

**2nd Draft<sup>1</sup>**  
**Integrated Resource Plan (IRP) Filing Requirements**

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<sup>1</sup> **After 1<sup>st</sup> round of informal comments.**

## **Application Instructions for Integrated Resource Plan Filings**

These application instructions apply to ~~an~~ a standard electric utility application for Michigan Public Service Commission (MPSC or Commission) approval of an Integrated Resource Plan (IRP) under the provisions of MCL 460.6t.<sup>2</sup> The application shall be consistent with these instructions, with each item labeled as set forth below.<sup>3</sup> Any additional information considered relevant by the applicant may also be included in the application.

**Commented [BL(1): Comment:**

The two multistate utilities would file their IRPs in the other state pursuant to a coordinated schedule. The applicability statement should include recognition of possible variations.

### **Schedule**

A utility shall coordinate with the Commission Staff (Staff) in advance of filing its application to avoid resource challenges with IRP applications being filed at the same time as IRP applications filed by other utilities. A utility may be requested to delay its IRP application to preserve a 21-day spacing between IRP applications.

MCL 460.6t(3) specifies that the initial IRP applications be filed within two years of the effective date of the act and also requires the Commission to issue an order establishing filing deadlines. The proposed initial IRP application filing deadlines are:

- i. Upper Peninsula Power Company: ~~May 4~~ November 16, 2018 (or earlier as requested)
- ii. Indiana Michigan Power Company: December 14, 2018 (or to align with Indiana)
- iii. Consumers Energy Company: January 4, 2019 (or earlier date if requested and spaced at least 21 days apart from other IRP cases)
- iv. Wisconsin Electric Power Company: January 25, 2019

<sup>2</sup>Variations from the standard instructions may occur as allowed by MCL 460.6t(4) for multistate utilities and those serving fewer than 1 million Michigan customers.

<sup>3</sup>Indiana Michigan Power Company (I&M) plans to file a single, total company IRP covering all of its customers in Indiana and Michigan with both the IURC and MPSC. Consistent with MCL 460.6t (4) for purposes in Michigan, I&M will prepare its upcoming 2018 IRP and subsequent IRPs in accordance with the requirements of the Indiana IRP Rules.

- v. Northern States Power Company Wisconsin (Xcel): February 15, 2019 (or to align with Minnesota)
- vi. Alpena Power Company: March 8, 2019
- vii. Upper Michigan Energy Resources Corporation: March 29, 2019
- viii. DTE Electric Company: April 19, 2019

Following the initial IRP applications, the utilities shall comply with all future filing deadlines directed by the Commission and shall continue to coordinate with Staff to schedule future IRP application filing dates.

#### **Filing Announcement**

To facilitate the scheduling and preparation of IRP proceedings, any utility intending to file an IRP shall file a filing announcement, in a new docket, at least 30 calendar days prior to the proposed filing. The filing announcement, along with a proof of service, shall be served on all parties granted intervention in the utility's last IRP case, and the utility's last electric rate case. If the IRP described in the filing announcement is not filed within 120 days after filing of the announcement, the filing announcement will be considered withdrawn. If a certificate of necessity (CON) is also being filed, the same filing announcement would serve as the filing announcement required for the CON.

The filing announcement shall include:

- a) Statement of intent to file an IRP;
- b) Estimated date of filing;
- c) Information related to any stakeholder engagement meetings that have already taken place or are scheduled to take place; and
- d) Information related to any CON application that would be filed with the utility's IRP.

The Commission may, if necessary, order a delay in filing an application to establish a 21-day spacing between filings. The filing announcement is submitted at least 30

calendar days prior to the IRP application, thus providing the Commission with sufficient time to issue an order regarding the 21-day spacing if it so chooses.

### Pre-Filing Request for Proposals

Each electric utility whose rates are regulated by the Commission shall issue a request for proposals (RFP) to provide any new greater than 50 MW, non-renewable supply-side generation capacity resources needed to serve the utility's reasonably projected electric load, applicable planning reserve margin, and local clearing requirement for its customers in this state, as well as customers the utility serves in other states located in other states but served by the utility, during the initial three-year planning period to be considered in each IRP to be filed, as outlined in MCL 460.6t. The following will apply:

- a) Documentation supporting the RFP process that took place shall be included with the IRP application;
- b) The RFP process undertaken by the utility is subject to audit by the Staff;
- c) The filing shall include evidence that the pre-filing RFP process was conducted in a manner consistent with the MPSC code of conduct, and applicable state, federal, and MPSC rules; and
- e)d) The RFP shall allow for proposals to provide new supply-side capacity resources to partially meet the requirement, pursuant to MCL 460.6t(146)(f).

The utility's IRP filings shall demonstrate compliance with MCL 460.6t and include the following items:

- a) Letter of transmittal expressing commitment to the approved preferred resource plan and resource acquisition strategy and signed by an officer of the utility having the authority to commit the utility to the resource acquisition strategy, acknowledging that the utility reserves the right to make changes to its resource acquisition strategies as appropriate due to changing circumstances;

**Commented [BL(2)]:** Comment: renewable projects are governed by PA 295 and as such should be excluded from this requirement. There should be a minimum size requirement, and suggest that projects smaller than 50 MW should be excluded from this requirement.

**Commented [BL(3R2)]:** Staff: Staff is unsure whether renewable projects should be excluded, particularly after 2021, and would like to hear more comments / discussion on this. Staff is also unsure whether it is appropriate to include a minimum capacity threshold for the RFP requirement, however, Staff understands the reasoning behind this request and would like to hear further comments from stakeholders so is placing it in the clean draft for comment.

**Commented [BL(4)]:** Comment: "Generation" may or may not be construed to include technologies like energy storage (e.g., batteries). ESA recommends just use of term "supply-side capacity resource" here and elsewhere in the document, which covers both generation and energy storage.

- b) Technical volume(s) that fully describe and document the utility's analysis and decisions in selecting its preferred resource plan and resource acquisition strategy;
- c) The data and information requested in the MPSC's IRP Filing Requirements included herein; and
- d) Any other information deemed relevant by the applicant.

**Commented [BL(5)]:** Comment: This doesn't fit here under Pre-filing RFP Section... Should we include it under IRP Report and Documentation before going into the filing format?

**Commented [CC(6R5)]:** Reply: This will be relocated in the clean version.

### Stakeholder-Public Outreach Process

Stakeholder-Participant engagement early in the development of the IRP is encouraged, to (1) educate stakeholders-participants on utility plans; (2) improve transparency of utility decision making process for resource planning; (3) create opportunity to provide feedback to the utility on its resource plan; (4) encourage robust and informed dialogue on resource decisions; and (5) reduce utility regulatory risk by building understanding and support for utility resource decisions. The utility may choose to incorporate some, or all, of the stakeholder-participant input in its analysis and decision-making for the IRP filing.

**Commented [BL(7)]:** Comment: The term "stakeholder" is undefined and may suggest that any participant in the process has an interest that justifies standing in the MPSC process. The term "public outreach process" could avoid this issue and is suggested for the heading and the discussion. The term "participant" would be substituted for stakeholder.

The advance public outreach process is voluntary and not required by the statute; therefore, the discussion should clearly indicate that the various documentations apply if the outreach process is used.

There is no need for a special comment process on the utility report (item IV) because the statute allows participation in any IRP proceeding.

In the year-365 days prior to the IRP filing, each electric utility shall consider hosting update workshops with stakeholders-interested participants. The purpose of the pre-filing workshop(s) is to ensure that stakeholders-participants have the opportunity to provide input and stay informed regarding 1) the assumptions, scenarios, and sensitivities, 2) the progress of the utility's IRP process, and 3) plans for the implementation of selected-resource-strategy-the proposed IRP. Documentation demonstrating the stakeholder engagement-public outreach process undertaken by the utility shall be included with the IRP filing. Documentation may include:

**Commented [BL(8)]:** Comment: would suggest requiring utilities to report on stakeholder engagement whether they've done it or not and, if not, to explain their justification for such. I would also recommend specifically allowing stakeholders to file comments with the Commission concerning the utility's stakeholder engagement efforts whether or not the utility actually undertook such efforts. This would give stakeholders the opportunity to have a voice in cases where the utility chose not to undertake such efforts.

**Commented [BL(9)]:** Comment: suggest changing this to reflect that they have 365 days. Says it could be construed to mean that if we file in 2018, we need to have meetings held in 2017.

- a) Workshop dates
- b) Evidence that notice of the workshops was provided to the public
- c) Meeting minutes
- d) Meeting or workshop attendance lists

- e) ~~Stakeholder-Participant~~ comments on the ~~draft-last approved~~ IRP and/or ~~inputs into the proposed IRP application~~
- f) Discussion indicating if or how the ~~public outreach~~~~stakeholder~~ process influenced the IRP

**Commented [BL(10):** Comment: Suggest striking this item, or striking the word “draft” and inserting “the last approved”. The draft IRP would not be available at stakeholder meetings held in the year prior to filing a new IRP.

If the utility chooses to hold pre-filing workshops, the utility shall prepare a ~~stakeholder public outreach~~ report to document the outcomes of any pre-filing workshops, and shall file the report with the IRP filing. ~~Stakeholders-Participants may file comments with the Commission concerning the utility’s stakeholder report within 30 days of the utility’s IRP filing.~~

**Commented [BL(11):** Comment: Recommend a reply comment period for the utility filing the IRP to respond, if needed, to Stakeholder comments.

### Risk Assessment Methodology

Each utility’s IRP filing shall include evidence that a thorough risk analysis was undertaken as part of the IRP. Acceptable forms of risk analysis include, but are not limited to the following:

**Commented [BL(12):** Comment: It would also be helpful for such risk analysis to identify the value of optionality— that is, not only to identify the cost-benefit of different portfolios under uncertain futures, but also to identify which portfolios lend themselves more readily to cost-effective modification in the future. Such an approach would complement the bottom-line net benefit (or cost) of a portfolio with an evaluation of how easily the utility can adapt future activities. Doing so can help the PUC minimize risks of overbuilding or of stranded assets.

- I) Scenario analysis: For non-market-based policy instruments, such as targets, standards, or regulations, scenario analysis is one of the simplest ways to explore the decision landscape under alternative futures. ~~Modelers should strongly consider the methodological heritage of various scenario approaches, ensure consistency among scenario assumptions, and carefully consider the limitations and caveats associated with the analysis while drawing insights.~~

**Commented [BL(13):** Comment: Modeling could be expensive and less relevant for the smaller IOUs lacking a near-term need for supply-side resources. We suggest that risk assessment be optional for utilities serving fewer than 1 million customers, in this situation.

- II) Global sensitivity analysis: Market-based policy instruments rely on robust policy designs under uncertainty. Global sensitivity analysis should be applied wherever possible to test the robustness of model results and insights. Sensitivity analysis can help determine whether a single input parameter value, combination of parameter values, or a structural assumption built into the model are driving the results and help focus scenario analyses.

**Commented [BL(14):** Comment: The IRP application should include a thorough risk analysis. It should be clear that the Commission will ultimately judge whether it meets the threshold of “thorough” and the filing should include justification by the utility of the methodology used and why other acceptable methodologies were less preferable.

III) Stochastic optimization: Stochastic optimization should be considered when the goal is to explore optimal near-term planning strategies that hedge against future uncertainty. The curse of dimensionality limits the number of uncertain parameters that can be included, so modelers should also consider uncertainty that is omitted from the event tree.

IV) Generating near-optimal solutions: Modeling to generate alternatives (MGA) can produce alternative solutions that perform well with regard to the modeled objective but are very different in decision space, it should be considered when analysts or decision makers wish to consider a wide range of alternatives. MGA can also be used to test the flexibility of the base solution within a user-specified cost range. The application of MGA represents a simple way to explore structural uncertainties in the model. No optimization can fully capture real world complexity; un-modeled objectives and constraints are always present. Thus, decision makers may find that the near optimal solutions are preferable to the base solution when their own preferences and concerns – exogenous to the model – are brought to bear on the model solutions. Unlike stochastic optimization, which explicitly incorporates uncertainty into a single run to help inform a decision strategy, MGA yields a set of computer-generated alternatives. The intent of MGA is not to provide a singular answer, but rather to provide a set of alternative solutions that indicate the degree of flexibility in the model solution and can be further evaluated.

V) Mean-variance portfolio analysis: A mean-variance analysis (MVA) is the process of weighing risk (variance) against expected return. By looking at the expected return and variance of an asset, investors attempt to make more efficient investment choices – seeking the lowest variance for a given expected return or seeking the highest expected return for a given variance level. It should be noted that the advantage of applying the MVA approach to electricity generation planning is not the identification of a specific portfolio, but the establishment of an efficient frontier where the optimal portfolios will

be located. These are Pareto-optimal, that is, an increase in returns (or a decrease in costs) is only achieved by accepting an increased risk.

✓VI) Monte Carlo analysis: Exploits the probabilistic nature of an uncertain input to develop a distribution of optimal long-term capacity plans based on each value in a distribution of the uncertain input or set of uncertain inputs. Planners will then use the output distribution to consider a best implementation plan, per their level of risk tolerance.

### Confidential Information

Transparency and the use of data that can be shared with the Commission, Staff, and intervenors is encouraged. Proprietary, confidential, and other nonpublic materials used in the development of the forecasts, scenarios, or other aspects of the IRP should be presented in such a way that the proprietary and confidential nature of the materials is preserved. The use of publicly available data and materials is encouraged in lieu of proprietary and confidential materials.

Inclusion of specific materials in the IRP filing may be contingent upon appropriate confidentiality agreements and protective orders. Proprietary, confidential, and other nonpublic materials filed as part of the IRP shall be clearly designated by the applicant as confidential.

Upon Staff's request, and after execution of an appropriate confidentiality agreement or protective order, the utility shall make available to Staff any proprietary information, analyses, modeling, or similar information that the utility uses to support its filing or that the utility uses to facilitate its internal planning, modeling, decision-making, risk assessment, or similar processes. If a utility is unable to provide the requested proprietary information due to license, contractual, or legal restrictions, the utility shall provide Staff with verification of such restrictions.

**Commented [BL(15)]: Comment:**

The third paragraph suggests that materials provided on Staff request would not be held confidential. The language should clarify that confidentiality protections may apply to the information given to Staff.



## Approval of Costs

For the Commission to specify the costs to be approved for the construction of or significant investment in ~~an electric generation~~ a supply-side facility, the purchase of an existing ~~electric generation~~ supply-side facility, the purchase of power through a power purchase agreement with a term greater than four years, or other investments or resources used to meet energy and capacity needs for a term greater than four years and commenced within three years after the commission's order approving the initial plan, amended plan, or plan review, in accordance to MCL 460.6t(11-12) ~~included in an approved IRP~~, the following information, data, and documents shall be provided:

- I) For specific non-renewable supply-side resources of more than 50 MW but less than 225 MW, that are planned to go into service within three years following the approval of the IRP, the following evidence (covering the lifespan of the project) shall be provided:
  - a) A description of the plant size, type, and summary engineering/design specifications. The description should also include the following:
    - i. Description of fuel use, both primary and back-up, and provisions for transporting and storing fuel;
    - ii. Projected annual costs, in accordance with the breakdown specified in the Federal Energy Regulatory Commission Uniform System of Accounts; and
    - iii. Annual depreciation on the capital investment.
  - b) Projected annual return and income taxes on capital investment;
  - c) The operation and maintenance (O&M) costs over the life of the facility described as costs which are variable, in current dollars per kWh, with expenses for fuel and other items indicated separately; and costs which are fixed, in current dollars per kW;
  - d) Projected property taxes;
  - e) The rates of escalation of cost, including:
    - a) Capital costs;
    - b) O&M costs which are variable and related to fuel;
    - c) O&M costs which are variable and unrelated to fuel; and

**Commented [BL(16): Comment:** The 4 year terms are intended to exclude small short term market purchases to meet SRM capacity requirements.

**Commented [BL(17): Comment:** This is an onerous amount of data to provide for small resources including potentially renewables and small CHP's. Exclude Renewables from this as they are appropriately covered in PA295, clarify that small short term market purchases/PPA's are not included, and reduce the amount of data required for resources <50MW.

Some of the items ask for "projections" while others don't have that qualifier. All of these items will only reflect our best estimate at the time and cannot be considered binding. The goal of an IRP is to identify capacity or energy shortfalls and identify the generic size, cost, technology, and broad operating characteristics of the most reasonable and prudent resources to fill any shortfalls. Specific information about the actual projects selected to fill a shortfall are not within scope of an IRP. Those are issues for a CON, an RPS or EWR plan filing, or a general rate case.

**Commented [BL(18): Comment:** For clarity—is this the section governing how energy storage resources would be reported? ESA recommends making explicit that this is indeed the case.

**Commented [BL(19): Comment:** Clarify what is meant by "other items"

- d) O&M costs which are fixed.
- f) The total annual average cost per kWh at projected loads in current dollars for each year of the plan for the proposed facility;
- g) Equivalent availability factors, including both scheduled and forced outage rates;
- h) Capacity factors for each year in the planning period;
- i) Operation cycle (i.e., baseload, intermediate, or peaking), identifying expected hours per year of operation, number of starts per year, and cycling conditions for each year in the planning period;
- j) Heat rates (efficiency) for various levels of operation;
- k) Unit lifetime, both for accounting book purposes and engineering design purposes, with explanations of differences;
- l) Lead time, separately identifying the estimated time required for engineering, permitting and licensing, design, construction and pre-commercial operation date testing;
- m) Potential socioeconomic impacts, such as employment, for the local region of the proposed supply-side resource, construction of or significant investment in an electric generation facility, or the purchase of an existing electric generation facility;
- n) Information on the nature of the proposed supply-side resource and the costs expected to be incurred in connection therewith, including a copy of any associated contract(s), including:
  - i. Capital costs;
  - ii. O&M costs which are variable and related to fuel;
  - iii. O&M costs which are variable and unrelated to fuel; and
  - iv. O&M costs which are fixed.

II) Renewable Resources<sup>4</sup>: Revenue requirement, incremental costs of compliance shall be calculated to include the following:

<sup>4</sup>Information for renewables, demand response, and energy waste reduction projects shall be required after renewable compliance year 2021.

**Commented [BL(20)]:** Comment: This level of detail is generally not available until a project plan is developed for a specific asset, and is not within the scope of the IRP analysis

**Commented [BL(21)]:** Comment:  
**Community level impact assessment/Equity analysis:** Some level of equity analysis is warranted to better understand the community-level impacts of the preferred plan and its alternatives, particularly given the significant shift in resource that we expect to see over the coming years. I don't necessarily think this needs to be a big lift (with additional economic or job-impact modeling for example), but should serve to identify those communities that will be "winners and losers" (so to speak) in both economic and environmental contexts, and a specific discussion of how the preferred plan and its alternatives might help disadvantaged communities. This could serve as an opportunity for utilities to showcase the work they're doing in low-income areas around EE or demand-side resources, or serve to highlight the lack of such.

**Commented [BL(22)]:** Comment: Contracts including fuel, LTSA's, and O&M, contain confidential commercial and proprietary information that, if made public, could negatively impact future negotiations, and ultimately lead to higher costs for utility customers.

**Commented [CC(23)]:** Staff: Although a comment suggested removing this item, in order to approve costs as part of an IRP, the Commission will need to understand what it is approving in order to make that determination.

- a) Capital, operating and maintenance costs for renewable energy systems (including property taxes and insurance for renewable energy systems);
- b) Financing costs;
- c) Costs that are not otherwise recoverable in base rates including interconnection and substation costs;
- d) Ancillary service costs;
- e) Cost of purchased renewable energy credits (RECs) other than those purchased for non-compliance ~~with MCL 460.1028~~;
- f) Cost of contracts ~~per MCL 460.1028(4)~~;
- g) Expenses incurred as a result of governmental action including changes in tax or other laws;
- h) ~~Any other renewable energy related costs that are necessary to implement the 20-year plan and the renewable energy portion of the 35% goal of energy sales being produced by using a combination of renewable energy and energy waste reduction;~~
- i) Subtract revenues ~~as identified in MCL 460.1047(2)(b)~~ (i.e., transfer price, environmental attributes, interest on regulatory liability, etc.) ~~through 2029~~;
- j) Recovery to include the authorized rate of return on equity, which will remain fixed at the rate of return and debt to equity ratio that was in effect in base rates when the renewable plan was approved ~~(MCL 460.1047(1))~~ ~~(only through 2029)~~.
- k) Provide the following information in relation to renewable resource cost recovery:
  - i. Forecast through the end of the renewable plan period ~~in 2029~~ of the non-volumetric surcharge ~~(MCL 460.1047)~~; and
  - ii. ~~Forecast through the end of the renewable plan period in 2029~~ of the regulatory liability balance.

**Commented [BL(24): Comment:** requests to strike because renewable resources are more appropriately covered in detail under PA 295. Separating the cost between base utility and renewables could confuse the renewable costs filed under PA 295.

**Commented [CC(25R24):** Staff is attempting to accommodate this request with the proposed footnote and some modifications within this section.

III) Demand Response and Energy Waste Reduction<sup>5</sup>: The utility shall provide the following information in relation to demand response programs, energy waste reduction programs, and distributed generation programs cost approval and recovery. For each individual program or group of programs, provide:

- a) Total annual cost including:
  - i. Annual O&M cost for each individual portfolio of energy waste reduction, demand response, and distributed generation programs;
  - ii. Annual capital cost for each individual portfolio of energy waste reduction, demand response, and distributed generation programs; and
  - iii. Expected cost-sharing or financial incentive granted to the utility by the Commission.
- b) Total demand reduction potential (MW);
- c) Maximum single event demand reduction;
- d) Total resource capacity (MW) and type (load modifying resource, emergency demand response, etc.) reported to the ~~Midcontinent Independent System Operator (MISO)~~ applicable RTO/ISO;
- e) Total energy reduction achieved (MWh);
- f) Description of program, including customer enrollment, technology used, and marketing plan. ~~Customer program enrollment.~~

### **Waivers and Process for Smaller Utilities**

Electric utilities with fewer than 1,000,000 customers in this state may request a waiver to any portion of these IRP filing requirements with its IRP application. Any request for a waiver shall include a discussion and justification outlining why the waiver is warranted and in the best interest of its customers.

<sup>5</sup>[Information for renewables, demand response, and energy waste reduction projects shall be required after renewable compliance year 2021.](#)

**Commented [BL(26): Comment:** While we are willing to report participation by portfolio (EWR, DR, DG), we want to emphasize that the focus of the IRP is on capacity adequacy, not customer participation.

**Commented [BL(27): Comment:** While it's customary in IRP processes to allow smaller entities to avoid a full-blown IRP process, some baseline reporting is warranted, including a description of the current system, forecasted energy and capacity requirements, and a description of how the utility plans to meet this demand over next 10 years to avoid situations where no IRPs are filed until there's a need to build a new supply side resource that might have been avoided with proper planning and investment in EE/DR. I would also recommend reporting on EE/DR/DG programs/investments (current and future) at a minimum. This could be a much lighter lift and still have good value.

**Commented [BL(28): Comment:** supports the waiver process that recognizes the provisions of MCL 460.6(4). In addition to a waiver process, we suggest that the heading be changed to Waivers and Process for Smaller Utilities, with the following language added:  
"A non-multistate Michigan electric utility serving fewer than 1 million customers may elect to file an IRP based on its specific circumstances, that deviates from these requirements, subject to Staff's ability to request supplemental information. The filing shall include an explanation why the deviations are reasonable under its circumstances. The Commission shall review any such filings under the traditional "just and reasonable" standard."

Electric utilities with fewer than 1,000,000 customers in this state may request approval from the Commission to file an IRP jointly with other smaller utilities. Commission approval is required prior to filing a joint IRP.

A non-multistate Michigan electric utility serving fewer than 1,000,000 customers may elect to file an IRP based on its specific circumstances, that deviates from these requirements, subject to Staff's ability to request supplemental information. The filing shall include an explanation of why the deviations are reasonable under its circumstances. The Commission shall review any such filings under the traditional "just and reasonable" standard.

Staff notes that Northern States Power-Wisconsin and Indiana Michigan Power Company are utilities located in Michigan that already file multistate IRPs in other jurisdictions. Due to the provisions in MCL 460.6t(4) regarding multistate IRPs, either Northern States Power-Wisconsin or Indiana Michigan Power Company may utilize the IRP filing requirements of another state in accordance with those provisions.

### **IRP Report and Documentation**

The utility's IRP filings shall include an IRP document(s) that fully describes and documents the utility's analysis and decisions in selecting its preferred resource plan and resource acquisition strategy. To facilitate a similar format for each utility's application, utilities are encouraged to align its report with this provided outline and include at least the following items:

l) Executive Summary:

An IRP shall include an executive summary, suitable for distribution to the public. The executive summary shall be an informative non-technical description of the preferred resource plan and resource acquisition strategy. This document shall summarize the contents of the IRP document and should include the following:

**Commented [BL(29): Comment:**

- The executive summary could be an overview statement useful for the multistate utility filing its IRP, or for the smaller utility alternative IRP proposal.
- The executive summary has an unusually large level of detail which would detract from its usefulness as a summary (e.g. listings of assumptions, descriptions of research projects, detailed performance measures).
- Throughout this section, there are several general references to "research programs/activities", which need clarification.
- Data on DSM (p14), RE and Goals (p15) and Peak Demand/Energy Forecasts (p16) are matters addressed in the other proceedings and filings (RE reports, EWR cases, etc.). There is a need to avoid multiple litigation of such items.
- Transmission analysis (p17) should be focused on a specific, short-term planning horizon, such as 3 years.
- The assessment of transmission upgrades to meet need (p17) is a matter handled by the RTO.
- Does rate class impact grouping ((d) on p22) apply to broad categories of R-C-I or each specific schedule?

**Commented [BL(30): Comment:**

- For l(a), the description of existing facilities should include anticipated lifetime of the facility
- For l(c), demand should be shown for assumed, as well as high and low demand scenarios
- For l(d)(ii), Potential rate changes should be translated into what they would look like for a typical bill across rate classes and seasons.

- a) An overview of the planning period examined in the IRP analysis and application;
- b) A brief introduction describing the utility, its existing facilities, existing purchase power arrangements, existing demand-side programs, existing demand-side rates, and the goal to be achieved by its proposed course of action and implementation strategy;
- c) ~~For each rate class (or rate schedule if available) and for the total of all rate classes, the load forecasts for peak demand and for energy for the planning horizon, with and without utility demand-side resources, and a listing of the economic and demographic assumptions associated with the base load forecast in accordance with outcomes from MCL 460.6t;~~
- d) ~~A summary of the preferred resource plan to meet expected energy and capacity needs for the planning horizon, clearly showing the demand-side resources and supply-side resources (both renewable and non-renewable resources), including additions and retirements for each resource type, with the following performance measures:
 
  - i. ~~Estimated annual revenue requirement;~~
  - ii. ~~Estimated level of average retail rates and percentage of change from the prior year, in total and by major rate class; and~~
  - iii. ~~Estimated company financial ratios;~~
  - iv. ~~A description of the major research projects and programs the utility will continue or commence during the implementation period.~~~~
- e) Identification of critical uncertain factors affecting the preferred resource plan;
- f) ~~For existing legal mandates (i.e., emissions, renewable portfolio standard, energy efficiency, energy waste reduction) and approved cost recovery mechanisms (i.e., cost-of-service study allocations, prior CON approvals) the following performance measures of the preferred resource plan for each year of the planning horizon:
 
  - i. ~~Estimated annual revenue requirement;~~
  - ii. ~~Estimated level of average retail rates and percentage of change from the prior year, in total and by major rate class;~~~~

**Commented [BL(31): Comment:** This doesn't seem appropriate for the Executive Summary. It would also be quite onerous for the longer planning horizon.

**Commented [BL(32): Comment:** Needs to be more clear: Rev Req for just generation? Full cost including A&G, just incremental?

**Commented [BL(33): Comment:** Not clear. IRP will cover up to 15 years and represents a whole portfolio. Projecting "retail rates" would be a new utility requirement to forecasting rates out 15 years, which would require assumptions about topics outside the scope of an IRP, e.g., distribution, transmission, customer service, corporate support. The law requires the IRP to include "projected rate impact for the periods covered by the plan". DTE believes this should be limited to "projected revenue requirements associated with the resources within the preferred resource plan / projected sales"

**Commented [BL(34): Comment:** Would require a full rev requirement? Not summary, and out of scope for this proceeding.

**Commented [BL(35): Comment:** Not clear on the scope or need for this.

- ~~iii. Estimated company financial ratios; and~~
- ~~iv. A description of the major research projects and programs the utility will continue or commence during the implementation period.~~
- ~~g) Actions and initiatives to implement the resource acquisition strategy prior to the next IRP filing.~~

**Commented [BL(36):** Comment: Not sure how to differentiate or carve this out from d).

II) Table of Contents:

Shall be provided.

III) Table of Figures:

Shall be provided.

IV) Introduction:

The utility shall describe resource plans to satisfy at least the objectives and priorities identified in MCL 460.6t. The utility may identify and/or describe additional planning objectives that the resource plan will be designed to meet. The utility shall describe and document its additional planning objectives and its guiding principles to design alternative resource plans that satisfy all of the planning objectives and priorities.

a) General description of the utility's existing energy system, including:

- i. Net present value of utility revenue requirements, with and without any ~~rate of return or~~ financial performance incentives for demand-side resources;
- ii. ~~Net present value~~ Revenue requirement of existing generation and power purchase agreements;
- iii. Summary of existing generation and power purchase agreements by fuel type;
- iv. Utility's existing capacity resource mix;

**Commented [BL(37):** Comment: Tariff based DR programs and rate base associated with IAC programs are inextricably intertwined with utility rate base and cost of service allocations.

- v. Utility's service territory and breakdown of customers class composition;
  - vi. ~~Levelized annual average rates~~ Annual levelized cost of existing generation portfolio; and
  - vii. Description of planning period analyzed.
- b) Statement of power need;
- c) ~~IRP summary~~;
- d) Identify and explain the basis for the forecasted price of energy, capacity, and fuels, and of peak demand and energy requirements, for each year of the analysis used in each scenario and sensitivity evaluated by the utility as part of the IRP process;
- e) ~~Market fundamentals and regulatory environment~~ influencing resource planning decisions;
- i. Regional transmission organization (RTO) market and state regulation structure if a multi-state utility;
  - ii. Potential Changes to RTO Capacity Market;
  - iii. Electric Customer Choice;
  - iv. Transmission Expansion;
  - v. Environmental;
  - vi. Renewable Portfolio Standards;
  - vii. Other
- f) IRP planning process;
- g) Stakeholder Report.

**Commented [BL(38)]:** Comment: The law requires the IRP to include "projected rate impact for the periods covered by the plan". DTE believes this should be limited to "projected revenue requirements associated with the resources within the preferred resource plan / projected sales". It is not feasible or practical to try to isolate existing assets in this rate analysis because entire portfolios are analyzed and compared in the IRP.

**Commented [BL(39)]:** Comment: Not clear on what is being asked for in this section.

V) Analytical Approach:

- a) Describe the modeling process, including the duration of the study.
- b) Describe and provide a justification for the risk analysis approach adopted from the Risk Assessment Methodology section:
  - i. ~~The utility shall describe and document its~~ quantification of the ~~expected value of better information concerning at least the critical uncertain factors~~ risk that affects the ~~performance evaluation~~ of the



~~various preferred resource plan options, as measured by in the net present value of utility revenue requirements. The utility shall provide a tabulation of the key quantitative results of that analysis and a discussion of how those findings affected its decision on a resource plan will be incorporated in ongoing research activities.~~

~~The utility shall describe and document specify the identification of risk variables and/or combinations of risk variables selected; their ranges, probabilities, ranking, and/or weighting combinations of outcomes for the critical uncertain factors that defines the risk quantification limits within which the various preferred resource plan options were is judged. Also describing how these risk variables were judged to be appropriate and explain how these limits were determined. The utility shall also describe and document its assessment of whether, and under what circumstances, other uncertain factors associated with the preferred resource plan could materially affect the performance of the preferred resource plan relative to alternative resource plans.~~

d)c) Describe the modeling tools and data sources employed during the capacity expansion, and other modeling processes.

**Commented [BL(40): Comment:** Not clear how to accomplish, we believe our scenarios and sensitivities and the options presented in section 2) are an appropriate way to bracket and assess uncertainties in planning.

If an example is provided, we can gain a better understanding of what this means and provide additional comments on this approach.

**Commented [BL(41): Comment:** doesn't believe this will add value to the IRP filing and the proposed requirement should be struck. If an example is provided, we can gain a better understanding of what this means and provide additional comments.

#### VI) IRP Scenarios and Sensitivities:

- a) Include a detailed description of all scenarios and sensitivities.
- b) In addition to each electric utility's own scenarios and assumptions, the inclusion of the scenarios and sensitives established modeling scenarios and assumptions in accordance to Commission Order in U-18148, or subsequent Commission Orders related to IRP modeling parameters and requirements.

#### VII) Existing Supply-Side (Generation) Resources:

Detailed account of projected energy and capacity purchased or produced by the electric utility's owned and cogeneration resources. Include data regarding the utility's current generation portfolio, including the age, capacity factor, licensing status, and remaining estimated time of operation for each facility in the portfolio.

- a) Overview
- b) Fossil-Fueled Generating Units
- c) Nuclear Generating Units
- d) Hydroelectric Generating Units
- e) Renewable Generating Units
- f) Energy Storage Facilities
- g) Power Purchase Agreements: energy and capacity purchased or produced by the electric utility from a cogeneration resource
- h) RTO Capacity Credits and Modeling of Existing Units (such as capacity factor, heat rate, outage rate, in service and retirement dates, operating costs, etc.)
- i) Spot Market Purchases and Off-System Sales

**Commented [BL(42): Comment:** recommends explicit inclusion of storage, since other categories may not capture it effectively.

VIII) Existing Demand-Side Resources:

Historical and projected load management and demand response programs for the electric utility in terms of megawatts and MISO Zonal Resource Credits (ZRCs) and the projected costs for those programs.

- a) Provide data on enrolled capacity and demand response events for each program. The following items are to be included:
  - i. Description and annual data on current demand response and load management programs by customer class for the previous five years, and for the IRP study horizon;
  - ii. In the event that energy was purchased in the market as an alternative to demand response and load management programs, a description of in the previous five years, describe the Company's method for determining whether to purchase energy rather than relying on demand response. Also supply data corresponding to demand response substituted by market purchases (hour of the year, MW, \$/MW, program, rate class, and ZRCs);

**Commented [BL(43): Comment:** Assuming that this is just for the prior 5 years. Not sure if we have retained historical data at the level of detail being requested. If this is a request for data on DR utilization in modeling outcomes, this level of detail is onerous / not practical. Modeling does not identify rate class participation, it just picks from the total resources available. Hour of year requires reviewing 8760 hours times 15 years. A summary of how much DR was selected for deployed for how many hours makes more sense. Also, request is not clear as it talks about energy being purchased as an alternative to DR while DR is a capacity program.

This assumes that a utility frequently/consistently weighs DR vs market purchases. In IRP analysis, portfolios of options are analyzed and specific resources selected or not, it's not DR vs market purchase.

- iii. A description of any other programs the utility is considering that might have potential for expanding demand response resources.

IX) Renewables and RPS Goals:

Projected energy purchased or produced by the electric utility from a renewable energy resource.

- a) Describe how the electric provider will meet the renewable energy standards. If the level of renewable energy purchased or produced is projected to drop over the planning periods, the electric utility must demonstrate why the reduction is in the best interest of ratepayers.
- b) Specify whether the number of megawatt hours of electricity used in the calculation of the renewable energy credit portfolio will be the previous year weather-normalized retail sales or based on the average number of megawatt hours of electricity sold by the electric provider annually during the previous three years to retail customers in this state.
- c) Include the expected incremental cost of compliance with the renewable energy standards for the IRP study period.
- d) Describe how the electric provider's plan is consistent with the 35% goal by 2025. [MCL-460-1001\(3\)](#).

**Commented [BL(44):** Comment: Soon to be filed Renewable Energy Plan covers this, redundant to cover it here (at least through 2029).

**Commented [BL(45):** Comment: When demonstrating why a potential reduction in RE is in the best interest of ratepayers, this should include not just economic justification, but also a discussion of any increase in emissions resulting from the lower RE levels, the communities most likely to be impacted by this increase in emissions, and how the utility is accounting for the impacts (public health, environmental, and economic) of increased emissions in its determination of "best interest of ratepayers."

The following suggests several elements that ~~can~~may be included. They are not necessarily exhaustive:

- a) Sales forecast through 2021 for compliance with the renewable energy standard through 2025 toward meeting the 35% goal, and through the study period.
  - i. Specify whether megawatt hours of electricity used in the calculation are based on the previous years` weather-normalized retail sales, or based on the average number of megawatt hours of electricity sold by the electric provider annually during the previous three years to full

service retail customers in the state. (MCL 460.1028(2) and MCL 460.1001(3)).

d) Forecast of meters by customer class through the end of the plan period in 2029.

— This is needed in order to determine retail rate impacts by customer class (MCL 460.1045(2)).

f) Quantity of RECs

— Outline the quantity of RECs the Company forecasts it must obtain each year to meet the RPS (MCL 460.1028(1)).

— Outline the quantity of RECs the Company forecasts it will obtain in 2025 to be counted toward meet the 35% goal. (MCL 460.1001(3)).

h) Detailed Resource Plan

i. Describe the utility's planned renewable energy credit portfolio.

Forecast RECs obtained via Michigan incentive RECs as provided for in MCL 460.1039(2)(a)(b)(c)(d)(e).

ii. Forecast expected compliance levels by year to meet the renewable portfolio targets.

iii. Identify key assumptions used in developing these forecasts and the proposed resource portfolio.

viii. Identify risks which may drive performance to vary.

i) Wholesale Customer Treatment (MCL 460.1035(1)(a)(b))

j) Transfer Price Forecast

xi.viii. Taking into account the transfer price schedules filed in U-15800 and previously approved by the Commission, forecast a price per MWh for each year of the remaining plan period ending in 2029 for renewable energy sold to full service retail customers, which will be used in calculating net incremental cost. (PA 295 of 2008 Section 47-2(b)(iv)).

**Commented [BL(46):** Comment: This is irrelevant to the sales forecast and doesn't belong here. It is covered by item 2 above.

**Commented [BL(47):** Comment: Not part of the IRP. This is about surcharges and compliance, not resource adequacy. More appropriate for the renewable plan reviews and amendments (at least through 2029)

**Commented [BL(48):** Comment: Not part of the IRP. This is about the incremental cost of compliance to the RPS, not about resource adequacy. More appropriate for the renewable plan reviews and amendments

X) Peak Demand and Energy Forecasts:

A long-term forecast of the electric utility's sales and peak demand under various reasonable scenarios. Include details regarding the utility's plan to eliminate energy waste, including the total amount of energy waste reduction expected to be achieved annually, and the cost of the plan.

- a) A forecast of the utility's peak demand and details regarding the amount of peak demand reduction the utility expects to achieve and the actions the utility proposes to take in order to achieve that peak demand reduction.
- b) Subsections:
  - i. Key variables used to develop forecast
  - ii. Long-term forecasting methodology
  - iii. Forecasting uncertainty and risks
  - iv. Historical growth in electric sales for the previous five years, including a record of its previous load forecasts (can be supplied in work papers)
  - v. Business as usual deliveries and demand forecast
  - vi. Alternative forecast scenarios and sensitivities in accordance to U-18418

**Commented [BL(49): Comment:**

For (b)(iii), forecasting uncertainty, utilities should have to explicitly consider how higher-than-forecasted distributed PV and storage adoption rates and time varying rates could cause shifts in time of peak demand or load shapes, the potential benefits and/or issues caused by these shifts.

**Commented [BL(50): Comment:**

recommends the utility also include a record of its previous load forecasts and comparison with actual load growth, given the record of overestimating load growth (see LBL's 2016 report at <https://emp.lbl.gov/sites/all/files/lbnl-1006395.pdf>). If there is a record of deviations, the utility should explain how they have modified their forecast method to produce a more accurate forecast for the current IRP.

XI) Capacity and Reliability Requirements:

How the utility complies, and will comply, with all applicable state, federal, ISO, RTO capacity and reliability regulations, laws, rules and requirements, (such as planning reserve margins, system reliability and ancillary service requirements) including the projected costs/revenues of complying with those regulations, laws, and rules.

- a) Planning Reserve Margin Requirements
- b) System Reliability Requirements
- c) Ancillary Services Requirements

The utility should include data regarding the utility's current generation portfolio, including the age, capacity factor, licensing status, and remaining estimated time of operation for each facility in the portfolio.

XII) Transmission Analysis:

In accordance with MCL 460.6t(5)(h) the utility shall include an analysis of potential new or upgraded electric transmission options for the electric utility. The utility analysis shall include the following information:

- a) The utility shall assess the need to construct new, or modify existing transmission facilities to interconnect any new generation and shall reflect the estimated costs of those transmission facilities in the analyses of the resource options.
- b) A detailed description of the utility's efforts to engage local transmission owners in the utility IRP process in effort to inform the IRP process and assumptions.
- c) Current transmission system import and export limits as most recently documented by the RTO and any local area constraints or congestion concerns.
- d) Any information provided by the transmission owner(s) indicating the anticipated effects of fleet changes proposed in the IRP on the transmission system, including both generation retirements and new generation.
- e) Any information provided by the transmission owner(s), including cost and timing, indicating potential transmission options that could impact the utility IRP by; 1) increasing import or export capability; 2) facilitating power purchase agreements or sales of energy and capacity both within or outside the planning zone or from neighboring RTOs; 3) transmission upgrades resulting in increasing system efficiency and reducing line loss allowing for greater energy delivery and reduced capacity need; and 4) advanced transmission and distribution network technologies affecting supply-side resources or demand-side resources.

Existing Transmission Analysis:

**Commented [BL(51): Comment:** Bullets below seem to cover both existing and new options for transmission.

**Commented [BL(52): Comment:** utilities should be explicitly required to consider non-wires alternatives in its consideration of "viable and feasible improvements to the transmission and distribution networks".

An analysis of current or projected electric transmission alternatives available to the electric utility.

- a) ~~New generation interconnections: The utility shall assess the need to construct transmission facilities to interconnect any new generation and shall reflect the costs of those transmission facilities in the analyses of the resource options.~~
- b) ~~The electric utility shall describe and document its consideration of the adequacy of the current transmission and distribution networks in fulfilling the fundamental planning objective. The utility shall consider, at a minimum, viable and feasible improvements to the transmission and distribution networks that in consultation with the transmission owner and/or the RTO:~~
  - i. ~~Reduce transmission power and energy losses: Opportunities to reduce transmission network losses are among the supply side resources evaluated. The utility shall assess the age, condition, and efficiency level of existing transmission and distribution facilities and shall analyze the feasibility and cost effectiveness of transmission and distribution network loss reduction measures. This provision shall not be construed to require a detailed line-by-line analysis of the transmission and distribution systems, but is intended to require the utility to identify and analyze opportunities for efficiency improvements in a manner that is consistent with the analysis of other supply side resource options;~~
  - ii. ~~Facilitate power purchases or sales: The utility shall assess the transmission upgrades needed to purchase or sell additional energy and capacity to meet future resource needs. An estimate of the portion of costs of these upgrades that are allocated to the utility shall be reflected in the analysis of preliminary supply side candidate resource options; and~~
  - iii. ~~Incorporate advanced transmission and distribution network technologies affecting supply side resources or demand side resources. The utility shall assess transmission and distribution improvements that may become available during the planning horizon that facilitate or expand the availability and cost effectiveness of demand side resources or supply~~

**Commented [BL(53): Comment:** believes section b) should be deleted because the electric utility filing an IRP is not the transmission provider. If the MPSC decides that this section must stay, then DTE proposes to add wording: "In cases where the Utility does not own transmission, the Transmission owner may supply the Utility with alternatives to evaluate in the Utility's IRP model together with the other alternatives. The transmission alternatives may cover reductions to transmission power and energy losses, upgrades to allow additional import or export, and/or advanced transmission and distribution network technologies affecting supply-side resources or demand-side resources. The alternative assumptions provided shall include all details needed to properly evaluate the alternatives in the utility's IRP model including but not limited to: the network loss reduction achieved (GWH by shape, peak, and zone), the costs (total and utility's share), relevant technical details, line capacities before and after upgrade, and assumed timeframe for project completion. The alternatives must also provide a technical assessment on the impact of the proposed solution on the broader transmission and distribution system including voltage analysis, black start considerations, and local clearing requirements. These assumptions for the alternatives shall be supplied to the utility not less than 8 months before the IRP is scheduled to be submitted, along with a contact person available to answer questions."

**Commented [BL(54): Comment:** It is not clear what kind of non-detailed, non-line-by-line transmission analysis is intended to be included here. The only transmission analysis that DTE is aware of involves detailed "line-by-line" modeling.

**Commented [BL(55): Comment:** Same comment as above re: reciprocity with TO.

**Commented [BL(56): Comment:** As far as we are aware, MISO doesn't approve projects based on the costs to a single utility. Difficult to enact but optimal to ensure that the cost/benefit calculations and thresholds are consistent between the utility IRP and MISO. Otherwise, transmission companies will be able to "shop" projects around between the state and MISO, using whichever criteria is more favorable to their approval.

**Commented [BL(57): Comment:** Similar comment as above; what is the intent? DTE lacks in-house resources to do this, and not appropriate to mandate a utility IRP to include Transmission Owner analysis of technologies.

~~side resources. The costs and capabilities of these advanced transmission and distribution technologies shall be reflected in the analyses of each resource option.~~

**Commented [BL(58): Comment:** supports consideration of T&D technologies, like energy storage, that defer or avoid network upgrades otherwise needed to assure deliverability of certain supply-side or demand-side resources. We recommend that the IRP guidelines provide more detail on this point, since this can be both a key driver for ratepayer savings and optimized use of existing grid assets.

More to the point, each utility is also completing 5-year Distribution Plans (U-17990 – CE: [August 1 Draft Distribution Plan](#) and U-18014 – DTE: [DTE June 30 Draft Distribution Plan](#)). Recommend that these plans’ methods and outcomes be integrated with the larger IRP process to ensure consistency.

### XIII) Fuel

The utility should include the following:

- a) Overview;
- b) Natural gas price forecasts under the various scenarios;
- c) Oil price forecasts under the various scenarios;
- d) Coal price forecasts under the various scenarios;
- e) Delivered natural gas prices to existing and new company owned generating plants;
- f) ~~Regional Delivered natural gas prices;~~
- g) Delivered oil prices to existing and new company owned generating plants;
- ~~h) Regional delivered oil prices;~~
- ~~h) Delivered coal prices to existing and new company owned generating plants;~~
- ~~j) Regional delivered coal prices;~~
- ~~k) i) Projected annual fuel costs under the various scenarios; and~~
- ~~h) j) The projected long-term firm gas transportation contracts or natural gas storage the electric utility will hold to provide an adequate supply of natural gas to any new and existing generation facility.~~

**Commented [BL(59): Comment:** Not relevant to the current portfolio or planned projects, the utilities instead provide the more applicable delivered prices for existing and new plants. Delivered commodity prices are very location-dependent, so regional delivered fuel prices are not representative of the Company’s fuel supply costs. Given that we’ll be providing delivered fuel price information for each existing and new Company owned generating plant, we believe that regional pricing is irrelevant.

**Commented [BL(60): Comment:** Is this the total fuel costs for all supply resources in the IRP? That would be similar to our PSCR plan, but for a longer time horizon and multiple scenarios.

### XIV) Resource Screen:

Describe the utility’s options of resources, including combinations of resources, to serve future electric load such as utilizing existing and planned generation resources, build a new facility, purchasing capacity from the market on a short-term basis, and purchasing capacity through a power purchase agreement. The following sections should discuss each option in detail and options should be considered in combination to serve future electric load. As described below, work papers with



information on the costs of each resource option and combination of resource options should be provided with the utility's filing.

- a) Existing and Planned Generation
- b) New Build
  - i. New generation technology and operating assumptions
  - ii. New generation development costs
  - iii. New energy integration of storage technology and operating assumptions
  - iv. New energy storage development costs
- c) Distributed Generation
  - i. Solar Photovoltaic (including solar plus storage)
  - ii. Biogas
  - iii. Energy Storage
  - iv. Other Distributed Generation
- d) Market Capacity Purchases
  - i. Regional Market Supply Outlook
  - ii. Availability of Market Capacity
  - iii. Market Capacity Price Assumptions
- e) Long-Term Power Purchase Agreements
- f) Transmission Resources
  - i. Overview
  - ii. Existing Import and Export Capability
  - iii. Transmission Network Upgrade Assumptions for IRP
  - iv. Import and Export Impact on Resource Strategy.

**Commented [BL(61): Comment:** Recommends explicit inclusion, since energy storage may not fit definition of "generation."

Alternatively, change "generation" to "supply."

**Commented [BL(62): Comment:** Recommends explicit inclusion, given the high expected growth of distributed storage.

**Commented [BL(63): Comment:** DG should be considered under the categories of build or buy, and be assessed against all other generating technologies on a comparable basis.

**Commented [BL(64): Comment:** Redundant to Transmission Analysis section above which discusses existing transmission and possible upgrades

**Commented [BL(65): Comment:** Recommends the PUC direct utilities to use modeling that has greater granularity in time interval (i.e., sub-hourly). This is critical for understanding value of flexibility to system under changing conditions, particularly as more renewables are expected to come online and retirements occur.

For a helpful reference on this and related modeling subjects, see EPRI's 2017 report, *Systems Analysis in Electric Power Sector Modeling: A Review of the Recent Literature and Capabilities of Selected Capacity Planning Tools*, at <https://www.epri.com/#/pages/product/000000003002011102/>

#### XV) Modeling Results:

An analysis of the capital costs, energy production, energy production costs, fuel costs, energy served, capacity factor, emissions (levels and costs), and viability of all reasonable options available to meet projected energy and capacity needs, including, but not limited to, existing electric generation facilities in this state. The

following suggest several elements that address the specific items to be included.

They are not necessarily exhaustive.

- a) Description of IRP portfolio designs and setups strategy (portfolio optimized for least cost, value maximization, reliability, risk minimization, environmental specification etc., or a particular combination);
- b) Scenario and sensitivity results, including emission rates and regulatory costs, rate revenue requirement and financial impacts (NPV over the planning period), portfolio capacity including additions and retirements. Include monthly, seasonal, and annual energy pricing, and resource capacity and load factors;
- c) Business as usual/reference case portfolios of interest options to be selected from;
- d) Analysis of IRP results;
- e) Risk assessment of each scenario.

**Commented [BL(66): Comment:**  
I would recommend explicitly requiring utilities to report emission rates and costs of both utility-owned resources as well as those where the utility has a PPA for 3<sup>rd</sup>-party owned resources. This will give a much more complete picture of the impact of the utility's plan.

**Commented [BL(67): Comment:** Not clear what is meant by this term in context

**Commented [BL(68): Comment:** believes this should be limited to "projected revenue requirements associated with the resources within the resource plan associated with a particular scenario or sensitivity / projected sales".

**Commented [BL(69): Comment:** This is an unnecessary level of detail. Onerous. Not even sure our models could handle this.

**Commented [BL(70): Comment:** Need clarification; Not sure what this phrase is supposed to convey

#### XVI) Proposed Course Of Action:

Include a detailed description of:

- a) The type of generation technology proposed for a generation facility contained in the plan and the proposed capacity of the generation facility, including projected fuel costs under various reasonable scenarios;
- b) Plans for meeting current and future capacity needs with the cost estimates for all proposed construction and major investments, including any transmission or distribution infrastructure that would be required to support the proposed construction or investment, and power purchase agreements;
- c) The projected long-term firm gas transportation contracts or natural gas storage the electric utility will hold to provide an adequate supply of natural gas to any new generation facility; and
- d) How the filing utility will meet local, state, and federal laws, rules, and regulations under the proposed course of action.

**Commented [BL(71): Comment:**  
Section I(b)—renewables and DR should be *at least* in line with current requirements, not at most.

**Commented [BL(72): Comment:** How will the PUC assess the T&D associated costs of resource options? What level of detail is needed? And will non-wires alternatives be required or consideration? Again, the utilities' 5-year Distribution Plans offer a useful input on this.

The utility shall describe the process used to select the preferred resource plan, including the ~~planning principles~~ ~~relative weights given to the various performance measures and the rationale~~ used by ~~the utility~~ ~~decision-makers~~ to judge the appropriate tradeoffs between competing planning objectives and between expected performance and risk. ~~The utility shall provide the names, titles, subject matter experts and describe their roles of the utility decision-makers in the selection of the preferred resource plan selection process.~~ The utility shall describe how its preferred resource plan satisfies the following:

- a) ~~In the judgment of the utility,~~ Strike an appropriate balance between the various planning objectives specified;
- b) Utilize renewable and demand-side resources to comply with existing laws and goals and, in the judgment of the utility, are consistent with the public interest and achieve state energy policies; and
- c) In the judgment of the utility, the preferred plan, in conjunction with the deployment of demand response measures, has sufficient resources to serve load forecasted for the implementation period.

The utility shall develop an implementation plan that specifies the major tasks, schedules, and milestones necessary to implement the preferred resource plan over the implementation period. The utility shall describe and document its implementation plan, which shall contain:

- a) A schedule and description of ongoing and planned ~~research~~ activities to update, amend and/or review the IRP. A schedule to report the status of an approved plan in accordance with MCL 460.6t(14) and improve the quality of ~~data used in load analysis and~~ forecasting;
- b) A schedule and description of actions to implement ongoing and planned demand-side programs and demand-side rates, ~~evaluations, and research activities to improve the quality of demand-side resources~~;
- c) A schedule and description of ~~all-relevant~~ supply-side resource research, engineering, retirement, acquisition, and construction;

**Commented [BL(73):** Comment: This does not seem necessary. This will be a contested case. We will have witnesses that can testify to these matters. There is no need to provide names, titles, and roles of "decision-makers."

**Commented [BL(74):** Comment: Various levels of decision making depending on the size and scope of project. This is new and unique language, what is the intent or potential benefit? This is a contested case with witnesses who are SME's, and that is the appropriate forum for questioning the utility's thinking and decision making. Alternative: describe the governance structure: IRP group, review by Electric Utility Leadership, Corporate Investment, Board.

**Commented [BL(75):** Comment: Not clear where this requirement came from or what is intended? "improve the quality of data"?

**Commented [BL(76):** Comment: Efforts to improve demand side programs reflect operating activities, rather than resource planning activities, and are more appropriately considered in a general rate case

d) A net present value revenue requirement comparison of its proposal and reasonable alternatives over the planning period utilized in the analysis. ~~This analysis should include a comparison of net present value on a yearly basis.~~ It should also include the calculation and comparison of the net present value revenue requirement of the utility's proposed plan under base case conditions and a range of scenarios and sensitivities, and of alternative resource plans. In addition, utilities should be required to provide a discussion of their chosen discount rate and how results of its analysis change with different discount rate assumptions.

**Commented [BL(77):** Comment: we would provide a net present value revenue requirement comparison of its proposal over the IRP planning period, but not on a yearly basis, because the net present value is evaluated over this planning period.

XVII) Rate Impact and Financial Information:

Projected year on year impact of the proposed course of action (and other feasible options) for the periods covered by the plan, covering the following accounts:

- a) Revenue requirement;
- b) Rate base;
- c) ~~Plant-in-service~~ Capital accounts (NPV and levelized costs \$/MW);
- d) Operations and maintenance accounts (NPV and levelized costs \$/MW); and
- e) ~~Projected change~~ Change Annual percentage change in allocated generation cost by rate class ~~plant-in-service costs.~~

**Commented [BL(78):** Comment: There are so many elements that change over 5 years that this calculation would be of little value. Not appropriate for the scope of this proceeding, includes Distribution, etc. (leave out this time.) If we do, just the generation portion of rates

**Commented [BL(79):** Comment: Utilities should be required to not only report the discount rate used in the calculations, but present (and compare) results under both a cost-of-capital discount rate and a discount rate tied to the treasury yield, which is typically much lower and more applicable to ratepayer impacts/risks.

**Commented [BL(80):** Comment: NPV should be evaluated over the planning period and not year over year. Recommend removing these requirements.

**Commented [BL(81):** Comment: Cost allocations are not in scope for this proceeding, more appropriately addressed in a general rate case

The financial assumptions and models used in the plan shall be described. The plan shall include at a minimum the following financial information, together with supporting documentation and justification:

- a) The general rate of inflation;
- b) The AFUDC rates used in the plan;
- c) The cost of capital rates used in the plan (debt, equity, and weighted) and the assumed capital structure;
- d) The discount rates used in the calculations to determine present worth;
- e) The tax rates used in the plan;
- f) Net present value of revenue requirements for the plan;

- g) Nominal revenue requirements by year;
- h) Average system rates per kWh by year; and
- i) ~~An overall assessment of the business and financial risks associated with the plan including the identification of appropriate financial measures by year.~~

XVIII) Environmental:

Describe how the utility's proposed IRP will comply with all applicable local, state and federal environmental regulations, laws, and rules.

- a) Include a list of all applicable environmental regulations that are applicable to the utility fleet. Identify which regulations apply to which resources.
- b) Include all costs to comply with reasonably expected environmental regulations for existing fleet assets in the utility IRP.
- c) Provide an annual projection of the following emissions for the first five years of the IRP study period differentiating between existing and new resources within the proposed IRP
  - i. Pounds of sulfur oxides;
  - ii. Pounds of oxides of nitrogen and nitrous oxides;
  - iii. Pounds of carbon dioxide;
  - iv. Pounds of particulate matter;
  - v. Pounds of mercury.

Environmental:

~~How the utility will comply with all applicable state and federal environmental regulations, laws, and rules, and the projected costs of complying with those regulations, laws, and rules.~~

~~Estimated environmental impact, including specific emission, production, or usage data for each proposed resource, and for the proposed plan for each of the following categories:~~

- ~~i. Pounds of sulfur oxides per MMBTU;~~
- ~~ii. Pounds of oxides of nitrogen and nitrous oxides per MMBTU;~~

**Commented [BL(82): Comment:** The broader risk analysis covered elsewhere is appropriate.

**Commented [BL(83): Comment:** utilities should be required to report annual totals for each of the pollutants listed in the preferred plan and its alternatives. Utilities should also be required to identify top source of pollution – either by power plant or generator type (i.e. coal, NGCC, CTs, etc.)

**Commented [BL(84): Comment:** The data related to emission rates provides minimal public value out of context, such as varying capacity factors, load levels, pollution controls, etc. Instead, the work paper focusing on criteria air pollutants and CO2 seems to be the most relevant narrative for public consumption.

**Commented [BL(85): Comment:** Very onerous requirements here. It isn't clear if this is only required for any new generation being proposed or if this is for the entire fleet. The first part of the section states "proposed resource, and for the proposed plan" which isn't very prescriptive. It also doesn't indicate the timeframe for which to project this (i.e. annual for the period of the IRP).

From an emissions standpoint, some of the specific items are fairly easy to project (SO2, NOx, etc.) and others are a bit more arduous (CFCs, halogens). We typically haven't measured those things, and requiring this information in an IRP is out of scope, should be handled through environmental regulations, air permits, etc.

Solid waste – A lot more data required than expected (ash, sludge, nuc waste). Requiring this information in an IRP is out of scope, should be handled through environmental regulations.

Water – Data is available, but this is new in the IRP. Requiring this information in an IRP is out of scope, should be handled through environmental regulations.

Nuclear fuel – need to investigate whether this is available and if so, whether the time at which information becomes available can support IRP filings.

Land Use – More of a real estate question, but not very clear on what is being asked. If we build something at an existing site, is that considered additional "land use" or would that be a net zero?

**Commented [BL(86): Comment:** Recommend dropping nitrous oxides as they are a small GHG contributor compared to total CO2 emissions, and if you reduce CO2 then you also reduce N2O as both are combustion byproducts. Furthermore, the electric sector is dwarfed by the ag sector, which comprises nearly 70% of N2O emissions. In context, CO2 is the best measure of GHG concerns.

- iii. ~~Pounds of carbon dioxide per MMBTU;~~
- iv. ~~Pounds of volatile organic hydrocarbons per MMBTU;~~
- v. ~~Pounds of carbon monoxide per MMBTU;~~
- vi. ~~Pounds of particulates/air toxics per MMBTU;~~
- vii. ~~Pounds of methane per MMBTU;~~
- viii. ~~Pounds of chlorofluorocarbons, halogens, and other ozone-depleting substances per MMBTU;~~
- ix. ~~Tons per year of solid waste (ash, scrubber sludge, high and low-level nuclear waste);~~
- x. ~~Gallons per year of water impacts or use (water input, water output, receiving water impacts);~~
- xi. ~~Tons per year of spent nuclear fuel;~~
- xii. ~~Acres of land use;~~
- xiii. ~~Pounds of hydrogen sulfides per MMBTU; and~~
- xiv. ~~Pounds of ammonia per MMBTU;~~

XIX) Exhibits and Work Papers:

The filing should include exhibits and work papers as outlined below, subject to any license or other confidentiality restrictions that are unable to be resolved by issuance of a protective order.

- a) Any work papers used in developing the application and supporting testimony. Such work papers shall, whenever possible, be provided in electronic format with formulas intact.
- b) Any modeling input and output files used in developing the application, supporting testimony, and IRP. Such modeling input and output files shall, whenever possible, be provided in electronic format with formulas intact. The applicant shall also identify each modeling program used, and provide information for how interested parties can obtain access to such modeling program; ~~the software's identified strengths and weaknesses in conducting the analysis, and steps the utility will be making before the next IRP~~

**Commented [BL(87):** Comment: Recommend removing VOCs because they are de minimis rate compared to CO2 and other criteria air pollutants.

**Commented [BL(88):** Comment: Recommend simplifying this to PM only, as the list of air toxics is not defined, and PM is by far the primary public health protection target as seen in the MATs data from EPA. If mercury was intended, which is reasonable, then it should be on a separate line item.

**Commented [BL(89):** Comment: Given that this comes from combustion sources, this is de minimis compared to CO2.

**Commented [BL(90):** Comment: Ozone depleting substances are not released on a MMBTU basis (instead they come from leaking refrigeration units for example). Recommend dropping this as irrelevant.

**Commented [BL(91):** Comment: Recommend removing because it is redundant to XI.

**Commented [BL(92):** Comment: Measured for annual water use report at plants. Does this include non generating facilities, offices? Service centers?

**Commented [BL(93):** Comment: Unclear whether this means generated, stored, or something else. Not clear relevance to an IRP.

**Commented [BL(94):** Comment: Recommend removing as this is a local government decision regarding if the project meets the intended land use, so there may not be much value in providing this. Additionally, there is no context of the type of land being used.

**Commented [BL(95):** Comment: Relevancy? Difficult to measure, for what benefit.

**Commented [BL(96):** Comment: Recommend deleting both of these items. Hydrogen sulfides seem de minimis in almost all cases. Biogas projects may have very small amount of hydrogen sulfide, and there is probably not much value in analyzing this compared to other criteria pollutants and doesn't provide the positive context (e.g. methane being combusted rather than released from a biogas source).

Ammonia will only come from sources with Selective Catalytic Reduction systems, and in these cases the "ammonia slip" is regulated in the air permit from DEQ. This context does not make it clear that the use of ammonia is a net positive from a NOx perspective. Given this and the DEQ permit requirements, the Company recommends removing this item. ...

**Commented [BL(97):** Comments: The current format of a rate table and then 3 planning work papers seems redundant and not optimized for public understanding. Recommend starting with 3 work papers suggested and ...

~~submission to remedy any recognized shortcomings should also be discussed.~~

**Commented [BL(98)]:** Comment: Unnecessary. Recommend removal

c) ~~c) Cost data and estimates that were used in the resource screening process to evaluate each electric resource that was considered either individually or in combination with other resources, including renewable alternatives, such as solar, wind, or solar plus battery storage.~~

~~b)d) Cost estimates for all alternative proposals, solicited or unsolicited, received by the utility. A description of each alternative proposals that have been submitted to the utility in response to a request for proposal or as an unsolicited proposal should also be provided.~~

e)e) A discussion of any differences between its short term capacity price curve in the filing and the short term capacity price curve in its last Power Supply Cost Recovery proceeding.

d)f) A description of the impact of the applicant's proposal on rates in its service territory ~~for each rate class over five years~~, using the rate design most recently approved for the applicant by the Commission.

**Commented [BL(99)]:** Comment: The more granular you try to get (by rate class, over # of years, etc) creates false precision given all the moving parts of revenue requirement, cost of service and rate design.

e)g) Identification and justification of the forecasted price of energy, capacity, and fuels, and of peak demand and energy requirements used in the IRP. The utility should identify its base case forecasts and a range of sensitivities for each such factor, and explain how those sensitivities were identified. ~~If the base case forecast(s) differs from recent previous forecasts submitted by the Company to the Commission in other cases or from forecasts developed by independent third parties such as relevant operators of the bulk power system (RTOs), the utility should provide an explanation for such differences.~~

**Commented [BL(100)]:** Comment: This would be onerous.

More than one base case? We would have trouble explaining differences from third parties' forecasts.

f)h) In developing its IRP, a utility should present an environmental compliance strategy which demonstrates how the utility will comply with all applicable federal and state environmental regulations, laws and rules. Included with this information, the utility should analyze the cost of compliance on its existing generation fleet going forward, including existing projects being undertaken on the utilities generation fleet, and present this information within the IRP application to the Commission.

**Commented [BL(101)]:** Comment: "Existing projects being undertaken" is unclear. If it refers to prior projects such as DSI/ACI/scrubber/SCR etc., the data of forgoing the project in the past does not exist. Unclear the benefit of providing this information.

g) Estimated annual emissions of carbon dioxide and greenhouse gases, particulates, sulfur dioxides, ~~volatile organic compounds~~, oxides of nitrogen, and mercury, ~~and other hazardous air pollutants~~ per year and over the life of the facilities included in their IRP.

h) A comparison of total projected carbon emissions under each scenario and sensitivity analyzed, including quantifying the carbon emissions projected in each sensitivity as a percentage of the carbon emissions presented in the business as usual case.

i) The assumed retirement dates of the facilities included in the IRP, with justification provided for the assumed retirement dates.

~~An analysis of feasible and prudent closure scenarios under which emissions included in subsection are eliminated three to five years earlier than currently planned along with an analysis of how that would alter the net present value of revenue requirements to meet future energy demand.~~

j) An analysis that contains an individualized cost estimate for electric resources that were considered, including renewable alternatives, such as solar, wind, or solar plus battery storage, and such cost estimates for all alternative proposals, solicited or unsolicited, received by the utility.

k) Electricity market forecasts utilized.

l) Other documents and data underlying the IRP analysis.

**Commented [BL(102): Comment:** believes this is outside the scope of the legislation. Interested parties are able to propose other alternatives to a utility IRP and address expected emissions and other environmental concerns through the contested case proceeding. Federal and State regulations govern compliance and permitting of operating units for the Electric utility industry, further evaluation of operating an electric generating unit is redundant to existing legal requirements. If this section is left in Consumers Energy recommends removing VOC requirement because they are de minimis compared to the other criteria pollutants. Consumers Energy also recommends dropping "other hazardous air pollutants" as no specific list is given, metallic compounds are already captured via Particulate Matter, and other compounds are de minimis compared to mercury and other criteria air pollutants.

**Commented [BL(103): Comment:** Recommend eliminating because the IRP Strawman scenario covering environmental policy should account for this comparison.

**Commented [BL(104): Comment:** Consumers Energy believes this is outside the scope of the legislation. Interested parties are able to propose other alternatives to a utility IRP and address expected emissions and other environmental concerns through the contested case proceeding. "Feasible and prudent alternatives" is subjective and would rely upon the evidence provided in the contested case proceeding.

**Commented [BL(105): Comment:** This section is confusing. The IRP scenarios and sensitivities as well as risk analysis should provide the benefit that this section seems to be designed for.

Alternatively, replace with requirement to provide a description of how the utility determines appropriate retirements.

**Commented [CC(106): Comment:** This is meant to comply with the "analysis" of alternatives that a utility must conduct pursuant to [MCL 460.6s\(11\)\(f\)](#).