



California ISO

Maximum Import Capability Enhancements – Straw Proposal

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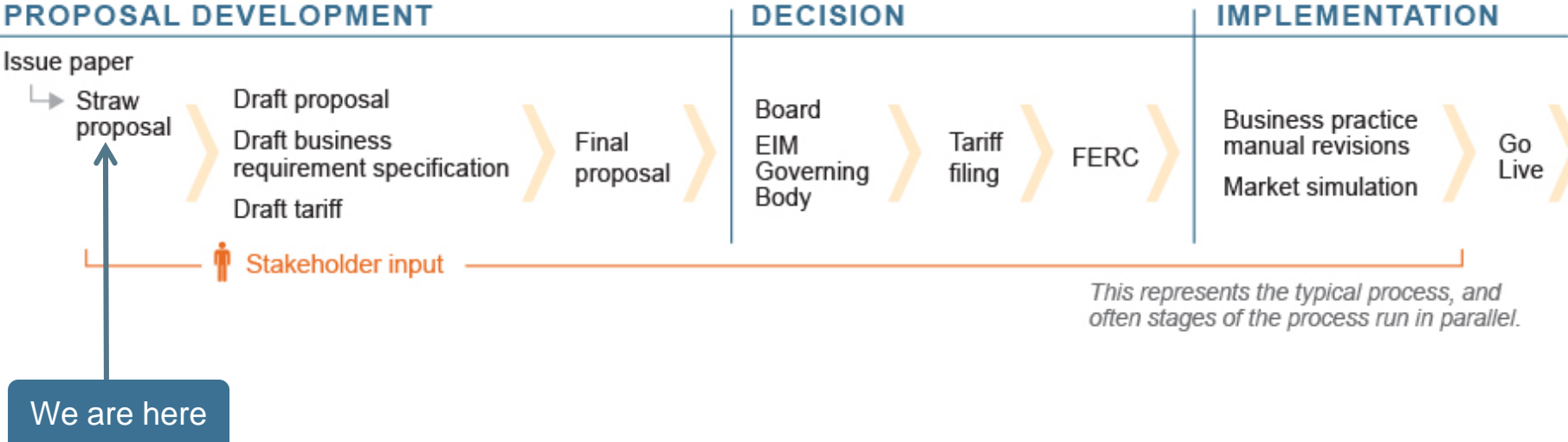
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Stakeholder Call

May 13, 2021

CAISO Policy Initiative Stakeholder Process



Agenda

- Introduction and references
- Stakeholder comments received after the Issue Paper
- Purpose of stakeholder initiative
- Moving the topic of establishing enhanced participation rules for wheel-through transactions into a new separate stakeholder initiative
- Improving transparency
- Deliverability – assumptions, studies, constraints, retention
- Items for future exploration
- Open Discussion
- Initiative schedule
- Next Steps

Introduction

- **Maximum Import Capability (MIC)**
 - Represents a quantity in MWs determined by the CAISO to be simultaneously deliverable to the aggregate of load in the CAISO Balancing Authority Area (BAA).
 - ISO tests both the deliverability of internal resources and the deliverability of imports, to ensure all Resource Adequacy (RA) resources are simultaneously deliverable.
 - Load Serving Entities (LSEs) RA import showings are limited for each intertie to its share of MIC.
 - Calculated yearly by the ISO.
 - Allocated yearly by the ISO to LSEs.

References:

ISO Tariff Section 40.4.6.2:

<http://www.caiso.com/Documents/Section40-ResourceAdequacyDemonstration-SCs-CAISOBAA-asof-Sep28-2019.pdf>

Reliability Requirements BPM section 6.1.3.5 & Exhibit A-3:

<https://bpmcm.caiso.com/BPM%20Document%20Library/Reliability%20Requirements/BPM%20for%20Reliability%20Requirements%20Version%2045.docx>

Stakeholder Comments regarding the Issue Paper

- After the March 18 stakeholder call regarding the Issue Paper the ISO has received 17 sets of stakeholder comments.
- The majority of comments are related to the import transmission scheduling priorities and wheel-through issues. Based on stakeholder feedback received the ISO management decided to start a separate stakeholder process in order to address these issues.
- Comments received for the RA MIC allocation process are summarized in the next two slides.

Immediately Moving Forward with:

1. Additional transparency during the allocation and trading process and especially to the ownership and usage (after the allocation process ends).
2. Education regarding deliverability studies for internal resources as well as imports (assumptions, studies, existing transmission constraints, deliverability protection etc.).

For these two issues the majority of received stakeholder comments align.

Further explore:

1. Improvements to trading of MIC allocations.
2. Potentially augmenting MIC calculation to account for “liquidity”.
3. Potential release of MIC allocations if not used in the month ahead process (assuming RAAIM is eliminated).
4. Other

For these and other issues, not listed here, the majority of received stakeholder comments diverge among stakeholder classes and diverge even within the same class of stakeholders.

Purpose of stakeholder initiative

- Explore and discuss stakeholder concerns and suggested improvements to either the calculation, allocation, trading or tracking of MIC during the RA process.
- In order to be implemented in the 2023 RA year it requires FERC approval of new Tariff along with BPM changes by June 1, 2022.

The following have been moved into a new stakeholder initiative

- Development of a process that would permit wheel-through transactions to reserve import capability and transmission across the ISO system.
- Review of wheel-through priorities when accessing the ISO system.

Establish enhanced participation rules for wheel-through transactions and exports supported by non-resource adequacy supply

- The topic was initially included as part of the MIC Enhancements issue paper.
- Based on stakeholder comments and feedback, the CAISO will be removing this item from the scope of *MIC Enhancements* initiative and will be dedicating a stand alone initiative on the topic.
- The new initiative will start after FERC decision/guidance is provided on the proposed load, export and wheel scheduling priorities filed recently with FERC.

Improving transparency

1. What additional data should be made available to stakeholders in order to achieve this goal?
 - During calculation and allocation process
 - After allocation and before RA showings
 - After the RA showings are in
2. Should the data be presented only on an aggregated level or should the data be presented on an LSE by LSE level?
3. What level of data transparency would be required in order to improve trading? Can both transparency and trading be improved at the same time?

On-Peak Deliverability Assessment

- Demonstrate that the capacity in any electrical area can be run simultaneously, at peak load, and that the excess energy above load in that electrical area can be exported to the remainder of the control area, subject to contingency testing
 - Capacity includes both generators and imports
 - Internal generation capacity and import capacity are often behind the same transmission constraint (examples will be shown in the last two slides)
 - Increasing import flows would require the internal generation output to be curtailed to maintain system reliability and compliance with mandatory reliability standards

Deliverability Assessment Performed by CAISO

- Generation Interconnection Deliverability Allocation Procedures (GIDAP)
 - Phase I
 - Phase II
 - Operational deliverability assessment including annual NQC study
- Transmission Planning Process (TPP)
 - Policy study
- Distributed Generation Deliverability (DGD)

GIP and DG Deliverability Assessment

- GIP and DGD focus on internal generators
 - Deliverability of imports as available per latest MIC calculation is preserved
 - If there is insufficient transmission to support internal generation deliverability then:
 - Transmission upgrades
 - Internal generators not receiving requested deliverability status
 - NQC cut

TPP Deliverability Assessment

- Test deliverability of portfolio resources selected as FCDS
- Deliverability of imports could be expanded if the current MIC is not sufficient to support out-of-state renewable resources in the portfolio
- If transmission is insufficient to support the base portfolio deliverability, policy-driven upgrades could be identified

Deliverability Assessment Methodology

Power flow analysis under certain study assumptions

- Highest system need (HSN) scenario (peak sale)
 - HE18 ~ HE22 in the summer
- Secondary system need (SSN) scenario (peak consumption)
 - HE15 ~ HE17 in the summer

Highest System Need (HSN) Scenario Study Assumptions

| | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Load | 1-in-5 peak sale forecast by CEC |
| Non-Intermittent Generators | Pmax set to QC |
| Intermittent Generators | Pmax set to 20% exceedance level during the selected hours (high net sale and high likelihood of resource shortage) |
| Import | MIC data with expansion approved in TPP |

- The net schedules obtained from the MIC calculation plus approved expansion is enforced in the deliverability assessment by branch groups
 - Since these are schedules, the actual flows on the branch groups won't match perfectly.
 - Total import on all branch groups matches the preserved deliverability very well.
- Un-used ETC for each branch group is represented as a generator at the tie point.

Secondary System Need (SSN) Scenario Study Assumptions

| | |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Load | 1-in-5 peak sales forecast by CEC adjusted by the ratio of highest consumption to highest sale |
| Non-Intermittent Generators | Pmax set to QC |
| Intermittent Generators | Pmax set to 50% exceedance level during the selected hours (high gross load and likely of resource shortage), but no lower than the average QC ELCC factor during the summer months |
| Import | Import schedules for the selected hours |

Transmission Constraints

| Transmission Constraint | Branch Group | Generator Zone inside CAISO |
|----------------------------------------------------------------------------------------------------|---------------------|------------------------------------------|
| Desert Area Constraint: Lugo - Victorville, Lugo - Eldorado, Lugo - Mohave 500kV line overloads | NOB_BG | VEA & GLW |
| | SYLMAR-AC_MSL | Mountain Pass |
| | Lugo-Victorville_BG | Big Creek and Ventura |
| | ELDORADO_MSL | |
| | LAUGHLIN_BG | |
| | MCCULLGH_MSL | |
| | MEAD_MSL | |
| | PARKER_BG | |
| Desert Area Constraint: Valley - Alberhill - Serrano 500kV and West of Devers 230kV line overloads | PALOVRDE_MSL | Riverside East |
| | BLYTHE_BG | Palm Springs |
| | IID-SCE_BG | |
| Delevan 500KV Area constraint | COI_BG | North of Greater Bay Area PGE generation |
| | CASCADE_BG | |
| Delevan 500KV Area constraint, Rio Oso and Davis Area Constraints | SUMMIT_BG | North of Greater Bay Area PGE generation |

Transmission Constraints (Cont'd)

| Transmission Constraint | Branch Group | Generator Zone inside CAISO |
|-----------------------------|--------------|------------------------------|
| East of Miguel | PALOVRDE_MSL | Imperial |
| | IID-SDGE_BG | Arizona |
| | NGILABK4_BG | Baja Riverside East |
| Encina-San Luis Rey | CFE_BG | San Diego Arizona Baja |
| | PALOVRDE_MSL | |
| | IID-SDGE_BG | |
| | NGILABK4_BG | |
| Imperial Valley transformer | IID-SDGE_BG | Imperial |
| San Luis Rey-San Onofre | CFE_BG | San Diego Arizona |
| | PALOVRDE_MSL | |
| | IID-SDGE_BG | |
| | NGILABK4_BG | |
| San Diego Internal | CFE_BG | San Diego |
| | IID-SDGE_BG | |
| Silvergate-Bay Boulevard | CFE_BG | San Diego Baja |
| | IID-SDGE_BG | |

Deliverability Retention

- Deliverability for operational resources is maintained by showing that internal resources (or imports) are used (or be capable of use) in order to serve the aggregate of load.
- Deliverability retention (when not used) is time limited.
 - For internal resources – 3+ years
 - Extended if, before expiration, the owner shows concrete timelines for return to service or it is actively engaged, and stays actively engaged, in the construction of replacement generation at the bus associated with the deliverability priority.
 - For imports – up to 5 years
 - The current methodology for calculating MIC at the branch group level uses two years, with the highest import schedules, among the last five years.

Improvements to trading

- Provides an alternative procurement of import capability above the load share ratio.
- Potentially be achieved at the same time with improved transparency.
- Challenges to overcome:
 - High cost of implementation
 - Current low usage of trading opportunities
 - May be coupled with a new voluntary auction

Existing Maximum Import Capability Calculation

- Historically based
 - Select two hours in each of two years, with highest imports among the last five, and on different days within the same year, with the highest total import level when peak load was at least 90% of the annual system peak load. MIC values are based on the scheduled net import values for each intertie, plus the unused Existing Transmission Contract (ETC) rights and Transmission Ownership Rights (TOR), averaged over the four selected historical hours.
- Forward based
 - Assess Remaining Import Capability (RIC) after step 4 relative to target expended MIC values determined by the TPP portfolios.
 - If insufficient – expand MIC to accommodate new TPP portfolio along with existing ETC, TOR and Pre-RA Import Commitments.

Change in methodology of calculation MIC

- There may be ways to improve the calculation by considering “liquidity” at certain branch group (hubs), or considering magnitude of RA showings etc.
- Challenges to overcome:
 - What it is and how to quantify “liquidity”?
 - Why would RA showings be a better estimate of import resources ready to serve aggregate of load than actual energy schedules?
 - Quantity of MIC is limited and if allocation on a certain branch group is going up another has to go down
 - Most branch groups have already reached their deliverability limit, due to other ISO internal resources interconnecting in the same general area.

Recapture and then release the unused MIC allocations

- Generally LSEs receive MIC allocations based on their load share ratio and use them in the year ahead time frame, in the month ahead timeframe or hold them for unit substitution (avoid RAIM penalty).
- Challenges to overcome:
 - Value of this property and proper compensation for recapture
 - Implementation only after elimination of RAIM
 - All LSEs need to be RA compliant by T-45, and this creates an incentive to come short in order to see if MIC gets released
 - Establish a new timeline for all RA showings (or at least Import RA showings) in order to allocate time for MIC release and re-allocation every month before showings are final.

Conduct deliverability studies at the end of the RA showings process

- Challenges to overcome:
 - Could leave LSEs with stranded assets
 - Have high ramification of CPM back-stop costs allocations regarding year ahead system RA
 - It will require far more time for year ahead showings validation
 - It is not possible to do in the month ahead process because deliverability studies take over one month to conduct
- CAISO agrees with the majority of comments received from stakeholder that the downsides of stranded RA contracts and potential penalties and CPM back-stop cost outweigh the benefits of doing studies at the end of the RA showings process.

Available Import Capability Assignment Process

- Available Import Capability represents the Maximum Import Capability of an Intertie into the CAISO Balancing Authority Area in MWs, deliverable to the CAISO Balancing Authority Area based on CAISO study criteria, minus the sum in MWs of all Existing Contracts and Transmission Ownership Rights over that Intertie held by load serving entities that do not serve Load within the CAISO Balancing Authority Area.
- The ISO assigns the total Available Import Capability on an annual basis for a one-year term to LSE SCs serving Load in CAISO's BAA through the 13 step allocation process detailed in the CAISO Tariff section 40.4.6.2.1.
- Currently, only used for determining the import capability that can be used by an LSE internal to the CAISO to count import system RA resources towards satisfying their total system RA requirements under CAISO Tariff section 40.

Incorporate an auction into the assignment process

- Provides alternatives for direct procurement of import capability above the load share ratio.
- Could provide a more transparent and efficient procurement.
- Challenges to overcome:
 - High cost of implementation
 - Equitable disbursement of auction revenues
 - Relatively small stakeholder interest in replacing current assignment with auction
 - Significant stakeholder comments against using an auction into the assignment process

Explore other stakeholder suggestions

General discussion

Initiative Schedule

- Post straw proposal – May 6
- Stakeholder meeting – May 13
- Straw proposal comments deadline – May 27
- Post revised straw proposal – June 24
- Stakeholder meeting/call – July 1
- Straw proposal comments deadline – July 15
- Post draft final proposal – September 1
- Stakeholder call – September 8
- Draft final proposal comments deadline – September 22
- Board of Governors Meeting – November 3-4
- FERC filing after Board approval – Exact date TBD

Next Steps

- Comments due by end of day May 27, 2021
- Submit comments using the template provided on the initiative webpage located here:
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Maximum-import-capability-enhancements>

Thank you for your participation.