Florida at an Energy Crossroads

How will the Sunshine State Comply with the EPA Clean Power Plan?

AUTHORS:
Katharine McCormick, *NRDC*
Jackson Morris, *NRDC*

CONTRIBUTING AUTHOR:
Jamie Howland, *ENE*

ACKNOWLEDGMENTS

Report Written by
Katharine McCormick, NRDC
Jackson Morris, NRDC

Contributing Author
Jamie Howland, ENE

Figures and Analysis by
Varun Kumar, ENE

Reviews by
Susan Glickman, SACE
George Cavros, SACE
Derek Murrow, NRDC
Kate Kiely, NRDC
Kate Sinding, NRDC
Matthew McKinzie, NRDC
Abigail Anthony, ENE
David Hawkins, NRDC
David Doniger, NRDC
Jake Thompson, NRDC

ABOUT NRDC

The Natural Resources Defense Council (NRDC) is an international nonprofit environmental organization with more than 1.4 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Bozeman, MT, and Beijing and works with partners in Canada, India, Europe, and Latin America. Visit us at www.nrdc.org and follow us on Twitter @NRDC.

ABOUT ENE

ENE is a non-profit organization that researches and advocates innovative policies that tackle our environmental challenges while promoting sustainable economies. ENE is at the forefront of state and regional efforts to combat global warming with solutions that promote clean energy, clean air and healthy forests.

NRDC Director of Communications: Lisa Benenson
NRDC Deputy Director of Communications: Lisa Goffredi
NRDC Policy Publications Director: Alex Kennaugh
Design and Production: www.suerossi.com

INTRODUCTION

On June 2, 2014, the U.S. Environmental Protection Agency (EPA) announced the Clean Power Plan, which establishes standards for carbon emissions from existing power plants. Despite its significant contribution to the climate change that threatens Florida's infrastructure and economy, carbon pollution has never before been limited by the EPA, unlike co-pollutants sulfur and mercury. Under the Clean Power Plan, each state is required to reduce the carbon intensity of its power fleet between 2020 and 2030. This report aims to examine Florida's electricity sector, past resource allocations, and various paths the state may follow to comply with the Clean Power Plan.

In 2012, Florida's power sector emitted about 1,200 pounds of carbon dioxide pollution for every megawatt-hour (MWh) of electricity produced. For the sources that will be affected by the Clean Power Plan, this amounts to 108 million metric tons, equal to the yearly pollution from more than 22 million cars.[1] Given the Clean Power Plan's current proposed targets, Florida would be required to reduce the intensity of its electricity resources (including resources provided by demand-side energy efficiency measures) to 740 pounds per MWh. The state may decide how to achieve these reductions, using any measures it chooses to reduce fossil power plant carbon pollution. Florida can choose measures best suited to its resources and economy and join in multi-state/regional compliance approaches.

The EPA based each state's target on a limited set of actions, or "building blocks." These included: (1) reducing statewide demand for electricity through efficiency programs; (2) adding renewable energy like solar and wind; (3) running gas plants—which emit less carbon and other air pollutants—more frequently; (4) improving the efficiency of existing coal plants. But, as mentioned above, states are free to pursue these or any other measures as long as their plan demonstrates that it can achieve the assigned target.

The overall costs—and net benefits—of complying with the Clean Energy Plan will be driven by Florida's choices in drafting and submitting its state plan to EPA. In a directly related proceeding currently before the Florida Public Service Commission (PSC), these very questions are being deliberated on, with the state's major utilities proposing to drastically reduce already anemic energy efficiency programs and, instead, saddle consumers with the bill for massive new investments in fossil fuel infrastructure. The outcomes of that case will have a direct bearing on Florida compliance.[2]

Florida can seize the opportunity presented by the EPA's Clean Power Plan to respond to the challenge of climate change while taking advantage of its renewables and efficiency potential. By crafting a plan that finally begins to capture these untapped resources at the appropriate pace, Florida can create jobs, promote innovation in nascent industries, and become more resilient through the diversification of its energy system.

FLORIDA'S ELECTRIC SYSTEM: AN OVERVIEW

With extensive use of air conditioning during hot summer months and electric heating during the winter months, the average Florida household spends $1,900 every year on electricity—40 percent more than the U.S. average.[3] As shown in Figure 1, most of this electricity is generated from natural gas, which accounted for 62 percent of Florida's generation in 2013; the rest is generated from coal (21 percent), nuclear (12 percent), renewables (2.2 percent), and other resources including oil (2.8 percent).[4]

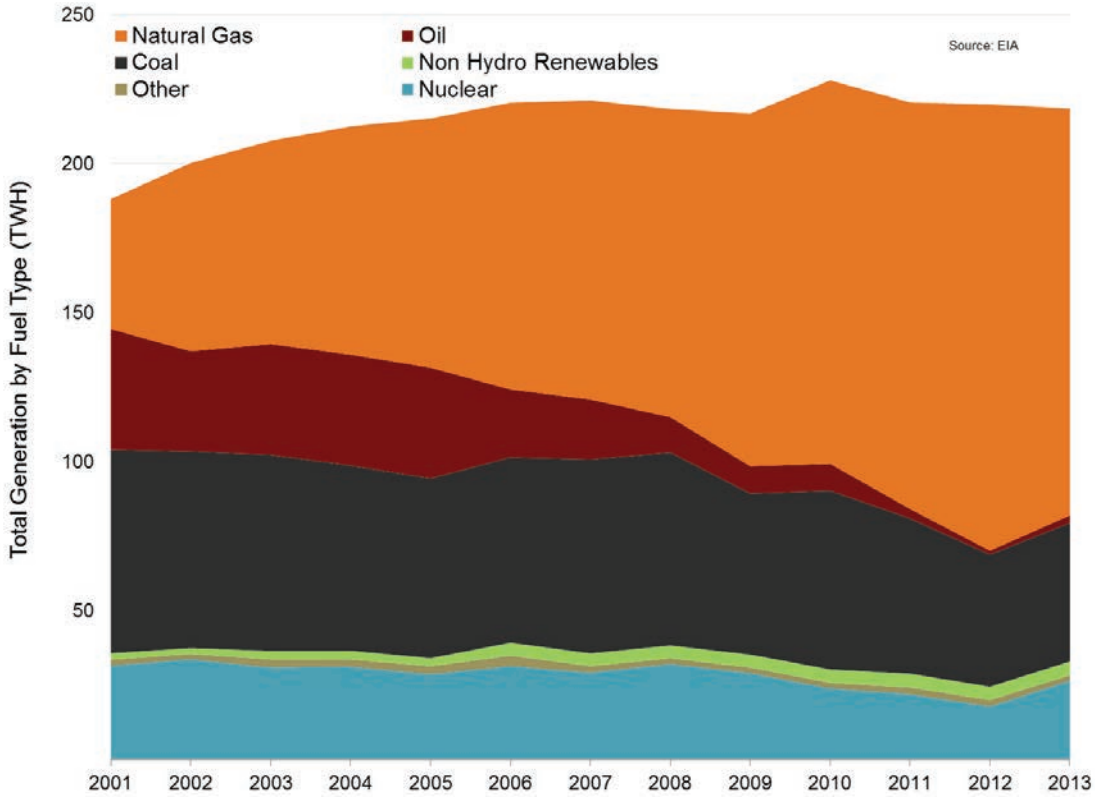
Although coal only makes up 21 percent of generation, it also emits a greater amount of carbon pollution than other energy sources: in 2012, 44.6 percent of the 120 million tons of carbon pollution from the state's power sector came from coal-burning units.[5] Between 2005 and 2012, Florida's power plants reduced their total emissions by 19 percent, primarily because of a general trend of switching from oil to natural gas, but also because of the retirement of some small coal plants. The recession also precluded some load growth, which kept emissions from increasing. Growth that has occurred since has been offset by the move to natural gas and the coal retirements.

Most of Florida's electricity is generated from natural gas. However, the fact that most of the state is bordered by water means that hurricanes and other natural disasters increase the risk of disruption in the natural gas delivery infrastructure. These extreme weather disruptions and a dependence on limited pipeline infrastructure through neighboring states mean that Florida remains reliant on oil-fired units for backup during short but critical periods. The historic price volatility of natural gas is another risk factor. In stark contrast, demand side investments in energy efficiency face none of these infrastructure and economic challenges. In fact, they reduce the need for more costly—and vulnerable—investments in pipelines and new fossil generation.

Nuclear power generation has remained relatively steady after decreasing in 2009 following the long-term shutdown and eventual retirement of a plant located outside of Tampa.

There were more than 1,378 renewable energy projects in Florida in 2013, generating enough energy to power more than 17,000 homes.[6] However, renewable energy still accounted for less than 3 percent of Florida's generation capacity in 2012, despite the fact that about 165,000 gigawatt hours (GWh)— more than 70 percent of the state's energy needs—could be met through solar photovoltaic (PV) installations (on rooftops and ground) alone.[7] In fact, the Sunshine State's largest utility, Florida Power & Light, generates less than 1 percent of their power from solar.[8]

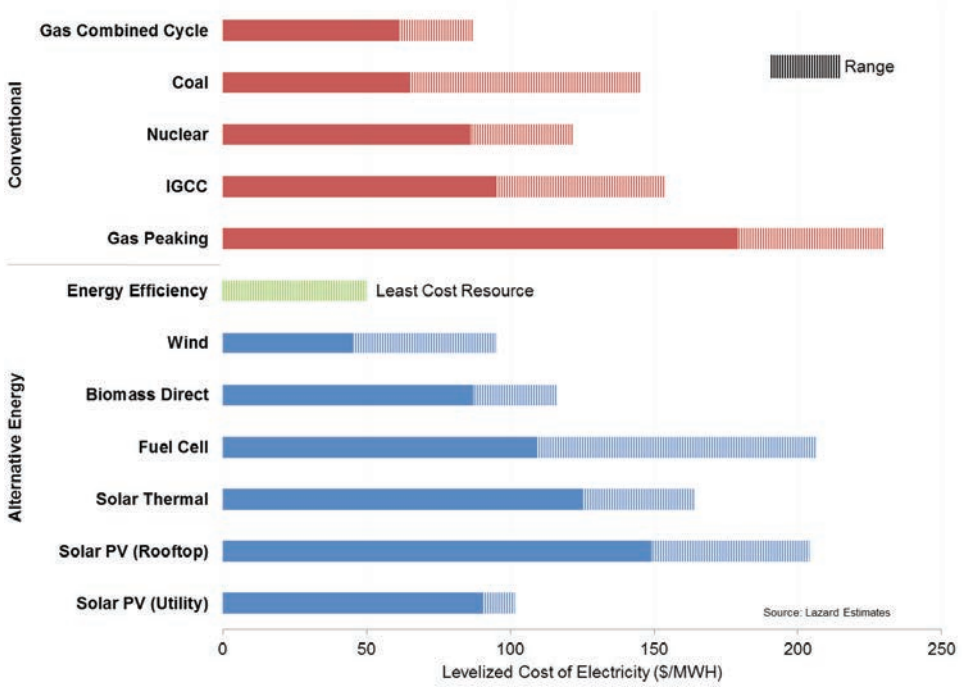
Figure 1: Electric Generation in Florida[9]



RESOURCE CHOICES, COSTS AND EMISSIONS

Figure 2 illustrates the range of costs for generating electricity—including both the cost of building and operating the facility—for a variety of technologies. It is clear that energy efficiency is the lowest cost resource and that renewable technologies are becoming increasingly cost-competitive with traditional generation.

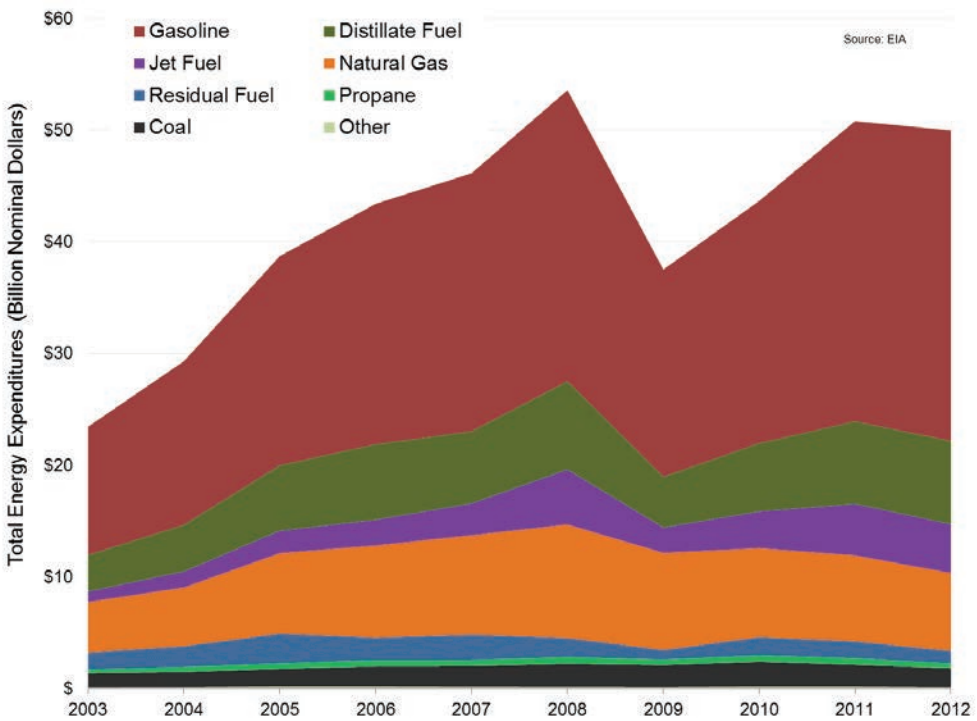
Figure 2: Levelized Cost of Electricity without Tax Incentives



FLORIDA SPENDING ON FOSSIL FUELS

Spending on fossil fuels in Florida has been on an upward trend, which was interrupted by lower prices in 2009 and 2010 and increased fuel switching from oil to natural gas for electric generation.

Figure 3. Annual total spending trends



The overall cost of electric generation has been falling in Florida due to fuel switching to lower cost natural gas.

Figure 4. Electric spending on fossil fuels

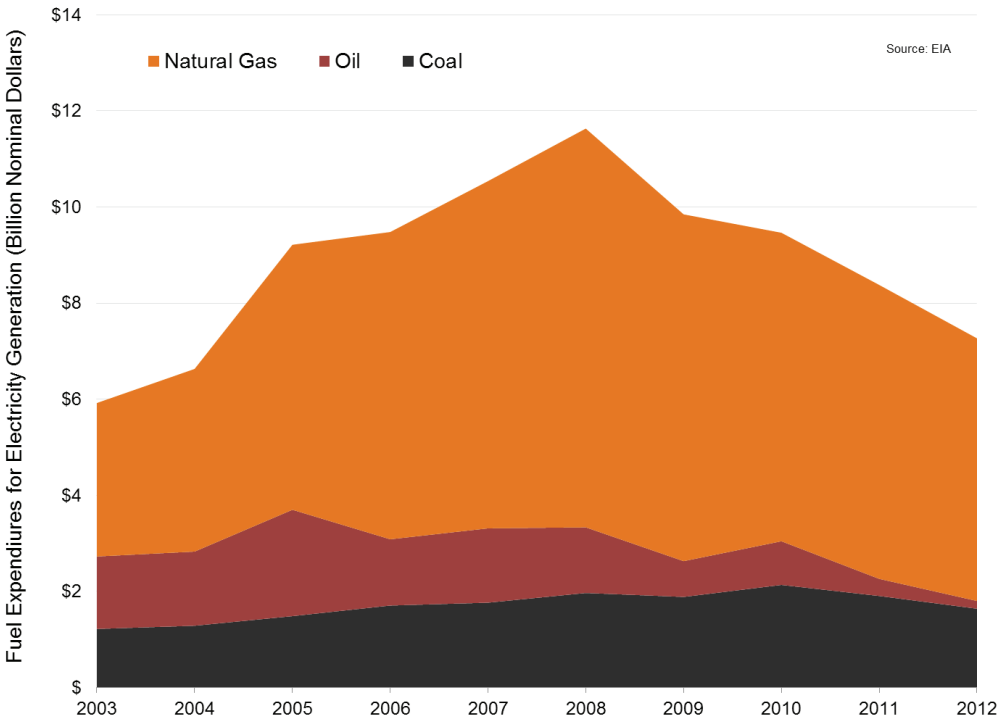


Figure 5 illustrates the dramatic difference in both the cost and amount of traditional generation that is purchased as compared to energy efficiency. Efficiency is the lower cost resource. Replacing electric generation with as much cost-effective efficiency as possible lowers overall energy costs.

Figure 5: Spending in 2012 on electric supply vs. efficiency

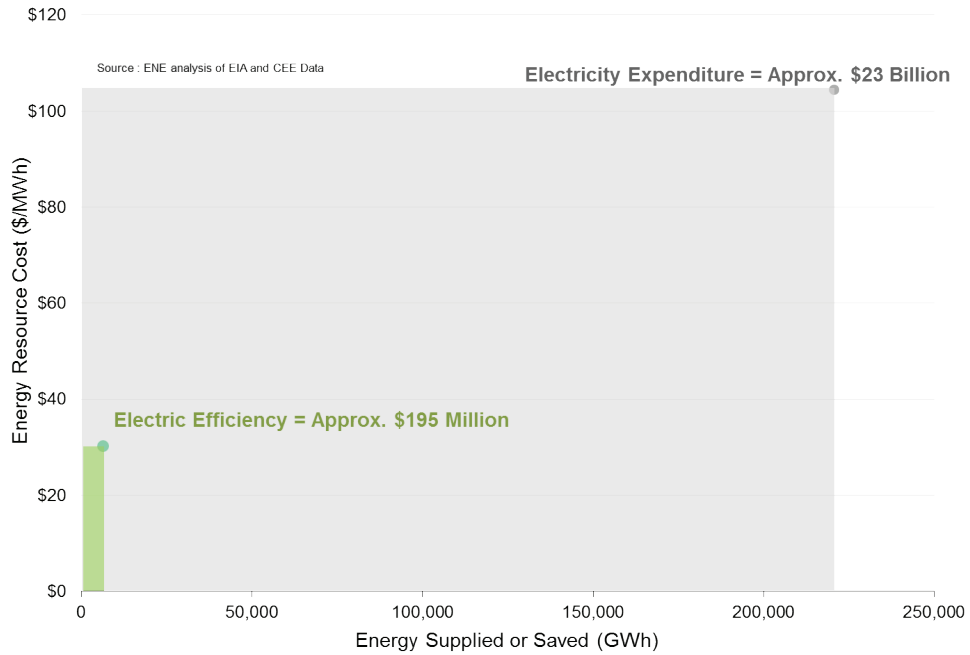


Figure 6: Annual Electric Efficiency Savings – top 10 states vs. FL

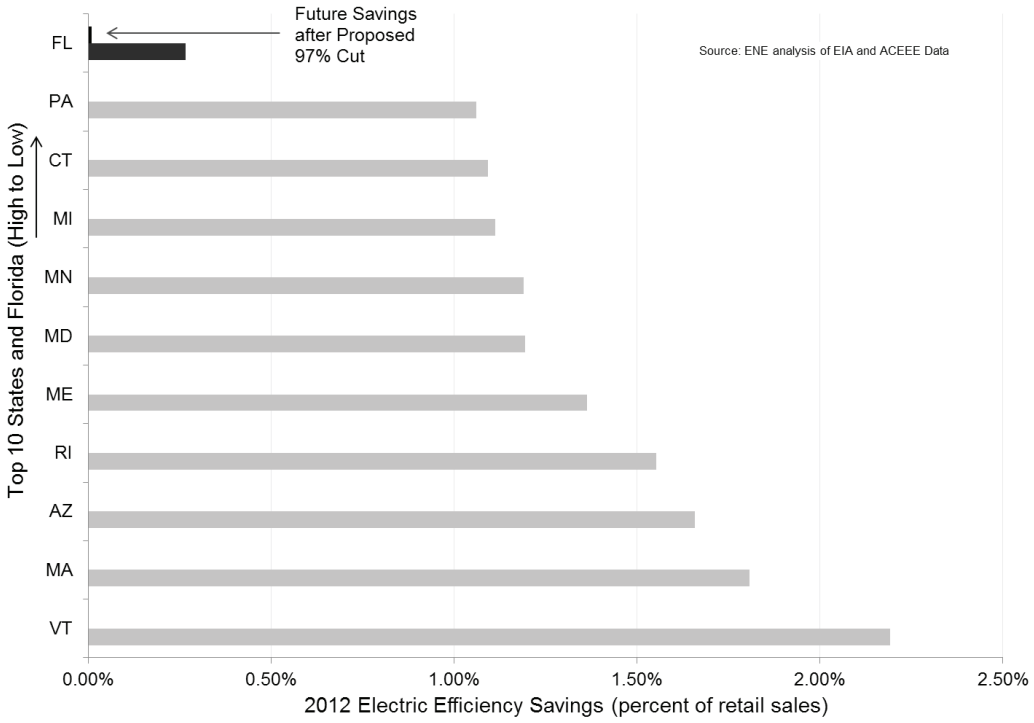
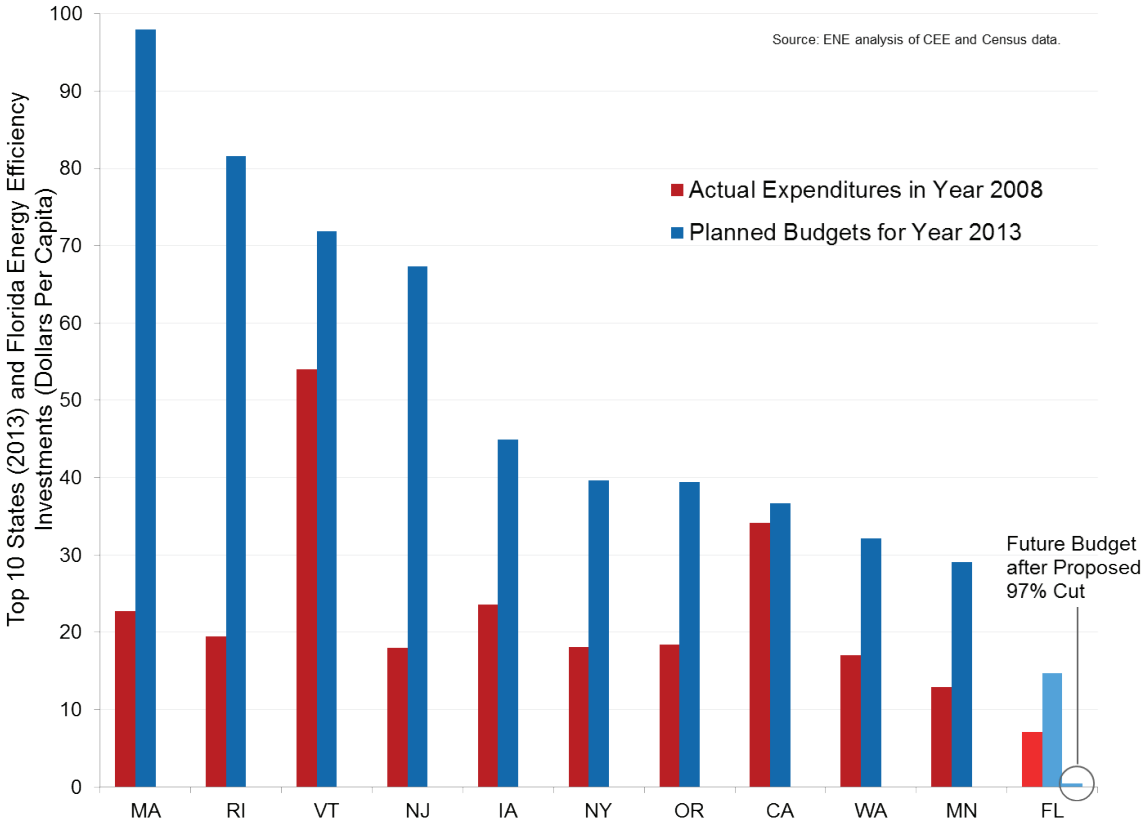


Figure 7: Annual Electric Efficiency Investment Levels – top 10 states vs. FL



RATES VS. BILLS

Increased implementation of energy efficiency in Florida would allow households and businesses to save money on their electricity bills by reducing overall demand and the costs associated with electricity generation. Efficiency, the least expensive resource that Florida has (see Figure 2), allows for cost-effective emission reductions in Florida's electric system without risking system reliability.[10] Reducing demand will result in older, less efficient plants with high emission rates running less frequently and fewer new plants being built. Utility efficiency programs are funded by consumers in the short term, but as illustrated by historical data and countless analyses—including most recently in a report by the Analysis Group—consumers can expect any increases in electricity rates to be more than offset by lower bills because of lower usage, as well as lower electricity prices in wholesale power markets.[11]

As we continue to grow our economy and recover from the recession, and as our world becomes increasingly technologically advanced, old systems will be replaced with electric ones, such as our automobiles, stoves, and manufacturing processes, requiring increasing amounts of electricity. Even if electricity prices were held constant, high demand would lead to higher bills for Florida households and businesses. By stabilizing or lowering demand, energy efficiency can help to keep bills low and postpone and, in some instances, eliminate the need to build new centralized power plants, while also reducing emissions and driving economic growth.

RECENT RESOURCE CHOICES IN FLORIDA

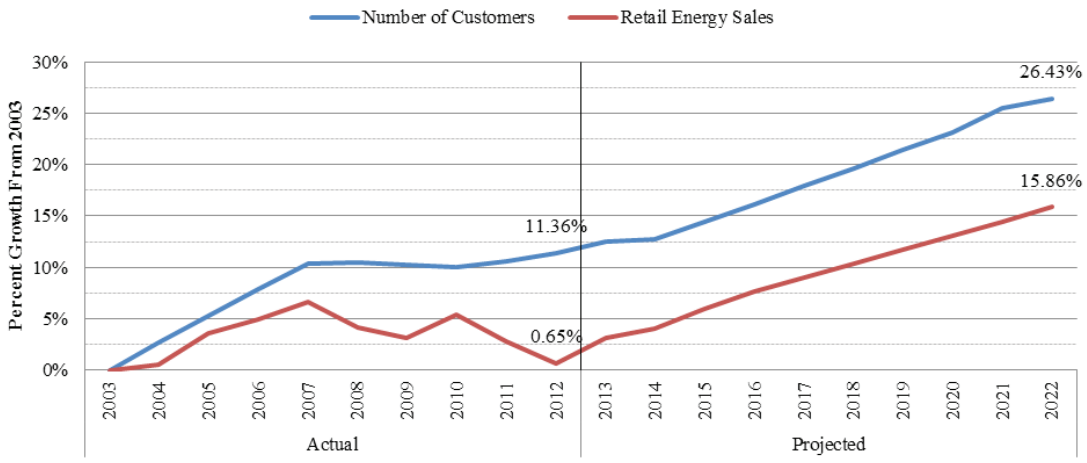
Building codes, appliance efficiency standards, customer education, demand-side energy efficiency programs, and more have all reduced Florida's need for electricity since the passage in 1980 of the Florida Energy Efficiency and Conservation Act (FEECA), which directs the Florida Public Service Commission to set goals for peak demand and annual energy consumption reductions.[12]

Efficiency programs in Florida have already seen some modest gains. By 2022, electric customers are expected to avoid 14,500 GWh with existing programs.[13] Florida's investor-owned utilities performed more than 206,000 residential audits in 2012 (about 3 percent of residential customers), offered more than 100 programs to help households and businesses conserve energy, and invested more than $387 million in efficiency programs (or about 1 percent of utility revenues).[14]

Energy Efficiency

Photo by Rick Reinhard, Bread for the World, under Creative Commons http://www.flickr.com/photos/breadfortheworld/4132086792/

Figure 8: State of Florida – Customer and Retail Energy Sale Growth since 2003[15]



However, Florida has not yet begun to scratch the surface. A vast reservoir of cost-effective energy efficiency potential remains untapped. While the efficiency programs of some utilities exceeded their demand and energy savings goals in every category in 2012, four major utilities had lower-than-expected customer participation.[16] Those programs, plus a Florida building code, updated in 2008, that requires more efficiency in new buildings and a 2006 standard that reduces the electricity needed in air conditioners, will help to reduce summer peak demand to a projected 9,200 MWh below business-as-usual by 2022 and annual energy consumption to 14,500 GWh lower.[17] Nonetheless, energy demand is expected to increase over time (Figure 8)—demand that can be met through energy efficiency. Ensuring a prominent role for energy efficiency will both help Florida comply with its Clean Power Plan emissions reductions requirements and maintain reliability, while also helping households and businesses spend less on their monthly electricity bills.

Despite the evidence that there remains a large volume of untapped cost-effective efficiency that could meet system needs at a much lower cost than the alternatives, Florida utilities have proposed slashing their energy efficiency savings targets by 97 percent in a case currently before the Florida Public Service Commission.[18]

The Florida Energy Efficiency and Conservation Act requires the Florida Public Service Commission to set "appropriate" conservation goals, including energy efficiency goals, for the state's biggest power companies. Proceedings are held at least every five years to set goals for a ten-year period. During this year's proceeding, the state's biggest power companies have proposed dramatic rollbacks in energy savings relative to their current goals. Given the current relatively weak performance of Florida's big power companies in helping customers reduce energy use, approval of the further rollbacks will lock-in very weak goals at a time when the state could ramp up its efficiency programs to cost-effectively reduce carbon pollution.

Photo by U.S. Department of Energy, under public domain http://energy.gov/energysaver/articles/thermographic-inspections

NUCLEAR ENERGY

Florida Power and Light (FPL) operates two nuclear power plants in Florida at Turkey Point Nuclear Generating Station, 25 miles south of Miami, and at St. Lucie Nuclear Power Plant located further north along Florida's Atlantic Coast near Port St. Lucie. In 2012, the capacity of the four nuclear reactors at these plants was 3,316 MW.[19] Between 2012 and 2022, no new nuclear reactors are expected to be built in Florida, though FPL has just completed a five-year program that added a total of 509 MW to its four reactors through substantial power uprates.[20] When the U.S. Nuclear Regulatory Commission (NRC) approves a power uprate at a nuclear reactor, NRC licenses the reactor to operate at increased power output after upgrading plant systems and components. With these power uprates at St. Lucie units 1 and 2 and Turkey point units 3 and 4 now complete, Florida's nuclear capacity is expected to remain relatively steady at 3,573 MW, or about 7 percent of the state's total electric capacity between 2012 and 2022. In 2013, FP&L's four reactors supplied 26,536 GWh of electricity, which included a lower capacity factor for Turkey Point Unit 4 for completion of the power uprate early that year.[21]

The construction of new nuclear reactors in Florida is highly uncertain. In February 2013, Duke Energy announced its decision to permanently retire Florida's Crystal River Nuclear Plant due to the earlier discovery of failures in the reactor's containment building.[22] A nuclear reactor's containment building is intended block the release of radioactivity to the environment in the event of a nuclear accident. Duke Energy also cancelled a new nuclear reactor project in July of that year in Levy County. The cost to Florida ratepayers from Crystal River and Levy could exceed $3 billion.[23]

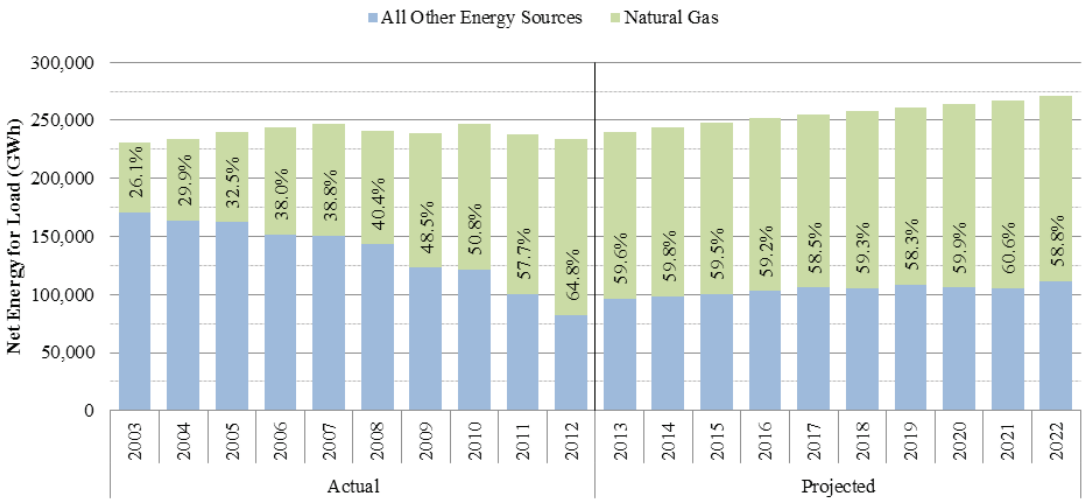
In May of this year, FPL received approval by the Florida governor to build two new nuclear reactors at its Turkey Point plant.[24] However, construction cannot begin on Turkey Point units 6 and 7 until FPL receives a combined construction and operating license from the NRC, not expected before 2022. Notably, Turkey Point has been at risk of shutting down this summer due to rising water temperatures and severe algae blooms in cooling canals at the nuclear power plant, heightening concerns over environmental damage to Biscayne Bay just from the two existing reactor units.[25]

While the eventual price tag of building these plants—or whether they will be built at all—is still unknown, the cost of producing electricity from new nuclear plants is generally predicted to be higher than efficiency, natural gas, or wind, as shown in Figure 2, above. In general, the outlook for nuclear energy is quite negative due to several contributing factors summarized in a recent essay by former NRC Commissioner Peter Bradford: "abundance of natural gas, lower energy demand induced by the 2008 recession, increased energy-efficiency measures, nuclear's rising cost estimates, and the accident at the Fukushima Daiichi Nuclear Power Station further diminished prospects for private investment in new US nuclear plants. Without additional and significant governmental preferences for new nuclear construction, market forces will all but phase out the US nuclear fleet by midcentury."[26] This generally negative outlook for new nuclear reactor construction would likely be compounded in Florida by public resistance to additional nuclear units due to ratepayer costs from Crystal River and Levy, and from concerns over severe storm and sea level rise impacts on reactor safety.

NATURAL GAS

Natural gas is the dominant generating fuel in Florida. In 2012, there were a total of 58,189 MW of capacity available from existing power plants in Florida. This is expected to grow to 66,143 MW within ten years. Natural gas made up 51 percent of that capacity in 2012, a total of 29,646 MW, and produced 65 percent of the state's electricity. According to an annual report that the Florida PSC released exploring Florida's electrical and gas landscape for a ten-year future period, this is projected to grow to 38,923 MW by 2022, despite a decrease in nationwide gas use by 2025. Generation from these oil-fired plants dropped from 12.3 percent of total load in 2002 to 0.3 percent in 2012, largely replaced by generation from natural gas plants. Oil generation is predicted to further decline to only 0.2 percent of load in 2022.[27]

Figure 9: State of Florida – Natural Gas Usage (History & Forecast)[28]



PROPOSED GENERATION

This fall, Duke Energy Florida will begin the process to build a new, combined-cycle natural gas plant in Citrus County to replace the 2,200 MW of power from the retiring Crystal River Nuclear Plant and five-year-old coal-fired units 1 and 2. The plant would bring 1,640 MW online starting in 2018.[29]

Florida Power & Light, the state's largest utility, has recently completed the second of three new combined-cycle natural gas plants.[30] The new plants, Riviera Beach at 1,295 MW and Cape Canaveral at 1,200 MW, have entered commercial service. Both replaced 1960s-era, oil-fired plants.[31] The third and final 1,250 MW plant is expected to be placed into service in Port Everglades by June 2016.[32] Combined cycle plants such as these are used for baseload power and run frequently. They are more efficient but cost more to build. New gas "peaker" plants are also planned in the coming years. Less expensive to build and less efficient, these are typically used only on hours when electric use is high.

Few Florida residents use gas in their homes, so most do not realize how much they depend on gas as a power generation fuel. Because natural gas is the dominant fuel, the threats to the natural gas delivery infrastructure also pose a threat to power generation. These include the potential for gas line failures and accidents due to weather disruptions, limited storage for natural gas (only two days of supply), and the corresponding risk of price escalation during periods of supply constraint or interruptions. FPL, with 72.6 percent of its system energy from natural gas, has received approval from the Florida Public Service Commission to enter long-term gas transportation contracts on a proposed 600-mile pipeline system to bring more gas into the state.[33] The development of underground gas storage facilities, primarily in the southeastern United States, may also provide electric utilities in Florida with more security in their gas supply.[34] While these moves may enhance natural gas supply to the state, the historic price volatility of natural gas exposes customers to potential fuel price spikes from such heavy reliance on natural gas.

In addition, the use of natural gas in Florida has upstream and midstream impacts in other parts of the United States that must be addressed through stronger safeguards and oversight. Although burning natural gas can reduce harmful pollution when it displaces coal in power plants, it is important to note that the extraction of both coal and natural gas is currently resulting in public health threats and pollution that contributes to climate change. Studies have shown dangerous levels of toxic air pollution near fracking sites, and oil and gas extraction have caused smog in rural areas at levels worse than downtown Los Angeles.[35] Oil and gas production have been linked to increased risk of cancer and birth defects in neighboring areas as well as to a risk of increased seismic activity. Constant massive truck traffic associated with large-scale development disrupts communities and creates significant hazards. The millions of gallons of water used in fracking operations not only strain water resources, but end up as vast amounts of contaminated wastewater. Fracking has been reported as a suspected cause in polluted drinking water around the country. And methane—a potent climate change pollutant—leaks rampantly throughout the extraction, processing, and distribution of oil and gas.[36]

While Florida has successfully reduced pollution by transitioning to natural gas, it is possible that the state has become overly dependent on a fuel source that may have an unreliable supply, and which carries with it a number of serious impacts associated with its production and distribution. Natural gas plants produce less air pollution than coal and oil-fired plants, and they are cheaper to build and maintain than nuclear plants, but Florida should pursue a more diversified energy portfolio by maximizing its local, nonemitting, and cost-competitive renewable energy and energy efficiency resources.

RENEWABLES

There are 1,470 MW of renewable generation currently operating in Florida, with an additional 966 MW planned. One-third of this renewable generation is from municipal solid waste and biomass—the rest comes from waste heat, hydroelectric, landfill gas, and solar.[37] Renewables were only 1.29 percent of generation in 2012—this is projected to fall to 1.23 percent in 2022, as load growth outpaces forecasted renewable growth.[38] Renewables still contribute a very small portion of electricity generation in the state, but there is incredible potential for Florida to expand its solar programs and offset the need for polluting generation. Despite this potential, Florida is now in the minority of states that have yet to adopt a Renewable Portfolio Standard, which would encourage the growth of clean energy by requiring utilities to generate a certain percentage of their power from renewable sources.[39] Florida lacks many other state-level incentives for advancing clean energy in the state, but did implement net metering in 2008.[40]

Only about 180 MW of this generation, or about 12 percent, is owned by utilities. The rest is owned by solar firms and utility customers. The latter sector is growing quickly. Net metering, which became effective in 2008, allows a customer to install renewable generation capability, like solar panels, that then offsets the full price of energy from the grid, up to that customer's usage. In 2008, there were 3 MW of renewable capacity installed by utility customers. By 2012, approximately 44 MW of renewable capacity from nearly 5,300 systems had been installed throughout Florida.[42]

Florida's utilities plan to construct or purchase an additional 966 MW of renewable generation over the ten-year planning period. Of the additional capacity, 37 percent is expected to come from solar and 49 percent from biomass.[43] This is progress, but Florida is capable of much more.

According to a study by Lawrence Berkeley National Laboratory and Navigant in 2008, if only 27 percent of residential roofs and 60 percent of commercial ones hosted solar panels, those systems could reach a total of 52,000 MW.[44] Even including planned solar generation through 2022 and including all kinds of solar installations (ground, rooftop, utility-scale), solar installations meet less than 1 percent of the state's potential.

Figure 10: Renewable Generation in 2013 by Resource Type[41]

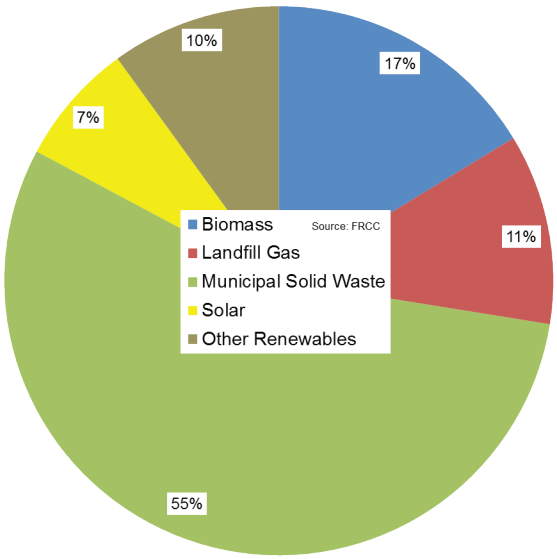


Table 1

Year	Installations	MW
2008	577	3
2009	1,625	13
2010	2,833	20
2011	3,994	29
2012	5,296	44

NRDC ANALYSIS: THE CLEAN POWER PLAN IN FLORIDA

NRDC asked ICF International to analyze the proposed approach using ICF's proprietary Integrated Planning Model (IPM®) and NRDC's assumptions. Used routinely by both the utility industry and regulators to determine cost-effective ways of meeting electricity needs and assess the effects of regulations, the IPM models the entire electric power sector. It integrates extensive information on power generation, fuel mix, transmission, energy demand, prices of electricity and fuel, environmental policies, and other factors.

For this analysis, NRDC made a series of assumptions about fuel prices, energy demand, and policies as inputs for the IPM. NRDC also assumed that new EPA rules limiting emissions of mercury and other air toxins and further reducing sulfur dioxide and nitrogen oxides would be implemented.

The results from the model show that the proposed approach would begin to modernize and clean up America's electricity sector without significantly changing the nation's electricity bill. This is because energy efficiency programs adopted in response to the incentives created by the approach would cause overall demand to decline by as much as 6 percent between 2012 and 2020, rather than increase by 4 percent.[45]

Investments in energy efficiency are the lowest-cost compliance pathway—much cheaper than building new power plants or installing pollution control equipment—so including this flexibility significantly reduces overall costs.

Because of the many benefits of energy efficiency, utilities scaled up annual demand-side management program budgets from $2.7 billion in 2007 to $6.9 billion in 2012,

with a corresponding increase in energy savings. Efficiency investments reduce the need to build additional power plants and infrastructure, reduce wholesale power prices, and deliver significant bill savings to individuals and businesses.[46]

Because substantial reductions in CO2 can be achieved through energy efficiency without building many new power plants or installing lots of expensive pollution control equipment, the total costs of compliance would be low—ranging from no increase (relative to the Reference case) in electricity system costs in the Moderate, Full Efficiency case in 2020, to a net compliance cost of $14.6 billion in the Ambitious, Constrained Efficiency case.[47]

In Florida, optimizing energy efficiency to comply with the Clean Power Plan could have a substantial impact. In 2020, the state could:

- Create 10,000 new jobs—largely through investments in energy efficiency.
- Trim $0.30 per month from the average customer's electricity bill.
- Cut carbon pollution by 11.4 million tons every year, equal to the annual emissions of 2.4 million cars.
- Save Florida households $2 million a month, or $27 million a year, on their electricity bills.
- Save Florida business interests $22 million on their electricity bills.[48]

Because the bulk of investments in energy efficiency focus on making our buildings and homes more efficient, such investments create thousands of jobs that require a broad range of homegrown expertise in industries that have been especially hard hit by the recent recession. There will be greater demand for electricians, heating/air-conditioning installers, carpenters, construction equipment operators, roofers, insulation workers, industrial truck drivers, construction managers, and building inspectors.

CONCLUSION

Florida is at a crossroads regarding its energy and climate future. Decisions made now by the PSC on energy efficiency programs in the FEECA proceeding—along with other near term policies pursued by the state legislature and governor—will have significant economic and environmental implications for years to come. The good news: Florida has no shortage of cost-effective clean solutions to meet its energy needs while also reducing carbon and other pollution. And under the EPA's proposed Clean Power Plan, states are afforded an almost unprecedented degree of flexibility to meet the standard in a manner that reflects the unique conditions in any given state.

Florida will be required to submit a State Plan in the next few years to demonstrate how it will reduce the carbon emissions rate from its power plant fleet by 38 percent by 2030 from 2012 levels (with an interim target to ensure the state is on track). In its modeling exercise to set these targets, EPA made assumptions about what tools and resources Florida has available to achieve them. Energy efficiency is the lowest cost resource available to help Florida meet this target. The leading states have proven that high levels of energy efficiency can be achieved cost effectively, lowering the energy bills of businesses and residents and driving positive impacts to local economies.

In addition to the compelling economic case for prioritizing energy efficiency, increased energy diversity is an important strategy for Florida as this state is squarely in the cross hairs of climate change. Natural gas infrastructure—both pipelines and central power plants—currently makes up a massive share of Florida's electricity supply, and is vulnerable to disruption from severe weather. That severe weather, combined with sea level rise, means that any strategy Florida pursues should strongly prioritize energy efficiency, thereby reducing consumer need for electricity and making them less vulnerable to those disruptions.

Furthermore, the Clean Power Plan lays out deadlines for carbon reduction in Florida. As distributed resources such as energy efficiency and solar PV can be deployed quickly, they should be preferred in Florida's plan to comply with the carbon reduction target. By comparison, large central stations (particularly new nuclear facilities) can take decades to complete and thus represent a higher degree of risk as part of a compliance plan.

In addition to the flexibility regarding which portfolio of compliance options any given state can pursue, the EPA's proposal also explicitly affords states the option to explore regional approaches for compliance, such as the proven model presented by the Regional Greenhouse Gas Initiative (RGGI). Regional approaches present a number of potential advantages over a single-state plan, including but not limited to: reduced compliance costs for regulated entities (which translates to consumer savings), increased flexibility as the pool of emissions reduction options is expanded across more states, and avoided potential electricity market distortions that could arise under a patchwork differing of state plans. Florida can and should begin outreach to the RGGI states and its neighbors in the Southeast to explore potential multi-state approaches.

Florida's fate rests firmly in its own hands. The question before policymakers is whether to pursue a constructive State Plan that maximizes the job creation, economic development, and emissions reduction potential of energy efficiency and renewable energy, or one that puts the interests of the fossil industry before those of Floridians.

ENDNOTES

1 Environmental Protection Agency, "Clean Power Plan-States," March 27, 2013, cleanpowerplanmaps.epa.gov/CleanPowerPlan/.

2 Florida Public Service Commission (FPSC), "Docket 130199 – Commission review of numeric conservation goals (Florida Power & Light Company)," www.psc.state.fl.us/dockets/cms/docketdetails2.aspx?docket=130199. (Accessed August 1, 2014).

3 U.S. Energy Information Administration (EIA), "Florida State Energy Profile," March 27, 2014, www.eia.gov/state/print.cfm?sid=FL.

4 *Ibid.*

5 Powell, Neil, "Power sector CO_2 emissions are down from 2005, but edged up in 2013," SNL Financial, June 04, 2014, www.snl.com/InteractiveX/ArticleAbstract.aspx?id=28273290.

6 The White House Office of the Press Secretary, "Fact Sheet: What Climate Change Means for Florida and the Southeast and Caribbean, White House Office of the Press Secretary," May 6, 2014, www.whitehouse.gov/sites/default/files/docs/state-reports/FLORIDA_NCA_2014.pdf.

7 Navigant Consulting, Inc. "Florida Renewable Energy Potential Assessment," prepared for the FPSC, November 24, 2008, www.psc.state.fl.us/utilities/electricgas/renewableenergy/Full_Report_2008_11_24.pdf.

8 Florida Power & Light, "Providing Clean, Affordable Electric Service," Florida Power & Light, www.fpl.com/environment/plant/power_plant_projects.shtml. (Accessed August 1, 2014.)

9 EIA, "Petroleum's share of Florida's electric generation mix dwindles as natural gas grows," EIA, December 18, 2013, www.eia.gov/todayinenergy/detail.cfm?id=14251.

10 Tierney, Susan, "Greenhouse Gas Emission Reductions From Existing Power Plants: Options to Ensure Electric System Reliability," Analysis Group, May 2014, www.analysisgroup.com/uploadedFiles/Publishing/Articles/Tierney_Report_Electric_Reliability_and_GHG_Emissions.pdf.

11 Hibbard, Paul, et al. ""The Impacts of the Green Communities Act on the Massachusetts Economy," Analysis Group, March 4, 2014, www.analysisgroup.com/uploadedFiles/Publishing/Articles/Analysis_Group_GCA_Study.pdf.

12 The Commission will update those goals by the end of 2014. FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities," October 2013.

13 *ibid.*

14 FPSC, "Annual Report on Activities Pursuant to the Florida Energy Efficiency and Conservation Act," FPSC, February 2014, www.psc.state.fl.us/publications/pdf/electricgas/FEECA2014.pdf; ACEEE, Spendings and Savings Tables for 2013, database.aceee.org/sites/default/files/docs/2013-spending-savings-tables.pdf.

15 FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities," FPSC, October 2013.

16 FPSC, "Annual Report on Activities."

17 *ibid.*

18 Koch, Thomas, Direct Testimony, Docket No. 130199, Exhibit TRK-7, April 2, 2014.

19 International Atomic Energy Agency, "The Database on Nuclear Power Reactors," www.iaea.org/PRIS/. (Accessed August 1, 2014.)

20 Clark, Cammy, "FPL gets overhauled nuclear reactor online at Turkey Point," Miami Herald, April 17, 2013. www.miamiherald.com/2013/04/17/3349671/fpl-gets-overhauled-nuclear-reactor.html.

21 International Atomic Energy Agency, "The Database on Nuclear Power Reactors.

22 Duke Energy, "Crystal River Nuclear Plant," Duke Energy, www.duke-energy.com/power-plants/nuclear/crystal-river.asp. (Accessed August 1, 2014.)

23 Penn, Ivan, "Duke Energy to Cancel Proposed Levy County Nuclear Plant," Tampa Bay Times, August 1, 2013, www.tampabay.com/news/business/energy/duke-energy-to-cancel-proposed-levy-county-nuclear-plant-fasano-says/2134287.

24 World Nuclear News, "Turkey Point expansion gets Florida state approval," World Nuclear News, May 14, 2014, www.world-nuclear-news.org/NN-Turkey-Point-expansion-gets-Florida-state-approval-1405141.html.

25 Staletovich, Jeremy, "Hot Cooling Canals Threaten Shutdown of Turkey Point Nuclear Power Plants," *Miami Herald*, July 16, 2014, www.miamiherald.com/2014/07/16/4239899/hot-weather-threatens-cooling.html.

26 Bradford, Peter A. "How to close the US nuclear industry: Do nothing." *Bulletin of the Atomic Scientists*, 69.2 (2013): 12-21.

27 FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities."

28 *Ibid.*

29 Danenhower, Heather, "Open house scheduled on proposed combined-cycle natural gas plant in Citrus County, Fla.," Duke Energy, June 16, 2014, www.duke-energy.com/news/releases/2014061601.asp.

30 FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities."

31 Federico, Lillian, "Florida PSC Commissioner to meet with RRA clients in NYC," SNL Financial, April 16, 2014.

32 Florida Department of Environmental Protection, "Technical Evaluation & Preliminary Determination," April 2012, www.dep.state.fl.us/air/emission/construction/port_everglades/Draft%200110036-010-AC%20-%20TEPD.PDF.

33 Sullivan, Sean, "The Hot South: Regulatory delays, public fears threaten new gas infrastructure," SNL Financial, April 15, 2014.

34 Hand, Mark, "Fla. Utilities assess options as gas surges to nearly 65% of generation load," SNL Financial, November 07, 2013.

35 NRDC, "Risky Gas Drilling Threatens Health, Water Supplies," NRDC, www.nrdc.org/energy/gasdrilling/. (Accessed August 4, 2014)

36 *Ibid.*

37 FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities."

38 Florida Reliability Coordinating Council, "2013 Regional Load & Resource Plan," FPSC, July 2013, www.psc.state.fl.us/utilities/electricgas/docs/FRCC_2013_Load_Resource_Plan.pdf.

39 Navigant Consulting, Inc. "Florida Renewable Energy Potential Assessment."

40 DSIRE, "Florida: Incentives/Policies for Renewables & Efficiency," U.S. Department of Energy (DOE), July 2014, www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=FL36F&re=1&ee=1.

41 Florida Reliability Coordinating Council, "2014 Regional Load & Resource Plan," FPSC, July 2014, www.psc.state.fl.us/utilities/electricgas/docs/FRCC_2014_Load_Resource_Plan.pdf. The figure shows the percentage of energy generated in 2013 by each category. "Other" includes biofuels, agricultural byproducts, other waste sources, and hydro.

42 FPSC, "2013 Ten-Year Site Plans for Florida's Electric Utilities."

43 *ibid.*

44 Navigant Consulting, Inc. "Florida Renewable Energy Potential Assessment."

45 NRDC, "Cleaner and Cheaper: Using the Clean Air Act to Sharply Reduce Carbon Pollution from Existing Power Plants, Delivering Health, Environmental, and Economic Benefits," NRDC, http://www.nrdc.org/air/pollution-standards/files/pollution-standards-IB-update.pdf (Accessed August 4, 2014).

46 *Ibid.*

47 *Ibid.*

48 NRDC, "Carbon Pollutions Standards Fact Sheet: Florida," NRDC, http://www.nrdc.org/air/pollution-standards/files/cps-state-benefits-FL.pdf, (Accessed August 4, 2014).

Natural Resources Defense Council
40 West 20th Street
New York, NY 10011
212 727-2700
Fax 212 727-1773

Beijing

Chicago

Los Angeles

Bozeman

San Francisco

Washington, D.C.

www.nrdc.org

www.nrdc.org/energy
www.facebook.com/nrdc.org
www.twitter.com/nrdc

Printed on recycled paper