PLANNING FOR LOWER-COST, LOWER-RISK ENERGY

SIERRA CLUB

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The Commission should obtain missing risk and cost information before determining suitability

- Ten-year site plans must provide sufficient information to assure the Commission that an **adequate and reliable supply of electricity at the lowest cost possible** is planned. Form PSC/RAD 43-E (11/97)

- Plans currently fail to analyze future portfolio scenarios, missing lower-cost, lower-risk alternatives to new gas-fired capacity.

- The Commission should obtain the missing comparative analysis of all sources and technologies, and then propose alternatives to the current plans as needed to reduce overall cost and risk in state's portfolio.

Plans must account for risk and cost

- **Cost** should reflect life of investment, including risks that could materially affect investment and benefit to customers.
- **Risk** is the expected value of a potential loss. It is measurable, based on probability of harm from an adverse event.
- The Commission needs cost and risk information to fulfill its duty to consider, among other things, the plans' consistency with the State Comprehensive Plan, which states relevant Florida policy as follows:

> "Develop and maintain energy preparedness plans that will be both practical and effective under circumstances of **disrupted energy supplies or unexpected price surges**." Fla Stat. § 187.201 (11)(b)(10)

Florida's energy system at a crossroads, facing high-risk and low-risk paths forward

- High dependence on natural gas (FRCC 2013)
- Significant near-term coal and nuclear retirements, potentially exacerbating natural gas dependence
- Limited infrastructure diversity (FRCC 2013)
- Rapidly improving cost-competitiveness of renewable sources and energy efficiency
- Fossil fuel and nuclear generation economics strained by weakened industry credit ratings and increasingly stringent pollution controls

Florida's generating capacity investments expected to be among Nation's highest

PROJECTED CAPACITY ADDITIONS BY STATE & AS A PERCENTAGE OF 2010 GENERATING CAPACITY		
State	Predicted Capacity Additions (MW), 2010-2030[25]	Predicted Additions as a Percentage of 2010 Generating Capacity[26]
Texas	23,400	22%
Florida	12,200	21%
Illinois	11,000	25%
Ohio	8,500	26%
Pennsylvania	6,300	14%
New York	5,400	14%
Colorado	2,500	18%

Source: Ron Binz & CERES, *Practicing Risk-Aware Electricity Regulation: What Every State Regulator Needs to Know* (2012) ("Risk-Aware"), at 16.

COSTS AND RISKS OF NEW GENERATION RESOURCES

We closely examine costs and risks of new generation resources for several reasons. First, as the largest share of utility spending in the current build cycle, generation investment is where the largest amount of consumer and investor dollars is at risk. Also, today's decisions about generation investment can trigger substantial future investments in transmission and distribution infrastructure. Proposed power plants can be a lightning rod for controversy, heightening public scrutiny of regulatory and corporate decision-makers. Finally, poor investment decisions about generation resources in IOUs' last major build cycle resulted in tens of billions of dollars of losses for consumers and shareholders.[8] For these and other reasons, it is especially important that regulators address, manage and minimize the risks associated with utility investments in new generation resources.[9]

Natural gas unduly dominates current and planned generation portfolio

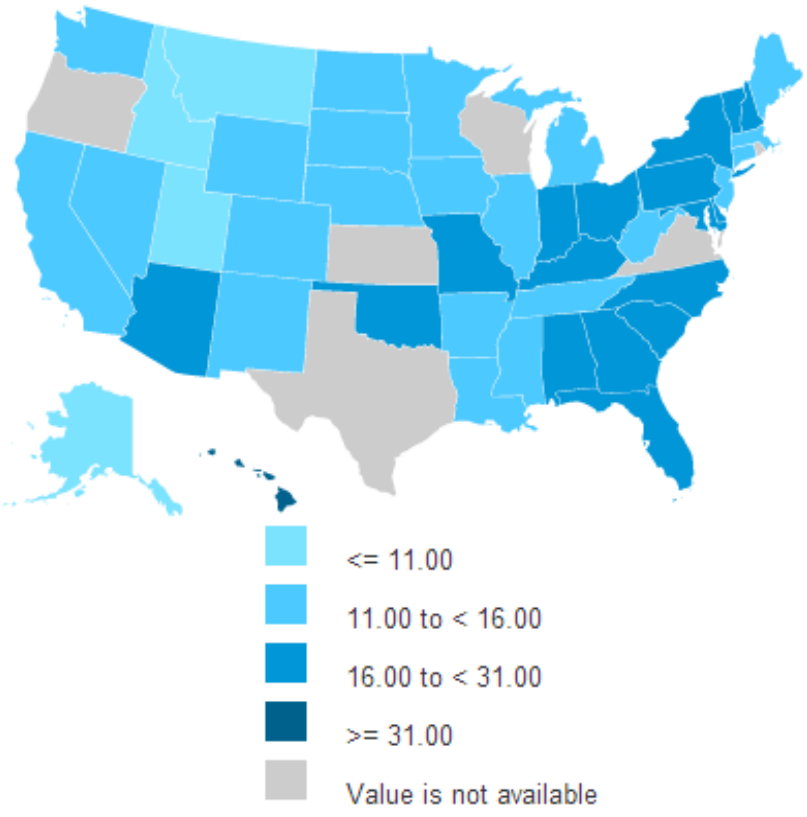
- Now ~63% of Florida's delivered electricity is natural gas-powered (FRCC 2013)
- FRCC still studying "potential multiple generation retirements from the same site, starting as early as April 2015" (FRCC 2013)
- Non-gas retirement/retrofit decisions threaten to exacerbate Florida's fuel diversity problem

Florida ratepayers already paying some of Nation's highest gas prices

Rankings: Natural Gas Residential Prices, June 2013 ($/thousand cu ft)

Download Table Data as CSV

Rank	State	Natural Gas Residential Prices ($/thousand cu ft)
1	Hawaii	46.54
2	South Carolina	24.33
3	North Carolina	23.09
4	Georgia	22.67
	Florida	21.45
6	Missouri	21.40
7	Alabama	20.84
8	Arizona	20.01
9	Vermont	20.00
10	Delaware	19.64



Source: EIA (2013), http://www.eia.gov/state/rankings/?sid=US#/series/28

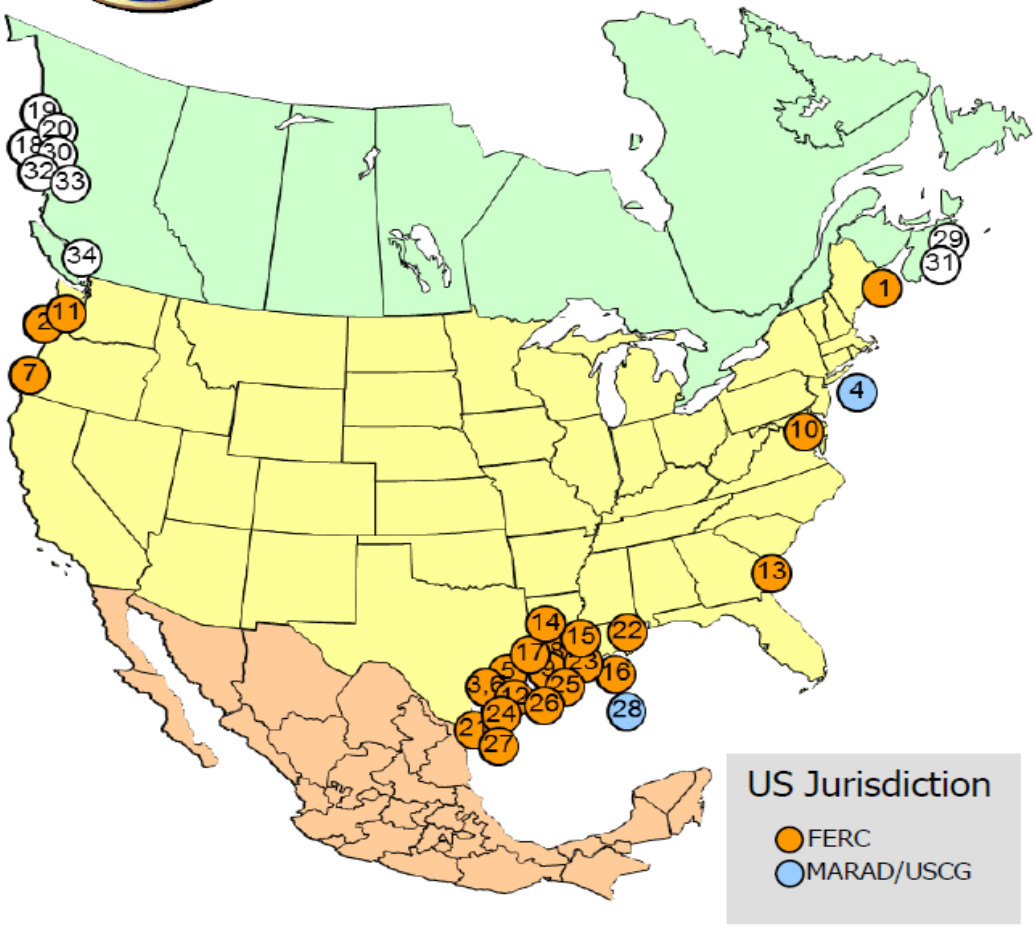
Florida's high gas dependence is risky

- **Supply**: Sharp downward revision in 2012 EIA estimates of U.S. shale gas reserves by > 40%, Marcellus reserves down by 66%
- **Demand:** EIA predicts rapid LNG exports paired with lower resource base could **raise natural gas prices by 54% by 2018**
- **Price**: 2013 US DOE-commissioned study finds higher natural gas prices in 2015 expected to have **negative effects on output and employment** , particularly in natural gas-intensive sectors
- **Infrastructure**: Florida at risk because it imports nearly all of its fuel, has no native gas reserves or supplies, and relies on two inter-state pipelines

Industry rapidly moving forward with gas exports

North American LNG Import/Export Terminals

Proposed/Potential



Import Terminal

PROPOSED TO FERC

1. **Robbinston, ME:** 0.5 Bcfd (Kestrel Energy - Downeast LNG)
2. **Astoria, OR:** 0.5 Bcfd (Oregon LNG)
3. **Corpus Christi, TX:** 0.4 Bcfd (Cheniere – Corpus Christi LNG)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

4. **Offshore New York:** 0.4 Bcfd (Liberty Natural – Port Ambrose)

Export Terminal

PROPOSED TO FERC

5. **Freeport, TX:** 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction)*
6. **Corpus Christi, TX:** 2.1 Bcfd (Cheniere – Corpus Christi LNG)*
7. **Coos Bay, OR:** 0.9 Bcfd (Jordan Cove Energy Project)*
8. **Lake Charles, LA:** 2.4 Bcfd (Southern Union - Trunkline LNG)
9. **Hackberry, LA:** 1.7 Bcfd (Sempra – Cameron LNG)*
10. **Cove Point, MD:** 0.82 Bcfd (Dominion – Cove Point LNG)*
11. **Astoria, OR:** 1.25 Bcfd (Oregon LNG)*
12. **Lavaca Bay, TX:** 1.38 Bcfd (Excelerate Liquefaction)
13. **Elba Island, GA:** 0.35 Bcfd (Southern LNG Company)
14. **Sabine Pass; LA:** 1.3 Bcfd (Sabine Pass Liquefaction)
15. **Lake Charles, LA:** 1.07 Bcfd (Magnolia LNG)
16. **Plaquemines Parish, LA:** 1.07 Bcfd (CE FLNG)
17. **Sabine Pass, TX:** 2.1 Bcfd (ExxonMobil – Golden Pass)

PROPOSED CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

18. **Kitimat, BC:** 0.7 Bcfd (Apache Canada Ltd.)
19. **Douglas Island, BC:** 0.25 Bcfd (BC LNG Export Cooperative)
20. **Kitimat, BC:** 3.23 Bcfd (LNG Canada)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

21. **Brownsville, TX:** 2.8 Bcfd (Gulf Coast LNG Export)
22. **Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Liquefaction)
23. **Cameron Parish, LA:** 0.16 Bcfd (Waller LNG Services)
24. **Ingleside, TX:** 1.09 Bcfd (Pangea LNG (North America))
25. **Cameron Parish, LA:** 0.20 Bcfd (Gasfin Development)
26. **Cameron Parish, LA:** 0.67 Bcfd (Venture Global)
27. **Brownsville, TX:** 3.2 Bcfd (Eos LNG & Barca LNG)
28. **Gulf of Mexico:** 3.22 Bcfd (Main Pass - Freeport-McMoRan)

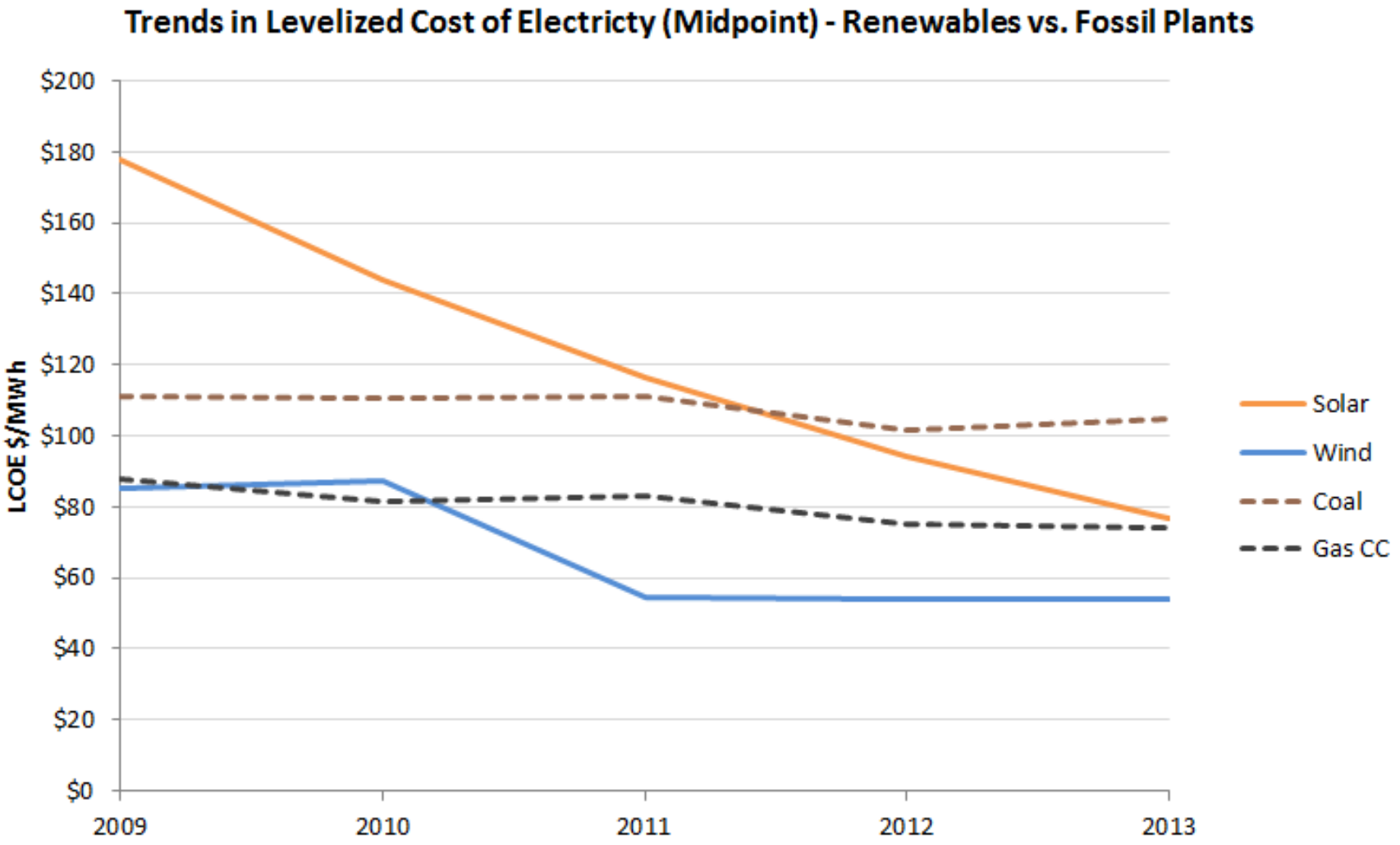
POTENTIAL CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

29. **Goldboro, NS:** 0.67 Bcfd (Pieridae Energy Canada)
30. **Prince Rupert Island, BC:** 4.2 Bcfd (BG Group)
31. **Melford, NS:** 1.8 Bcfd (H-Energy)
32. **Prince Rupert Island, BC:** 2.5 Bcfd (Pacific Northwest LNG)
33. **Prince Rupert Island, BC:** 3.8 Bcfd (ExxonMobil – Imperial)
34. **Squamish, BC:** 0.27 Bcfd (Woodfibre LNG Export)

As of September 12, 2013

** Filed Certificate Application*

Renewable sources like solar increasingly cost-competitive



Source: Lazard 2009-2013.

Energy efficiency is lowest-cost, lowest-risk option

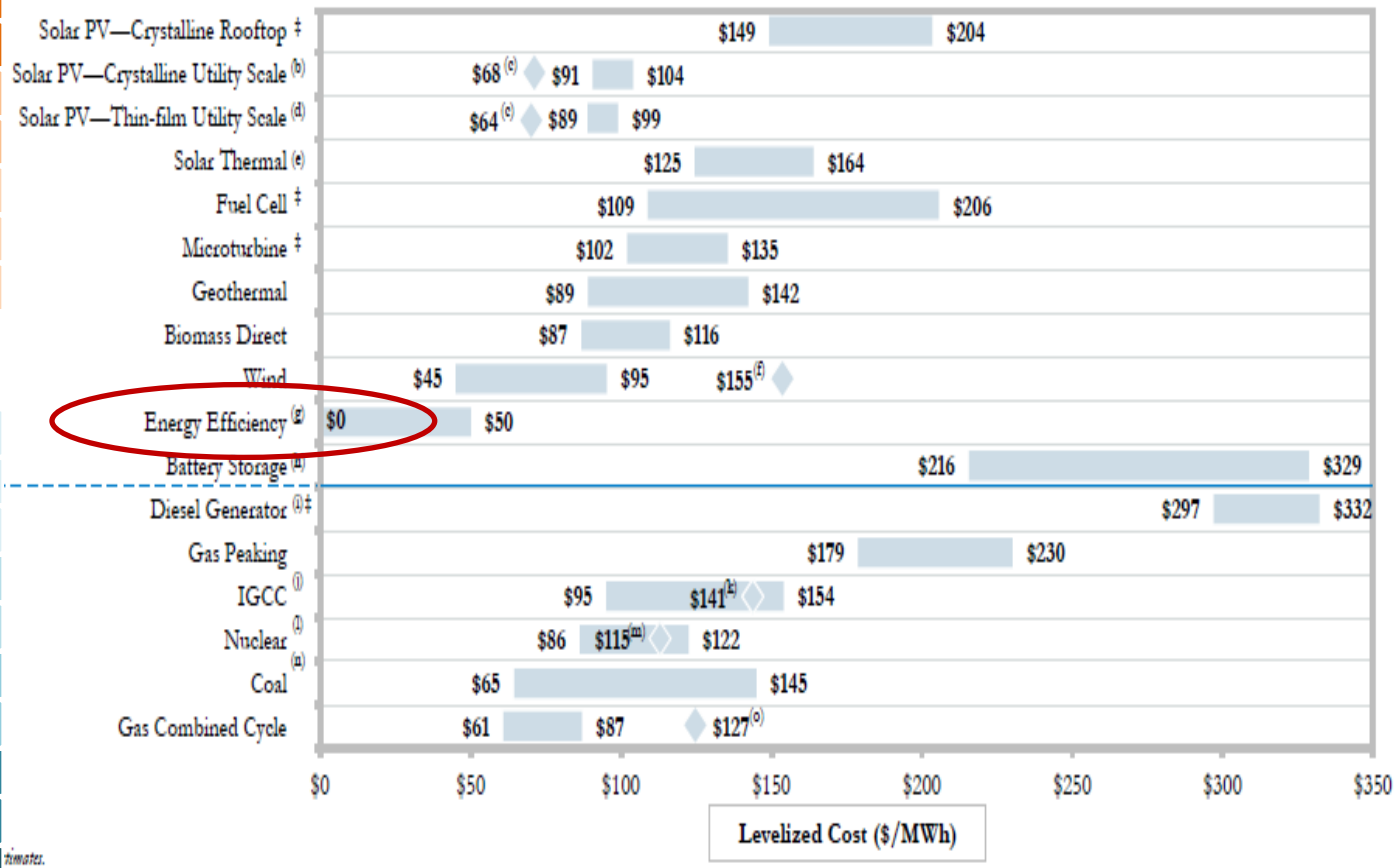
RELATIVE RISK RANKING OF NEW GENERATION RESOURCES

HIGHEST COMPOSITE RISK

- Nuclear
- Pulverized Coal
- Coal IGCC-CCS
- Nuclear w/ incentives
- Coal IGCC
- Coal IGCC-CCS w/ incentives
- Natural Gas CC-CCS
- Biomass
- Coal IGCC w/ incentives
- Natural Gas CC
- Biomass w/ incentives
- Geothermal
- Biomass Co-firing
- Geothermal w/ incentives
- Solar Thermal
- Solar Thermal w/ incentives
- Large Solar PV
- Large Solar w/ incentives
- Onshore Wind
- Solar—Distributed
- Onshore Wind w/ incentives
- **Efficiency**

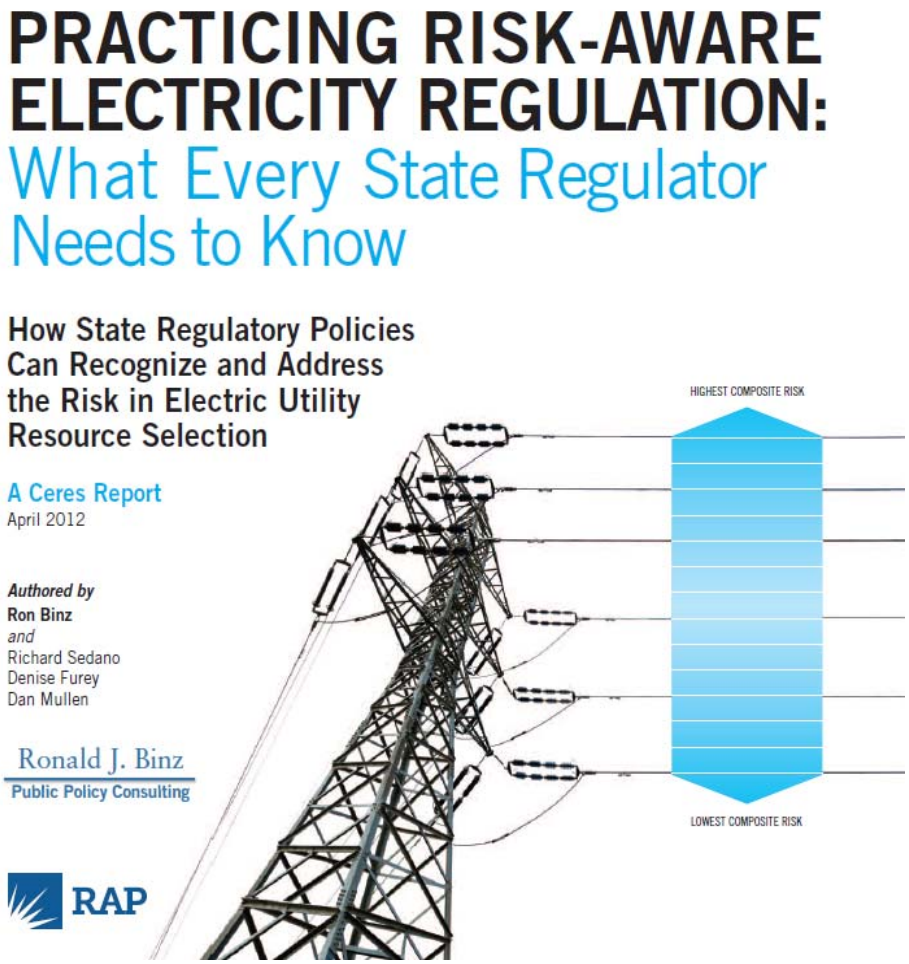
LOWEST COMPOSITE RISK

RELATIVE COST RANKING OF NEW GENERATION RESOURCES



Cost ranking based on Lazard unsubsidized levelized energy cost comparison (2013), at 2. Risk ranking based on Ron Binz & CERES, Practicing Risk-Aware Electricity Regulation: What Every State Regulator Needs to Know (2012), at 8.

Florida has clear roadmap for risk-aware planning, centering on diversification



Per report's detailed cost and risk analysis of wide range of generation sources, safe investment strategies include:

◊Diversifying energy resource portfolio

◊More emphasis on energy efficiency because it is lowest-cost, lowest-risk resource

◊More emphasis on renewables because they are low-cost, low risk

Low-cost, low-risk generation options exist, need to be rigorously explored

E.g., Georgia: Georgia Power Company's 2013 RFP for Solar Photovoltaic Generation and Utility Scale Power Purchase Agreement for **210 megawatts (MW) of solar capacity in 2013 and '14**.

> *RFP "add[s] an enormous amount of renewable energy to our mix for years to come **without increasing rates**."*
>
> - GA Commissioner Echols (May 2013)

E.g., Colorado: In September 2013, Xcel Energy proposed adding **170 MW of utility scale in-state solar power** and 450 MW of in-state wind power

> *"We are not taking on solar because we have to, but because it is **cost-effective and economical**."*
>
> - M. Aguayo, Xcel Energy (Sept. 2013)

Recommended next steps for the Commission

- Defer suitability determination until the Commission receives requisite supplemental data and analysis from each utility subject to ten-year site planning.
- Issue state-wide request for EE/RE/DSM project proposals, or order utilities to issue such requests, publishing results.
- In suitability determination, specify actions Florida will take to reduce overall cost and risk in the state's energy portfolio.