

# INTEGRATION RESOURCE PLANNING, RTOS AND OTHER PLANNING ENTITIES AND REQUIREMENTS

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# Agenda

- ▣ Integration Resource Planning
- ▣ Regional Transmission Organization (RTO) Planning
- ▣ Other Planning Entities

# Integrated Resource Planning (IRP)

- ▣ A planning process for new energy resources that evaluates the full range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency measures, cogeneration and district heating and cooling applications, and renewable energy resources, in order to provide adequate and reliable service to customers at the lowest system cost.
- ▣ Normally a long range planning model – in Missouri, a 20-year horizon

# IRP 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



# Integrated Resource Analysis

- ▣ At a minimum, alternative resource plans are to be designed to satisfy objectives in the policy section
  - Additional planning objectives may be identified by the utility
- ▣ Appropriate combinations of supply and demand-side resources are used to develop a set of resource plans each of which is designed to achieve at least one of the planning objectives

# Analysis of Alternative Plans

- ▣ Planning horizon of at least 20 years
- ▣ Carried out with computer models that can simulate total operation of system on a year-to-year basis
- ▣ Financial impact of the plans must be modeled
- ▣ Impact of changes in rates must be accounted for
- ▣ Supply and demand side resources must be treated on a logically consistent and economically equivalent basis

# Risk Analysis and Strategy Selection

- ▣ Formal sensitivity analysis is required on a list of uncertain factors including:
  - Environmental Regulations
  - Fuel Prices
  - Load Growth Forecast
  - Construction costs
- ▣ The risk of each plan is to be characterized by probability distributions of performance measures

# Selection of Preferred Plan

- ▣ In the judgment of the *utility decision makers*, the preferred plan must strike a balance of the planning objectives
- ▣ Must be one of the alternative plans analyzed
- ▣ Reporting requirements include a discussion of the process used to select the preferred resource plan and the rationale used to judge the appropriate tradeoffs between alternative plans

# Additional Information

Commission Web Site: [www.psc.mo.gov](http://www.psc.mo.gov)

Commission Electronic filing system:  
[www.psc.mo.gov/efis.asp](http://www.psc.mo.gov/efis.asp)

Electric Resource Planning Chapter 4 CSR 240-22:  
[www.psc.mo.gov/rules.asp](http://www.psc.mo.gov/rules.asp)



# RTO Transmission Planning

# Purpose of RTO Transmission Planning

- ❑ Make the benefits of a competitive energy market available to customers by providing access to the lowest possible electric energy costs
- ❑ Provide a transmission infrastructure that safeguards local and regional reliability
- ❑ Support State and Federal renewable energy objectives by planning for access to all such resources (e.g. wind, biomass, demand-side management)
- ❑ Create a mechanism to ensure that investment implementation occurs in a timely manner
- ❑ Develop a transmission system scenario model and make it available to State and Federal energy policy makers to provide context and information regarding potential policy choices

# Types of Projects

- ▣ Reliability (reduce congestion)
- ▣ Economic
- ▣ Achieve policy goals (integrating renewables to comply with energy renewable standards)

# FERC Order 890

## ▣ FERC Order 890 Planning Principles

- (I) Coordination
- (II) Openness
- (III) Transparency
- (IV) Information Exchange
- (V) Comparability
- (VI) Dispute Resolution
- (VII) Regional Participation
- (VIII) Economic Planning Studies
- (IX) Cost Allocation for New Projects

# Other Planning Entities

- North American Reliability Corporation (NERC)
  - Reliability Standards are the planning and operating rules that electric utilities follow to ensure the most reliable system possible
- Disaster recovery plans for Utilities
  - Utilities participate with various local, state and federal emergency management agencies to mitigate loss and restore power as soon as possible after a disaster
  - Utilities participate with health officials to plan for pandemics



# Conclusion

- ▣ Planning is an ongoing process
- ▣ Plans need to be flexible to adapt to changing circumstances and conditions
- ▣ Planning should involve all stakeholders so that the planning process is as robust as possible and everyone has buy in to the plan

QUESTIONS?