



California ISO

# **Transmission Service and Market Scheduling Priorities – Phase 2**

Straw Proposal

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## 1 Introduction

The CAISO presents this straw proposal as the initial step in developing a long-term, durable, framework for establishing wheeling through scheduling priorities in the CAISO markets. The straw proposal is informed by stakeholder working groups, conversations with other transmission service providers and regional transmission organizations/independent system operators, and input/comments the CAISO has received from stakeholders during the past two years.

Evolving conditions across the western grid necessitate developing a durable framework for establishing wheeling through priority across the CAISO. Supply shortfalls across the western interconnection<sup>1</sup> are contributing to increased dependence on import generation to serve load reliably. This generation may need to be wheeled through other transmission systems. The CAISO recognizes a workable framework for establishing market scheduling priority for wheeling through the CAISO system is a critical issue for external and internal LSEs, and this is a key topic as the West considers a day ahead market. The CAISO introduces a possible framework to identify available transfer capability (ATC) across its system, while also providing external entities the opportunity to drive transmission upgrades across the CAISO system to support a wheeling through priority. Together with other innovative efforts to unlock grid capacity, including non-wires solutions and coordinated operational efforts throughout California and the West, as well as transmission expansions in and outside of the CAISO, a durable wheeling priority framework will support robust inter-regional trades that benefit everyone in the Western Interconnection.

The CAISO looks forward to engaging with stakeholders to develop a holistic and balanced framework that will allow wheeling through customers to establish scheduling priority equal to CAISO load in a forward timeframe. We will begin with a stakeholder meeting on August 11 followed by the submission of stakeholder comments on August 25.

## 2 Executive Summary

In this straw proposal, the CAISO describes the design of a framework for establishing wheeling through market scheduling priority on the CAISO grid while effectively accounting for

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<sup>1</sup> Western Electric Coordinating Council (WECC), *The Western Assessment of Resource Adequacy Report* (December 18, 2020).

<https://www.wecc.org/Administrative/Western%20Assessment%20of%20Resource%20Adequacy%20Report%2020201218.pdf>

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transmission capacity needed to serve native load reliably. The CAISO believes the proposed framework minimizes seams issues between the Open Access Transmission Tariff (OATT) framework that is prevalent across the west and the CAISO's organized market by providing external entities the opportunity to establish a high scheduling priority for wheeling through transactions in advance. The following are the key design elements of the proposed framework for establishing wheeling through scheduling priority across the CAISO system:

- *Calculating Available Transfer Capability (ATC) in monthly and daily increments* – the CAISO proposes to calculate ATC across its interties to derive an amount of transmission capacity that entities seeking to wheel through the CAISO system can reserve to establish a scheduling priority equal to CAISO load and higher than other wheeling transactions. The CAISO will calculate ATC in monthly increments across a rolling 13-month horizon and in the daily timeframe ahead of the day ahead market close. In calculating ATC, the CAISO will set aside an amount of transmission capacity for existing commitments, including anticipated native load needs and load growth.
- *Accessing and Reserving ATC* – the CAISO proposes that ATC on the interties be accessed on a first come first served basis. The CAISO further proposes that entities requesting the ATC must demonstrate they have a power supply contract in place to serve external load (or a power supply contract conditioned upon securing of wheeling through scheduling priority across the CAISO system). Entities securing a wheeling through priority must also prepay transmission charges based upon the duration of the power supply contract underlying the wheeling through scheduling priority. The CAISO also offers for consideration a short request window-type of framework under which, if requests for a wheeling through scheduling priority exceed available ATC, the CAISO would allocate such ATC based upon the duration of the underlying power supply contract.
- *Transmission study and expansion process* – the CAISO proposes a process where entities seeking to establish wheeling through scheduling priority for longer than one-year can submit a request for a study. The CAISO will study such requests in a cluster with other like requests and generator interconnection requests, leveraging the Generator Interconnection and Deliverability Allocation Procedures (GIDAP)<sup>2</sup>. If a transmission upgrade is needed to accommodate service, the entity submitting the request would be able to fund the transmission upgrade. In return, the entity funding the upgrade will receive a wheeling through scheduling priority equal to load on a long-term basis.

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<sup>2</sup> CAISO Business Practice Manual, *Generator Interconnection and Deliverability Allocation Procedures*, 2022.

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- *Compensation framework for wheeling through scheduling priority* – the CAISO proposes that entities obtaining wheeling through scheduling priority prepay the Wheeling Access Charges (WAC) for the month(s) for which they have a priority based upon the energy delivery timeframes of the underlying power supply contract. This approach recognizes the value of establishing a wheeling through scheduling priority equal to load.

The CAISO believes the framework design described in this straw proposal is consistent with practices of other ISOs/RTOs and transmission provider practices across the west, while recognizing unique aspects of the CAISO's market design and service structure. The elements of the design framework are further described below in section 5 and the appendix.

### **3 Initiative Background**

In January 2021, the CAISO conducted an expedited stakeholder initiative - *Market Enhancements for Summer 2021 Readiness* - which evaluated market enhancements in anticipation of challenging system conditions in summer 2021. As a result of this initiative, on April 28, 2021, the CAISO filed a tariff amendment to implement certain scheduling priorities for load, export, and wheeling through transactions in the day-ahead and real-time market optimization processes. In June 2021, FERC approved the proposed scheduling priorities on an interim basis through May 31, 2022.<sup>3</sup>

As part of the same initiative, the CAISO committed to undertake a separate effort to develop a long-term, holistic, framework for establishing scheduling priorities in the CAISO's markets. In July 2021, the CAISO launched the *Transmission Service and Market Scheduling Priorities* initiative. The CAISO divided the initiative into two phases. Phase 1 focused on more immediate enhancements to the wheeling through priorities framework for Summer 2022, and phase 2 focused on developing a longer-term framework for establishing wheeling through scheduling priority across the CAISO system.

In phase 1, the CAISO proposed extending the interim wheeling through scheduling priorities through May 31, 2024. This would allow the CAISO and stakeholders additional time to develop a durable scheduling priorities framework, while providing certainty regarding the rules for wheeling through the CAISO system during the next two summers, pending implementation of a long-term solution.<sup>4</sup>

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<sup>3</sup> *California Independent System Operator Corporation*, 175 FERC ¶61,245 (2021).

<sup>4</sup> *California Independent System Operator Corporation*, 178 FERC ¶61,182 (2022).

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This straw proposal focuses on phase 2 of the initiative. It proposes a workable framework for establishing wheeling through market scheduling priority across the CAISO system, while recognizing the CAISO's unique market and service structure and ensuring native load is adequately protected. In developing the straw proposal, the CAISO was informed by the practices of other western transmission providers and ISOs/RTOs, as well as input received from stakeholders. From November 2021 through February 2022, the CAISO hosted a series of stakeholder working groups where transmission providers across the west shared their practices regarding various aspects of calculating transmission service available for reservation, setting aside transmission capacity for native load needs, provisioning transmission service, and a transmission system expansion process driven by requests.<sup>5</sup> Other stakeholders also made presentations.

In developing the draft framework described in this straw proposal, the CAISO secured the consulting services of Open Access Technology International Inc. (OATI) in March 2022. OATI was a key contributor to the development of this initial proposed design and the analysis shared in this straw proposal.

### **3.1 Interdependency with Existing Initiatives**

There are interdependencies between this initiative and the Extended Day Ahead Market Enhancements (EDAM) initiative. The EDAM design reflected in the EDAM straw proposal contemplates that entities depending upon import resources to meet their resource sufficiency evaluation will need to demonstrate and make available to the market high quality transmission associated with the delivery of that import, *i.e.*, "Bucket 1" transmission. This ensures that high quality transmission supports resources used to demonstrate resource sufficiency, instilling further confidence in transfers and making high quality transmission available to the market to support transfers between EDAM balancing authority areas.

This straw proposal describes the design for establishing wheeling through scheduling priority equal to load across the CAISO system. The design allows an entity to reserve wheeling through scheduling priority in advance – across monthly and daily horizons – and prepay for that transmission in advance of use. In order to demonstrate resource sufficiency, EDAM entities relying on imports that wheel through the CAISO system would need to secure wheeling through scheduling priority across the CAISO system to meet the EDAM "Bucket 1" transmission requirements.

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<sup>5</sup> Working group materials can be accessed on the *Transmission Service and Market Scheduling Priorities Phase 2 Initiative* webpage - <https://stakeholdercenter.caiso.com/StakeholderInitiatives/Transmission-service-and-market-scheduling-priorities>.

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As this initiative and the EDAM initiative progress, the CAISO will continue to monitor the interdependencies between the designs and seek to align these designs as appropriate.

### 3.2 Problem Statement

The CAISO only has one category of transmission not associated with existing rights – new firm use.<sup>6</sup> The CAISO does not require, or provide for, forward transmission service reservations. All transmission service on the CAISO is “daily” and is associated with awards and schedules arising out of the day-ahead and real-time markets. Reserving transmission service is not a prerequisite to participate in the CAISO market, either the day ahead market (DAM) or the real time market (RTM), and the CAISO does not use transmission reservations to manage the priority of schedules to address system constraints. Instead, the CAISO manages schedules on its grid through the day-ahead and real-time markets and applies scheduling priorities defined in its tariff to adjust self-schedules (*i.e.*, price taker bids) in its markets.<sup>7</sup> The CAISO markets honors these self-schedules if there is sufficient generation and transmission capacity to support them. If there is insufficient supply or binding transmission constraints, the CAISO markets will adjust self-schedules to clear the market. The market software determines the priority order in which the various self-schedules are adjusted or curtailed using market parameters known as “penalty prices.”<sup>8</sup> These penalty prices are set to specific values to (1) determine the conditions under which the market may relax a constraint or curtail a self-schedule and (2) establish the market prices when these events happen.<sup>9</sup>

Unlike the tariff provisions of other transmission providers, the CAISO tariff does not set aside capacity for native load or native load growth. The CAISO implemented the interim wheeling through tariff provisions as a means to protect native load during stressed grid conditions pending development of a longer-term solution. The CAISO recognizes that its interim native load protections differ from the native load protections under the OATT and those commonly used by other transmission providers. As described in this straw proposal, the CAISO proposes a framework under which entities seeking to wheel through the CAISO system can establish a market scheduling priority equal to load by reserving ATC across

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<sup>6</sup> CAISO tariff section 23 defines new firm use as “any use of the CAISO transmission service, except for uses associated with Existing Rights or TORs.”

<sup>7</sup> The scheduling priorities in the day-ahead market are specified in CAISO tariff section 31.4, and the scheduling priorities for the real-time market are specified in CAISO tariff section 34.12.

<sup>8</sup> Although self-schedules with the same scheduling priority may be designated the same penalty prices, they may or may not be curtailed equally due to congestion, loss factors, or for other reasons.

<sup>9</sup> See existing tariff section 27.4.3 *et seq.*; see also business practice manual for market operations, section 6.6.5.

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different time horizons. It also includes the opportunity for parties to pursue transmission system upgrades across the CAISO system to support wheeling through transactions when there is insufficient ATC. Entities that do not secure the ATC in advance can continue to wheel through the CAISO system, but as today, those wheeling through transactions will have a lower market scheduling priority than CAISO load and the wheeling through transactions that have secured in advance scheduling priority.

### 3.3 Current Scheduling Priorities Framework in the CAISO Market

As noted above, the CAISO manages schedules on its grid through the day-ahead and real-time markets and applies scheduling priorities defined in its tariff to adjust self-schedules (*i.e.*, price taker bids) in its markets. The table below summarizes the current scheduling priorities in the day ahead and real time markets.

Day Ahead Market <sup>10</sup>	Real Time Market <sup>11</sup>
Priority wheel-through, PT exports, Load	Priority wheel-through, PT exports, Load
Non priority wheel-through, LPT exports	DAM LPT exports, DAM LPT wheels
Economic transactions (exports, wheels)	RT LPT exports, RT LPT wheels
	Economic transactions (exports, wheels)

Focusing more specifically on wheeling through scheduling priorities, entities can establish a high scheduling priority by registering a wheeling through transaction at least 45 days ahead of the month by (1) demonstrating a firm power supply contract to serve an external Load Serving Entity’s load throughout the month, and (2) firm transmission for the month has been procured to deliver the supply to the CAISO border.<sup>12</sup> Entities can wheel through the CAISO system without meeting the requirements above, but the wheeling through transactions will have a lower scheduling priority as described in the table above.

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<sup>10</sup> CAISO tariff section 31.4.

<sup>11</sup> CAISO tariff section 34.12.

<sup>12</sup> CAISO tariff section 30.5.4.

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## 4 Design Principles

The CAISO introduced several design principles in Phase 1 of the initiative and then refined them in the issue paper in response to stakeholder comments. After further consideration, the CAISO believes the following principles are important for designing and developing a durable framework for establishing wheeling through scheduling priorities:

- Ensure the CAISO maintains sufficient transmission capacity to meet native load needs reliably while providing non-discriminatory access to the transmission system consistent with open access principles;
- Ensure the framework is compatible with the CAISO's existing, unique market design and does not unduly disrupt that design;
- Minimize seams issues between the CAISO organized market and the OATT framework prevalent across the west, while recognizing differences between the two frameworks exist;
- Support reliable service to load in the CAISO and across western balancing authority areas; and
- Ensure CAISO has the tools and processes necessary to manage the grid reliably.

These guiding principles recognize the importance of continuing to ensure open access to the CAISO transmission system, while also ensuring that the native load needs can be reliably met. The principles also recognize there are inherent differences between the CAISO's organized market paradigm and the OATT paradigm, and the design should seek to "bridge" seams to support competitive markets and the dependability of transactions that rely on the CAISO system. The design framework also must be compatible with the current CAISO market structure and evolving market policies, including the EDAM design. The CAISO believes the design put forward in this straw proposal is consistent with, and adheres to, the aforementioned principles.

## 5 Straw Proposal Elements

The CAISO proposes a framework under which entities seeking to wheel through the CAISO system can establish market scheduling priority equal to CAISO load for their transactions by reserving ATC in advance across different time horizons – monthly and daily timeframes. Entities that do not secure the ATC in advance can continue to wheel through the CAISO system, albeit with a lower market scheduling priority as today.

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Additionally, the CAISO proposes a process whereby entities seeking to establish wheeling through market scheduling priority equal to load on a long-term basis, 1-year or longer, can do so by participating in an annual cluster study process, which will identify whether a transmission upgrade is needed to establish scheduling priority. If an upgrade is needed, the entity seeking the wheeling through scheduling priority can pursue and fund the transmission system expansion to secure the priority on a long-term basis.

The following sub-sections describe the elements of the proposal in greater detail, identify variations in approaches where appropriate, describe the calculation of ATC across different time horizons, the process for accessing such ATC, and a proposed compensation framework.

## **5.1 Establishing Wheeling Through Scheduling Priority – Monthly and Daily Horizons**

The CAISO's proposal provides entities seeking to wheel through the CAISO system the opportunity to establish wheeling through market scheduling priority equal to load in monthly increments (by calculating ATC across a 13-month horizon) and daily increments (ahead of the day ahead market close). This sub-section will describe the different components of the ATC calculation across these time horizons. The CAISO proposes to calculate ATC that can be utilized for priority wheeling through transactions across the interties. At this time, the CAISO does not propose to calculate ATC across internal paths because during peak conditions internal generation is committed and dispatched for local area purposes in northern and southern areas of the CAISO system, limiting the risk of congestion. However, the CAISO will monitor impacts on internal paths and retain the ability to calculate ATC on internal paths in the future. The CAISO will describe below the different components of calculating ATC across the CAISO interties.

### **5.1.1 Calculating the ATC – Monthly Horizon**

Calculating a monthly ATC value, across a rolling 13-month horizon is largely consistent with the horizon other western transmission providers use, under their OATTs, to calculate monthly firm ATC. Also, it is consistent with the NERC standards, which establish a 13-month minimum time horizon for calculating monthly ATC increments. The CAISO proposes to calculate ATC across this same 13-month horizon and permit entities seeking to wheel through the CAISO to establish higher market scheduling priority by reserving that ATC in advance. This approach will help bridge seams between the CAISO tariff and the OATT because an entity could reserve firm transmission service under the OATTs of transmission providers in

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monthly and daily increments and establish wheeling through scheduling priority across the CAISO system in similar time horizons.

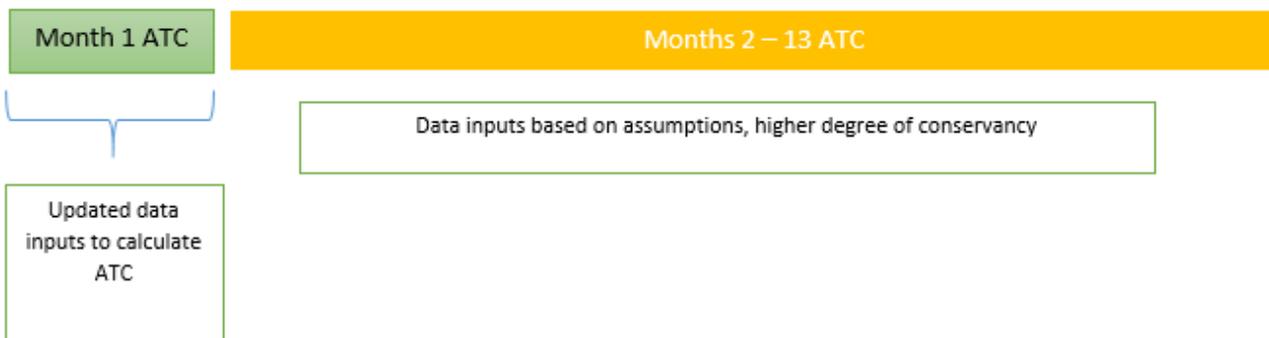
The ATC calculation will also allow the CAISO to set aside (1) a reasonable amount of transmission capacity for meeting native load needs, and (2) transmission capacity to account for different uncertainties because the monthly ATC is calculated far in advance of need. Setting aside transmission capacity as a transmission reliability margin (TRM) and/or a capacity benefit margin (CBM) is consistent with the NERC standards, practices across the west, and the practices of other ISOs and RTOs.

The CAISO discusses below the various components of the ATC methodology. The ATC calculation discussed further in this subsection is illustrated below:



TTC represents the total transfer capability of a path or intertie. ETC refers to existing transmission commitments that must be accounted for such as existing transmission contracts, transmission ownership rights, and transmission capacity set aside for native load needs (including forecasted load and load growth). TRM refers to a transmission reliability margin under which transmission is set aside for various components of uncertainty, and CBM refers to the capacity benefit margin under which transmission is set aside for delivery of imports during energy emergencies. The CAISO will discuss each of these subsequent sub-sections.

In calculating ATC across a 13-month horizon, the CAISO may utilize potentially more informed (and updated) assumptions in month 1 across the 13-month horizon as it calculates ATC on a rolling basis compared to months 2-13 because more up to date information regarding grid conditions, native load needs (depending on how these are calculated), and outages will become available closer in time.



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The CAISO would update and re-calculate the ATC across the 13-month horizon, on a rolling monthly basis to incorporate updated data, reservations of ATC to establish scheduling priority for monthly wheeling through transactions that will become an existing commitment, system conditions, and other factors.

**5.1.1.1 ATC Methodology - Calculating Total Transfer Capability (TTC)**

Total transfer capability (TTC) is generally referred to as the amount of electric power that can be transferred across a path or intertie. In calculating ATC across the interties, the CAISO proposes to utilize the TTC of the specific intertie, which varies by intertie point. This calculation will be consistent with the NERC standards and industry practice. To the extent the CAISO is aware of a transmission outage at the time of the monthly ATC calculation, the CAISO will account for that transmission outage and reduce the TTC on the intertie for that particular month as appropriate. As the CAISO recalculates monthly ATC across the 13-month horizon, and later into the daily horizon, the ATC may shift as planned and unplanned transmission outages are submitted and grid conditions change.

The CAISO also proposes to account for the uncertainty associated with transmission topology – particularly the uncertainty of transmission outages – through the TRM, which the CAISO discusses in section 5.1.1.3.

**5.1.1.2 ATC Methodology - Calculating Existing Transmission Commitments (ETC)**

Determining ETC is perhaps the most critical element of the ATC calculation and the design of this framework. The ATC methodology will protect existing commitments by setting aside transmission capacity to meet existing transmission contracts and native load needs, including load growth.

Transmission providers across the west, as well as other ISOs and RTOs that operate under an OATT framework, set aside transmission capacity needed to meet the expected native load needs and load growth as an existing commitment. The ETC component of the CAISO's ATC methodology would consist of:

- *Legacy transmission contracts and transmission ownership rights* – these are the traditional “existing transmission contracts” on the CAISO system along with transmission ownership rights that the CAISO respects today and will continue to respect as an existing commitment.
- *ATC reserved by entities for high priority wheeling through transactions* – ATC an entity reserves, through the process described in this proposal, for wheeling through the CAISO system becomes an existing commitment for the month(s) for which the priority is established.

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- *Native Load needs* – transmission capacity set aside to serve native load and load growth for the time period being calculated – 13-month horizon and daily timeframe - not otherwise accounted in TRM or CBM.

The CAISO provides for initial stakeholder discussion three potential approaches for estimating the amount of transmission capacity to be set aside for native load needs across the interties prior to calculating ATC. The CAISO welcomes stakeholder input on these options and any possible variations for consideration regarding the estimation of native load needs and load growth. Appendix 1 provides additional illustrations, supplementing the discussion below, of the resulting ATC based on the different formulations for calculating ETC.

**Calculating ETC – Native Load Set-Aside on the Interties**

Determining the amount of transmission capacity required to meet expected native load needs across the 13-month forward horizon is a critical component of deriving ATC that can be made available for priority wheeling through transactions across the CAISO system. The CAISO introduces two potential approaches for deriving the amount of transmission capacity it must set aside across the interties for expected native load needs across the 13-month horizon:

- *Approach 1: Based on historical monthly Resource Adequacy (RA) showings* – The CAISO would calculate the transmission capacity to set aside across each intertie based on the historical monthly RA shown at that particular intertie. The CAISO could look across a multi-year horizon of the monthly RA showings and utilize either the average or the highest of those values as a representation of future native load needs for each intertie. The CAISO would also have to account for potential additional usage of the interties associated with native load growth, which would not be accounted for in historical numbers.
- *Approach 2: Based on historical import flows across interties attributable to serving native load* – In serving native load, the CAISO may rely on supply not shown on monthly RA plans. Approach 2 considers setting aside transmission capacity based on the coincident import volumes during the highest net load peak hours of the month by looking across a historical period (the prior year or further back). The CAISO discusses below three variations of Approach 2 to derive native load needs:
  - Approach 2A – representing native load needs based on the volume of imports during the single highest net load peak hour for the month.
  - Approach 2B – representing native load needs based on the average volume of imports during the five highest net load peak hours for the month.

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- Approach 2C – representing native load needs based on the average volume of imports during the highest 10% of net load peak hours for the month.
- *Approach 3: Based on the “higher of” approaches 1 and 2* – the CAISO would consider the resulting values under the scenario described in approach 1 based on historical RA import showings and the resulting values under approaches 2A, 2B, and 2C and set aside transmission capacity based on the most constraining scenario (highest import value) for native load needs.

The CAISO discusses these approaches below in more detail and provides representative data to derive the resulting ATC values under each approach.

**Approach 1 – Based on Historical Resource Adequacy Showings**

Approach 1 recognizes that under the current RA paradigm, CAISO LSEs secure transmission capacity to meet their resource adequacy obligations on a year-ahead and month-ahead basis. Annual RA showings (submitted by October 31 of each year) account only for 90% of the individual LSE’s obligations, while monthly RA showings (shown 45-days ahead of the month) represent the LSE’s full obligation. Because the CAISO would calculate ATC on a forward basis, across a 13-month horizon, annual and monthly RA showings for a particular month in that horizon may not have yet even occurred. The CAISO thus must rely on historical monthly RA showings as one representation of the transmission capacity across the interties needed to support native load, and it can use those values as a basis to set transmission capacity aside as an existing commitment. Relying on a multi-year historical look-back of monthly RA showings to derive the estimation of future RA imports serving native load can provide basis for estimating future needs. The CAISO acknowledges that historical values do not reflect the effects of load growth. As discussed in section 5.1.1.3, in addition to setting aside capacity for native load needs and load growth, the CAISO also proposes to set aside TRM to account for a level of uncertainty and potentially CBM.

Figure 1 illustrates the resulting ATC if existing contracts and ownership rights are protected, native load needs are set aside based on historical monthly RA showings at the interties, and there is an estimated five percent TRM on each intertie. The ATC varies depending upon whether 2020, 2021, or 2022 monthly RA imports showings are utilized to represent the native load needs when looking at key intertie points of Malin, NOB, and Palo Verde.

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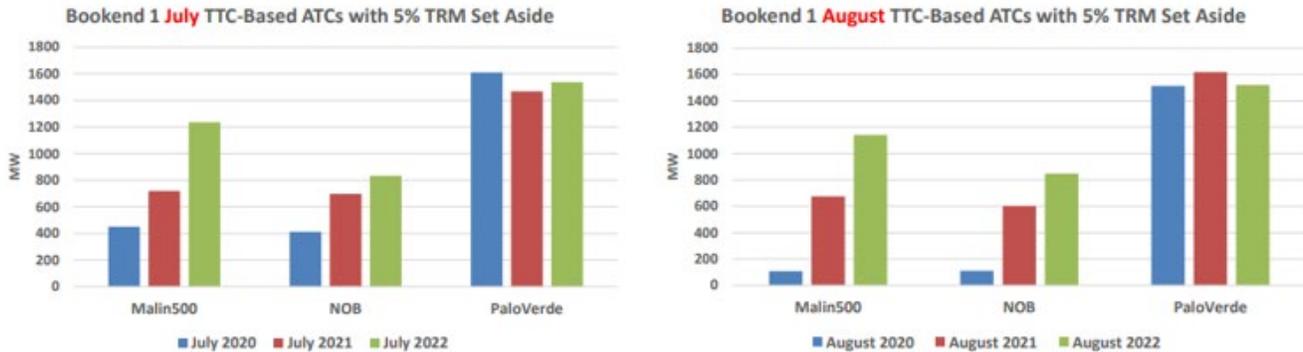


Figure 1 – Resulting ATC based on use of 2020, 2021, and 2022 July and August monthly RA showings at interties.

The resulting ATC could be available to entities seeking to wheel through the CAISO and establish market scheduling priority equal to load. Appendix 1 provides a more complete analysis of the resulting ATC across all the months under approach 1 based on 2020 and 2021 RA import showings across Malin, NOB, and Palo Verde.

Under Approach 1, as LSEs submit their monthly RA showings 45 days prior to the applicable month, the CAISO would utilize these monthly showings to represent native load needs in lieu of historical data. These monthly showings reflect more current native load needs than historical data. For example, in July LSEs submit their monthly RA plans for September. Accordingly, the CAISO would utilize the September monthly RA showings to represent the native load needs across the interties when calculating ATC for September. For months beyond September across the 13-month horizon, the CAISO would continue to utilize historical data to derive the native load needs consistent with Approach 1 approach until the actual RA showings for a month become available. As ATC is calculated closer in time to actual flows and additional information becomes available, the CAISO will use more current information to calculate native load needs.

An important consideration with Approach 1, which derives native load needs on the interties based on historical RA showings, is that RA requirements for LSEs are based on a 1-in-2 load forecast that is made far in advance of the applicable resource adequacy year. As such and as the CAISO has previously experienced, there is a reasonable possibility (particularly in summer months) that loads will exceed the load forecast driving the RA procurement requirements. This can drive the dependence on imports to serve native load reliably. As such, to the extent Approach 1 is utilized to determine native load needs, there may be a greater need to account for uncertainty and the ability to ensure reliable service to native load through margins -- the TRM and the CBM.

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**Approach 2 – Consideration of Historical Import Flows Serving Native Load**

The CAISO has historically depended upon import supply to serve native load reliably under normal and stressed system conditions. Import supply, whether shown on a RA plan or not, is offered into the market, which then economically commits and dispatches supply. During the early evening net load peak hours, when solar and other renewable resource production is decreasing, the CAISO depends upon flexible internal supply and imports to serve load reliably. As such, Approach 2 considers more holistically the CAISO's historic dependence on imports in determining the amount of intertie transmission capacity to set aside to serve native load reliably.

Approach 2 considers the CAISO's historical dependence on imports to serve native load particularly during net load peak periods. During these periods, as solar and other renewable resources are ramping down production and load levels are still significant, the CAISO relies upon flexible supply from other internal resources and imports to serve load. Thus, in the stressed conditions of the net load peak hours, the CAISO relies upon both RA imports and non-RA imports that may be offered into the market to serve native load reliably.

The CAISO evaluated coincident import volume patterns during the highest 10% of net load peak hours for the summer 2021 months (June-September) to identify the remaining ATC after accounting for existing transmission contracts, transmission ownership rights and total imports across the particular intertie attributable to serving native load. In evaluating historical import volumes, the CAISO identified three potential approaches for deriving native load needs:

- Approach 2A – setting aside transmission capacity for native load needs based upon the historical import volumes during the single highest net load peak hour for the month;
- Approach 2B – setting aside transmission capacity for native load needs based upon the historical average import volumes during the highest five net load peak hours of the month; or
- Approach 2C – setting aside transmission capacity for native load needs based upon the historical import volumes across the average of the highest 10% of the net load peak hours for the month.

The CAISO discusses each of these approaches below and seeks stakeholder feedback on their reasonableness or potential variations to these approaches.

**Approach 2A – Native load needs represented by historical import volumes during the highest net load peak hour of the month.**

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Under Approach 2A, the CAISO would look back over a historical period to determine import volumes during the single highest net load peak hour of the month. This would represent the amount of transmission capacity the CAISO would set aside for native load needs. For the data analysis, the CAISO considered import volumes during the months June – September 2021. By focusing on the single highest net load peak hour, the CAISO would determine the volume of imports the CAISO relied upon to serve load during a critical period. In other words, the CAISO would consider an hour when imports were key to serving native load during stressed conditions, in contrast to an hour during normal conditions when imports may have been awarded merely because they were more economic than alternative supply. A drawback to focusing solely on import volumes during the single highest monthly net peak load hour is the potential volatility in values that may arise.

Table 2 describes the resulting ATC across the NOB, Malin, and Palo Verde interties if the native load needs were represented by import volumes during the single highest net load peak hour 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

Table 2 – identifies the resulting ATC across each of the interties assuming full intertie TTC rating, nor accounting for transmission margins.

As shown in Table 2, using Approach 2A with 2021 import volumes during the highest monthly net load peak hour produces a sizable amount of ATC compared to Approach 1. This data starts with a non-derated value for the TTC because the CAISO may be unaware of transmission outages across the full 13-month horizon when calculating ATC. Also, the ATC values do not account for margin set-asides, such as the TRM, which would account for uncertainty associated with transmission outages and further reduce the ATC.

**Approach 2B – Native load needs represented by the historical average import volumes during the highest five net load peak hours of the month.**

Under Approach 2B, the CAISO would derive the average import volumes serving native load during the highest five hours of the month. The CAISO could also look at import volumes across some different number of hours under this approach. Looking at a larger sample of the highest net load peak hours of a month when conditions are most stressed, and averaging the import volumes across those hours, could provide a more representative and stable value regarding the dependence on imports to serve native load than Approach 2A.

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Table 3, below, builds upon Approach 2A and identifies the remaining ATC across the Malin, NOB, and Palo Verde interties if the native load needs are represented by import flows during the highest net load peak hour for the month (hour 1) and then shows the resulting ATC if the highest five hours are averaged (hours 2 through 5 represent averages of the respective number of hours). The resulting ATC is based on the TTC for the intertie (not derated for outages) minus the existing commitments (existing transmission contracts, ownership rights, and derived import volumes). The resulting ATC values do not account for potential margins that may further reduce the ATC.

# 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

Table 3 - identifies the resulting ATC based on the average import volumes during the highest net load peak hours in the month represented within the ETC component.

As illustrated in the table, the remaining ATC volumes vary depending upon whether the transmission capacity set aside for native load is based upon the volume of imports during the highest net load peak hour for the month (Approach 2A above) or the average import volumes based on the highest two, three, four or five net load peak hours during the month. For example, the ATC for July at Malin is 941 MW if the native load set aside is based on imports volume during the single highest net load peak hour for the month. However, the resulting ATC is 1712 MW if the native load set aside is based on the average import volumes of the five highest net load peak hours for the month.<sup>13</sup> Approach 2B generally should more stable and produce fewer outlier values than Approach 2A because it averages import volumes across the five highest net load peak hours, not the single highest hour. In any event, a single outlier hour (either unusually high or low import volumes) still can skew the average if a small set of hours is being considered.

**Approach 2C – Native load needs represented by the historical average import volumes during the highest 10% of net load peak hours for the month.**

Under Approach 2C, the CAISO would derive the amount of transmission capacity for native load needs based upon the average import volumes across the highest 10% of net load

<sup>13</sup> When looking at the ATC on NOB, the relationship is reversed - the ATC based on imports during the highest peak load hour is 1622 MW, but the average of highest five net load peak hours is 1202 MW. This difference is driven by transmission outages during that period.

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peak hours for the month. Table 4 illustrates the resulting ATC, across Malin, NOB, and Palo Verde interties based on the historical import volumes during the highest 10% of net load peak hours from June to September 2021. Similar to the ATC values derived in approaches 2A and 2B, the resulting ATC in the table reflects TTC minus ETC (which consists of existing transmission contracts, ownership rights, and the average import volumes across the highest 10% of net load peak hours in the month). The shown ATC does not account for potential margins such as TRM and CBM.

# 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

Table 4 - identifies the resulting ATC after setting aside transmission capacity based upon historical average import volumes during the highest 10% of net load peak hours.

The ATC resulting from this approach varies compared to approaches 2A and 2B. Because this approach considers more hours during net load peak periods, it may provide more stability to the values as outlier values or a discrepancy would be less likely to skew the results significantly lower or higher compared to approaches 2A and 2B.

Approaches 2A, 2B, and 2C provide additional variations for consideration given the CAISO’s historical dependence on imports. The CAISO encourages stakeholders to share their perspectives on these approaches, including potential variations for consideration, e.g., looking at the “higher of” approaches 2A, 2B, or 2C and setting aside transmission capacity for the highest volume of historical imports under the three approaches. This would provide additional confidence that native load needs have been adequately accounted for to ensure reliable service to native load.

**Approach 3 – Native load needs represented by the “higher of” import volumes under approaches 1 and 2.**

Under Approach 3, the CAISO would look to set aside transmission capacity for native load needs based on the higher of historical RA imports for a month (as calculated in Approach 1 or historical import volumes for a month (as calculated in one of the options of approach 2). This approach might better ensure that in stressed system conditions load can be reliably served.

Considering historical import volumes in isolation under Approach 2 potentially could result in setting aside transmission capacity below historical RA volumes. This would mean that supply secured under the RA program potentially would not be considered as serving native load or being dedicated to native load. Similarly, if transmission capacity set aside for

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native load is based on historical RA imports (Approach 1) when historical import volumes have been higher (Approach 2), the CAISO potentially could set aside insufficient transmission capacity to serve load. Considering both Approach 1 and Approach 2 as scenarios might be a viable alternative for consideration because it recognizes the benefits of both approaches and considers different scenarios and sensitivities.

**Accounting for Native Load Growth as an Existing Commitment**

In setting transmission capacity for native load needs within the ETC component of the ATC methodology, a transmission provider – in this case the CAISO – can account for native load growth. Because approaches 1 and 2 rely solely on historical values to establish ATC, the CAISO must also consider potential usage of the interties to meet load growth in determining a final ATC number. Currently, the historical load growth rate has been approximately 1% year over year, but over time that load growth factor may change, especially with increased electrification. Because the CAISO proposes to calculate ATC on the interties, including a set-aside of transmission capacity for native load needs, the CAISO would also need to derive the portion of load growth that would be met by imports and then allocate that total amount among the various interties as part of the native load set-aside.

Depending upon the approach used to calculate native load needs, the CAISO would propose either to:

1. Derive the amount to set aside for load growth at interties based on the ratio of historical RA imports to internal RA resources shown on monthly RA plans. For example, if RA imports shown the prior year in August make up 10% of the total RA resource volumes, then 10% of the load growth would be attributed to the interties.
2. Derive the amount to set aside on the interties for load growth based on the ratio of historical import volumes to load.

The CAISO welcomes input on the different options to account for native load growth when calculating ETC for native load.

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**5.1.1.3 ATC Methodology – Transmission Reliability Margin (TRM) and Capacity Benefit Margin (CBM)**

This subsection discusses further the use of a TRM and CBM as part of the ATC calculation. The CAISO proposes to calculate a TRM and account for various types of uncertainty, consistent with NERC standards<sup>14</sup>:

- *Aggregate load forecast* – this element sets aside an amount of transmission capacity as TRM to account for load forecast uncertainty. Considering that TRM will be calculated across a 13-month horizon, it is important to account for load forecast uncertainty across that time horizon. This component may vary depending on how native load needs are calculated. For example, if native load needs are represented by historical RA imports at the interties (Approach 1), CAISO month-ahead and day-ahead forecasts may vary from the CEC’s annual forecast used to set RA requirements, and the CAISO may have to account for this difference across the interties. The CAISO will make TRM capacity available for transmission use consistent with FERC requirements.
- *Forecast uncertainty in transmission system topology* – this element sets aside transmission capacity associated with transmission topology uncertainty, including planned and unplanned transmission outages. The CAISO proposes to set aside an amount of TRM across interties, across the 13-month horizon, to account for transmission outage uncertainty. The CAISO would base its determination upon monthly historical frequency of planned and unplanned outages, across a pre-defined historical period. As transmission outages are submitted closer in time reducing the TTC, the CAISO may reduce the TRM accordingly.
- *Allowances for simultaneous path interaction* – the CAISO currently can set aside TRM for simultaneous path interactions. This TRM could be extended into the longer time horizon.
- *Variations in Generation Dispatch* – the CAISO believes it is important to account for variations in generation dispatch, particularly associated with net peak load periods, when variable energy resources may be unavailable and additional imports are needed to serve load reliably. Also, the CAISO could account for the availability of hydro and variable energy resources at levels below their resource adequacy values. This element would be informed by the method utilized to set aside transmission capacity for native load needs because Approach 2 may account for aspects of this element.

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<sup>14</sup> NERC MOD-008-1.

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- *Loop flow* – also referred to as parallel path impacts, the CAISO may set aside an amount of transmission capacity to account for loop flows. The CAISO proposes to retain this component as part of the TRM, based on historical values set aside across particular interties.

The CAISO expects the TRM to vary across different intertie points within the range of 2-10% of the TTC. The CAISO also seeks stakeholder feedback regarding the need to set aside transmission capacity as a Capacity Benefit Margin (CBM). Under the NERC standard, transmission providers can set aside transfer capability for delivery of import energy in an Energy Emergency Alert (EEA) 2 or higher.<sup>15</sup> The need for a CBM may depend upon the level of conservancy in other components of the ATC methodology, such as how native load needs are calculated and how the TRM accounts for uncertainty.

**5.1.2 Calculating ATC – Daily Horizon**

In addition to calculating ATC across a 13-month monthly horizon as discussed in section 5.1.1, the CAISO proposes to also calculate ATC in the daily horizon timeframe ahead of the day ahead market close (10am) to derive an amount that can be accessed by entities seeking to wheel through to establish market scheduling priority equal to load. The general components of the daily ATC calculation are largely consistent with the different components utilized in the monthly horizon, but the CAISO can update the different inputs based on the most recent information and grid conditions to derive an ATC value across interties.

The CAISO proposes to calculate Daily ATC across a rolling 2-day horizon ahead of the Day Ahead Market close (10am of the day prior to flow). This will allow wheeling through entities to secure a priority in advance of the day-ahead market, providing them a greater level of certainty and enabling them to secure necessary arrangements before the market run. This will also enable the CAISO to utilize more updated information regarding grid conditions when deriving the ATC that is available for entities seeking to establish wheeling through scheduling priority equal to load.




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<sup>15</sup> NERC MOD-004-1 (2008).

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As shown in the graphic above, the goal is to calculate ATC prior to the DA market run and allow wheeling through customers to reserve such ATC. Thus, going into the DA market, external entities will know whether they have secured ATC to support a higher market scheduling priority for their wheeling through transaction. The CAISO would publish the ATC value and allow entities to obtain a daily scheduling priority 48 hours prior and up to the DA market close at 10am. For example, at 10am on Wednesday, the CAISO would publish the ATC values for Friday; on Thursday, the CAISO would publish revised ATC values for Friday and initial ATC values for Saturday; on Friday, the CAISO would publish revised ATC values for Saturday and initial ATC values for Sunday, and so forth. An entity seeking wheeling through priority for Sunday (day of flow) can access that ATC on Friday and Saturday.

**5.1.2.1 Daily ATC - Calculating Total Transfer Capability (TTC)**

In the Daily ATC horizon, the CAISO will have more up to date information regarding transmission outages across the interties and can adjust the TTC to reflect the expected conditions of transmission topology on the grid, along with other factors that may drive an intertie rating and the TTC. An updated TTC value may also allow the CAISO to release some commensurate amount of TRM that had been set aside for uncertainty associated with transmission outages.

**5.1.2.2 Daily ATC – Calculating Existing Transmission Commitments (ETC)**

In the Daily ATC horizon, the CAISO will calculate ETC similar to the ATC calculation in the monthly horizon. The CAISO would continue to account for existing transmission contracts and transmission ownership rights, as well as wheel through transactions that secured scheduling priority across the monthly time horizon. The native load component, if based on historical RA showings (approach 1) will reflect the latest RA import showing for the month on the particular interties. If native load needs re derived based on historical import flows, that value may not change in the daily timeframe.

**5.1.2.3 Daily ATC – TRM and CBM**

The CAISO will carry TRM and CBM calculated in the monthly horizon, into the daily ATC calculation horizon, but it will be able to update the values as appropriate to reflect the latest grid conditions and uncertainty. Updated TRM values can reflect the following:

- *Aggregate load forecast* – The CAISO would consider the latest daily load forecasts in informing whether the TRM amount held aside in monthly horizon should be released or increased.

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- *Forecast uncertainty in transmission system topology* – the CAISO would incorporate latest transmission outages within the calculation of the TTC which will allow for potential release of TRM under this components of the methodology.
- *Allowances for simultaneous path interaction* – the CAISO would retain this amount from the monthly horizon, as applicable.
- *Variations in Generation Dispatch* –if applicable the CAISO would carry this component into the daily horizon from the monthly horizon. Some capacity could be released depending upon the grid conditions.
- *Loop flow* – The CAISO would carry this item over from the monthly horizon, and would update it as appropriate.

If the CAISO carries a CBM, it would be retained and accounted for in the Daily ATC horizon and calculation.

**5.1.3 Accessing ATC to Establish Scheduling Priority**

Calculating ATC in the monthly and daily horizons will allow entities seeking to wheel through the CAISO system to access ATC and establish a market scheduling priority equal to load. This will provide greater confidence and certainty regarding transactions through the CAISO system to serve load. Entities can continue to wheel through the CAISO system without accessing ATC in advance, but such transactions will have a lower market scheduling priority as they do today.

The CAISO proposes that ATC be accessible on a first-come first-served basis by qualified entities seeking to wheel through the CAISO system. This approach is consistent with the practice under the OATTs across the west and ISOs and RTOs with a forward transmission reservation process. Such a framework allows the entity that identifies the need earlier to have access to limited capacity.

The CAISO proposes the following pre-requisites must be met in order to access the limited ATC:

- Demonstration of an executed firm power supply contract to serve external load, a firm power supply contract to serve external load where execution is contingent upon the availability of wheeling through scheduling priority on CAISO's system, or demonstration of ownership of a resource to serve external load; and
- If ATC is available, the entity reserving it must pre-pay transmission charges equal to the monthly volumes associated with the underlying power supply contract (further discussed in section 5.1.5).

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These requirements will allow entities that need the ATC to access it to support wheeling through transactions to serve their native load.

As part of implementation, the CAISO intends to develop a process for submitting a request for accessing the limited ATC that meets the requirements identified above. Monthly ATC can be accessed during the period for which it is calculated, effectively up to 365 days in advance and up to 30 days prior to flow. Daily ATC can be accessed three days prior to flow and up to one day prior to flow by the close of the DA market for the applicable day (10am).

The CAISO further proposes that wheeling through scheduling priority be established for the period of the underlying duration of the supply contract supporting the wheeling through priority. For example, if the underlying supply contract provides for firm energy delivery on a 6x16 basis (6 days a week, 16 hours), the wheeling through scheduling priority is established for that particular period. The periods for which wheeling through scheduling priority may be established would be commensurate with the duration of RA imports that can be secured, e.g., 7x24, 6x16, 6x8, and 6x4, as described further in section 5.1.5.

The CAISO is contemplating establishing a limited window during which entities seeking a wheeling through priority submit a request for the limited ATC across an intertie with the request(s) having the longer underlying supply contract receiving preference to the ATC over those supported by a shorter underlying supply contract. For example, a request for ATC to establish wheeling through priority based on an underlying 6x16 supply contract would have preference to the ATC over a 6x8 or a 6x4 supply contract to the extent there is not sufficient ATC to accommodate all requests. The CAISO recognizes the need to provide certainty regarding access to the ATC and, thus the scheduling priority request window would be narrow – less than a week, or potentially a day. For example, all requests submitted on the same day would compete against each other so that after the request submission period there is certainty regarding who has established scheduling priority. The same process could apply to accessing ATC in the daily timeframe. A request seeking to establish priority for 16 hours would have preference over one seeking to establish priority for 8 or 4 hours. The CAISO seeks stakeholder feedback regarding this type of framework that complements the first come first served approach when there is not sufficient ATC to accommodate all requests.

The CAISO further proposes that the holder of an established wheeling through scheduling priority can resell the priority during the term of the priority and based upon the underlying duration of the supply contract supporting the priority. For example, an entity establishing wheeling through scheduling priority for August and September for 100 MW based on an underlying 6x16 supply could resell the scheduling priority for those same months and hours. Entities may want the opportunity to resell the priority if the supporting resource goes on outage and they are unable to obtain replacement capacity at the same point of entry into the CAISO, as an example. The CAISO seeks stakeholder feedback regarding a priority rights

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holder's ability to resell the wheeling through scheduling priority and whether there should be limitations on the price of the resale.

### ***5.1.4 Requests for Establishing Long Term Scheduling Priority & Study Process***

Besides allowing external entities to request and access ATC across a 13-month rolling horizon and a daily horizon, the CAISO proposes to establish a process under which external entities seeking to wheel through the CAISO system can request scheduling priority on a long-term basis, for a full year or longer. This practice will allow entities that are unable to secure ATC in the monthly and daily horizons to seek to establish scheduling priority for their wheeling-through transactions on a longer term basis to obtain the higher level of certainty for their transactions and potentially fund transmission system upgrades to establish that priority. This CAISO also can leverage this new process potentially to permit other participants (e.g., load, generators) to pursue transmission studies and upgrades that the transmission planning process has not found to be needed to meet a reliability, economic, or public policy need. This section describes further the process for seeking and establishing scheduling priority on a long-term basis.

#### **Study Process**

The CAISO will study requests to establish wheeling through scheduling priority on a long-term basis (1-year or longer) along with other like-requests and generation interconnection requests, in an annual cluster study. The requesting entity will be subject to study costs and, if an upgrade is needed, the entity will have the choice of funding the upgrade to accommodate the request.

The study process is intended to leverage the existing Generator Interconnection and Deliverability Assessment Process (GIDAP) and studies.<sup>16</sup>

- The entity seeking to establish wheeling through priority on a long-term basis, will submit a study request, which the CAISO will review within five (5) business days, consistent with the steps of the GIDAP process.
- The CAISO will evaluate all study requests submitted within the open study request period as part of the same study cluster, which will also include any generation interconnection

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<sup>16</sup> CAISO Tariff, section 25.

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study requests submitted during the same period. The cluster study window closes on April 15<sup>th</sup>. Requests submitted after that date will be studied during the following year's cluster study process.

- The CAISO will provide the study results – whether a transmission upgrade is needed or whether the CAISO can accommodate the request without an upgrade – generally within 90 days of the cluster study window closing.
- The CAISO will use the study models described in the GIDAP Appendix DD of generation interconnection deliverability studies.
- The CAISO will perform the cluster study in phases consistent with the GIDAP process:
  - Phase 1 of the study will identify whether any transmission system upgrades are needed to accommodate the request. If an upgrade is needed, the study will identify the estimated costs of the identified upgrades. 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 of the study, if necessary, consists of an updated analysis to the extent some of the studied entities no longer choose to pursue their requests. This is effectively a re-study process where the CAISO will share the results with the remaining entities participating in the cluster study process.
- The entity submitting the study request can, at its discretion, choose to discontinue participation in a study at any time during the phased study process. The entity will be responsible for the study costs incurred to that point.

**Proceeding with a Transmission Upgrade & Funding an Upgrade**

After completing the studies, the CAISO will share the study results with the entity submitting the request to establish long-term wheeling scheduling priority. To the extent a transmission upgrade is needed, the study results will provide a description of the upgrade along with the costs of the upgrade. After releasing the facility study, the CAISO 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 CAISO will reimburse the facility study cost to the original requestor and any other requesting party. If the CAISO does not approve the project under one of these transmission categories, the entity – whether a wheeling through customer or some other entity -- can choose whether to proceed with the transmission upgrade. Thus, a potential wheeling through customer will need to fund an upgrade only if the CAISO finds in the transmission planning process that there is no reliability, economic, or public policy need for the upgrade. In other words, such proposed upgrade is only needed to accommodate a request to obtain a wheeling priority. If the entity chooses to pursue a transmission upgrade,

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it would be required to fund, up front, the total cost of the transmission upgrade consistent with the current requirements of the GIDAP process.<sup>17</sup>

After the CAISO completes the upgrade and upon the start of service, the entity would collect transmission credits as it takes service. In other words, the entity would not be charged for transmission service until it recovers the amount it up-front funded to enable the upgrade. This transmission crediting approach is consistent with the pro-forma OATT and the OATTs of other transmission providers in the west. The transmission capacity created and enabled by the upgrade continues to be made available to the market, with the entity that funds the upgrade having a high scheduling priority equal to load when exercising the priority.

Regarding new intertie upgrades that the CAISO approves through the transmission planning process as reliability, economic, or public policy projects, the CAISO would need to (1) determine how much capacity should be set aside for native load needs and native load growth and (2) identify the incremental amount of ATC created by such upgrade, if any, available to establish wheeling through priority. Depending upon the circumstances and the need driving the transmission upgrade, the upgrade may increase the TTC of an intertie and the derivation of ATC across the intertie.

The CAISO seeks stakeholder comments on this framework and process for studying and funding transmission upgrades driven by long term requests to establish market scheduling priority. In particular, should an entity only receive transmission credits in return for funding the upgrade or should it also be eligible to receive congestion revenue rights (CRRs). Similarly, should an entity receive resource adequacy import capability for upgrades to support a wheeling-in (import) transaction (if it is some other market participant is driving the transmission upgrade).

### **5.1.5 Compensation for Wheeling Through Scheduling Priority**

One point of discussion in prior initiatives and phases of this initiative was how wheeling through scheduling should be priced given the value the priority affords. As a starting point, it is important to understand the current pricing and scheduling priority for high priority wheeling through transactions. Under the current interim wheeling through scheduling priority

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<sup>17</sup> CAISO Business Practice Manual, *Generator Interconnection and Deliverability Assessment Procedures (GIDAP)*, Section 6 (2022) - [https://bpmcm.caiso.com/BPM%20Document%20Library/Generator%20Interconnection%20and%20Deliverability%20Allocation%20Procedures/BPM\\_for\\_GIDAP\\_V29\\_clean.docx](https://bpmcm.caiso.com/BPM%20Document%20Library/Generator%20Interconnection%20and%20Deliverability%20Allocation%20Procedures/BPM_for_GIDAP_V29_clean.docx).

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framework, a high priority wheeling through transaction secures a scheduling priority for the registered quantity equal to CAISO load for the entire month. The registered priority wheeling through quantity has a scheduling priority higher than the scheduling priority accorded non-priority wheeling through transactions. The CAISO does not impose a monthly charge for the monthly priority wheeling through quantity; rather, the wheeling through customer pays the Wheeling Access Charge (WAC) only when it actually schedules a wheeling through transaction on any day. Non-priority wheeling through customers pay wheeling through charges on the same basis. In other words, the same pricing framework applies both to priority wheeling through customers and non-priority wheeling through customers.

Applying the WAC only during the hours when the priority wheeling through transaction is actually scheduled may not be the appropriate compensation approach where a finite amount of ATC is available for priority wheeling through transactions and is “reserved” in advance for priority wheeling through transactions. Applying the transmission charge only during hours when the priority wheeling through is scheduled does not reflect the value conferred to a priority wheeling through customer – it obtains a monthly scheduling priority higher than the scheduling priority accorded all other wheeling through transactions, which are charged on the same basis as the priority wheeling thorough customer.

The CAISO proposes that high priority wheeling through transactions prepay for transmission access based upon the underlying quantity and duration of the power supply contract supporting the wheel through transaction to serve external load. For example, if a wheeling through customer seeks to reserve ATC to support a high priority wheeling through transaction based on a 6 x 16 power supply contract, the customer will prepay the WAC charges associated with using a 6 x 16 contract for the entire month. The wheeling through customer would have a scheduling priority only during the 6x16 period. This approach builds upon the WAC prepayment concept in tariff section 36.9.2.1 whereby external LSEs can prepay the WAC to obtain CRRs for the month. It also distinguishes wheeling through transactions that obtain a priority from non-priority wheeling through transactions and pay based on their actual usage (but in return have a lower scheduling priority). Except for the prepayment requirement, this approach tracks what a CAISO LSE would pay in TAC charges if it utilized all of the hours of the RA import supply contract over the entire month. In that regard, CAISO LSEs pay for transmission based on their gross load across the month. For example, RA imports that are contracted on a 6x4, 6x8, or 6x16 basis, contribute to the load served, and the CAISO charges transmission across that gross load.

The CAISO notes that the CPUC’s Maximum Cumulative Capacity (MCC) bucket rules dictate the duration and availability of imports that can qualify as RA supply.<sup>18</sup> Under the MCC

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<sup>18</sup> Reference to MCC buckets - <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M326/K933/326933860.PDF>.

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buckets, RA imports must have a minimum duration of six days a week (Monday through Saturday), but their hours of availability across those six days can vary from a minimum of four hours (*i.e.*, 6 x 4) to eight hours (*i.e.*, 6 x 8) or 16 hours (*i.e.*, 6 x 16) or ultimately 7 x 24 (available all the time). The CAISO similarly proposes that wheeling through transactions establishing high scheduling priority have a duration each month no less than 6x4, similar to the duration of RA imports. Wheeling through customers would then prepay for transmission across the CAISO system based upon the duration of their power supply contract.

In the daily time horizon, for wheeling customers seeking to access ATC and establish wheeling through priority, the compensation framework similarly would be based upon the underlying duration of the supply arrangement supporting that priority. To the extent the underlying contract is a 1x4, a 1x8, 1x16, or 1x24 supply contract, the priority wheeling through customer would pay the WAC for the appropriate period.

The CAISO proposes that a priority wheeling through customer would be able to resell the scheduling priority on a daily basis during the term of the priority as discussed earlier. The CAISO would also credit any monthly prepayment toward satisfaction of the WAC prepayment amount required to obtain monthly Congestion Revenue Rights (CRR) through the Out of Balancing Authority Area Load Serving Entity (OBAALSE) CRR allocation process in tariff section 36.9 to the extent an entity desires to pursue that option. Under the OBAALSE CRR process, an external LSE can receive a monthly allocation of CRRs if it demonstrates a legitimate need for the CRRs and prepays WAC charges for the number of hours comprising the CRR. An OBAALSE demonstrates legitimate need by providing “an executed Energy contract from a Generating Unit or System Resource that covers the time period nominated, or ownership of such Generating Unit or System Resource.” See CAISO tariff section 36.9.1. Additional requirements for OBAALSEs seeking an allocation of monthly CRRs are set forth in tariff sections 36.9 *et seq.* and Section 12 of the Business Practice Manual for Congestion Revenue Rights.

The CAISO believes the approach described above is reasonable. It eliminates the external firm transmission requirement under the interim wheeling through rules and establishes a prepayment based on expected usage, as determined by the wheeling through customer’s underlying power supply contract. Further, the CAISO’s approach allows the wheeling through customer to resell its priority. A prepayment aptly distinguishes priority wheeling through transactions from non-priority wheeling through transactions and reflects a concept used elsewhere in the CAISO tariff to afford additional benefits to external LSEs. The proposal is compatible with the current gross load transmission payment framework applicable to internal load. Finally, the proposal does not require overhauling the current CAISO transmission rate design which would create additional complexities and require significant time to consider. The CAISO requests stakeholder feedback on the proposed approach and suggestions regarding other potential ways to assess transmission charges for high priority

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wheeling through transactions in a manner compatible with the current rate design. The CAISO is open to considering different rate design approach as a potential evolution to the framework.

## 6 WEIM Decisional Classification

This initiative considers changes to the forward scheduling rights for wheel through self-schedules in the CAISO balancing authority area. CAISO staff believes the WEIM Governing Body would have an advisory role.

The role of the WEIM Governing Body regarding policy initiatives changed on September 23, 2021, when the CAISO Board of Governors adopted revisions to the corporate bylaws and the Charter for EIM Governance to implement the Governance Review Committee's Part Two Proposal. Under the new rules, the Board and the WEIM Governing Body have joint authority over any proposal to change or establish any CAISO tariff rule(s) applicable to the EIM Entity balancing authority areas, EIM Entities, or other market participants within the EIM Entity balancing authority areas, in their capacity as participants in EIM. This scope excludes from joint authority, without limitation, any proposals to change or establish tariff rule(s) applicable only to the CAISO balancing authority area or to the CAISO-controlled grid.<sup>19</sup>

This initiative would revise the tariff rules that govern whether, and to what extent, self-schedules to wheel through the CAISO balancing authority area would receive a scheduling priority. None of the currently contemplated tariff changes would be "applicable to EIM Entity balancing authority areas, EIM Entities, or other market participants within EIM Entity balancing authority areas, in their capacity as participants in EIM." Instead, the proposed tariff rules would be applicable "only to the CAISO balancing authority area or the CAISO-controlled grid." Accordingly, these proposals fall outside the scope of joint authority.

The WEIM Governing Body has an advisory role over any proposal to change rules of the real-time market that fall outside the scope of joint authority.<sup>20</sup> This ensures the WEIM Governing Body "has an opportunity to provide formal input on all proposals to change real time market rules, including those rules that may significantly impact market participants in WEIM balancing authority areas but that do not directly apply to them in their capacity as WEIM participants."<sup>21</sup> Because the proposals contemplate changes to the rules of the real-time market, the WEIM Governing Body would have an advisory role regarding those changes.

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<sup>19</sup> Charter of EIM Governance § 2.2.1.

<sup>20</sup> See GRC Part II Draft Final Proposal, page 12.

<sup>21</sup> *Id.* at 13.

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This proposed classification reflects the current state of this initiative and may change as the stakeholder process moves ahead. Stakeholders are encouraged to submit comments regarding the WEIM classification of this initiative, particularly if they have concerns or questions.

## 7 Stakeholder Engagement

The table below outlines the proposed schedule for the remainder of this of initiative.

<b>Date</b>	<b>Milestone</b>
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

# APPENDIX

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**APPENDIX 1 – Native load transmission capacity set-aside based on historical monthly RA imports (Approach 1)**

Appendix 1 provides additional information regarding the Monthly ATC calculation based on historical monthly RA showings (approach 1) across the following intertie points:

- Malin
- NOB
- Palo Verde

These intertie points are common locations for sourcing imports as shown on monthly RA plans, as well as expected locations for sourcing of wheeling through transactions across the CAISO system.

The figures in this appendix illustrate the ATC that would be available if the transmission set aside for native load needs was based upon historical monthly RA import showings for the months of 2020 and 2021 at each of the three interties. Inputs into the analysis include:

- Maximum TTC utilized for each intertie
- ETC consists of:
  - Existing transmission contracts
  - Transmission ownership rights
  - Native load transmission set aside (based separately on 2020 and 2021 monthly RA import showings at each intertie).
- TRM is assumed at a static 5% (of TTC) as an approximation of a potential uncertainty margin for illustrative purposes.

Figure 2 identifies the resulting monthly ATC values based on the inputs described above on Malin. As Figure 2 shows, there is a noticeable difference between the ATC values depending on whether 2020 and 2021 monthly RA import values are used to represent native load needs. Because the RA import showings in 2021 were lower than 2020 showings, particularly for the summer months, there is sizably more ATC available at those intertie points if native load needs are represented by 2021 historical RA import data. A historical look-back period of monthly RA showings, over a 2-5 year period, might allow for a more representative approximation of native load needs than using one year's numbers. This could be combined with a "higher-of" or averaging of the values for all of those years. Figures 3 and 4 illustrate the same analysis for the NOB and Palo Verde interties.

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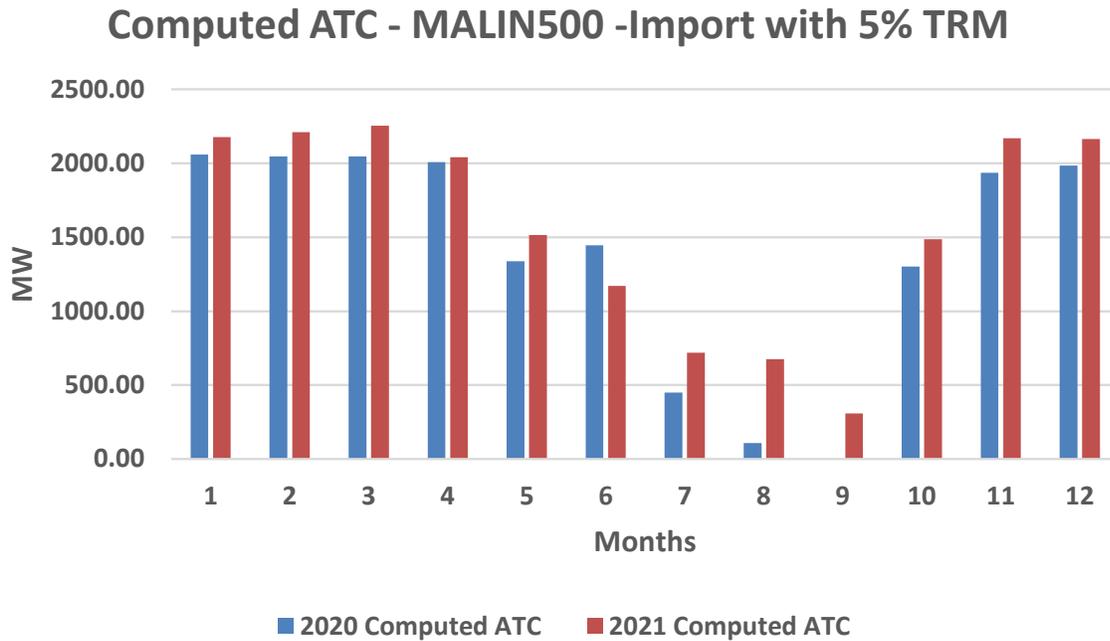


Figure 2 – ATC analysis based upon historical monthly RA import show ings on Malin500.

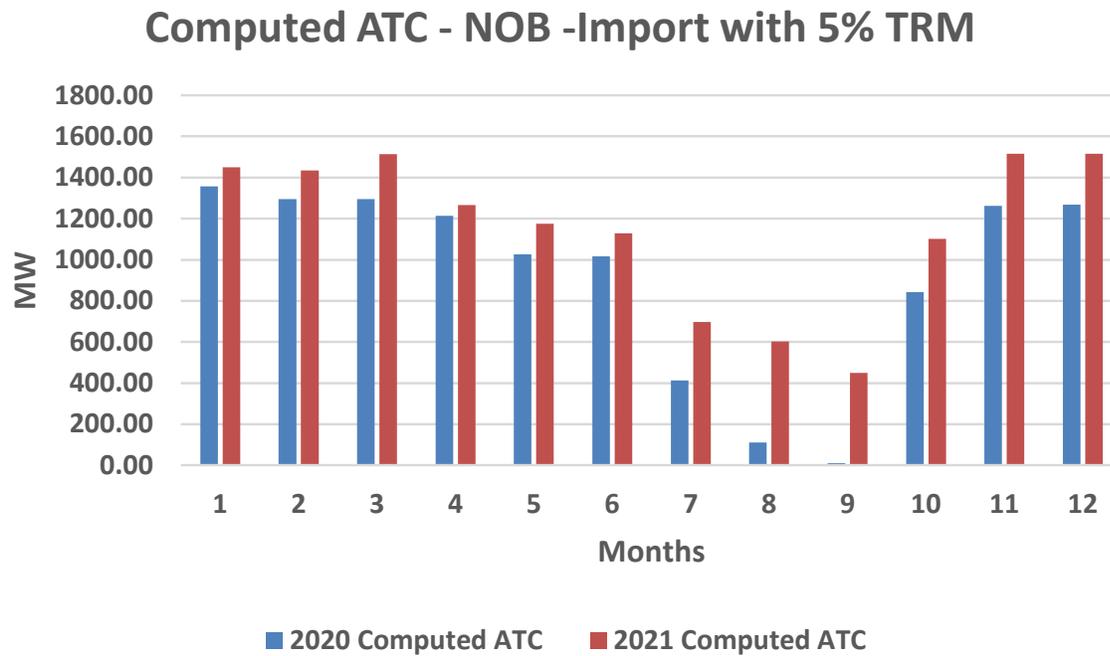


Figure 3 - ATC analysis based upon historical monthly RA import show ings on NOB.

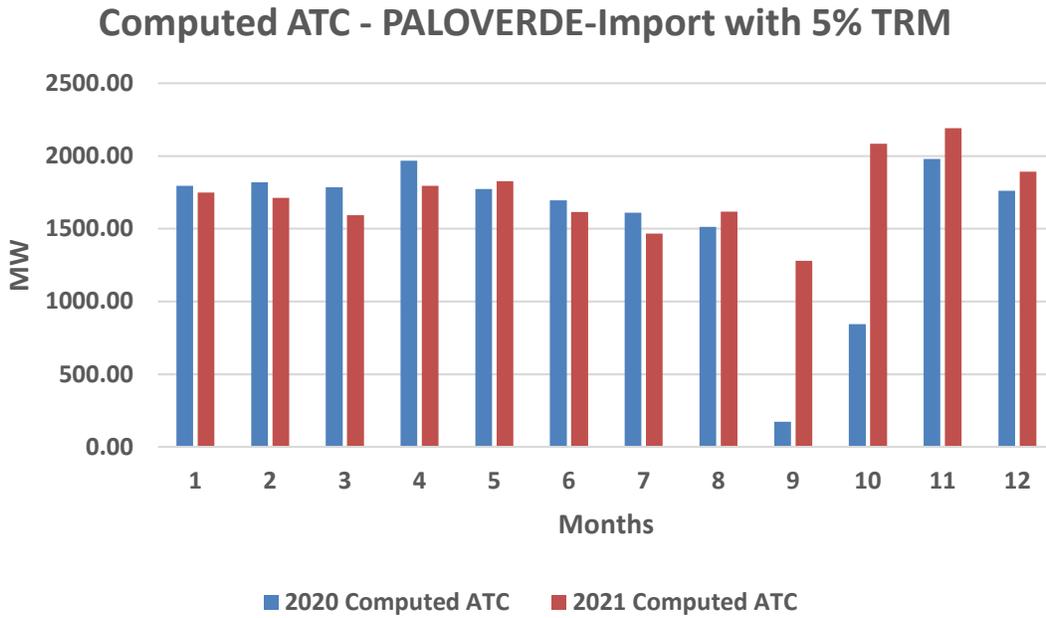


Figure 4 - ATC analysis based upon historical monthly RA import show ings on Paloverde.

Figure 5 below provides a more focused assessment and comparison of ATC values for the months of July and August for 2020, 2021, and 2022 based on the monthly RA show ings across the three intertie points. The data illustrates increasing ATC due to decreasing RA imports shown at those intertie points during this period.

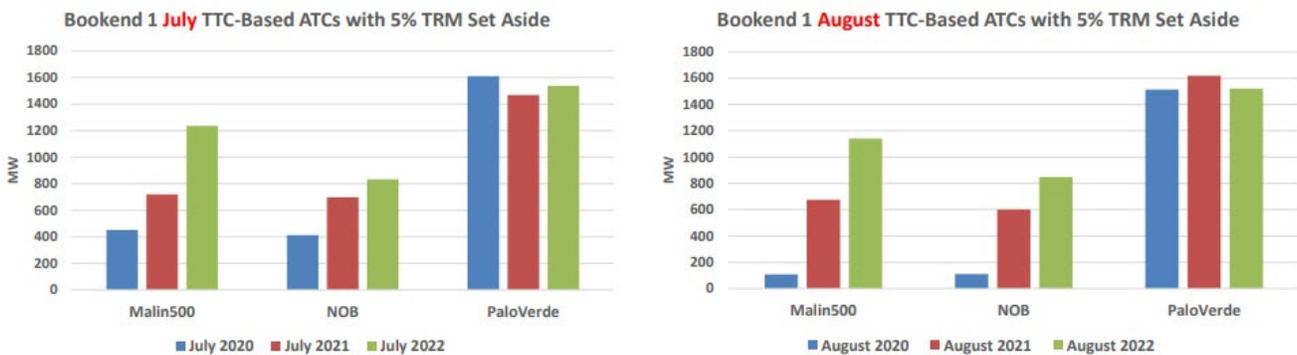


Figure 5 – ATC analysis based on July and August monthly RA import show ings across 2020 – 2022 data.

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**APPENDIX 2 – Benchmarking of Practices of RTOs and ISOs, Western Transmission Providers**

This appendix provides an overview comparison of general practices of other ISOs and RTOs, as well as other transmission providers in the west informed by working groups conducted last year. Table 5 below, focuses on limited aspects of the practices of other ISOs and RTOs around the country and their treatment of wheels through their system, along with aspects of the ATC methodology.

	NYISO	PJM	MISO	ISO NE
Forward Transmission reservation process	No	Yes	Yes	No
Monthly ATC Calculation Window	N/A	20-months	18-months	N/A
Native load/network load priority	Yes - included as Legacy ETC and TOR commitments.	Yes - included as Existing Transmission Commitment (ETC)	Yes - included as ETC	Yes - included as ETC
Calculating native load ETC	Does not explicitly account for native load within ETC.	Sets aside transmission for native load as ETC. Informed by load forecasts and generation assumptions based on ranking internal resource “blocks” based on effectiveness factors. Limited dependence on imports.  Assumptions updated closer in time - from monthly to daily horizon.	Sets aside transmission for native load as ETC. Informed by load forecasts and generation assumptions based on ranking and “stacking” of internal resources based on different factors including outage rates.  Assumptions updated closer in time - from monthly to daily horizon.	Does not explicitly account for native load within ETC.

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	NYISO	PJM	MISO	ISO NE
Wheel-through requirements	During stressed periods, wheel throughs have a lower priority than load due to application of penalty prices.	Required reservation of service (firm, non-firm). No unique additional requirements imposed.	Required reservation of service (firm, non-firm). No unique additional requirements imposed.	Wheel throughs cannot participate in the day-ahead market, only the real-time market. Real-Time: Priority given to transactions clearing DA market.
Capacity Benefit Margin (CBM)	No	Yes	Yes	No
Transmission Reliability Margin (TRM)	Yes	Yes	Yes	Yes

Table 5: General comparison of aspects of practices of other ISOs and RTOs.

Table 6 below provides a general overview of the practices of the Bonneville Power Administration (BPA), Salt River Project (SRP), and Idaho Power Company (IPC) who shared their practices during stakeholder working groups held from November 2021 to February 2022.

	BPA	IPC	SRP
Forward Transmission reservation process	Yes	Yes	Yes
Calculating native load ETC	Considers different scenarios, and 1-in-2 NCP load forecast. Generation	Considers 1-in-20 native load forecast. Generation assumptions informed by	Considers 1-in-10 load forecast. Generation assumptions informed by resource plans (ip to 30-years). <sup>24</sup>

<sup>24</sup> SRP presentation during stakeholder working groups, available at - <http://www.caiso.com/InitiativeDocuments/SRPPresentation-TransmissionService-MarketSchedulingPriorities-WorkingGroup1-Nov19-2021.pdf>.

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	BPA	IPC	SRP
	assumptions informed by designated and forecasted resources. <sup>22</sup>	designated and forecasted resources. <sup>23</sup>	
Monthly ATC calculation horizon	13-months	13-months	13-months
Calculates TRM	Yes - on limited basis in short term horizon.	Yes	Yes
Calculates CBM	No	Yes	No

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<sup>22</sup> BPA presentation during stakeholder working groups, available at - <http://www.caiso.com/InitiativeDocuments/BPAPresentation-TransmissionService-MarketSchedulingPriorities-WorkingGroup1-Nov15-2021.pdf>.

<sup>23</sup> Idaho Power presentation during stakeholder working groups, available at - <http://www.caiso.com/InitiativeDocuments/IPCPresentation-TransmissionService-MarketSchedulingPriorities-WorkingGroup1-Nov15-2021.pdf>.