



# Benefit Metrics Exploration & Development

Economic Planning Users Group Meeting

May 25, 2017



- **Objective:**  
Review benefit metrics survey results  
Discuss next steps
- **Key Takeaways:**
  1. Take additional time to explore and evaluate benefit metrics for MVP
  2. Review current APC process or methods for potential improvement opportunities
  3. Technical discussion at EPUG, while policy-related issues at RECBWG

# Survey Results Summary

- 37 companies/organizations responded to the survey
- 24 provided preference rankings to the 18 preliminary benefit metrics
- 13 prefer to use only APC metric for MEP – with some qualifiers:
  - Assess the current APC process and calculation for potential improvement opportunities
  - More education and details around each metric
  - Some are open to explore benefit metrics for MVP



# Common Themes in Feedback

Open to assess the current APC process and calculation for improvement or robustness opportunities

Need more information and/or technical examples for benefit metrics

Some stakeholders recommend to exploring benefit metrics in the context of MVPs

The benefit metrics which received higher ranking largely align with current MVP benefit metrics defined in Tariff

# Survey Summary (all responses)

Benefit Description	Stakeholder Preference Rank Sum
Savings from reduced production costs *	226
Reduced MISO – SPP JOA settlement charges	100
Reduced transmission energy losses	87
Future capacity expansion deferral due to increased capacity import and export limits *	76
Avoided/deferred reliability projects *	62
Reduced congestion due to transmission outages	55
Avoided Market to Market (M2M) Payment	53
Reduced Reliability-Must-Run (RMR) cost	52
Reduced Ancillary services cost	40
Reduced capacity cost due to reduced peak load losses *	38
Reduced cost of meeting public policy goals/mandates	27
Improved grid reliability / stability performance	16
Insurance values against extreme event	11
Option value of transmission under various future scenarios	10
Increased load diversity	6
Storm Hardening	4
Natural Gas Cost Savings	0
Increased fuel diversity	0

**Note:**

1. Higher ranking number signifies higher stakeholder preference from the survey
2. If a stakeholder selected only APC option, an 8-point is added to the “Savings from reduced production costs” benefit option
3. The benefits with the “\*” represent the four specific metrics already defined the MISO Tariff

# Additional Metrics Proposed by Stakeholders

Entities	Metrics	Description
Transource Energy	Net Load Payment Savings	Net Load Payment Savings for Benefitting Zones
ITC	Increased wheeling revenues	Increased inter-regional transmission capacity that increases through and out transactions which increases wheeling revenues. APC will capture increased imports/exports but does not capture the increased wheeling capacity.
ITC	Lowered Reserve Margin	Economic benefit of lower reserve margin
ITC	Environmental Benefits	Reduced emissions can be captured in PROMOD and monetized while other environmental benefits should also be considered.
ATC	Project accelerate or deferral/elimination	Long-term cost savings realized by Transmission Customers by accelerating a long-term project start date in lieu of implementing a short-term project in the interim and/or long-term cost savings realized by Transmission Customers by deferring or eliminating the need to perform one or more projects in the future (Attachment FF, Section 5.C.d.).
WOW	Environmental Benefits	Reduced Emissions of Air Pollutants, Value of Carbon Reduction and other environmental benefits.
WOW	Real-time congestion reduction	Reduced number of hours of curtailment on transmission elements at all voltage levels. MISO has indicated that its planning models do not show congestion experienced in real time.

# Current Benefit Metrics for MVPs

- Metrics Described in Attachment FF
  - Production Cost Savings
    - Including reductions in Operating Reserve requirements
  - Capacity Loss Savings
    - Representing reduction in capacity required to serve transmission losses at system peak
  - Capacity due to reduction in overall Planning Reserve Margin
  - Deferred and/or Eliminated transmission investment
  - Other identified quantifiable benefit to Transmission Customers from transmission project related to providing transmission service

- Explore two major tracks:
  - Review the current APC process for opportunities for improvement
  - Take additional time to explore and evaluate benefit metrics for MVP
- Benefit measure technical discussion will be at EPUG while keeping RECBWG as the decisional forum for policy-related issues
- Continue reviewing on survey response
- Stakeholder presentations in June workshop
- Determine a list of high potential metrics after June meeting to work on defining detailed calculation methodologies
- Report back in September with more information and examples
- MISO will work with stakeholders to determine core list of benefit metrics in Oct



# Contact:

Jesse Moser: [Jmoser@misoenergy.org](mailto:Jmoser@misoenergy.org)

Ling Hua: [Lhua@misoenergy.org](mailto:Lhua@misoenergy.org)

# Companies or Organizations Responded to Survey

Company/Organization	Member Affiliation	Company/Organization	Member Affiliation
Iowa Office of Consumer Advocate	Consumer Advocates Group	WEC Energy Group	Coop/Muni/TDU Sector
Montana-Dakota Utilities Co.	Transmission Owner	ITC Holdings Corp. (ITCT, METC and ITCM)	Transmission Owner
MidAmerican Energy Company	Transmission Owner	Mississippi Public Service Commission	State Regulatory Sector
DTE Electric Company	TDU Sector	WVPA	Transmission Owner
Entergy	Transmission Owner	WPPI	Muni/Co-op/TDU Sector
Texas Industrial Energy Consumers	End-Use Customer Sector	MP	Transmission Owner
Prairie Power, Inc.	Transmission Owner	Iowa Utilities Board	State Regulatory Sector
Indianapolis Power & Light	Transmission Owner	Ameren	Transmission Owner
NRG	Independent Power Producer	Big Rivers	Transmission Owner
Hoosier Energy	Transmission Owner	MPPA	Transmission Owner
SIPC	Transmission Owner	GRE	Transmission Owner
Madison Gas and Electric	TDU Sector	Alliant Energy	TDU Sector
Transource Energy	Transmission Developer	American Transmission Company	Transmission Owner
Louisiana Public Service Commission	State Regulatory Sector	The Council of the City of New Orleans	State Regulatory Sector
Northern State Power Companies and Xcel Energy Transmission Development Company	Transmission Owner and Developer sectors respectively	Midwest Power Transmission Arkansas	Transmission Developer
Occidental Energy Ventures LLC	Independent Power Producer	Louisiana Energy Users Group	End-Use Customer Sector
Arkansas Public Service Commission	State Regulatory Sector	IIEC	End-Use Customer Sector
NIPSCO	Transmission Owner	Wind on the Wires	Environmental Sector
Public Service Commission of Wisconsin	State Regulatory Sector		

# Straw Benefit Metrics

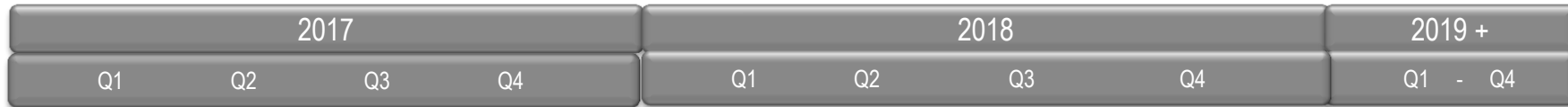
Benefit Category	Benefit Description	Potential Calculation Methodology
<b>Energy Savings</b>	Reduced production cost saving	Current APC methodology but with variance in pricing mechanism
	Reduced transmission energy losses	Changes in losses with power flow models for range of hours in PSSE model
	Reduced congestion due to transmission outages	Introduce data set of normalized outage schedule into simulations or reduce limits of constraints that make constraints bind more frequently
	Natural Gas Cost Savings	Calculate gas price savings for customers as a result of decreased gas-fired dispatch
	Reduced Reliability-Must-Run (RMR) cost	Calculate change RMR cost
<b>Reliability Benefit</b>	Avoided/deferred reliability projects	Calculate avoided cost of reliability projects
	Improved grid reliability / stability performance	Determine grid reliability / stability performance improvement with transmission in the world of declining higher inertia machines
<b>Capacity Savings</b>	Reduced capacity cost due to reduced peak load losses	Calculate present value of capacity cost savings due to deferred generation investments due to reduced peak load
	Future capacity expansion deferral due to increased capacity import and export limits	Calculate new capacity import/export limit and local clearing requirement

# Straw Benefit Metrics (Cont'd)

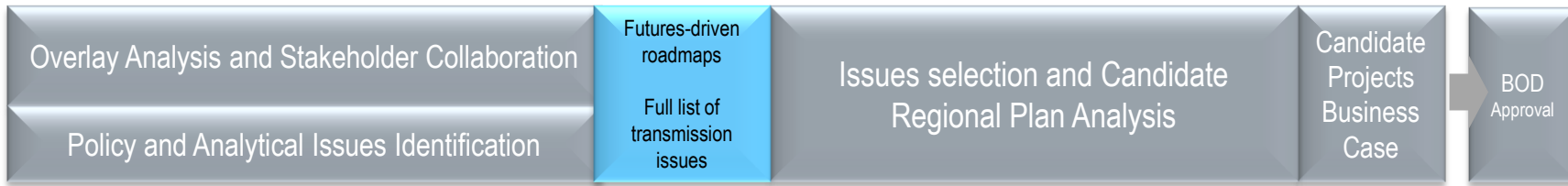
Benefit Category	Benefit Description	Potential Calculation Methodology
<b>Ancillary Services Saving</b>	Reduced Ancillary services cost	Analyze quantity and type of ancillary services needed with and without the contemplated transmission investments
<b>Resiliency, Diversity and Optionality</b>	Increased fuel diversity	TBD
	Increased load diversity	Calculate the ability of one region to supply generation during their non-peak hour to another region during that region's peak hour.
	Insurance values against extreme event	Calculate the probability-weighted production cost benefits through production cost simulation for a set of extreme historical market conditions
	Option value of transmission under various future scenarios	TBD
<b>Public Policy Benefits</b>	Reduced cost of meeting public policy goals/mandates	Varies depending on the policy
<b>Other Benefits</b>	Reduce MISO – SPP JOA settlement charges	Increases in contract path will directly reduce JOA settlement charges exposure
	Storm Hardening	TBD
	Avoided Market to Market (M2M) Payment	<ol style="list-style-type: none"> <li>1) The average total congestion on the M2M flowgate in the past 3 years</li> <li>2) M2M payment on a flowgate in the past 3 years</li> </ol>

# Regional Planning and Cost Allocation High Level Work Plan

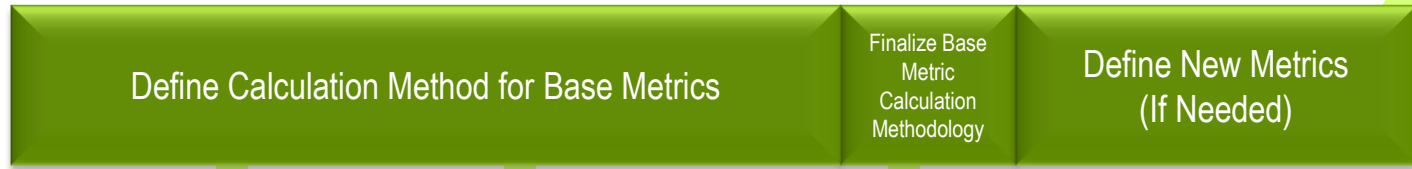
**Draft**



**Regional Transmission Overlay Study**



**Benefit Metrics**



**Transmission Cost Allocation Review**

