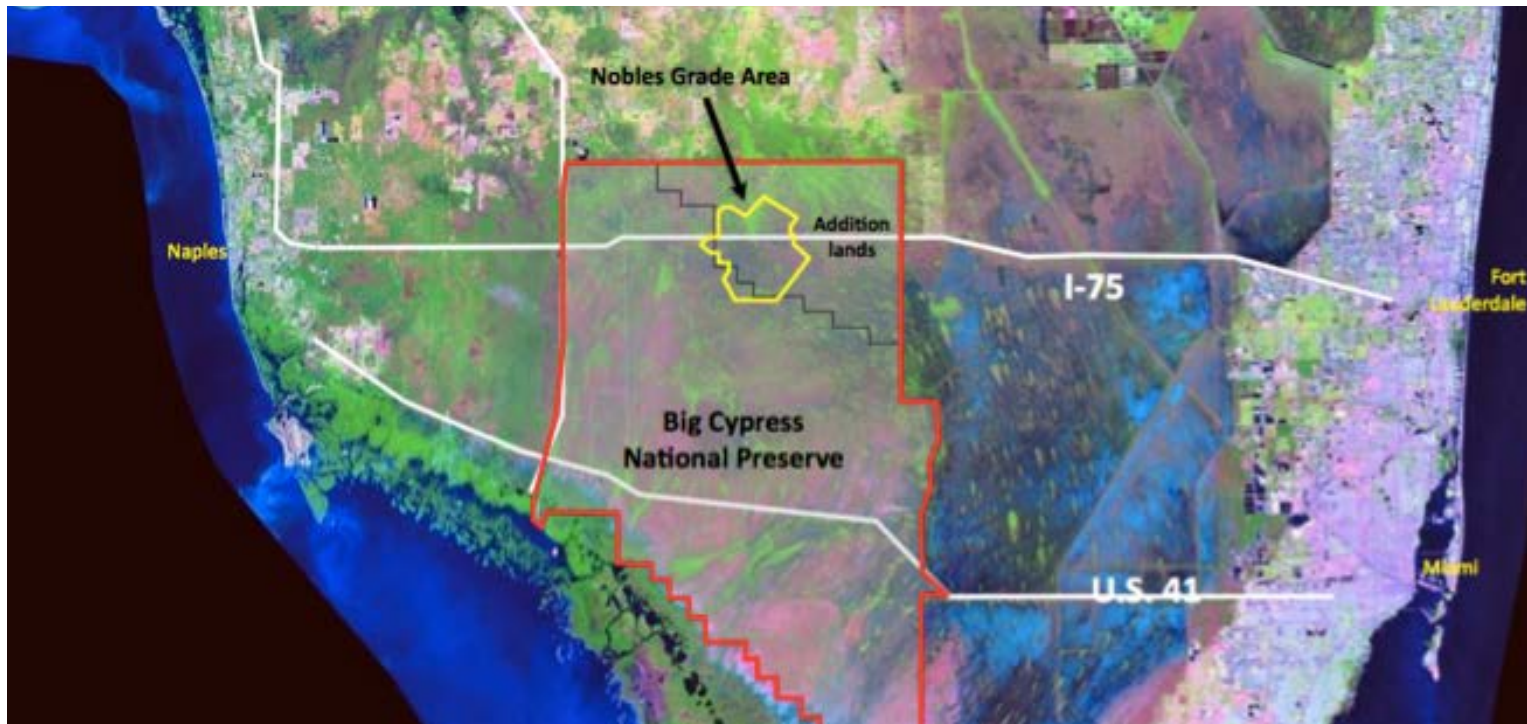
CONCERNS ABOUT SUPPLY: SABAL TRAIL PIPELINE



CONCERNS ABOUT DRILLING: BIG CYPRESS AND COLLIER RESOURCES







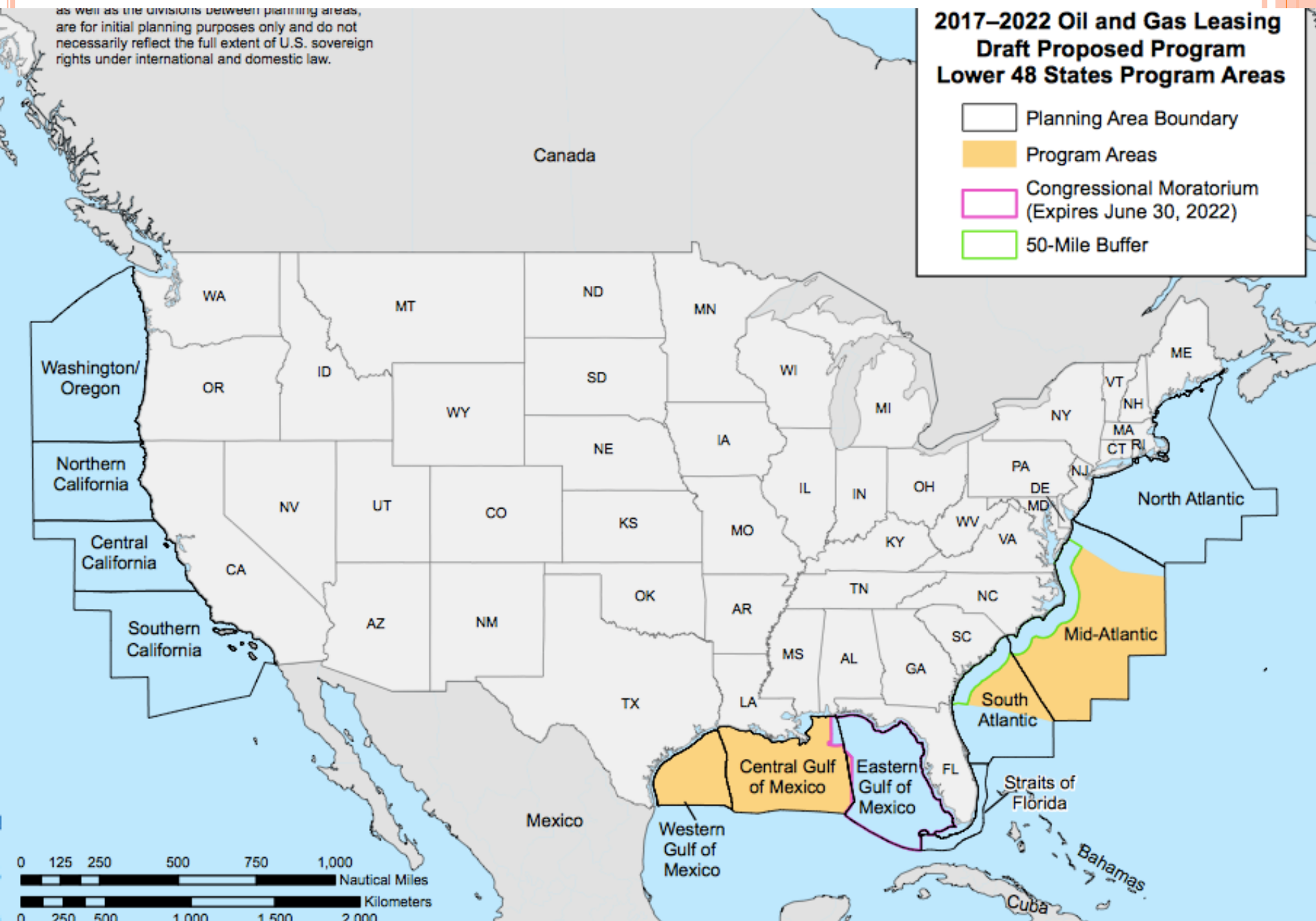
Alachua County supports Florida fracking ban

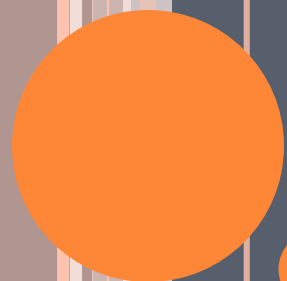


as well as the divisions between planning areas, are for initial planning purposes only and do not necessarily reflect the full extent of U.S. sovereign rights under international and domestic law.

2017–2022 Oil and Gas Leasing Draft Proposed Program Lower 48 States Program Areas

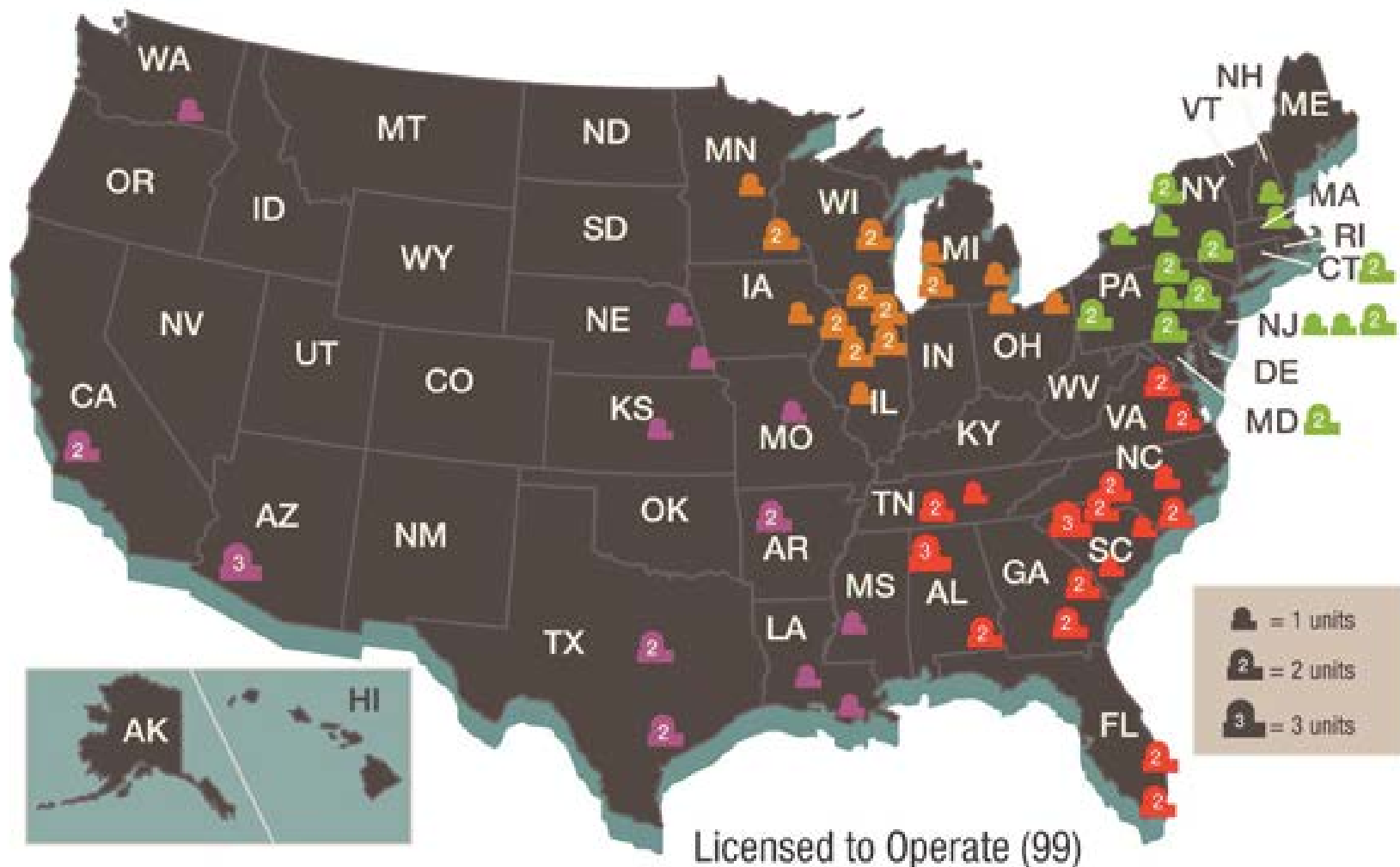
-  Planning Area Boundary
-  Program Areas
-  Congressional Moratorium (Expires June 30, 2022)
-  50-Mile Buffer





NUCLEAR

U.S. Operating Commercial Nuclear Power Reactors

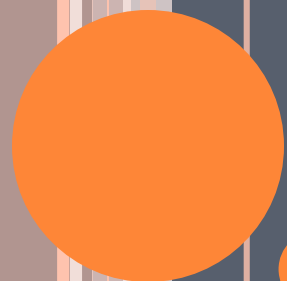


Florida Nuclear Power Reactors

December 31, 2014

Reactor	Utility	Metric Tons in Spent Fuel Pool	Metric Tons in Dry Cask Storage	NRC License Expires
Crystal River 3	DEF	590	N/A	2016*
St. Lucie 1	FPL	552	186	2036
St. Lucie 2	FPL	448	137	2043
Turkey Point 3	FPL	499	131	2032
Turkey Point 4	FPL	511	131	2033

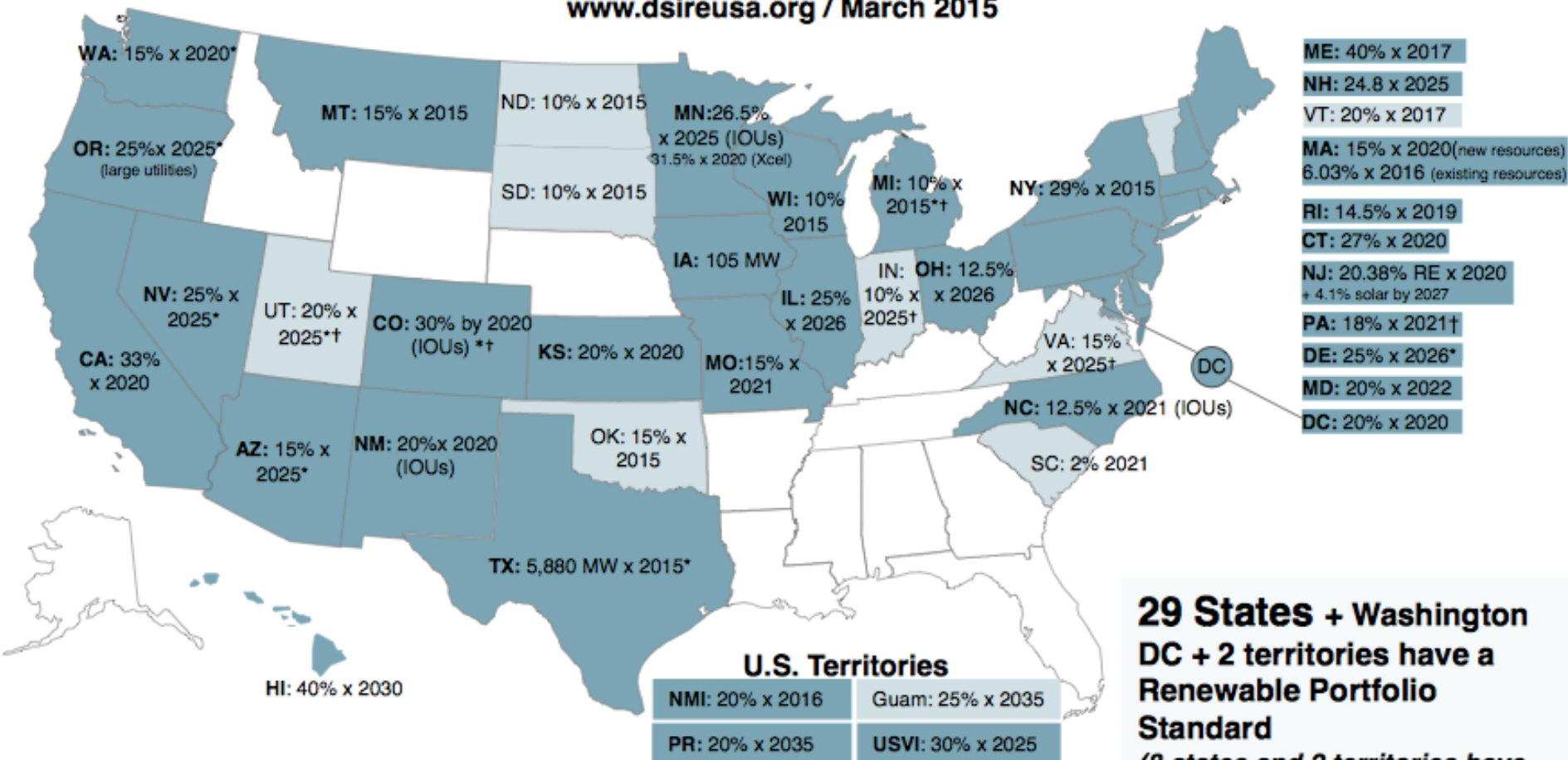
* Duke Energy filed notification of cessation of operations with the Nuclear Regulatory Commission on February 20, 2013



RENEWABLES

Renewable Portfolio Standard Policies

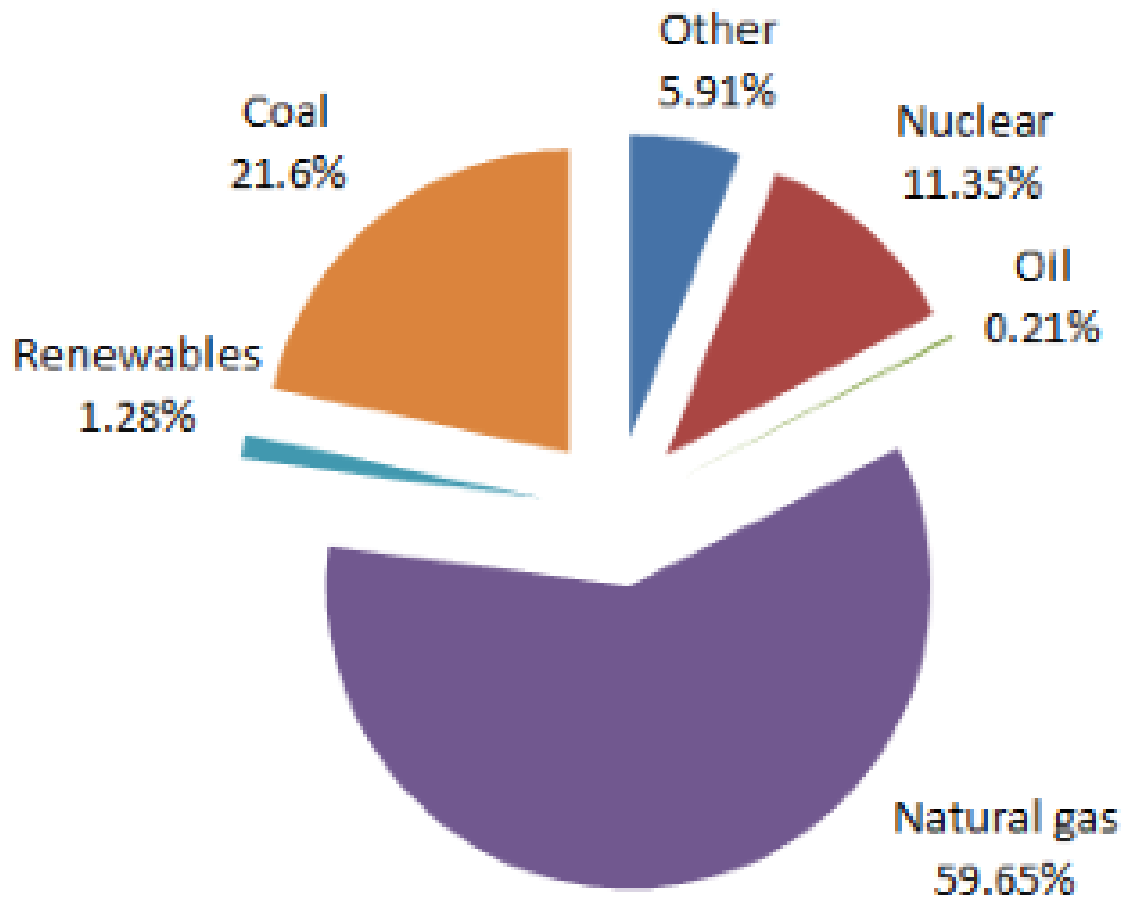
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Renewable portfolio standard
 Renewable portfolio goal

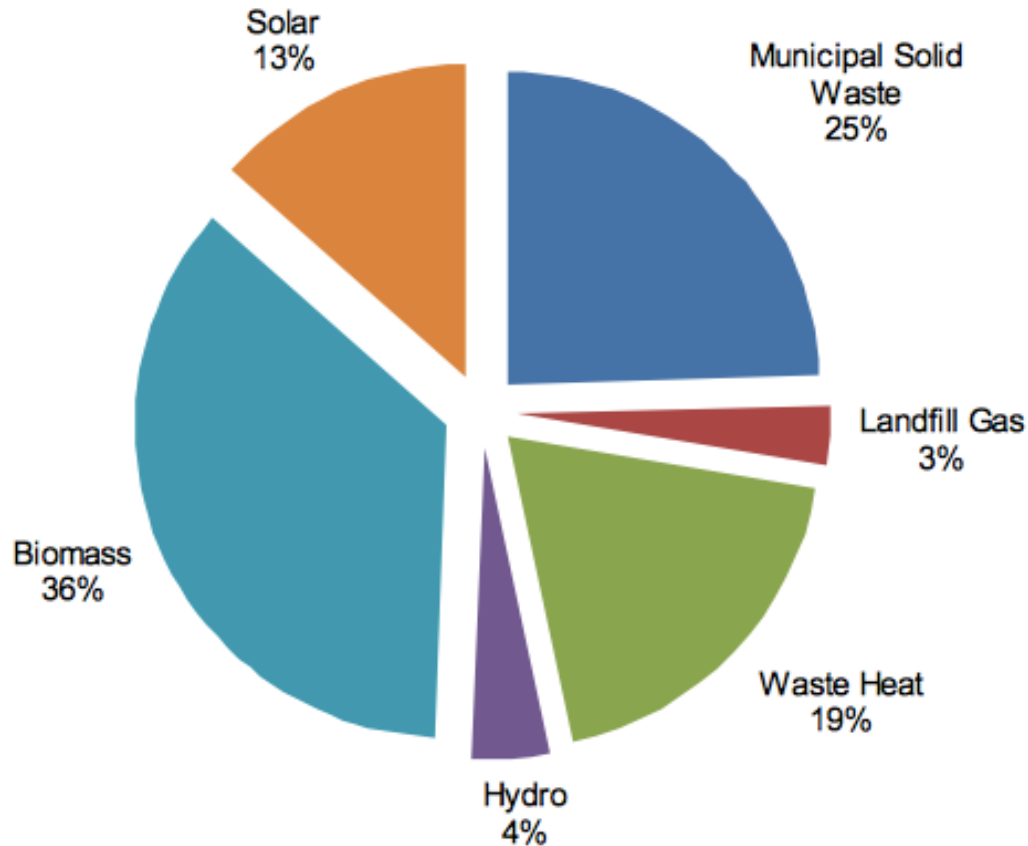
Extra credit for solar or customer-sited renewables
 Includes non-renewable alternative resources

FLORIDA ELECTRICITY GENERATION 2013



Florida's Renewable Capacity in MW (2013)

(Total: 1,617 MW)



FLORIDA SOLAR INCREASES

Current Solar

- DeSoto – 25 MW Solar
- NASA – 10 MW
- Martin – 75 MW
- TOTAL: 110 MW

Future Solar

- FPL
 - Citrus – 75 MW
 - Babcock – 75 MW
 - Manatee – 75 MW
- TOTAL: 225 MW
- Gulf Power
 - Eglin Air Force Base – 30 MW
 - Holley Field – 40 MW
 - Saufley Field – 50 MW
- TOTAL: 120 MW



THE SOLAR ECONOMY (2015)

Table 1: 2013 State Rankings of Solar Capacity and Solar Power Generation

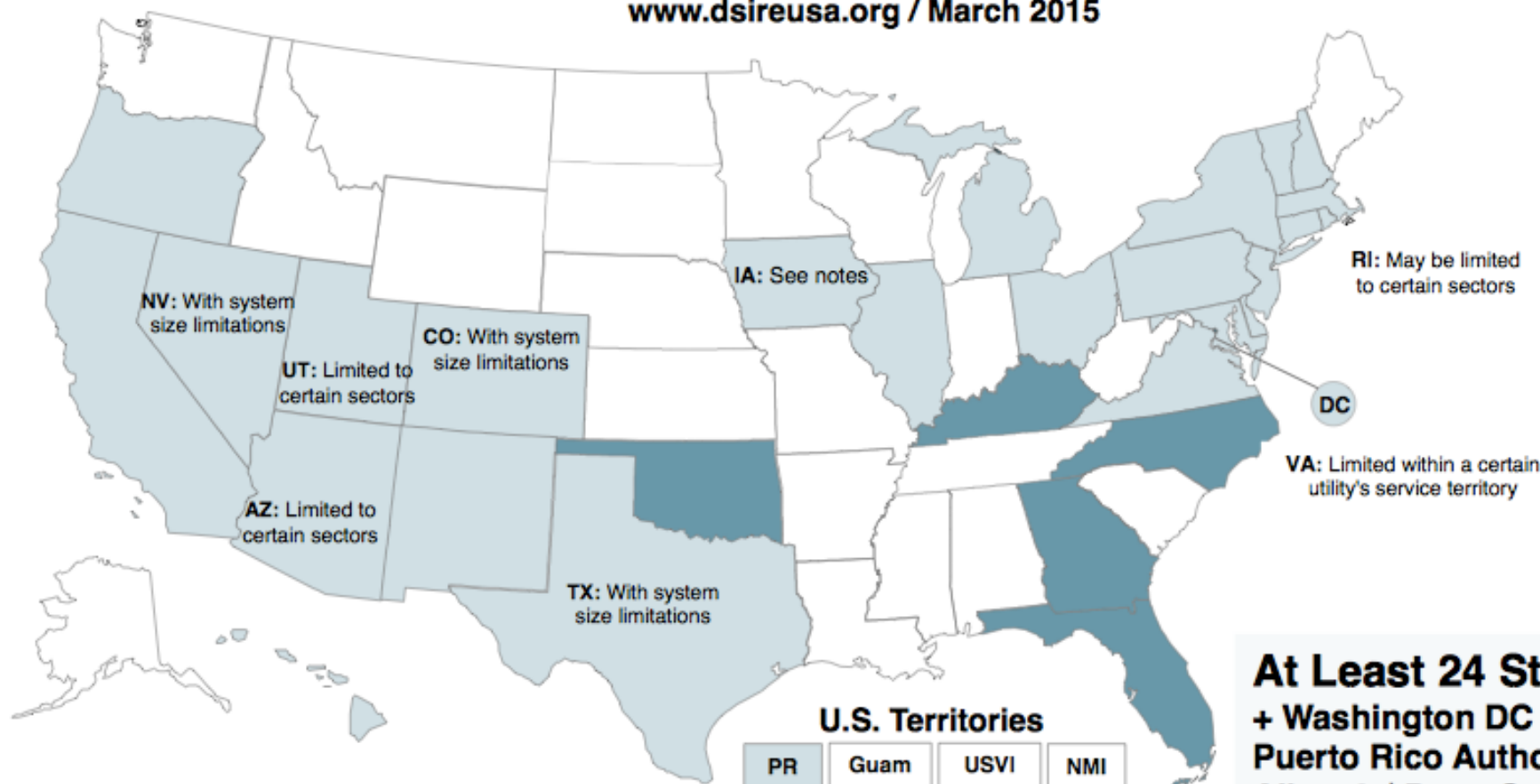
Rank	State	Installed Solar Capacity (MW)	Rank	State	Solar Power Generation (thousand MWh)
1	California	4,146	1	California	3,865
2	Arizona	1,250	2	Arizona	2,041
3	New Jersey	948	3	Nevada	749
4	North Carolina	375	4	New Jersey	546
5	Massachusetts	356	5	New Mexico	414
6	Nevada	339	6	North Carolina	379
7	Colorado	288	7	Florida	240
8	Hawaii	286	8	Colorado	199
9	New Mexico	206	9	Texas	176
10	New York	193	10	Massachusetts	109
11	Texas	173	11	Pennsylvania	82
12	Pennsylvania	144	12	Maryland	80
13	Maryland	140	13	Illinois	64
14	Florida	110	14	Ohio	64
15	Georgia	88	15	Delaware	57

Note: Installed solar capacity is total grid-connected PV installations in MW at the end of calendar year 2013, as reported by IREC, "U.S. Solar Market Trends," July 2014. Reported DC converted to AC.

Source: Solar capacity, IREC, "U.S. Solar Market Trends 2013," 2014; power generation, EIA 2013, Electricity Generation and Consumption (EIA-906/920/923), Net Generation by State by Sector (table 1.6)

3rd Party Solar PV Power Purchase Agreement (PPA)

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- Apparently disallowed by state or otherwise restricted by legal barriers
- Authorized by state or otherwise currently in use, at least in certain jurisdictions
- Status unclear or unknown

**At Least 24 States
+ Washington DC and
Puerto Rico Authorize or
Allow 3rd Party Solar PV
Power**

CONSTITUTIONAL AMENDMENT PETITION



Click on Tools to convert files to PDF.

Note:

- All information on this form, including your signature, becomes a public record upon receipt by the Supervisor of Elections.
- Under Florida law, it is a first degree misdemeanor, punishable as provided in s. 775.082 or s. 775.08, Florida Statutes, to knowingly sign more than one petition for an issue. [Section 104.185, Florida Statutes]
- If all requested information on this form is not completed, the form will not be valid.

Your Name: _____

(Please Print Name as it appears on your Voter Information Card)

Your Address: _____

City: _____ Zip: _____ County: _____

☐ Please change my legal residence address on my voter registration record to the above residence address (check box, if applicable).

Voter Registration Number: _____ (or) Date of Birth _____

I am a registered voter of Florida and hereby petition the Secretary of State to place the following proposed amendment to the Florida Constitution on the ballot in the general election:

BALLOT TITLE: Limits or Prevents Barriers to Local Solar Electricity Supply

BALLOT SUMMARY: Limits or prevents government and electric utility imposed barriers to supplying local solar electricity. Local solar electricity supply is the non-utility supply of solar generated electricity from a facility rated up to 2 megawatts to customers at the same or contiguous property as the facility. Barriers include government regulation of local solar electricity suppliers' rates, service and territory, and unfavorable electric utility rates, charges, or terms of service imposed on local solar electricity customers.

ARTICLE AND SECTION BEING CREATED OR AMENDED: Add new Section 29 to Article X

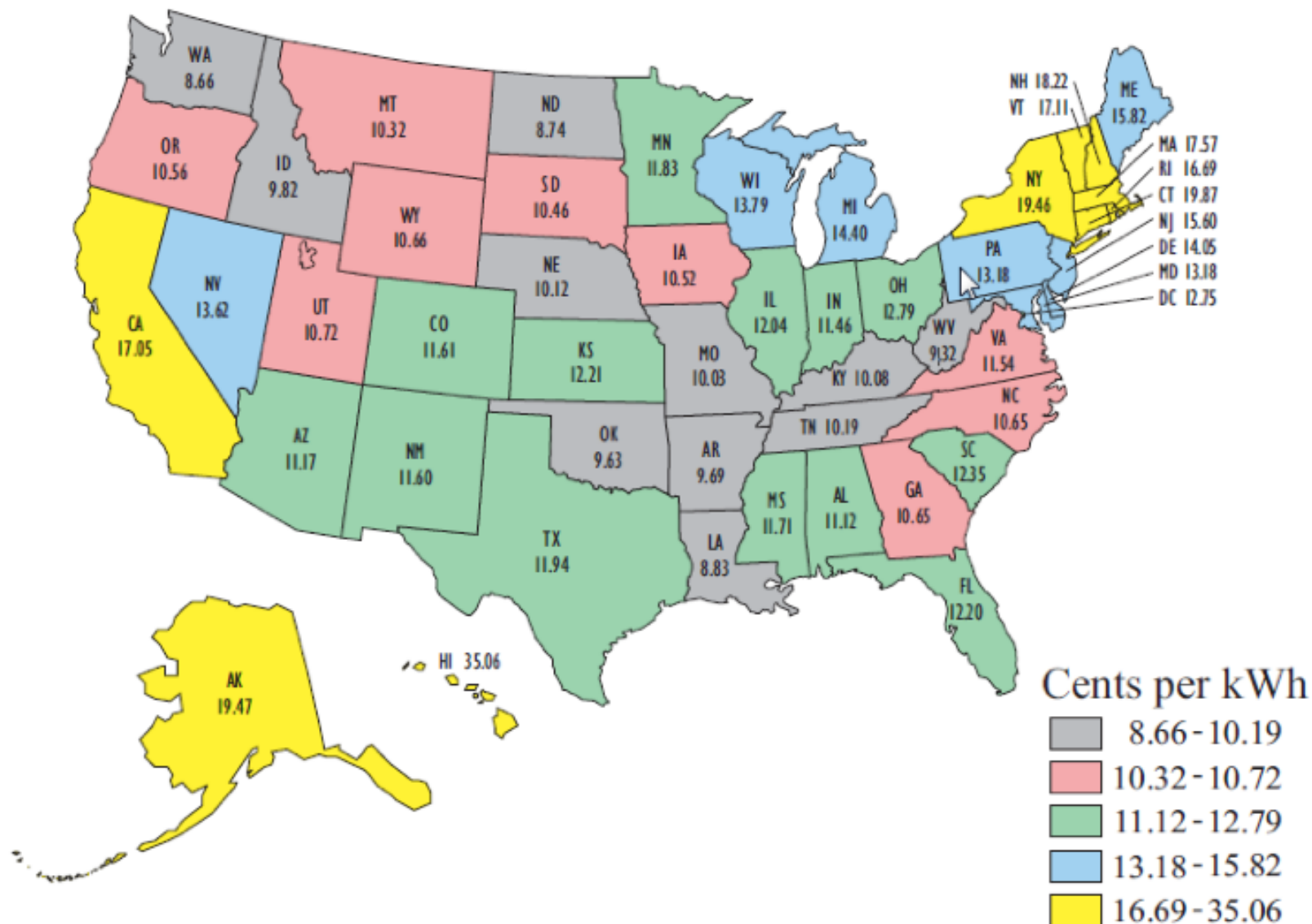
FULL TEXT OF PROPOSED AMENDMENT:

Section 29. Purchase and sale of solar electricity. –

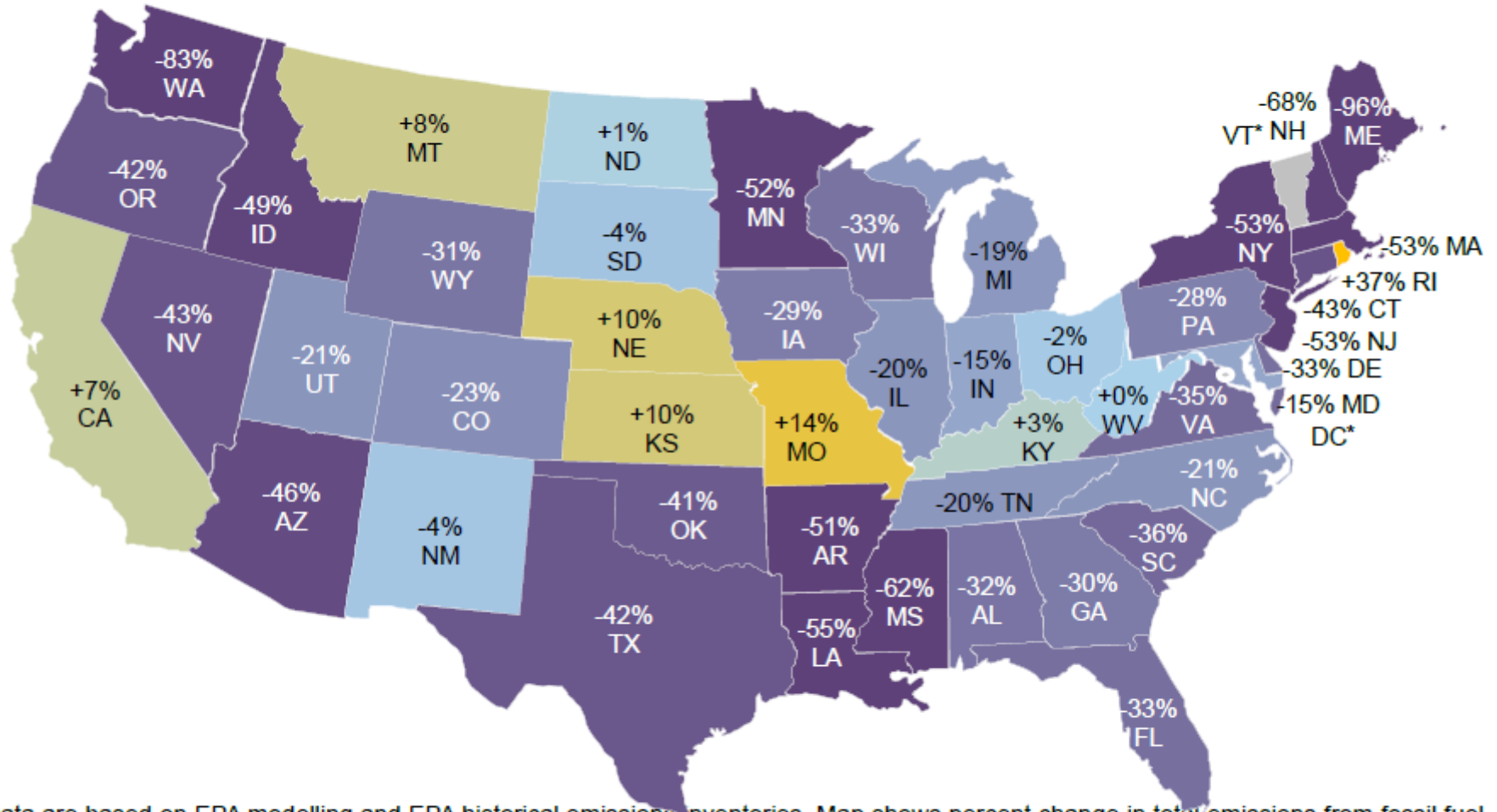
(a) **PURPOSE AND INTENT.** It shall be the policy of the state to encourage and promote local small-scale solar-generated electricity production and to enhance the availability of solar power to customers. This section is intended to accomplish this purpose by limiting and preventing regulatory and economic barriers that discourage the supply of electricity generated from solar energy sources to customers who consume the electricity at the same or a contiguous property as the site of the solar electricity production. Regulatory and economic barriers include rate, service and territory regulations imposed by state or local government on those supplying such local solar electricity, and imposition by electric utilities of special rates, fees, charges, tariffs, or terms and conditions of service on their customers consuming local solar electricity supplied by a third party that are not imposed on their other customers of the same type or class who do not consume local solar electricity.

Average Residential Price of Electricity by State (2014)

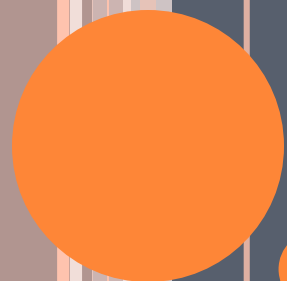
(U.S. Residential Average Price per kWh = 12.46 cents)



Change in emissions required from 2012 to 2030, under the EPA's Clean Power Plan (% of 2012 emissions)



Data are based on EPA modelling and EPA historical emissions inventories. Map shows percent change in total emissions from fossil fuel-fired plants, including emissions from new sources which are not covered by the proposed Clean Power Plan. Darker colours indicate deeper emissions cuts; yellow states may actually *increase* their overall emissions, while remaining in compliance with the EPA's Clean Power Plan. Data are not available for Alaska and Hawaii; * Vermont and DC are not covered by the EPA's regulations.



FLORIDA ENERGY INNOVATIONS



KINGFISHER WIND

- May 2015:
 - PSC unanimously approved Gulf Power Wind 20-year PPA
 - 300 MW wind farm to be built in Oklahoma
 - 178 MW will be sold to Gulf Power



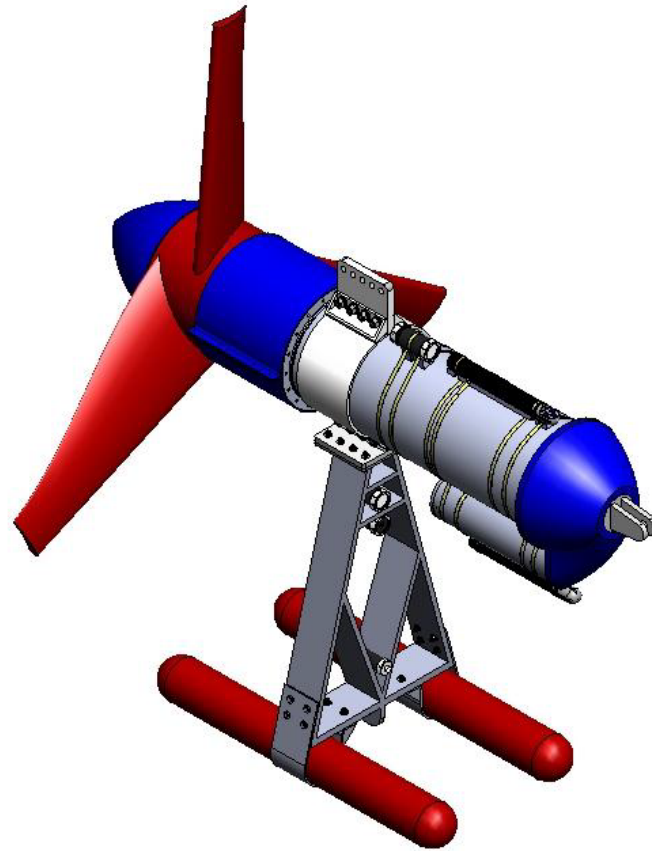
ENERGY STORAGE IN FLORIDA

Database Results >

	Name	Technology	Power (kW)	Duration (HH:MM)	Status
	St. Petersburg Solar Parks Project St. Petersburg, Florida, United States Description >	Zinc Bromine Flow Battery	25	2:00.00	Under Construction
	University of Central Florida Orlando, Florida, United States Description >	Chilled Water Thermal Storage	3,000	8:00.00	Operational
	Shell Point Retirement Village Fort Myers, Florida, United States Description >	Ice Thermal Storage	4,800	6:00.00	Operational
	Sarasota County School District Sarasota, Florida, United States Description >	Ice Thermal Storage	20,000	8:00.00	Operational

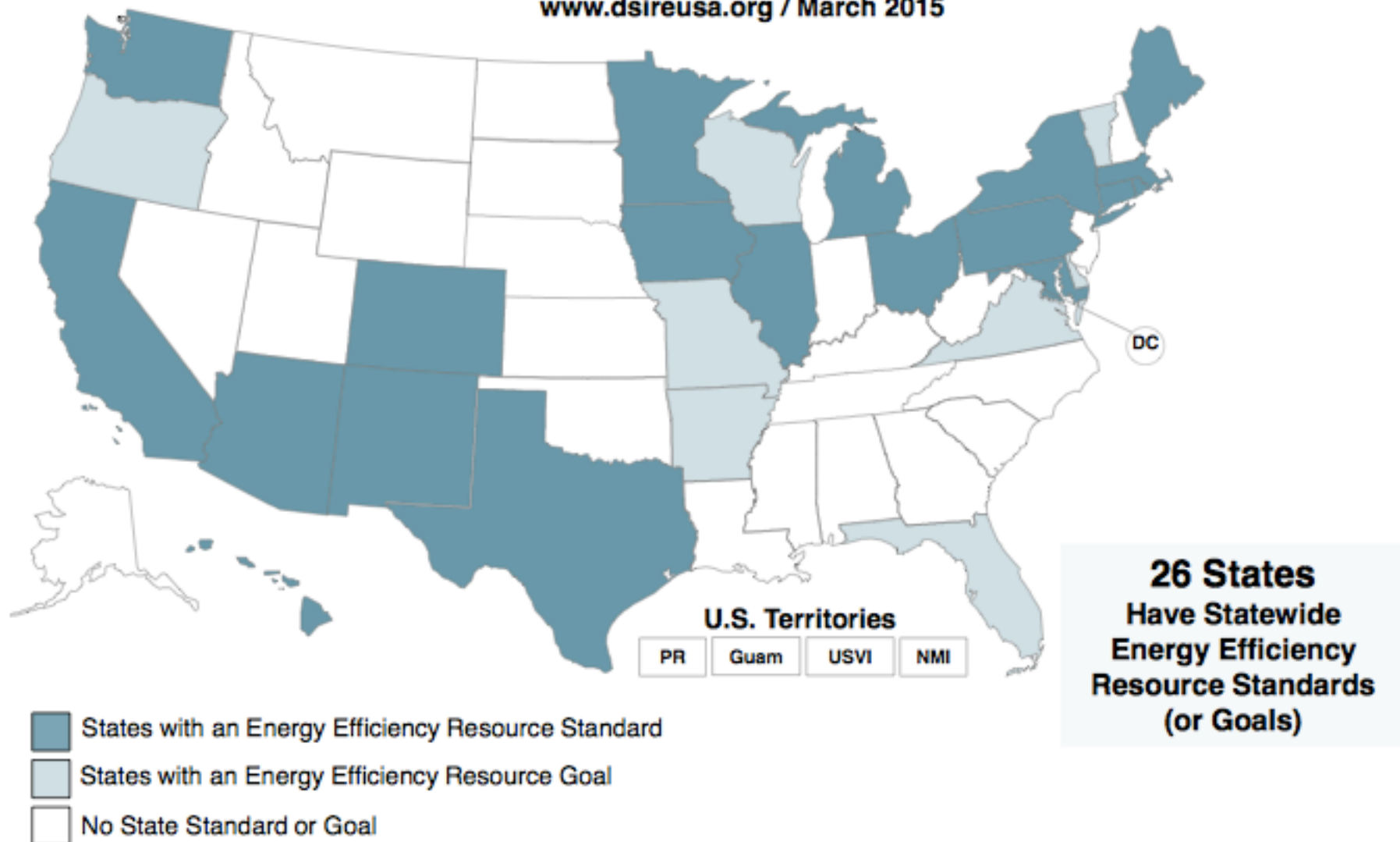


FLORIDA ATLANTIC UNIVERSITY'S (FAU) SOUTHEAST NATIONAL MARINE RENEWABLE ENERGY CENTER (SNMREC)



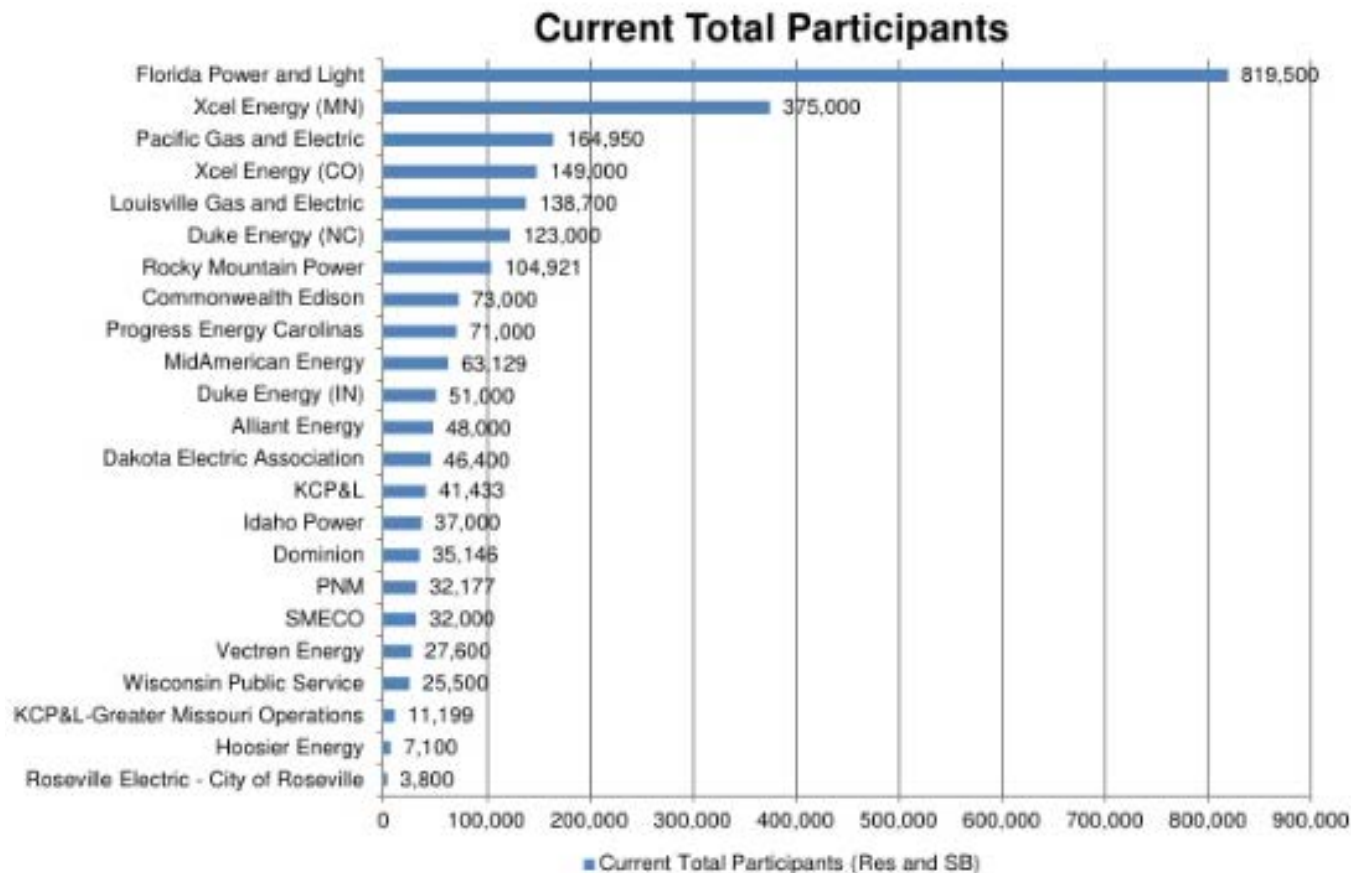
Energy Efficiency Resource Standards (and Goals)

www.dsireusa.org / March 2015



DEMAND RESPONSE: DIRECT LOAD CONTROL

Participation



Source: E Source



SUPREME COURT TO REVIEW FERC ORDER 745

CERTIORARI GRANTED

14-840) FERC V. ELECTRIC POWER SUPPLY, ET AL.
)
14-841) ENERNOC, INC., ET AL. V. ELECTRIC POWER SUPPLY ASSOC.

The motion of NRG Energy, Inc. for leave to file a brief as *amicus curiae* is granted. The petitions for writs of certiorari are granted limited to the following Questions: 1) Whether the Federal Energy Regulatory Commission reasonably concluded that it has authority under the Federal Power Act, 16 U. S. C. 791a *et seq.*, to regulate the rules used by operators of wholesale electricity markets to pay for reductions in electricity consumption and to recoup those payments through adjustments to wholesale rates. 2) Whether the Court of Appeals erred in holding that the rule issued by the Federal Energy Regulatory Commission is arbitrary and capricious. The cases are consolidated and a total of one hour is allotted for oral argument. Justice Alito took no part in the consideration or decision of this motion and these petitions.



SOME DIFFICULT QUESTIONS TO PONDER...

- How should we balance competing energy goals?
- How can we ensure reliability?
- How should we manage externalities and risk?
- How can we best educate consumers about expenses facing the future grid?
- How can we incorporate long-term sustainability into our decision-making process?



THANK YOU

- Thoughts or questions?
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 - stein@law.ufl.edu
 - SSRN Page: <http://ssrn.com/author=1216973>

