



California ISO

Transmission Service and Market Scheduling Priorities – Phase 2

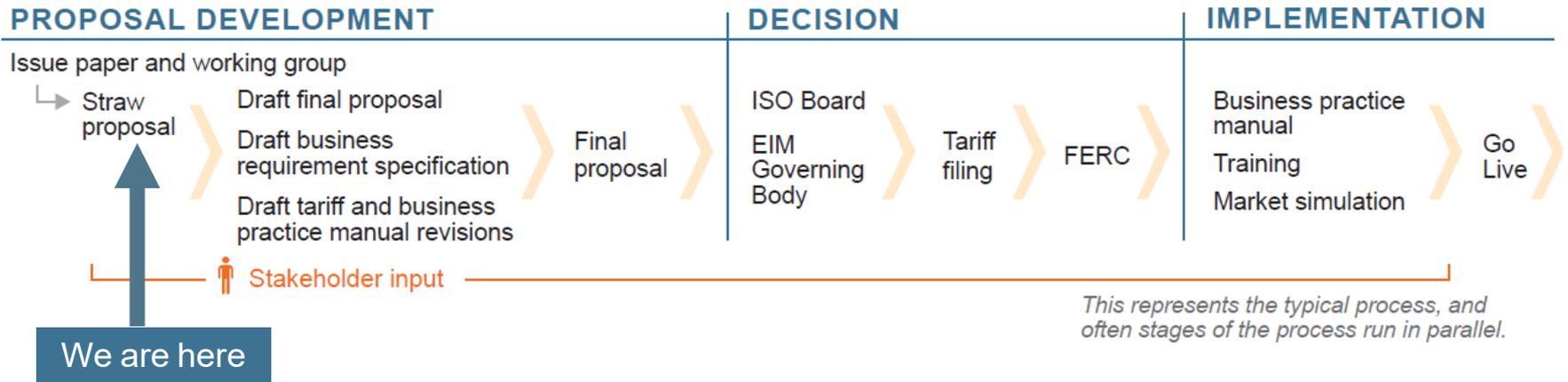
Straw Proposal Stakeholder Meeting

8/11/2022

Agenda

Topic	Presenter
Welcome and stakeholder process	Isabella Nicosia
Initiative background and overview	Milos Bosanac
Proposal <ul style="list-style-type: none">• Calculating ATC and Native Load Needs• Accessing ATC• Establishing Long-Term Wheeling Through Priority – Studies and Expansion• Compensation Framework for Wheeling Through Scheduling Priority	Milos Bosanac
Next steps	Isabella Nicosia

ISO Policy Initiatives Stakeholder Process



Initiative Background

- The initiative evaluates development of a durable framework for establishing wheeling through scheduling priority across the ISO system.
- In early 2021, FERC approved an interim framework for establishing wheeling through priority across the ISO system.
 - This interim framework was further extended to June 1, 2024.
- Wheeling Through Priorities:
 - Priority wheeling through transaction equal to load
 - Non-priority wheeling through transaction has lower priority

Current Interim Wheeling Through Scheduling Priorities

- The current wheeling through scheduling priorities framework is interim, expiring on June 1, 2024.
- Requirements to establish wheeling through priority equal to load, at least 45 days ahead of month of flow:
 - Demonstrate a contract to serve external load;
 - Demonstrate firm transmission to the ISO system for entire month.
- Wheeling through transactions that do not meet the above criteria have low market scheduling priority (LPT wheel), lower than PT wheels.

Overview of Proposed Design

- Calculation of Available Transfer Capability (ATC) across the ISO interties accessible to establish wheeling through scheduling priority.
 - Wheeling through transactions with reserved ATC have equal priority to load.
 - Wheeling through transactions without reserved ATC have lower priority.
- ATC would be calculated across different time horizons:
 - Monthly increments across rolling 13-months
 - Daily increments, ahead of DA market close

Overview of Proposed Design

- Accessing ATC on a first come first served basis.
 - Demonstrate a supply contract to access ATC and prepayment of transmission
 - Consideration of enhancement where requests compete for limited ATC based on duration of supply contract
- Ability to request a study for establishing scheduling priority for longer than 1-year (in yearly increments)
 - Annual cluster study, leveraging existing processes
 - Ability to pursue transmission upgrades
- High priority wheeling through transactions pay for transmission based on underlying duration of supply contract.



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Calculating ATC & Native Load Needs

Calculating ATC Accessible for Wheeling Through Priority

- ISO proposes to calculate ATC on the interties that can be accessed to establish wheeling through priority.
 - ATC calculated in monthly increments across 13 month horizon.
 - ATC calculated in daily increments ahead of DA market close.
- Transmission capacity would be set aside for native load needs, which has the effect of reducing ATC.
- Transmission capacity would also be set aside for margins, which has the effect of reducing ATC.

ATC Calculation



- **ATC** is the available capability, accessible by wheels through ISO.
- **TTC** is the total transfer capability of an intertie.
- **ETC** represents existing transmission commitments.
 - Legacy contracts (“ETCs and TORs”)
 - Native load needs
- **TRM** is the transmission reliability margin to account for different aspects of uncertainty.
- **CBM** is the capacity benefit margin setting aside transmission for emergency imports.



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Calculating Monthly ATC

Calculating Native Load Needs – Monthly Horizon

- Transmission capacity can be set aside for native load needs, including load growth, as an existing transmission commitment (ETC).
 - Amount set aside has to be reasonable.
- ISO does not identify or set aside an amount of transmission for native load needs today.
- ISO introduces potential different approaches for deriving native load needs.
 - There may be additional or different variations for deriving these that can be considered.

Calculating Native Load Needs – Approaches

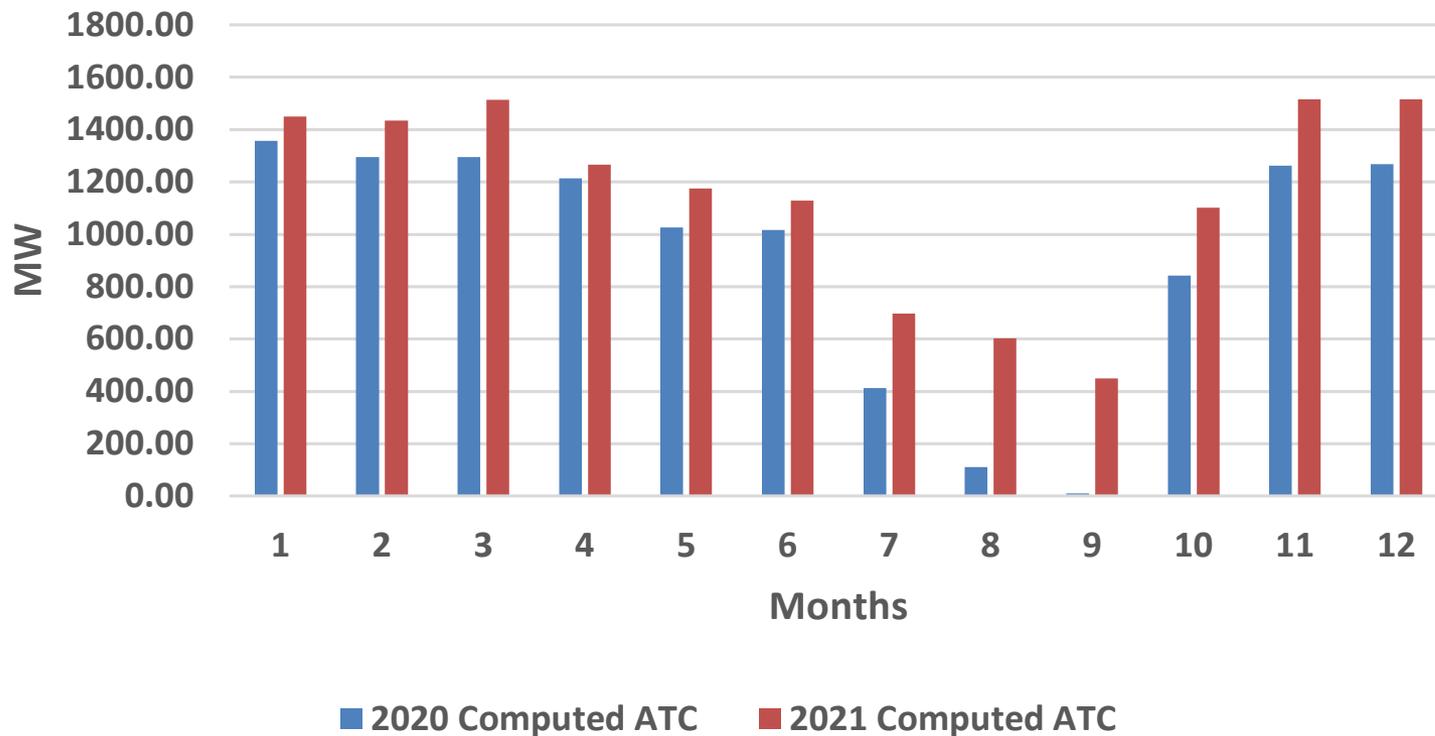
- *Approach 1* – Native load needs derived based on historical monthly Resource Adequacy showings.
 - Based upon RA program through which LSEs bring sufficient supply under contract to serve load.
 - Historical look-back over the period of time and consider the “higher of” or average of the shown values.
- *Approach 2* – Native load needs derived based on historical import flows across interties attributable to serving native load.
 - Considers import dependence during more stressed conditions, beyond RA supply.
- *Approach 3* – Native load needs derived based upon the “higher of” approach 1 and 2.

Native Load Needs – Approach 1 (Historical RA Imports)

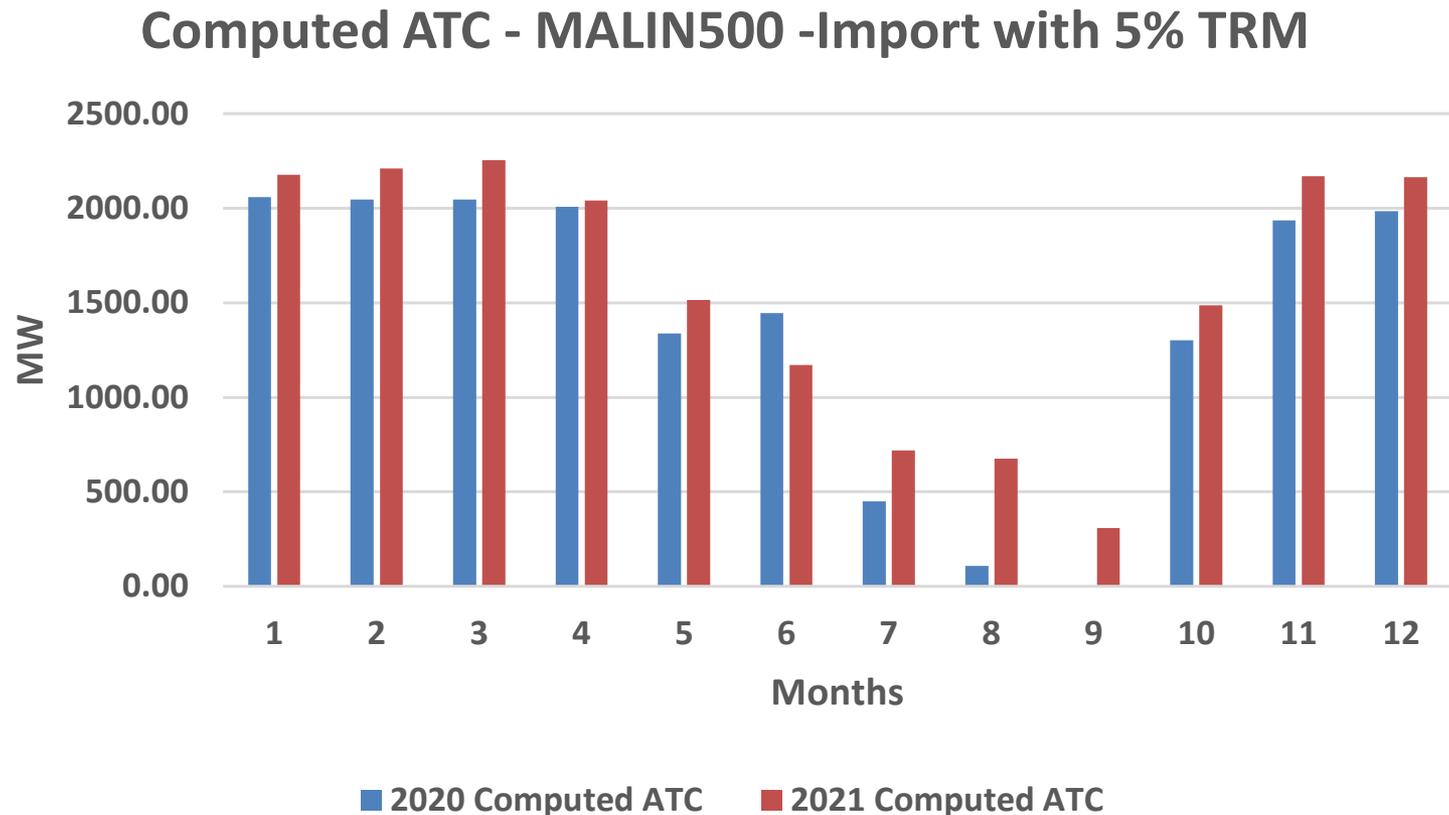
- ATC derived based upon this approach was computed by setting aside transmission from the TTC for the following:
 - Monthly RA import showing volumes at interties based upon 2020 and 2021 showings
 - Legacy contracts – “ETCs and TORs”
- An estimated 5% TRM was also included to provide a more realistic picture of remaining ATC.
- ATC was derived for Malin, NOB, and PVWEST interties.

ATCs Based on Historical TTCs with TRM Set Aside - NOB

Computed ATC - NOB -Import with 5% TRM

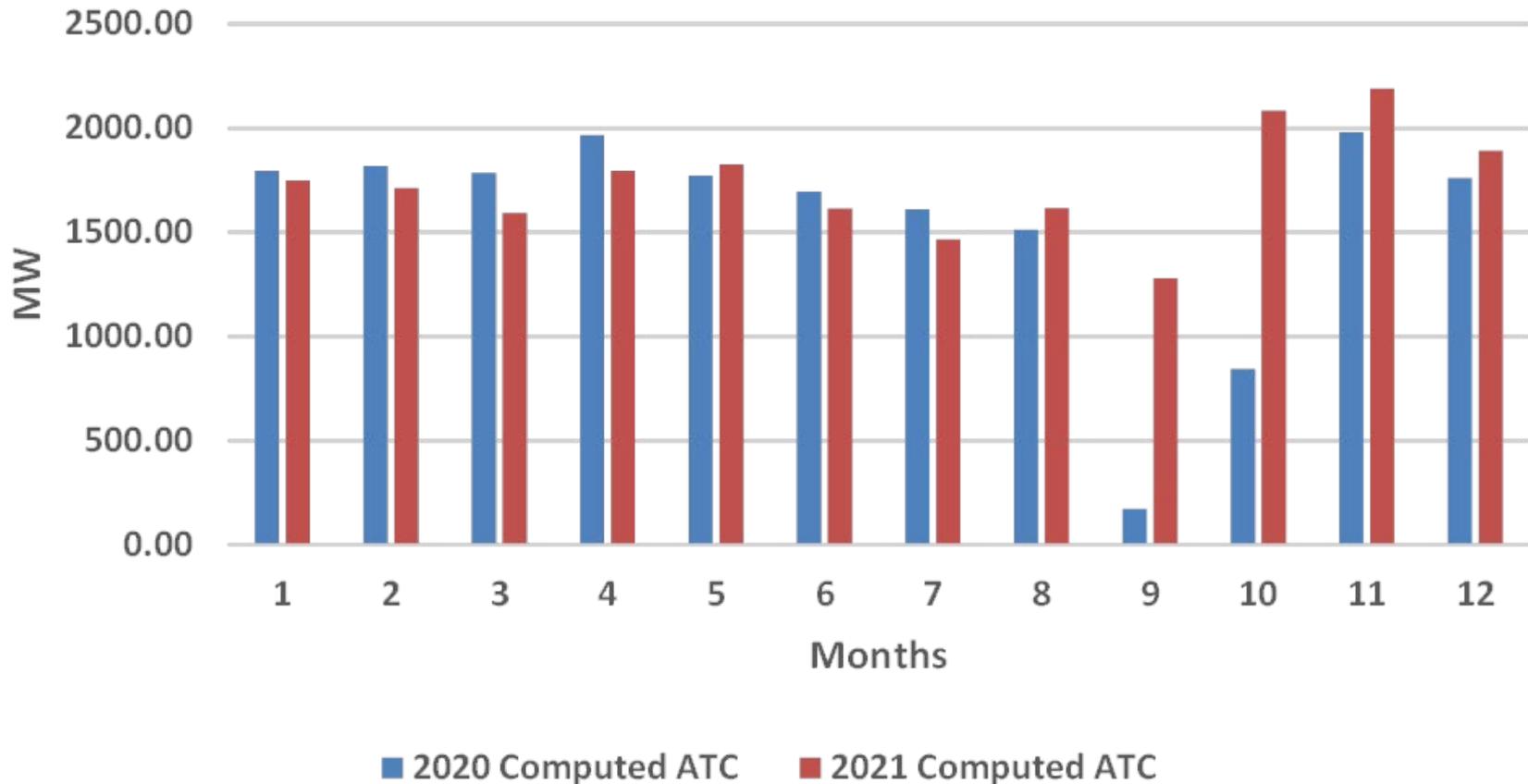


ATCs Based on Historical TTCs with TRM Set Aside - Malin



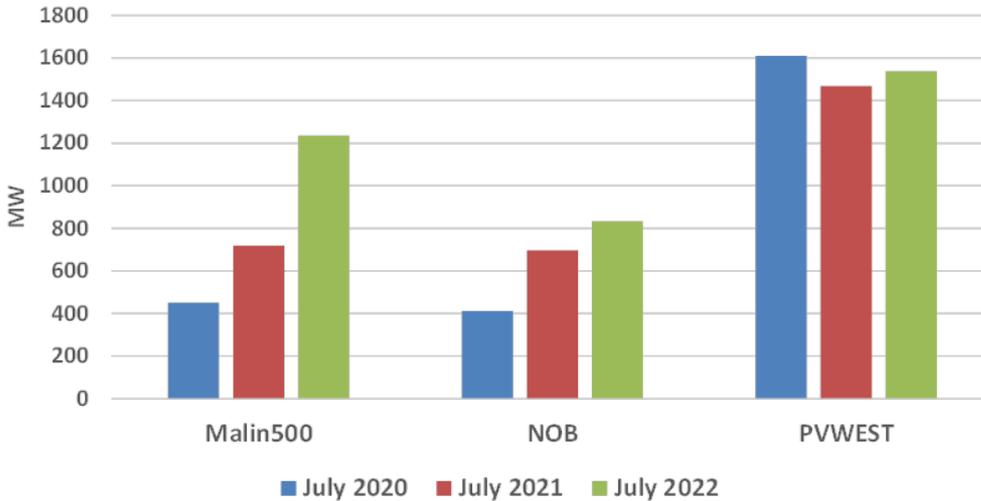
ATCs Based on Historical TTCs with TRM Set Aside – PVWEST

Computed ATC - PVWEST-Import with 5% TRM

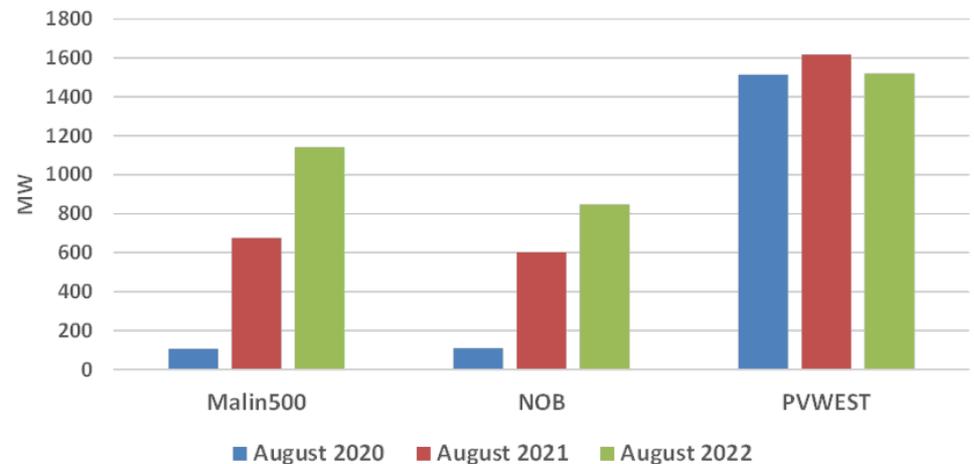


ATCs Based on 2020 – 2022 RA Import Showings – Malin, NOB, PVWEST

Bookend 1 **July** TTC-Based ATCs with 5% TRM Set Aside



Bookend 1 **August** TTC-Based ATCs with 5% TRM Set Aside

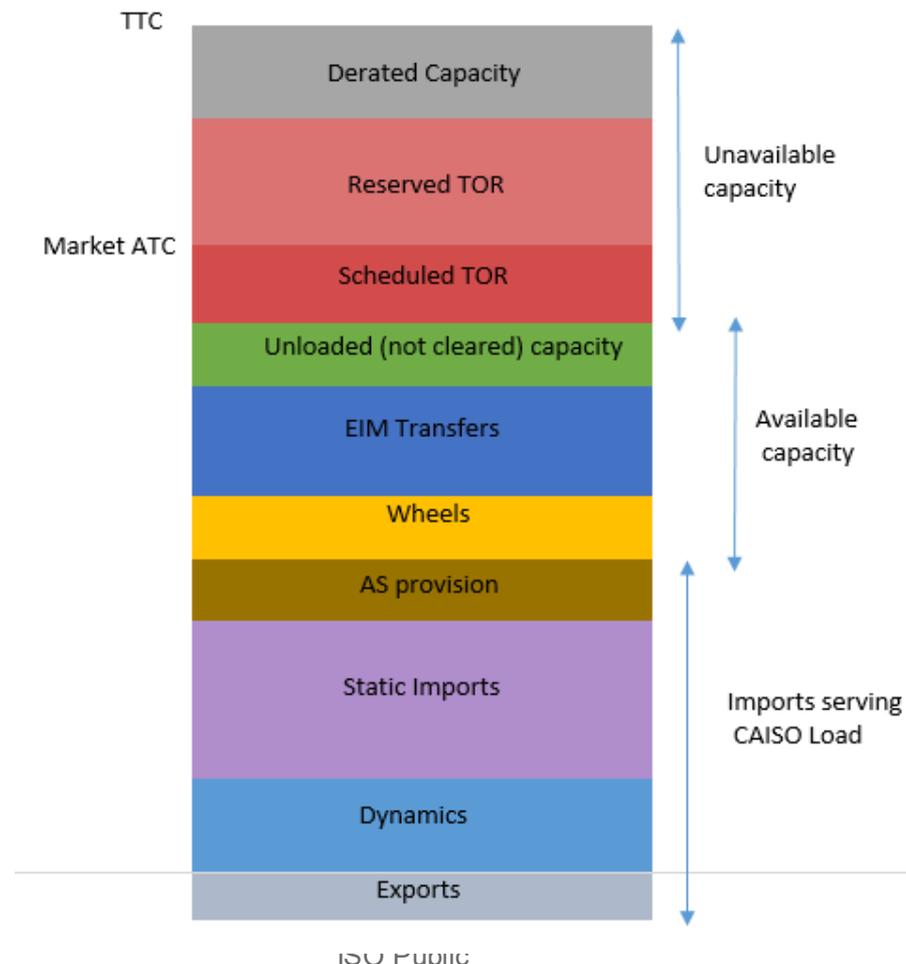


Native Load Needs – Approach 2 (Historical Imports)

- Approach 2 considers historical import volumes during net load peak hours as being a reasonable estimation of future native load needs.
 - Intent is to evaluate import volumes during more stressed conditions
- Variations to approaches for deriving native load needs:
 - **2A** – Import volumes during net load peak hour for month
 - **2B** – Imports volumes during the five highest net load peak hours for the month
 - **2C** – Import volumes averaged during highest 10% of net load peak hours for the month

Approach 2 – Assumptions Deriving ATC Values

- The data utilized in approach 2 is based upon summer 2021 import volumes (June – September)



*Imports serving ISO load are pro-rata between ISO load and Exports

Approach 2 – Import Volumes During Net Load Peak Hours

- Approach 2A – ATC based on import volumes in highest net load peak hour

# Top hours	Malin				NOB				Palo Verde			
	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep
1	1,215	941	1,615	1,331	394	1,622	1,003	571	4,142	1,982	1,685	2,544

- Approach 2B - ATC based on average import volumes during highest five net load peak hours for the month

# Top hours	Malin				NOB				Palo Verde			
	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep
1	1,215	941	1,615	1,331	394	1,622	1,003	571	4,142	1,982	1,685	2,544
2	1,254	1,490	970	1,180	422	1,622	541	579	3,967	2,324	2,083	2,631
3	1,274	1,558	1,161	1,207	395	1,530	866	630	4,070	2,341	2,018	2,607
4	1,113	1,487	1,322	1,233	376	1,201	965	598	4,017	2,322	1,870	2,649
5	1,145	1,712	1,440	1,351	392	1,202	964	500	4,049	2,482	2,078	2,397

- Approach 2C – ATC based on average import volumes during highest 10% of net load peak hours for the month

# Top hours	Malin				NOB				Palo Verde			
	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep
10%	1,086	1,637	1,012	1,049	651	769	648	236	2,853	2,667	2,217	1,773

Native Load Needs – Approach 3 (“Higher Of” Approach 1 and 2)

- Approach 3 considers evaluating both approach 1 and 2 as individual sensitivities and protecting for the higher native load needs value among the approaches.
 - This will produce the lower ATC among the approaches available at the interties.
 - Provides further protection for native load.
- As ATC is re-calculated going into the daily market horizon, if this transmission is in excess of expected need, an amount will need to be released.

Transmission Reliability Margin (TRM) – Monthly Horizon

- TRM is governed by NERC Standard MOD-008-1 and allows for set aside of transmission capacity for operational uncertainty.
- Consideration of TRM uncertainty components:
 - Aggregate load forecast
 - Uncertainty in transmission topology – uncertainty associated with transmission outages
 - Simultaneous path interactions
 - Variations in generation dispatch
 - Loop flow

Capacity Benefit Margin (CBM) – Monthly Horizon

- The Capacity Benefit Margin (NERC MOD-004-1) allows for the set aside of transmission capacity to deliver import energy emergency conditions.
- Triggered during an Energy Emergency Alert (EEA) 2 or higher.
- Consideration of the need of a CBM at certain interties may depend upon the calculation of native load needs and uncertainty covered in TRM.

Monthly ATC Posting

- Monthly ATC would be recalculated monthly across the 13-month horizon.
 - As ATC is reserved, what is available will decrease.
- As improved information becomes available, the inputs will be updated:
 - New outages
 - Accounting for reserved ATC (becomes an existing commitment)
 - Updated native load assumptions (depending on approach)

Monthly ATC Posting

- ATC will be posted for a rolling 13-month horizon, and closer in time different assumption may be updated.
 - If native load needs are derived based on RA import showings, the latest showing can inform the native load needs.

Current Month	Month 1 ATC	Month 2 ATC	ATCs for Months 3 Through 13
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Illustrative Example:

August 16, 2022	Sep 2022	Oct 2022 ATC	ATCs for Nov 2022 through Sep 2023
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Calculating Daily ATC

Calculating Daily ATC

- The ISO proposes to also calculate ATC in the daily horizon.
- ATC postings would be made for a 3-day rolling basis, published on a D+2 basis (2 days prior to DA market close).
- ATC could adjust based upon:
 - TTC changes due to new transmission outages
 - ETC based, in part, on reserved ATC in monthly horizon for wheels
 - TRM/CBM – some margins could be adjusted based on conditions

Posting Daily ATC

- ATC would be posted for a rolling 3 days, with a posting by 9am (before close of DA) market.
- As ATC is reserved, values are updated to reduce remaining ATC.

Posting Timeline



Illustrative Example





Accessing ATC

Accessing and Reserving ATC

- ATC is accessed on a “first come, first served” basis, through the submission of a request.
- Requirements to access/request ATC by demonstrating:
 - Executed firm power supply contract to serve external load;
 - A firm power supply contract to serve external load where execution is contingent upon availability of scheduling priority on ISO system; or
 - Ownership of a resource to serve external load.
- If request is approved, requirement to pre-pay transmission for period that have acquired ATC.

Accessing and Reserving ATC

- Wheeling through scheduling priority is established for the period of the underlying firm power supply contract supporting the accessed ATC.
 - Monthly example: 6x16 contract established priority for the period defined.
 - Daily example: 1x16 contract establishes priority for that period.
- Minimum supply contract duration to support accessing ATC: Monthly (6x4), Daily (1x4)
- Consideration of a window where requests submitted compete for limited ATC.
 - Window could be a day or multiple days – need to provide certainty
 - A longer duration request across the intertie gets access to ATC over lesser duration.
 - Example: 6x16 wheel has access to ATC over 6x4 wheel



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Establishing Long-Term Wheeling Priority – Studies and Expansion

Long-Term Requests (Longer than 1-year)

- Entities seeking to establish wheeling priority on a long term basis (longer than 1-year) can request to be studied to identify ability to accommodate request.
- Requests will be studied through an annual cluster study process along with other like-requests and generator interconnection requests.
- Leveraging the existing Generator Interconnection and Deliverability Assessment Process (GIDAP) and its associated studies to evaluate deliverability.
- ISO intends to allow long-term wheel-through requests as well as wheel-in and wheel-out request. The wheel-in requests can result in customer paid Maximum Import Capability allocations for resource adequacy purposes.

Study Process Overview

- Annual cluster study process with requests due April 15th of each year.
 - Requests submitted after the date have to await the following cluster study window.
 - Requests have to be in yearly increments
 - Responsible for study costs.
- Two study phases:
 - Phase 1: Preliminary upgrade cost estimates. The customer will be required to submit a financial posting consistent with to the GIDAP process in order to proceed to the next phase.
 - Phase 2: Final upgrade cost estimates. Effectively a re-study process where the ISO will share the results with the remaining entities participating in the cluster study process.
- Includes reliability and deliverability assessments.
- Initial wheeling results expected within to 90-120 days of study deposit and agreement execution.

Proceeding with a Transmission Upgrade & ISO Funding of an Upgrade

- After completing the studies, the ISO will share the study results with the entity submitting the request.
- If a transmission upgrade is needed, the study results will provide a description of the upgrade along with the costs of the upgrade.
- The ISO will have first choice to move forward with the project as a reliability, economic, or public policy transmission project if it meets the applicable criteria under the tariff. If so, the Participating TO will pay for the upgrade and the ISO will reimburse the facility study cost to the original requestor and any other requesting party who paid for the study.
- If the ISO does not approve the project under one of these transmission categories, the requestor can choose whether to proceed with the transmission upgrade.

Pursuing a Transmission Upgrade

- To the extent a transmission upgrade is needed to accommodate the long-term wheeling priority, the requestor has the ability to pursue that upgrade.
- The requestor would be responsible for funding the total cost of the transmission upgrade consistent with the current requirements of a merchant transmission line.
- Upon completion of upgrade and upon taking service, requestor would collect transmission credits.
 - Should there be eligibility for Congestion Revenue Rights (CRR) allocation?



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Compensation Framework for Wheeling Through Scheduling Priority

Current Wheeling Through Scheduling Priority Compensation Design

- Under the current interim wheeling through scheduling priorities framework, transmission is paid only when wheel through is scheduled.
- While the priority may be established for the month, the Wheeling Access Charge (WAC) is only assessed when scheduled on the scheduled MW amount.
- The current framework does not reflect the value of wheeling through scheduling priority equal to load.
 - Low priority wheel pays the same amount.

Proposed Compensation Framework

- The ISO considered a compensation framework that may be compatible with the current transmission rate structure.
 - Only one rate for transmission, currently \$16.43/MWh.
- Proposing that wheeling through scheduling priority pay for transmission based on duration of the underlying supply contract.
 - Example: wheeling through priority for a 6x16 firm supply contract pays transmission based on the duration.
 - Transmission charges applied whether or not wheeling through priority is exercised (scheduled).
- Provides parity with RA imports contribution to serving ISO load which pays TAC over the gross load.



Next steps

Next steps

Date	Milestone
7/29/2022	Straw proposal posted
8/11/2022	Stakeholder call
8/25/2022	Comments due
10/24/2022	Revised Straw Proposal posted (week of)
10/31/2022	Stakeholder call (week of)
11/14/2022	Comments due (week of)
1/9/2023	Draft Final Proposal posted (week of)
1/16/2023	Stakeholder call (week of)
1/30/2022	Comments due (week of)
2/20/2023	Final proposal posted (week of)
2/27/2023	Stakeholder call (week of)
March 2023	Joint ISO Board of Governors and WEIM Governing Body meeting

Next Steps

- Straw proposal and this presentation are posted on the initiative web page –
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Transmission-service-and-market-scheduling-priorities>
- Stakeholder comments are due August 25.
- The ISO encourages stakeholders to reach out with questions and clarifications as comments are drafted.