IRP Rules in Missouri
Past & Present

MoPSC Roundtable
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Electric Resource Planning Rules 3/29/93

Rules of Department of Economic Development

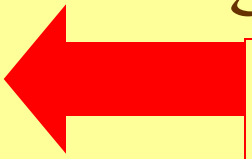
Division 240 – Public Service Commission

Chapter 22 – Electric Utility Resource Planning

- 4 CSR 240-22.010 Policy Objectives
- 4 CSR 240-22.020 Definitions
- 4 CSR 240-22.030 Load Analysis & Forecasting
- 4 CSR 240-22.040 Supply-Side Resource Analysis
- 4 CSR 240-22.050 Demand-Side Resource Analysis
- 4 CSR 240-22.060 Integrated Resource Analysis
- 4 CSR 240-22.070 Risk Analysis and Strategy Selection
- 4 CSR 240-22.080 Filing Schedule & Requirements

Policy Goal

- Set minimum standards to govern the scope and objectives of the resource planning process required of electric utilities.
- Compliance with these rules shall not be construed to result in Commission approval of the utility's resource plans, resource acquisition strategies or investment decisions.



This is beginning to change with decisional prudence being included as a part of regulatory plans.

Planning Objectives

- Consider and analyze demand-side efficiency and energy management measures on an equivalent basis with supply-side alternatives.
- Use minimization of the present worth of long-run utility costs as the primary selection criterion in choosing the preferred resource plan.
- Documentation of 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 plans and developing contingency options.

Other Considerations

- Risks associated with critical uncertain factors that will affect the actual costs associated with alternative resource plans.
- Probable Environmental Costs and risks associated with new or more stringent environmental laws or regulations that may be imposed at some point within the planning horizon.
- Rate increases associated with alternative resource plans.

Inner Core - Analysis

- Load Analysis
- Supply-Side Analysis
- Demand-Side Analysis
- Integrated Analysis
- Risk Analysis

Load Analysis

- For each major class, the utility shall produce separate forecasts of the number of units and use per unit components.
  - **Number of units' forecast** based on relationship between number of units and driver variables and forecast of driver variables.
  - **Use per unit forecast** based on relationship to real price of electricity, real prices of competitive energy sources, real incomes and any other relevant economic and demographic factors.
- For Use per unit – must separate into end-use components, including (where applicable):
  - Lighting, process equipment, space cooling, space heating, water heating and refrigeration.

Supply-Side Analysis

- Identification of various potential supply-side resource options.
  - Existing technologies
  - New technologies
  - Purchased Power Contracts
  - Upgrades to Transmission System
- Screening of supply-side resource options.
  - Initial ranking of options based on relative annualized utility costs and probable environmental costs.
  - Eliminate options that have significant disadvantages.

Demand-Side Analysis

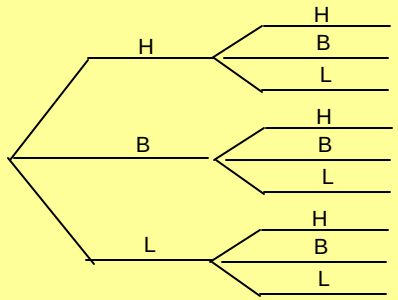
- Identification of End-Use Measures
  - Energy efficiency measures
  - Energy management measures
- Screening Measures
  - Costs avoided by utility from reduced demand and energy – includes probable environmental costs.
  - Benefits = (demand reduction)*(avoided demand cost) + (energy reduction)*(avoided energy cost)
  - Costs = only the cost of the measures
- Developing Programs
  - Measures that pass screening tests are put into demand-side programs developed by the utility.
  - Market plan to deliver demand-side programs.

Integrated Resource Analysis

- Performance Measures
  - Present value of utility revenue requirements
  - Present value of probable environmental costs
  - Present value of out-of-pocket costs to participants in demand-side programs
  - Levelized annual average rates
  - Other utility decision maker performance measures
- Alternative Resource Plans
  - Resource Plan = combinations of candidate demand-side and supply-side resources.
  - Alternative sets of plans designed to achieve the planning objectives.
- Deterministic Assessment of Resource Plans
  - Calculate the value of each performance measure
  - Most likely values for uncertain factors
  - Twenty year planning horizon

Risk Analysis

- Methods of Formal Decision Analysis
  - Critical uncertain factors
  - Decision Trees
    - High, Base & Low outcomes
    - Probabilities for outcomes



- Risk Profiles for Performance Measures
  - Cumulative Probability Distributions for Alternative Resource Plans
  - Tornado Diagrams for critical uncertain factors

Resource Plan Selection

- In the judgment of utility decision-makers, the preferred plan shall strike an appropriate balance between the various planning objectives.
- Implementation plan – critical paths and major milestones.
- Resource acquisition strategy
  - Preferred resource plan
  - Implementation plan
  - Limits for critical uncertain factors with a process to monitor these factors
  - Contingency options when limits exceeded

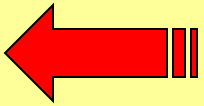
Filing Procedures

- Each utility would file once every three years on a rotating basis.
- Utilities could request waivers of various requirements of the rule.
- Staff reviews filing and reports to the Commission any deficiencies from the rule. Office of Public Counsel (OPC) and interveners can also file a report. (120 days from filing)
- Work toward agreement with utility to correct deficiencies. (45 days)
- No agreement, utility may file response and Staff and interveners can file a response – Hearing and Commission determination.

Brief History of Time

- All utilities completed the first filing – over a three-year period. (1994 – 1997)
- Utilities requested a suspension of the Electric IRP rules due to changing competitive environment for electricity, and the Commission suspended the rules in deference to having the electric utilities meet with the Staff and OPC.
  - Meetings two times during the year
  - Present resource plans
    - Changes in load forecasts
    - Evaluate alternative resource plans, BUT
  - **Emphasis** was on **immediate needs for capacity**
    - Included Purchase Power Contracts
    - Mostly peaking resources rather than base resources
  - Demand-side focus on
    - Low income programs
    - Responses to real-time prices
  - Added reports once a year on upgrades to transmission

Changing over last couple of years.



Natural Gas Resource Planning

- Staff began to develop rules for natural gas planning after Electric Rules were adopted.
- Commission decided not to go forward with rules for natural gas planning – filing by the LDCs.
- Natural gas plans are reviewed for prudence on a case-by-case and year-by-year basis.