



# **Maximum Import Capability Stabilization and Multi-Year Allocation**

## **Revised Straw Proposal**

**March 12, 2020**

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# Maximum Import Capability Stabilization and Multi-Year Allocation Revised Straw Proposal

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# 1. Introduction

The purpose of this initiative is twofold. In the short-term, the purpose is to update the methodology used in the calculation of the simultaneous Maximum Import Capability (MIC) including its description in the CAISO Reliability Requirements Business Practice Manual (BPM) in order to achieve a greater stability of MIC overall allocations. In the long-term, the purpose is to update the annual nature of the MIC allocation process, as described in Tariff section 40.4.6.2 Deliverability of Imports, into a multi-year allocation process to accomplish numerous important objectives, the primary of which is the facilitation of long-term procurement of import resources and multi-year system Resource Adequacy (RA) requirements, should they be established in the future. Enhanced multi-year MIC allocation similarly removes barriers to new resource development external to the CAISO Balancing Authority Area (BAA).

MIC represents the maximum simultaneous deliverability of all imports used in the RA process. The CAISO performs deliverability studies several times a year in its Generation Interconnection and Deliverability Allocation Procedure (GIDAP) and in its Transmission Planning Process (TPP). These studies are conducted for the entire CAISO controlled grid, to test both the deliverability of internal resources and the deliverability of imports, to ensure all resources are simultaneously deliverable to the aggregate of load. Unlike the deliverability of internal resources, which is granted on an ongoing basis to the resource owner, the deliverability of imports is granted to Load Serving Entities (LSEs) on an annual basis through an assignment process.

Stakeholders have previously requested the CAISO review both the MIC calculation and allocation provisions. Some stakeholders have indicated that the CAISO should consider alternative calculation methods and asserted that there are numerous challenges presented by the current 13-step Import Capability Assignment process - in particular, the annual nature of the allocation. The CAISO had started a review of these aspects through the RA Enhancements policy initiative. However, due to the planned implementation timeframe for that effort, the CAISO has determined it is more appropriate to move consideration of these MIC-related provisions from the scope of that initiative and conduct this expedited policy initiative to address more immediate needs. The CAISO is therefore conducting this effort to enhance the MIC calculation methodology and allocation provisions.

## 1.1. Background

The CAISO assesses the deliverability for imports using the MIC calculation methodology. The CAISO calculates the MIC MW amount mainly based on a historic methodology that utilizes the actual schedules into the CAISO's BAA for highest imports obtained simultaneously during peak system load hours over the last two years. The CAISO examines the prior two years of historical import schedule data during high load periods. Sample hours are selected by choosing two hours in each year, and on different days within the same year, with the highest total import level when peak load was at least 90% of the annual system peak load. The CAISO then calculates the historically-based MIC values based on the scheduled net import values for each intertie, plus the unused Existing Transmission Contract (ETC) rights and Transmission Ownership Rights (TOR), averaged over the four selected historical hours. This

concept is an important fundamental principle of the MIC framework, intended to ensure that existing ownership rights and pre-existing RA commitments and contracts are recognized and respected.

MIC values for each intertie are calculated annually for a one-year term and allocated to LSEs using a 13-step process. MIC allocations are not assigned directly to external resources; rather they are assigned to LSEs who choose the portfolio of imported resources they wish to elect for utilization of their MIC allocations. This effectuates an important principle underlying the MIC framework - MIC is allocated to LSEs because LSEs pay for the transmission system; thus, they should receive the benefits from it and choose which external resources are ultimately selected for providing RA capacity that relies on the import capability. Once the allocation process is complete, LSEs can use their MIC allocations on each intertie to support their procurement of RA capacity of external resources. The 13-step import capability allocation process is detailed further below.

RA showings designating import MWs to meet RA obligations across interties using Non-Resource-Specific System Resources, Resource-Specific System Resources, Pseudo-ties, or Dynamically Scheduled System Resources are required to be used in conjunction with a MIC allocation and are considered a firm monthly commitment to deliver those MWs to CAISO at the specified interconnection point with the CAISO system.

Reference for tariff and business practice manual (BPM) as follows:

1. CAISO Tariff section 40.4.6.2: <http://www.aiso.com/Documents/Section40-ResourceAdequacyDemonstration-SCs-CAISOBAA-asof-Aug12-2019.pdf>
2. Reliability Requirements BPM sections 6.1.3.5, 6.1.3.6 and Exhibit A-3: <https://bpmcm.aiso.com/BPM%20Document%20Library/Reliability%20Requirements/BPM%20for%20Reliability%20Requirements%20Version%2044.docx>

## 2. Issue Paper: Maximum Import Capability Stabilization and Multi-year Assignment Process

The CAISO has identified two primary issues related to the availability of intertie capacity for use in meeting resource adequacy needs. The first issue is the need to ensure the stability of MIC values from one year to the next and as much as possible across a multi-year horizon in order to support multi-year planning and procurement. MIC values derived annually using the current methodology may have greater uncertainty given declining capacity across the Western interconnection as other states pursue GHG reduction goals and retire GHG emitting resources such as coal-fired generating units. They can also be impacted by varying parameters such as hydro conditions, and weather extremes. This reality impinges on the second issue, which is the need to set multi-year MIC allocations that can facilitate multi-year RA import contracts. Resource owners outside the CAISO have been unsuccessful in entering into multi-year RA contracts with the CAISO's LSEs given the uncertainty the CAISO LSEs face regarding

how much excess capacity exists that can be imported confidently into the CAISO and more importantly what share of a certain intertie each LSE may receive in future allocations. This proposal addresses these concerns and proposes solutions to achieve the objectives detailed above.

## 2.1. Maximum Import Capability Stabilization

For most interties, the CAISO calculates MIC values based on historical usage of a given intertie. This historically-based MIC methodology establishes a baseline set of values for each intertie. As noted above, this calculation is based on the maximum amount of simultaneous energy schedules into CAISO BAA, during select CAISO coincident peak system load hours over last two years. The CAISO also performs a power flow deliverability study in the CAISO’s transmission planning process (TPP) to test MIC values to ensure each intertie’s MIC can accommodate all state and federal policy goals; if any intertie is found deficient, the CAISO establishes a forward looking MIC for that intertie and plans the system to accommodate this level of MIC in the TPP and the CPUC’s RA processes and CAISO supporting processes.

The data provided in Table 1, below, provides historic MIC values calculated over time using the current methodology.

*Table 1: Historic MIC data (MWs)*

MIC RA Year	2014	2015	2016	2017	2018	2019	2020
<b>Maximum Import Capability</b>	17,486	16,228	15,755	15,221	14,852	15,208	15,524
ETC and TOR held by non-CAISO LSEs	4,090	4,090	4,090	4,211	4,511	5,015	5,015
Available Import Capability for CAISO Resource Adequacy purposes	13,396	12,138	11,665	11,310	10,341	10,193	10,753
Total Pre-RA Import Commitments and ETC	6,047	5,426	5,256	4,736	4,628	4,306	4,239
<b>Remaining Import Capability - less all ETC and TOR</b>	7,348	6,712	6,409	6,574	5,713	5,888	6,515

Some stakeholders have indicated that the MIC calculation methodology should be modified to be a forward-looking approach for all branch groups, in contrast to the current approach. The CAISO’s initial review of the MIC calculation process appears to support the contrary view, i.e. that the current MIC allocation methodology to individual branch groups is still appropriate along with the generator interconnection and TPP deliverability studies themselves to provide a reasonable forward look at the import deliverability. The MIC calculation provides the total MIC quantity as well as a breakdown of MW quantities, intertie by intertie, that the technical deliverability study uses to stress the transmission

system to evaluate the simultaneous deliverability of import capability. This approach was established through a stakeholder process in 2005 and through a Federal Energy Regulatory Commission (FERC) technical conference. The CAISO is open to additional feedback on the MIC calculation methodology and seeks input on potential analysis or alternative calculation methodologies for further review.

The CAISO has observed declining values for MIC as shown in Table 1. In addition, dry hydro years directly impact the calculation, potentially by up to 50% of the observed values since only the last two years are counted (regardless of hydrology or other external influences). Compounding the declining MIC problem are resource retirements planned in California and across the west due to resource age or to achieve environmental and renewable goals. As such, CAISO anticipates that Maximum Import Capability could be reduced and more uncertain in coming years, even if only for an interim period.

As many imports flow over the same paths inside California that California-located generation use or may use to access load centers, an immediate decrease of MIC due to the circumstances described above would result in an increase in deliverability to internal resources in the CAISO interconnection queue. This can create a “ratchet effect” where MIC may be reduced due to short term environmental conditions, and then deliverability is re-allocated to internal resources being developed inside California, and then capacity is more limited in the future when conditions may otherwise reverse and restore flows to original higher levels. As a unintended consequence, MIC and internal resources now have to share a deliverability de-rate until new transmission upgrades are in place.

The CAISO would like to provide deliverability protection for MIC allocations commensurate with deliverability protection available to internal resources. Currently, MIC values established in any single year get no deliverability protection, whereas actual net qualifying capacity values for internal resources get protection for minimum 3 years.

### **Stakeholder Input**

The CAISO has received comments from CDWR, CPUC, PG&E, Powerex Corp., SMUD, Six Cities, SCE and WPTF. Majority of stakeholders agree that the CAISO proposal is an improvement to the current methodology. A number of stakeholders request exploration of purely forward looking methodology to establish MIC, however the only expressed proposals relates to the use of physical capability of the intertie with or without accounting for exports.

## **2.2. Available Import Capability Multi-year Assignment Process.**

The CAISO assigns the total Available Import Capability on an annual basis for a one-year term to LSE SCs serving Load in CAISO’s BAA through the 13-step allocation process detailed in the CAISO tariff.<sup>1</sup> This multi-step assignment process of import capability does not guarantee or result in any actual transmission service being assigned or give any priority rights in the energy market, and it is only used for determining the import capability that can be used by an LSE internal to the CAISO to count import system RA resources towards satisfying their total system RA requirements under CAISO tariff Section 40. Following the 13-step Available Import Capability allocation process, LSEs have the opportunity to

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<sup>1</sup> CAISO tariff, Section 40.4.6.2.1, Available Import Capability Assignment process.



trade their assigned Import Capability with other entities bilaterally. This trading opportunity is detailed in the CAISO tariff, Section 40.4.6.2.2, Bilateral Import Capability Transfers and Registration Process.

As noted in the background above, import capability is not assigned directly to external resources, but instead to CAISO LSEs because those LSEs and their customers pay for the transmission system and should receive the benefits from it and have the ability to select which external resources are procured and relied upon as part of RA capacity portfolios. The CAISO does not believe this paradigm should be revisited through this initiative and considers that allowing non-LSE to receive allocations to be out of scope.

Table 2 lists the 13 steps of the Available Import Capability Assignment Process.<sup>2</sup>

**Table 2: Available Import Capability Assignment process overview**

<b>Step</b>	<b>Process description</b>
<b>Step 1</b>	Determine Maximum Import Capability (MIC)
	- Total ETC
	- Total ETC for non-CAISO BAA Loads
<b>Step 2</b>	Available Import Capability
	- Total Import Capability to be shared
<b>Step 3</b>	Existing Contract Import Capability (ETC inside loads)
<b>Step 4</b>	Total Pre-RA Import Commitments & ETC
	- Remaining Import Capability after Step 4
<b>Step 5</b>	Allocate Remaining Import Capability by Load Share Ratio
<b>Step 6</b>	CAISO posts Assigned and Unassigned Capability per Steps 1-5
<b>Step 7</b>	CAISO notifies SCs of LSE Assignments
<b>Step 8</b>	Transfer [Trading] of Import Capability among LSEs or Market Participants
<b>Step 9</b>	Initial SC requests to CAISO to Assign Remaining Import Capability by Intertie
<b>Step 10</b>	CAISO notifies SCs of LSE Assignments & posts unassigned Available Import Capability
<b>Step 11</b>	Secondary SC Request to CAISO to Assign Remaining Import Capability by Intertie
<b>Step 12</b>	CAISO Notifies SCs of LSE Assignments & posts unassigned Available Import Capability
<b>Step 13</b>	SCs may submit requests for Balance of Year Unassigned Available Import Capability

<sup>2</sup> See Section 40.4.6.2.1 of CAISO Tariff.

The CAISO intends to move forward with multi-year available import capability assignment process that facilitates long-term contracting (minimum 3-years) and enables building new resources dedicated to LSEs that serve load inside the CAISO BAA, without unduly restricting entry of new LSEs in the future.

The current annual import capability assignment process facilitates the procurement of excess available capacity outside the CAISO BAA that is not otherwise committed to another BAA. The current annual process does not provide LSEs with certainty that they could retain the same amount of RA import allocation on any particular intertie year over year. This has not been a large concern in the past because of the availability of significant external resources and the stability in allocated import capacity that some larger LSEs, with high load share ratio at the CAISO coincident peak, had experienced. The latter is being significantly impacted due to load migration associated with new Community Choice Aggregation (CCA) entities taking over a significant share of the load serving responsibility. This load migration is anticipated to continue to grow in coming years.

**Incorporate an auction or other market based mechanism into the assignment process:**

Some stakeholders asked the CAISO to incorporate an auction or other market based mechanism into the Available Import Capability Assignment process. They assert that this will provide alternatives or additional opportunities for LSEs to procure import capability greater than their pro rata load ratio share of MIC on any given branch group/intertie to support a particular RA contract. Alternative mechanisms could allow for more efficient procurement of import capability by LSEs that place a greater value on the Import Capability for various reasons. The CAISO could allocate all, or only a portion of the remaining Available Import Capability through a mechanism similar to the current process, but the CAISO could retain all, or a portion of the remaining Available Import Capability, to be auctioned to or otherwise procured by LSEs. Additional auction revenues could potentially be used to reduce the TAC Transmission Revenue Requirement, or allocated back to LSEs on a pro rata load share basis.

The CAISO believes that a multi-year assignment process would be beneficial with or without the addition of an auction to the Available Import Capability assignment process. Given the significant challenges and requirements in creating such a market mechanism, and that the purpose of this initiative is to focus on more immediate concerns, the auction mechanism could result in unnecessary delay to mitigation of more pressing concerns.

As such, an auction or other market based mechanism to allocate Available Import Capability will not be considered in this initiative.

**Enhance the provisions for reassignment, trading, or other forms of sales of Import Capability among LSEs:**

The CAISO remains open to changes that facilitate trading import capability. However, just like the auction mechanism it could provide additional benefits, it should not detract from the multi-year allocation process.

Modifying this aspect of the process may be necessary to better facilitate the transfer of Import Capability among LSEs and improve the efficient utilization of Import Capability and will be considered as augmentation to the two main issues mentioned above.

### **Stakeholder Input**

The CAISO has received comments from CDWR, CPUC, PG&E, Powerex Corp., SMUD, Six Cities, SCE and WPTF. A Majority of stakeholders agree that it would be beneficial to have higher certainty that new or existing RA contracts, other than Pre-RA Import Commitments, can receive RA Import allocations at the appropriate scheduling point, in order to facilitate long-term procurement.

An overwhelming majority of stakeholders agree that RA Import Allocations should go to LSEs.

Some concerns were expressed due to on-going proceedings at the CPUC that may or may not result in multi-year system RA requirements.

A few stakeholders request continued exploration of an auction mechanism for RA import allocations.

## **3. Straw Proposal: Maximum Import Capability Stabilization and Multi-year Assignment Process**

The CAISO proposes herein a MIC stabilization methodology that does not maintaining unused deliverability on the interties for extensive periods.

The CAISO proposes herein a multi-year available import capability assignment process that would allow long-term contracting (minimum 3-years) and could facilitate building of new resources dedicated to LSEs that serve load inside the CAISO BAA, without unduly restricting entry of future new LSEs.

### **3.1. Maximum Import Capability Stabilization**

The CAISO has reviewed detailed MIC data from the past 10 years and has assessed different methods to stabilize the value of the overall MIC as well as each individual branch group (scheduling point).

First the CAISO explored the potential to expand the sample period from two to three, five, or ten years. Second the use of maximum, average, median, 75% quartile or some other method to bound MIC around average deviation or standard deviation was examined, relative to each time horizon. The results were not conducive to moving toward a more stable and meaningful MIC calculation; these alternative approaches resulted in values either too high, to low or otherwise still varying every year with more or less volatility.

In order to eliminate most of the yearly volatility, the CAISO believes that some annual observations should be eliminated from the MIC calculation.

Maintaining some form of average calculation avoids the possibility that a single value or a single year negatively affects the MIC calculation for certain branch groups that may have been de-rated during the hours and/or days when maximum import was established. The “de-rate” or “impact” to the intertie schedule may not necessarily be included in the CAISO scheduling system especially if it occurred away from the intertie point, either inside the CAISO or inside the neighboring BAA.

**Table 3: Historical Maximum Import Capability**

Scheduling Point(s)	Direction	2011 MIC	2012 MIC	2013 MIC	2014 MIC	2015 MIC	2016 MIC	2017 MIC	2018 MIC	2019 MIC	2020 MIC
GONIPP	Import	0	0	0	0	0	0	0	0	0	0
IPP & IPPUTAH	Import	514	481	481	481	481	481	481	481	481	481
MCCULLOUGH500	Import	0	57	92	106	126	105	77	39	24	56
MEAD5MSCHD	Import	76	13	0	0	23	0	0	0	0	0
MEAD2MSCHD	Import	42	60	51	40	40	40	40	40	40	40
MARKETPLACE	Import	251	365	259	251	320	243	302	205	114	129
MDWP	Import	132	70	94	74	30	67	193	149	140	173
WESTWING500	Import	131	116	107	91	44	60	66	59	79	67
BLYTHE161	Import	107	90	45	57	68	72	29	16	8	2
CRAG	Import	1	17	36	59	80	80	76	76	80	80
CFETIJ & CFEROA	Import	90	90	90	90	0	0	0	0	0	0
WILLOWBEACH	Import	1158	1011	1213	1263	838	405	300	121	108	166
MIR2	Import	502	517	471	462	462	391	367	312	312	312
IVLY2	Import	0	0	0	0	0	150	95	150	150	150
MOHAVE500	Import	0	0	0	0	0	0	0	0	0	0
ELDORADO500	Import	346	330	323	316	316	316	316	316	745	762
MEAD230	Import	1000	1004	1380	1407	1380	1403	1437	1329	1288	1291
ELDORADO230	Import	439	0	0	180	257	158	226	194	241	355
NORTHGILA500	Import	223	223	223	223	223	223	223	223	223	223
NOB	Import	1469	1283	1208	1490	1544	1544	1283	1270	1517	1559
PVWEST	Import	3313	3024	3039	3131	2699	2716	3254	3129	2866	2923
PARKER230	Import	135	145	154	150	132	103	101	90	90	108
LAKE & RANCHOSECO	Import	578	578	583	591	118	78	78	78	48	62
SILVERPEAK55	Import	0	0	0	8	6	0	0	0	0	0
SUMMIT120	Import	0	0	6	31	25	13	13	0	13	21
SYLMAR	Import	670	667	567	567	567	651	567	642	855	755
LUGO	Import	289	328	538	360	297	356	317	228	132	130
RDM230	Import	0	0	0	306	306	306	328	328	328	328
CTW230	Import	3	0	15	145	167	88	83	88	148	103
LLL115	Import	0	0	0	0	0	0	0	0	0	0
MALIN500	Import	2739	2595	2738	2832	2913	3032	3008	3008	3054	3130
TRCYCOTPISO	Import	6	5	17	26	29	27	27	30	31	23
TESLA230	Import	719	719	719	719	719	719	0	0	15	15
TRCYPGAE & TRCYCOTP	Import	890	1010	984	984	984	907	907	907	874	874
TRCYTEA	Import						0	306	306	306	306
NML230	Import	384	384	384	384	384	384	384	384	384	384
OAKDALE	Import	174	192	192	192	192	192	192	192	194	194
STANDIFORD	Import	306	306	306	306	306	306	306	306	176	176
WESTLYTSLA	Import	102	102	102	102	102	102	102	102	102	102
WESTLYQNT0	Import	35	22	23	47	35	22	22	22	22	24
MARBLE60	Import	15	15	15	15	15	15	15	15	15	15
AMARGOSA230	Import					0	0	1	1	0	0
NWEST	Import					0	0	0	0	5	5
MERCURY138	Import					0	0	0	0	0	0
		<b>16838</b>	<b>15819</b>	<b>16455</b>	<b>17486</b>	<b>16228</b>	<b>15755</b>	<b>15521</b>	<b>14835</b>	<b>15208</b>	<b>15524</b>

Currently, internal CAISO resources that are incapable of operating have their deliverability protected for minimum three years, potentially more if the owner is actively involved in its replacement. In order to provide a similar protection across time for the deliverability of imports (MIC), the CAISO proposes to evaluate a span of five consecutive years. The CAISO believes the proposal below meets the goal of not maintaining unused deliverability on the interties for excessively long periods, and it is consistent with the time deliverability provided resources internal to the CAISO.

To stabilize MIC, the CAISO is proposing to use the average of four hours, with no more than one hour per day, two hours in each one of the two years with the highest actual imports (when load is at or above 90% of that year's peak) among the past five years.

This methodology will have the least deviation from current method that was agreed upon by all following a long stakeholder process and mediation through a FERC technical conference.

The years are ranked by the sum of their two highest actual imports (when load is at or above 90% of that year's peak).

Once the four selected data points are established by actual real-time data, transmission usage data from OASIS is used from the hour ahead (HASP) market for the same hour as established by real-time data. The CAISO will use the actual net schedules plus the unused ETC and TOR for that hour for each branch group. The hour ahead market data is preferred because is closer to real-time than day ahead market and it has higher values than real-time market data because the ETCs and TORs are protected for in the day ahead and hour ahead market however, they are released in the real-time market.

The base line MIC calculation will use branch group by branch group HASP schedule for those 4 hours as established above. In order to come up with the actual MIC for the applicable (future) RA year, the base line calculation above is augmented by the future year available ETC, TOR and Pre-RA Import Commitments as well as TPP portfolio (in order to assure that state and federal policy goals are achieved).

The new proposed methodology does have a drawback. Under the existing methodology, new resources can increase MIC on a certain intertie by providing schedules during the hours of need, up to 50% after the first year and up to 100% after two years. Under the new proposed methodology, they may only establish increased MIC if the last year or last two years rank among top two in last five, otherwise the new schedules will not increase MIC. The CAISO hopes that this drawback is partially mitigated beforehand by detailed and precise review of the TPP portfolios provided by state and federal agencies. New steps introduced under the MIC assignment process below can accomplish further mitigation.

#### **Stakeholder Input**

The CAISO has received comments from SCE, AWEA – California, PG&E, Powerex Corp., CalCCA, SMUD, Six Cities, SWPG, WPTF and CPUC. A majority of stakeholders agree that the CAISO proposal is an improvement to the current methodology. A number of stakeholders request exploration of a purely forward looking methodology to establish MIC, with two of the proposals requesting the use of the physical capability of the interties with or without accounting for exports.

### **3.2. Available Import Capability Multi-year Assignment Process.**

In order to assure that deliverability for unused branch group is not maintained for extensive periods, or that overused branch groups are allowed to increase, the Maximum Import Capability must be allowed to vary (up and down) among years. This requirement is in contradiction with the objective of allowing multi-year contracts and/or locking MIC by LSEs for multi-year use. A balanced approach would be to

lock in a certain percentage for multi-year use while another percentage is held back to allow for variation. In the detailed description below the CAISO is empirically investigating the preferred split among the locked part that should be given out for three or more years versus the variable part that should be held back and released in the year ahead time frame.

Maximum Import Capability percent difference between years:

Based on the most recent ten years' worth of data, the maximum year over year percentage difference was 7%, maximum two year out percentage difference was 10%, and maximum three year out percentage difference was 12%.

Maximum expected future decrease of Maximum Import Capability between years due to expiration of old ETC/TOR and Pre-RA Import Commitments:

Based on the most recent "Advisory Estimates of Future Resource Adequacy Import Capability"<sup>3</sup> the current highest overall drop in maximum import capability (MIC) is at about 2%, however the same data from two years ago show as much as 4% decline.

The portion of overall MIC that is secured for future use by current ETC/TOR and Pre-RA import commitments that cannot be allocated to other LSEs in future years:

Based on the most recent "Advisory Estimates of Future Resource Adequacy Import Capability" currently between 60% in the near future and about 50% ten years out of maximum import capability is already locked up with existing long-term contracts.

Specific branch group variation among years:

The year-over-year percentage difference of each branch group can be quite different and at times with significant outliers that do not follow a general pattern, therefore it is not a good variable to use to bind the release quantities for LSE allocation. The CAISO proposes to bind the branch group by branch group allocations on the low side based on actual multi-year contracts that LSEs have signed (either ETC, TOR, Pre-RA Import Commitments or new multi-year contracts as proposed further below). The CAISO proposes not to bind the branch group by branch group allocations on the high side unless deliverability problems are encountered during studies.

Individual LSE load forecast variation among years:

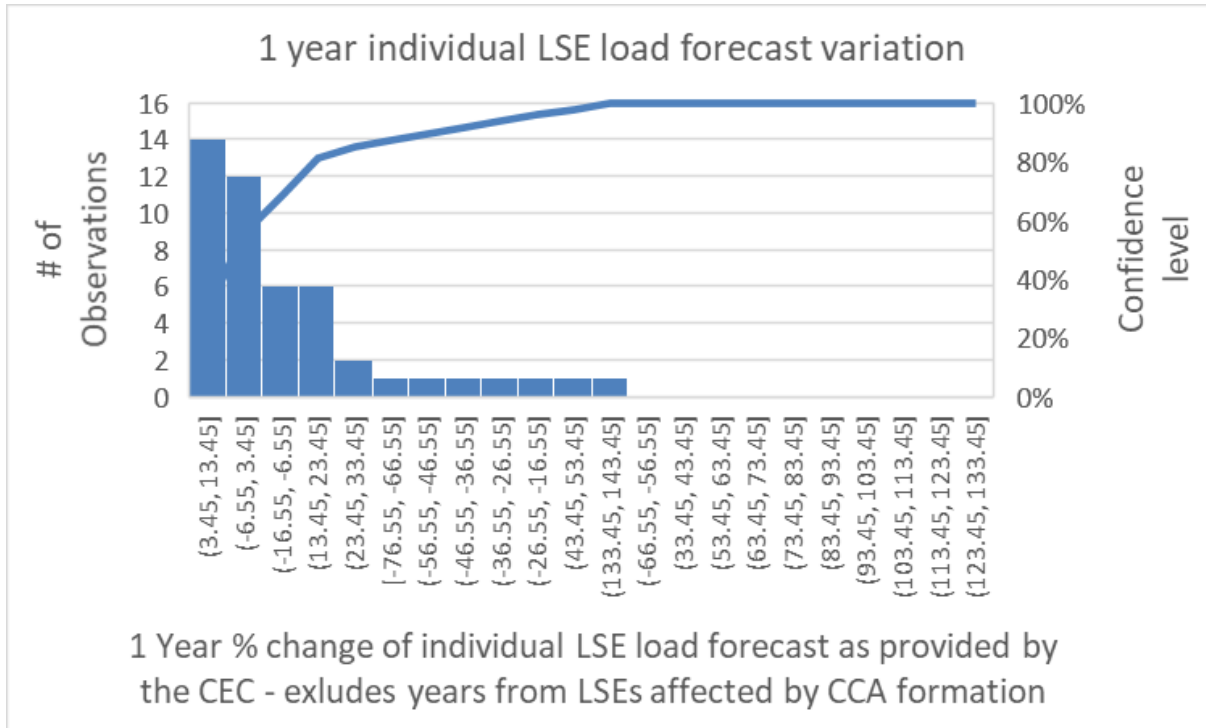
Based on the most recent five years' worth of data, and after eliminating biased data from the first year of operation and data from LSEs affected by load migration to new Community Choice Aggregators (CCA), the 1 year spread is within 20% (with about 80% confidence level) and within 30% (with about 90% confidence level). The 2 year spread is within 20% (with about 80% confidence level) and within 40% (with about 90% confidence level), whereas the 3 year spread is within 30% (with about 80%

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<sup>3</sup> <http://www.caiso.com/Documents/AdvisoryestimatesoffutureResourceAdequacyImportCapabilityforyears2017-2026.pdf>

confidence level) and within 45% (with about 90% confidence level). To note that within each one of the spreads there were several significant outliers.

**Chart 1: Percentage Load forecast change from one year to the next**



**Chart 2: Percentage Load forecast change every two years**

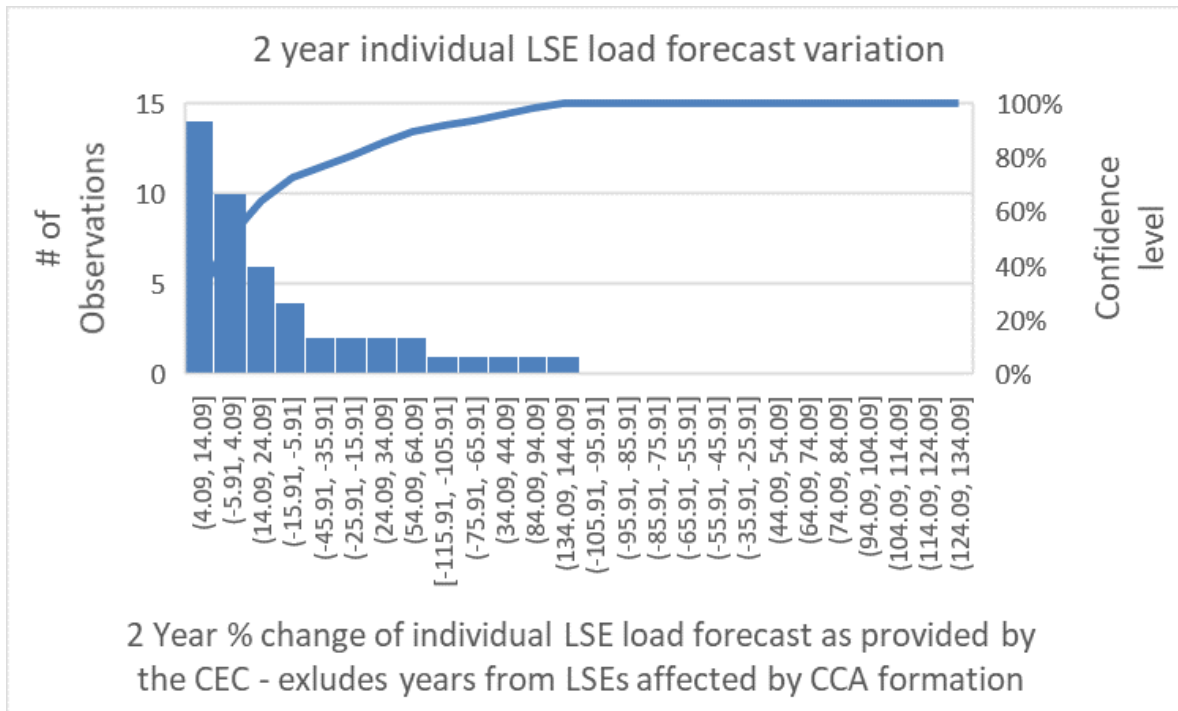
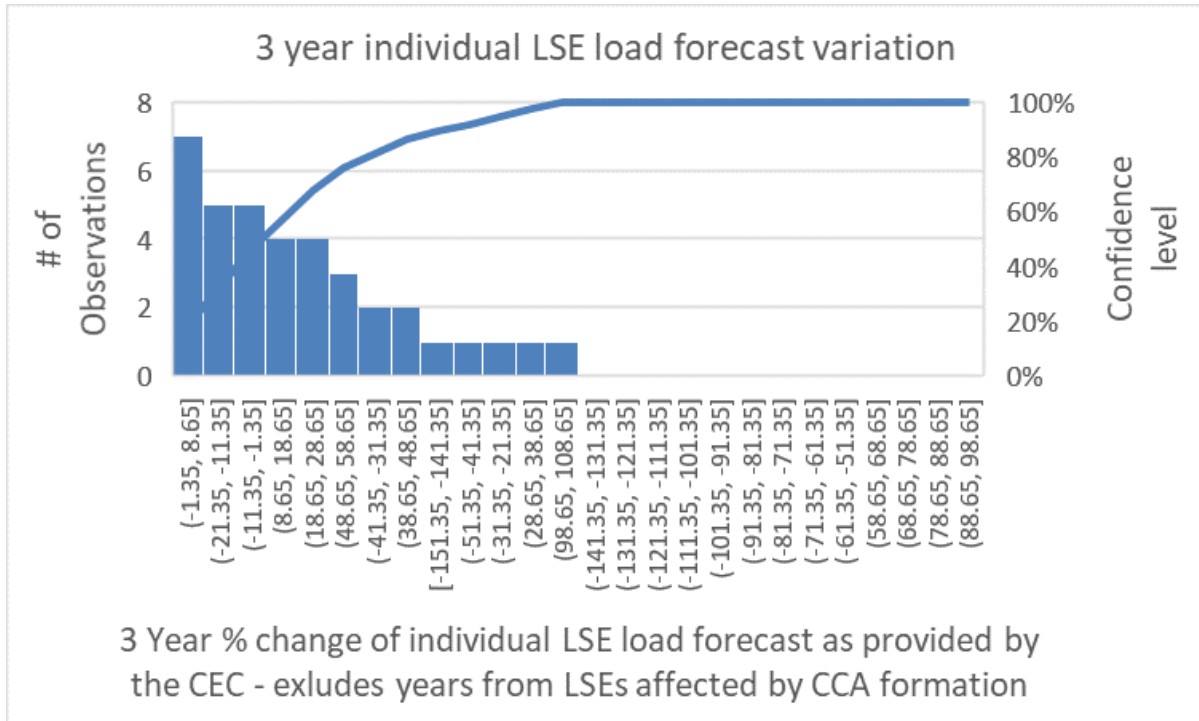


Chart 3: Percentage Load forecast change every three years



There are multiple reasons for the load forecasting variations, above. These reasons include:

- Actual accuracy of the forecasts between years,
- Load growth and information provided by the LSE to the CEC,
- The difference in time,
- Day and month of the projected CAISO coincident peak etc.

**Straw proposal:**

Percent of MIC to be allocated in the 3-year ahead timeframe versus 1-year ahead timeframe:

In order to assure that the year-by-year observed variation of maximum import capability (year by year maximum percent difference + maximum decrease between years) does not impose a heavy burden on yearly allocations, the three year out MIC allocation should not exceed 85% of MIC.

In order to assure liquidity in the 3 year out MIC allocation at least half of the current ‘Remaining Import Capability’ (not locked by existing ETC, TORs and Pre-RA Import Commitments) should be given out. Resulting in a minimum 80% of MIC (based on data from future years 1-8) to minimum 75% of MIC (based on data from future years 9-10).

The CAISO is currently proposing to allocate 80% of MIC in the 3-year ahead timeframe and the remaining in the year ahead timeframe. There would be no incremental MIC allocated two years forward, though LSE are permitted to trade allocated MIC during that year. Alternative proposals could be 75% or 85% of MIC allocated in the 3-year ahead timeframe.



The allocations given in the 3-year ahead process must be locked in by the receiving LSE through RA contracts and communicated to the CAISO before the year ahead MIC allocation process begins else they will be available for reallocation to all LSEs. This way the unused allocations could go to LSEs with higher or increased load share ratio, the allocation may effectively be returned to the same LSE if its load share ration stayed the same or increased between the 3-year ahead process and the 1-year ahead process. If locked by RA contracts before the year ahead MIC allocation process begins, the respective LSE's one-year allocation may not decrease below the locked portion regardless of the year ahead load share ratio of the respective LSE.

Assurance of MIC allocations for new RA contracts beyond the 3-year horizon:

In order to further assure that once an import RA contract is signed, it can count by the LSE for the full term of the contract and not just 3 years the CAISO is proposing to establish a threshold below which the LSE may enter into long-term RA import contracts with unlimited years. The threshold level (by using individual LSE by LSE load forecast variation among years) should be about 55% (with ~90% confidence level) and about 70% (with ~80% confidence level) of their load share quantity.

The CAISO is currently proposing to allow LSEs to lock MIC allocation for up to 20 years if the contracts are within 60% of their total 3 year out allocation. Because certain LSE are currently at or above their load share ratio the total locked MIC for more than 3 years will effectively be at over 71%.

If locked by RA contracts before the year-ahead MIC allocation process begins, the respective LSE's one year and 3-year ahead allocations may not decrease below the locked portion regardless of the load share ratio of the respective LSE.

Should locking up MIC allocations through new RA contracts, be allowed only for contracts that are completely below the unlimited year threshold or the 3-year allocation or should they be allowed up to the unlimited year threshold or the 3-year allocation even if this only constitutes part of the RA contract? Example: A LSEs unlimited threshold is 60 MW, the 3-year ahead allocation is 80 MW and its load share quantity is 100 MW. If the LSE signs a 10-year 80 MW RA import contract, should 60 MW of this contract be allowed to count for unlimited threshold or not?

The CAISO is currently proposing to allow any part of a contract to count toward a LSEs unlimited threshold or 3-year ahead allocation. In the above-mentioned example, the LSE will be at risk for a portion of this contract (20 MW) during the next 3-year allocation.

Locking up MIC allocations at the branch group level:

If the current methodology of branch group assignment is maintained the allocation process will follow steps 8-12, after which the LSEs will have about one year and half to lock their received branch group allocations by signing RA contracts. Any unlocked amounts of RA import allocations will be reallocated during the annual Ra import allocation process.

The CAISO is open to different approaches either firm come first served (must have proof of signed long-term RA contract) or through a “open window” where LSEs are directly competing against each other for the most attractive and lucrative branch group allocations.

Transparency:

The CAISO is currently proposing to make public information related to the LSE holder and locked up amounts, including expiration years, for each individual branch group.

Sell or cancelation of contracts used to lock MIC allocations:

Any LSE selling or canceling a RA import contract used to lock MIC allocations will lose its benefit in the next RA allocation process. The CAISO must be notified within two weeks after sell and/or cancelation.

Any LSE purchasing an RA contract currently used by a different LSE to lock MIC allocation may use it as its own contract (from a new current date) to lock its own MIC allocation, during the next available allocation process, if it has room under its unlimited or 3-year ahead threshold.

If an LSE chooses to sell its current import contract used to lock MIC allocations along with its MIC allocation then the selling LSE must maintain the contract under their name throughout the CAISO allocation process, both 3-year ahead and 1-year ahead, and it must transfer to the buyer the contract and the MIC allocations directly through CIRA, every year after the final allocations have been posted.

Any renewal or extension of expiration date of an existing contract should constitute a new contract and the LSE must go through the process of locking up MIC allocations again at their current established load ratio share. Any contract must renew at least once in 20 years, therefore any “evergreen” or “life of the plant” type contracts are assumed to expire at the end of every 20-year period and the LSE must go through the process of locking up MIC allocations again at their current established load ratio share.

Change to the Remaining Import Capability allocation methodology:

Currently the Remaining Import Capability after Step 4 is assigned only to Load Serving Entities serving Load within the CAISO Balancing Authority Area that have not received Existing Contract Import Capability and Pre-RA Import Commitment Capability under Steps 3 and 4, that exceed the Load Serving Entity’s Load Share Quantity. And it is assigned until fully exhausted to those Load Serving Entities eligible to receive an assignment under this Step based on each Load Serving Entity’s Import Capability Load Share Ratio up to, but not in excess of, its Load Share Quantity.

This methodology to split the Remaining Import Capability results in an uneven contribution among the eligible LSE. Example:

**Table 4: Current RIC allocation methodology**

TIC = 500	Load share ratio	Steps 3 & 4	Load share quantity	Load Share after step 4	RIC assignment	Actual allocation MW	Effective allocation
LSE 1	53	15	500*.53=265	.53/.98=.54	300*.54=162	177	177/265=.67
LSE 2	40	75	500*.40=200	.40/.98=.41	300*.41=123	198	198/200=.99
LSE 3	5	10	500*.05=25	.05/.98=.05	300*.05=15	25	25/25=1
LSE 4	2	100	500*.02=10	-	-	100	100/10=10

The CAISO is proposing to use a different methodology to split the Remaining Import Capability that will result in a leveled contribution from each eligible LSE as follows:

Follow steps 1-4 as done today.

Under step 5 after eliminating LSEs serving load within the CAISO Balancing Authority Area that have received Existing Contract Import Capability and Pre-RA Import Commitment Capability under Steps 3 and 4, that exceed the Load Serving Entity’s Load Share Quantity; calculate the Gross Remaining Import Capability by subtracting the sum of the MWs assigned to excluded LSE from the Total Import Capability:

$$GRIC = TIC - \sum (\text{MWs assigned to non-eligible LSEs}).$$

Then calculate the share of GRIC on a load share ratio among the remaining eligible LSEs.

Any LSEs with MIC allocation from Steps 3 & 4 higher than or equal to its GRIC allocation will also be excluded from further allocation of RIC.

Each remaining eligible LSE will have its RIC calculated by subtracting its total of MIC allocations under steps 3 & 4 from its share of its GRIC.

$$\text{LSEs share of RIC} = \text{LSE share of GRIC} - \sum (\text{MIC allocations under steps 3 \& 4})$$

**Table 5: Proposed new RIC allocation methodology**

TIC = 500	Load share ratio	Steps 3 & 4	Load share quantity	Load Share after step 4	GRIC share	RIC assignment	Actual allocation MW	Effective allocation
LSE 1	53	15	500*.53=265	.53/.98=.54	400*.54=216.3	216-15=201.3	216.3	216.3/265=.82
LSE 2	40	75	500*.40=200	.40/.98=.41	400*.41=163.3	163.3-75=88.3	163.3	163.3/200=.82
LSE 3	5	10	500*.05=25	.05/.98=.05	400*.05=20.4	20.4-10=10.4	20.4	20.4/25=.82
LSE 4	2	100	500*.02=10	-	-	-	100	100/10=10

Significant changes to the LSE by LSE load forecast due to formation of new LSEs:

While the CAISO believes that the proposal herein will stand well against normal year-by-year fluctuations in MIC, CEC load forecast, load growth and other normal changes between years it may not

be suitable during creations of new LSEs, especially when their size is significant compared to the size of the departing LSE.

If the departing LSE does not have significant locked MIC allocations then there is no impact during the transfer. However, if the departing LSE has significant locked MIC allocations due to existing RA import contracts then this could create an issue for both the new LSE – by potentially not having available MIC in the annual or multi-year allocation process and for the departing LSE since now it could potentially be stranded with a RA contract and little to no load.

These situations arise when a significant portion of the load in one area is transferred from one LSE to another (like the creation of new CCAs). In these special cases, should the departing LSE be forced to relinquish certain RA Import contracts and their respective locked MIC allocations to the new LSE? Moreover, in the same cases should the new forming LSE be forced to take over certain RA Import contracts and their respective locked MIC allocations from the old LSE? Should there be a test of size significance, before the new and departing LSEs must engage in these transfers?

Currently the CAISO has no proposal and seeks more input; especially from the parties most likely involved with these load transfers at the LSE and regulatory levels.

#### **Stakeholder Input**

The CAISO has received comments from SCE, AWEA – California, PG&E, Powerex Corp., CalCCA, SMUD, Six Cities, SWPG, WPTF and CPUC. A majority of stakeholders agree that it would be beneficial to have higher certainty that new or existing RA contracts, other than Pre-RA Import Commitments, can receive RA Import allocations at the appropriate scheduling point, in order to facilitate long-term procurement.

An overwhelming majority of stakeholders agree that RA Import Allocations should go to LSEs.

Some concerns still remain due to on-going proceedings at the CPUC that may or may not result in multi-year system RA requirements.

An overwhelming majority of stakeholders agree that the proposed changes to Step 5 of the MIC allocation process is an improvement to the existing process.

Based on similar comments received from SCE, PG&E, SWPG and CPUC, the CAISO has developed an alternative multi-year allocation proposal that addresses load migration directly and would provide higher certainty for long-term RA import contracts to receive MIC allocations at their desired intertie. However, under the new alternative the LSEs will have to manage a higher risk associated with signing such long-term import RA contracts than under the CAISO original straw proposal. The new alternative is described herein under the revised straw proposal.

## 4. Draft Final Proposal: Maximum Import Capability Stabilization & Revised Straw Proposal: Multi-year Assignment Process

The CAISO is moving forward with a draft final proposal regarding MIC stabilization methodology consistent with that proposed under the straw proposal.

The CAISO proposes herein, a second alternative to the multi-year available import capability assignment process that would allow long-term contracting (minimum 3-years) and could facilitate building of new resources dedicated to LSEs that serve load inside the CAISO BAA, without unduly restricting entry of future new LSEs.

### 4.1. Maximum Import Capability Stabilization

The CAISO and the majority of stakeholders agree that the CAISO proposal for MIC stabilization is an improvement to the current methodology.

A number of stakeholders request further exploration of purely forward looking methodology to establish MIC. The only proposals provided by stakeholder relate to the use of physical capability of the intertie with or without accounting for exports. As the CAISO has expressed before, the total of physical capability of each intertie totals about 44,400 MW and the highest net import the CAISO has ever seen is around 12,500 MW. The CAISO believes that maintaining unused deliverability on interties would be to the detriment of new internal resources inside the CAISO (connected close to the same nodes where imports are scheduled). This will negatively impact all CAISO ratepayers and therefore the CAISO will not be moving forward with alternate proposals that solely rely on physical capability of interties. The CAISO believes that some evidence needs to exist that the import capability is being used, or potentially will be used, to support an RA import, in order for the CAISO to continue to maintain its deliverability at the expense of new resource entrants in the CAISO grid. Currently, among concrete measures of availability, including actual RA usage, future CPUC IRP portfolios, and actual energy schedules, the highest value of MIC is established by continued use of actual energy schedules. The CAISO continues to believe that actual energy schedules are still the most appropriate way of establishing and dividing MIC among the available interties for this reason.

The CAISO is willing to explore other viable alternatives through this on-going stakeholder process however any new proposals will not be implementable for RA year 2021. The CAISO needs to commence changes to the Reliability Requirements BPM in April in order for these changes to be approved in May for June implementation. Other viable alternatives may be discussed and explored for RA year 2022 implementation along with the multi-year MIC allocation effort.

#### **Draft final proposal for MIC stabilization:**

The CAISO proposes to calculate Maximum Import Capability for the next RA year, by using the average of four hours, with no more than one hour per day, two hours in each one of the two years with the highest actual imports (when load is at or above 90% of that year's peak) among the past five years.

The years will then be ranked by the sum of their two highest actual imports (when load is at or above 90% of that year's peak).

Once the four selected data points are established by actual real-time data, transmission usage data from OASIS is used from the hour ahead (HASP) market for the same hour as established by real-time data. The CAISO will use the actual net schedules plus the unused ETC and TOR for that hour for each branch group. The hour ahead market data is preferred because is closer to real-time than day ahead market and it has higher values than real-time market data because the ETCs and TORs are protected for in the day ahead and hour ahead market however, they are released in the real-time market.

The baseline MIC calculation will use branch group by branch group HASP schedule for those 4 hours as established above. In order to come up with the actual MIC for the applicable (future) RA year, the baseline calculation above is augmented by the future year available ETC, TOR and Pre-RA Import Commitments as well as TPP portfolio (in order to assure that state and federal policy goals are achieved).

#### 4.2. Available Import Capability Multi-year Assignment Process.

The CAISO and stakeholders agree that two elements presented in the straw proposal (are necessary and represent improvements to the current process: transparency and changes to Remaining Import Capability allocation methodology - step 5. The CAISO is proposing to move forward with these two elements of the proposal. Regarding multi-year MIC allocations, all stakeholders agree that providing higher level of certainty for retention of MIC allocations at a certain branch group year over year would be an improvement to the existing process. The stakeholder feedback on this issue has been split mainly between two groups; one that prefers highest level of certainty – once signed – contracts dictate MIC allocations and they cannot be reduced due to changes in load forecast and a second group that prefers the load share ratio to always be the driver of MIC allocations, even if it results in slightly lower level of certainty towards already signed import RA contracts. The CAISO will therefore be presenting two alternatives in this revised straw proposal and solicits further stakeholder input on both.

##### **Transparency:**

The CAISO is currently proposing to make public information related to the LSE holder and locked up amounts, including expiration years, for each individual branch group.

##### **Change to the Remaining Import Capability allocation methodology:**

The CAISO is proposing to use a different methodology to split the Remaining Import Capability that will result in a leveled contribution from each eligible LSE as follows:

- Follow steps 1-4 as done today.
- Under step 5, after eliminating LSEs serving load within the CAISO Balancing Authority Area that have received Existing Contract Import Capability and Pre-RA Import Commitment Capability under Steps 3 and 4, that exceed the Load Serving Entity's Load Share Quantity; calculate the

Gross Remaining Import Capability by subtracting the sum of the MWs assigned to excluded LSE from the Total Import Capability:

- $GRIC = TIC - \sum (\text{MWs assigned to non-eligible LSEs})$ .
- Then calculate the share of GRIC on a load share ratio among the remaining eligible LSEs.
- Any LSEs with MIC allocation from Steps 3 & 4 higher than or equal to its GRIC allocation will also be excluded from further allocation of RIC.
- Each remaining eligible LSE will have its RIC calculated by subtracting its total of MIC allocations under steps 3 & 4 from its share of its GRIC.
- $LSEs \text{ share of RIC} = LSE \text{ share of GRIC} - \sum (\text{MIC allocations under steps 3 \& 4})$ .

For additional details or examples see straw proposal above.

### **Revised Straw proposal:**

#### Alternative 1 – RA contracts always respected (same as straw proposal):

- Allocate MIC to LSEs as follows: 80% of total MIC three years out and 20% of total MIC one year out.
- LSEs may lock up their multi-year allocations through RA contracts as follows: 60% of their allocation for up to 20 years, 20% of allocations up to 3 years, and 20% of allocations on a yearly bases.
- Three year out allocations not locked up before the year ahead process will be reallocated to all the LSEs.
- LSE by LSE three year out MIC allocation at the branch group level follows steps 8-12 as available today.

For additional details or examples see straw proposal above.

Pros: RA contracts are always respected and assures they can be counted for by the purchasing LSE irrespective of changes in load share ratio or formation of new LSEs (load migration).

Cons: The alternative does not address high deviations/changes in load share ratio or formation of new LSEs (load migration).

#### Alternative 2 – Load share ratio always respected (new):

- Allocate MIC to LSEs as follows: 75% of total MIC three years out and 25% of total MIC one year out.

- LSEs may lock up their multi-year allocations through RA contracts for an undetermined length of time, however if the individual LSEs year ahead allocation falls below the previous year(s) lock-up amount, then the LSE will be limited to the current year ahead allocation. Each LSE with new RA contracts that lock-up MIC allocations at the branch group level must provide the CAISO with RA contract priority curtailment order. This is necessary in order for the CAISO to process RA contract curtailments in case new year ahead MIC allocations fall below the previous year lock-up amounts.
- Three year out allocations are not locked up before the year ahead process will be reallocated to all the LSEs.
- LSE by LSE three year out MIC allocation at the branch group level follows steps 8-12 as available today.

Pros: It directly addresses high deviations/changes in load share ratio or formation of new LSEs (load migration).

Cons: LSEs signing multi-year import RA contracts need to self-manage their risk of changes in load share ratio or formation of new LSEs by either being willing to sell part of their current RA portfolio or being willing to purchase additional MIC allocations from other LSEs.

RA contracts used for locking MIC allocations to branch group for either option:

The CAISO agrees with stakeholder comments that the CAISO should develop mechanisms that will ensure capacity built outside California to support CAISO load will be available and accessible to California on the same basis as RA capacity in the CAISO balancing area is available to the CAISO. Therefore the CAISO is proposing that new contracts used to lock MIC allocations to branch group should be associated only with either pseudo-tied resources, resource-specific dynamically scheduled system resource or other resource-specific system resource.

## 5. Stakeholder Engagement and EIM Governing Body Role

Stakeholder input is critical for developing both the short-term stabilization method and the long-term multi-year allocation process. The schedule proposed below allows opportunity for stakeholder involvement and feedback.

This initiative does not require briefing to EIM Governing Body, because the amount and/or allocation of RA import capability applies only to Load Serving Entities (LSEs) within the CAISO Balancing Authority Area (BAA). The changes to the MIC calculation methodology requires changes to the Reliability Requirements Business Process Manual (RRBPM) whereas changes to the allocation process will need to be approved by the CAISO Board of Governors before changes to the CAISO Tariff need to be approved by the Federal Energy Regulatory Commission (FERC).



## 5.1. Schedule

Table 3 lists the proposed schedule for the updates to the Maximum Import Capability stabilization and multi-year assignment process.

*Table 6: Schedule for Maximum Import Capability stabilization and multi-year assignment process*

<b>Item</b>	<b>Date</b>
<b>Post Issue Paper</b>	December 3, 2019
Stakeholder Call	December 10, 2019
Stakeholder Comments Due	December 24, 2019
<b>Post Straw Proposal</b>	January 22, 2020
Stakeholder Meeting	January 29, 2020
Stakeholder Comments Due	February 13, 2020
<b><i>Post Revised Straw Proposal</i></b>	<i>March 12, 2020</i>
<i>Stakeholder Call</i>	<i>March 19, 2020</i>
<i>Stakeholder Comments Due</i>	<i>April 2, 2020</i>
<b>Post Draft Final Proposal</b>	May 21, 2020
Stakeholder Call	May 28, 2020
Stakeholder Comments Due	June 11, 2020
<b>CAISO Board of Governors Meeting</b>	September, 2020

The CAISO proposes to present its proposal to the CAISO Board of Governors on September 2020. The CAISO is committed to providing many opportunities for stakeholder input into its market design, policy development, and implementation activities. Stakeholders should submit written comments to [RegionalTransmission@caiso.com](mailto:RegionalTransmission@caiso.com).

## 5.2. Next Steps

The CAISO will discuss the Straw Proposal during the stakeholder meeting on March 19, 2020. The CAISO requests stakeholders submit written comments in response to the Maximum Import Capability stabilization and multi-year assignment process straw proposal and stakeholder meeting by April 2, 2020.