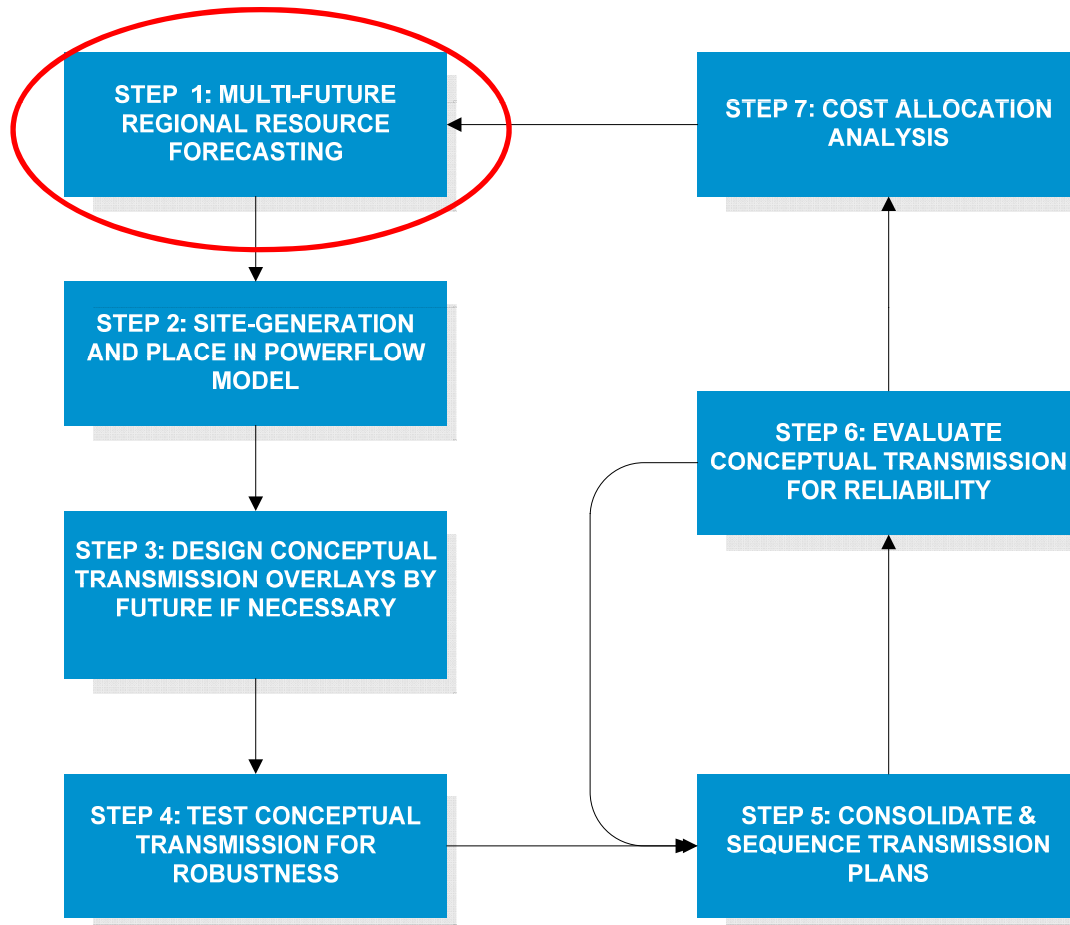# EPRI EGEAS Webcast
John Lawhorn, MISO
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EGEAS Uses at MISO

- **For over seven years, MISO has been using EGEAS for various applications:**
  - **Regional Resource Forecasting, and**
  - **To perform strategic assessments of policy and economic conditions**
- **Considerable time investment:**
  - **Educating MISO staff (12+),**
  - **Completed numerous projects,**
    - EPA Regulation Impact Analysis (MATS, GHG, etc.)
    - New Member Economic Benefit Evaluation Studies
    - MISO's Value Proposition
    - MVP Business Case Metrics
  - **Stakeholder education and interaction, etc.**

MISO's Value Based Planning

STEP 1: MULTI-FUTURE REGIONAL RESOURCE FORECASTING

STEP 2: SITE-GENERATION AND PLACE IN POWERFLOW MODEL

STEP 3: DESIGN CONCEPTUAL TRANSMISSION OVERLAYS BY FUTURE IF NECESSARY

STEP 4: TEST CONCEPTUAL TRANSMISSION FOR ROBUSTNESS

STEP 5: CONSOLIDATE & SEQUENCE TRANSMISSION PLANS

STEP 6: EVALUATE CONCEPTUAL TRANSMISSION FOR RELIABILITY
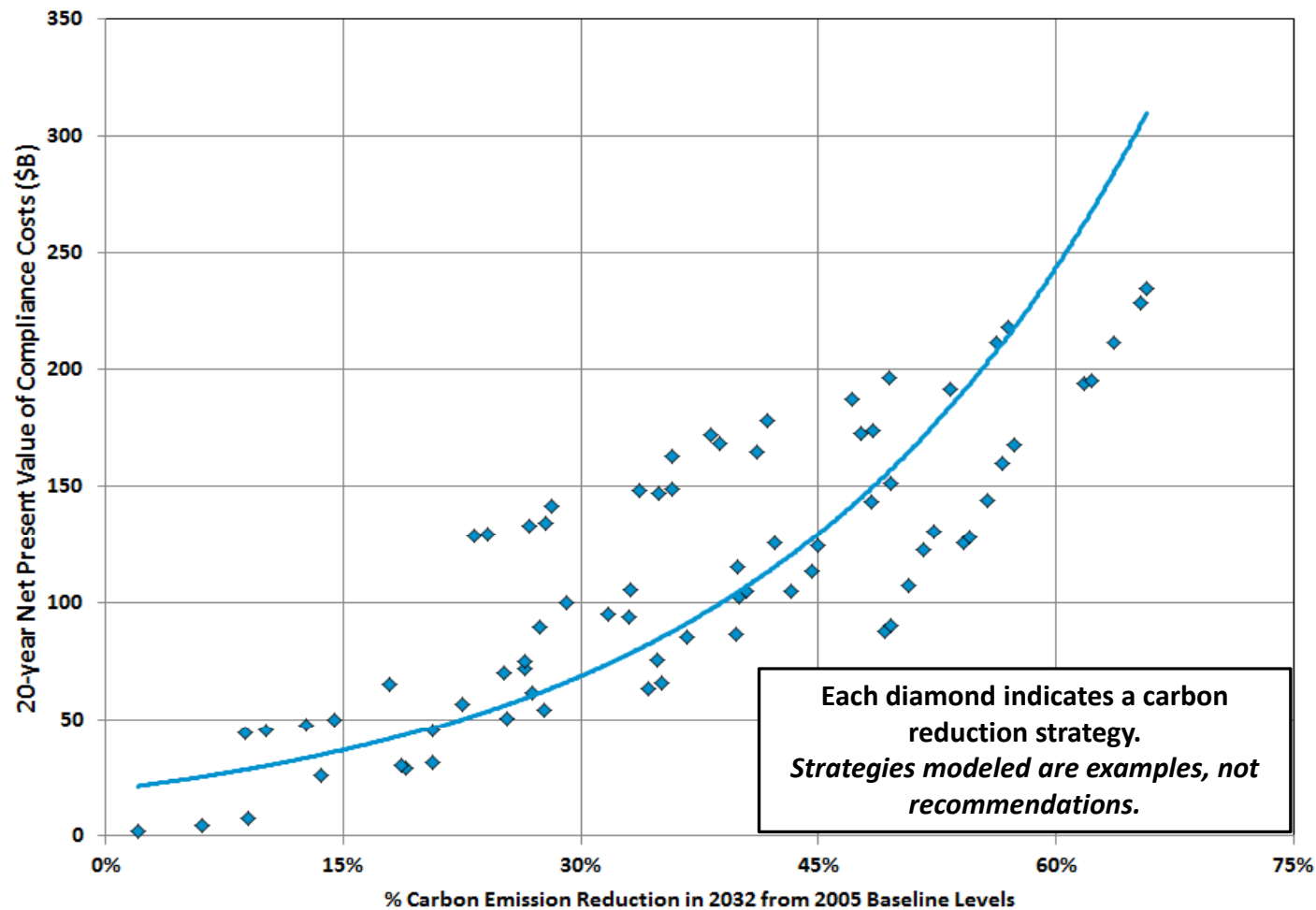
STEP 7: COST ALLOCATION ANALYSIS

- Objective of value-based planning is to develop the most robust plan under a variety of scenarios – not the least-cost plan under a single scenario
  - The "best" transmission plan may be different in each policy-based future scenario
  - The transmission plan that is the best-fit (most robust) against all these scenarios should offer the most future value in supporting the future resource mix

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Strengths of EGEAS

- **Quick run times compared to other models**

- **Resource forecasting utilizing supply side and demand side resources as alternatives**

- **MISO has developed many codes to improve operational efficiency to:**
  - Be able to run hundreds of cases in batch mode
  - Convert generation data in to EGEAS format
  - Consolidate generator units below 950
  - Automate file set-up
  - Convert output files to Excel

GHG regulation will be the next to impact supply; flexibility will be essential for cost-effective carbon reduction

Each diamond indicates a carbon reduction strategy.
Strategies modeled are examples, not recommendations.

Preliminary results show that, for given policy and economic conditions, certain combinations of carbon reduction strategies are more cost effective than others. Strategies modeled do not represent an exhaustive range of compliance options.

Challenges with Current Modeling

- **Recent application of Demand Response and Energy Efficiency Programs within the optimization require external feedback calculations for the amount of renewable energy to be added to the system**
  - Potentially results in overbuild of renewable requirements

- **Futures definitions require multiple calculations of mandated needs**
  - Variations of demand and energy growths change the needs of renewable resources as many are based on percentages of energy

MISO Support for new Version 11.0 - Benefits

- **Brings the renewable portfolio fleet expansion into the optimization equation**

- **Will allow for:**
  - the economic selection of the types of units that will participate in meeting the requirements
  - better testing, both futures and sensitivities, of energy growth rates
  - mandates to adjust to the economic selection of energy efficiency programs

- **Methodology of modeling will allow for flexibility in what is the actual objective**
  - RPS
  - Clean Energy Standard
  - Minimum technology requirements