RAP
REGULATORY
ASSISTANCE PROJECT

April 2025

Putting It All Together: Options for Modernizing Integrated Resource Planning

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Acknowledgments

The authors would like to express their appreciation to the following people who provided helpful insights into drafts of this paper: Damali Harding, Destiny Nash and Ronny Sandoval.

Cover photos (clockwise from upper left): Ed White from Pixabay; Pexels from Pixabay; WIRACHAIPHOTO/Shutterstock; Mr.Jakrapong phoaphom/Shutterstock

1 Overview and Context

Customers want reliable and fairly priced energy services. Decades of experience indicate that prescient planning on the part of regulators, utilities and stakeholders helps to deliver reliable energy service at a fair price. Early, routine planning that engages stakeholders in a transparent manner can enable consideration of the greatest variety of relevant options to allow for a reliable, efficient and equitable system that can be achieved at lower cost. By contrast, planning that happens ad hoc or out of the public view usually allows for fewer options and may respond only to short-term needs with familiar options, rather than improving the system overall with openness to innovation. As a result, such planning often results in higher short- and long-term costs.

This toolkit, based on research and discussions with current and former regulatory commission staff, provides an overview of integrated resource plan (IRP) statutes and regulations drawn from Midwestern and other selected states that have IRP requirements. It does not address how to conduct IRP processes,[1] but instead focuses on the statutes and regulations that enable and direct that process. The provisions presented here offer options for legislative language, drawing on example text from selected states, as well as analysis on conditions where these options may or may not be appropriate. Importantly, IRP provisions may be included either in statute or in regulation, as discussed in the following sections.

Each provision is organized into as many as three parts:

- Annotation: An annotation that explains the rationale for the provision.
- Example(s): These may be existing, enacted state provisions or sample language from RAP's Building Modernization Legislative Toolkit.[2]
- Options: Some provisions include one or more options to expand on or modify the provision depending upon conditions that may exist in a state.

1.1 Why Integrated Resource Planning?

An IRP is a long-term energy strategy that electric utilities use to meet their customers' electricity needs. The plan identifies how a utility will meet its customers' demand for electricity at the lowest cost, typically using a mix of supply-side resources (generation, transmission and distribution), demand-side resources (demand response and energy efficiency) and storage. To do this, the plan makes many assumptions about the future.

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[1] For resources on IRP processes, see, for example: Wilson, R., & Biewald, B. (2013). *Best practices in electric utility integrated resource planning: Examples of state regulations and recent utility plans.* Synapse Energy Economics and Regulatory Assistance Project. https://www.synapse-energy.com/sites/default/files/SynapseReport.2013-06.RAP_.Best-Practices-in-IRP.13-038.pdf

[2] The buildings toolkit draws on existing state laws and provides options — indicated in brackets — for tailoring language to another state's specific needs and goals. See: Regulatory Assistance Project. (n.d.). *Building modernization legislative toolkit.* https://toolkits.raponline.org

IRPs are important because they help utilities and their regulators make better investment decisions that are aligned with their state's policy goals. They also help utilities and their regulators analyze future uncertainties, and make robust plans for electric system infrastructure.

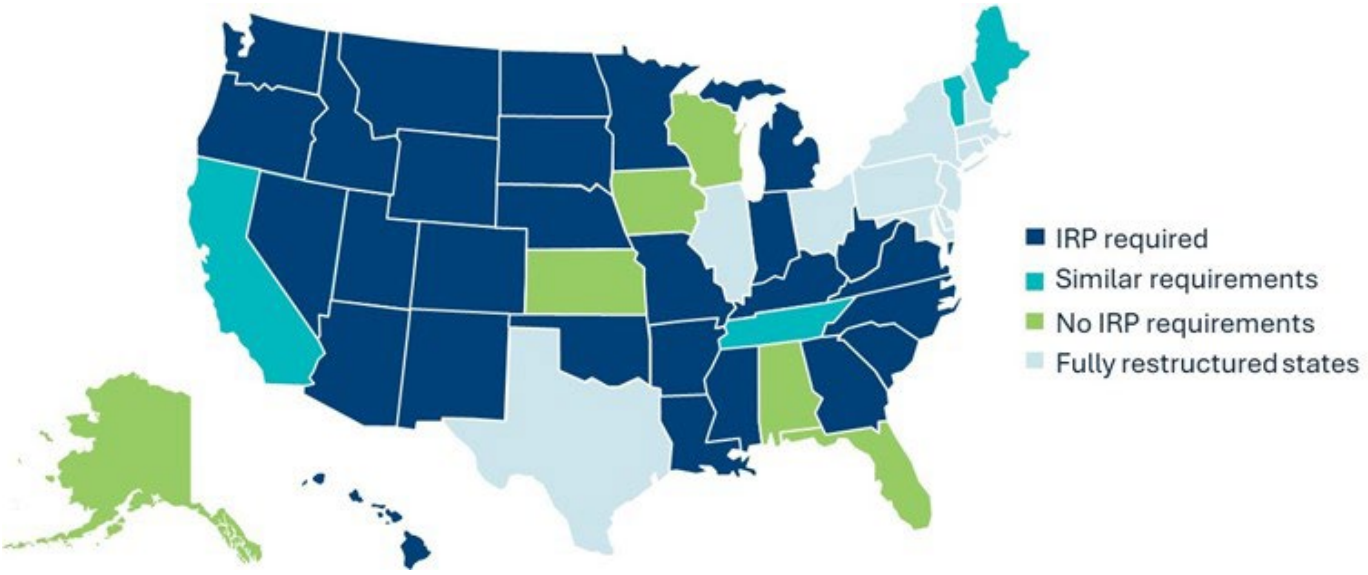
To make confident decisions, regulators need to ensure that many important questions facing our electric systems are rigorously addressed within utility planning. These questions include:

- How does the plan meet short- and long-term system adequacy needs?
- How does the plan forecast a range of future loads and scenario designs?
- How does the plan identify resource options to meet those future loads reliably and safely, including demand-side, supply-side, storage, transmission and distribution options?

1.2 Integrated Resource Planning Across the U.S.

As of 2024, 32 U.S. states required utilities to file IRPs or similar planning documents, as seen in Figure 1.[3] IRPs can be established through legislation, regulation or a combination of both, and their requirements vary.[4]

Figure 1. Electric integrated resource planning requirements (2024)



Source: LeBel, M., Sandoval, R., Frick, N., & Deason, J. (2025). *Opportunities for Integrating Electric and Gas Planning*

[3] LeBel, M., Sandoval, R., Frick, N., & Deason, J. (2025). *Opportunities for integrating electric and gas planning.* Lawrence Berkeley National Laboratory. https://eta.lbl.gov/publications/opportunities-integrating-electric

[4] For a further overview of integrated resource planning in the U.S., see Cooke, A. (2021, March 1*). Integrated resource planning in the U.S. overview* [Presentation to the South Carolina Office of Regulatory Staff]. Pacific Northwest National Laboratory. https://eta-publications.lbl.gov/sites/default/files/sc_commission_day_1_irps_in_us_review_of_requirements_final.pdf

Most of the states in this analysis are in the Midwest. Recent legislative and statutory activity demonstrates that states in the region are either considering integrated resource planning for the first time, or seeking ways to update existing IRP statutes and regulations in response to changing conditions. This analysis is based on a review of IRP statutes and regulations in South Dakota, Minnesota, Michigan, Indiana, Missouri and North Carolina.[5]

1.3 High-Level Structural Elements

Four structural elements are common to the IRP requirements in the states that we reviewed. The following section considers the various approaches states take to each element:

- Statutory authorization.
- Commission rulemaking authority.
- Commission's role.
- Policy details.

1.3.1 Statutory Authorization: Broad or Specific

Enabling statutes exist on a spectrum ranging from broad authorization to specific authorization for the IRP process.

- In a broad authorization scenario, the enabling statute authorizes the commission to establish rules and regulations governing the IRP process to further the public interest but often provides only limited statutory direction. This scenario generally leaves discretion largely to the commission on the specifics of what is contained in IRP regulations.

- In a specific authorization scenario, the enabling statute directs the commission to establish rules and procedures for IRPs and provides significantly more detail and guidance on the various elements of the IRP process and plan contents.

The most effective enabling legislation will strike a balance between these approaches, drawing on the strengths of both. Broad enabling statutes that direct the commission to develop rules are the more flexible approach. Regulations are more easily revised than statute in response to changing economic conditions, technological advancements or other situations. However, conversations with current and former commission staff revealed a strong preference for specificity and guidelines in the statutory language. Having a specific statutory basis helps ensure staff and stakeholders can avoid frustration over gathering IRP-related information from utilities. Legislation must therefore provide sufficient legislative authorization to enable regulatory

[5] Both Kansas and Wisconsin were also reviewed, but were ultimately excluded because Kansas does not have IRP requirements and Wisconsin's Strategic Energy Assessment is produced by the regulatory commission instead of the utilities.

agencies to obtain necessary information without being too prescriptive in a way that might necessitate regular changes to statute.

Best practices for providing statutory guidance to regulatory agencies include the following.

- Articulate a clear vision and define the goals to be achieved by integrated resource planning.
- Define "public interest" and articulate public interest objectives — how does achievement of IRP goals meet the public interest? Require that regulatory filings demonstrate the achievement of public benefits.
- Provide guidance to regulators with sufficient direction and authority to carry out the legislative intent. Regulators generally have the authority to approve or accept,[6] reject or modify an IRP. Modification is a key component; otherwise the regulatory agency may only approve or deny, with no further guidance to the utility.
- Provide broad statutory language to enable the commission to implement public policies and procedures.

1.3.2 Commission Rulemaking Authority: Implicit or Explicit

Regulatory bodies are creations of the legislative branch of government, and have only the powers vested in them by statute. They use a mix of legislative-style policy powers and judicial-style adjudication processes to carry out their duties. Commissions ordinarily make three types of rules:[7]

- Procedural rules guide how the regulatory process works.
- Legislative rules govern how utilities must offer service to consumers.
- Interpretive rules provide guidance on how utility actions will be viewed in future economic regulation.

How explicit this rulemaking authority is varies by state. A commission's authority is generally spelled out in enabling statute(s), and generally includes rulemaking authority. However, while rulemaking authority may be generally implicit in a commission's governing statute, regulatory commission staff interviewed for this process noted that explicit authority to create IRP rules, with high-level guidance on outcomes the IRP process should achieve, can help guide the commission and stakeholders in this process.

If the commission creates a rule to manage the IRP process, best practice suggests that the rule focus on durable attributes to the process, leaving aspects of the IRP that are dependent on time and circumstances to each iteration of the process.

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[6] See Section 1.3.3 for a discussion of the implications of approval and acceptance of a plan during commission review.

[7] See Lazar, J. (2016). *Electricity regulation in the U.S.: A guide (2nd ed.)*. Regulatory Assistance Project. https://www.raponline.org/knowledge-center/electricity-regulation-in-the-us-a-guide-2/

1.3.3 Commission's Role: Informational, Adjudicator, Reviewer

It is critical to establish the role of the commission in relation to the IRP and the ensuing process. In the IRP context, the commission's role can be of three types: informational, adjudicator, or reviewer. These are each discussed below.

The majority of state statutes require the commission's role to be reviewer or adjudicator, so as to maintain the body's original function. Regulatory commissions were first created in the early 1900's to ensure oversight of natural monopolies by an agency with specialized subject matter expertise that a legislature generally lacked. Provisions that abrogate the commission role, or curtail it to informational only, do not enable the commission to function as intended.

1.3.3.1 Informational

- IRPs are filed with the commission, but no commission action is required by statute, regulation or rule.
- The example state in this analysis is South Dakota.

Informational filings may serve to provide the commission and stakeholders with information on the utility's plans over the proscribed period of time. But absent a meaningful role for the commission, these filings may become a mere filing requirement, and will likely not serve a useful purpose to guide decision-making in a meaningful manner. Without stakeholder involvement or commission ability to examine and make findings on the contents of the filing, the commission will likely not rely on the filings in any substantive manner in other proceedings such as rate cases. Consequently, the utility likewise may not adhere to the plan that is filed.

1.3.3.2 Adjudicator

- IRPs are filed in a contested case hearing before the commission.
- The example state in this analysis is Michigan.

Contested proceedings require commission involvement, examination and ultimately adjudication on the IRP. Contested proceedings also enable stakeholders to intervene in a proceeding. IRPs that are adjudicated are therefore rigorously reviewed, and the content may also be cross-referenced by the commission when they make decisions in other dockets. However, contested proceedings require a great deal of procedural effort and time, and they are not conducive to collaboration. For this reason, commission interviewees expressed a preference for the commission to take the role of reviewer of the IRP (see next section), and to foster collaboration amongst the stakeholders through the review process.

1.3.3.3 Reviewer

➔ IRPs are filed with the commission, and some commission action is required (e.g., approve or accept, deny or modify).

➔ Example states are Minnesota, Missouri, Indiana[8] and North Carolina.[9]

Reviewer status is most common among IRP statutes. Reviewed IRPs require some role for the commission and usually stakeholder engagement. The type and rigor of the review varies, and it's important for the enabling statute to clearly indicate the level of review required.

The enabling statute should use clear language on whether the commission shall "accept" the plan versus "approve" the plan.[10] These terms can be ambiguous and are not synonyms.

"Accepting" could simply mean that the plan meets the threshold process or analytic requirements established by statute or regulation. However, making "acceptance" the equivalent to a filing requirement can also reduce the importance of the plan being filed and have the effect of minimizing the entire resource planning exercise.

"Approving" the plan may be understood to go further, as the word "approval" has a variety of connotations. An approved plan has all the same qualities of an accepted plan, but generally carries more weight in subsequent decisions. The text box below discusses this further, as well as the ways different meanings of approval affect how the commission, utility and other stakeholders may use the IRP once approved. For example, approving could suggest the commission is in support of the utility's proposed option. This could be inferred to equate to "preapproval" of utility investment decisions that align with the proposed plan, setting the expectation for future recovery though a prudency evaluation that has not yet been conducted. The presence of a regulatory option to preapprove a utility's investment decisions though an IRP should not be viewed as approval for cost recovery. While preapproval may streamline later regulatory decisions, many assumptions used in an IRP may not hold true by the time a utility executes its preferred investment decisions. That is why it is important for regulators to verify the veracity of these assumptions in subsequent proceedings — such as certificate cases prior to construction, and rate cases prior to capital expenses being placed into rates.

Best practice indicates that however "accept" or "approve" is used, decision-makers should be clear on the intent and definition of the word, being mindful of the impact of that word choice on the process and the expectations it sets.

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[8] Indiana does not require the utilities commission to approve, accept, deny or modify the plan. However, it does require the commission's director of research, policy and planning to issue a director's report that assesses the plan and compares it to the stated goals of ensuring the plan is well-reasoned, transparent and comprehensive. See Section 3.1 in the appendix of this toolkit for more on this requirement.

[9] North Carolina regulations require that Public Staff report to the commission whether the biennial reports (the two-year updates to the IRPs) meet the requirements in rule. The regulations do not require the commission to approve, accept, deny, modify or comment on the plan. Public Staff may comment on the plan, but it is not required. See 04 NCAC 11 r08-60(j) through (l).

[10] Note that this applies to the adjudicator role as well.

Understanding the meaning behind IRP "approval"

Many states choose to **approve** a periodic utility resource plan. Stakeholders are interested in the meaning of "approval." This question has prompted debate for as long as there have been IRPs. This text box will examine an array of potential meanings, with the intent of guiding states to set and maintain clear expectations about what happens in specific resource approval considerations after a resource plan receives approval.

Meaning is important because utilities and stakeholders who have invested significant time and money into the creation of a resource plan want to know the degree to which they can use it, and can count on it, in subsequent resource evaluation proceedings. The potential meanings presented here are arrayed from greatest to least impact on future decisions.

"Preapproval" means that resource investments included in a plan are deemed approved. This status rests on the rigor of the plan approval process and indicates that cost recovery of such investments is preauthorized, with associated prudence questions resolved.

"Conditional preapproval" means the utility will need to present updated evidence during the resource approval process to show that the assumptions underlying the plan remain sufficiently similar or representative to validate using the plan to support the resource choice. Stakeholders can support or challenge that evidence.

"Rebuttable presumption" can rest on preapproval or conditional preapproval and means that stakeholders concerned for any reason that the resource choice is problematic are invited to make that case to the commission to rebut the choice. Reasons may go beyond changed circumstances to matters not considered in the plan approval but that are arguably relevant to the resource choice.

"Great weight" means the analysis from the resource plan is explicitly relevant and the analysis counts heavily in the balance of the evidence, but there is no presumption about the public interest outcome of the resource choice. Such a finding and resulting matters of cost recovery, prudence, etc., must be resolved at the time the resource is ready for regulatory attention.

"Must be considered" means the analysis from the resource plan is explicitly relevant for the record as a foundation or point of departure, but that other factors that may come into the record are not necessarily less important or weighty than the plan.

"Silence" means the various parties are free to offer their own views of the meaning of an approved IRP. The commission may receive the full range of interpretations and arguments and render its decisions case-by-case on resources. If the commission is consistent in its decisions, then precedent may eventually emerge and become the most compelling guidance to parties.

All these apply to issues under the jurisdiction of a commission. Some resources require permits from other agencies such as siting authorities. Nothing about these meanings necessarily affects those permits, though a state could include in statute that another permitting agency may take notice of a commission finding and give weight to it.

1.3.4 IRP Policy Details: Statute-Driven, Regulation-Driven or Combination

When implementing integrated resource planning, states must establish details such as the role of the commission, the plan contents and the stakeholder process (all described in more detail in Section 2). In concept, states can follow one of three paths for setting out these details:

1. Statute-driven states place the majority of the details for the IRP policy in the authorizing statutes, with little or no additional details or requirements promulgated by regulation.
2. Regulation-driven states typically have broader IRP authorizing statutes and may provide some guidance, but the detailed requirements are found in the regulations promulgated by the commission. Example states are South Dakota, Indiana, Missouri and North Carolina.
3. Combination states have both detailed statutes and supporting regulations. Example states are Michigan and Minnesota.

In practice, the states that we reviewed fell into the latter two categories: regulation-driven and combination.

Legislative directions through statute provide authority, direction and power to regulators to adjudicate issues in the public interest. It's important to consider the amount of detail necessary to provide in legislation versus what could be accomplished in regulation. When striking this balance, considerations may include that statutes are less easily and less often changed, and may be too prescriptive or inflexible for areas where change in response to policy evaluation is anticipated. Our interviews with commission staff in IRP states revealed, however, that the regulation-driven approach has limits when there is a question on statutory intent. Therefore, some specificity in statutes is helpful, particularly when the statute clearly articulates the outcomes to be achieved by integrated resource planning. For these reasons, practitioners expressed a preference for a combined approach to enabling integrated resource planning.

1.3.5 Summary Table

Table 1 on the next page summarizes the IRP structural elements, the options for each one and the approach taken by each state we analyzed. Our recommended options appear in orange text.

Table 1. High-level structural elements by state

Element	Options	SD	MN	MI	IN	MO	NC
Statutory authorization	**Broad**	X	X			X[a]	
	Specific			X	X		X
Commission rulemaking	**Statute is implicit**					X	
	Statute is explicit	X	X	X	X		X
Commission's role	**Informational**	X					
	Reviewer		X		X	X	X
	Adjudicator			X			
IRP policy details[b]	**Regulation-driven**	X			X	X	X
	Combination		X	X			

[a] Missouri statutes don't provide explicit authority to the commission to require integrated resource planning, but the commission has held for multiple decades that its general jurisdiction over public utilities gives it authority to promulgate integrated resource planning regulations.

[b] None of the states analyzed in this review fell into the "statute-driven" category.

2 Enabling Legislation: Approaches and Elements

As described earlier, states may choose to provide more broad or more specific authorization for the IRP process in their enabling statutes. This section identifies examples of both ends of the spectrum and discusses options for legislative language.

2.1 Broad Authorization Approach

The two states with broad authorization illustrate two different approaches. While being required by statute, South Dakota's authorization is fundamentally utility-initiated and informational. The commission may request additional information, but no further role for the commission is envisioned.

In contrast, Minnesota's authorization explicitly directs the commission to adopt rules, and to approve, reject or modify the IRP according to the public interest. This makes Minnesota's authorization commission-initiated and reviewed.

Examples

Utility-initiated, informational — South Dakota: SDCL 49-41B-3

Every utility which owns or operates or plans within the next ten years to own or operate energy conversion facilities shall develop and submit a ten-year plan to the Public Utilities Commission. The plan shall be updated every second year after its submission. The plan shall contain the following:

> (1) A description of the general location, size, and type of energy conversion facilities or transmission facilities of two hundred fifty kilovolts or more to be owned or operated by the utility during the ensuing ten years, as well as those facilities to be removed from service during the planning period;
>
> (2) A description of the efforts by the utility to coordinate the plan with other utilities so as to provide a coordinated regional plan for meeting the utility needs of the region;
>
> (3) A statement of the projected demand for the service rendered by the utility for the ensuing ten years and the underlying assumptions for the projection, with such information being as geographically specific as possible and a description of the manner and extent to which the utility will meet the projected demand; and
>
> (4) Any other relevant information as may be requested by the commission.

Commission-initiated, reviewed — Minnesota: MN 216B.2422 Subd. 2

Subd. 2. Resource plan filing and approval.

> (a) A utility shall file a resource plan with the commission periodically in accordance with rules adopted by the commission. The commission shall approve, reject, or modify the plan of a public utility, as defined in section 216B.02, subdivision 4, consistent with the public interest.
>
> (b) In the resource plan proceedings of all other utilities, the commission's order shall be advisory and the order's findings and conclusions shall constitute prima facie evidence which may be rebutted by substantial evidence in all other proceedings. With respect to utilities other than those defined in section 216B.02, subdivision 4, the commission shall consider the filing requirements and decisions in any comparable proceedings in another jurisdiction.

> (c) As a part of its resource plan filing, a utility shall include the least cost plan for meeting 50 and 75 percent of all energy needs from both new and refurbished generating facilities through a combination of conservation and renewable energy resources.

2.2 Specific Authorization Approach and Elements

Specific authorization provides more thorough guidance for both the utilities and the commission. Certain elements are common to many of the detailed IRP enabling statutes and regulations that we examined. This subsection is structured as an outline of the key elements of a detailed enabling statute, adapted from the Missouri IRP regulations:

- Declaration of policy and policy objectives
- Applicability
- Confidentiality
- Definitions
- Commission approval
- Commission involvement in IRP initiation process
- Planning frequency
- Planning horizon and life-cycle costing
- Preferred plan and competing objectives
- Filing schedule and requirements
- Stakeholder process and technical conferences
- Effects of IRPs in docketed proceedings
- Analytical requirements
- Action plan.

For each element, we discuss its importance and relevance and provide examples of language from the states we reviewed.

2.2.1 Declaration of Policy and Policy Objectives

Annotation

Stating the policy objectives of the IRP ensures clear direction for the commission, and represents an opportunity to ensure that the entire IRP process ties back to the public interest. Well-stated policy objectives can become a foundation for a multicriteria assessment in the IRP itself. In any case, once these objectives are stated, it is common to move into a description of

the required components of the IRP to provide clarity to the commission, utilities and stakeholders.

Examples

Missouri: 20 CSR 4240-22.010(2)

(2) The fundamental objective of the resource planning process at electric utilities is to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies. The fundamental objective requires that the utility shall—

> (A) Consider and analyze demand-side resources, renewable energy, and supply-side resources on an equivalent basis, subject to compliance with all legal mandates that may affect the selection of utility electric energy resources, in the resource planning process;
>
> (B) Use minimization of the present worth of long-run utility costs as the primary selection criterion in choosing the preferred resource plan; and
>
> (C) Explicitly identify and, where possible, quantitatively analyze any other considerations which are critical to meeting the fundamental objective of the resource planning process, but which may constrain or limit the minimization of the present worth of expected utility costs. The utility should describe and document the process and rationale used by decision-makers to assess the tradeoffs and determine the appropriate balance between minimization of expected utility costs and other considerations in selecting the preferred resource plan and developing the resource acquisition strategy.

North Carolina, N.C.G.S. 62-2(3a)

(a) Upon investigation, it has been determined that the rates, services and operations of public utilities as defined herein, are affected with the public interest and that the availability of an adequate and reliable supply of electric power and natural gas to the people, economy and government of North Carolina is a matter of public policy. It is hereby declared to be the policy of the State of North Carolina:

> … (3a) To assure that resources necessary to meet future growth through the provision of adequate, reliable utility service include use of the entire spectrum of demand-side options, including but not limited to conservation, load management and efficiency programs, as additional sources of energy supply and/or energy demand reductions. To that end, to require energy planning and fixing of rates in a manner to result in the least cost mix of generation and demand-reduction measures which is achievable, including consideration of

appropriate rewards to utilities for efficiency and conservation which decrease utility bills; …

2.2.2 Applicability

Annotation

Many states have multiple utilities of different sizes and structures: investor-owned, municipal or cooperative. It is common to define which utilities are required to submit IRPs and which are exempt. This is typically defined by using a threshold for retail sales or the number of customers or by listing the name of the utilities themselves. Most states require investor-owned utilities over a certain threshold to comply with integrated resource planning. Whether IRP statutes apply to municipal utilities or cooperatives depends in large part upon whether state law authorizes the commission to regulate these entities. Some states, such as Minnesota (in 216B.244(2b)), allow cooperatives to file a report with the commission, which could be the same report submitted to regional reliability organizations or reports filed with other state commissions.

Example

North Carolina: 04 NCAC 11R8-60(b)

(b) Applicability. — This rule is applicable to Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina.

Michigan: MCL 460.6t(4)

(4) For an electric utiility with fewer than 1,000,000 customers in this state whose rates are regulated by the commission …

2.2.3 Confidentiality

Annotation

It is not uncommon for confidential materials to be submitted as part of an IRP. This provision defines how such information is disclosed and treated. There is inherent value in information being made public — public confidence in resource decisions that come later, for example. The more information is redacted and hidden from view, the less effective and helpful the IRP is. If the IRP is opaque, it undermines the purpose of the IRP itself: to provide information on what's coming down the pipeline.

Transparency is important for two primary reasons. First, transparency represents an opportunity for increasing public trust and confidence in the IRP process. Missing this opportunity creates the conditions for lengthy, contentious and costly regulatory proceedings when approval for large investments are being sought. Second, transparency enables intervenors to make a thorough, and often cost-saving, critique of the analysis. For example, some utilities have offered free

licenses to their modeling software and data to intervenors. This has enabled more comprehensive analysis and critiques that have uncovered more cost-effective scenarios and solutions in some cases.

Examples

Confidentiality language may be extensive or interspersed within other sections of statute or code. We do not list language below but recommend reviewing language from Indiana, Missouri and North Carolina, which all have sections in their enabling statutes or administrative rules that are dedicated to confidentiality. In Missouri, the section is titled "Protective Agreement" instead of "Confidentiality."

Indiana: 170 IAC 4-7-2.1

Missouri: 20 CSR 4240-22.080 (11)

North Carolina: 04 NCAC 11R8-60(h)(4) referencing N.C.G.S. 132-1.2

2.2.4 Definitions

Annotation

IRPs address a series of very technical topics, and precise definitions are often required. As a result, lengthy definition sections are not uncommon. Clarity within a jurisdiction on the meaning of these terms is important.

Examples

Due to the length and state-specific nature of definitions sections, we do not provide example language here. Missouri regulation (20 CSR 4240-22.020) has a good example of a robust "Definitions" section.

2.2.5 Commission Approval

Annotation

As discussed earlier, the commission's role may be informational, reviewer or adjucator. This section provides examples of each of the three commission roles.

Example of Informational

South Dakota: SDCL 49-41B-3

Note: South Dakota's IRP statute and regulations are silent on the role of the commission other than the emphasized text below. In that sense, the commission is informed, but no other role is contemplated.

Every utility which owns or operates or plans within the next ten years to own or operate energy conversion facilities **shall develop and submit a ten-year plan to the Public Utilities Commission** [emphasis added].

Examples of Reviewer

Indiana: IC 8-1-8.5-3.3

(c) In reviewing an integrated resource plan that is submitted to the commission by an electric utility under section 3(e)(2) of this chapter after June 30, 2023, the director of the commission's research, policy, and planning division shall evaluate and comment in the commission's final director's report for the plan as to whether the electric utility's preferred resource portfolio takes into account the attributes of electric utility service set forth in IC 8-1-2-0.6, including:

(1) reliability;

(2) affordability;

(3) resiliency;

(4) stability; and

(5) environmental sustainability;

Minnesota: MN Stat. 216B.2422 Subd. 2

Subd. 2. Resource plan filing and approval. (a) A utility shall file a resource plan with the commission periodically in accordance with rules adopted by the commission. The commission shall approve, reject, or modify the plan of a public utility, as defined in section 216B.02, subdivision 4, consistent with the public interest.

(b) In the resource plan proceedings of all other utilities, the commission's order shall be advisory and the order's findings and conclusions shall constitute prima facie evidence which may be rebutted by substantial evidence in all other proceedings. With respect to utilities other than those defined in section 216B.02, subdivision 4, the commission shall consider the filing requirements and decisions in any comparable proceedings in another jurisdiction.

Example of Adjudicator

Michigan: MCL 460.6t(8)

The commission shall approve the integrated resource plan if the commission determines all of the following:

(a) The proposed integrated resource plan represents the most reasonable and prudent means of meeting the electric utility's energy and capacity needs. To determine whether the integrated resource plan is the most reasonable and

prudent means of meeting energy and capacity needs, the commission shall consider whether the plan appropriately balances all of the following factors:

(i) Resource adequacy and capacity to serve anticipated peak electric load, applicable planning reserve margin, and local clearing requirement.

(ii) Compliance with applicable state and federal environmental regulations.

(iii) Competitive pricing.

(iv) Reliability.

(v) Commodity price risks.

(vi) Diversity of generation supply.

(vii) Whether the proposed levels of peak load reduction and energy waste reduction are reasonable and cost-effective.

(viii) Affordability.

(ix) Overall cost-effectiveness in providing utility service.

2.2.6 Commission Involvement in IRP Initiation Process

Annotation

It is critical to define the role of the commission in the IRP process, as discussed in Section 1.3.3 above. It is also particularly important to define the commission's involvement in initiating the IRP process. Enabling statutes typically establish whether the IRP process is initiated by the commission (e.g., by opening a proceeding) or by the utility (e.g., by filing an IRP, often on or before a specific date and at some determined time interval).

Example: Commission-Initiated

From RAP's Building Modernization Legislative Toolkit

(A) Not later than [date] the [public utility commission] shall initiate a proceeding to investigate, develop and adopt a framework for integrated resource plans for utilities with more than [x] customers by [date].

(B) Nothing in this act shall be construed as limiting the [public utility commission]'s existing authority to adopt or modify utility regulations — including any current or proposed planning processes prior to the new integrated resource planning framework described in this act becoming effective.

(C) To carry out its responsibilities under this act, the [public utility commission] shall be allocated additional annual funds of [amount]. In performing its responsibilities under this act, the

[public utility commission] may select and engage outside consultants with experience in utility regulation.

Michigan: MCL 460.6t(1)

(1) The commission shall, by [date], and every [4] years thereafter, commence a proceeding and, in consultation with the department of environment, energy, and other interested parties, do all of the following as part of the proceeding …

Examples: Utility-Initiated

From RAP's Building Modernization Legislative Toolkit

(A) Each [electric][gas][dual fuel] company has the responsibility to meet system demand with the least-cost and least-risk mix of energy supply, including: [gas], [demand-side efficiency,] renewable fuels, electrification and conservation. In furtherance of that responsibility, each company must develop an integrated resource plan for review and approval by [state public utility commission] within X months of passage of this statute and every [x] years thereafter.

Indiana: IC 8-1-8.5-3(e)(2)

[A utility] (2) shall submit to the commission an integrated resource plan that assesses a variety of demand side management and supply side resources to meet future customer electricity service needs in a cost effective and reliable manner. The commission shall adopt rules under IC 4-22-2 concerning the submission of an integrated resource plan under subdivision (2).

Optional additional reporting role — Indiana: IC 8-1-8.5-3(h)

(h) Each year, the commission shall submit to the governor and to the appropriate committees of the general assembly a report of its analysis regarding the future requirements of electricity for Indiana or this region.

2.2.7 Planning Frequency

Annotation

IRPs are filed periodically to reflect changing conditions with respect to load forecasts, fuel prices, capital costs, conditions in the electricity markets, environmental regulations and other factors. States typically require IRPs to be filed every two to three years.[11]

The information filed in an IRP should be frequent and up to date enough to inform resource decisions made in rate cases or other proceedings. This is particularly important if any "preapproval" of assets reported in an IRP is contemplated. It is also important to consider the administrative burden of continuous planning updates on the commission, the utility and stakeholders. With this in mind, the majority of states establish a regular schedule of filings every

[11] Wilson & Biewald, 2013.

one to three years (see examples in Table 2 below). If preapproval of investments listed in an IRP is a component of approval, an additional requirement for utilities to update any change in assumptions and modeling contained in the IRP due to changing conditions may be necessary so the commission has context for making these decisions. See also section 1.3.3.

Example

From RAP's Building Modernization Legislative Toolkit

(c) The commission must establish, by rule or order, the schedule for each electric company regulated by the commission to file an integrated resource plan at least every three years. The company must provide a work plan for informal commission review no later than 12 months prior to the due date of the integrated resource plan.

2.2.8 Planning Horizon and Life-Cycle Costing

Annotation

Investing in long-lived assets requires long-term analysis. Furthermore, shorter-term decisions and processes such as rate cases are more likely to be effective if they are taking place within a larger, longer-term context. Conversely, in an environment with no requirement for long-term planning such as an IRP, commissions are formulating decisions on long-lived assets without any insights into the expected conditions during the asset's useful life. Planning horizons should be long enough to align with asset timelines and investment decisions, but not so long that the horizon becomes truly speculative.

Planning periods vary according to state regulations. IRP's commonly analyze a five- to 20-year time horizon. The most common planning horizon is 20 years, with half of the IRP states mandating this period.

Even the most easily developed resources take multiple years to permit, construct and commission, and many resources like transmission and demand-side programs can take 10 years to fully develop and implement. As a result, longer planning horizons are preferred to capture the impacts of different resources on the plan. Thanks to today's software and modeling capabilities, estimating resource impacts over long time horizons is not overly burdensome to the utility and offers the benefit of greater insight into the dynamics of the electric system's performance and costs.

Finally, whatever the planning horizon is, life-cycle costing is an important principle to consider. Using life-cycle costing in the IRP analysis ensures that the resources that are considered in the plan are analyzed over their expected economic or project life, even when that life is longer than the planning horizon itself. For example, the depreciation schedule for many utility assets (power plants, transformers, etc.) exceeds 20 years.

See Table 2[12] for examples of planning horizons and the use of life-cycle costing.

Table 2. IRP filing frequency, planning horizon and life-cycle costing

	IN	MI	MN	MO	ND	SD	IL	OH
Frequency	3	5	2	3	As ordered	2	Annual	Annual
Planning horizon (years)	20	5, 10, 15	15	20	15	10	5	10
Life-cycle costing	Yes			Yes				

Source (for frequency and planning horizon data): Ehrendreich, G. (n.d.) *Integrated Resource Planning*

Examples: Planning Horizon

South Dakota: S.D.C.L. 49-41B-3

In South Dakota, the enabling statute defines it along with the requirement for IRP:

Every utility which owns or operates or plans within the next ten years to own or operate energy conversion facilities shall develop and submit a ten-year plan to the Public Utilities Commission. The plan shall be updated every second year after its submission. The plan shall contain the following:…

Indiana: 170 IAC 4-7-4(1)

In Indiana, the planning horizon is established in regulations:

Sec. 4. An IRP must include the following:

(1) At least a twenty (20) year future period for predicted or forecasted analyses.

Minnesota: MAR 7843.0100 Subp. 6

In Minnesota, the planning horizon is established in the definitions section of the regulations, as the "Forecast Period":

Subp. 6. Forecast period. "Forecast period" means the first 15 calendar years following the year the proposed resource plan is filed.

[12] The frequency and planning horizon data is drawn from Ehrendreich, G. (n.d.) *Integrated resource planning.* Midwest Energy Efficiency Alliance. https://www.mwalliance.org/sites/default/files/meea-research/irp_factsheet.pdf

Examples: Life-Cycle Costing or Project Life

Missouri: 20 CSR 4240-22.020(30)

Life-cycle cost means the present worth of costs over the lifetime of any device or means for delivering end-use energy service.

Indiana: 170 IAC 4-7-4(29)

The avoided cost calculation must reflect timing factors specific to the resource under consideration such as project life …

2.2.9 Preferred Plan and Competing Objectives

Annotation

The selection of a so-called preferred plan is a feature of many IRP processes. The word "preferred" is used deliberately to evoke the notion of a balancing between competing objectives. In other words, the preferred plan is often not the least-cost plan, but a plan that combines least cost with other desired attributes such as reliability. It is the commission's role to ensure that the logic behind the selection of a preferred plan is sound and well articulated and complies with the competing statutory and regulatory objectives. Decision-makers will want to ensure that the commission is empowered to perform this role based upon the framing discussed in Section 1.3.3.

Examples

Michigan: per Order U-15896-0013, issued Dec. 20, 2017 pp. 20-21

Include a detailed description of:

… d) How the utility will meet local, state, and federal laws, rules, and regulations under the proposed course of action.

The utility shall describe the process used to select the preferred resource plan, including the planning principles used by the utility to judge the appropriate tradeoffs between competing planning objectives and between expected performance and risk. The utility shall describe how its preferred resource plan satisfies the following:

a) Strike an appropriate balance between the various planning objectives specified; …

Missouri: 20 CSR 4240-22.070(1)

The utility shall select a preferred resource plan from among the alternative resource plans that have been analyzed pursuant to the requirements of 4 CSR 240-22.060. The utility shall describe and document the process used to select the preferred resource plan, including the relative weights given to the various performance measures and the rationale used by 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, and roles of the utility decision-makers in the preferred resource plan selection process. The preferred resource plan shall satisfy at least the following conditions:

(A) In the judgment of utility decision-makers, strike an appropriate balance between the various planning objectives specified in 4 CSR 240-22.010(2);

(B) Invest in advanced transmission and distribution technologies unless, in the judgment of the utility decision-makers, investing in those technologies to upgrade transmission and/or distribution networks is not in the public interest;

(C) Utilize demand-side resources to the maximum amount that comply with legal mandates and, in the judgment of the utility decision-makers, are consistent with the public interest and achieve state energy policies; and

(D) In the judgment of the utility decision-makers, the preferred plan, in conjunction with the deployment of emergency demand response measures and access to short-term and emergency power supplies, has sufficient resources to serve load forecasted under extreme weather conditions pursuant to 4 CSR 240-22.030(8)(B) for the implementation period. If the utility cannot affirm the sufficiency of resources, it shall consider an alternative resource plan or modifications to its preferred resource plan that can meet extreme weather conditions.

2.2.10 Filing Schedule and Requirements

Annotation

The filing schedule and requirements are linked. The more requirements are specified, the more lengthy the filing schedule is likely to become. This should not be discouraging or seen as something to mitigate. A longer filing schedule may be appropriate to enable public consultation and accommodate notice requirements and other important transparency and engagement activities.

Examples

From RAP's Building Modernization Legislative Toolkit

(b) At a minimum, an integrated resource plan developed under this section must include: …

> (10) A short-term plan outlining the specific actions to be taken by the utility in implementing the long-range integrated resource plan during each of the three years following submission;
>
> (11) A report on the utility's progress toward implementing the recommendations contained in its previously filed plan; and …

Related option

(c) The commission must establish, by rule or order, the schedule for each electric company regulated by the commission to file an integrated resource plan at least every [three][x] years. The company must provide a work plan for informal commission review no later than 12 months prior to the due date of the integrated resource plan.

> (1) The work plan must outline the content of the integrated resource plan to be developed by the company and the method for assessing potential resources.
>
> (2) The work plan must include [at least four][commission-convened][utility-convened] public participation workshops on the integrated resource plan process, including participation opportunities for vulnerable populations and highly impacted communities, as well as the utility's plans to mitigate barriers to participation. [Two of the public participation workshops must be located in disproportionately impacted communities served by the utility. Participation must be open to the public and shall not be limited to parties represented by an attorney.]

(d) The commission must hear comment on an integrated resource plan developed under this section at a public hearing.

(e) The commission shall require data to be available throughout the process:

> (1) To maximize transparency, the commission shall require an electric company regulated by the commission [to make data input files available in a native format and in an easily accessible format. The final integrated resource plan must be published either as part of an annual report or as a separate document available to the public. The report may be in an electronic form][to make the integrated resource plan and all related projections and models available on the utility's website. If requests are made for a hard copy of the plan, projections and models, the utility shall comply within 30 days of receipt of request].
>
> (2) Nothing in this subsection limits the protection of records containing commercial information under [cross-reference state statute on protected records].

(f) The commission must consider the information reported in the integrated resource plan when the commission evaluates the performance of the company in rate and other proceedings.

Indiana: IC 8-1-8.5-3(e) *et seq.*

The commission shall adopt rules concerning the submission of an integrated resource plan ...

> (f) Insofar as practicable, each utility, the utility consumer counselor, and any intervenor may attend or be represented at any formal conference conducted by the commission in developing an analysis for the future requirements of electricity for Indiana or this region.

(g) In the course of making the analysis required by subsection (a) and, if applicable, developing an analysis described in subsection (f), the commission shall conduct one (1) or more public hearings.

(h) Each year, the commission shall submit to the governor and to the appropriate committees of the general assembly a report of its analysis regarding the future requirements of electricity for Indiana or this region.

2.2.11 Stakeholder Process and Technical Conferences

Annotation

Engaging stakeholders in the IRP process is a best practice that not only helps to ensure that the plan is rigorous and serves multiple stakeholders, but also creates a feedback loop for the commission and the utility. In this way, stakeholder processes can foster continuous improvement over time. Technical conferences can also be included, as in Indiana, and can be beneficial in engaging parties and non-party stakeholders. Technical conferences can be designed to inform in all directions, to discuss all relevant details in a managed manner, to synthesize related facts and opinions, and to improve public awareness, advocacy and commission consideration. They can accommodate the presence of commissioners, and can be unconstrained by ex parte rules, though quorum rules tend to be inviolate.

For any of these processes, the representative membership of the group and the public access and engagement with the group are critical to building trust and avoid concerns about transparency. If the public feels the process lacks robust representation of different voices and is hidden from view, then the entire purpose may be undermined.

Of the states surveyed for this analysis, only the Indiana statute specifically mentions a stakeholder process. The statute puts responsibility for convening the stakeholder process on the utility. Naturally, commissions reserve the right to convene whatever process is necessary to serve the public interest. States will want to consider the entity or entities best suited to host a stakeholder engagement process, how best to engage stakeholders in the process and at what points.[13] A separate but related consideration is whether intevenor compensation is enabled in the state, as this funding may enable unique stakeholder participation than might otherwise be achieved.[14]

[13] For resources on stakeholder engagement, see National Association of Regulatory Utility Commissioners. (n.d.). *Core sector: Energy resources and the environment — Stakeholder engagement.* https://www.naruc.org/core-sectors/energy-resources-and-the-environment/stakeholder-engagement/#:~:text=Public%20utility%20commissions%20(PUCs)%20across,traditional%20utility%20and%20regulatory%20practices

[14] See, for example, National Consumer Law Center. (2023, May). Overly impacted and rarely heard: Incorporating community voices into Massachusetts energy regulatory processes. https://www.nclc.org/wp-content/uploads/2023/05/Overly-Impacted-and-Rarely-Heard.pdf

Examples

Indiana: IC 8-1-8.5-3(d)

(d) In developing the analysis, the commission:

(1) shall confer and consult with:

(A) the public utilities in Indiana;

(B) the utility commissions or comparable agencies of neighboring states;

(C) the Federal Energy Regulatory Commission; and

(D) other agencies having relevant information; and

(2) may participate as it considers useful in any joint boards investigating generating plant sites or the probable needs for future generating facilities.

Missouri: Adapted from 20 CSR 4240-22.080(3) and (5)

(5) Each electric utility should convene a stakeholder group to provide the opportunity for public input into electric utility resource planning in a timely manner that may affect the outcome of the utility resource planning efforts. The utility may choose to not incorporate some, or all, of the stakeholder group input in its analysis and decision-making for its compliance filing. Each electric utility should host an annual workshop with the stakeholder group. The utility at its discretion may host additional workshops when conditions warrant. Any additional workshops should follow the same procedures as the annual workshop.

(A) The purpose of the annual workshop is to ensure that stakeholders have the opportunity to provide input and to stay informed regarding the—

1. Utility's current preferred resource plan;

2. Status of the identified critical uncertain factors; and

3. Utility's progress in implementing the resource acquisition strategy. It is the responsibility of each utility to keep abreast of evolving electric resource planning issues and to consider and analyze these issues in a timely manner in its compliance filings.

2.2.12 Effects of IRPs in Docketed Proceedings

Annotation

IRPs can affect other proceedings, and anticipating how they may or may not impact other proceedings can help facilitate their initial implementation.

Example

Indiana: 170 IAC 4-7-2.5

(a) An interested party that does not file comments under this rule may still participate as a party or advance an argument or position in a formally docketed proceeding before the commission. Similarly, the content of comments filed by an interested party under this rule shall not preclude an interested party from advancing an argument or position in a formally docketed proceeding before the commission, whether or not that argument or position was raised in comments submitted under this rule.

(b) When a utility takes a resource action, it shall be consistent with the most recent IRP submitted under this rule, including its:

(1) inputs;

(2) data and assumptions;

(3) methods;

(4) models;

(5) judgment factors; and

(6) rationales used to determine inputs, methods, and risk metrics; unless differences between the most recent IRP and the resource action are fully explained and justified with supporting evidence, including an updated IRP analysis.

(c) Documents submitted to the commission or created pursuant to this rule may be used as follows:

(1) To assist the commission in the preparation of the commission analysis.

(2) In the preparation of a commission staff report in formally docketed proceedings before the commission.

(3) In a formally docketed proceeding before the commission if admitted into evidence.

2.2.13 Analytical Requirements

Annotation

Ideally, detailed analytical requirements would be specified in a regulatory rulemaking. In practice, however, these requirements do appear in statute. Furthermore, the current and former commission staff we interviewed in Missouri, Michigan and North Carolina all expressed the value of having some specificity in the statute. As a result, specifying the minimum requirements for what the utility should include in its IRP analysis is a best practice. The following subsections represent the major components of IRPs. The examples can serve as guideposts for how to conduct the study.

Example

From RAP's Building Modernization Legislative Toolkit

Establishing the need for analytical requirements can be as simple as the language below. More substantive language is included in the following subsections.

(b) At a minimum, an integrated resource plan developed under this section must include: [list…]

2.2.13.1 Load Analysis and Forecasting

Annotation

Load analysis and forecasting is foundational to the IRP process. The forecast of peak load (MW) and of energy requirements (MWh) are the primary determinants of the amount and timing of most capital investments. Because capital investments are specific to a time and place, it is important for the IRP to analyze historical and forecast loads at the most granular level possible.

Ideally, loads should be analyzed and forecast across all four of these dimensions: time (hours, months, years), location, customer class and end use. As mentioned above, time and location are primary determinants of most capital investments, and the last two levels of granularity — customer class and end use — are the primary inputs that are necessary to assess the potential for demand response, energy efficiency and other nonwires alternatives.

Load forecasting methods vary and develop over time, and prescribing a specific method is not a best practice. Instead, the attributes of the method should be articulated and the methodology itself should be described in detail. For example, the method should be as dynamic and comprehensive as possible by using changeable inputs on weather, economic growth, end-use trends and distributed energy resource trends. The method should also eliminate, or at least minimize, any exogenous, out-of-model adjustments for hard-to-quantify trends such as solar energy adoption and demand response. Finally, an assessment of forecast accuracy, both of the present forecast and of past forecast(s), should be included.

Recognizing that load forecasting is both an art and a science, Indiana has created a load forecasting group. The Indiana example requires a group to be established at a college or university. Other states have created technical workgroups comprising utility representatives, commission staff and interested stakeholders with deep technical expertise. These options may help to advance the ongoing conversation on load forecasting in the state and have the benefit of helping to deepen understanding and train newcomers to the subject.

Examples

Based on Missouri: 20 CSR 4240-22.030

The purpose of load analysis is to

(A) derive a data set of historical values from load research data that can be used as dependent and independent variables in the load forecasts;

(B) identify end-use measures that may be potential demand-side resources, generally, those end-use measures with an opportunity for energy and/or demand savings;

(C) facilitate the analysis of impacts of implemented demand-side programs and demand-side rates on the load forecasts and to augment measurement of the effectiveness of demand-side resources in the evaluation of the performance of the demand-side programs or rates after they are implemented; and

(D) preserve, in a historical database, the results of the load analysis used to perform the demand-side analysis and load forecasting.

The purpose of load forecasting is to

(A) assess consumption drivers and customer usage patterns—to better understand customer preferences and their impacts on future energy and demand requirements, including weather sensitivity of load; (B) to serve as a basis for planning capacity and energy service needs. This can be served by any forecasting method or methods that produce reasonable projections (based on comparing model projections of loads to actual loads) of future demand and energy loads; (C) to assess the impact of legal mandates, economic policies, and rate designs on future energy and demand requirements.

From RAP's Building Modernization Legislative Toolkit

(12) An assessment of current conditions, including:

> (A) The economic, public health and environmental conditions within the utility's service territory. These conditions are not restricted to the effects of utility actions, and the analysis must include relevant information from publicly available sources, including the cumulative impact analysis; and
>
> (B) The energy and nonenergy benefits and burdens associated with the utility's infrastructure and programs, including benefits and burdens caused by utility actions outside the utility's service territory.

Michigan: MCL 460.6t(5)(h)

(h) 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.

Indiana: IC 8-1-8.5-3(b)

(b) This analysis must include an estimate of:

(1) the probable future growth of the use of electricity;

(2) the probable needed generating reserves;

(3) in the judgment of the commission, the optimal extent, size, mix, and general location of generating plants;

(4) in the judgment of the commission, the optimal arrangements for statewide or regional pooling of power and arrangements with other utilities and energy suppliers to achieve maximum efficiencies for the benefit of the people of [state]; and

(5) the comparative costs of meeting future growth by other means of providing reliable, efficient, and economic electric service, including purchase of power, joint ownership of facilities, refurbishment of existing facilities, conservation (including energy efficiency), load management, distributed generation, and cogeneration.

Related Example: Forecasting Group

Indiana: IC 8-1-8.5-3.5

(a) To arrive at estimates of the probable future growth of the use of electricity required by section 3(b)(1) of this chapter, the commission shall establish a permanent forecasting group to be located at a state supported college or university within Indiana. The commission shall financially support the group, which shall consist of a director and such staff as mutually agreed upon by the commission and college or university, from funds appropriated to the commission.

(b) The forecasting group shall develop and keep current a methodology for forecasting the probable future growth of the use of electricity within Indiana and within this region of the nation. To do this, the group shall solicit the input of residential, commercial, and industrial consumers and the electric industry.

(c) The commission shall use the methodology that the forecasting group devises as the commission's primary methodology in developing and keeping current the commission's:

(1) analysis of the long range needs for expansion of facilities for the generation of electricity required by section 3(a) of this chapter; and

(2) plan for meeting the future requirements of electricity required by sections 3(e), 3(f), and 3(g) of this chapter.

2.2.13.2 Demand-Side Resource Analysis

Annotation

In 2011, a working group affiliated with the U.S. Department of Energy published a series of best practices for including energy efficiency resources in IRPs. Specifically,

"For an IRP process to successfully encourage all cost-effective energy efficiency, the process must at a minimum be built upon credible load forecasts; use credible information about the costs and availability of new generation assets, transmission and distribution lines, and demand side measures; and evaluate demand side resources equally and fairly in relation to supply side resources."[15]

States recognize this concept and have built specific demand-side requirements into IRP statutes. The Indiana statute below is expanded upon in regulation to require utilities to examine all existing supply- and demand-side resources and existing transmission; all potential new utility electric plant options and transmission facilities; all technologies and designs expected to be available within the 20-year planning period, either on a commercial scale or demonstration scale; ***and a comprehensive array of demand side measures, including innovative rate design*** *(170 IAC 4-7-6 and 4-7-4).*

Examples

Indiana: IC 8-1-8.5-3(e)(2)

(2) [The utility] shall submit to the commission an integrated resource plan that assesses a variety of demand side management and supply side resources to meet future customer electricity service needs in a cost effective and reliable manner.

Michigan: MCL 460.6t(5)(e)

(e) Projected load management and demand response savings for the electric utility and the projected costs for those programs.

From RAP's Building Modernization Legislative Toolkit

(C) An assessment of currently employed and potential policies and programs needed to obtain all cost-effective conservation, energy efficiency and flexible load;

(D) An assessment of distributed energy, energy efficiency and electrification resources that may be installed by the utility or the utility's customers, including, but not limited to, energy storage, flexible load, electric vehicles, energy-efficient and electrified end uses, distributed generation and community renewable energy. Any such assessment must include the effect of distributed energy resources on the utility's load and operations; …

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[15] Shenot, J. (2011). *Using integrated resource planning to encourage investment in cost-effective energy efficiency measures.* State and Local Energy Efficiency Action Network. https://doi.org/10.2172/1219705

2.2.13.3 Supply-Side Resource Analysis

Annotation

Supply-side resource analysis represents a quantitative and qualitative comparison of all existing supply-side resources that the utility can reasonably expect to use, develop, implement, or acquire.

The potential supply-side resource options may include:

- *Full or partial ownership of new plants using existing generation technologies.*
- *Full or partial ownership of new plants using new generation technologies, including technologies expected to become commercially available within the planning horizon.*
- *Renewable energy resources on the utility side of the meter, including a wide variety of renewable generation technologies.*
- *Technologies for distributed generation.*
- *Life extension and refurbishment at existing generating plants.*
- *Enhancement of the emission controls at existing or new generating plants.*
- *Purchased power from bilateral transactions and from organized capacity and energy markets.*
- *Generating plant efficiency improvements which reduce the utility's own use of energy.*
- *Upgrading of the transmission and distribution systems to reduce power and energy losses and congestion, and to make new resources available, thus maximizing the value of system resources.*

The utility should analyze and report generic cost and performance information that is sufficient to fairly analyze and compare each of the potential supply-side resource options. The potential cost and performance metrics may include capital cost, fixed and variable operation and maintenance costs, probable environmental costs, and operating characteristics.

Examples

Michigan: MCL 460.6t(5)(c) and (d)

(c) Projected energy purchased or produced by the electric utility from a renewable energy resource. If the level of renewable energy purchased or produced is projected to drop over the planning periods set forth in subsection (3), the electric utility must demonstrate why the reduction is in the best interest of ratepayers.

(d) An analysis of how the electric utility's plan complies with the renewable energy plan requirements and goals of section [*references to relevant energy policies and statutes*].

Washington: RCW 19.280.030(1)(e)

(e) An assessment of methods, commercially available technologies or facilities for integrating renewable resources, including, but not limited to, battery storage and pumped storage, and addressing overgeneration events, if applicable to the utility's resource portfolio. The assessment may address ancillary services;

2.2.13.4 Transmission and Distribution Analysis

Annotation

IRPs enacted 15 to 20 years ago generally focused on generation assets, but some states are now updating IRP requirements to require transmission and distribution system considerations as well. The reason for this is that wires assets, generation assets and distributed energy resources can be substitutes for each other and are best analyzed within a unified planning process.

The following excerpt from Missouri's regulations articulates many aspects of how transmission and distribution analysis could be considered in IRPs, stating that the electric utility must "describe and document its consideration of the adequacy of the transmission and distribution networks in fulfilling the fundamental planning objectives" (20 CSR 4240-22.045(1)).

Furthermore,

> *"Each utility shall consider, at a minimum, improvements to the transmission and distribution networks that—*
>
> *(A) Reduce transmission power and energy losses. Opportunities to reduce transmission network losses are among the supply-side resources. 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;*
>
> *(B) Interconnect new generation facilities. The utility shall assess the need to construct transmission facilities to interconnect any new generation and shall reflect those transmission facilities in the cost benefit analyses of the resource options;*

(C) Facilitate power purchases or sales. The utility shall assess the transmission upgrades needed to purchase or sell. 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

(D) Incorporate advanced transmission and distribution network technologies affecting supply-side resources or demand-side resources. The utility should 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-side resources. The costs and capabilities of these advanced transmission and distribution technologies shall be reflected in the analyses of each resource option" (Excerpted from 20 CSR 4240-22.045(1) et seq.).

Some states are taking additional steps such as requiring utilities to provide specific details about their transmission expansion plans, evaluate technologies that increase transmission capacity, such as grid-enhancing techologies, and model transmission as a resource, along with new generation options.[16] More broadly, states could require utilities to discuss how regional transmission options may decrease or obviate the need for local generation or transmission resources.

However, we note that transmission- and distribution-specific legislation that does not explicitly integrate with IRPs may have effects that should be considered in an IRP. In states where new transmission authorities are created, IRPs may want to explicitly require transmission assessments from the authorities, similar to the Washington example below. Some states take an approach that requires a transmission or distribution plan that is filed separately from the IRP. For example, Minnesota and Michigan require a distribution system plan; Illinois requires an integrated grid plan and some new transmission processes; and Indiana requires a transmission and distribution improvement plan.[17] States may want to consider ways that the outputs of these other processes are integrated into the IRP process.

The examples below are limited to transmission-specific requirements that are in IRPs. States with external transmission- or distribution-specific processes may want to ensure that existing IRP language incorporates relevant outputs from these processes. This is particularly critical where other transmission planning requirements, such as analysis of regional transmission opportunities, may obviate the need for local generation or transmission

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[16] See, for example, National Caucus of Environmental Legislators. (n.d.). *Transmission briefing book*. https://ncelenviro.org/app/uploads/2024/06/CE-Transmission-Briefing-Book.pdf; Wayner, C., Rebane, K., & Teplin, C. (2024). *Mind the regulatory gap: How to enhance local transmission oversight.* RMI. https://rmi.org/insight/mind-the-regulatory-gap; and Americans for a Clean Energy Grid. (2024). *State policies to advance transmission modernization and expansion*. https://cleanenergygrid.org/wp-content/uploads/2024/09/ACEG_State-Policies-to-Advance-Transmission.pdf

[17] Lawrence Berkeley National Laboratory. (n.d.). *State distribution planning requirements*, "Map & Table" tab. https://emp.lbl.gov/state-distribution-planning-requirementshttps://emp.lbl.gov/state-distribution-planning-requirements

Examples

Michigan: MCL 460.6t(5)(g)

(g) An analysis of potential new or upgraded electric transmission options for the electric utility.

Washington: RCW 19.280.030(1)(d)(f) and (2)(e)

(d) A comparative evaluation of renewable and nonrenewable generating resources, including transmission and distribution delivery costs, and conservation and efficiency resources using "lowest reasonable cost" as a criterion; ...

(f) An assessment and 20-year forecast of the availability of and requirements for regional generation and transmission capacity to provide and deliver electricity to the utility's customers and to meet the requirements of chapter 288, Laws of 2019 and the state's greenhouse gas emissions reduction limits in RCW 70A.45.020. The transmission assessment must identify the utility's expected needs to acquire new long-term firm rights, develop new, or expand or upgrade existing, bulk transmission facilities consistent with the requirements of this section and reliability standards;

(i) If an electric utility operates transmission assets rated at 115,000 volts or greater, the transmission assessment must take into account opportunities to make more effective use of existing transmission capacity through improved transmission system operating practices, energy efficiency, demand response, grid modernization, nonwires solutions, and other programs if applicable;

(ii) An electric utility that relies entirely or primarily on a contract for transmission service to provide necessary transmission services may comply with the transmission requirements of this subsection by requesting that the counterparty to the transmission service contract include the provisions of chapter 288, Laws of 2019 and chapter 70A.45 RCW as public policy mandates in the transmission service provider's process for assessing transmission need, and planning and acquiring necessary transmission capacity;

(iii) An electric utility may comply with the requirements of this subsection (1)(f) by relying on and incorporating the results of a separate transmission assessment process, conducted individually or jointly with other utilities and transmission system users, if that assessment process meets the requirements of this subsection; …

(e) Identify any need to develop new, or expand or upgrade existing, bulk transmission and distribution facilities and document existing and planned efforts by the utility to make more effective use of existing transmission capacity and secure additional transmission capacity consistent with the requirements of subsection (1)(f) of this section; …

2.2.13.5 Scenario and Uncertainty Analysis

Annotation

The purpose of scenarios is to make better decisions in an uncertain world. Scenario analysis estimates the potential impact of future events on a resource portfolio by considering various outcomes and possible development paths. Scenarios expand on the fact pattern that describes the present state or "business as usual" and quantify the impact that plausible changes to the status quo would have on the IRP's cost estimates. Scenario analysis is not a granular exercise, but rather focuses on the trajectory of certain options and futures. A scenario is a distinct future characterized by distinct attributes. Illustratively, these scenarios include such options as a new nuclear plan that is projected to become cost competitive by a certain date; battery storage that achieves financial and operational standards by another date; or world oil prices changing dramatically based upon various influences.

As articulated in Missouri's IRP regulation (20 CSR 4240-22.060(1) through (3)), the purpose of scenario and risk analysis is for the utility to design alternative resource plans to satisfy the fundamental objectives and priorities of the integrated resource process. The utility may identify additional planning objectives that alternative resource plans will be designed to meet. The utility should 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. The utility should specify, describe and document a set of quantitative measures for assessing the performance of alternative resource plans with respect to resource planning objectives. The utility should use appropriate combinations of demand-side resources and supply-side resources to develop a set of alternative resource plans, each of which is designed to achieve one or more of the defined planning objectives with the goal of developing a set of alternative plans based on substantively different mixes of supply-side resources and demand-side resources and variations in the timing of resource acquisition to assess their relative performance under expected future conditions as well as their robustness under a broad range of future conditions.

Whatever scenarios are constructed, they should all report measures of risk or uncertainty.[18] For example, natural gas prices are a primary determinant of electricity costs for many utilities, and the historical price and volatility are known and measurable quantities that should be analyzed in an IRP. Other known and measurable sources of risk stem from weather, climate, outage rates, interest rates and many other variables.

The aim of scenario and uncertainty analysis is not to pick a single outcome that is predicted, but instead to assess the range of outcomes that are foreseeable assuming a given set of circumstances.

[18] An uncertainty analysis may be complemented by a sensitivity analysis.

Examples

Michigan: MCL 460.6t(5)(a)

(a) A long-term forecast of the electric utility's sales and peak demand under various reasonable scenarios.

Related option for specific consideration of environmental costs — Minnesota: MN Stat. 216B.2422 Subd. 3(a)

"The commission shall, to the extent practicable, quantify and establish a range of environmental costs associated with each method of electricity generation. A utility shall use the values established by the commission in conjunction with other external factors, including socioeconomic costs, when evaluating and selecting resource options in all proceedings before the commission, including resource plan and certificate of need proceedings."

2.2.13.6 Cost and Rate Analysis

Annotation

Most IRPs report a net present value of the cost to build and maintain the electric system. Sometimes this analysis is presented as the net present value of the revenue requirement, which implies that the utility ran its cost estimates through a basic cost-of-service financial model. This is a best practice.

If a more detailed assessment of the rate impacts is desired, additional language can be added requiring an estimate of the annual revenue requirement, divided by the annual forecast of retail sales (load). This results in an estimate of the annual rate impact, and can help address affordability questions. It can also offer insights into the sometimes offsetting impacts that result from capital investments that support electrification and the revenues that result from load growth. Like the scenario and uncertainty analysis, the aim is not to predict future rates with precision, but to assess the trajectory of costs and rates in the context of general inflation.

Many utilities redact and/or seek confidential treatment for the market prices and resource costing inputs to their IRP analysis. The rationale is that disclosing this information to the public can hurt the utility's negotiating position in power purchase agreements or equipment procurement. This consideration must be balanced with the need for the trust-building transparency that full disclosure can foster. As mentioned in Section 2.2.3, the two-part benefits of full disclosure — cost savings and trust building — are primary considerations in an IRP process.

Example

Michigan: MCL 460.6t(5)(k)

(k) Projected rate and affordability impact for the periods covered by the plan.

Optional addition: Rate trajectory

Estimate the rate trajectory by dividing the annual revenue requirement by the annual forecast of retail sales (loads).

2.2.13.7 Resource Adequacy Analysis

Annotation

Resource adequacy is a primary concern in many jurisdictions. When the utility operates within a regional transmission organization (RTO), the resource adequacy analysis should follow the analytical approach that is established by the RTO and approved by the Federal Energy Regulatory Commission. When the utility does not operate within an RTO, it should follow industry best practices[19] *for analyzing and reporting.*

Historically, resource adequacy has been based on the capacity to serve peak loads and expressed in MW. Today, the focus is changing as the grid transitions to more energy-based resources that have distinct hourly production patterns modified by more storage resources. In this context, there is increasing awareness that resource adequacy expressed as total energy available, in MWh, is becoming as important or potentially more important. Statutes and rules addressing planning would do well to retain nimbleness and to avoid being pinned to a historic perspective of resource adequacy that appears to be changing in a significant way.

Example

Indiana: 170 IAC 4-7-2.3

Sec. 2.3. (a) A utility listed in section 2(a) of this rule shall provide to the director and the OUCC the annual resource adequacy assessment reported to an RTO within twenty-five (25) days of the date reported or as otherwise agreed by the director.

(b) A utility providing the information required in subsection (a) shall explain major differences between the information provided under subsection (a) and the utility's most recent IRP, such as significant changes in the timing of capacity additions or retirements.

2.2.13.8 Resource Acquisition Strategy Selection

Annotation

Missouri regulations (20 CSR 4240-22.070) state that the purpose of the resource acquisition strategy selection process is for the utility to select a preferred resource plan from among the alternative resource plans that have been analyzed. The utility should describe and document

[19] See, for example, Stenclik, D. (2020, August 10). *Five principles of resource adequacy for modern power systems.* Energy Systems Integration Group. https://www.esig.energy/five-principles-of-resource-adequacy-for-modern-power-systems/

the process used to select the preferred resource plan, including the relative weights given to the various performance measures and the rationale used by utility decision-makers to judge the appropriate trade-offs between competing planning objectives and between expected performance and risk.

Consideration should be given to what may be considered a resource. IRPs are most effective when all resources are considered. This does not mean all resources may be selected, but a consideration of all options will result in more comprehensive results. For example, historically a utility could purchase system power from another utility to be considered part of its generation portfolio. Today, distributed energy resource aggregation can provide similar capacity to a utility but is not eligible to compete in all states or markets.

Example

Michigan: MCL 460.6t(5)

(b) 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. …

(i) 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.

(j) An analysis of the cost, capacity factor, 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. …

(n) 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.

2.2.14 Action Plan

Annotation

Many IRPs outline the actions that the utility expects to take as a result of the IRP. Comprehensive action plans should specify the major tasks, schedules, and milestones that are necessary to implement the preferred resource plan over the implementation period. This section of the IRP is often brief, and can consist of a bulleted list of items that the utility expects to advance between IRP filings. In this way, it can serve as a signal to the commission for filing activity that it can expect between IRP filings.

Example

Indiana: 170 IAC 4-7-9

Sec. 9. (a) A utility shall prepare a short term action plan as part of its IRP and shall cover a three (3) year period beginning with the first year of the IRP submitted pursuant to this rule.

(b) The short term action plan shall summarize the utility's preferred resource portfolio and its workable strategy, as described in section 8(c)(10) of this rule, where the utility must take action or incur expenses during the three (3) year period.

(c) The short term action plan must include, but is not limited to, the following:

(1) A description of resources in the preferred resource portfolio included in the short term action plan. The description may include references to other sections of the IRP to avoid duplicate descriptions. The description must include, but is not limited to, the following:

(A) The objective of the preferred resource portfolio.

(B) The criteria for measuring progress toward the objective.

(2) Identification of goals for implementation of DSM programs that can be developed in accordance with IC 8-1-8.5-10 and 170 IAC 4-8-1 et seq. and consistent with the utility's longer resource planning objectives.

(3) The implementation schedule for the preferred resource portfolio.

(4) A budget with an estimated range for the cost to be incurred for each resource or program and expected system impacts.

(5) A description and explanation of differences between what was stated in the utility's last filed short term action plan and what actually occurred.

3 Appendix: Enabling Statutes and Regulations

This appendix provides links to the enabling statutes and IRP regulations for the six states we analyzed. It also includes quotations and descriptions discussing the states' processes and the development of their current IRP requirements.

3.1 Indiana

Enabling Statute Indiana Code § 8-1-8.5-3(e)(2)

IRP Regulations 170 IAC 4-7

Notes and Discussion

"Jurisdictional electric utilities are required to submit Integrated Resource Plans (IRPs) every three years according to Indiana Code § 8-1-8.5-3(e)(2). The IRPs are subject to a rigorous stakeholder process. IRPs describe how the utility plans to deliver safe, reliable, and efficient electricity at just and reasonable rates. Further, these plans must be in the public interest and consistent with state energy and environmental policies. Each utility's IRP explains how it will use existing and future resources to meet customer demand. When selecting these resources, the utility must consider a broad range of potential future conditions and variables and select a combination that would provide reliable service in an efficient and cost-effective manner."[20]

"Under the IURC's [Indiana Utility Regulatory Commission's] approach, an IRP is regarded not as a utility's definitive plan but rather as a roadmap based on the best information and judgment at the time the analysis was undertaken. The IRP is expected to provide off-ramps to give utilities maximum flexibility to adjust to inevitable changing conditions, such as fluctuating fuel prices, environmental regulations, public policy, technological changes, and customer needs."[21]

"Under Indiana law, IRPs are the utilities' plans and are not subject to outside approval, but utilities are required to hold public advisory meetings and to respond to suggestions provided by interested stakeholders. The IURC does not take a position on the relative efficacies of any of the utilities' preferred resource plans. Instead, IURC staff provides a constructive critique of Indiana utility IRPs to encourage continual improvement.

"Indiana's experience with integrated resource planning has yielded a number of lessons learned:

- "Stakeholder engagement is beneficial, and it is in the utility's interest to bring all parties together through the process, if at all possible.
- "It is important to take a long-term view in the stakeholder public advisory process, as parties need to develop trust in one another.
- "A focus on continual improvement in the IRP process allows for methodologies and data to evolve over time.
- "RFPs can help utilities gain better information on real projects at real costs from within the marketplace."[22]

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[20] Indiana Utility Regulatory Commission. (n.d.). *Integrated resource plans*. https://www.in.gov/iurc/energy-division/electricity-industry/integrated-resource-plans/

[21] U.S. Department of Energy Midwest CHP Technical Assistance Partnership. (2020). *Indiana's integrated resource planning process*. https://chptap.ornl.gov/profile/329/IndianaIRP-Profile.pdf

[22] U.S. Department of Energy Midwest CHP Technical Assistance Partnership, 2020.

See also:

- Reports on utility IRPs by the Indiana Utility Regulatory Commission's director of research, policy, and planning. The report comments on the IRP whose "primary goal is a well-reasoned, transparent, and comprehensive IRP that will ultimately benefit customers, the utility, and the utility's investors."
- IRP Contemporary Issues Technical Conference held annually in Indiana as part of its stakeholder engagement process.
- Policy Profile from 2020.

3.2 Michigan

Enabling Statute Michigan Compiled Laws §460.6t

IRP Regulations established through Order U-15896 (see Exhibit A) issued Dec. 20, 2017

Notes and Discussion

"A utility IRP is a long-term plan, typically spanning twenty years or more, providing the most reasonable and prudent means of meeting the energy and capacity resources of its customers. Section 6T(3) and (20) of Act 341 required each rate regulated electric utility to conduct an initial IRP and file it with the Commission within two years of the effective date of the act and to file an updated IRP at least every five years thereafter."[23]

"On December 21, 2016, Public Act 341 of 2016 (Act 341), an amendment to Public Act 3 of 1939 and Public Act 286 of 2008, was signed into law and became effective on April 20, 2017. Section 6t(3) of Act 341, MCL 460.6t(3), requires that each electric utility, whose rates are regulated by the Commission, file an integrated resource plan (IRP) within two years from the effective date of Act 341. Section 6t(3) states that the Commission "shall issue an order establishing filing requirements, including application forms and instructions, and filing deadlines for an integrated resource plan filed by an electric utility whose rates are regulated by the commission."[24]

[23] Michigan Public Service Commission, Case No. U-15896 and Case No. U-18461, opinion and order on December 20, 2017. https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/068t0000001X2e0AAC

[24] Michigan Public Service Commission, December 20, 2017.

See also:

- Integrated Resource Plan Filing Requirements/Schedule
- Integrated Resource Plan issue brief

3.3 Minnesota

Enabling Statute MN Stat. 216B.2422

IRP Regulations MAR 7843

Notes and Discussion

As detailed on the Minnesota commission's website, "An **Integrated Resource Plan**, (also known as IRP or a resource plan), is a document showing how a utility plans to generate electricity for the next 15 years. The IRP review process allows the Commission and stakeholders the opportunities to examine a utility's current and planned electricity generation for the next 15 years. The resource plan can affect many things, like electricity rates, the communities where power plants are located, when power plants might be built or retired, electric system reliability, and the environment. The IRP also provides a way for interested people and organizations to review the proposal and offer input.

"Once a utility files an IRP, here's what usually happens next:

"1. Anyone who believes the IRP is incomplete may file comments within 30 days of the plan being filed;

"2. Initial comments on the merits of the resource plan are often due four months after the filing;

"3. Reply comments, which respond to comments submitted during the initial comment period, are usually due two months after initial comments are received.

"4. After reply comments are filed, the Commission hears the matter and make a decision on the plan.

"5. Before the agenda meeting, PUC staff issues briefing papers summarizing the IRP and significant issues raised during the comment periods. The Commissioners then review the record and make a decision on the IRP."[25]

In Minnesota, the resource plan dockets are defaulted to "Uncontested proceeding[s]," unless otherwise elevated to a contested case (MAR 7843.0300 Subp. 9).

[25] Minnesota Public Utilities Commission. (n.d.). *Electric integrated resource planning (IRP)*. https://mn.gov/puc/activities/economic-analysis/planning/irp/

3.4 Missouri

Enabling Statute n/a. See notes below.

IRP Regulations 20 CSR 4240-22

Notes and Discussion

Missouri has no explicit enabling law regarding IRPs, but has adopted detailed regulations on the topic based on the commission's general powers. The IRP regulations cite Missouri Revised Statute sections 386.040, 386.250, 386.610, and 393.140, RSMo 2000. For additional information see: Integrated Resource Planning.

3.5 North Carolina

Enabling Statute North Carolina G.S. § 62-2(3a) (though several sections in 62-2 are relevant to planning). See also North Carolina G. S. §62-110.1.

IRP Regulations 04 NCAC11 r08-60

Notes and Discussion

"The Economic Research Division and the Energy Division work in tandem to review electric utility integrated resource plans (IRP) and the corresponding source documentation provided by utilities.

"The Economic Research Division is the primary lead for the following utility IRP topics: evaluation and development of the IRP, peak demand and energy sales, price forecast for fuel and commodity prices, capacity markets, and quantitative and qualitative analyses.

"The Energy Division is the primary lead for the following utility IRP topics: coal retirements, distribution, demand-side management and energy efficiency, first resource need, grid requirements/modernization, integrated system & operations planning (ISOP), nuclear license renewal, renewable energy strategy/forecast, resource adequacy, screening of generation alternatives, solar and storage assumptions, transmission (planned or under construction), utility owned generation, utility short-term action plan, and voltage optimization."[26]

"North Carolina General Statutes Section 62-110.9 (Carbon Plan Statute) directs the Commission to take all reasonable steps to achieve a seventy percent reduction in emissions of carbon dioxide in the State from electric generating facilities owned or operated by Duke Energy Carolinas, LLC (DEC), and Duke Energy Progress, LLC (DEP; collectively with DEC, Duke), from 2005 levels by the year 2030 and carbon neutrality by the year 2050 subject to certain discretionary limitations.

[26] North Carolina Utilities Commission Public Staff. (n.d.). *Integrated resource plan*. https://publicstaff.nc.gov/public-staff-divisions/economic-research-division/integrated-resource-plan

"On December 30, 2022, in accordance with the Carbon Plan Statute, the Commission issued an Order Adopting Initial Carbon Plan and Providing Direction for Future Planning in Docket No. E-100 Sub 179 (Initial Carbon Plan). The Carbon Plan Statute directs the Commission to review the plan every two years after the adoption of the Initial Carbon Plan. The Initial Carbon Plan provided for the consolidation of the Carbon Plan and Integrated Resource Plan (IRP) processes (CPIRP, as consolidated) and required Duke to file its first proposed biennial CPIRP by no later than September 1, 2023.

"On August 17, 2023, Duke filed its proposed 2023 CPIRP, which included three core portfolios, thirteen portfolio variants; and ten sensitivity analysis portfolios."[27]

3.6 South Dakota

Enabling Statute SDCL 49-41B-3

IRP Regulations SDR 20:10:21 et seq.

Notes and Discussion

"The 10-year plans shall be filed biennially with the commission by July 1 of each even-numbered year. The 10-year plan shall apply to the 10-year period beginning January 1 of the year in which it is filed." (SDR 20:10:21:30)

"A 10-year plan shall contain, as appropriate to the filing utility, information in the sequence provided in §§ 20:10:21:04 to 20:10:21:18, inclusive, as well as the information required by SDCL 49-41B-3." (SDR 20:21:21:03)

[27] North Carolina Utilities Commission. (n.d.). *Biennial consolidated carbon plan and integrated resource plans of Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC*. https://www.ncuc.gov/Consumer/carbonplan.html

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