APS
Resource Planning Goals

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February 15, 2008
Resource Planning - Objective

- Objective for Resource Planning:
  - Provide reliable service to APS customers at a reasonable cost while balancing the overall risks of the resource portfolio and complying with applicable federal and state regulations
    - The plan should also anticipate other potential outcomes by incorporating elements of flexibility
  - The process must ensure that the utility has the financial strength to implement the outcomes of the planning process
Resource Planning Context

• **APS Overview:**
  – Expected High Load Growth
  – Significant Future Resource Needs
  – Significant Resource Planning Challenges:
    – Climate Change
    – Cost Uncertainty and Rising Costs
    – Other Issues (transmission, regional picture, water, natural gas)

• **APS Resource Planning Process:**
  – Consideration of All Resource Options
  – Balance Numerous Objectives:
    – Reliability of Service
    – Customer’s Electricity Price and Price Stability
    – Impacts to the Environment
    – Risk
Resource Planning Guidelines/Considerations

• **Reliability:**
  – Minimum Reserve Margins (15% summer, 12% winter)
  – Resource Adequacy Considerations
  – Firm Transmission Needed to Deliver Resources to Load
  – Flexible Resources to Meet Operating Requirements

• **Environmental:**
  – Meet or Exceed Applicable Laws and Regulations:
    • Future generating plants must include necessary pollution controls
    • Resource plan includes renewable resources to meet or exceed state RES standards
  – Costs of Currently Regulated Emissions Included in Economic Results and Comparisons
  – Future Potentially Regulated Emissions Evaluated Thru Risk Analysis Process

• **Economic:**
  – Total Cost of Serving Customers (present value of estimated revenue requirements)
  – Customer Price Impacts (average cost)
  – Capital Requirements

• **Risk:**
  – Risk Impacts Evaluated thru Several Methods:
    • Stochastic analysis, sensitivity analysis, scenario analysis, qualitative evaluations

• **Planning Standard:**
  – Resource Decisions Involve Balancing of Economic and Risk Impacts
  – Focus on “Least Cost” Alone Could Ignore Critical Risk Factors
Resource Planning Analysis Process

Customer Load Forecast → Planning Assumptions → Screening Analysis → Transmission Deliverability → Economic Analysis → Risk Analysis → Plan(s) Selection → Resource Commitments → Procurement Process

Continuous Process
Attributes of “Preferred” Resource Plan

1. Meets Reliability Needs:
   • Allows APS to meet targeted reserve margin levels
   • Provides for operational flexibility to respond to outages and weather variations
     • Other operational issues could become important in the future

2. A Balanced and Diversified Portfolio that allows APS to:
   • Provide a Reliable Power Supply at Reasonable Prices
   • Reduce Overall Risk of the Energy Supply Portfolio
   • Meet or Exceed Environmental Requirements

3. Flexibility is Incorporated into the Plan:
   • Specification of future resource types anticipates the possibility of different “market” outcomes:
     • CC capacity could meet part of “peaking” need
     • Renewable resource technologies are evolving
     • Other new (or improved) technologies may emerge
   • Long lead-time resource development is approached in a step-wise manner:
     • Decision points throughout development schedule to allow for re-assessment
     • Provides the ability to adjust for changes in capacity needs (load forecast changes)