

# Renewable Generation, Transmission and the Energy Marketplace

Portfolio Development and Business Case

October 25, 2012

# Overview

- Multi Value Projects reflect the transformation of the MISO planning process by creating a regional network that, when combined with the existing system, provides value in excess of its costs under a variety of future policy and economic conditions
- Today's meeting will focus on the process used to reach that recommendation as well as present a summary of the business case that reveals projected benefits well in excess of cost
- More detailed information on the portfolio business case may be found on the MISO website, at the link below:
  - <https://www.misoenergy.org/Planning/Pages/MVPAnalysis.aspx>

# MISO Planning Objectives

Fundamental Goal



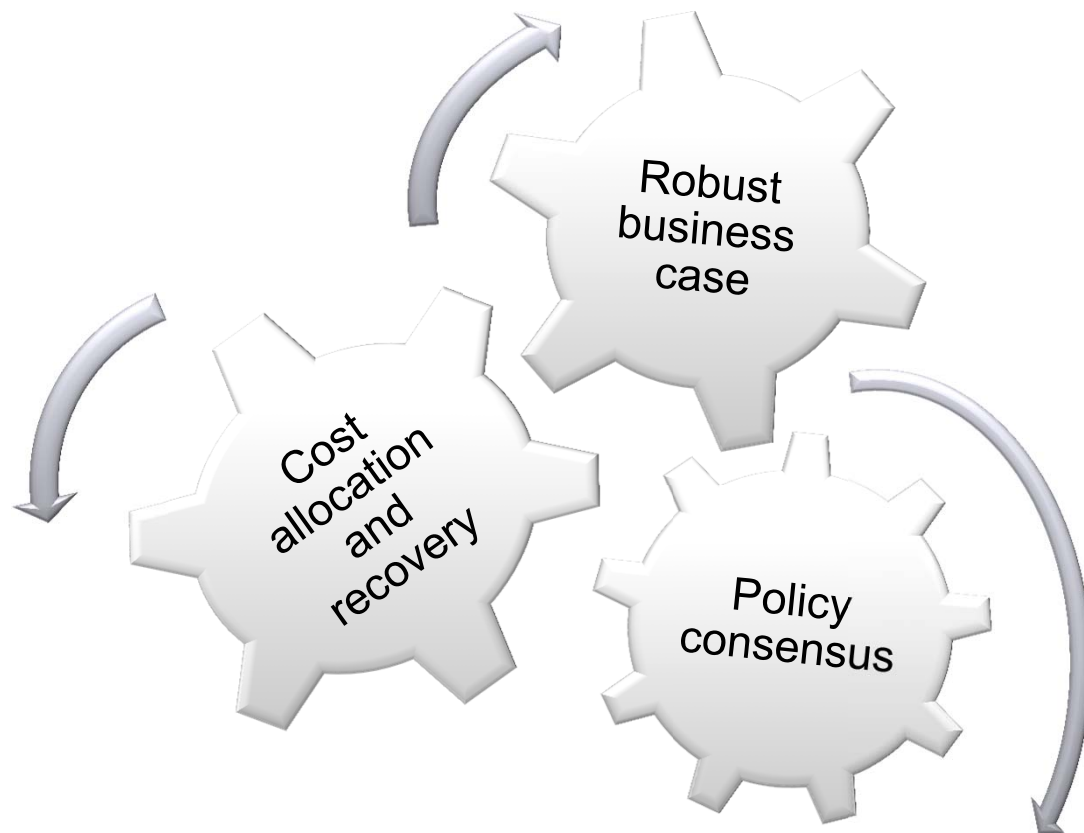
The development of a comprehensive expansion plan that meets reliability needs, policy needs, and economic needs

MISO Board of Director Planning Principles\*



- Make the benefits of an economically efficient energy market available to customers by providing access to the lowest electric energy costs
- Provide a transmission infrastructure that safeguards local and regional reliability and supports interconnection-wide reliability
- Support state and federal energy policy objectives by planning for access to a changing resource mix
- Provide an appropriate cost mechanism that ensures the realization of benefits over time is commensurate with the allocation of costs
- Develop transmission system scenario models and make them available to state and federal energy policy makers to provide context and inform the choices they face

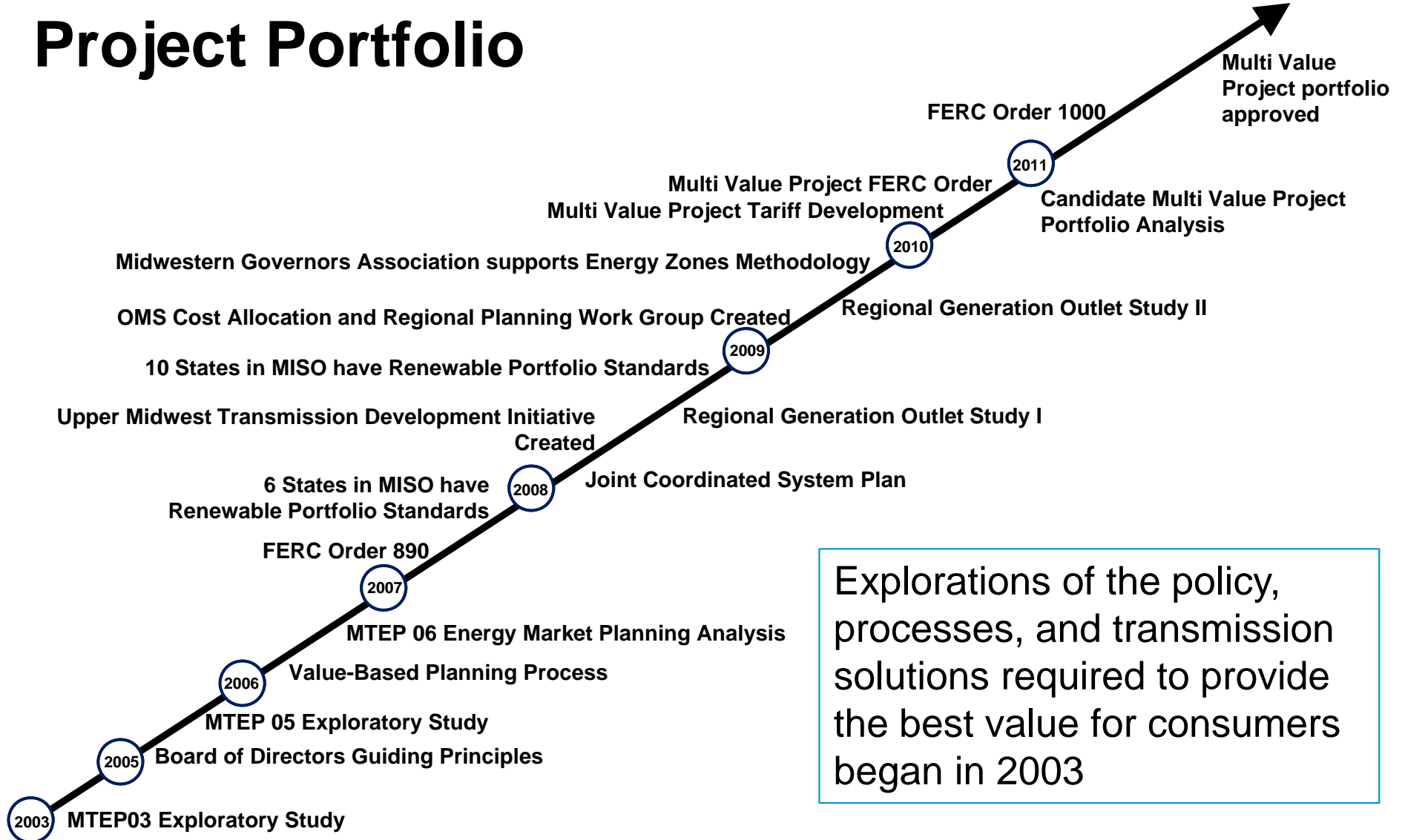
# Conditions Precedent to Increased Transmission Build



Before transmission is built a number of conditions must be met

- Increased consensus on energy policies (current and future)
- A robust business case that demonstrates value sufficient to support the construction of the transmission project
- A regional tariff that matches who benefits with who pays over time
- Cost recovery mechanisms that reduce financial risk

# The Road to the First Multi Value Project Portfolio

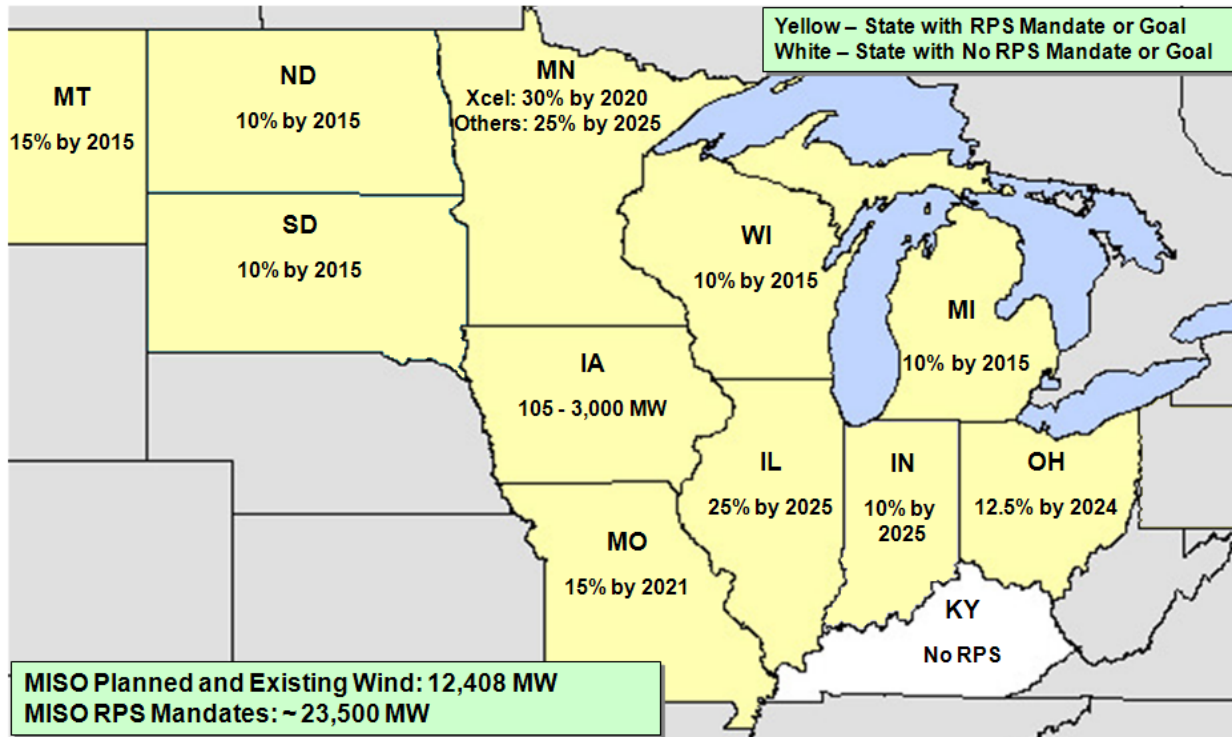




# Required: Policy Consensus

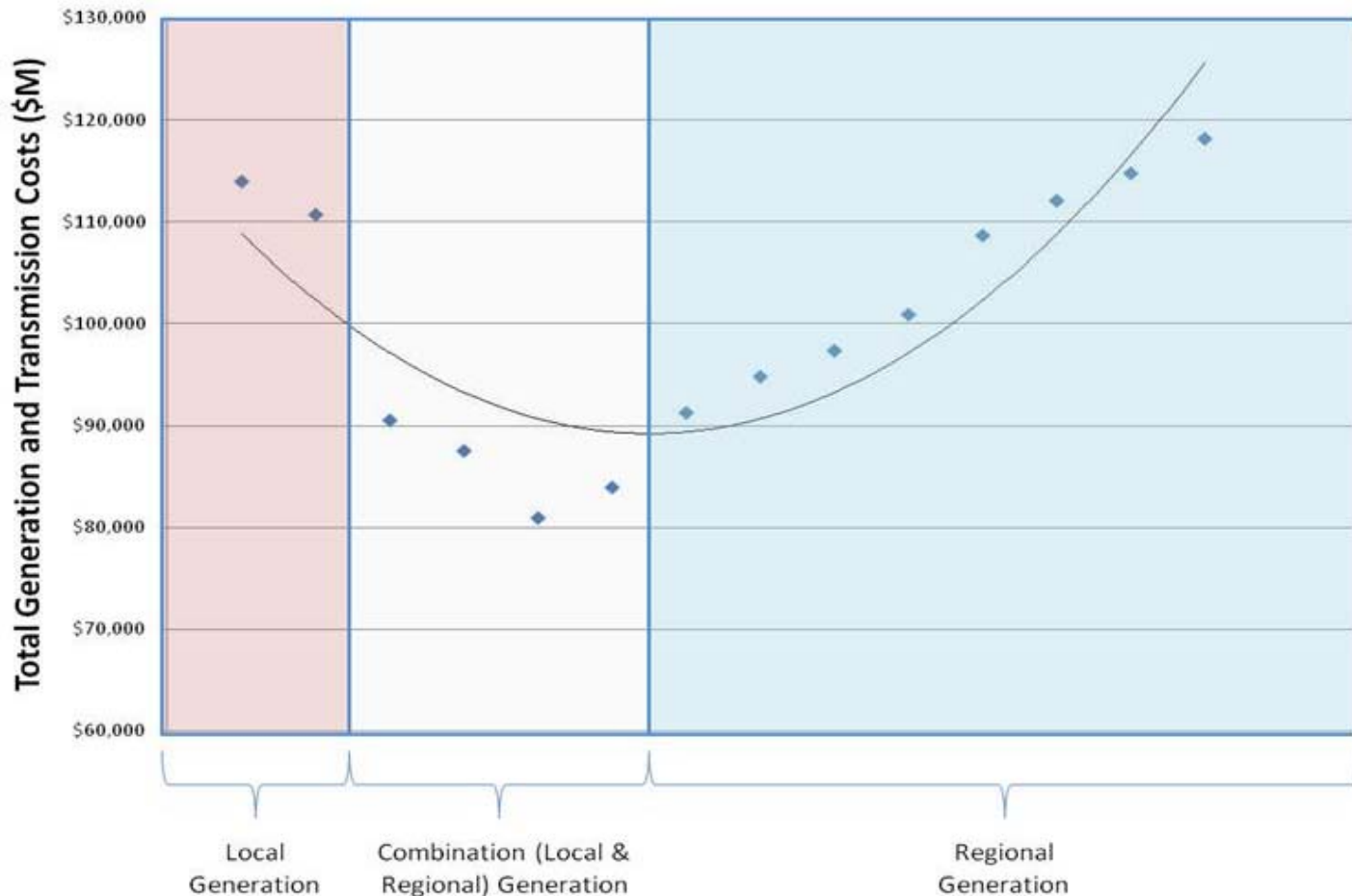
## State Renewable Portfolio Standards

As of 07/27/2011



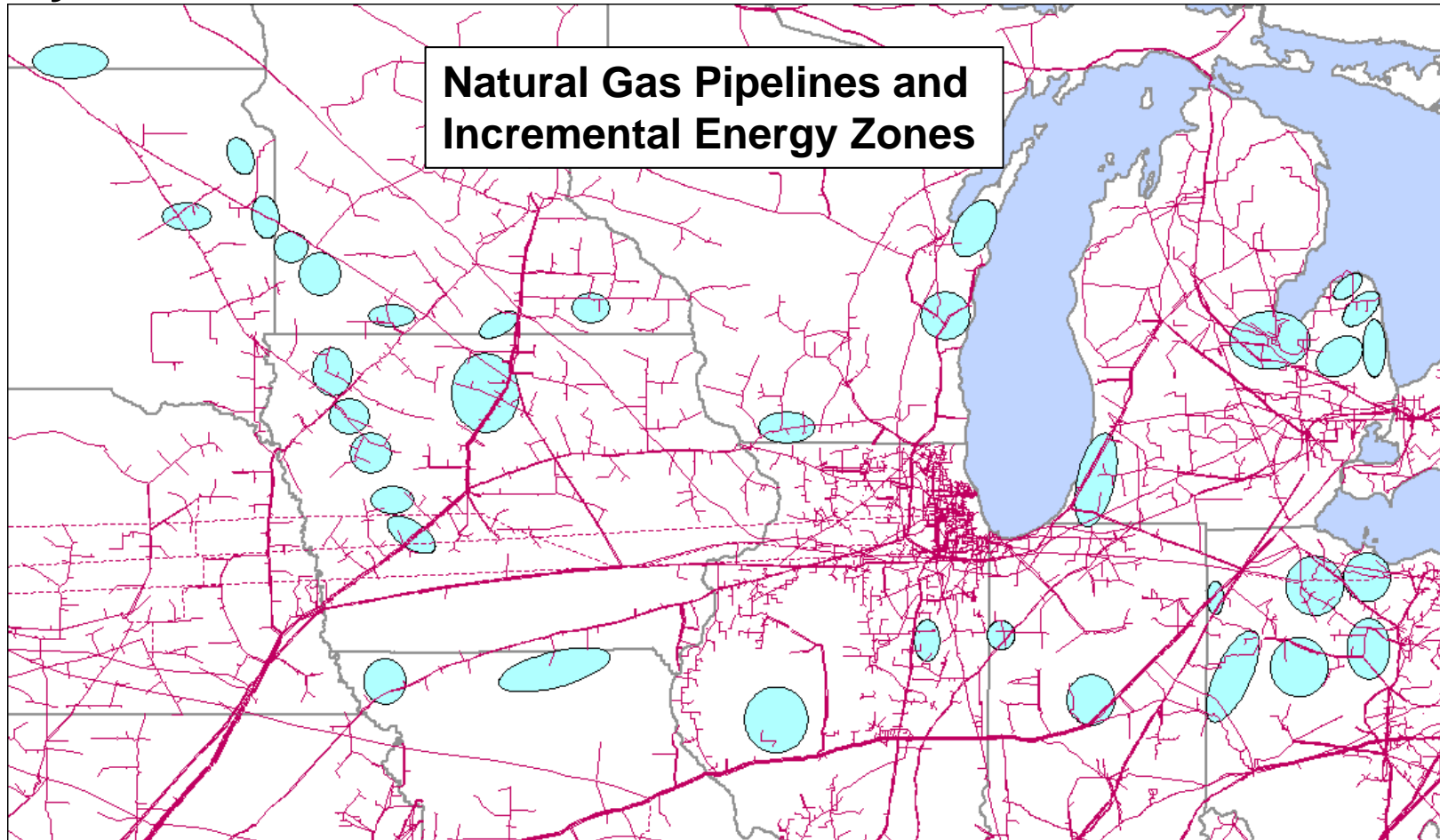
- MISO believes an informal consensus has been reached regarding appropriate planning for energy policies.
- This belief is based on the widespread implementation of Renewable Portfolio Standards across the MISO footprint and the work of many stakeholders, spearheaded by the:
  - ✓ Midwest Governor's Association
  - ✓ Upper Midwest Transmission Development Initiative
  - ✓ Organization of Midwest ISO States Cost Allocation and Regional Planning

To meet the MISO planning goal of providing consumers with access to the lowest cost electric energy, analyses were performed to determine the costs associated with different wind generation siting methodologies



The low cost approach to wind generation siting, when both generation and transmission capital costs are considered, is a combination of local and regional generation locations.

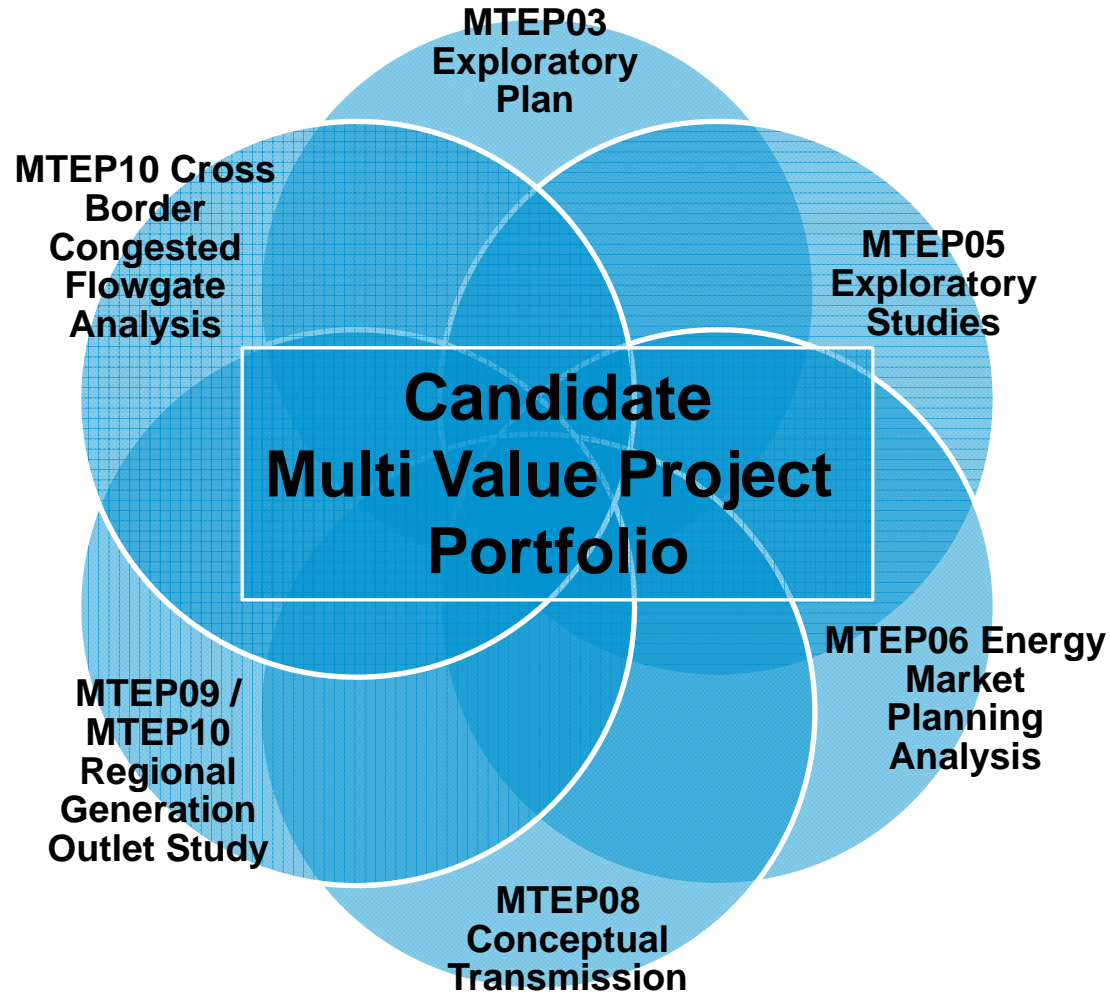
**This methodology resulted in a set of energy zones which were used as the locations for incremental generation in continuing analyses**



These energy zones were created by balancing relative wind capacities along with distances from natural gas pipelines and existing transmission infrastructure

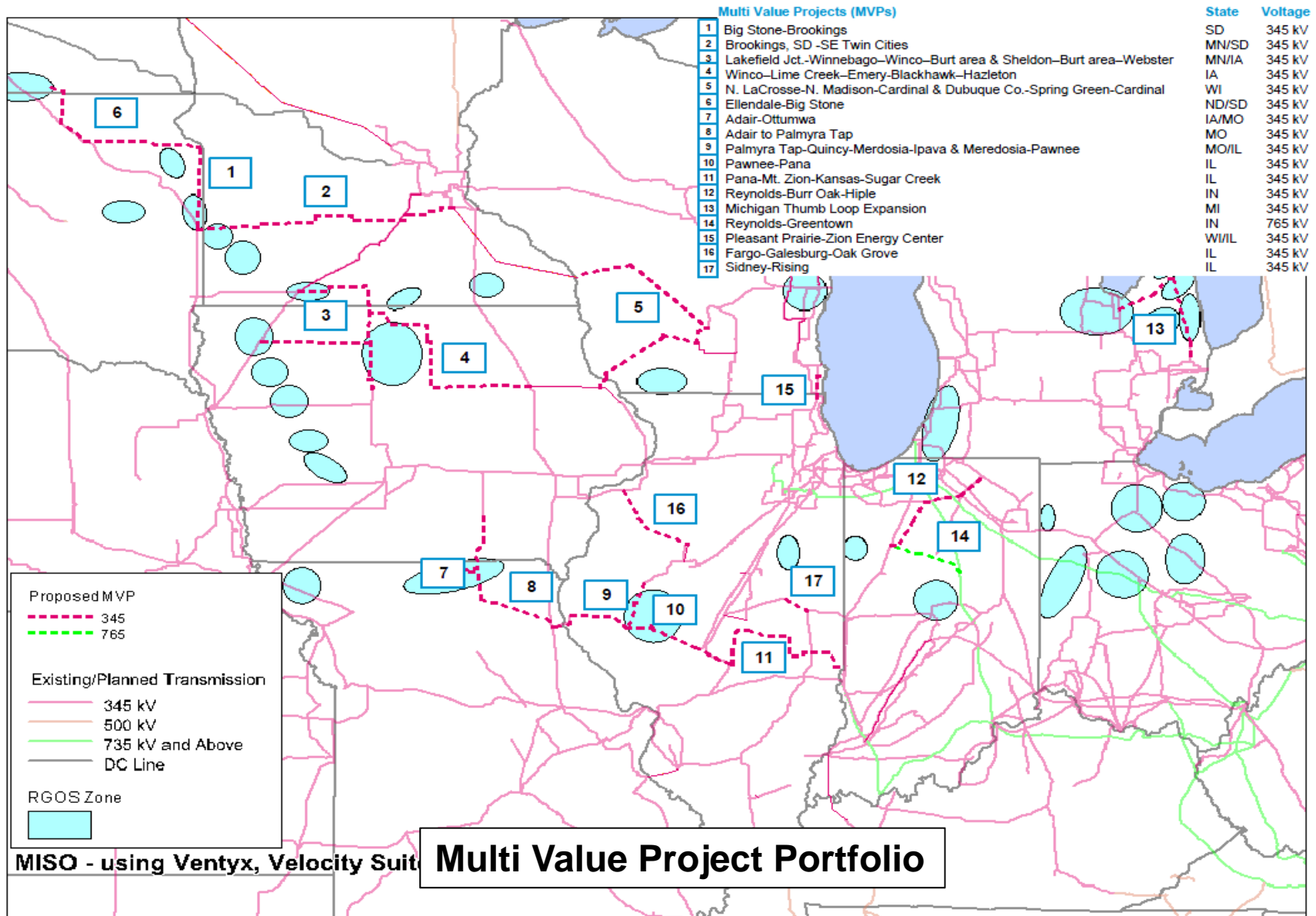


# Required: Robust Business Case

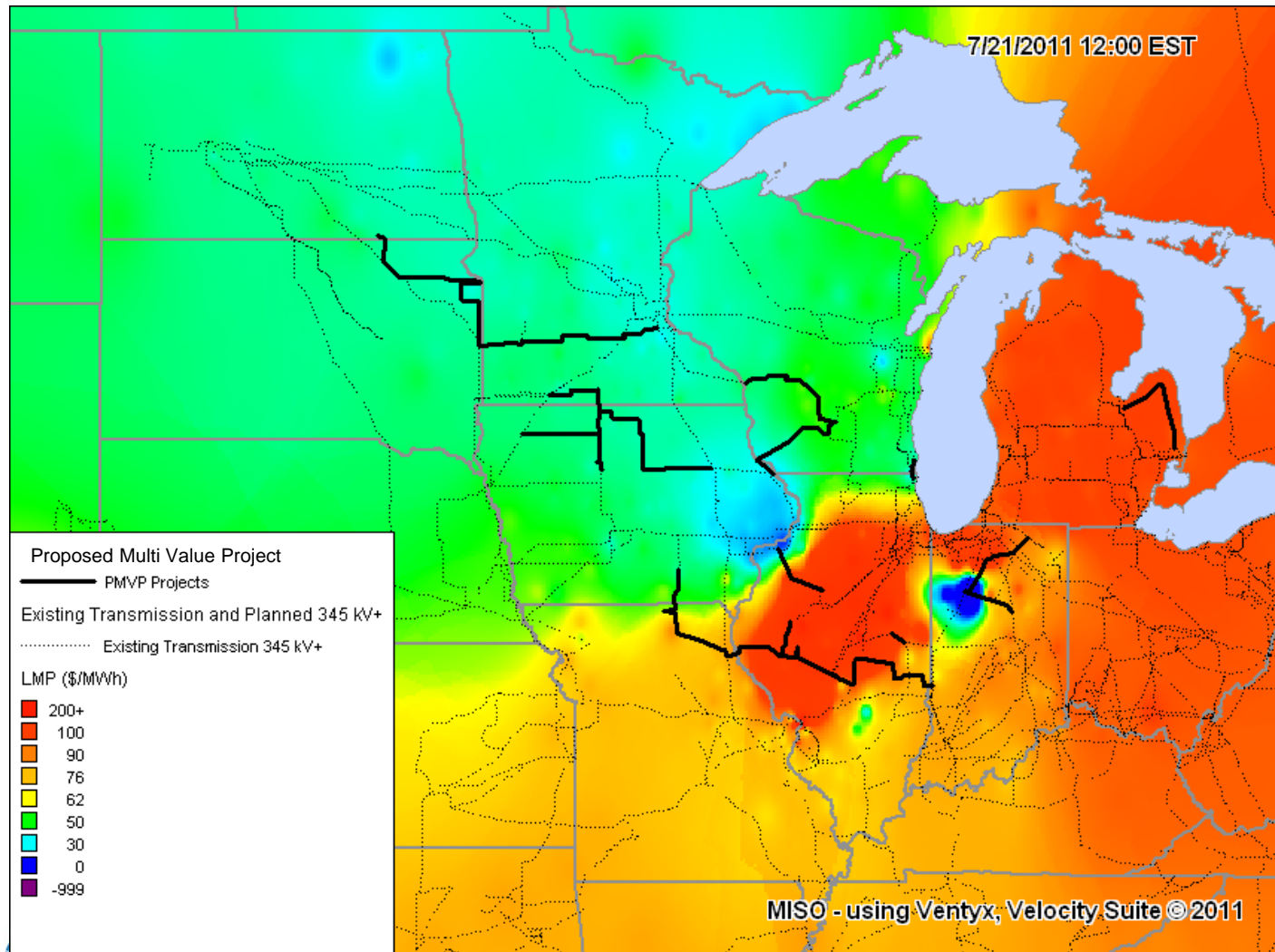


Through consolidating the transmission solutions developed throughout the years, the candidate Multi Value Project portfolio was created

# After additional intensive analysis, the candidate portfolio was refined into a final Multi Value Project Portfolio



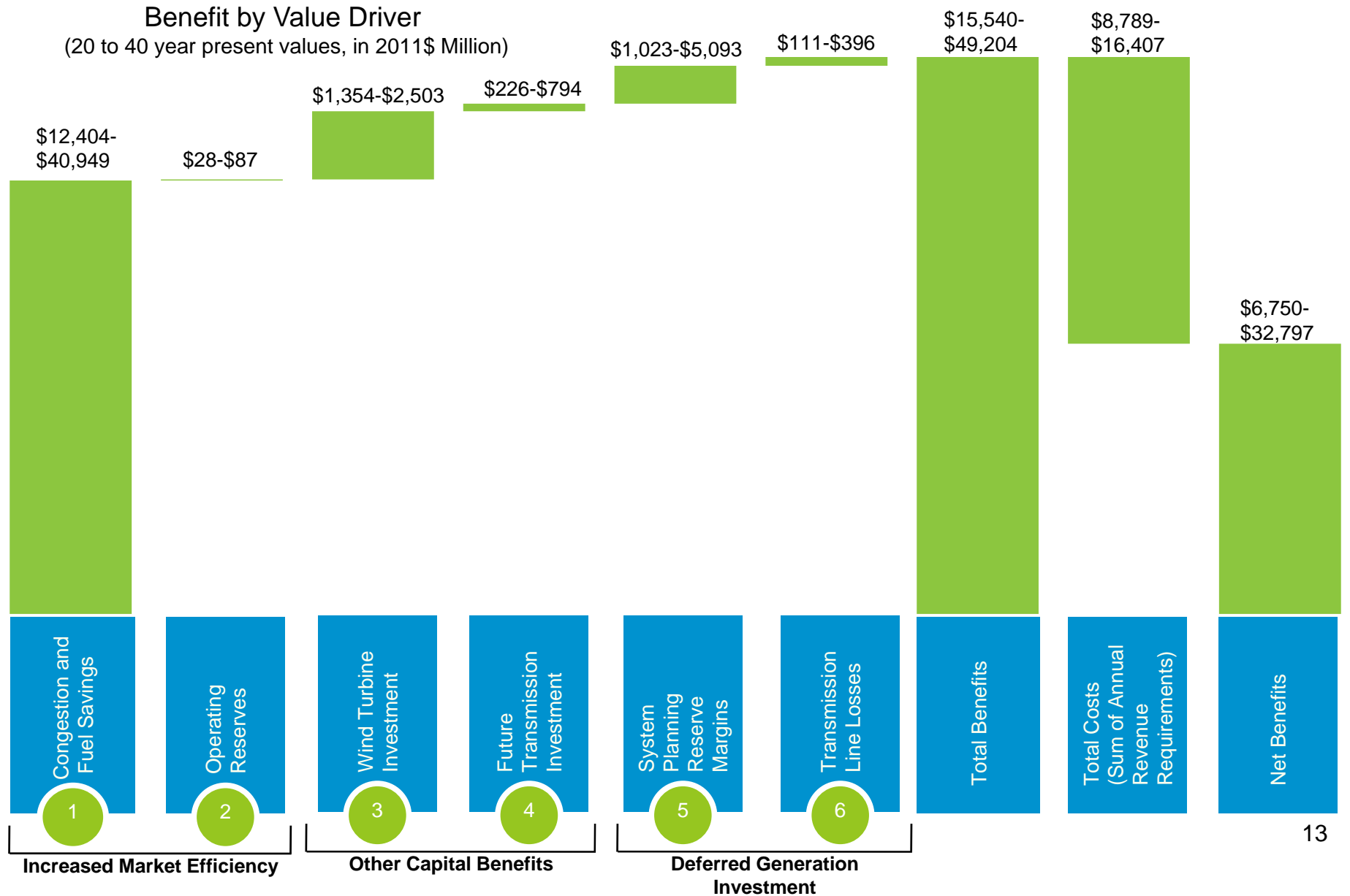
# Multi Value Projects enable a more reliable and efficient transmission system



# Multi Value Projects reliably and economically enable established energy policy choices

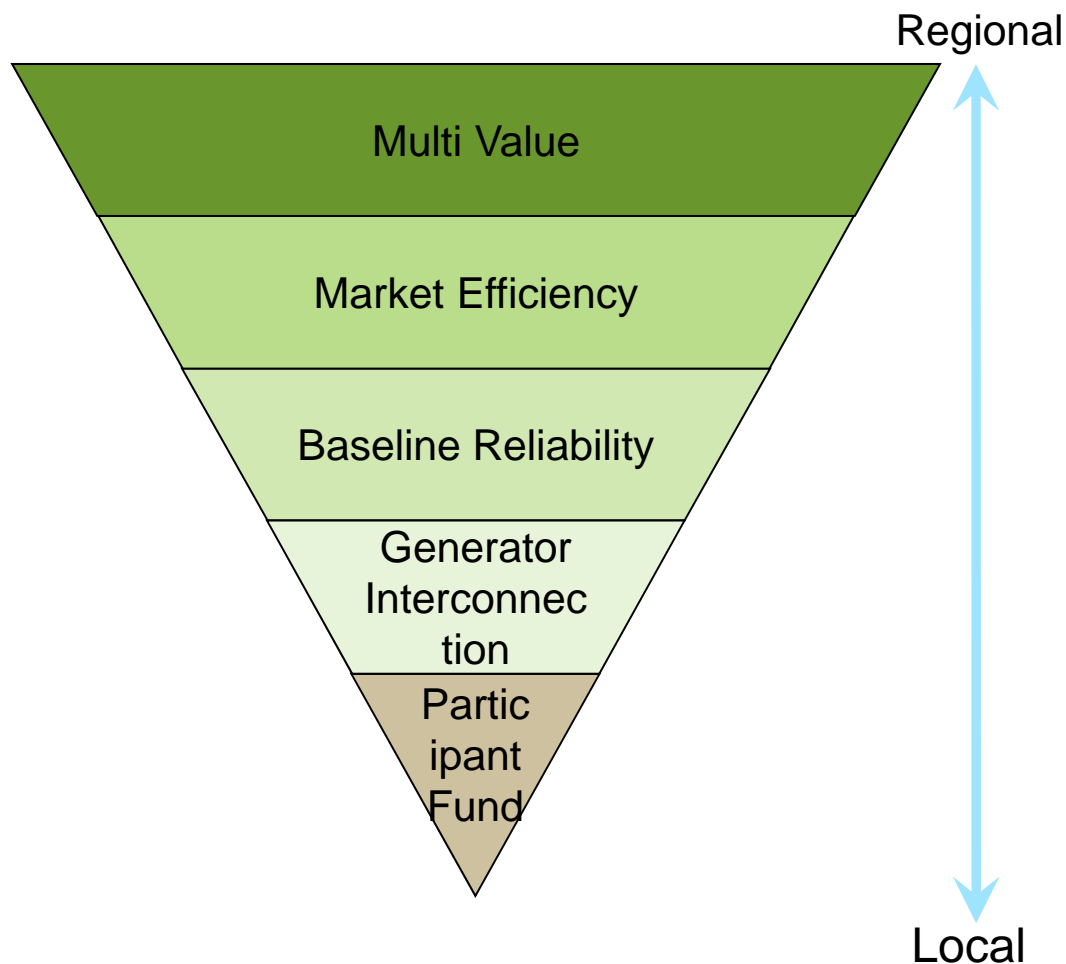
- The proposed Multi Value Project Portfolio creates a robust transmission system that provides value under a wide range of policy, economic, and operating conditions
- Specifically, it
  - Provides benefits in excess of its costs under all scenarios studied, with its Benefit-to-Cost ratio ranging from 1.8 to 3.0
  - Maintains system reliability by resolving reliability violations on about 650 elements for more than 6,700 system conditions and mitigating 16 system instability conditions
  - Enables 41 million MWh of wind energy to meet renewable energy mandates and goals
  - Will provide the average residential customer \$23 in annual benefits, at an annual cost of \$11
  - Supports a variety of generation policies through utilizing a set of energy zones which support wind, natural gas, and other fuel sources

# Multi Value Projects create a variety of economic benefits





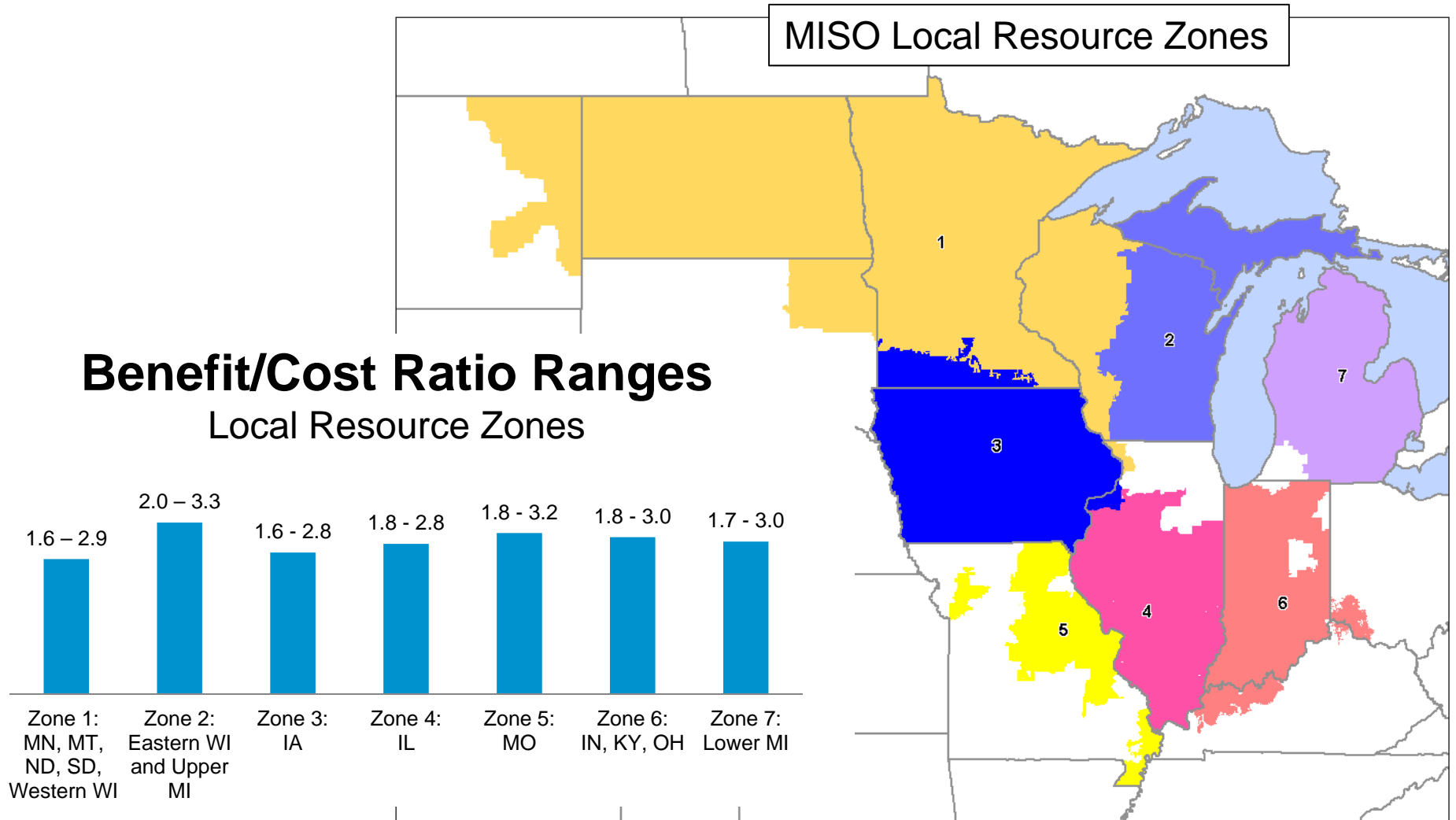
# Required: Transmission Cost Allocation



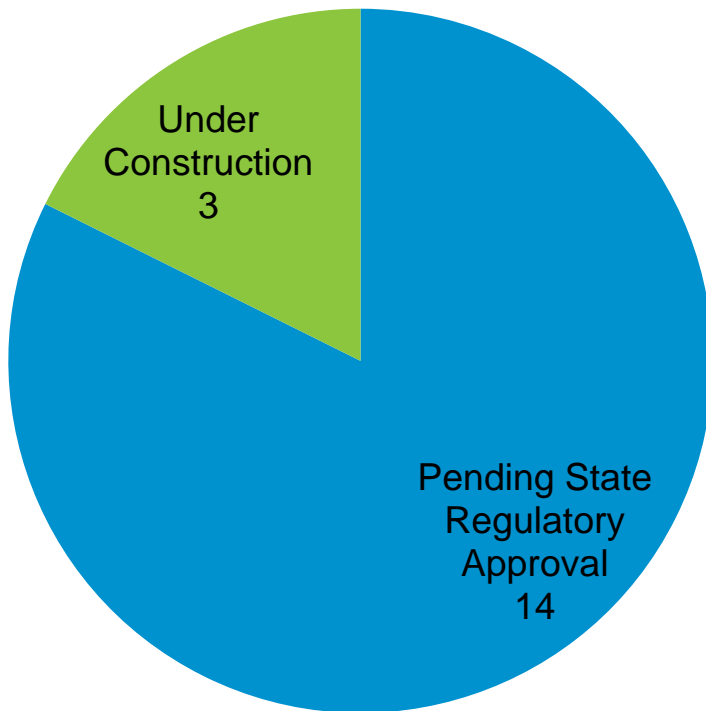
**In the MISO cost allocation approach the business case (i.e. benefits) defines the spread of dollars**

- Benefits of Multi Value Projects are spread regionally consistent with the widespread benefits from regional plan
- Economic benefits of Market Efficiency Projects spread farther beyond the local zone
- Reliability benefits of Baseline Reliability Projects primarily stay in the zone in which the reliability issue exists
- Generator Interconnection Projects paid primarily by Interconnection Customer
- Participant funded projects are paid by the party proposing the project

# Multi Value Projects create benefits that are spread across MISO in a manner commensurate with costs



# The Multi Value Projects are progressing through the regulatory processes



***Multi Value Projects  
Approved by Board  
(17 Projects)***

- **Under construction**
  - Projects are expected to come in-service in 2013, 2014, and 2015
- **Pending regulatory approvals**
  - Eight projects are expected to file for regulatory approval in 2012
  - Six projects anticipate filing in 2013

# Conclusions

- The proposed Multi Value Project portfolio represents the culmination of over 8 years of planning efforts by MISO and its stakeholders to minimize the total cost of delivered power to consumers while maximizing their benefits
- The proposed Multi Value Project portfolio provides widespread reliability, public policy, and economic benefits in excess of costs to the MISO footprint
- General support for MVP process and MVP Portfolio provided through comments to FERC and MISO Board of Directors
  - Governors of Iowa, Minnesota, North Dakota and South Dakota
  - Transmission Owners (Ameren, MidAm and others)
  - Transmission Dependent Utilities (WE Energies, MGE and others)
  - Wind Industry (AWEA, Iberdrola and others)