Shawna Senko

From: Diana Csank <diana.csank@sierraclub.org>
Sent: Wednesday, October 16, 2013 10:57 AM
To: Phillip Ellis; tmatthews@psc.state.fl.us; Filings@psc.state.fl.us; Records Clerk
Subject: Supplemental Information re Ten-Year Site Plan Workshop
Attachments: 2013 10 16 Supplemental Information Following 2013 Ten-Year Site Plan Workshop.pdf; 2013 10 16 Supplemental Information.7z

Dear Mr. Ellis and Ms. Matthews:

Thank you for accepting the attached supplemental information that we agreed to forward to more fully address the questions raised by the Commissioners during the September 25 Workshop.

Should you have any questions, or any difficulty opening the attachments (a letter and 6 compressed attachments), please contact me.

Regards,

Diana

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Re: Supplemental Information Following 2013 Ten-Year Site Plan Workshop

Dear Mr. Ellis and Ms. Matthews:

Thank you for the opportunity to present to the Commission at the September 25, 2013, Ten-Year Site Plan Workshop. At the Workshop the Commissioners raised a number of questions in response to our presentation and we agreed to provide supplemental information to more fully address those questions. This letter transmits and explains that supplemental information.

As discussed at the Workshop, the information supports deferring plan approval until the utilities provide a comparative analysis of the costs and quantified risks of all relevant energy resources, including supply side and demand side. Substantiating the cost-effectiveness of planned investments in this way is squarely within the utilities' ten-year site plan data requirements. See F.A.C. § 25-22.072 (incorporating by reference Form PSC/RAD 43-E (11/97), requiring evidence of "lowest cost possible" planned energy). Yet the utilities' plans lack the requisite comparative analysis of the costs and risks of the various energy resources available to Florida. Without this analysis by the utilities, the Commission cannot meaningfully review the plans for enumerated statutory criteria, such as "possible alternatives to the proposed plan," nor can the Commission evaluate and plan for risks like "disrupted energy supplies or unexpected prices surges." F.S. § 186.801 (citing State Comprehensive Plan, F. S. § 187.201). For these reasons, the information herein supports the Commission deferring plan approval, including approval of planned new gas-burning capacity, until the utilities provide the missing comparative cost-risk analysis to substantiate the cost-effectiveness of their proposed investments.

Moreover, the Sierra Club urges the Commission to follow the regulatory best practice of making the comparative cost-risk analysis available for public comment. Doing so would provide the Commission with a fuller critique of the options for addressing pressing issues, including the need to: (1) plan for significant coal and nuclear retirements; (2) appropriately minimize Florida's exposure to natural gas price shocks and supply disruptions; (3) evaluate and seize opportunities to pursue cost competitive energy resources; and 4) hedge against the costs and risks of fossil fuel-burning generation capacity.

I. A Comparative Analysis of Costs and Quantified Risks of All Relevant Resources (Supply Side and Demand Side) Is Critical for Prudent Resource Planning.

Prudent resource planning minimizes costs and risks. To minimize not just the present value of revenue requirements—alone, a limited focus of resource planning—but also risk, planners generally evaluate a wide range of scenarios (not just the scenario deemed most likely, the "reference

case"). Planners do this through a number of different methods. Many planners use probabilistic modeling and sensitivity analyses for inputs including but not limited to: load growth, fuel prices, electricity spot prices, market structure, environmental regulations, and other risk factors. In addition, some planners also rely on other analytic aids, including market reports, requests for proposals, and stakeholder feedback. This section addresses the Commissioners' questions about planning for cost and risk with examples and explanations of emerging best practices.

a. CERES Report—Guidance Primarily for Commissions

Practicing Risk-Aware Electricity Regulation: What Every State Regulator Needs to Know offers guidance that is especially relevant to states like Florida that are "facing substantial coal generation retirements and evaluating a spectrum of resource investment options." Ron Binz & CERES, *Practicing RiskAware Electricity Regulation: What Every State Regulator Needs to Know* (2012)("*Risk- Aware*") at iii, Ex. 1. Like other reports discussed below, this report reviews existing practices and makes recommendations for valuing and selecting plans to minimize risk. What sets this report apart, and why the Sierra Club has highlighted it, is its focus on the role of state regulatory utility commissions in the planning process.

Risk-Aware urges commissions to proactively identify and address risks. *See, e.g., id.* at 14. This includes gathering information on all relevant future conditions and investment alternatives, not only the conditions and investments identified by the utilities. *Id.* at 46. Further, by fostering transparency and stakeholder engagement throughout the planning processes, commissions are able to build trust and enhance understanding of energy options among all interested parties. *Id.* at 11.

During the Workshop, Commissioner Graham expressed interest in risk assessment methodology. *Risk-Aware* shows one way that planners can systematically assess risk. The report draws on decades of relevant energy regulation and finance experience to develop a composite cost-risk analysis showing the relative cost and relative risk among a wide range of investment alternatives (e.g., nuclear, natural gas combined cycle, solar, efficiency programs). *See id.* at iii, Figures 14 and 15. Spurring commissions to develop tailored assessments like this for their respective jurisdictions, *see id.* at 34, *Risk-Aware* describes its risk assessment methodology in a step-by-step fashion. First, *Risk-Aware* examines twenty-two resources across seven risk categories, wherein the report describes and then quantifies the risks associated with each resource. *See id.* at 30 – 34; *see also id.* at Figures 13, 16. Next, *Risk-Aware* establishes composite risk indices for each resource. *Id.* at 34 – 36. Finally, *Risk-Aware* compares relative risk and relative cost. *Id.* at Figure 17.

b. Nicholas Institute Report—Risk Assessment Made Easier

Least-Risk Planning for Electric Utilities, recently published by the Nicholas Institute for Environmental Policy Solutions at Duke University, presents another relatively easy way to address risks in resource plans. *See* David Hoppock & Patrick Bean, *Least-Risk Planning for Electric Utilities* (2013) ("*Least-Risk Planning*"), Ex. 2. *Least-Risk Planning* emphasizes that "**evaluating a wide range of potential scenarios [such as 10 to 15] that fully capture the realistic range of all relevant sources of uncertainty is critical.**" *Id.* at 11 (emphasis added). Picking up where traditional scenario analysis leaves off, *Least-Risk Planning* suggests that modeling outputs like production costs and fixed costs can be used to compare the costs and quantified risks of investment alternatives. *Id.* at 14. *Least-Risk Planning* illustrates how, with three, then four investment alternatives (deliberately simplified examples), it reviews the steps by which a utility would identify trends, risks, and the hedge value of

energy efficiency programs and renewable resources like wind and solar. *Id.* at 8, 14. *Least-Risk Planning* maintains that utility planners and state regulators would find this method "attractive" (no new tools or modeling required), "sensible" (not too pessimistic or too optimistic about risks), and complementary to traditional scenario analysis. *Id.* at 5, 6. Indeed, some utilities like the Tennessee Valley Authority have adopted a similar risk assessment method already. *Id.* at 6 (citing 2011 TVA Integrated Resource Plan).

c. Regulatory Assistance Project & Synapse Report—A Survey of Several States

Best Practices in Electric Utility Integrate Resource Planning, recently commissioned by the Regulatory Assistance Project and prepared by Synapse Energy Economics, reviews emerging best practices in several states' resource planning processes. *See* Bruce Biewald & Rachel Wilson, *Best Practices in Electric Utility Integrate Resource Planning* (2013) ("*Best Practices*"), Ex. 3. To be sure, many other reports examine resource planning best practices, and *Best Practices* cites some of these reports. However, the strength of *Best Practices* is its breadth and depth of coverage, as it reviews the practices of several states from across the Nation and prepares case studies on three states in particular—Arizona, Colorado, and Oregon.

Overall, *Best Practices* recommends active commission oversight, stakeholder engagement, and transparency. *See id.* at 26, 27. For example, commissions in Arkansas and Hawaii promote transparency and robust stakeholder engagement through their planning rules. *Id.* at 26, 27. The Kentucky and Colorado commissions also allow interveners to file, and require utilities to respond to, written interrogatories and comments. *Id.* at 21, 27. In turn, the supplemental information from the interveners and utilities supports these commissions' planning oversight. *Id.*

Best Practices stresses transparent modeling because "[m]odeling in general is only as good as the *input assumptions* used to generate the portfolios." *Id.* at 25. Specifically, the report suggests: "A proper [resource plan] will include discussion of the inputs and results, and appendices with full technical details. Only items that are truly sensitive business information should be treated as confidential, because such treatment can hinder important stakeholder input processes." *Id.* at 32. Further, the best practice for commissions is to "take an active role in assessing the validity of inputs used by the utilities in their filings, the resulting outcomes, and whether these are consistent with both the [relevant state] rules and the state's energy policies and goals." *Id.* at 27. Limiting transparency hinders a commission's ability to perform this oversight. *See, e.g., id.* at 25.

Best Practices also offers several insights on how to optimize modeling results. The first insight is to avoid "inadvertently exclud[ing] combinations of options that deserve consideration." *Id.* at 31. This could happen when utilities define (potentially biased) future resource portfolios, rather than deferring to models to select the portfolios. *See id.* Alternatively, this could happen when "users constrain optimization models so that a model may not, given the cost, select the quantity of a specific resource that [the user] may want," such as where a utility may limit the amount of a resource that a model can consider—for instance, limiting investments in energy efficiency to the minimum level that a state policy may require, rather than allowing the model to consider larger investments in energy efficiency that the model may otherwise identify as the least-cost, least-risk means of addressing energy needs. *Id.* at 27. Against such defects, the report offers this cure:

> **The best [resource plans] create levelized cost curves for demand-side resources that are comparable to the levelized cost curves for supply-**

> **side resources**. ... By developing cost curves for demand-side options, planners allow the model to choose an optimum level of investment. So if demand-side resources can meet customer demand for less cost than supply-side resources, as is frequently the case, this approach may result in more than the minimum investment levels required under other policies.

Id. at 29 (emphasis added) (quoting State and Local Energy Efficiency Action Network, *Using Integrated Resource Planning to Encourage Investment in Cost-Effective Energy Efficiency Measures* (2011), at 6, Ex. 4).

Best Practices also identifies the risks that are commonly addressed by scenario or sensitivity analyses in resource plans. These include: "fuel prices (coal, oil, and natural gas), load growth, electricity spot prices, variability of hydro resources, market structure, environmental regulations, and regulations on carbon dioxide (CO2) and other emissions." *Best Practices* at 5. The case studies on Arizona, Colorado, and Oregon illustrate how resource plans incorporate risk, as discussed below.

- **Arizona**: During the state's 2012 planning process, the Arizona utility modeled low and high scenarios for what it deemed to be "major cost inputs," including: natural gas prices, CO2 prices, production and investment tax credits for renewable resources, energy efficiency costs, and monetization of SO2, NOx, PM, and water. *See id.* at 16. During the modeling, the utility monitored certain metrics to compare and evaluate potential resource investment alternatives. *Id.* at 16-17. In addition to revenue requirements, these metrics included: fuel diversity, capital expenditures, natural gas burn, water use, and CO2 emissions. *Id.* at 16. Arizona's final 2012 resource plan and materials from five stakeholder meetings are available at www.aps.com/en/ourcompany/ratesregulationsresources/resourceplanning/Pages/resource-planning.aspx.

- **Colorado**: During the state's 2011 planning process, the Colorado utility evaluated its baseline case and eight alternative cases under several sensitivity scenarios, altering the price of CO2 emissions, renewable tax incentives, natural gas prices, and level of sales. *See Best Practices* at 19-22. Notably, per an intervener's recommendation the Colorado Public Utilities Commission asked the utility to adopt higher energy efficiency goals. *Id.* at 27 (citing Colorado Public Utilities Commission, Decision No. C11-0442; Docket No. 10A-554EG (2011)). The utility incorporated the new goals into its calculation of resource need in subsequent modeling. *See* Public Service Company of Colorado, *2011 Electric Resource Plan* (2011), available at www.xcelenergy.com/About_Us/Rates_&_Regulations/Resource_Plans/PSCo_2011_Electric_Resource_Plan.

- **Oregon**: Of the three case studies, Oregon's planning process was the most comprehensive. *Best Practices* at 23. During the state's 2012 planning process, the Oregon utility defined 67 input scenarios including: alternative transmission configurations, CO2 price levels and regulation types, natural gas prices, and renewable resource policies. *Id.* at 24. Sensitivity cases examined additional incremental costs for coal plants, alternative load forecasts, renewable generation costs and incentives, and demand-side management resource availability. *Id.* Top resource portfolios were identified through a combination of lowest average portfolio cost and worst-case portfolio cost resulting from 100 simulation runs. *Id.* Final portfolios were selected after considering such criteria as risk-adjusted portfolio cost, 10-year customer rate impact, CO2 emissions, supply

reliability, resource diversity, and uncertainty and risk surrounding greenhouse gas and renewable portfolio standard policies. *Id.*; *see also* PacifiCorp, *2011 Integrated Resource Plan*, available at www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2011IRP/2011IRP-MainDocFinal_Vol1-FINAL.pdf.

II. The Commission Should Not Approve the Utilities' Ten-Year Site Plans: The Commission Cannot Determine What the Reliable, Least-Cost Energy Mix Is Because the Utilities' Plans Are Missing the Requisite Comparative Analysis of Costs and Quantified Risks of All Relevant Energy Resources, Including Supply Side and Demand Side.

Commissioner Brown requested clarification of the Sierra Club's recommendations for further action by the Commission. In short, we recommended that the Commission defer approval of the plans until the utilities provide the requisite comparative analysis of the costs and quantified risks of all relevant energy resources, including supply side and demand side. As discussed below, the missing analysis is legally required, and it will put the Commission—and the public—in a better position to ensure low-cost, low-risk power for Florida, and to understand the reasoning behind the investments that are ultimately selected. Moreover, subjecting such analysis to public notice and comment will provide the Commission with a fuller critique of the strengths and weaknesses of the plans.

a. The Utilities' Ten-Year Site Plans Must Provide an Analysis of the Relative Cost and Relative Risk of All Relevant Energy Resources that is Sufficient to Allow the Commission to Classify the Plans as Suitable or Unsuitable, Suggest Alternatives to the Plans, and Ensure a Reliable, Least Cost Power Supply for Florida.

Ten-year site plans are Florida's primary vehicle for collecting information about, and preparing for future conditions related to, the state's power supply. The Commission established the legally required data requirements in Form PSC/RAD 43-E (11/97), "Electric Utility Ten-Year Site Plan Information and Data Requirements" ("Form"). *See also* F.A.C. § 25-22.072 (incorporating the Form by reference). Notably, the Form requires utilities to describe their planning assumptions, modeling methods, and outcomes. *See* Form at 4-6 (enumerating these requirements in the section titled "Other Planning Assumptions and Information"). Moreover, each plan must "provide sufficient information to assure the Commission that an adequate and reliable supply of electricity at the lowest cost possible is planned for the state's electric needs." *Id.* at 4. Here, cost should be considered over the life of the investment, and to ensure at a robust understanding of potential costs, the plans should quantify the risks that could materially affect the costs, including factors identified above that are routinely considered by other commissions, such as fuel price surges and regulatory risks.

This reading of cost is supported by the governing Florida statutory provisions, F. S. § 186.601 (Ten-Year Site Plans) and § 187.201(11)(b)(10) (State Comprehensive Plan), which call for such circumspect planning. Under mandatory statutory criteria, the Commission must reviews each utilities' ten-year site plan for, among other things, "possible alternatives to the proposed plan," and must evaluate and prepare for risks like "disrupted energy supplies or unexpected prices surges." *See* F.S. § 186.801 (citing State Comprehensive Plan, F.S. § 187.201). Without a comparative cost-risk analysis, the Commission lacks the prerequisite information to perform this statutorily required

planning oversight. Moreover, as discussed at the Workshop and in our comments, the missing analysis hinders the Commission's ability to fulfill its over-arching statutory duty to maintain "sufficient, adequate, and efficient service" and "fair and reasonable rates" for all Floridians. *See, e.g.*, F.S. § 366.03; *see also* Sierra Club, Comments on 2013 Ten-Year Plan Submittals Comments (2013) ("Sierra Club Comments"), Ex. 5.

b. The Utilities' Ten-Year Site Plans Fail to Provide the Required Analysis of the Relative Cost and Relative Risk Among the Relevant Energy Resources Available to Florida.

Our comments and Workshop presentation demonstrated how two utilities in particular have failed to include sufficient cost and risk information in their plans. To recap, Gulf Power and Duke Energy Florida's plans do not show the following:

- Alternative load forecasts, accounting for significant positive errors in historic forecasts;
- Implications, costs, and expected timelines of upcoming retirement/retrofit decisions;
- Alternative investment scenarios beyond the selected "reference case" or "base expansion case";
- A sensitivity analysis of fuel price, carbon price, supply disruptions, and other risks;
- A direct comparison of levelized cost curves for demand-side and supply-side resources;
- A direct comparison of the relative risk among all potential energy resource investment; and
- A full accounting of energy efficiency and renewable resource options, including (but not limited to) renewable energy contracts and self-build options for utility scale solar systems.

Without the missing analysis, the Commission cannot meaningfully verify whether the proposed investments—such as Duke's "planned power purchases from 2016 through 2020 and planned installation of combined cycle facilities in 2018 (1,307 MW, winter capacity) and 2020 (another 1,307 MW) at undesignated sites," Progress (now Duke) Energy Florida TYSP at 3-2—do in fact provide reliable, least-cost power.

c. The Commission Should Require the Utilities to Conduct a Comparative Cost-Risk Analysis and Subject the Analysis to a Public Comment Period.

As discussed at the Workshop, Florida's energy system is at a crossroads and planning presents a critical opportunity to enhance the understanding of energy options among all interested parties. The Sierra Club urges the Commission to require the utilities to conduct a comparative cost-risk analysis and invite interveners' comments on this analysis. Doing so now would help the Commission address pressing issues, including the need to: (1) plan for significant coal and nuclear retirements; (2) appropriately minimize Florida's exposure to natural gas price shocks and supply disruptions; (3) evaluate and seize opportunities to pursue cost competitive energy resources; and 4) hedge against the costs and risks of fossil fuel-burning generation capacity.

i. The Utilities Should Provide a Full Retirement/Retrofit Analysis of Existing Generation Capacity to Ensure an Accurate and Meaningful Cost-Risk Comparison of Energy Options Going Forward.

While Gulf Power and Duke Energy Florida have confirmed the Sierra Club's retirement predictions from last year, we expect (but have not seen plans that address) more coal-burning unit retirements within the planning horizon, such as Lansing Smith 1 and 2. As we have seen, the Federal

Government has and may well continue to ratchet down power plant emissions under the Clean Air Act to address public health and welfare concerns. These regulations could impact the economic viability of certain fossil-fuel burning capacity in Florida. Indeed, the Florida Reliability Coordinating Council (FRCC) has acknowledged "potential multiple generation retirements from the same site, starting as early as April 2015." FRCC, 2013 Load & Resource Reliability Assessment Report (2013). In any event, we continue to urge the Commission to require the utilities to provide a straightforward retirement/retrofit analysis, including decommissioning costs and timelines for existing generating capacity, as well as their implications for the utilities' generating needs. This information is critical for developing an accurate cost-risk comparison of all relevant energy resources available to Florida going forward.

ii. The Utilities Should Identify and Analyze Options to Minimize Florida's Exposure to Natural Gas Price Shocks and Supply Disruptions.

One of the utilities' plans most troubling defects is their unwarranted reliance on more natural gas imports—channeling money out-of-state and worsening Florida's exposure to natural gas price shocks and supply disruptions. As the Sierra Club has stressed, nowhere do the plans substantiate that proceeding this way is cost effective or necessary. For example, Duke and Gulf Power forecasted load growth near 1% per year over the planning horizon, which is well within the range that demand-side management could address at a lower cost. *See* Sierra Club Comments.

Moreover, natural gas-burning capacity is risky in ways that alternative (zero fuel cost) energy is not. Here, we recap three sources of risk. First, the U.S. Energy Information Administration (EIA) dramatically revised downward its estimates of the domestic shale gas reserves, by 42% nationally, and by 66% in the Marcellus. *See* EIA, *Advanced Energy Outlook 2012 Early Release Overview* (2012) at 9. Second, the natural gas industry is moving quickly to export liquefied natural gas. *See, e.g.,* Federal Energy Regulatory Commission, *Proposed/Potential North America LNG Import/Export Terminals*, available at www.ferc.gov/industries/gas/indus-act/lng/lng-proposed-potential.pdf (last visited October 11, 2013). Both of these factors—declining supply and increasing demand at international market prices—create a risk of materially higher natural gas prices in the future. To be sure, numerous studies examine the implications of natural gas exports, and at the Workshop we highlighted EIA's higher risk case predicting that rapid expansion of gas exports could drive up domestic natural gas prices at the wellhead by as much as 54% ($3.23/Mcf) by 2018. Whether or not this particular rate of price increase comes to pass, it certainly suggests that the Commission would benefit from a transparent analysis of price shock risks before it approves further natural gas generation in Florida—an analysis which is lacking in the plans.

Third, Florida's limited natural gas transport infrastructure raises the specter of supply disruptions. Planning should address such risks and should include the costs of building additional infrastructure, such as additional natural gas pipelines, in evaluating energy investment options. For all these reasons, the Commission should instruct the utilities to identify in their cost-risk comparisons all relevant energy resource investment options that minimize Florida's exposure to natural gas prices shocks and supply disruptions.

iii. The Utilities Should Identify and Justify How They Value and Select Alternative Energy Resources, Including the Value that Renewable Energy And Energy Efficiency Provide For Capacity and Energy Needs,

and As A Hedge Against the Risks and Costs of Further Natural Gas Generation.

As we identified at the Workshop, alternative energy investments are low-cost, low-risk, and compare favorably to conventional generation. The Commission would benefit from a full analysis of such resources in the utilities' ten-year site plans. Duke Energy Florida's plan has served as our example of just how little information the utilities have provided on alternative energy investments. This dearth of information prevents the Commission from verifying that cost-effective alternative energy investments (demand side and supply side) have been appropriately valued and incorporated into the plans. Duke's plan states that by March 2013 the utility's ongoing Request for Renewables logged over 310 responses—responses that are not disclosed or described in Duke's plan. *See* Duke TYSP at 3-21. Duke's plan also omits the option of self-building renewable energy projects. The plan plainly lacks the requisite comparative cost-risk analysis, and even lacks the statutorily required "statement describing how the production and purchase of renewable energy resources impact the utility's present and future capacity and energy needs." *See* F.S. § 186.801(2)(j).

The Commission should not approve such defective plans, especially since the 2012 legislative study determined that Florida has a track record of cost-effective alternative energy investments that have yielded net benefits to Florida's ratepayers. *See* Galligan et al., *Evaluation of Florida's Energy Efficiency and Conservation Act* (Dec. 7, 2012) ("*FEECA Study*") at 9, 10. Instead, we continue to strongly recommend that the Commission instruct the utilities to provide analyses that identify: (1) how they valued and selected alternative energy resources, (2) how these resources impact the utilities' capacity and generation needs, and (3) how the utilities have captured the hedge value of alternative energy resources against the risks associated with further expansion of fossil fuel-burning generation, especially of natural gas.

III. The Commission Should Demand a Clear and Thorough Analysis of the Comparative Costs and Risks of Energy Resources, Including Enhanced Energy Efficiency and Renewable Energy Investments, Because in Today's Market, the Analysis May Well Show that it is More Prudent to Invest in Energy Efficiency and Renewable Energy than Natural Gas.

Although at the Workshop we spent a considerable amount of time addressing risks of further natural gas development, the other half of a cost and risk analysis is cost. As discussed at the Workshop, energy markets—and the costs of various types of energy resources, both supply and demand—are rapidly changing. Renewable energy generation continues to plummet in price, while coal and nuclear generation continue to increase, and natural gas is showing clear and increasing signs of significant upward pressure. In this mix, energy efficiency continues to be by far the cheapest energy resources in the market today.

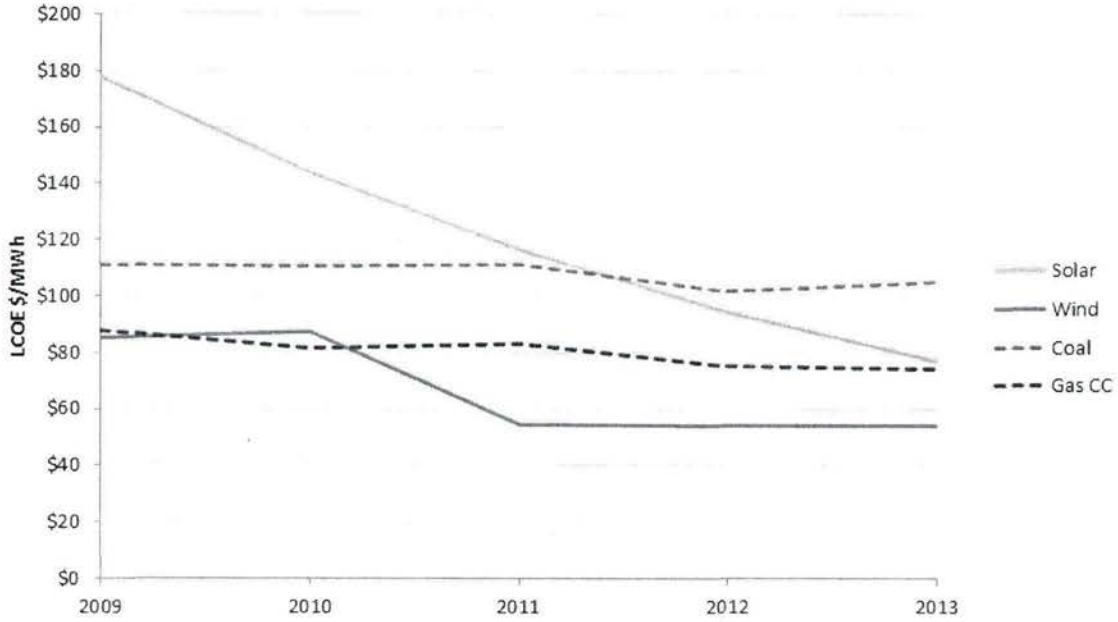
As we noted at the Workshop, there are any number of ways to evaluate such costs. Below we identify some of the more common means of evaluating costs, and reiterate information indicating what those costs are in today's market.

a. Levelized Cost of Electricity Is One Common Comparative Metric of The Costs of Energy Resources.

Levelized cost of electricity (LCOE) is one key metric for comparing resource costs, and one commonly cited source of LCOE data is the international advisory and asset management firm Lazard Ltd, *Lazard's Levelized Cost of Energy Analysis—Version 7.0* (2013) ("*Lazard's Analysis*"). At the Workshop we emphasized that national LCOE data can reveal cost trends, while resource planning best practice is for utilities to create (generally using models) levelized cost curves for demand-side resources that are comparable to the levelized cost curves for supply-side resources available within the context of the regional grid. *See, e.g.*, State and Local Energy Efficiency Action, *Using Integrated Resource Planning to Encourage Investment in Cost-Effective Energy Efficiency Measures* (2011) at 7.

Since we have not seen evidence of such side-by-side levelized cost comparisons in the ten-year site plans, we have cited *Lazard's Analysis*: Energy efficiency programs average $0-$50 MWh, or better, since these figures do not fully account for the opportunity cost of foregone consumption due to demand response. *See Lazard's Analysis* at 4. Renewable resources are becoming increasingly cost competitive. Utility-scale solar photovoltaic systems are approaching "grid parity" without tax subsidies and may currently reach "grid parity" under certain conditions. *Id.* As discussed at the Workshop, the graph reproduced below plots Lazard's levelized cost of electricity data from 2009 to 2013 to show cost trends of renewable resources like solar and wind versus conventional fossil fuel-burning resources like coal and natural gas.

Trends in Levelized Cost of Electricty (Midpoint) - Renewables vs. Fossil Plants



Source: Lazard 2009-2013.

The trends shown in this graph favor investments in renewable resources like wind and solar because they are already cost-competitive with conventional generation resources like coal and gas, and their prices keep falling fast—thanks largely to technological advances, such as larger wind turbines and cheaper components for solar-power arrays. As we have noted, the opposite is true for

fossil fuel-burning generation; costs are generally increasing due to increasingly stringent pollution controls, fuel price volatility, and supply disruption risks.

a. Given Rapidly Changing Electricity Markets, Requests for Proposals are a Common, But Not Exclusive, Way of Identifying Resource Costs.

Commissioner Balbis requested clarification of the Sierra Club's suggestion of using requests for proposals (RFPs) to test resource costs for ten-year site planning purposes. In short, we suggested that, as an initial step, the Commission should obtain from the utilities more information about the renewable energy bids that they received in response to existing RFPs. Duke's plan, for example, states that the utility's ongoing Request for Renewables returned over 310 bids by March 2013. Bids like these are a potential trove of cost information that would enhance the understanding of energy options among all interested parties. *See* Duke TYSP at 3021. Indeed, the 2012 legislative study found that Florida jurisdictional utilities are missing opportunities to share information and best practices on saving energy. *See FEECA Study* at 13. Ten-year site planning is where the utilities can start to remedy this, and the Commission should instruct the utilities to make the bid information, other than the truly sensitive business information, available to the public.

Further, at the Workshop we suggested that a review of existing RFPs and responsive bids may well reveal opportunities for further market testing, perhaps through RFPs, to identify the cost-effective resources available to Florida. For instance, Connecticut recently issued an RFP to identify cost-effective resources for meeting that state's energy policy goals. *See* Connecticut Department of Energy and Environmental Protection, *Request for Proposals for Long Term Energy Contracts* (2013), available at www.ct.gov/deep/cwp/view.asp?a=4405&Q=527812&deepNav_GID=2121. Notably, *Power Purchase Agreement Checklist for States and Locals Governments*, produced by that National Renewable Energy Laboratory, offers guidance on developing RFPs for solar photovoltaic (PV) power purchase agreements in particular. *See* National Renewable Energy Laboratory, *Power Purchase Agreement Checklist for States and Locals Governments* (2009), Ex. 6.

Alternatively, as we discussed at the Workshop, the Commission could identify resource costs by reviewing examples of recent electricity purchase or production decisions, such as the new solar photovoltaic generation in Georgia and Colorado. *See* Georgia Public Service Commission, *PSC Approves Agreement to Resolve Georgia Power 2013 Integrated Resource Plan and Expands the Use of Solar Energy* (Aug. 2013); Xcel Energy, *Xcel Energy Proposes Adding Economic Solar, Wind to Meet Future Customer Energy Demands* (Sept. 2013). Additional cost data—especially from local or regional electricity markets—is essential for prudent planning, and the Commission should require the utilities to include sufficient cost data in their plans to substantiate the cost-effectiveness of their proposed investments.

IV. Conclusion

For all these reasons, the Commission should defer ten-year site plan approval, including approval of planned new gas-burning capacity, until the utilities provide the missing comparative cost-risk

analysis. Moreover, the Sierra Club urges the Commission to follow the best practice of making the comparative cost-risk analysis available for public comment.

Sincerely,

/s/

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