



Contingency Reserve Sharing; Ancillary Services Market

Presented to the
JCM Joint Stakeholder
Meeting

Agenda



- Products and Nature of Current Services
- Contingency Reserve Sharing Group (CRSG) Agreement
- Ancillary Services Market (ASM)
- Status of Projects

Definitions



The Midwest ISO, working in conjunction with stakeholders, is developing detail design specifications for the below Ancillary Service Products to complement the Midwest ISO Energy Markets.

- Regulation and Frequency Response - Schedule 3
 - Regulation Response Services, also known as Automatic Generation Control (AGC). This allows the system operator to physically balance supply and demand on a real time basis. Demand Responsive Resources capable of providing Regulation can also provide Regulation Responsive Services.

- Spinning Reserve - Schedule 5
 - 10-minute Spinning Reserve. This is the ability of Generation Resources or qualified Demand Responsive Resources already synchronized to the grid to increase their generation output within 10 minutes.

- Supplemental Reserves – Schedule 6
 - 10-minute Supplemental Reserve. This is provided by Generation Resources already synchronized or not currently synchronized to the grid, but which can be ramped up to offered capacity within 10 minutes. Demand-responsive load that can be curtailed or interrupted within 10 minutes can also provide Supplemental Reserves.

Objectives



- The Midwest ISO, working in conjunction with Stakeholders, continue to enhance both the reliability of bulk power system and market operation performance
- The proposed modifications to Midwest ISO Tariff will fulfill the outstanding requirements of the FERC order designating the Midwest ISO the nation's first Regional Transmission Organization ("RTO"), namely the implementation of a market-based mechanism for providing ancillary services
- The proposed tariff modifications are designed to:
 - **Increase the efficiency of the existing Midwest ISO Day-Ahead and Real-Time Markets while minimizing total costs**
 - **Reduce fuel and O&M costs associated with the provision of regulating and contingency reserves**
 - **Facilitate the transfer of certain Balancing Authority functions to the Midwest ISO**
 - **Provide for efficient acquisition and pricing of Regulating Reserves and Contingency Reserves (collectively, "Operating Reserves")**
 - **Provide a platform for incorporating Demand Responsive Resources into the efficient and reliable supply of wholesale power**

Description of ASM Benefits

Two categories of benefits in addition to Midwest Contingency Reserve Sharing Group benefits:

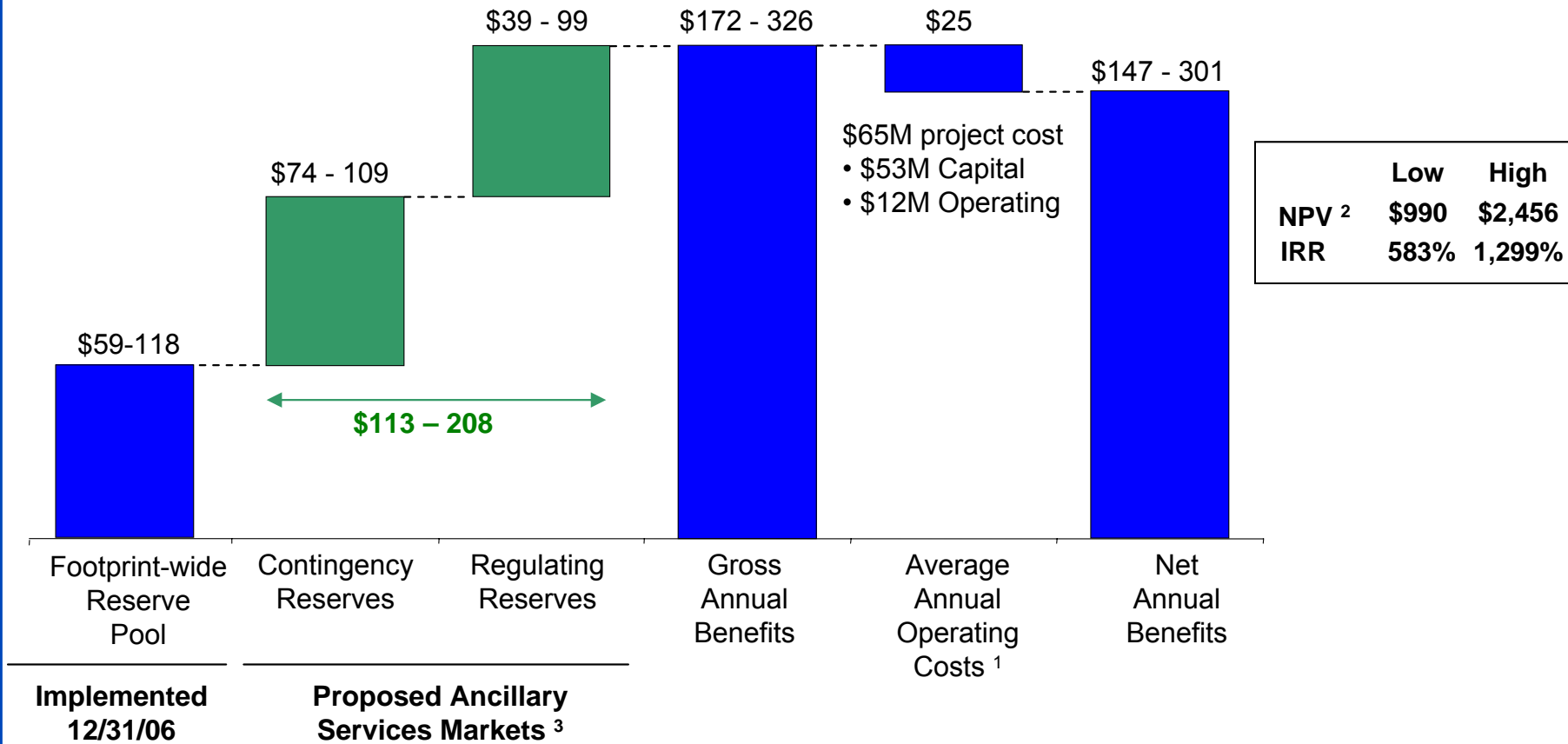
- Contingency Reserves under single Balancing Authority
 - Contingency Reserves are spinning reserves and supplemental or quick start reserves
 - Benefit expected based on reduction in fuel and O&M costs for the region as a whole
 - Fuel and O&M cost savings achieved by meeting regional reserve requirement with lowest cost generation as opposed to meeting 27 separate Balancing Authority reserve requirements using lowest cost generation under the control of each Balancing Authority
 - Up to 700 MW of reserves held by Midwest ISO at peak hour reduced 50% to 75% by centralizing reserves under single Balancing Authority

- Regulating Reserves under single Balancing Authority
 - Reserves required to meet Area Control Area (“ACE”) requirements reduced by 30% to 45% based on consolidation into single regional ACE
 - Current average regulation is 1,460 MW based on “Regulation Up” on existing units
 - Fuel and O&M cost savings achieved by reducing amount of generation committed to meet ACE obligations with no reduction in system reliability

Cost and Benefits



Estimated Annual Benefits (\$ Millions)



Source: Midwest ISO April 3, 2006, FERC Compliance Filing

¹ Recovery through existing Midwest ISO Schedule 17; includes operating expenses, depreciation and interest expense.

² NPV calculated over 10 years using 5% discount rate

³ The ICF International study studied the potential benefits associated with *Post-Midwest ISO ASM* indicating approximately \$189 million in gross benefits over a ten-month period, which annualize to approximately \$227 million

ASM - Key Design Elements



- Comply with all NERC and RRO reliability standards
- Midwest ISO will assume Control Performance Standards and Disturbance Control Standard responsibilities
- Midwest ISO system-wide Area Control Error (ACE)
- Simultaneous Co-optimization of Energy and Ancillary Services Markets to achieve least-cost solution
- Two-part Market Settlement
 - Day-Ahead
 - Real-Time

ASM – Key Design Elements

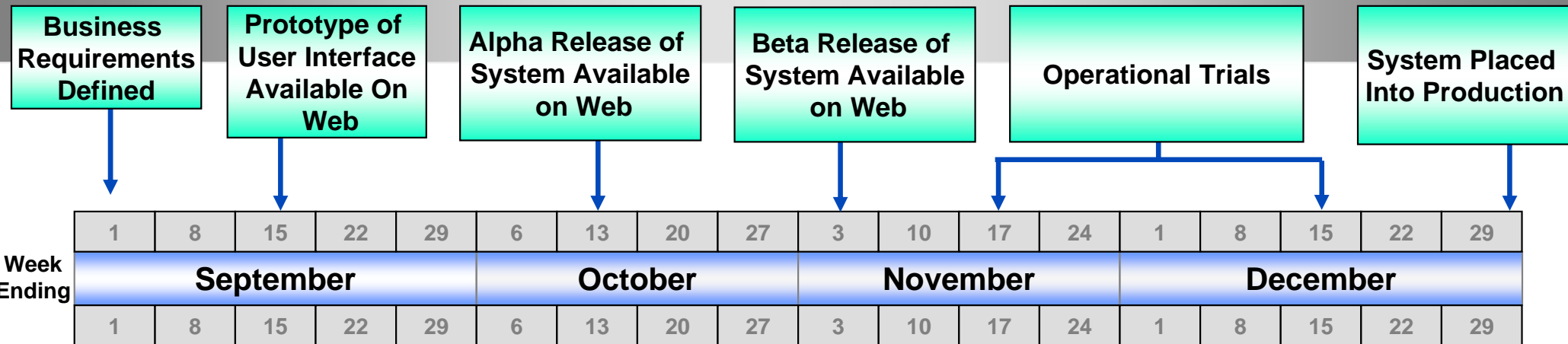
- Ancillary Services requirements are *fully* cleared in the Day-Ahead Energy Market, with re-scheduling made through the Real-Time Market process
- Market Participants can self-schedule through direct controlled generation, bilateral contracts or purchase through Midwest ISO Ancillary Service Market
- Demand Curve(s) will be utilized in the clearing and pricing of Ancillary Services
- Contingency Reserve Zone(s) will be used to establish pricing
- Contingency Reserve deployment design for non-Midwest ISO market participation
- Establishment of Qualification and Performance Compliance Criteria Program

CRSG 2006



Major Milestone Timeline

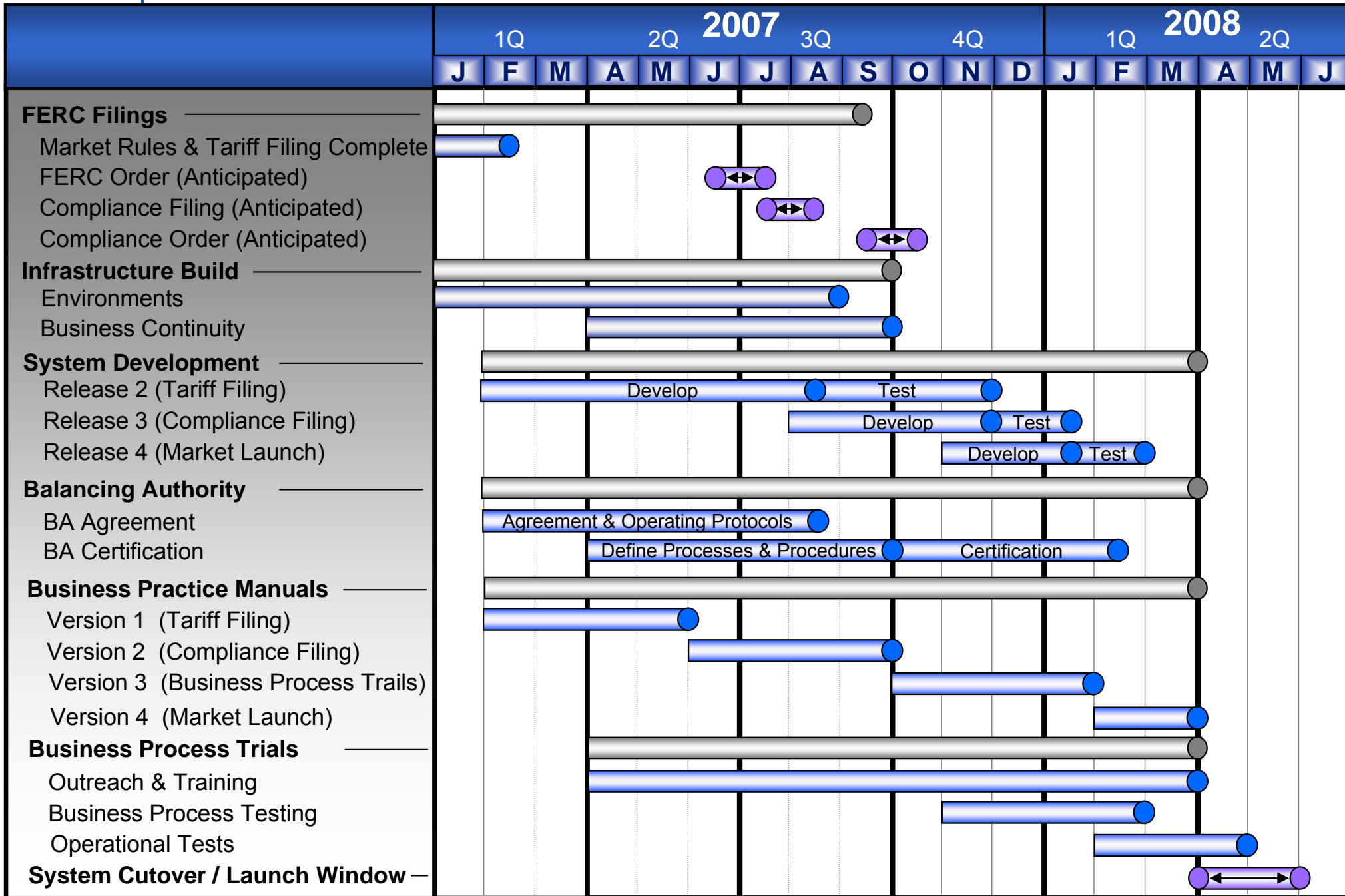
Contingency Reserve Sharing Major Milestones



LEGEND

Completed Incomplete

ASM Major Milestones and Timeline



ASM Working Groups



■ State Ratemaking Design Study Group

- Established to gather appropriate information on the various rate mechanisms (fuel adjust clauses, base rates, etc.) that customers pay and analyze the potential impact of the ASM and the clearing prices on the current state rate mechanisms for each state and for those utilities that elect to participate in the study group. If the group identifies challenges to rates and recovery mechanisms within the states, the group will assist the Midwest ISO in the development of potential means to mitigate those challenges.

Chairperson - Lin Franks; lin.franks@aes.com

■ Data Collection Working Group

- Responsible for designing a mechanism for Midwest ISO to compile pre-ASM capacity and energy charges from Market Participants; this information will be compared to cost/benefit valuation used to support investment and actual benefits realized post-ASM launch.

Chairperson - Marlene Parsley; mparsley@vectren.com

ASM Working Groups



■ ASM Project Monthly Update Meetings

- A forum for all Midwest ISO ASM stakeholders to review high-level project status, schedule, cost/benefit analysis and report out summaries from detail design working groups.

■ ASM Design Working Group (Retired)

- A forum for all stakeholders interested in designing ASM rules for regulation and contingency reserves.

■ Other Working Groups

- ASM Deliverability Test Team
- Infrastructure and Technology Working Group
- Balancing Authority Functional Alignment Working Group

For More Information

- ■ **ASM Project Email Exploder**
 - Receive key dates, project updates
 - Supplements Midwest ISO's active committees, working groups and task force e-mail exploder lists.
 - To subscribe
 - Go to the "Account Settings" page of the Extranet (<http://extranet.midwestiso.org>)
 - Scroll to the bottom and click on "Ancillary Services Market Project"
 - Click "Update Account Settings" to confirm your subscription.
- **www.midwestmarket.org**
 - Documents
 - Ancillary Services Market Project

Contact Information



- ■ Alan Adams
Manager, Ancillary Services Market
 - aadams@midwestiso.org
 - 317.249.5607