August 1, 2018

Ms. Katherine Collier
Executive Secretary
Mississippi Public Service Commission
PO Box 1174
Jackson, MS 39215-1174

RE: **MPSC Docket No: 2018-AD-64**
ORDER ESTABLISHING DOCKET TO INVESTIGATE THE DEVELOPMENT AND IMPLEMENTATION OF AN INTEGRATED RESOURCE PLANNING RULE

Dear Ms. Collier,

Please find attached the comments of the 25x'25 Alliance responding to the Mississippi Public Service Commission's (Commission) request for comments regarding the development and adoption of a rule defining an Integrated Resource Planning process for regulated electric utilities in Mississippi.

Thank you for the opportunity to provide comments in regards to the above referenced Order. Please contact me if you should have any questions.

Sincerely,

Brent Bailey

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CERTIFICATE OF SERVICE

I hereby certify that the parties listed below have been served via email with a copy of the Comments of the 25x'25 Alliance:

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This 1st day of August 2018.

Brent Bailey

Brent Bailey

BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION

DOCKET NO. 2018-AD-64	**ORDER ESTABLISHING DOCKET TO INVESTIGATE THE DEVELOPMENT AND IMPLEMENTATION OF AN INTEGRATED RESOURCE PLANNING RULE**
MISSISSIPPI PUBLIC SERVICE COMMISSION	

COMMENTS OF THE 25X'25 ALLIANCE REGARDING THE DEVELOPMENT AND ADOPTION OF A RULE DEFINING AN INTGRATED RESOURCE PLANNING PROCESS FOR REGULATED ELECTRIC UTILITIES IN MISSISSIPPI

Introduction

The 25x'25 Alliance hereby submits its comments to the Commission in response to its Order seeking comments regarding the development and adoption of a rule defining an Integrated Resource Planning (IRP) process for regulated electric utilities in Mississippi, including whether such a Rule should be adopted or rejected.

Formed in 2004, the 25x'25 Alliance is a coalition united behind the goal of securing 25 percent of the nation's energy needs from renewable sources by the year 2025. To date, the 25x'25 goal has been endorsed by nearly 1,000 partners, 35 current and former governors, 15 state legislatures and the U.S. Congress through The Energy Independence and Security Act of 2007.

The Commission is to be commended for taking a careful and thoughtful approach to establishing a rule structure under which an IRP process will be defined and executed to provide the maximum benefit to ratepayers in the state. As noted in the May 8, 2018, Order, the Commission first considered and rejected the adoption of a federal IRP standard in Docket No. 2008-AD-477. However, the Commission now finds that the time is right to reconsider the establishment of an IRP process to address the specific needs of Mississippi electric utilities and rate-payers.

Over thirty states require utilities to file publicly available integrated resource plans. While the requirements and processes for developing and evaluating these plans vary from state to state, changing technologies, volatile fuel prices and shifts in regulatory constructs have reinforced the need for resource planning to ensure utilities can provide reliable, cost-competitive electric service to their customers.

The 25x'25 Alliance supports the Commission's efforts as outlined in this Order and, after considering all the evidence, prays the Commission will move swiftly to draft, adopt and implement a comprehensive IRP rule. In support of this effort, 25x'25's comments below provide a set of recommended IRP best practices, which we believe will be useful in advancing the Commission's objectives. We have organized these recommended best practices into three overarching categories: 1) process and objectives guiding the development of the IRP, 2) information and analysis included in the IRP, and 3) actions linked to the IRP process.

1. Process and objectives guiding the development of an IRP

1.1. The IRP process should have a clear objective that is articulated by the Commission and reflects the public interest.

At its most basic level, any IRP process will result in a long-term plan for investment by Mississippi utilities and their customers in new energy resources. However, there are many factors that could guide a plan that emerges from this process. For example, it is possible to develop a plan where the sole objective is to identify the "least-cost" portfolio of resources. Meanwhile, it is also possible to develop a plan that includes other objectives such as minimizing potential risks to utility customers (e.g. due to fuel price uncertainty, capital cost overruns, etc.), improving grid security, improving the local economy, or reducing impacts to human health and the environment.

Given the Commission's role in serving the public interest, 25x'25 believes it is appropriate for a range of objectives to be considered in developing an IRP. In establishing an IRP process, the Commission should clearly state what the objectives of the resource plan are and how they should be used to guide the plan's development.

As an example, the Arkansas Public Service Commission's guidelines state the following: "The objectives of the Resource Plan include, but are not limited to, low cost, adequate and reliable energy services; economic efficiency; financial integrity of the utility; comparable consideration of demand and supply resources; mitigation of risks; consideration of environmental impacts; and consistency with governmental regulations and policies."[1]

1.2. The Commission should require the IRP process to include opportunities for meaningful stakeholder participation. The Commission should also consider its role in overseeing this stakeholder process.

A key benefit of establishing an IRP process is the ability to develop a resource plan that reflects the interests of a broad range of stakeholders – not just the utility. As such it is essential for the process to include meaningful participation options for these stakeholders to provide input into the resource plan's development.

As one example, Louisiana has adopted the following rules as part of its IRP process: "A collaborative process shall be utilized, to provide stakeholders with a reasonable opportunity to meet with the utility and provide input into the development of the utility's IRP. In addition to participating in collaborative discussions stakeholders shall also have the opportunity to file written recommendations regarding the specific data assumptions and methods to be used in the IRP. Regardless of whether the utility adopts the recommendations, the utility shall include a section in the IRP Report documenting all of the stakeholder's recommendations and explaining the Company's reasons for accepting or rejecting each recommendation."[2]

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[1] "Resource Planning Guidelines for Electric Utilities," Arkansas Public Service Commission, Docket 06-028-R, http://www.apscservices.info/Rules/resource_plan_guid_for_elec_06-028-R_1-7-07.pdf

[2] "Integrated Resource Planning Rules for Electric Utilities in Louisiana," Louisiana Public Service Commission, Docket No. R-30021, Attachment A: http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=95a4e806-45b4-4d5d-ae07-dd088a447363

As suggested in Louisiana's rules, one method for accomplishing meaningful stakeholder input is to hold a series public workshops in advance of the plan's development. The purpose of these workshops would be to discuss issues such as key input assumptions, methodologies, and scenarios to be studied and to develop consensus on these to the extent that is possible.

The Louisiana process of requiring utilities to respond to stakeholder feedback in the IRP helps to ensure accountability. It also helps safeguard against a stakeholder process that is not thoroughly considered. The Commission should also consider its role in overseeing stakeholder participation options. 25x'25 recommends that any stakeholder IRP workshops be hosted by an independent entity such as Commission staff or an independent evaluator hired by the Commission.

Additionally, another way to enhance meaningful stakeholder participation is through a phased process. Under this approach, each utility provides a preliminary draft IRP for public review and comment prior to submitting a final plan to the Commission. Ideally, this review of the draft plan would also allow for additional analyses to be conducted based on the preliminary information provided in the draft plan.

Regardless of what stakeholder process the Commission requires, 25x'25 recommends that at a minimum it should include the following features:

- Stakeholders are provided accurate and complete information on the IRP's development in a timely manner.
- Stakeholders are able to review and comment on key inputs, assumptions, and methodologies prior to any formal analyses being conducted.
- Stakeholders are able to recommend analysis of alternative resource portfolio options (e.g. expanded renewable energy portfolio, or expanded DSM portfolio)

1.3. The Commission should maximize transparency of the IRP process by identifying steps that utilities must take to provide stakeholders with access to data and information used in the process.

Historically, electric utilities in Mississippi have developed resource plans, but have done so through their own internal processes. Specific details of these plans have not been made available for public review until after they have been completed and submitted to the Commission. We believe this current approach needs to be modified to provide greater transparency to utility customers about important resource decisions being made on their behalf. In fact, we wholeheartedly agree with the Commission's statement that the "primary motivations for the development of a formal IRP rule is the desire for transparency."[3]

Greater transparency will help instill confidence among interested parties that the inputs, assumptions, and methodologies being used are not biased in favor of a particular outcome.

[3] "Order Establishing Docket to Investigate the Development and Implementation of an Integrated Resource Planning Rule," Mississippi Public Service Commission, Docket No. 2018-AD-64: http://www.psc.state.ms.us/InSiteConnect/InSiteView.aspx?model=INSITE_CONNECT&queue=CTS_ARCHIVEQ&docid=404076

25x'25 believes the stakeholder process described above in section 1.2 would contribute significantly towards a greater level of transparency. In addition, we believe the Commission should require all utilities to make a good faith effort to make the data and information used in developing their plans available to the public. This includes responding to data requests in a timely manner and/or posting information to a public website or relevant Commission docket. This would be similar to IRP rules developed elsewhere, such as New Orleans, which states the following: "Utility shall make a good faith effort to properly inform and respond to all questions raised regarding the IRP."[4]

To the extent that any information being requested contains confidential data, this information can be protected at the discretion of the Commission. 25x'25 recommends that the Commission require utilities to respond to all information requests publicly with the option to redact any confidential data. Additionally, interveners in the IRP should also be able to request access to any redacted or confidential data through appropriate non-disclosure agreements.

1.4. The Commission should establish a clear timeline for both the IRP process, and the planning horizon being considered.

The timing of the process should be clear to the public and all interested parties. For example, the Commission should establish a schedule for all relevant dates in the IRP process including when intervenors are available to comment, when discovery is available, and timelines for data requests and receipts, as well as dates for draft releases, public workshops, and final proposals.

Although 25x'25 is not recommending this specific schedule, as an example, the Louisiana Commission established the following timeline as part of its process:

Schedule of Events[5]		
Event	**Description**	**Number of Months from IRP Filing Date**
1	Utility submits its request to initiate the IRP process, which should specify dates in accordance with this schedule of events, and a non-disclosure agreement.	At filing date
2	Utility files data assumptions to be used in the IRP and a description of studies to be performed.	1
3	Utility holds first Stakeholder Meeting.	2
4	Stakeholders may file written comments.	4
5	Draft IRP report published.	12
6	Utility holds second Stakeholders Meeting.	13
7	Stakeholders may file comments about the draft IRP Report.	15
8	Staff files comments about draft IRP Report.	16
9	Final IRP Report filed by the utility.	19

[4] "Resolution Regarding Proposed Rulemaking to Establish Integrated Resource Planning Components," Council of the City of New Orleans, No. R-08-295: https://library.municode.com/la/new_orleans/munidocs/munidocs?nodeId=MAR23242008-MOTIONS-RESOLUTIONSHTML

[5] "Integrated Resource Planning Rules for Electric Utilities in Louisiana," Louisiana Public Service Commission, Docket No. R-30021, Attachment A: http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=95a4e806-45b4-4d5d-ae07-dd088a447363

10	Stakeholders submit list of disputed issues and alternative recommendations.	21
11	Staff submits recommendation to the Commission including whether or not a proceeding is necessary for the resolution of disputed issues.	22

Additionally, in most jurisdictions, IRP processes are cyclical and recur on a regular basis – typically every 2-3 years. For example in Georgia, the IRP rules state the following: "On or before January 31, 1992, and every three years thereafter, each utility shall file a twenty year integrated resource plan with the Commission and an application for approval of that plan."[6] This gives the ability to update the resource plan as new information and new circumstances emerge. Additionally, it allows the Commission to continually update the process by adopting new best practices. At a minimum, the Commission should adopt a policy for when the IRP process will repeat (e.g. every 3 years), and when certain steps will occur within that cycle. 25x'25 recommends initiating the IRP process no more than every 3 years and establishing clear timelines for actions to be performed and reports filed. The duration from initiating an IRP process to submission of the Final IRP Report by the utility should be no more than 18 months.

It is also worth noting that certain assumptions could change substantially within a 2-3 year period. For example, in recent years the industry has seen dramatic year-to-year declines in costs for technologies such as solar PV and battery storage. As such, 25x25 recommends that there be an opportunity to "refresh" certain key inputs between the draft IRP and final results.

Finally, most IRPs examine a planning horizon that is 10-20 years into the future. The Commission should adopt a standard planning horizon. 25x'25 believes a 15- or 20-year planning horizon would sufficiently capture the long-term effects of important resources decisions being made today that will have impacts for decades to come.

1.5. The Commission should consider hiring an independent evaluator to help oversee elements of the IRP process.

To ensure that the IRP plans developed reflect an independent and credible analysis, it may be useful to hire an independent evaluator. The role of the independent evaluator could include any of the following:

- Organize and moderate stakeholder IRP workshops
- Evaluate stakeholder feedback on IRP inputs and assumptions
- Finalize key inputs, assumptions, and scenarios for use in further analysis by utilities
- Review technical analyses conducted by utilities
- Advise the Commission and Commission Staff on draft or final IRPs, near-term action plans, and related competitive solicitations.
- Facilitate any competitive solicitation conducted in conjunction with an IRP's near-term action plan.

Several states have implemented independent evaluators at various stages in the IRP process. In some cases, the evaluator's responsibilities are primarily related to overseeing the competitive solicitation component of the process. For example, Georgia's rules include the following

[6] Georgia PSC Rule 515-3-4, .06 (1): http://rules.sos.state.ga.us/gac/515-3-4

provision: "*Independent Evaluator* or *IE* means the entity or entities selected pursuant to the RFP Rule to conduct a RFP Process…The IE shall be retained by the soliciting entity [Utility] under a contract that is acceptable to the Commission and which is consistent with the RFP Rule."[7]

In other cases, the independent evaluator oversees other aspects of the IRP process, such as in Hawaii, which has adopted the following rule: "The Independent Entity's responsibility shall be to provide unbiased oversight of the integrated resource planning process (including the utility's development of Scenarios, Resource Plans, and the Action Plan) in a cost-effective and timely manner."[8]

Regarding additional cost for hiring the independent evaluator, it should be noted that there may be solutions to alleviate the costs to the Commission. For example, the Hawaii Public Utilities Commission requires the utility to pay for these costs. In other cases, such as Georgia, respondents to a competitive RFP solicitation must pay a fee to help cover these costs.

2. Information and analysis included in the IRP

2.1. Each IRP should include a well-documented load forecast that includes a range of possible outcomes. Customer resource impacts should also be clearly delineated.

The starting point for any IRP is the development of a load forecast, which forms the basis for determining future resource needs. Each IRP should contain a well-documented forecast for both capacity needs (i.e. MW peak demand plus reserve margin) and energy needs (i.e. MWh retail sales plus line losses) for each year of the planning horizon. In addition to forecasting expected peak demand for load served, the demand forecast should identify any additional resources needed to meet the utility's planning reserve margin for reliability. The method for calculating this reserve margin should also be clearly described.

As with any future projection, there is substantial uncertainty in the load forecast. As one study recently pointed out, utility load forecasts in the last decade have generally overestimated demand growth.[9] Thus it is recommended that a range of forecasts be considered. The methodology for determining the load forecast should also be thoroughly documented, including a description of how various aspects are incorporated including customer growth (by customer class), end-use modeling (by customer class), macroeconomic trends, and the effects of state and federal codes and standards for buildings and appliances.

Finally, the load forecast should indicate whether it includes the effects of customer resources such as demand-side management (DSM) programs (such as energy efficiency, energy storage and demand response) and distributed generation (DG) resources, or if those resources are accounted for elsewhere in the IRP. If the load forecast does include the effects of customer resources, their contribution to reducing peak demand and energy needs should be explicitly identified and quantified for each year.

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[7] *Id*. at .04 (3):

[8] "A Framework for IRP, *Revised*" Hawaii Public Utilities Commission, Part III.C: https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A11C14B71121I26750

[9] http://eta-publications.lbl.gov/sites/default/files/lbnl-1006395.pdf

2.2. Each IRP should include a well-documented timeline of resource additions and retirements.

Each IRP should include a timeline of planned supply-side and demand-side resource additions indicating the year in which each planned resource addition would become commercially operational. This can be accomplished through the load and resource table described in the following section. Sufficient detail should be provided about the technology of additions being considered (e.g. "natural gas combined cycle" versus just "natural gas"). Planned retirement of existing resources and expiration of existing contracts should also be identified and reflected in the load and resource table.

2.3. Key sets of data and information should be packaged and presented in a standardized format to ensure clarity and completeness.

While there are many types of information that could be included in an IRP, some are more crucial to understanding the plan's details and should be presented in a standardized format. The following are some of the key sets of information that warrant a standardized presentation format and that 25x'25 recommends be specified in the IRP rules:

- Annual load and resource tables[10]
- Annual energy mix
- Annual outage rate and actual capacity performance of each baseload resource
- Annual revenue requirements by component (e.g. fuel/non-fuel components)
- New resource cost inputs and assumptions (including customer program costs)

The appendices included in Arizona Public Service's IRP serve as a good example of a standardized format for this information.[11] The load and resource table from APS' 2017 IRP is copied below as an illustration:

[10] Resource MWs should reflect overall contribution to peak demand. This should include appropriate derate factors due to peak coincidence (e.g. for solar PV) or forced outage rates (e.g. for thermal resources)

[11] Arizona Public Service 2017 IRP, p 324-353 and p 309-312: https://www.aps.com/library/resource%20alt/2017IntegratedResourcePlan.pdf

ATTACHMENT F.1(A)(1) – FLEXIBLE RESOURCE (SELECTED) PORTFOLIO L&R AND ENERGY MIX

	Flexible Resource Portfolio (Selected) – Loads and Resources – MW Energy Contribution at Peak															
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**Load Requirements**															
2	APS Peak Demand	7,023	7,307	7,581	7,855	8,130	8,405	8,681	8,961	9,248	9,539	9,835	10,141	10,446	10,761	11,081	11,410
3	Reserve Requirements	961	989	1,015	1,047	1,152	1,187	1,222	1,258	1,294	1,331	1,369	1,409	1,448	1,489	1,530	1,573
4	**Total Load Requirements**	**7,985**	**8,296**	**8,596**	**8,902**	**9,283**	**9,592**	**9,903**	**10,219**	**10,542**	**10,870**	**11,205**	**11,550**	**11,894**	**12,250**	**12,612**	**12,983**
5	**Existing Resources**																
6	Nuclear	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146
7	Coal	1,672	1,672	1,672	1,357	1,357	1,357	1,357	1,357	970	970	970	970	970	970	970	970
8	Natural Gas	4,341	4,341	4,167	4,135	3,655	3,655	3,655	3,655	3,655	3,090	3,090	3,090	3,090	3,090	3,090	3,090
9	Combined Cycle	1,852	1,852	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898
10	Combustion/Steam Turbines	1,254	1,254	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034
11	PacifiCorp Seasonal Exchange	480	480	480	480	0	0	0	0	0	0	0	0	0	0	0	0
12	Tolling Agreements	560	560	560	565	565	565	565	565	565	0	0	0	0	0	0	0
13	Market/Call Options/ Hedges/AG-X	195	195	195	158	158	158	158	158	158	158	158	158	158	158	158	158
14	Renewable Energy	514	514	515	515	516	516	504	504	505	505	487	488	488	476	476	476
15	Distributed Energy	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14
16	Solar	417	418	418	418	419	419	420	420	420	420	421	421	421	421	421	421
17	Wind	55	55	55	55	55	55	55	55	55	55	37	37	37	37	37	37
18	Geothermal	10	10	10	10	10	10	10	10	10	10	10	10	10	0	0	0
19	Biomass/Biogas	19	19	19	19	19	19	6	6	6	6	6	6	6	3	3	3
20	Energy Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Microgrid	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
22	**Total Existing Resources**	**7,694**	**7,695**	**7,521**	**7,175**	**6,695**	**6,696**	**6,683**	**6,684**	**6,297**	**5,732**	**5,715**	**5,715**	**5,715**	**5,703**	**5,703**	**5,703**
23	**Customer Resources**																
24	Future Demand Side Management	98	198	298	397	448	491	534	577	620	664	707	750	793	836	879	922
25	Future Distributed Energy	15	32	43	54	64	77	90	103	116	129	140	151	162	173	183	195
26	Demand Response (Future & Existing)	18	19	22	23	39	51	71	86	85	98	110	125	137	141	157	173
27	**Total Customer Resources**	**131**	**249**	**363**	**473**	**551**	**620**	**695**	**766**	**821**	**890**	**957**	**1,026**	**1,092**	**1,149**	**1,219**	**1,289**
28	**Future Resources**																
29	Nuclear (SMR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Natural Gas	250	340	760	1,260	2,023	2,441	2,441	2,651	3,297	4,228	4,444	4,659	4,875	5,091	5,306	5,516
31	Combined Cycle	250	250	250	750	1,500	1,500	1,500	1,500	1,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000
32	Combustion Turbines	0	0	510	510	510	941	941	1,151	1,797	2,228	2,444	2,659	2,875	3,091	3,306	3,516
33	Short-Term Market Purchases	0	90	0	0	13	0	0	0	0	0	0	0	0	0	0	0
34	Renewable Energy	0	0	0	0	0	0	0	0	0	0	16	16	16	16	16	16
35	Wind	0	0	0	0	0	0	0	0	0	0	16	16	16	16	16	16
36	Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Energy Storage	0	1	3	3	3	3	3	86	86	85	84	165	244	323	320	397
39	Microgrid	11	11	11	11	11	36	86	86	86	86	86	86	86	86	86	86
40	**Total Future Resources**	**261**	**352**	**773**	**1,273**	**2,036**	**2,479**	**2,529**	**2,823**	**3,469**	**4,399**	**4,630**	**4,926**	**5,221**	**5,515**	**5,728**	**6,014**
41	**TOTAL RESOURCES**	**8,086**	**8,296**	**8,658**	**8,921**	**9,283**	**9,795**	**9,908**	**10,273**	**10,587**	**11,022**	**11,301**	**11,666**	**12,028**	**12,367**	**12,650**	**13,006**

2.4. The IRP should include analysis of multiple resource portfolios that are sufficiently distinct from one another.

In most IRPs, one resource portfolio is ultimately selected or approved as the "Preferred Option" or "Reference Case." However, it is useful to explore a wide range of potential portfolios to understand how they differ in terms of cost and performance. For example, the Tennessee Valley Authority examines the following portfolios in its IRP: "The Reference Plan," "Market Supplied Resources," "Maximize Energy Efficiency," "Maximize Renewables," and "Meet an Emission Target."[12]

25x'25 recommends that at least two additional portfolios be studied in each utility's IRP process and that at least one of the portfolios be based on stakeholder input. Moreover, it is important that there are sufficient differences between these portfolios so that stakeholders are well-informed about the differences and potential tradeoffs between different resource options. That

[12] "Integrated Resource Plan 2015 Final Report," Tennessee Valley Authority: https://www.tva.com/file_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/IRP/Documents/2015_irp.pdf

is, the alternative portfolios should contain more than just a few small tweaks to the Reference Case.

2.5. Each resource portfolio in the IRP should include a set of metrics to evaluate performance against the Commission's stated objectives.

A standard set of metrics should be used to examine how each portfolio studied in the IRP performs relative to the objectives described in section 1.1. For example, the following performance categories and associated metrics are commonly used in many IRPs:[13]

Performance Category	Metric
Portfolio Cost	Net Present Value ($) of Total Revenue Requirements
Reliability	Loss of Load Expectation (a standard reliability metric)
Customer Bills	$/month for average residential customer
Water Use	Total gallons or acre-feet of water consumed
Air Emissions	Tons of emissions (e.g. NOx, SOx, CO2, etc.)
Renewable Energy	% of energy mix technically achievable
Local Energy Resources	% of energy mix generated by in-state resource
Capital Expenditures	Total annual $ (and portion of portfolio cost) spent on new capital projects
Fuel Expenditures	Total annual $ (and portion of portfolio cost) spent on fuel

2.6. Any analysis conducted in an IRP should consider all resource options on a consistent and comparable basis. This includes both supply-side and demand-side resources, as well as both new and existing resources.

As resource portfolios are developed in the IRP, all known resource options should be considered as a potential solution to meet a utility's load forecast and evaluated on an equal basis. This includes both supply-side resources (both contracted and utility-owned) and demand-side resources. It also includes emerging technologies that may have relatively little commercial deployment to date. For the purpose of establishing the Commission's IRP rules, the allowable resource options should be as inclusive as possible. Any discussion on whether a resource can reasonably meet system needs should be held through the IRP stakeholder process.

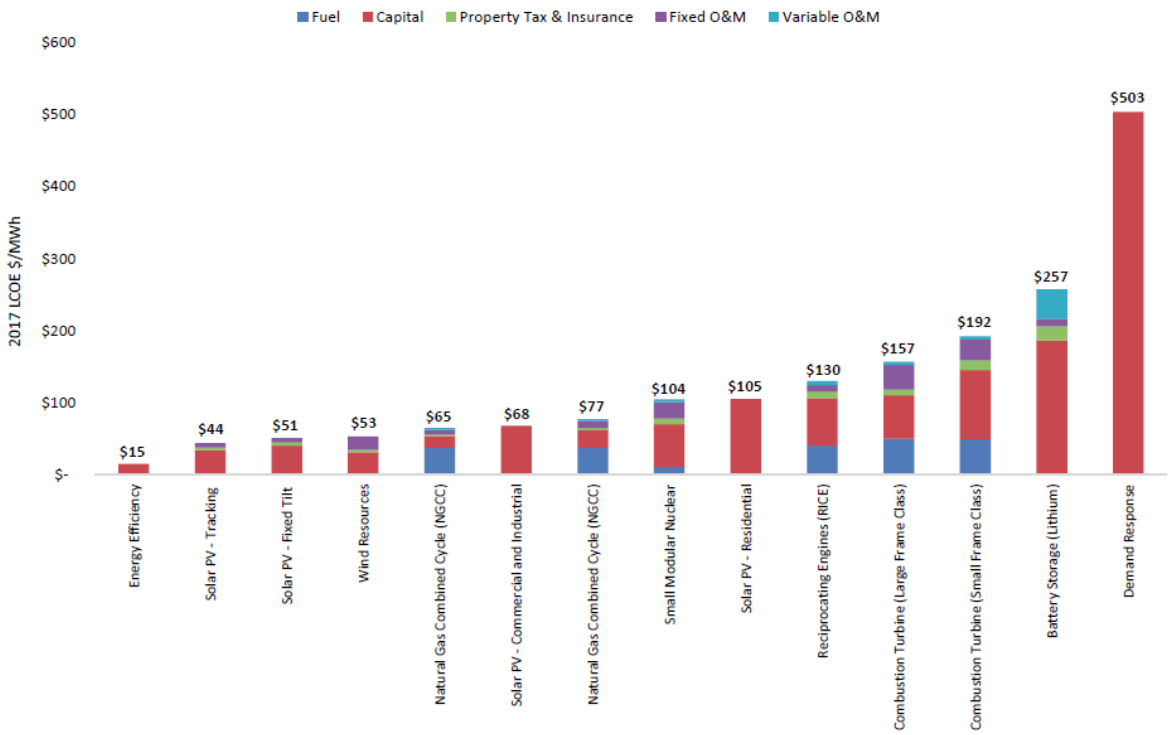
Ultimately, each resource portfolio should be examined as a whole and total costs should be compared based on the net present value (NPV) of the annual revenue requirements over the planning horizon. For new resources, the revenue requirements considered should include both capital costs and operating expenses (including fuel or program costs in the case of DSM resources), as well as any decommission costs. While the portfolio-level comparison is paramount, 25x'25 believes it may also be useful to include a direct comparison of resource types in the IRP, which can help serve as an initial screening tool. This comparison could include factors such as levelized cost, fuel type, lead time, resource lifetime, capacity value, and location. For direct cost comparisons, 25x'25 recognizes that there is no perfect comparison metric given

[13] Arizona Public Service 2017 IRP: https://www.aps.com/library/resource%20alt/2017IntegratedResourcePlan.pdf

functional differences between resource types. However, we recommend including a levelized cost of energy (LCOE) metric (or a levelized fixed cost metric for capacity-oriented resources). An example of a LCOE comparison is shown below from Tucson Electric Power's 2017 IRP:[14]

2017 Levelized Cost of All Resources

Chart 20 below provides a comparison on the levelized costs of all resources used in the 2017 IRP. All costs reflect the 2017 LCOE $/MWh.



Demand-side Resource Considerations

Generally speaking, regulated utilities have an incentive to procure utility-owned supply-side resources and a disincentive to procure demand-side resources. As such, there is a likelihood that a utility-generated IRP may be biased towards utility-owned supply-side resources and biased against demand-side resources such as energy efficiency (EE), demand response (DR), and distributed generation (DG). However, utility customers may be better served – and often at lower overall cost – by a portfolio with more emphasis on demand-side resources. As such, it is important for these resources to be compared on a level playing field with utility-owned supply-side resources. Importantly, this means the IRP should include not only accurate cost information for DSM resources, but should also reflect their value in contributing to both energy and capacity needs.

As an example, South Carolina has taken steps to include a robust evaluation of DSM in their resource planning process: "Each utility should analyze multiple resource portfolios that consider a range of supply-side and demand-side resources including DSM and renewable energy (RE)

[14] Tucson Electric Power, 2017 IRP, https://www.tep.com/wp-content/uploads/2016/04/TEP-2017-Integrated-Resource-FINAL-Low-Resolution.pdf

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."[15]

In addition to including comparable treatment of DSM resources, 25x'25 further recommends that each IRP includes at least one resource portfolio that includes *all* cost-effective DSM resources. This may require additional evaluation to be performed by an independent consultant to determine the maximum economic potential for cost-effective DSM resources.

Existing Resource Considerations

In addition to new resources, existing resources should also be considered when evaluating costs. In some instances, closure of an existing resource in advance of its expected retirement may lead to a lower portfolio cost (even if certain stranded costs are included). As such, all available new resources should also be compared to cost projections for currently operating assets. For existing assets, the costs associated with decommissioning should also be included so the entire value is properly represented.[16] This is important because it allows for proper valuation of an existing resource so that new technologies, renewables, or DSM can compete effectively in the modeling proposals. However, existing resources should not continue to operate to the detriment of the local environment or public health.

2.7. The Commission should provide guidance on how utility modeling studies should be conducted to ensure transparency and accuracy.

A common step in many IRP processes is for the utility to use software tools to perform a capacity expansion optimization (often in conjunction with a production cost simulation). Under ideal circumstances, this modeling approach can help identify the least-cost set of resources that meet other desired characteristics and policy constraints. However, this can be a very challenging step in the process from a transparency perspective since it can represent somewhat of a "black box," into which stakeholders may have very little insight or understanding.

As such, there are certain key steps that should be taken to safeguard against the use of modeling tools to create biased or inaccurate results.

- All model inputs and assumptions (including any reliability analyses conducted outside of the model) should be made available to stakeholders and allowed for comment or feedback (subject to appropriate treatment of confidential data).
- A range of resource portfolios should be modeled to reflect various stakeholder perspectives. For instance, this could include a high and low scenario for RE deployment as well as a high and low scenario for DSM. Stakeholders should also have the option to request a specific run and provide comments and feedback on the utility's suggested runs.

[15] Although not formally adopted by the South Carolina Public Service Commission, the Energy Office's "Energy Plan" includes "IRP Guidelines," which supports SC Code of Laws 58-37-40(c) and is used in the Energy Office's review of South Carolina Public Service Authority (or "Santee Cooper") IRP filing: http://www.energy.sc.gov/files/view/IRP%20Guidelines%20Consensus_LM2_0.pdf

[16] Currently, only Arizona and Georgia, mandate decommissioning cost considerations to consider the full life-cycle costs of plants. For example, see *GA Rules 515-3-4-0.7* 2.4.vii: http://rules.sos.state.ga.us/GAC/515-3-4-.07

- Policy constraints should be modeled as a minimum requirement, not as a prescribed outcome. For example, if a minimum requirement for renewable resources is included, the model should have the ability to select a higher amount if it is found to be more cost-effective to do so. Providing levelized cost curves as an input to the model will allow planners to choose an optimal resource mix rather than a specified amount.
- Additional model runs should be considered to explore sensitivities to key uncertainties such as future fuel prices, technology cost projections, and load growth.

2.8. The Commission should require sensitivity analyses be conducted for key variables that pose substantial risk or uncertainty.

Evaluating risk and uncertainty are key considerations in any IRP analysis. Uncertainty describes the quality of information we have at present about an unknown future event or outcome, while risk describes the potential for a bad outcome. Certain key variables contain both a high degree of uncertainty and a high potential risk to customers.

For example, not only are natural gas prices historically volatile (and therefore highly uncertain), but customers are also generally more exposed to fuel price risk than utilities themselves. As such, extra steps should be taken to evaluate and minimize fuel price risk in the IRP process.

25x'25 recommends requiring a sensitivity analysis be conducted for several key variables that contain a large degree of risk and uncertainty. These include:

- Natural gas commodity prices
- Future environmental compliance costs or regulations
- Capital cost overruns
- Future operations and maintenance costs
- Load forecast (as described in 2.1)

Other jurisdictions have included similar requirements such as Louisiana, which stipulates the following: "Sensitivity analyses shall be performed to determine the risk that the reference resource plan might be exposed to unacceptable cost increases under certain conditions, and to evaluate alternative resource plans that would be more economic given the alternative assumptions. Though other assumptions may be considered, the following are often evaluated in sensitivity analyses in utility IRP studies: (1) fuel prices; (2) loads; (3) capital costs for new generation resources; (4) inflation and other financial parameters; (5) probable costs of environmental regulations."[17]

3. Actions linked to the IRP process

3.1. The Commission should clearly articulate the significance of the IRP approval process, and its relation to other Commission actions.

[17] "Integrated Resource Planning Rules for Electric Utilities in Louisiana," Louisiana Public Service Commission, Docket No. R-30021, Attachment A: http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=95a4e806-45b4-4d5d-ae07-dd088a447363

The IRP process should include a step in which the Commission chooses whether approve, approve with modifications, or reject the IRP (including the selected portfolio) ultimately put forward by the utility. This approval should be guided by the objectives that Commission has laid out for the IRP process, and are described above in section 1.1. Other jurisdictions have included a similar Commission approval step, for example in Georgia, which requires the following: "The Commission shall render a decision either approving the plan, approving it subject to stated conditions, approving it with modifications, approving it in part and rejecting it in part, rejecting it as filed, or provide an alternate plan."[18] However, because of the long-term planning horizon, it is important that the Commission clarify the implications of this approval to avoid any unintended effects.

For example, the Commission should consider whether approval provides a presumption of prudency for new resource investments (such as in Nevada and Colorado), or whether the IRP intended to serve more as informal guidance (such as in Arkansas and Indiana) in which case, new resources investments would be subject to additional prudency reviews. If the latter, the Commission should consider what consequences (if any) there would be from deviating from the plan. Moreover, it may not be appropriate to approve cost recovery for resource decisions that are far into the future. One solution would be to include two approval steps – one for the long-term plan which would indicate a general policy preference and one for a near-term action plan what would have implications for cost recovery of near-term resource decisions. Another potential option would be an approach similar to the one in Georgia. In this case, once the IRP proceeding has concluded, a new docket is immediately opened to address procurement and costs associated with the resource portfolio approved in the IRP proceeding.[19]

Additionally, the Commission should consider how to ensure procurement of customer-resources (e.g. DSM) identified in the approved plan. In many jurisdictions these resources are expensed rather than capitalized. As such, the Commission would likely need to approve a program budget sufficient to achieve the level of deployment identified in the IRP.

3.2. Each IRP should include a near-term action plan that provides the Commission an opportunity to approve (or reject) near-term resource decisions.

While it is important to study the long-term implications of any resource plan, there is always going to be substantial uncertainty about resource additions in the later years, and time to modify the plan if conditions change. More critical attention should be paid to the portion of the resource plan covering the next 3-5 years, for which resource decisions could be made imminently. Thus, an important component of any IRP is the inclusion of a near-term action plan that provides the Commission the opportunity to issue guidance on (i.e. approve or reject) near-term resource procurement decisions. As with the long-term IRP analysis, the near-term action plan should include both supply-side and demand-side resources. The Commission could provide guidance for this component of the plan as a separate decision from approval of the overall long-term plan.

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[18] Georgia PSC Rule 515-3-4-.06 (4): http://rules.sos.state.ga.us/GAC/515-3-4-.06

[19] "Stakeholder Engagement in Integrated Resource Planning," Lawrence Berkeley National Laboratory, DOE Office of Electric Delivery and Energy Reliability, August 8, 2017 https://emp.lbl.gov/sites/default/files/lbnl_mi_ta_august8_session_4_stakeholderengage_final.pdf

As an example, Louisiana's approach to including a near-term action plan is described as follows: "The final step of the IRP process is to develop an action plan, which creates a link between the Company's preferred portfolio and the specific implementation actions that need to be performed during the first five years of the planning period."[20]

It is important to note that in many jurisdictions, actual resource decisions by utilities have not always closely followed their IRP.[21] This highlights the importance of including a near-term action plan, since it is one way the Commission can ensure that actual resource decisions are in fact linked to the results of the IRP process.

3.3. Resource procurements should be conducted to inform development of near-term action plan.

As mentioned earlier, a near-term action plan guides the execution of near-term resource investment decisions. To ensure the most accurate cost data and efficient technology options are evaluated, a procurement action should be conducted after a comprehensive needs assessment and prior to submission of the draft IRP plan. 25x'25 recommends that certain practices guide the procurement process to ensure that it is conducted as fairly and as competitively as possible. A standard approach would be to issue a Request for Proposals (RFP) or Request for Information (RFI) to meet a specific resource need (e.g. 100 MW by 2021). Moreover, the RFP can be structured as an "all-source" solicitation that would allow resources of all different types to compete against each other on a level playing field. However, the Commission should be advised that even if an all-source RFP is pursued, it may inadvertently be biased towards certain types of resources depending on how the parameters of the RFP are written.

In some cases, it may be too difficult to write an RFP that is encompassing of all resource types. In the event that it is not possible to ensure equal participation, the Commission should consider other tools at its disposal, such as requiring proposals from certain resource types identified as consistent with the Commission's IRP goals and objectives. For example, in Colorado, all-source RFPs have successfully been used to solicit proposals from a wide range of supply-side resources. However, the state has also separately implemented energy savings requirements and utility programs for DSM resources.[22]

3.4. The IRP process should be able to accommodate improvements for future IRP cycles.

In most jurisdictions, IRPs are intended to be iterative processes through which continuous improvements are made. 25x'25 agrees with this goal and suggests it be codified into the IRP rules. That is, as part of the IRP approval process, the Commission should have an opportunity to identify improvements and make changes to the process for future IRP cycles.

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[20] "Integrated Resource Planning Rules for Electric Utilities in Louisiana," Louisiana Public Service Commission, Docket No. R-30021, Attachment A: http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=95a4e806-45b4-4d5d-ae07-dd088a447363

[21] "Exploring the relationship between planning and procurement in Western U.S. electric utilities," LBNL, 2017: http://eta-publications.lbl.gov/sites/default/files/irp_paper_2_-_planning_to_procurement_-_final_6june2017.pdf

[22] "Colorado Electric Utility Energy Efficiency Programs: A Success Story," Southwest Energy Efficiency Project: http://www.swenergy.org/Data/Sites/1/media/co-success-story-dsm-2017-final.pdf

As an example, South Carolina has adopted the following in its IRP Process: "The Commission realizes that the IRP process is dynamic and that modifications may be necessary over time. New issues may arise, existing issues or components of the plan may change in significance, and improved analysis techniques may be developed. As these occur, they will be evaluated for possible incorporation into the IRP process, or for separate consideration."[23]

Conclusion

The 25x'25 Alliance would like to thank the Commission for the opportunity to submit these comments regarding this important matter. There are examples of successful IRP standards across this nation that place a premium on transparency, facilitate equal consideration of renewable energy and demand side management resources as compared to traditional generation resources, and provide ratepayers with peace of mind through reliable, affordable electrical service. The best practices for IRP are time-tested and have emerged from decades of utilization.

By establishing a uniform IRP policy applicable across all regulated electric utilities in Mississippi, this new paradigm in generation needs assessments will unleash energy innovation and give a boost to customer choice in the marketplace.

As our own electric generation mix evolves and transforms in Mississippi, proper planning will be critical for the future of our economy, infrastructure, investments and innovation.

We look forward to further participation in this proceeding.

Respectfully submitted this second day of August 2018.

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[23] "Integrated Resource Planning Process," South Carolina Public Service Commission, Order No. 91-885, Appendix A: https://dms.psc.sc.gov/attachments/order/DF4FC4A9-EB41-2CB4-D44614AD02D02B8D