



# MTEP19 Market Congestion Planning Study (MCPS) North-South Constraint

Technical Studies Task Force

April 25, 2019

# Takeaways



- The North-South constraint is being added under the existing 2019 MCPS Study
- A solution window for projects addressing the North-South constraint is open, closing June 21, 2019
- Benefits will consider recently developed settlement cost savings metric

# Agenda

- Study Process
- N-S Constraint Background
- Projected Benefits & Motivation for Analysis
- Design Criteria and Guidelines
- Inclusion in MCPS Schedule & Next Steps
- Solution Submission Window Open

# MTEP19 MCPS Scope\*

April 2019

## Flowgate Identification

Review Historical  
Congestion

Congestion Analysis

Coordination with  
Interregional Studies

Identify Flowgate

April - July 2019

## Project Candidate Identification

Transmission  
Development

Screening Analysis

Full Present Value  
(PV) Analysis

Establish Project  
Candidate(s)

July - Aug 2019

## Robustness Testing

Robustness Analysis

Reliability Analysis

MISO Scoping Level  
Cost Estimation

Best Fit Solution(s)

# N-S Constraint Background

# Background

- MISO Transmission Owners have 1000 MW of contract path capacity for flows between MISO North/Central and South regions
- As a result of the 2015 settlement agreement, MISO pays the joint parties for use of up to 2000 MW\* of additional capacity for flows between the MISO North/Central and South regions
  - MISO North/Central → South Regional Directional Transfer Limit **3000 MW**
  - MISO South → North/Central Regional Directional Transfer Limit **2500 MW**
- Payments are made monthly, based on tiers of prior-year actual usage

# Settlement Agreement Compensation

## Phase III – Feb 1, 2017 and later\*

Annual ASC Usage Capacity Factor	Base Annual Payment (\$M)	Escalation Rate (starting February 1, 2020)
< 20%	\$16	2%
20% - 70%	\$27	2%
> 70%	\$38	4%

- Increases to MISO-owned capacity result in a decrease of \$8,004 per MW adjustment to the annual payment amounts
  - For a transmission line adding 1000 MW of capacity the base payments would be \$8M with < 20% Annual ASC Usage Capacity Factor

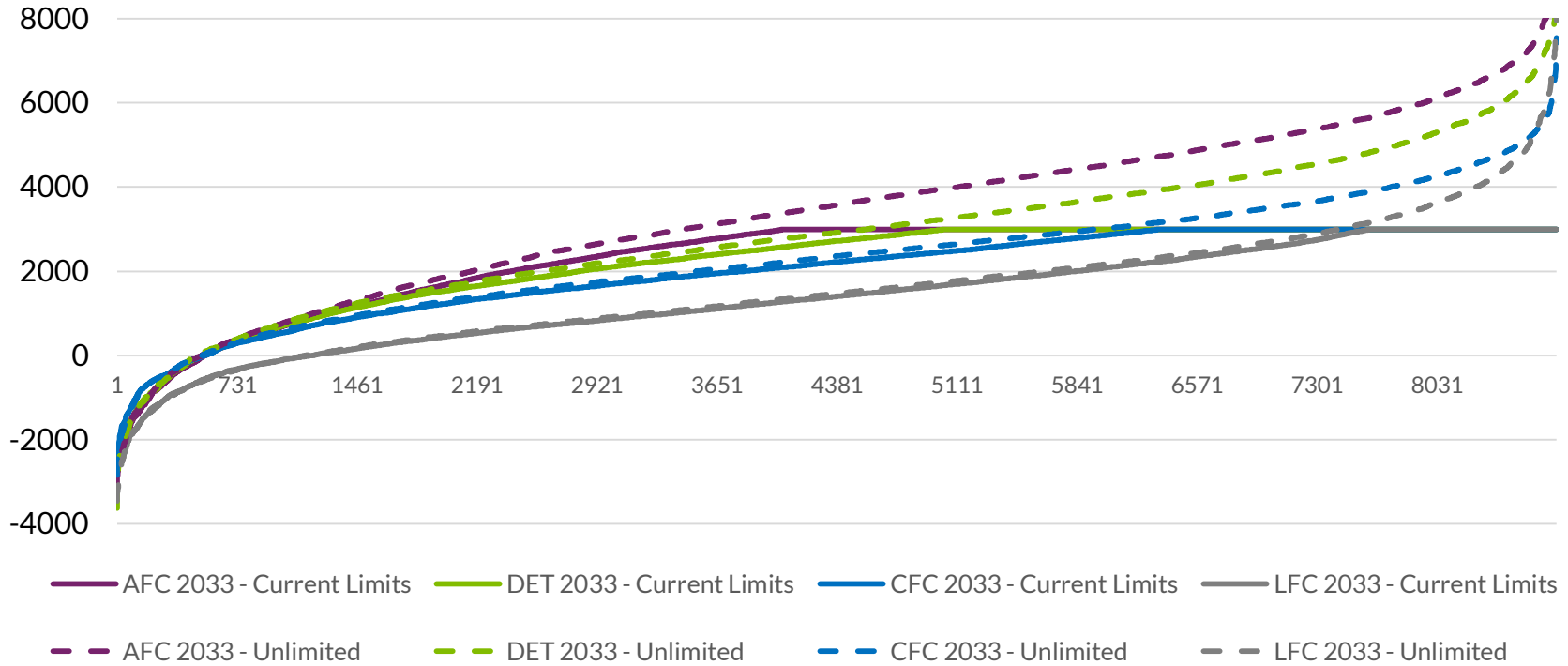
# Projected Benefits and Motivation for Analysis



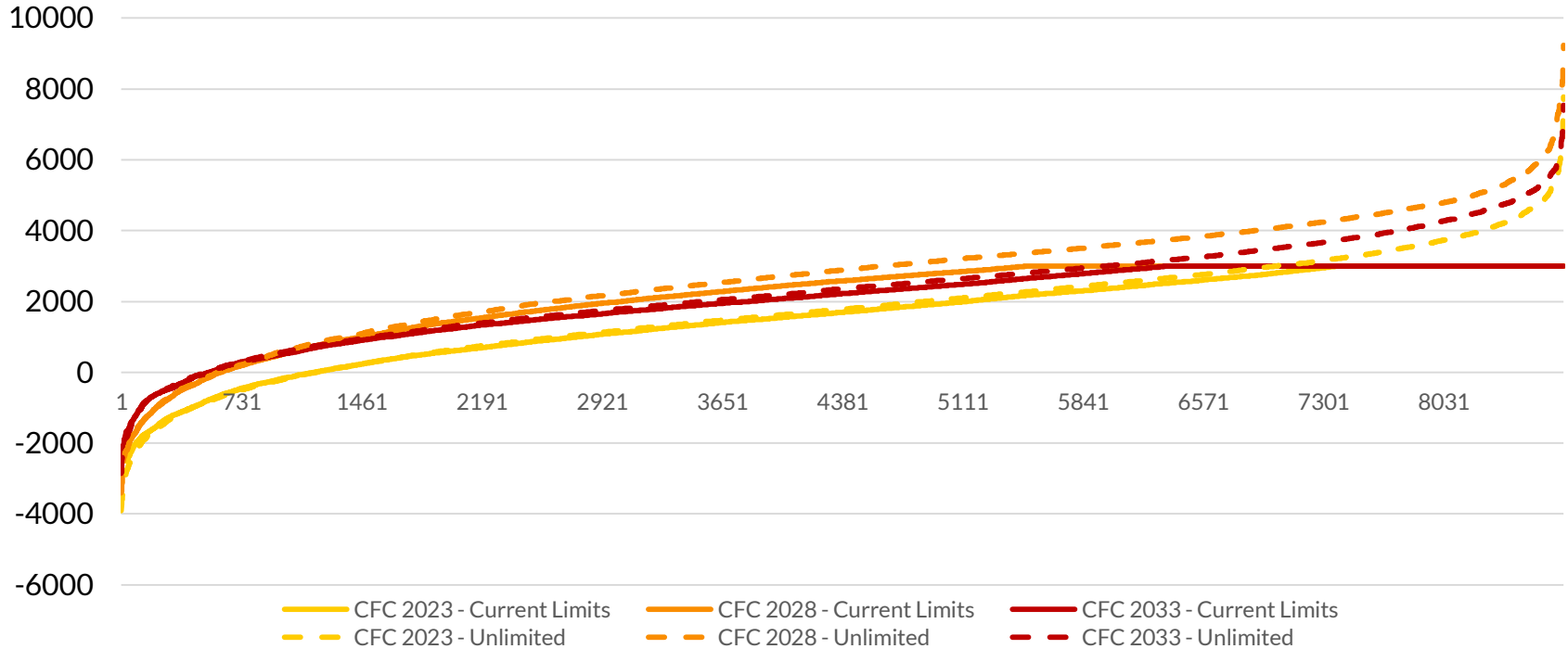
# Factors driving N-S Constraint inclusion in the MTEP19 MCPS

- Stakeholder Interest
- Projected future interface flows increasing over time
- Additional consideration of metrics provided by the regional cost allocation filing
- Uncertainty of Settlement Agreement future terms and cost

# Interface Flows – 2033



# Interface Flows Over Time (CFC)



# ASC Usage Capacity Factor

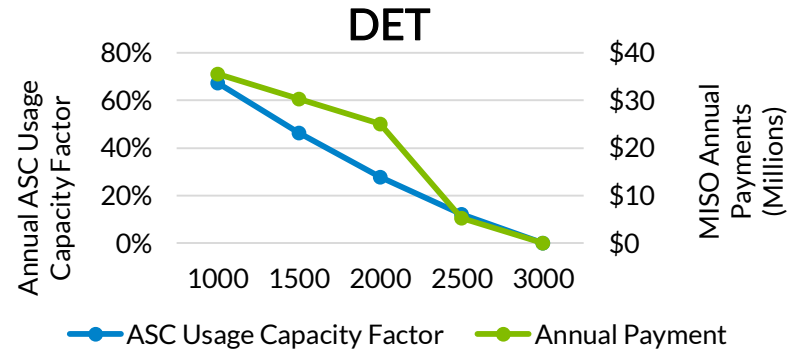
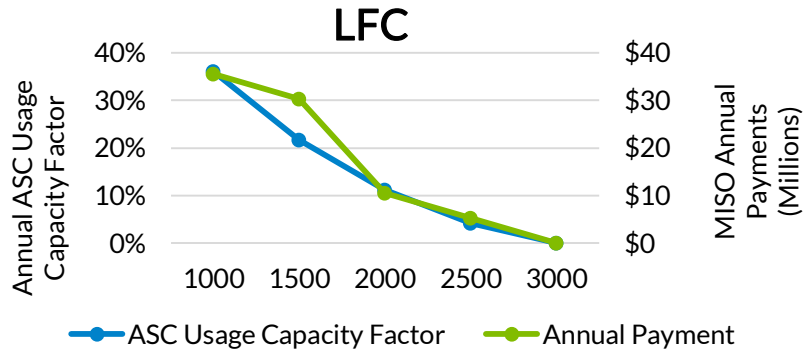
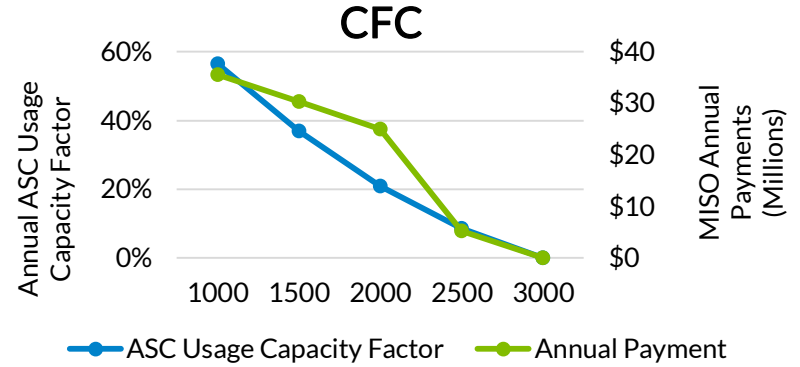
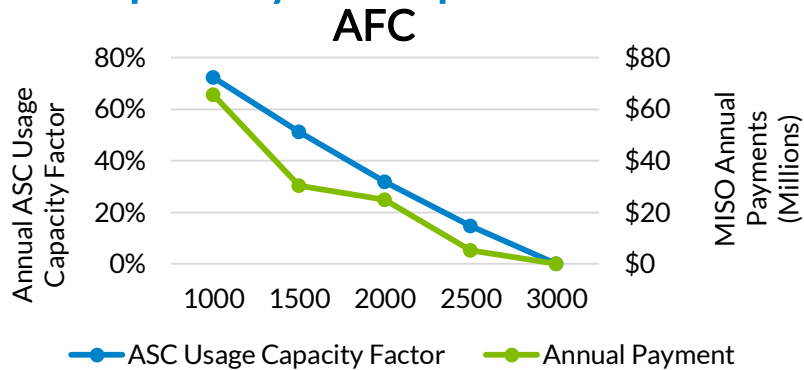
Year	Future			
	AFC	DET	CFC	LFC
2016	41%			
2017	27%			
2018	37%			
2023	64.2%	43.9%	43.6%	22.3%
2028	66.3%	51.1%	64.7%	26.0%
2033	72.4%	67.2%	56.4%	36.1%

# MTEP19 Sub-regional Flows

- Projected flows are predominantly North to South
- Future generation mix and gas prices are the main influencers to regional flows
  - Wind provides significant amounts of energy during non-peak periods (N->S)
  - Low cost gas and solar provide lower cost capacity during peak times and/or low wind output (S->N)

Year	Future	% Flow Direction N-S	% Flow Direction S-N	ASC* Usage Capacity Factor	Settlement Payment Tier
2023	AFC	91.4%	8.6%	64.2%	2
	CFC	86.6%	13.4%	43.6%	2
	DET	87.2%	12.8%	43.9%	2
	LFC	58.4%	41.6%	22.3%	2
2028	AFC	91.4%	8.6%	66.3%	2
	CFC	93.2%	6.8%	64.7%	2
	DET	88.0%	12.0%	51.1%	2
	LFC	75.4%	24.6%	26.0%	2
2033	AFC	93.9%	6.1%	72.4%	3
	CFC	94.0%	6.0%	56.4%	2
	DET	94.0%	6.0%	67.2%	2
	LFC	86.4%	13.6%	36.1%	2

# Projected 2033 Payments Decrease if MISO-Owned Capacity is Expanded



# New Metrics

- Tariff changes filed in early 2019 provide consideration settlement cost savings as part of project justification
- The base scenario in this analysis will consider the current terms of the Settlement Agreement in perpetuity
  - Avoided costs based on Phase III payment structure, with escalations and adjustments per MW of MISO-owned capacity
- Incremental APC savings for increases in capacity beyond the Settlement Agreement limits

# Future Settlement Agreement Uncertainty

- After January 31, 2021 the agreement may be terminated by any party, given a 12-month notice
- In lieu of a replacement, flows would be limited to MISO's contract path and/or physical capacity (currently 1000 MW)



# Sensitivity Scenario

- In a sensitivity, MISO will project APC savings if the Settlement Agreement were terminated, limiting transfers between the regions to 1000 MW
- Projects passing screening criteria subjected to sensitivities during the Robustness phase of study
  - Additional sensitivities may also be considered during this phase of study

# Design Criteria and Guidelines

# Break Even (1.25) Construction Costs (\$M)

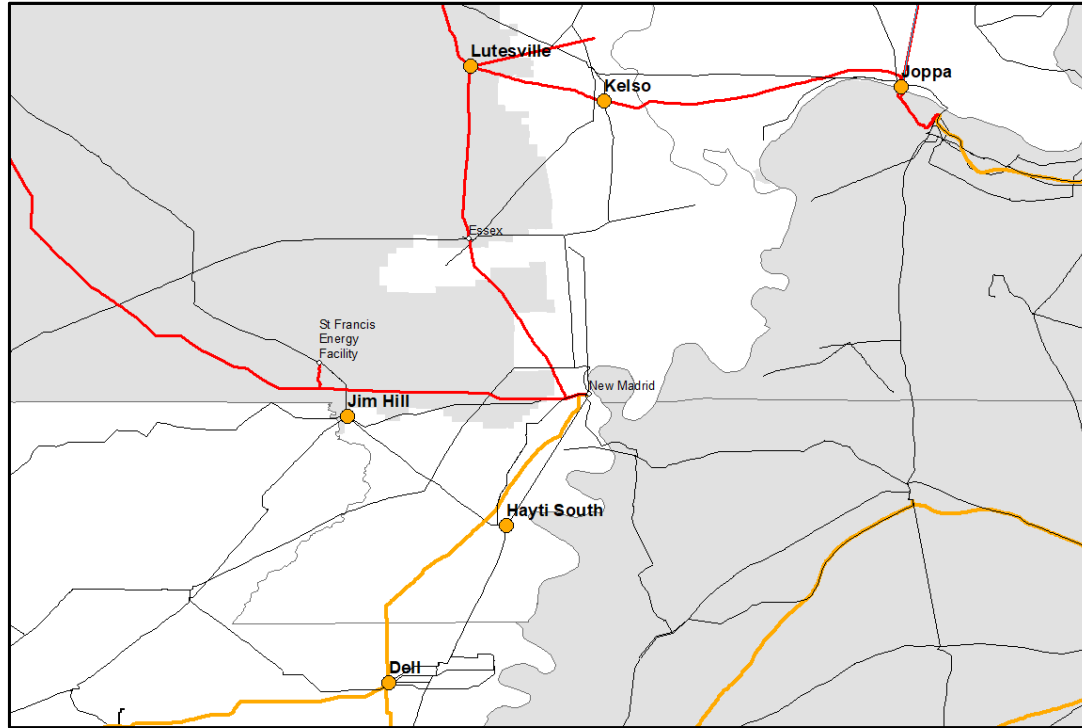
	<u>Incremental</u> Owned Capacity (MW)			
	500	1000	1500	2000
No Tier Movement (Continue in Tier 2)	\$22.4	\$44.8	\$67.2	\$194
Tier 2 to Tier 1 Movement	\$101	\$125	\$146	\$194
Settlement Agreement Terminated – APC Savings	\$126	\$240	\$341	\$432

\*Assuming In-Service Date of 2025

# Solution Idea Design Criteria

- In addition to the standard MISO solution design criteria, solutions addressing the North-South constraint should consider the following
  - To reduce settlement cost savings and/or increase North-South transfer capability, projects shall terminate on both sides of the interface at [MISO TO owned facilities](#)
  - Solutions may have midpoint(s) outside of the MISO system
  - Solutions may address multiple constraints to increase overall benefit
  - Solutions may eliminate portions of contract path or increase capacity beyond the current Regional Directional Transfer Limit (RDTL)

# North-South Boundary Region



# Participation Credit Eligibility

- Solution ideas addressing any 2019 identified constraint is eligible for participation credit towards any potential 2019 MEPs
- New window for solutions addressing the North-South constraint open through June 21, 2019
- Solution ideas should adhere to the additional design criteria in this presentation

# Inclusion in MCPS Schedule and Next Steps

# Updated MCPS Timeline

\*Changes/Additions in BOLD

Meeting	Date	Location	Region	Focus Areas	Topics
MCPSTSTF	4/25/2019	WebEx	All	North-South Constraint	Review North-South Drivers, Open Submission Window (closing June 21, 2019)
SPM2	5/31/2019	Eagan, MN	North/Central	North/Central; MISO-PJM & MISO-SPP; <b>*North-South Constraint</b>	-Solution screening results -Identification of project candidates -Solicitation of sensitivities
	5/29/2019	Metairie, LA	South	South, MISO-SPP, <b>*North-South Constraint</b>	<b>*North-South constraint analysis update</b>
MCPS TSTF*	7/25/2019	WebEx	All	All	-Robustness & sensitivity analysis results -Reliability no harm testing results -Further project iterations and sensitivities <b>*North-South Constraint Screening Results</b>
SPM3	8/22/2019	Eagan, MN	North/Central	North/Central; MISO-PJM & MISO-SPP	-Final project results -MISO recommendations
	8/29/2019	Little Rock, AR	South	South & MISO-SPP	<b>*North-South Constraint Robustness Analysis</b>
Additional MCPSTSTF *As Needed*	TBD	WebEx	All	<b>*North-South Constraint</b>	Additional Analysis or Sensitivities as needed or requested



# Updated MTEP19 Models Posted

- Models incorporating stakeholder feedback received after January plus internal revisions to the N-S Constraint Nomogram
  - No changes to MTEP19 top flowgates
  - Minor changes to congestion
  - SFTP Location:
    - Host: [misoftp.midwestiso.org](https://misoftp.midwestiso.org)
    - Port: 22
    - Folder: /MTEP19/MTEP19 PROMOD models/

# Next Steps

- Solution window is open through June 21, 2019
  - Standard submission forms are posted with these meeting materials
- Study feedback/questions
  - [EP@misoenergy.org](mailto:EP@misoenergy.org)
- Participation eligibility questions
  - [TDQS@misoenergy.org](mailto:TDQS@misoenergy.org)

 **MISO**



# References

- [JOA Settlement Agreement](#)
- [MISO TO Transferred Transmission Facilities](#)
- MTEP17 MCPS Footprint Diversity Study
  - [MTEP17 Report, Book 1, Section 5.4](#)