Future Path for TLR Proposal

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(revised)

pjm

MidwestISO
Energizing the Heartland

History of TLR in Eastern Interconnection

- Primary congestion management procedure used during the past 10 years. Only minor modifications have been made during this time period.
- Where TLR is not the primary congestion management mechanism, it has been used as a reliability backstop when significant, externally induced parallel flows make local procedures insufficient to control facility loading.
- Historically, Reliability Coordinators (RCs) have relied on tag curtailments to curtail non-firm usage and a combination of tags and NNL relief obligations to curtail firm usage (share-the-pain approach).

Three Complaints with the Share-the-Pain Approach

- This approach has resulted in large amounts of tag curtailments for small amounts of relief, it is disruptive to the markets and it has resulted in entities scheduling around bottlenecks.
- The NNL relief obligation is based on a static set of assumptions contained in the IDC. Does not rely on real-time generator, load or net interchange information.
- Because the NNL calculation is based on static assumptions, the RCs lack visualization of the magnitude and the source of parallel flows when they experience congestion.

Recent Enhancements to the TLR Procedure

- With the expansion of the PJM market and the start of the Midwest ISO and SPP markets, the TLR procedure has been enhanced to include market flows on the systems of these entities in place of tags.
- Midwest ISO and PJM have implemented a M2M congestion management process where they use the most cost effective generation in the two markets to meet their combined relief obligations during TLR.

Proposal to Address Complaints

- Congestion management within the TLR procedure in the Eastern Interconnection (EI) would be split into a reliability component managed by NERC and an equity component managed by NAESB.

Reliability Component

- The IDC would indicate the source of all flows on a flowgate and the priority of these flows (tag impacts, gen-to-load impacts and market flow impacts).
- RCs would report their gen-to-load impacts to the IDC on a real-time basis similar to the market flow reporting.
- An RC experiencing congestion would have visualization of the magnitude and source of all flows affecting their flowgate using information from the IDC.
- An RC experiencing congestion would request an amount of flow reduction that would be processed by the IDC. A relief obligation would be issued to all parties contributing to the loading.

Phase I Proposal – Address Reliability Component

- RCs in the EI will report gen-to-load impacts to the IDC similar to Midwest ISO, PJM and SPP.
- There will be an industry-wide criteria developed that explains how the calculation will be made.
- Priority of gen-to-load impacts will fall into one of three categories (Priority 7, 6 or 2).
- All gen-to-load impacts are available for viewing in the IDC.
- The IDC will use tag impacts, market flow impacts and gen-to-load impacts to assign relief obligations on a proportional basis during TLR.

Phase I Proposal – Address Reliability Component (cont.)

- There will be monitoring for compliance in achieving the assigned relief obligations.
- This Phase I implementation will require infrastructure and IDC enhancements.
- This Phase I implementation should still be considered a share the pain approach since tag cuts will be done on a proportional basis with market flows and gen-to-load cuts.
- This Phase I implementation does not require tariff changes and would only require minor edits to the NERC TLR standard and NAESB business practices.
- This Phase I implementation will need detailed procedures on the gen-to-load impact calculation, determination of coordinated flowgates, enhancements to the IDC and communication protocols with the IDC.

Equity Component

- The parties with an assigned relief obligation would rely on business practices and procedures in their tariffs to meet the relief obligation.
- If a party with an assigned relief obligation has both redispatch and tag curtailments available to them, they could use either method or a combination of both methods to meet their relief obligation.
- Equity issues on how the relief obligation will be accomplished in the most cost effective manner should be addressed in the filed tariffs with FERC.
- All parties would be encouraged to expand their tools to meet their relief obligations. NAESB would lead the effort to identify methods available to meet relief obligations and to include these methods in the filed tariffs.

Summary of Future Path for TLR Proposal

- Provides RCs with visualization of the magnitude and source of all flows they experience. These flows are used in the assignment of relief obligations.
- Allows the parties responsible for meeting relief obligations to do so using FERC filed business practices and procedures. To the extent there are equity issues, FERC is the proper forum to address.
- The IDC would be expanded to accept gen-to-load impacts reported by RCs similar to the market flows reported by Midwest ISO, PJM and SPP.
- The IDC would be used to assign relief obligations based on tag impacts, market flow impacts and gen-to-load impacts.

Seek Industry Support for Future Path for TLR

- Line item included in NAESB 2008 Annual Plan. Midwest ISO and PJM will work with both NERC and NAESB to address reliability component and equity component.
- The initial focus will be to move forward with the Phase I proposal to address the reliability component. Midwest ISO and PJM developed a draft SAR that contains a Phase I proposal. Seeking input on this Phase I proposal before submitting the SAR for public comment.
- A detailed description of the Phase I proposal was given at the May 7 NERC ORS meeting.

NERC ORS Reaction to Phase I Proposal

- Some RC's are not impacted by parallel flows and question whether there are loading problems in the EI due to parallel flows.
- Some RC's are unaware of the use of static data in the IDC and how this impacts the NNL calculation.
- Some RC's do not use TLR and question the benefits they will receive by having an expanded IDC.
- To obtain RC support will require developing a business case that supports the need for visualization of parallel flows in the EI and that supports the need to use real-time data in the NNL calculation.

Instances of High Parallel Flows in the EI

- Midwest ISO/PJM Loop Flow Study issued May 2007 documents times prior to 2007 when high circulation flows have existed around Lake Erie.
- An updated Midwest ISO/PJM Loop Flow Study is now underway that is documenting parallel flows that occurred in 2007.
  - On June 12, 2007 a combination of transmission contingencies and generator contingencies plus high Lake Erie circulation contributed to IESO initiating its voltage reduction procedures.
  - On August 19, 2007 PJM initiated TLR 5b on its interface with Duke to manage congestion caused by a N. to S. bias (mild temp in NE vs. hot temp in SE).
  - On August 20, 2007 PJM initiated TLR 5a on its interface with CPL to manage congestion caused by a N. to S. bias (mild temp in NE vs. hot temp in SE).
  - On December 3-6, 2007 PJM initiated TLR 3a/3b on its interface with CPL to manage congestion caused by a S. to N. bias (mild temp in SE vs. cold temp in NE).

Static Assumptions Used by IDC in NNL Calculation

- The NNL calculation relies heavily on operating information submitted to the SDX to model system conditions. However, there is no requirement that operating information be submitted to the SDX.
- There is no real-time load used in NNL calculation. Relies on forecasted load data submitted by BA to SDX. If BA does not submit hourly or daily peak load data, uses seasonal load for NNL calculation.
- All generators not on outage in the SDX are assumed to be on-line and serving load. All units are scaled in proportion to their PMAX in order to match generation and load. The RC can manually remove units from the NNL calculation. However, this is a tedious process that delays calling TLR5.

Static Assumptions Used in NNL Calculation (cont.)

- Where SDX has a negative net interchange for the BA (net importer), the BA load is reduced by the amount of import before generation is dispatched.
- Transmission system topology used in the NNL calculation is based on the reported outages in the SDX.
- Unlike tag impacts and market flow impacts that can be viewed in the IDC, there are no gen-to-load impacts that can be viewed in the IDC.
  - The NNL calculation is made on an on-demand basis prior to calling TLR5. RCs have the opportunity to adjust some of the static data (this is tedious work and would only be done to improve the NNL relief obligation). This means there is no parallel flow information to review in real-time and no parallel flow information to store in an archive for after the fact reviews.

IDC Provides Limited Flexibility in NNL Calculation

- If a unit has been split between two BAs (i.e. a JOU that has been pseudo-tied), can apply a percent ownership that will result in separate dispatches and separate NNL calculation for the two BAs.
- If a portion of the unit output has been dedicated to a transaction that has been tagged, can remove it from the NNL calculation.
- An RC can remove a unit from the input data and rerun the NNL calculation before issuing the TLR5. However, the SDX files must be updated prior to the next file upload to reflect this change in status (NNL calculation reverts back to the SDX status after the next SDX upload).

IDC Problems in NNL Calculation (Beyond the Use of Static Data)

- Even though loads are reported on a BA level, many of these reported loads are from the entity that has BA responsibility and may not be the total load in the BA.
- There is a 20 MW minimum limit on generator buses that have an NNL calculation made.
- There is no special treatment of non-designated resources. Assumes all generators have firm use of the transmission system on all flowgates. There is no assignment of gen-to-load to non-firm usage of the transmission system.
- Not aware of any process that holds gen-to-load impacts during TLR. Not aware of any steps taken to verify BA NNL relief obligations have been met.
- Calculation of how a BA should meet its NNL relief obligation is a manual process that consumes RC time. CO254 provides limited improvement to manual process.

Recommend a Tag Archive be Created in the IDC

- Midwest ISO and PJM made a recommendation in the May 2007 Loop Flow Study that a tag archive be created that would store tag impacts, market flow impacts and gen-to-load impacts on a flowgate-by-flowgate basis for after the fact analysis.
- IDC currently archives all tags but without knowing system topology, it is nearly impossible to determine flowgate impacts.
- Midwest ISO and PJM are following-up on this earlier recommendation by including it in the Future Path for TLR Proposal.

Next Steps for Future Path for TLR Proposal

- Midwest ISO and PJM will schedule a call with the NERC RCWG to seek RC support for the Phase I proposal.
- Midwest ISO and PJM will schedule a meeting with FERC Staff to discuss parallel flows in EI and how this Phase I proposal would address parallel flows. This is follow-up to September 2007 meeting where Phase I Loop Flow Study was reviewed with FERC Staff.
- Midwest ISO and PJM are seeking CMP Council support for SAR prior to submitting it at NERC.
- Midwest ISO and PJM are seeking support from their stakeholders to endorse the SAR after it has been submitted at NERC.

Future Path for TLR Proposal

- Questions?