MISO PJM IPSAC

April 8, 2016

Agenda

- Quad Cities Analysis Conclusions
- Annual Issues Review & Stakeholder Feedback
- Targeted Market Efficiency Project Study
- TMEP Proposed JOA Language & Stakeholder Feedback
- Long Term MEP Process & Metrics
- Process Schedule for 2016

Quad Cities Study Conclusions

Quad Cities Study Objectives

- Jointly evaluate reliability drivers
- Consider opportunity for interregional reliability upgrade, which could displace regional reliability projects
  - 3 MTEP15 Appendix B projects in Quad Cities (P8842-4)

Quad Cities Analysis

- MISO and PJM created joint 2020 Summer Peak powerflow case
- Flows in Quad Cities did not match MTEP14/15 models
- Joint model was SCEDed to get economic based dispatch
- Full contingency analysis was performed on the model, monitoring the Quad Cities and nearby areas

Quad Cities Conclusion

- No reliability constraints were found in the Quad Cities area
- The RTOs will not pursue interregional reliability solutions
- This joint interregional study will help inform the regional process on MISO-PJM interchange modeling
  - MTEP16 has more interchange coordination on the MISO-PJM seam
  - MOD-032 will be used for MTEP17 and beyond, flows and interchange should be similar to jointly built case

Annual Issues Review

Annual Issues Review JOA Process

- February 5, 2016 – Notice of April issues review
- March 7, 2016 – IPSAC & stakeholder input to issues review due
- April 8, 2016 – IPSAC issues review

Annual Issues Review Feedback Received

- Received substantive feedback on identified issues from three stakeholders
- Some feedback provided affirmation of constraints PJM and MISO have identified
- Feedback ranged in scope:
  - Current TMEP study issues – In scope
  - Additional targeted studies (ex. Low carbon future) – Outside scope for 2016, coordinated CPP study underway
  - Future constraints (no historical M2M congestion) which might be appropriate for longer term market efficiency study – later in 2016
- Specific responses were made to the stakeholders who provided feedback

Targeted Market Efficiency Project Study

TMEP vs. Longer Term MEP

Targeted Market Efficiency Project

- Driver is historical M2M congestion (whether or not it drives settlement payments)
- Each TMEP upgrade project to relieve congestion must be flowgate specific and meet other criteria
- Upgrade suggestions for general areas, conditions or collection of constraints may require longer term studies

Longer Term Market Efficiency Project

- Drivers require regional issues on both sides (both regions must see regional issues in an area. One example would be M2M issues not able to be addressed with TMEP). PJM regional issues will be specified in PJM Regional studies.
- Joint Public Policy studies require regional studies with similar drivers/assumptions (RPS, CPP, etc.)
- Drivers, which are not specifically related to Public Policy studies, involving significant changes to reference, future generation portfolio assumptions must consider how reliability impacts of the assumptions will be addressed
- Candidate JOA MEP upgrades must also be entered for evaluation in a regional PJM competitive window in response to PJM issues

Targeted Study Status

- M2M flowgate congestion presented at March IPSAC
- RTOs working with facility owners to determine:
  - Congestion caused by transmission outages and nature of outages
  - Planned or recent upgrades that may relieve congestion
  - All limiting element(s) and conductor ratings
  - Potential low cost, quick implementation upgrades

- Complete list of M2M flowgates being evaluated is posted with meeting materials

Targeted Study Congestion Components

- Constraint congestion has 2 parts: Day Ahead (DA) Congestion and Excess Congestion Fund (ECF) (or Balancing Congestion)
- Day Ahead (DA) Congestion
  - Funds FTR credits
  - Collected per node in the market based on its location marginal congestion component (MCC) of the LMP
    - DA Congestion = Sum of Nodes (MW Injection * MCC)
  - DA Congestion per constraint calculated by summing market impact of all commercial node injections on a constraint (Commercial Flow (CF)) and multiplying by the Shadow Price (SP) of the constraint
    - DA Congestion = Sum of Constraints (DA CF * DA SP)

Targeted Study Congestion Components (cont.)

- ECF or Balancing Congestion
  - Uplifted through Revenue Neutrality Uplift (along with JOA M2M payments) in MISO, funds FTRs in PJM
  - As Real Time (RT) is a difference market, congestion is only charged based on deviation from cleared DA MWs
  - Similar to DA, we can calculate by constraint using commercial flow calculations but with respect to what cleared in DA
  - RT ECF = Sum of Constraints ((DA CF – RT CF) * RT SP)
- DA Congestion and RT ECF combined represent the total congestion-related impact to the MPs on the DA and RT Markets

Stakeholder Feedback on

Targeted Market Efficiency Project Draft JOA Language

Stakeholder Feedback on TMEP

- 10 stakeholders provided substantive written feedback on Targeted Market Efficiency Project draft language presented at the March 7 IPSAC meeting

- Most respondents support the goals of the TMEP process
- Majority agree with use of historical congestion for issue identification and benefit determination
- Many good questions and calls for additional process details

- Feedback is posted

Wind on the Wires

- Agrees in concept with the TMEP process & direction
- Should be no cost or voltage thresholds
- Clarify process timeline
- Agree simple and quick metric is desirable
- A 1.0 C/B ratio is sufficient, no need for 1.25
- Consider other benefits (ex. Cost of redispatch and curtailment) in addition to congestion
- A well defined process is needed to make project actionable

Exelon

- Supportive of concept
- Need to see revisions to section 9.3 as well

- Agree with TMEP process in concept
- Agree and support taking project directly from JRPC to PJM & MISO boards
- Many aspects of this proposal could be adapted for the longer term MEP projects
- TMEP name may be confusing as MEP suggests benefits beyond congestion

- Provided edits to the JOA language. Major changes were:
  - Remove 5% GLDF requirement
  - Required in service date set from the year of approval or developer selection
  - Added details of congestion calculation as sum of day ahead and balancing
  - Look at three years of historical congestion

NSP

- Supports efforts toward quick hit studies
- Does not support the criteria or benefit metrics
- Supports formalizing the study in the JOA and suggests similar process for MISO-SPP JOA
- Models should show continuing congestion in order for projects to move forward
- Much M2M congestion is the result of market inefficiencies that could be addressed with market changes, rather than transmission upgrades
- develop a defensible modeling process that helps determine that the expected congestion will both occur and will be relieved
- A less rigorous process might be acceptable if there were more extensive regional review & vetting
- A cost cap should be implemented to keep projects small
- Use historical congestion over only 3 years
- High value projects can pay for themselves with 3 years worth of congestion, not 5
- Projects should circumvent the regional processes
- MISO should develop tariff language on how TMEP projects would be allocated within the RTO

MEC

- Supports concept and goals of TMEP
- There should be a test to ensure congestion is not just moved to another facility
- There should be a clear definition of "substantial relief of identified historical market efficiency issues"
- There should be a requirement that there be no other project which will relieve the congestion without the TMEP

GRE

- Supports goals of TMEP
- Agree benefit determination should be consistent with share of historical congestion
- Agree with JRPC recommended proposals going to RTOs' boards for approve
- Focus should stay on historically congested facilities that are expect to continue
- Larger projects, under the standard MEP rules need to be kept separate from this process

ATC & DATC

- Focus on improving existing process, rather than creating a new one
- 5 times historical congestion could allow for very large projects under this process, which may not be the most cost effective solutions
  - Limit in service date to three years
  - Implement a cost cap
- Compare existing APC/NLP metric to congestion based metric

WE Energies & WPSC

- Change in service date requirement to 4 years for date of final approval
- Request a review and clarification of how congestion costs in each RTO are calculated
- Look at 5 years of historical congestion and use a defined weighting system
  - Ex: 50% for 2015, 20% for 2014, 15% for 2013, 10% for 2012, and 5% for 2011
- Please provide information on the JOA reference in the redline to ‘Section 9.3.5.2(c)’

Entergy Regional State Committee Working Group

- Does not support TMEP as drafted
  - "Historical market efficiency issues" is undefined
  - TMEPs sidestep the regional processes
  - Process is subjective and terms must be defined
  - B/C of 1.0 does not ensure net benefits
  - No limit on project cost
- Supports
  - Alignment of regional and interregional studies
  - Regional review and cost allocation
  - Reviewing why IPSAC projects did not pass regional approval

RTO Comments (1/2)

- Many comments were supportive and in agreement with TMEP approach. Thank You.
- RTO's continue to believe the targeted study approach outlined has merit and will be pursued
- The more streamlined process is justified by the small scope of projects to be considered and the relative certainty of congestion to be relieved
- We are attempting to keep project scope limited without unnecessary hurdles
- Agree more process clarifications for TMEP are needed (section 9.3 language posted)
- TMEP's will consider historical congestion relief benefit, which is redispatch relief
- Agree to clarify benefits and congestion definitions
- TMEP process will be further clarified as a new process distinct from the MEP process
- MEP process will require separate regional analysis and approval

RTO Comments (2/2)

- Will consider replacing GLDF reference with a reference to M2M FG definitions
- Will shorten time to in-service to 3 years from study year (2019 summer for this year's study)
- Will change historical congestion assessment to 3 years
- Will stick with study year approval requirement. More needed time will roll project over to a new analysis
- M2M process comments should be made in the JCM forum
- Modeling improvements will be a continued need and emphasis
- Congestion increases caused by an "upgrade" will be avoided.
- Upgrades that show sufficient benefit and may shift lower congestion to other facilities may still be recommended projects

Stakeholder Questions (1/4)

Stakeholder Question	RTO Response
Are “quick hit” projects currently a part of the JOA? The draft JOA language has a comment that TMEP projects were previously called “quick hit” but when we looked at the current JOA we couldn’t find the reference.	Comment referring to JOA language about projects previously called “quick hit” was talking about the 2015 joint analysis
How this process will align with the competitive transmission process?	IPSAC, including any associated project solicitations, will be the complete process for TMEP, which are likely to be upgrades to existing infrastructure
How designated entities get determined for potential projects?	The expectation is that in most cases the incumbent TOs will be designated to build TMEPs due to upgrades being targeted to existing facilities. This, however, is not predetermined and fuller consideration of all possibilities will be needed

Stakeholder Questions (2/4)

Stakeholder Question	RTO Response
Does the cost allocation for an Interregional Market Efficiency Project in Section 9.4.3.2.2 of the JOA apply to this new project type?	The intent is for TMEPs to have a more streamlined and less administratively burdensome process.
How will RTOs ensure congestion doesn't shift to next element?	This is part of the purpose of the PROMOD analysis. Some shifting congestion would not disqualify a project, but if total congestion doesn't go down, obviously it may need modification.
How is the determination of partial or full congestion relief made?	Congestion relief expectations will be assessed with power flow and economic modeling targeted to each flowgate
How does the study ensures that the right upgrades gets done at the right cost?	TMEPs are efficient, high value projects relative to project cost and should be considered before more costly and speculative approaches

Stakeholder Questions (3/4)

Stakeholder Question	RTO Response
Over what period of time will the projected market efficiency benefits be measured?	TMEPs are intended to have a “payback” less than approximately 5 years (we could go shorter)
How the process ensures that upgrades are being pursued for persistent problems or not addressing transitory issues only?	TMEP’s must solve congestion seen for one or more years and expected to continue. (RTOs will look for outages and other drivers that may be “transitory”)
How will RTOs ensure fixes don’t cause reliability issues?	Each RTO will be responsible for completing appropriate reliability analysis for their system and reporting these results to the JRPC
Cost or voltage thresholds for this new project type?	There is no minimum project cost or voltage criteria.

Stakeholder Questions (4/4)

Stakeholder Question	RTO Response
What analysis and models will be used to perform the study?	A current system PROMOD model will be used to evaluate effectiveness of proposed solutions
How will RTOs ensure an already planned project will not resolve the issues?	RTOs will look for planned projects in the area and test the impact of these as part of the study process. Stakeholder input is also welcome and encouraged.
What if there are cost overruns or the in service date is not met?	The RTOs anticipate that TMEPs will be low cost, high impact projects. Many are expected to be upgrades to existing facilities. The RTOs do not expect significant issues with cost overruns or late in service dates.

Long Term MEP Process & Metrics

Elimination of 1.25 B/C

- MISO and PJM are proposing to eliminate the 1.25 B/C approval in the interregional process
- Replaced by a less stringent screening tool
  - Filter through the projects with the best chances of regional approval
  - Cut down regional analysis of projects which are unlikely to pass
- Interregional process is still used to split the interregional project cost

Screening Criteria

- MISO has previously implemented a screening with SPP in the interregional process
  - 1 year of APC benefits is compared to 1 year of estimated project costs
  - Screening index = 1 year benefit / (estimated project cost * annual fixed charge rate)
  - Projects with a screening index 0.5 or greater are considered for the next analysis
- Open to other screening index values or methodologies to ensure that not too many nor too few projects are passed to the regional processes

IPSAC Work Schedule

IPSAC Schedule

Q1 2016

- Provide summary of annual issues review to stakeholders - **Complete**
  - Opportunity for stakeholder comments on issues review
  - Timing reviewed in previous slides
- Complete Michigan Interface reliability analysis - **Complete**
- Complete Quad Cities analysis - **Complete**
- Identification of facilities for 2016 Quick Hit study - **Complete**
- Development of "As-Is" models for targeted study analysis – **In Process**
- Progress on Metrics & Process to address targeted studies

IPSAC Schedule Cont.

Q2 2016

- Conduct evaluations of potential Targeted upgrades
- Make progress on both targeted and long term MEP Metric and Process discussions with stakeholders

Q3/Q4 2016

- Complete Targeted analysis and recommend projects as appropriate
- Conclude targeted Metrics & Process review and implement changes
- Identify potential longer term interregional issues from regional processes; solicit projects from stakeholders

See timeline attached to September 28 IPSAC meeting for complete two year evaluation cycle

Open Discussion

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