



Eastern Interconnection Planning Collaborative

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# **Update on EIPC Studies 2013-2014**

ATC Stakeholder Meeting  
September, 2013

# Outline

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- EIPC Background
- EIPC Activities (grant and non-grant)
- EIPC/DOE Eastern Interconnection Study
  - Phase II Results
- EIPC 2013-2014 Work
  - Selected ATC Projects
- Key Dates
- Appendix

# About the EIPC

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- Eastern Interconnection Planning Collaborative (EIPC)
- 25 Planning Authority (Planning Coordinator) members including ISOs/RTOs, non-ISO regions, integrated utilities, municipals, and cooperatives
- Members are from the U.S. and Canada
- Approximately 95% of the Eastern Interconnection customers covered
- Formed in the Spring of 2009

# EIPC Activities

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## 1. DOE Interconnection Studies Grant

- ARRA funded
- EIPC selected in fall of 2009
- Phase I and Phase II analysis and draft reports complete
- DOE requested Study continue into 2015 to address gas-electric coordination
  - Six Planning Coordinators involved: NYISO, ISO-NE, PJM, MISO, TVA, IESO

## 2. EIPC Transmission Analysis (non-grant)

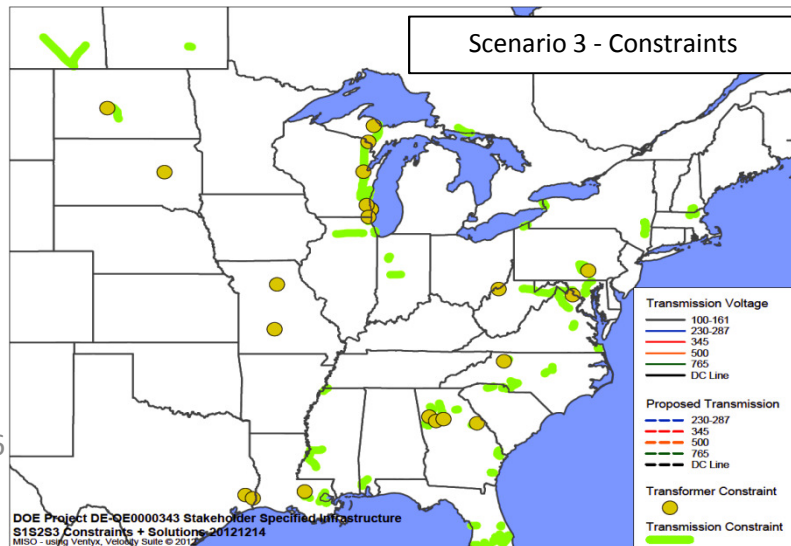
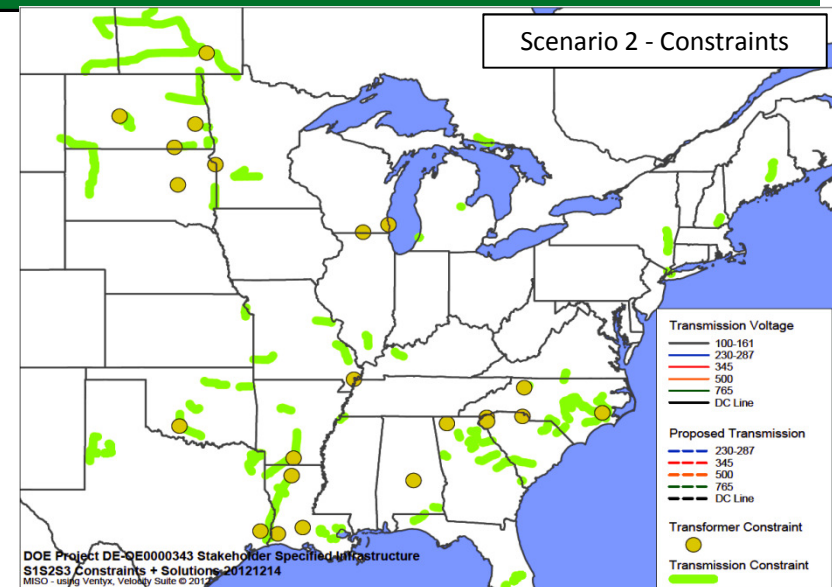
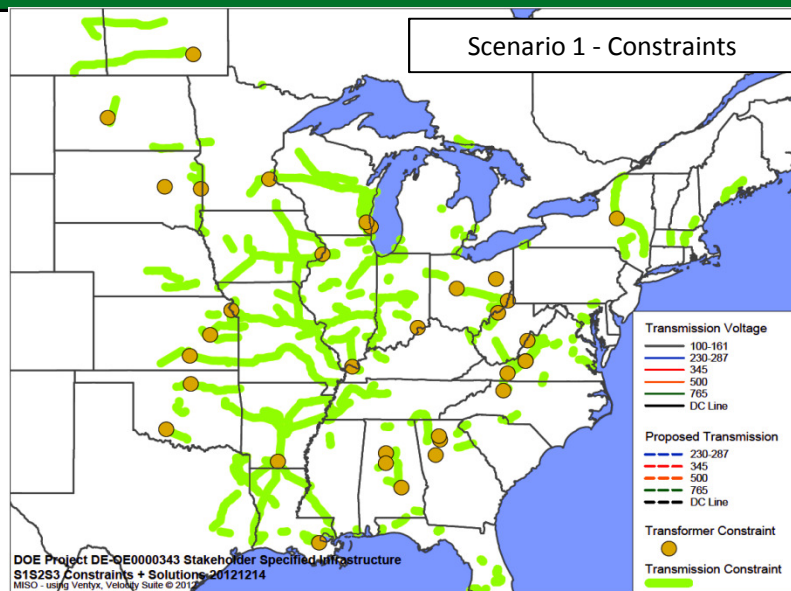
- Funded by EIPC members

# EIPC/DOE Eastern Interconnection Study

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- Phase I
  - Macroeconomic, resource analysis of 80 stakeholder-defined futures/sensitivities
  - Three scenarios chosen for further analysis
    - Scenario 1 – Combined Policies (CO2 reduction, aggressive EE, DR, DG)
    - Scenario 2 – 30% National RPS, Implemented Regionally
    - Scenario 3 – BAU including 2011 proposed EPA regulations
- Phase II
  - Transmission buildouts for three scenarios based on reliability criteria
  - Production cost analysis, including sensitivities
  - Costs estimated for generation, transmission development for each scenario
  - Draft report sent to DOE and posted 4Q 2012

# Phase II Results: Reliability Analysis (1)

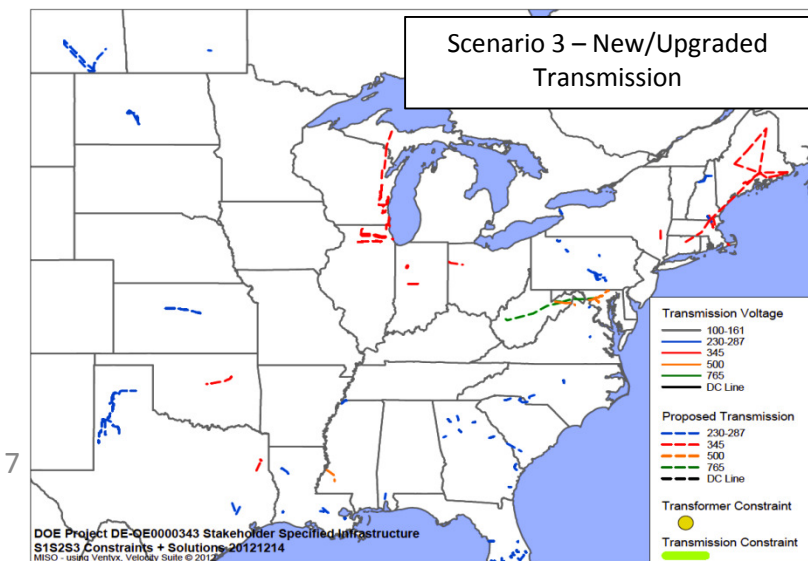
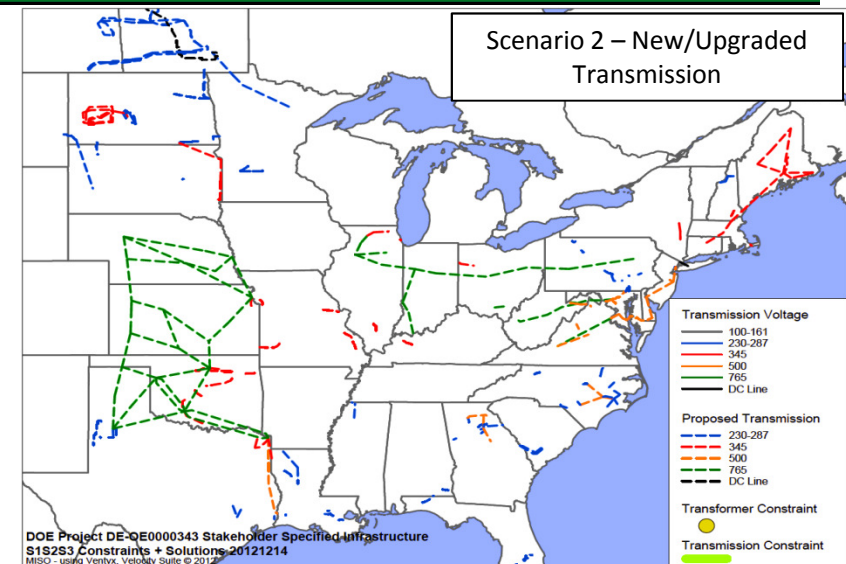
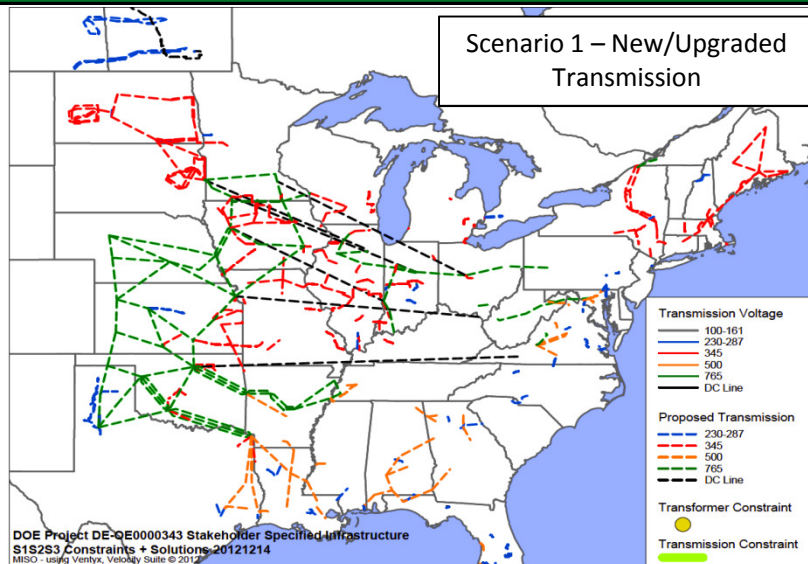


- NERC analysis: N-1 (G&T), common tower, bus outages
- Many more constraints in S1 versus S2 and S3

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# Phase II Results: Reliability Analysis (2)



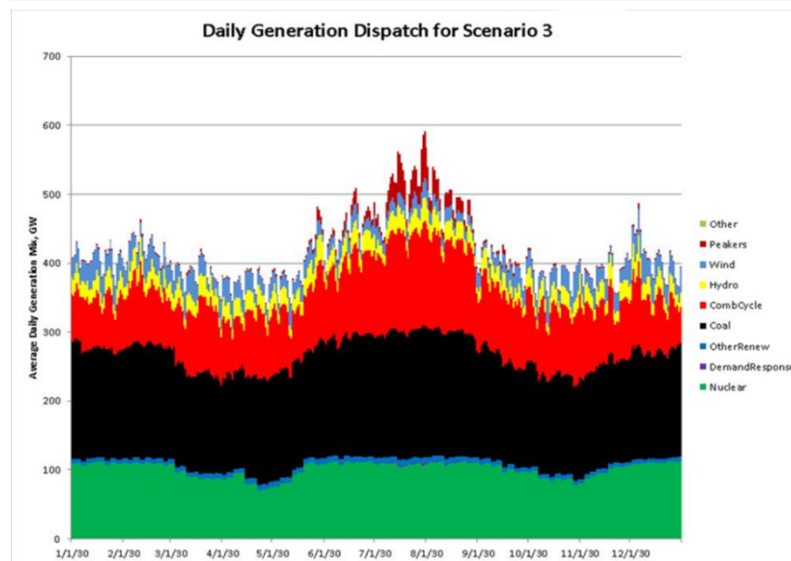
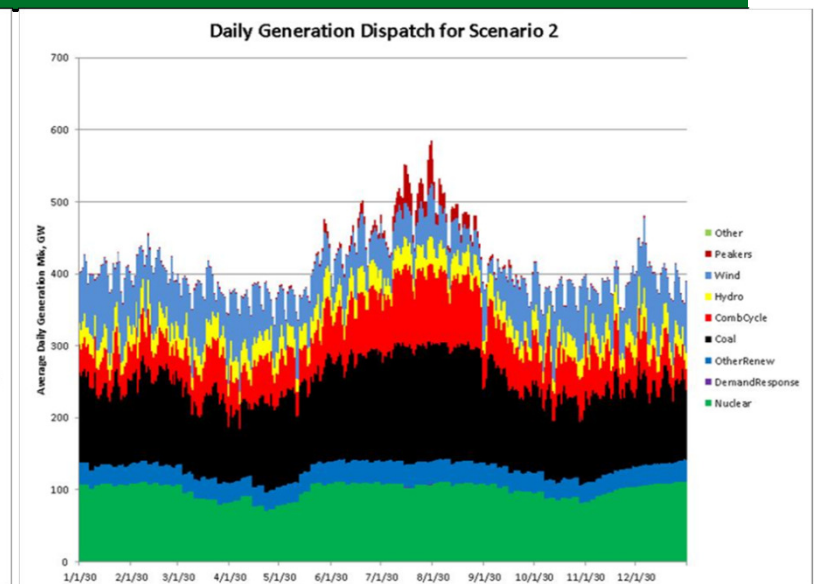
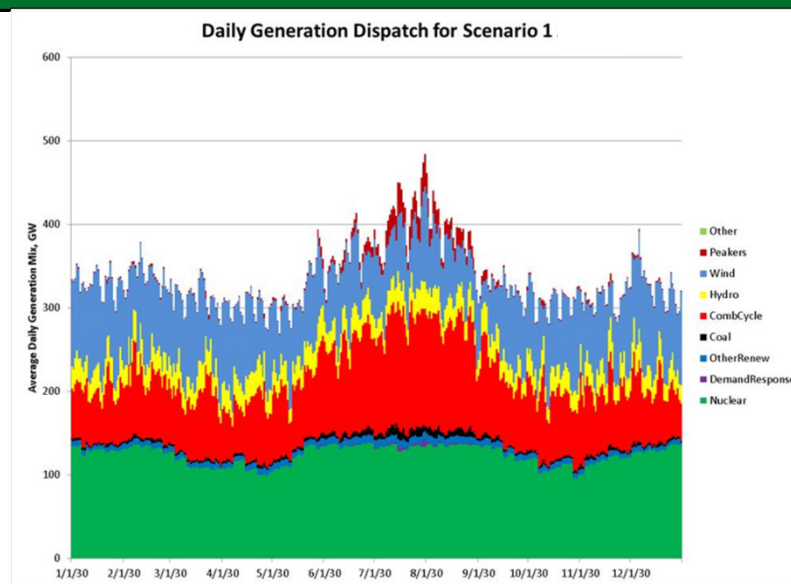
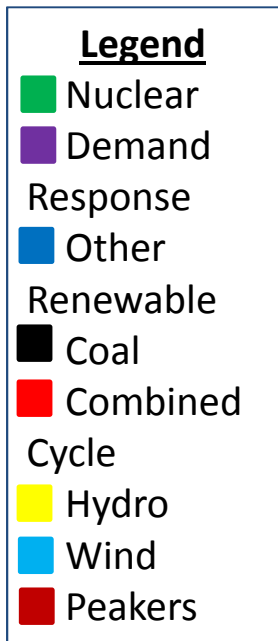
- As with the constraint results, in S1 the number of new and reconductored/ upgraded lines is significantly higher



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# Phase 2 Results: Production Costs (1)



- Hourly dispatch shows amount of energy from different sources each hour

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# Phase 2 Results: Production Costs (2)

- Production costs with CO2 costs added are very similar; without CO2 S1 production costs are about ½ of S2 and S3

Production Costs (\$M)			
	Scenario 1 Combined Policies	Scenario 2 Nat'l RPS, Regional	Scenario 3 Business As Usual
Fuel	40,802	73,789	85,057
Variable O&M	6,430	15,502	18,411
Total	47,231	89,291	103,469
CO2 Penalty Costs	45,340	126	154
Total w/ CO2	92,571	89,416	103,622

- Emissions, as expected, are significantly lower than S2 or S3, ranging from 1% to 26% of emissions, depending on scenario and type of emissions

Emissions (short tons)			
	Scenario 1 Combined Policies	Scenario 2 Nat'l RPS, Regional	Scenario 3 Business As Usual
SO2 (000s)	93	873	1,122
NOx (000s)	21	1,300	1,771
CO2 (millions)	358	1,391	1,792

Draft report available at:

<http://www.eipconline.com/Phase II Documents.html>



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# Continuing EIPC Activities

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1. DOE Interconnection Studies Grant
  - ARRA funded
  - EIPC selected in fall of 2009
  - Phase I and Phase II analysis and draft reports complete
  - DOE requested Study continue into 2015 to address gas-electric coordination
    - Six Planning Coordinators involved: NYISO, ISO-NE, PJM, MISO, TVA, IESO
2. EIPC Model Development and Analysis (non-grant)
  - funded by EIPC members

Remainder of presentation focuses on activity #2

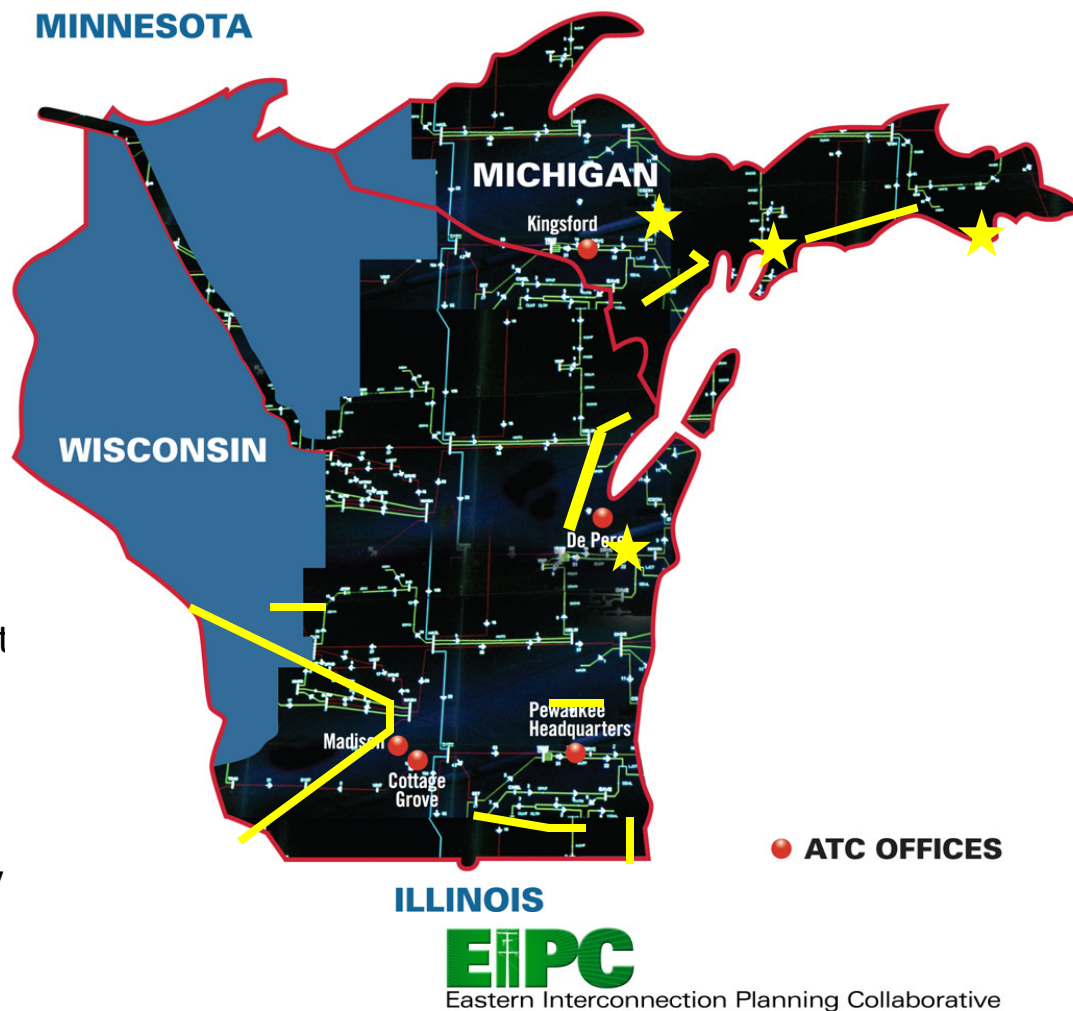
# 2013-2014 EIPC Activities (non-grant)

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- Roll-up analysis of the PA's plans to find possible changes that will improve their efficiency and effectiveness
- Result of this analysis available for consideration in regional and inter-regional planning processes
- Perform a defined number of scenarios/sensitivities against the rolled-up model

# Select ATC Projects Included in Cases

- Indian Lake-Hiawatha 138kV
- Mackinac Back-to-back HVDC
- Chandler-Old Mead Rd 138kV
- K-115 69kV to 138kV conversion
- Monroe County-Council Creek 161kV
- Arnold 345/138kV Transformer
- Arcadian-Waukesha 138kV Ckt 1&2 reconductor
- Holmes-Old Mead Rd 138kV
- North Appleton-Morgan 345kV
- North Appleton-Morgan 138kV
- Morgan-Stiles 138kV split into 2 circuit
- Branch River 345kV SS
- Badger Coulee 345kV
- Cardinal Bluffs 345kV
- Bain-Spring Valley-Lake Geneva 138kV
- Pleasant Prairie – Zion 345kV



# EIPC Work to Date

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- 2013 – Model roll-up and evaluation by Planning Coordinators
  - Using existing plans of Planning Coordinators
  - Model years 2018, 2023
  - Modeling increased transfers to test robustness of plans, identify gaps
- Developed new stakeholder process
  - Regional basis, similar to Order 890 processes
  - Will have Eastern Interconnection-wide webinars and, if needed, face to face meetings
- Scenario development
  - Reviewing internal list of proposed scenarios
  - Published “Guidelines and Principles” document
  - [http://www.eipconline.com/uploads/Guidelines\\_and\\_Principles\\_for\\_EIP\\_C\\_Stakeholder\\_Scenario\\_Development\\_080813.pdf](http://www.eipconline.com/uploads/Guidelines_and_Principles_for_EIP_C_Stakeholder_Scenario_Development_080813.pdf)

# What We're Asking of Stakeholders

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- Participate in the EIPC portion of regional processes and meetings
- Provide feedback on the roll-up models and results, the potential scenarios developed by the PAs, and any other scenarios that stakeholders suggest be studied
- Work with other stakeholders in determining which scenarios would be of most value
- Participate in interconnection-wide webinars (and meetings, if necessary) to provide input on the interim results, draft conclusions, and recommendations.

# Requested Feedback on Following

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- When and how would stakeholders like to hear from the EIPC on the status of EIPC work?
- Do stakeholders want a separate set of EI-wide calls/webexes?
  - What is the best use of EI-wide web meetings?
- How often would stakeholders like to be updated on EIPC work?
- Would stakeholders want the capability to provide input via an EIPC “mail box” in addition to input via their regional process?
- What would you like to get from EIPC studies?
- How much time do people need to be able to provide comments once material is shared with them? Two days, 2 weeks, 1 month?



# Key Dates - Updated

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- October 18: would like stakeholder feedback on Guidelines and Principles document
- October 25 – Nov 1: distribute draft report on roll-up cases, contingency results and transfer testing
- Nov 12, 1 p.m. CT: EIPC Webinar on possible scenarios & roll-up case report
- Nov 29: Post revisions to Guidelines and Principles document, if any

# Questions and Discussion

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For more information:

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608-877-3660



# Planning Coordinator Members of EIPC

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- Alcoa Power Generating
- American Transmission Co.\*
- Duke Energy Carolinas
- Electric Energy Inc.
- Entergy \*
- Florida Power & Light
- Georgia Transmission Corp.
- IESO \*
- International Transmission Co.
- ISO-New England \*
- JEA
- LG&E/KU
- MAPPCOR \*
- Midwest ISO \*
- Municipal Electric Authority of Georgia
- New York ISO \*
- PJM Interconnection \*
- PowerSouth Energy Coop.
- Progress Energy – Carolinas
- Progress Energy – Florida
- South Carolina Electric & Gas
- Santee Cooper
- Southern Company \*
- Southwest Power Pool
- Tennessee Valley Authority \*

\*Primary participants on portions of the DOE funded project.

# Stakeholder Process Overview

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- Stakeholder process for EIPC Roll-up (not funded by DOE)
- Existing stakeholder groups previously created for other purposes such as compliance with FERC Order 890 will be used to facilitate stakeholder input
- Ensure a regional focus:
  - Present roll-up models and results
  - Receive stakeholder feedback, input, comments and suggestions on specific scenarios to be studied
  - Present the results of scenario studies
  - Seek stakeholder feedback on reports that are created

# Stakeholder Process Overview (cont'd)

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- EIPC plans to hold two to three interconnection-wide stakeholder webinars each year
- Objectives of the webinars: provide transparency and coordination between the regions and seek additional stakeholder input
- Webinars will be open to all stakeholders including federal and state (EISPC) representatives
- If necessary, interconnection-wide in-person stakeholder meetings could be held in place of or in addition to the webinars