



# 2012 Economic Planning Order 890 Study Update

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ATC Economic Planning

September 20, 2012

Preliminary

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businesses running and communities strong®





# Introduction

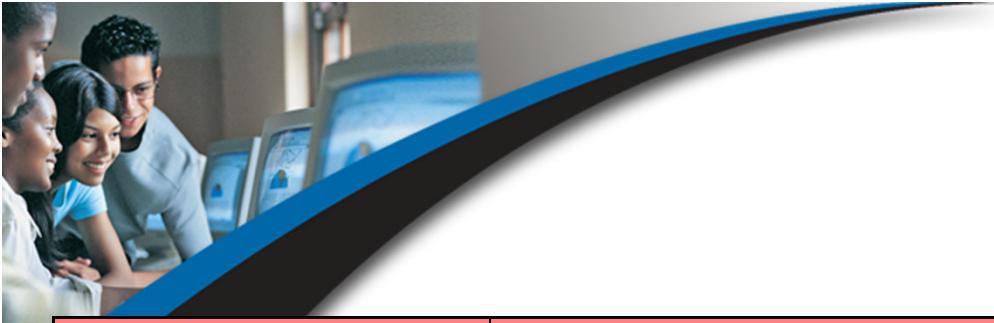
- Process Overview and Timeline
- MISO MTEP 12 Futures Assumptions
- ATC Order 890 Study Areas
- PROMOD Savings
  - PROMOD Energy Benefits Description
  - Loss Savings Description
- Next Steps



# Process Overview and Timeline

## ATC Economic Project Planning:

- During February, we hold an initial stakeholder meeting to review the market congestion summary and potential fixes and to discuss economic study scenarios, drivers, ranges, and assumptions.
- By March 1, we work with stakeholders to request and prioritize new/other economic studies and recommend study assumptions.
- By April 15 – we identify preliminary areas of economic study, study assumptions and models and solicit further comments from stakeholders.
- By May 15 – we finalize areas of economic study, study assumptions and models to be used in analysis.
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# MISO MTEP 12 Futures Definitions

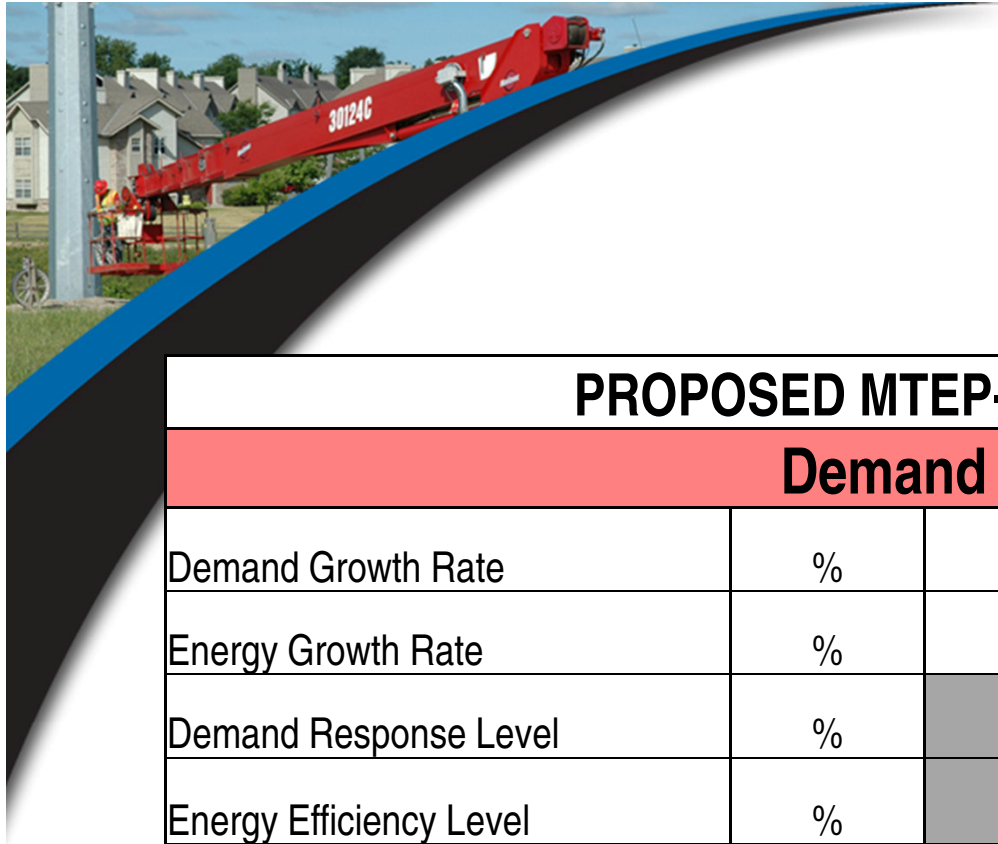
Future	Definition
<b>Business as Usual</b>	Business As Usual (BAU) considers the status-quo with the current economic conditions within current policy frame-work to continue throughout the study period as reflected in the key variable assumptions. This will be considered as the reference future with base parameters and the other futures' parameters will be varied with respect to this future.
<b>Historical Growth</b>	Historic growth future considers quick recovery from the current economic conditions and assumes a higher demand and energy growth rates as seen in the past for the entire study period. This will be considered as the high side variation of the BAU future.
<b>Limited Growth</b>	Limited growth future considers very low growth rate with EPA regulations, and <u>no</u> carbon cost. This can be considered as the low side variation of the BAU future.
<b>Combined Policy</b>	Combined Policy future studies the impact from multiple policy drivers such as Federal RPS, EPA regulations, Smart Grid, and Electric vehicles.
<b>MISO-SPP Joint Future</b>	This future is a placeholder for the MISO-SPP joint future development.

Source: MISO 12-15-2011 PAC Meeting (<https://www.midwestiso.org/Events/Pages/PAC20111215.aspx>)

# MISO MTEP 12 Futures Matrix

	Uncertainties																																	
	Capital Costs														Demand and Energy				Fuel Cost			Fuel Escalations			Emission Costs			Economic		Wind				
Future	Coal	CC	CT	Nuclear	Wind Onshore	IGCC	IGCC w/ Carbon Capture & Sequestration	CC w/ Carbon Capture & Sequestration	Pumped Storage Hydro	Compressed Air Energy Storage	Photovoltaic	Biomass	Conventional Hydro	Wind Offshore	Distributive Generation - Peak	Demand Response Level	Energy Efficiency Level	Demand Growth Rate	Energy Growth Rate	Gas	Oil	Coal	Uranium	Gas	Oil	Coal	Uranium	SO <sub>2</sub>	NO <sub>x</sub>	CO <sub>2</sub>	Inflation	EPA Coal Retirement	MISO Wind Penetration Mandate	National Mandate
Business as Usual	M	M	M	M	L	M	N/A	N/A	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	L	L	L	L	M	M	L	L	M	M	L
Historical Growth	M	M	M	M	L	M	M	M	M	M	M	M	M	M	M	M	M	H	H	M	M	M	M	M	M	M	M	M	M	L	M	M	M	L
Limited Growth	H	M	M	M	L	M	N/A	N/A	M	M	M	M	M	M	M	M	M	L	L	M	M	L	H	L	L	L	L	M	M	L	L	M	M	L
Combined Policy	H	H	H	H	L	H	H	H	H	H	H	H	H	M	H	M	M	M	H	H	M	L	H	M	M	M	M	M	M	M	M	H	M	M
MISO-SPP Joint Future																																		

Source: MISO 12-15-2011 PAC Meeting (<https://www.midwestiso.org/Events/Pages/PAC20111215.aspx>)



# MISO MTEP 12 Futures Uncertainty Variables

PROPOSED MTEP-12 FUTURES MATRIX				
Demand and Energy				
Demand Growth Rate	%	0.71%	1.41% <sup>2</sup>	2.12%
Energy Growth Rate	%	0.84%	1.67% <sup>3</sup>	2.51%
Demand Response Level	%		GEP Estimates <sup>4</sup>	
Energy Efficiency Level	%		GEP Estimates <sup>4</sup>	
2 Mid value for demand growth rate is the Module-E 50/50 load forecast' growth rate (0.91%) + 0.5% to account for embedded DSM programs				
3 Mid value for energy growth rate is the Module-E energy forecast' growth rate (1.17%) + 0.5% to account for embedded DSM programs				
4 GEP provided estimates for each of the scenarios on an individual basis, based on each scenario's definition				

Source: MISO 12-15-2011 PAC Meeting (<https://www.midwestiso.org/Events/Pages/PAC20111215.aspx>)

# MISO MTEP 12 Futures Uncertainty Variables

PROPOSED MTEP-12 FUTURES MATRIX				
Emission Costs				
SO <sub>2</sub>	(\$/ton)		Will be modeled based on EPA study results to comply with CASPR regulation <sup>6</sup>	
NO <sub>x</sub>	(\$/ton)		Will be modeled based on EPA study results to comply with CASPR regulation <sup>6</sup>	
CO <sub>2</sub> Cost	(\$/ton)	0	50	100
HG	(\$/ton)			

<sup>6</sup> Emission costs for SO<sub>x</sub> and NO<sub>x</sub> will be modeled to comply with CSAPR regulations

Source: MISO 12-15-2011 PAC Meeting (<https://www.midwestiso.org/Events/Pages/PAC20111215.aspx>)

# MISO MTEP 12 Futures Uncertainty Variables

<b>PROPOSED MTEP-12 FUTURES MATRIX</b>				
<b>Renewable Penetration as a Percentage of Total Energy Delivered<sup>5</sup></b>				
State mandates	%		Use existing state mandates	Use both existing state mandates and pending proposals / goals
National	%	0	20% by 2025	30% by 2030
<b>Forced Coal Retirements</b>				
Forced Coal Retirements (from MISO's EPA Regulation Impact Analysis Study)	%	6,600 MW	12,600 MW	23,000 MW

Source: MISO 12-15-2011 PAC Meeting (<https://www.midwestiso.org/Events/Pages/PAC20111215.aspx>)





# PROMOD Energy Benefits Description

- PROMOD used to analyze 2022 Study Year
- Will study all futures except joint MISO-SPP future
- Difference analysis performed to determine project savings
- Analysis done using ATC Customer Benefit (CB) Metric:

Settlements Format for CB Metric

Load Pays for local Locational Margin Price (LMP)  
- Generator Revenues Received at local Gen LMP  
+ Cost of Utility Generation (Production Cost \*)  
- FTR Revenue to the Utility  
- Loss Refund Revenues for over-collection  
= Impact to Ratepayers

\* Not settled through the MISO Market



## Loss Savings Description

- Loss evaluation is a valuable component of the economic project analysis
- PROMOD difference analysis performed to determine system loss savings (\$)
  - Loss Savings (MWHrs) calculated from PROMOD
  - Economic value of loss savings determine by pricing losses (MWHrs) at PROMOD area LMPs (\$/MWHrs)

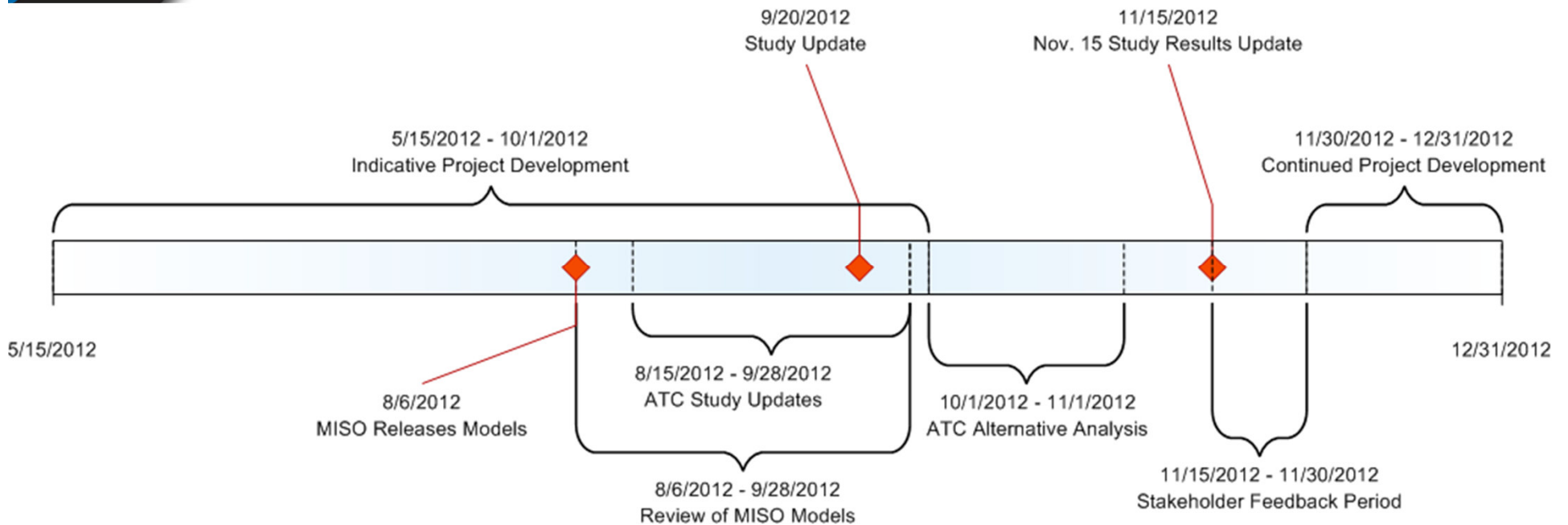


# Next Steps

- Project / Analysis Development
  - Development of alternatives
  - Stakeholder Feedback
- 2012 Futures Development
  - Continued Review of MISO MTEP 12 Development
  - Review of MISO PROMOD Models
- Analysis of Projects
  - 2022 Study Year
  - All MISO MTEP12 future except joint MISO-SPP future
- Timelines
  - May 15, 2012: Finalize Assumptions
  - September 20, 2012: Study Update
  - November 15, 2012: Provide Analysis Update



# Study Schedule - May to November





## ATC Order 890 Transmission Alternatives

- See Indicative Project Maps
- Note: These maps are for illustrative purposes only and do not reflect actual routes.



# Upcoming Process Overview and Timeline

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# Questions?

## ATC Economic Planning

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