Energy in Action

IRP Guidelines

Purpose

The purpose of this document is to outline the process, as proposed by the Integrated Resource Plan (IRP) Subcommittee, that utilities would use when developing and filing their IRP.

These guidelines are intended to support SC Code of Laws 58-37-40(c), which states, "The State Energy Office, to the extent practicable, shall evaluate and comment on external environmental and economic consequences of each integrated resource plan submitted and on the environmental and economic consequences for suppliers and distributors."

Although the IRP development process incorporates utility energy efficiency programs, renewable energy plans, and fuel costs – for investor owned utilities (IOUs) specifically – they are evaluated by the Public Service Commission (Commission) under separate dockets. The IRP is for planning purposes; other dockets are for cost recovery.

Background

The IRP Subcommittee was developed in response to the Energy Plan IRP recommendation. The recommendation is as follows:

Integrated Resource Planning Process

Challenge: Ensure that electric utility IRPs clearly demonstrate and reflect access to energy supplies at the lowest practical environmental and economic cost and that demand-side options are pursued wherever economically and environmentally practical.

Background: Electric utility IRPs vary. A robust analysis is important to accurately demonstrate the lowest practical environmental and economic cost for consumers statewide. This analysis should consider economic and environmental metrics; a minimum set of alternative resource portfolios; a minimum set of alternative scenarios for analysis; joint dispatch of generating resources; and coordinating the construction of new electricity generation.

Approach: The Energy Office should establish a committee to study matters related to the IRP process including the costs and benefits that can be achieved by changes to the IRP process. The study committee should consist of representatives from investor-owned utilities, Santee Cooper, the electric cooperatives, conservationists, and other interested stakeholders.

IRP Statute

SECTION 58-37-40. Integrated resource plans.

(A) Electrical utilities and the South Carolina Public Service Authority must prepare integrated resource plans. The South Carolina Public Service Authority and electrical utilities regulated by the Public Service Commission must submit their plans to the State Energy Office. The plan submitted by the South Carolina Public Service Authority must be developed in consultation with electric cooperatives and municipally-owned electric utilities purchasing power and energy from the authority and must include the effect of demand-side management activities of electric cooperatives and municipally-owned electric utilities which directly purchase power and energy from the authority or sell power and energy which the authority generates. All plans must be submitted every three years and must be updated on an annual basis. The first integrated resource plan of the South Carolina Public Service Authority must be submitted no later than June 30, 1993. An integrated resource plan may be patterned after the integrated resource planning process developed by the Public Service Commission. For electrical utilities subject to the jurisdiction of the commission, submission of their plans as required by the commission constitutes compliance with this section. Nothing in this subsection may be construed as requiring interstate natural gas companies whose rates and services are regulated only by the federal government or gas utilities subject to the jurisdiction of the South Carolina Public Service Commission to prepare and submit an integrated resource plan.

(B) Electric cooperatives and municipally-owned electric utilities must submit integrated resource plans to the State Energy Office whenever they are required by federal law to prepare these plans or if they plan to acquire, by purchase or construction, ownership of additional generating capacity greater than twelve megawatts per unit. An integrated resource plan must be submitted to the State Energy Office by an electric cooperative or municipally-owned electric utility twelve months before the acquisition, by purchase or construction, of additional generating capacity in excess of twelve megawatts per unit. For an electric cooperative, submission to the State Energy Office of its plan in a format complying with the then current Rural Electrification Administration regulations constitutes compliance with this section.

(C) The State Energy Office, to the extent practicable, shall evaluate and comment on external environmental and economic consequences of each integrated resource plan submitted and on the environmental and economic consequences for suppliers and distributors.

(D) The State Energy Office shall coordinate the preparation of an integrated resource plan for the State and shall coordinate with regional groups, including the Southern States Energy Board.

(E) The State Energy Office must not exercise any regulatory authority with regard to the requirements set forth in this chapter.

Timeframe

The IOUs must file a 15-year IRP every three years with the Commission, and must file a short-term action plan (STAP) with the Commission in each of the intervening two years between the filing of the detailed 15-year plans. The South Carolina Public Service Authority (Santee Cooper) must file its 15-year IRP every three years and a STAP in each of the intervening two years with the State Energy Office.

Public Participation

The IOUs and Santee Cooper must each hold at least one public engagement sessions which provides utilities an opportunity to share and discuss changes to their IRPs with interested parties every three years as part of the IRP process. The utilities will consider the public input from these meetings during the development of the IRP. At least 30 days prior to holding an engagement session, each utility must notify the public through methods such as news publications, bill inserts, customer email lists, and social media information about the location and time of said engagement session. This notification must include a summary of anticipated changes (including, but not limited to: description of its proposed planning and modeling methodology, its model inputs, its draft resource portfolios, and its draft scenarios and/or sensitivities). An ORS representative must attend each public engagement session. Each utility required to submit an IRP must include with its submission a summary of the engagement session including comments received and appropriate responses.

Best Practices

Through a collaborative process including the SC Energy Office, conservationists, utilities and other interested parties, the following IRP best practices were developed.

Statement of purpose: The purpose of the best practices is to provide guidelines for the preparation of an IRP in order to encourage comparability and consistency among electric utilities.

Definitions:

- Best Practices – A process that promotes the most cost effective and energy efficient methods, considering uncertainties, to encourage their adoption and use by South Carolina utilities.

- Demand-side management (DSM) – DSM encompasses all energy efficiency measures and all demand response measures
- Integrated Resource Plan – A utility's resource plan for meeting forecasted annual peak and energy demand, plus some established reserve margin, through a combination of supply-side and demand-side resources over a specified future period. It is developed and planned based on the available information and situation at one point in time.
- Resource portfolio – a year-by-year schedule of system additions and retirements chosen by utility management, encompassing traditional generation units, DSM programs and renewable energy resources.
- Scenario – a collection of assumptions about future circumstances that utility management does not control, such as fuel prices, gross load obligations, technology costs, policy and regulations.
- Sensitivity – variation of an isolated assumption while holding all other assumptions constant, in order to understand the importance of the assumption of interest to the results.

Best Practices:

1. Each utility should analyze multiple resource portfolios that consider a range of supply-side and demand-side resources including DSM and renewable energy (RE) resource options. A modeling process should incorporate cost-effective DSM and RE options available to meet both capacity and energy needs and reflects a utility's most recent DSM suite of programs.

2. The IRP analysis should include, at minimum, alternative DSM and RE portfolios of at least one high and one low DSM and at least one high and one low RE portfolio and should contain a diverse mix of DSM and RE measures, and the associated cost assumptions used for each of the portfolios. The measures and portfolios included may be generic in nature and utilities would not necessarily make any representation that they are attainable or meet cost effectiveness tests.

3. Each utility should expand its evaluation to establish a set of scenarios and/or sensitivities to analyze the robustness of each resource portfolio. The scenarios and/or sensitivities should reasonably capture the range of key variables affecting the utility's plan. The IRP should describe each scenario and/or sensitivity. Scenarios and/or sensitivities should explore uncertainties in fuel prices and load growth. As

appropriate, other uncertainties such as carbon and technology costs should also be explored.[1]

4. The IRP must list the expected retirement date for each unit planned to retire within the 15-year IRP analysis period, and describe any substantial conditions on which the retirement date depends. The IRP must also list the license expiration date for each unit as appropriate. If a unit does not have an expected retirement date, the IRP must provide a supporting explanation.

5. The IRP must present appropriate economic and environmental metrics for all portfolios across all scenarios and/or sensitivities and confirm that each portfolio is compliant with all local, state and federal environmental laws and regulations.

    a. Economic outcome metrics at minimum must include the present value of the system incremental revenue requirements. These metrics should also show the absolute difference and percentage difference in the economic costs of the various portfolios as compared to the base case.
    b. Environmental outcome metrics at minimum must include air emissions. Other environmental outcome metrics such as water withdrawals, water consumption, and coal ash production should be evaluated as appropriate. These metrics should also show the absolute difference and percentage difference in the environmental outcomes of the various portfolios as compared to the base case.

6. The IRP must select one plan which the utility offers as a reasonable way to meet system load requirements, and must discuss that choice based on relevant economic and regulatory factors, as well as any substantial regulatory or market assumptions that also influence the selection.

7. The IRP must provide the following analysis input assumptions for each year of the analysis including for all years beyond the 15-year planning period. These assumptions must be provided for each scenario and/or sensitivity, with a description of which assumptions were varied within each scenario and/or sensitivity. Each utility

[1] Each resource portfolio should be analyzed across all scenarios and/or sensitivities, and scenarios and/or sensitivities should be kept consistent for each resource portfolio. For example, a utility develops Resource Portfolios A, B, and C, and scenarios and/or sensitivities X, Y, and Z. The utility should model Resource Portfolio A under each scenario and/or sensitivity – scenarios and/or sensitivities X, Y, and Z – and also should model Resource Portfolios B and C under each of the same scenarios and/or sensitivities – scenarios and/or sensitivities X, Y, and Z. Thus the scenario and/or sensitivity assumptions are kept constant when evaluating each resource portfolio, so that the modeling results for the different resource portfolios can be meaningfully compared. Finally, only portfolios and scenarios and/or sensitivities that serve the same gross load obligation before DSM can be meaningfully compared within an IRP

must use reasonable assumptions. Data sources must be indicated and forecast methodologies must be described.

a. System sales
b. System summer and winter peak demand
c. Delivered fuel prices
d. Emissions price (e.g. CO_2)
e. Technology costs for each technology modeled
f. Price of purchased power alternatives including economy purchases (energy and capacity, QF and non-QF)

8. The IRP must separately identify the expected energy and capacity impacts of DSM programs and of customer-owned distributed generation. This only refers to assumed future DSM and distributed generation impacts.

9. The IRP must identify the amount of existing purchased capacity reflected in the resource plan, including where possible resource type, energy and demand contributions, and contract duration.

10. The IRP should indicate data sources and describe analytical methodologies used to derive any major assumptions not otherwise addressed, such as reserve margin requirements, resource integration needs and costs, and resource dependable peak capacity assumptions.

11. The IRP must provide a brief overview of any major trends, uncertainties, challenges, or new technologies that are likely to impact the utility and its customers that are not otherwise described.

12. The IRP must include a list and description of existing and potential DSM programs.

13. For informational purposes only, each utility should include in its IRP, or in an appendix to the IRP, a reference to the resource portfolio, the scenario and/or sensitivity, and the unit retirement assumptions that will be used to derive the utility's avoided costs that are used in DSM program evaluation, QF power purchase rates, and any other tariffs that apply avoided cost concepts. This data is expected to reflect information already provided from items #1-12, and the utility may caveat its response by noting that actual avoided cost inputs can be subject to change due to updated price forecasts and/or other new information including by not limited to Commission directives in other dockets.

Filing

The IOUs will file their IRP with the Commission. Upon annual filing and the establishment of an IRP docket, interested parties may intervene and comment. The utilities are encouraged to respond to intervenors and public comments. A common question/theme can have one response. If necessary, the parties may jointly request that the Commission hold a hearing. The utilities, through their IRPs will:

1) Publicly report to the Commission the substance of the discussion at public engagement sessions, including public feedback, recommendations, and comments;

2) Include responses to intervenors and comments.

After considering the IRP, public comments, intervenor comments, and utility responses, the committee respectfully requests the Commission consider filing an order accepting, denying, or modifying the methodology, model inputs, range of resource portfolios, and range of scenarios and/or sensitivities contained in the IRP. The Commission may also consider recommending that further methods, inputs, portfolios, scenarios, or sensitivities be explored. Additionally, the Commission may also consider directing the utility to respond to intervenors and comments where the response is inadequate. Approval of methods, inputs, portfolios, scenarios, and sensitivities does not constitute approval of the IRP as a whole.

Per SC Code of Laws 58-37-40, Santee Cooper will submit its IRP to the State Energy Office, which may request additional information concerning comments where the response is inadequate.