



California ISO

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

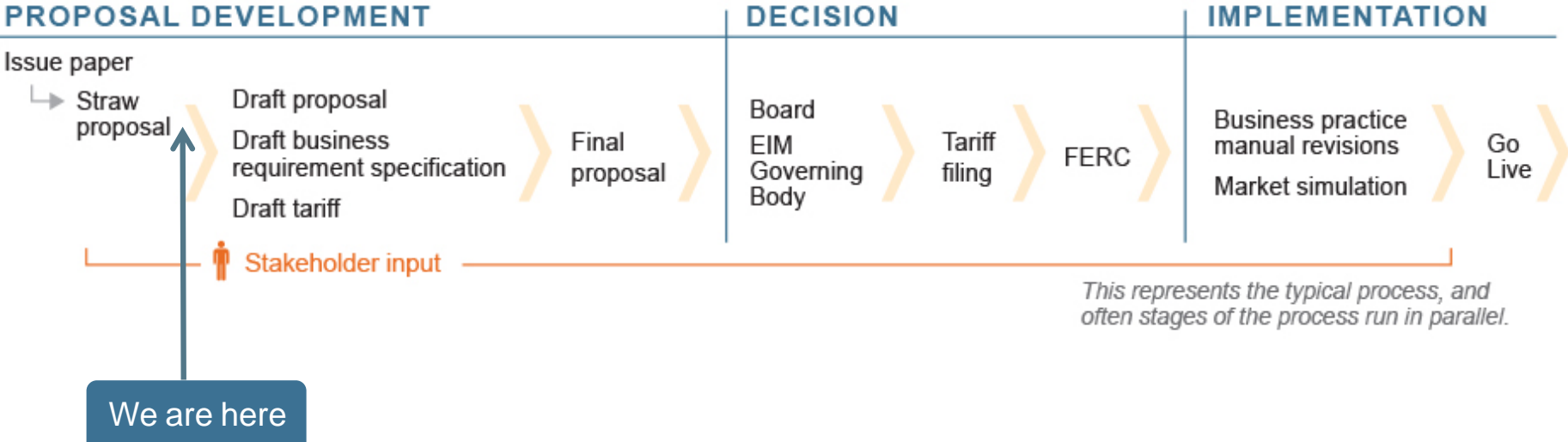
Catalin Micsa

Senior Advisor Regional Transmission Engineer

Stakeholder Meeting

January 29, 2020

# CAISO Policy Initiative Stakeholder Process



# Agenda

- Introduction
- Purpose of stakeholder initiative
- References
- Short-term - proposed stabilization of Maximum Import Capability
- Long-term - proposed multi-year assignment process
- Open Discussion
- Initiative schedule
- Next Steps

# Introduction

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

## Purpose of stakeholder initiative

- Short-term - 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
- Long-term - 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

## References:

**ISO Tariff Section 40.4.6.2:**

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

**Reliability Requirements BPM section 6.1.3.5 & Exhibit A-3:**

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

# RA Import Capability Assignment Process

<b>Step 1</b>	Determine Maximum Import Capability (MIC)
	- Total ETC
	- Total ETC for non-ISO 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 ISO 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 ISO 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

# Maximum Import Capability Calculation

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



## MIC Calculation Variability

- Currently dry hydro years can negatively impact MIC – potentially up to 50% of the time since only the last two years are used.
- Increasing dry hydro years have been observed potentially influenced by climate change.
- Potential increase in generation retirements is expected in California and across the West due to age of resources and desires to achieve higher environmental and renewable goals.
- Temporary decreases in MIC can almost immediately be filled in by internal resources already in the queue and if MIC values return in an year or two there will be unintended consequences for both the internal resources and MIC since now they cannot be simultaneously deliverable.

# Maximum Import Capability Stabilization

- ISO desires to have more stable MIC values
  - Currently actual values in any one year get no protection, however they do influence the calculation in two different years.
  - Comparatively actual values for internal resources get protection of deliverability for 3 years.
- ISO would like to continue MIC protection for interties that are actually used by LSEs and does not envision a method that will not allow MIC to decrease at all for excessively long periods.
- In order to be implemented in the 2021 RA year it requires approved BPM changes by mid June 2020.

# Attempts at MIC Stabilization

- By using different sample period 3, 5 and 10 years the ISO has tried different methods for stabilization:

MIC	Maximum	75% Quartile	Average	Median	Average Deviation	Standard Deviation	Eliminate years
Values too high	Yes	Yes	No	No	No	No	No
Values too low	No	No	No	No	Yes	Yes	No
Variability	Low	Low	High	High	High	High	Low

- In order to eliminate most of the yearly volatility some years need to be eliminated from calculation. ISO is proposing to eliminate the years with the smallest MIC values.
- It is desirable to have the least deviation from current method already agreed upon by stakeholders through a FERC technical call.

## Straw proposal for MIC stabilization

*Use the average of four hours, with no more than one hour per day, two 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 as baseline calculation.*

*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 accomplished).*

*Increased values must pass a simultaneous deliverability test.*

## Ranking and benefits

- The years are ranked by the sum of their two highest actual import hours (when load is at or above 90% of that year's peak)
- Maintains average calculation – in order to mitigate impacts on branch group values related to accidental system “de-rates”.
- Does not maintain unused deliverability on the interties for excessively long periods.
- It is commensurate with the time deliverability is maintained for unavailable resources internal to the ISO.
- Drawback: New schedules at the time of need may not increase MIC (as done today) unless last year or last two years rank among top two in last five.
  - Mitigation relies on proper and detailed TPP portfolio as well as new steps in the multi-year allocation process.

# Available Import Capability Assignment Process

- Available Import Capability represents the Maximum Import Capability of an Intertie into the CAISO Balancing Authority Area in MWs, deliverable to the CAISO Balancing Authority Area based on CAISO study criteria, minus the sum in MWs of all Existing Contracts and Transmission Ownership Rights over that Intertie held by load serving entities that do not serve Load within the CAISO Balancing Authority Area.
- The ISO assigns the total Available Import Capability on an annual basis for a one-year term to LSE SCs serving Load in CAISO's BAA through the 13 step allocation process detailed in the CAISO Tariff section 40.4.6.2.1.
- 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.

# Current MIC Annual Allocation

- Current annual assignment process helps to facilitate the procurement of previously installed and available resources outside of the CAISO BAA elsewhere in WECC otherwise not committed to other BAAs.
- Potential increase in retirement of generation is expected in California and across the West due to age of resources and desires to achieve higher environmental and renewable goals.
- Current process does not facilitate long-term contracts or building of new resources since they require multi-year contracts for financing.
- 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.

# Multi-Year Assignment Process

- ISO intends to move forward with multi-year available import capability assignment process that could facilitate long-term contracting (minimum 3-years) and facilitates multi-year contracts for resources dedicated to LSEs that serve load inside the ISO BAA, without unduly restricting entry of new LSEs in the future.
- In order to be implemented in the 2022 RA year it requires FERC approval of new Tariff along with BPM changes by mid June 2021.
- Import capability is assigned to ISO LSEs because those LSEs and their customers pay for the transmission system and should receive the benefits from it and therefore have the ability to select which external resources are procured and relied upon as part of RA capacity portfolios.



## Maximum value for 3 year's out allocation

- Maximum MIC percent difference between years:
  - 7% one year out
  - 10% two year out
  - 12% three year out
  - % to decrease (not eliminate) because of proposed stabilization
- MIC expected decrease due to expiration of old ETC/TOR and pre-RA import commitments:
  - 2% using last year's data
  - 4% using two year's ago data
- Conclusion: In order not to impose a heavy burden on yearly allocations, the three year out MIC allocation should not exceed 85% of overall MIC.

## Minimum value for 3 year's out allocation

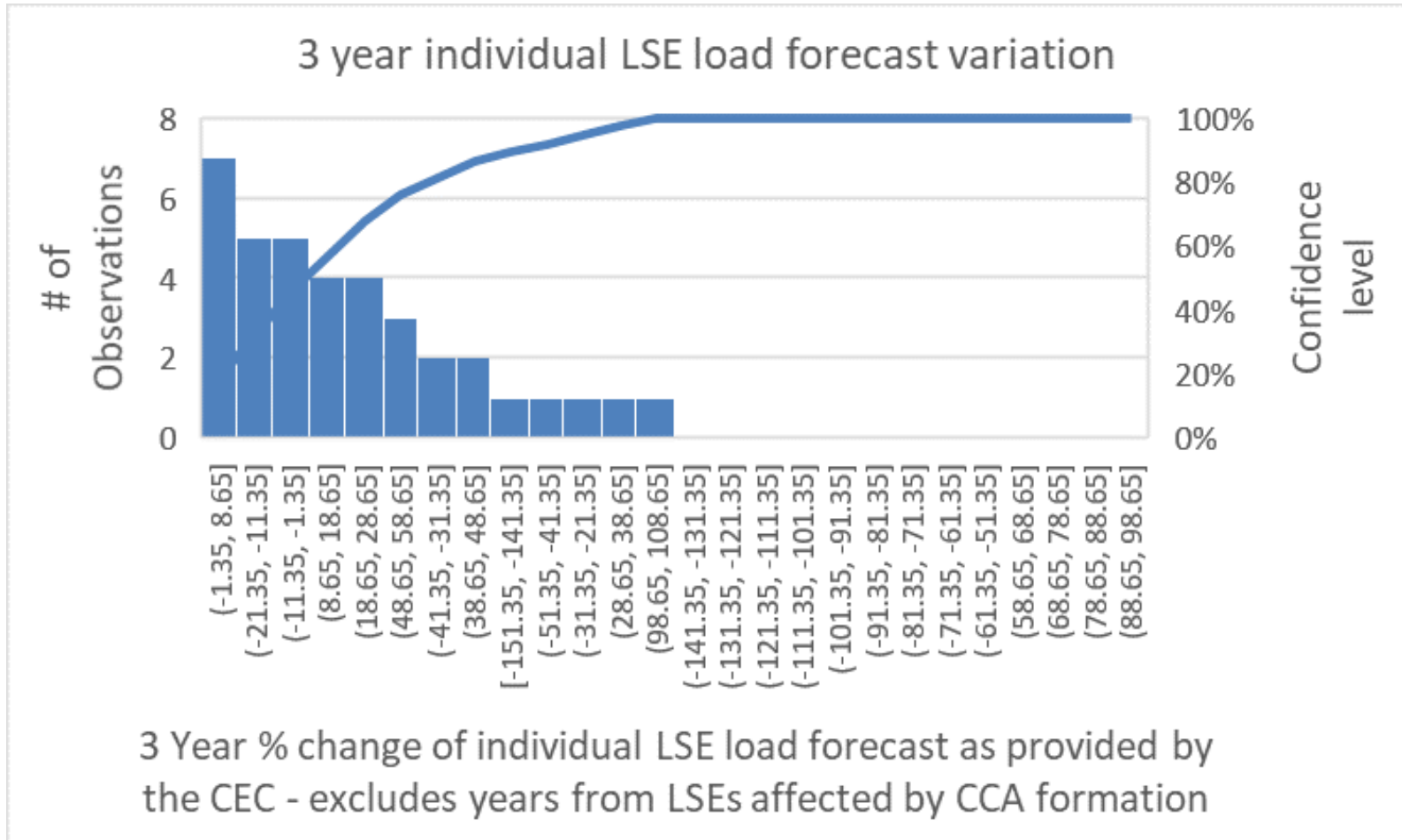
- Based on advisory estimates of future import capability:
  - ~ 60% of MIC is already locked for the next 8 years (ETC, TOR & Pre-RA)
  - ~ 50% of MIC is already locked for the next 9+ years
- In order to provide liquidity in the new 3-years+ allocations ISO proposes to give out at least half of the Remaining Import Capability (currently unlocked by ETC/TOR or pre-RA import commitment):
  - 80% of MIC using unlocked amounts for the next 8 years
  - 75% of MIC using unlocked amounts for 9+ years
- Conclusion: Allocate minimum 75-80% of MIC through the 3-year out allocation process (includes old ETC/TOR and pre-RA import commitments until they expire).

# Individual LSE by LSE load forecast variation

Load forecast spread and confidence level:

- one year out
  - 20% (at ~80% confidence level)
  - 30% (at ~90% confidence level)
- two year out
  - 20% (at ~80% confidence level)
  - 40% (at ~90% confidence level)
- three year out
  - 30% (at ~80% confidence level)
  - 45% (at ~90% confidence level)
- with several significant outliers

# Example of Individual LSE by LSE load forecast variation



# ISO straw proposal

Allocated to Load Serving Entities (LSE):

- 80% of total MIC – three years out
- 20% of total MIC – one year out

LSE may lock their allocations through RA contracts as follows:

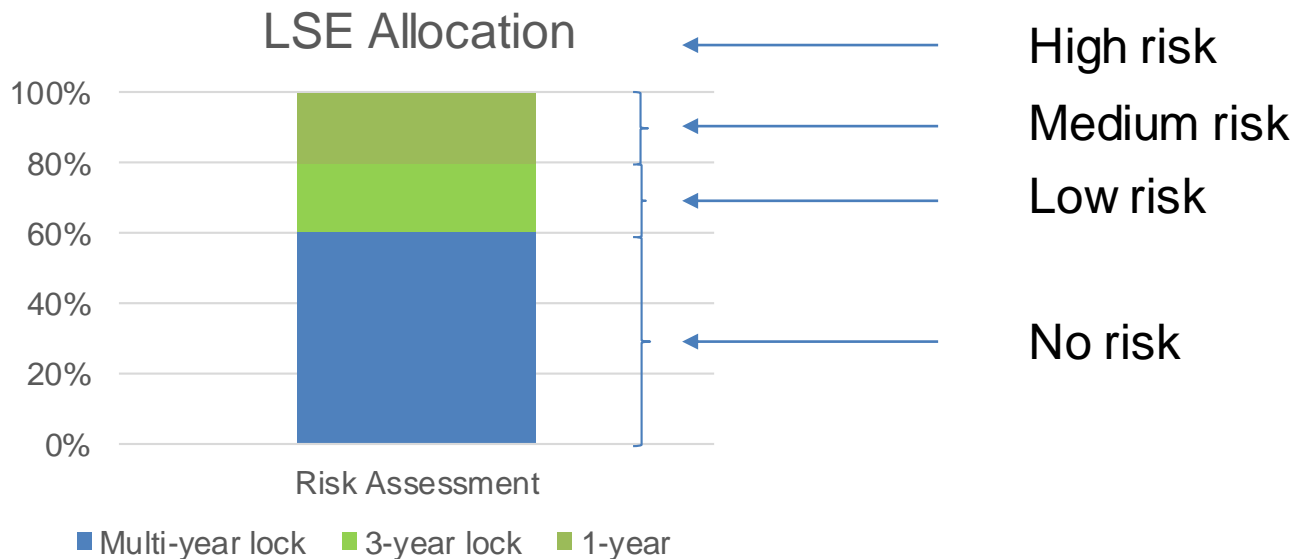
- 60% of their total allocation – up to 20-years
- 20% of their total allocation – up to 3 years
- 20% of their allocation on yearly bases

Three year out allocation not locked up before the year ahead process will be reallocated to all the LSEs.

# LSE risk assessment

Locked in amounts in MWs with two decimals, like all RA requirements.

Same contract can be used to lock in portions of the multi-year and three year ahead allocations.



## LSE by LSE MIC allocation at the Branch Group level

The existing agreed upon allocation process can be used for the 3-year out allocation process as well:

- Follow steps 8-12 as available today (limited to 80% of MIC)
- Any remaining Step 13 allocations + any unlocked and unused long-term allocations will be reallocated during the annual allocation process along with the remaining 20% of MIC.

Considerations for changing the MIC allocation to BG level:

- First come first served with signed RA contract?
- Open window concept?
- Other?

# Resource Adequacy Contracts

For transparency ISO intends to make public:

- LSE holder, locked up amounts and expiration year for each BG

Sell or cancelation of contracts used to lock MIC allocations:

- Notify ISO within two weeks – lose RA allocation in next round
- Sell without RA allocation maybe used by the new LSE
- Sell with RA allocation, rights must be maintained under old LSE, transfers to new LSE must be done in CIRA directly
- Any renewal is treated as a new contract



# Changes to the Remaining Import Capability allocation methodology

Current methodology results in an uneven effective allocation among LSEs. Example:

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	$500 \cdot .53 = 265$	$.53 / .98 = .54$	$300 \cdot .54 = 162$	177	$177 / 265 = .67$
LSE 2	40	75	$500 \cdot .40 = 200$	$.40 / .98 = .41$	$300 \cdot .41 = 123$	198	$198 / 200 = .99$
LSE 3	5	10	$500 \cdot .05 = 25$	$.05 / .98 = .05$	$300 \cdot .05 = 15$	25	$25 / 25 = 1$
LSE 4	2	100	$500 \cdot .02 = 10$	-	-	100	$100 / 10 = 10$

## New proposed methodology for RIC allocation

Follows steps 1-4 as done today.

Under step 5 calculate Gross Remaining Import Capability as:

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

- then calculate the load share ration share of GRIC to eligible LSEs.
- any LSE with Step 3 & 4 allocations > then their share of GRIC will also be excluded from further allocation
- Each remaining eligible LSE will have its RIC calculated as:

$$\text{RIC} = \text{LSE share of GRIC} - \sum(\text{MIC allocations in previous steps})$$

# New proposed methodology for RIC allocation

Example:

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	$500 \times .53 = 265$	$.53 / .98 = .54$	$400 \times .54 = 216.3$	$216 - 15 = 201.3$	216.3	$216.3 / 265 = .82$
LSE 2	40	75	$500 \times .40 = 200$	$.40 / .98 = .41$	$400 \times .41 = 163.3$	$163.3 - 75 = 88.3$	163.3	$163.3 / 200 = .82$
LSE 3	5	10	$500 \times .05 = 25$	$.05 / .98 = .05$	$400 \times .05 = 20.4$	$20.4 - 10 = 10.4$	20.4	$20.4 / 25 = .82$
LSE 4	2	100	$500 \times .02 = 10$	-	-	-	100	$100 / 10 = 10$

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

Not creating problems when either:

- Size of new LSE is not significant compare to the size of existing LSE
- Existing LSE does not have significant locked MIC allocations

Creating problems when:

- Size of new LSE is significant compare to the size of existing LSE and existing LSE have significant locked MIC allocations

Solutions:

- Forced transfer of RA contracts used for locking MIC?
- Other?



California ISO

# Open discussion

# Initiative Schedule

- Post issue paper – December 3, 2019
- Stakeholder call – December 10
- Issue paper comments deadline – December 24
- Post straw proposal – January 22, 2020
- Stakeholder meeting – January 29
- Straw proposal comments deadline – February 12
- Post revised straw proposal – March 12
- Stakeholder meeting/call – March 19
- Straw proposal comments deadline – April 2
- Start BPM process for short-term MIC stabilization – April 9
- Post draft final proposal – April 30
- Stakeholder call – May 7
- Draft final proposal comments deadline – May 21
- Board of Governors Meeting – July 2020
- FERC filing after Board approval – Exact date TBD

# Next Steps

- Stakeholder comments due by end of day February 12, 2020
  - Email comments to [regionaltransmission@caiso.com](mailto:regionaltransmission@caiso.com)
  - Stakeholder comments are to be submitted within two weeks after stakeholder meetings
  - ISO will post comments and responses on website

Thank you for your participation.