California ISO

2024 RESOURCE INTERCONNECTION STANDARDS FAIR

Agenda

9:00-9:10	Welcome
9:10-11:30	Interconnection Application and Process
11:30-12:00	Studies
12:00-13:00	Lunch
13:00-13:30	Regulatory Contracts
13:30-14:30	Queue Management
14:30-15:00	New Resource Implementation
15:00-16:00	Q&A

Housekeeping Forum Reminders:

- This Resource Interconnection Standards Fair will include a series of presentations and discussions that outline the interconnection requirements for a new resource to be able to connect to the ISO grid. Presentations will cover a range of topics from submitting an interconnection request application to declaration of commercial operation. Transmission projects will not be addressed at this fair.

- This call is being **recorded** for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO's permission.
- Please keep comments brief and refrain from repeating any comments previously made.

Reminders continued:

- Breakfast is available to attendees.
- Please wear your ISO badge at all times.
- Wi-Fi must click on **ISO Guest** and accept conditions to use.
- Side discussions we encourage the use of the lobby.
- Outlets are available on the tables.
- Attendees are welcome to use this space during lunch and leave items in the room for lunch.
- The ISO café will be open and has a variety of food options and seating area.
- For future ISO tours please email in advanced visitiso@caiso.com

Instructions to ask a question – ***In Person Attendees***

- Raise your to ask a question after the presenter has paused for questions.
- Table Microphones are off. To turn on, press button and it will turn green.
- Microphones will be available to use.
  - Please remember to **state your name and affiliation** before making your comment.
- If you need technical assistance during the meeting, please send a chat to the event producer.
- Facilitator on-site: **Brenda Marquez**
- Microphones: **Hannah Pearson and Martha Sedgley**
- Event Producer: **Stacy**

Instructions to ask a question – ***Virtual Attendees***

- Select the raise hand icon  located in the lower tool bar. You will hear a beep tone when you are un-muted; at that time please state your name, and question.
- Phone only use *3 when dialed into the meeting.
  - Please remember to **state your name** **and** **affiliation** before making your comment.
- If you need technical assistance during the meeting, please send a chat to the event producer.
- Facilitator on-site: **Brenda Marquez**
- WebEx Chat: **Duane Wilson**
- WebEx and Virtual support: **Yelena Kopylov-Alford**
- Event Producer: **Stacy**

Interconnection Application and Process

Julie Balch, Sr. Interconnection Specialist
Debbie Rowe, Grid Assets Specialist
Mike Ucol, Sr. Interconnection Specialist
Daune Wilson, Interconnection Specialist Lead
Linda Wright, Interconnection Specialist Lead
Kaylee Zuberi, Sr. Interconnection Specialist

September, 2024

Topics

- Interconnection Resource Team
- ISO Tariff and Business Practice Manuals (BPM)
- Application Process
- Application Requirements and Timelines
- Engineering Data
- Withdrawals
- Electronic Submission of Interconnection Requests – Grid Resource Interconnection Portal (GRIP)

Interconnection Resources – We're here to support you!

- Interconnection Customer's point of contact throughout application and study process
- Facilitates communications between all parties
- Ensures documentation and project information is up to date in the interconnection management system
- General questions, IRInfo@caiso.com






California ISO Tariff

The California ISO operates under the terms and conditions of its FERC-approved tariff:

- Section 25 addresses interconnection of generating units

Cluster 15 will be processed under the below appendices pending FERC approval:

- **Appendix KK**
  - Resource Interconnection Standards (commonly known as the RIS).
- **Appendix LL**
  - Large Generator Interconnection Agreement for interconnection.
- **Appendix MM**
  - Small Generator Interconnection Agreement for interconnection.

California ISO Tariff-cont.

- The CAISO tariff may be modified, amended, or supplemented as needed, subject to the approval of FERC
- Each section or appendix of the CAISO tariff is maintained and updated separately in accordance with FERC orders
- The CAISO tariff governs in case of any inconsistency or ambiguity with, business practice manuals, operating procedures, or interconnection agreements

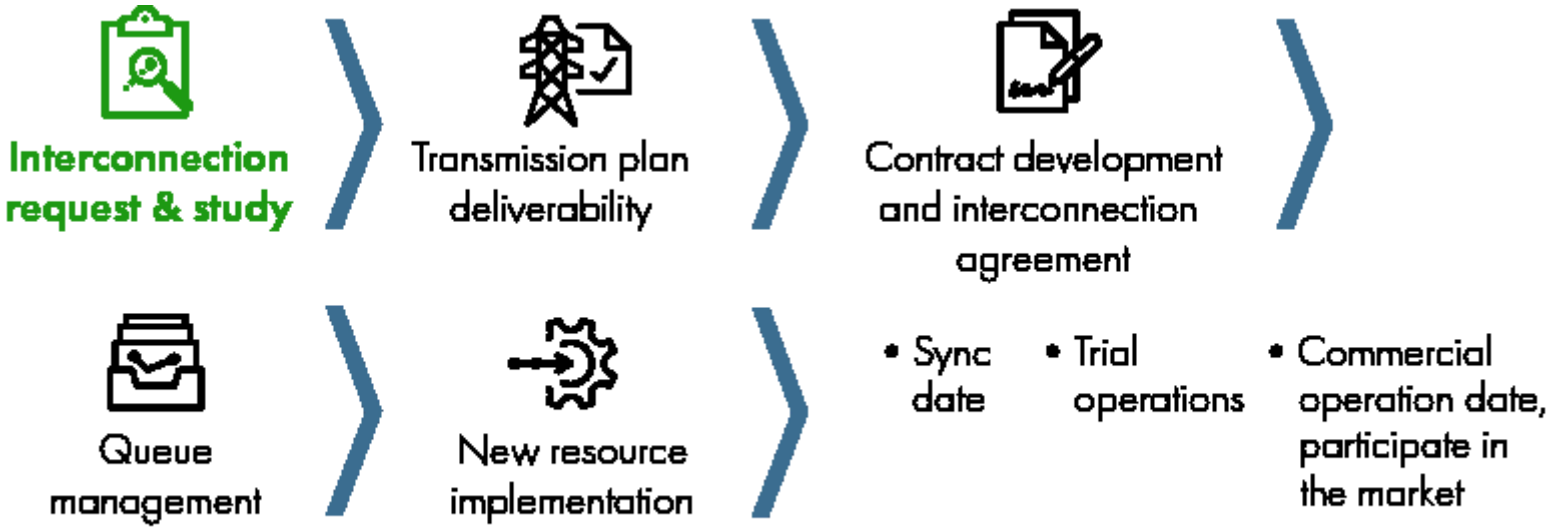
Business Practice Manuals

ISO Business Practice Manuals (BPMs) provide detailed guidelines, procedures, and examples.

Interconnection Resources Team References the BPM for Resource Interconnection Standards (RIS)

- Applicable to Cluster 15 and future clusters

Interconnection Process



Application Process

10/1/2024 - 12/2/2024: C15 Application Resubmission Window

- Customers will submit a complete application adhering to the FERC 2023 and IPE 2023 revisions, into the GRIP.
- Application will be reviewed within 5BD and notified of completeness, with opportunities to correct until 1700 PPT 12/2/24.
- Applications submitted or corrected after 1700 PPT 11/21/24 will likely not have an additional opportunity to make corrections.
- Incomplete applications will not move forward in the process.

Dec 24 to Feb 25: Cluster Study Intake Criteria Verification

- Applications will be processed through the cluster study intake criteria.

Application Process

Feb 2025: Customer Notification

- Customers will be notified if they:
  - Met the cluster study intake criteria and will begin validation
  - Tied during the cluster study intake criteria and need to submit an auction bid
  - Did not meet the cluster study intake criteria and will not be studied

Feb 2025 to March 2025: Auction Winners Notified

- Auction participants will have 10 BD to submit bids
- Winners will be notified and required to post financial security for their bid to the PTO by the end of the customer engagement window
- All projects will continue the validation process

Application Process

March 2025 to May 2025:

- Applicants will be notified 10BD after satisfying the scoring criteria if their technical data is valid.
- Invalid submissions may be corrected and will be re-reviewed within 5BD.
- This process may repeat until 30CD before the end of the engagement window.
- IRs must be valid by the end of the engagement window.
- Invalid IRs will not proceed to the Cluster Study.
- Study Area scoping meetings will be held before the end of the engagement window. Registration and NDA required.

June 2025 Cluster Study Begins

Complete Interconnection Request Package

(i) An Interconnection Study Deposit, Application Fee, Commercial Readiness Deposit

(ii) A completed application in the form of Appendix 1, 2, 3, and Attachment A via GRIP

- Secretary of State Certification and Authorized Signatory documentation

(iii) Demonstration of 90% Site Control or documentation of regulatory limitation and deposit

(iv) A load flow model

(v) A dynamic data file

(vi) A reactive power capability document

Complete Interconnection Request Package

(vii) A site drawing

(viii) A single-line diagram

(ix) Flat run plot, bump test plot, voltage reference step change test plot, frequency reference step change test, and a voltage ride-through test plot from the positive sequence load flow application

(x) A plot showing the requested MW at the Point of Interconnection from the positive sequence load flow application

(xi) Requested operating assumptions and control technologies description, if applicable

(xii) All supporting documentation required for the Interconnection Customer's selections on Appendix 2 (scoring criteria)

(xiii) If applicable, demonstrate permission to share IC interconnection Facilities

Acceptable Modifications - Resubmission Window

Between October 1, 2024 and December 2, 2024, Interconnection Customers may modify their Interconnection Requests as listed below

- decrease in the electrical output (MW) of the proposed project;
- modify the technical parameters associated with the Generating Facility technology or the Generating Facility step-up transformer impedance characteristics;
- modify the interconnection configuration;
- modify the In-Service Date, Initial Synchronization Date, Trial Operation Date, and/or Commercial Operation Date
- change in Deliverability Status to Energy Only Deliverability Status Requested , Partial Capacity Deliverability Status Requested, or a lower fraction of Partial Capacity Deliverability Status Requested;

Acceptable Modifications - Resubmission Window

- Permissible Technological Advancements consistent with Section 6.7.2.4;
- change generating technology or fuel;
- add or increase energy storage capacity, without increasing Interconnection Service Capacity;
- change their Point of Interconnection within the same Transmission Zone
  - If the CAISO redefines zone boundaries such that an IC's previously selected zone changes; the IC will have the option to modify their POI during the allowable timeframe to remain in the current, redefined zone or choose a POI in their originally requested zone;
- change their requested Deliverability Statuses.

The CAISO will not accept any modification that would result in increasing the Interconnection Service Capacity or Deliverability requested.

Project Naming Requirement

For Cluster 15 enter the project name EXACTLY as it appears in the Cluster 15 Interconnection Request spreadsheet. Validation is case sensitive.

Unacceptable project names will be updated at a later time.

NERC COM-002 Requirement

- Duplicated or Unacceptable Project Names will:
  - Cause issues on the Operations Floor
  - Require changes after the IR submission
- Valid and acceptable project names will:
  - Provide clear and concise communications
  - Provide a smooth transition for each stage of the project

Tools

- RIS BPM, Selecting a Project Name
- Prohibited Project Name List (link)

Deposits and Fees

Deposits and Fees	Additional deposits
Application Fee: $5,000 **Study Deposit:** < 80 MW: $35,000 + $1,000/MW 80 MW < 200 MW: $150,000 200 MW: $250,000 **Commercial Readiness Deposit: (to be submitted to the PTO)** 2x Study Deposit	**Merchant Option Deposit:** Required Merchant Option deposit of $10,000/MW of all requested deliverable Generating Facility capacity, but not less than $500,000 or more than $5,000,000. **Regulatory Limitation Site Control Deposit:** $10,000 per MW, subject to a minimum of $500,000 and a maximum of $2,000,000 **Auction Deposit:** = $ lowest winning bid in zone X project MW @ POI

Deposits and Fees

- Deposits and fees are due at time of submission
- All payments should be individual and specify the project name and if it is the study fee, study deposit, commercial readiness deposit, or regulatory limitation site control deposit
- For example 1 project will have 3 to 4 financial instruments:
  - Project Name: Application Fee to the ISO – cash
  - Project Name: Study Deposit to the ISO – cash
  - Project Name: Commercial Readiness deposit – acceptable financial instruments to PTO
    - Merchant Projects will require an additional deposit - acceptable financial instruments to PTO
  - Project Name: Regulatory Limitation Site Control deposit to the ISO – cash
- Customers submitting multiple projects should have separate wire transactions. Multiple projects or type of deposits on one wire will be rejected.

Application

- The application will be submitted and corrected on the Grid Resource Interconnection Portal (GRIP).
- All information from Appendix 1 (Interconnection Application), 2 (scoring criteria), and 3 (Cluster Study Agreement), and Attachment A (excel technical data) will be input to GRIP.
- All supporting documentation must be uploaded with the application.
- User will not be able to submit an application with incomplete fields or missing documentation.

Application – Scoring Criteria

- Applications choosing FCDSR/PCDSR or EOR - reimbursable will be required to submit self scores
- ICs will input scores for each field and attach supporting documentation
- Scoring documentation may only be submitted during the resubmission window and will not be reviewed until the project moves to that part of the process
- Any scores that are not supported by the provided documentation will be removed with no opportunity to cure.

Application – Scoring Criteria Documentation

- Commercial Interest points – provided by the LSE or Non-LSE
  - No documentation required from IC, ISO will enter scores as received from LSE or Non-LSE
- Project Viability Points
  - Engineering Design Plan – do not submit
    - Affidavit with PE stamp
  - Expansion Points – verified with PTO
    - Description of expansion
    - Executed GIA
    - Notice to proceed
    - Construction activities documentation
- System Need – verified with existing reports
  - Local RA
  - Long Lead Time Resource

Site Control

- Site Control is:
  - Ownership of, a leasehold interest in, an option to purchase or acquire a leasehold property upon which the Generating Facility will be located consisting of a minimum of 90% of the acreage reasonably necessary to accommodate the Generating Facility.
  - The table below shows the minimum land requirements.
  - Project requiring less land than described should submit with their documentation a dimensioned engineering diagram.

Acreage Reasonably Necessary**							
Technology	Solar PV	Solar CSP	Wind	Biomass	BESS	Combustion Turbine	Hydro
Minimum Acres/MW	6	9	30	3	0.06	3	10

*For a generation type not currently listed, provide documentation showing the project has acquired sufficient acreage
**smaller land requirements will be considered with proper documentation of project configuration

Regulatory Limitation – Definition

A "regulatory limitation" exists in cases where a project developer is awaiting regulatory approval for applications on public sites, and trust land, including land that is controlled or managed by any federal, state, or local agency. Regulatory limitations only apply to circumstances in which the regulatory process for obtaining site control does not conclude prior to or is somehow dependent on the project developer being further along in the CAISO interconnection queue. The CAISO will not consider a regulatory limitation in circumstances where the project developer did not apply to the appropriate agency with sufficient time in a process that would otherwise allow the project developer to receive site control before the required showing to the CAISO.

Regulatory Limitation – Definition

Provide an affidavit that:

- Describes the regulatory limitation;
- Documents the project land rights process for the specific agency; and
- Demonstrates where the project is in the land rights process with supporting documentation

The ISO is looking for IC support to help understand the land rights processes of the many agencies involved in siting on public lands.

Regulatory Limitation Site Control Deposit Option

- Only for projects that can not obtain site control due to a regulatory limitation
  - Deposit submitted to the ISO
  - $10,000 per MW, subject to a minimum of $500,000 and a maximum of $2,000,000
  - All Site Control deposits are fully refundable
  - IC must submit affidavit describing the regulatory limitation and supporting documentation
  - Supporting documentation must meet all 3 criteria as described in the BPM

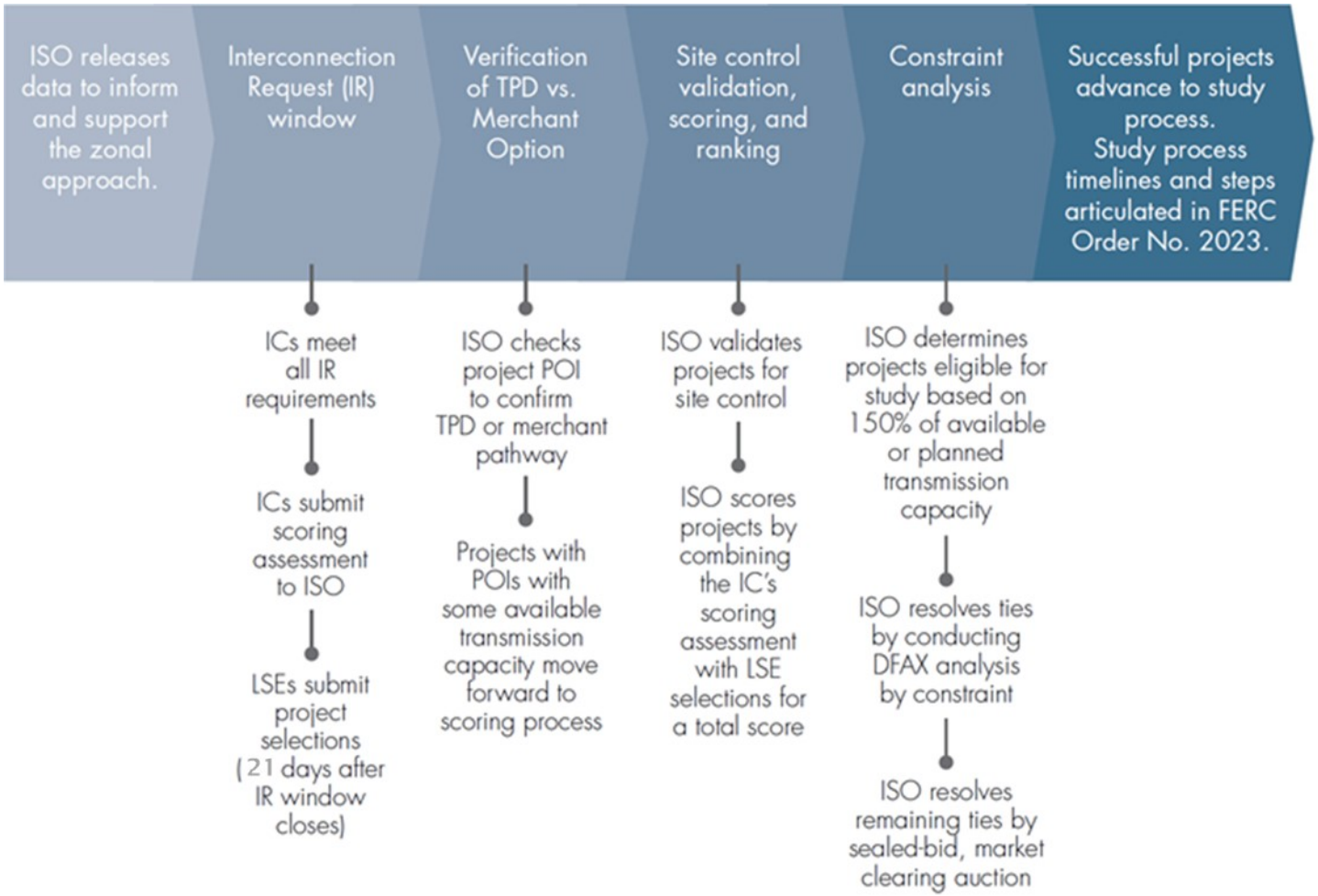
Site Control

- Common problems with documentation:
  - Inadequate land acquired per BPM defined acreage or missing documentation to support reduced acreage requirement
  - The demonstration of Site Control, at a minimum, must be through the Commercial Operation Date
    - Most commonly an issue for leases or options to lease
    - ICs must provide documentation to confirm option is exercised for the current option period
  - The name of the interconnection customer and the name of the lease/option/grant holder do not match
    - Must provide an assignment agreement, certified organizational chart, or other documentation to demonstrate that the interconnection customer (as listed on the interconnection request) holds the property interest

Shared Interconnection Customer Interconnection Facilitates

- At the time of interconnection request
  - Demonstrate active negotiation of an agreement by submitting agreement draft and emails documenting exchange of drafts
  - Demonstrate secured rights to share IC interconnection Facilities through COD by submitting an effective agreement
- Within 20 CD after the Cluster Study Report Meeting
  - Demonstrate secured rights to share IC interconnection Facilities through COD by submitting an effective agreement

Cluster Criteria Validation



Auction

- Projects tied after the DFAX analysis will be notified to submit a bid in Feb 2025
- ICs may submit a single, sealed bid of a $/MW value, or withdraw.
- The CAISO will accept the highest bid(s) for the Cluster Study until it reaches the 150% limit.
- Winners will be notified by 3/5/25.
- Winners must post an auction deposit by the end of the Cluster Engagement Window to the PTO.
- The value of the auction deposit is the product of the dollar value of the lowest winning bid in that Transmission Zone and the MW capacity of the Interconnection Customer's own Generating Facility at the Point of Interconnection.

Engineering Data Review

Walkthrough of Interconnection Data posted on August 29, 2024

Walkthrough of Interconnection Data posted on August 29, 2024

Final determination interconnection study area (zone) as TPD or Merchant zone

Copy of "Estimated FCDS Capability Based on On-peak Study Resource Output (MW)" in the 8/28/2024 version of the Tx Capability Estimates provided to CPUC. For sources and assumptions behind these estimates, please refer to the corresponding Tx Capability Estimates White Paper.

TPD allocated within the non-operational resources counted towards the Transmission Plan Capability.

Difference between the Transmission Plan Capability and Allocated TPD. 150% of these capacities will be used in the project selection process within the cluster 15 intake process.

All substation POIs

PG&E NGBA	TPD
PG&E GBA	TPD
PG&E FRESNO	TPD
PG&E KERN	TPD

			PG&E North of Greater Bay Area Constraints														
POI Name/Short Description (Point of Delivery to CAISO-Controlled Grid for WDATs, etc.) & kV	Interconnection Study Area	Number of Constraints	Collinsville-Tesla 500 kV Line	Woodland- Davis 115kV line	Cortina-Eagle Rock 115 kV line	Bell-Placer 115kV Line	Carberry-Round Mountain 230kV Line	Rocklin-Pleasant grove 115kV line	Bellota-Weber 230kV line	Rio Oso-Brighton 230kV line	Rio Oso-Lockeford 230kV line	Dumbarton-Newark 115 kV line	Eastshore-San Mateo 230 kV line	Lakeville-Ignacio 230 kV line	Sobrante-Moraga 230 kV line	Windmaster-Delta pumps 230 kV line
Transmission Plan Capability			3379	90	971	347	15	50	1661	423	1042	1290	2146	2257	3140	546
Allocated TPD			3379	65	96	66	15	50	591	122	72	501	705	1925	546	546
Available TPD			0	25	875	281	0	0	1070	301	970	789	1441	332	2595	0
1-Number of POI behind Constraint			273	11	15	17	6	19	147	29	49	18	3	9	142	50
7th STANDARD 115 kV	PG&E KERN	5														
AIRWAYS 115 kV	PG&E FRESNO	7														
ALHAMBRA 115 kV	PG&E GBA	3	√												√	
ALMADEN 60 kV	PG&E GBA	2														
ALPAUGH 115 kV	PG&E FRESNO	8														
ALTO 60 kV	PG&E NGBA	3	√												√	
AMES 115 kV	PG&E GBA	3													√	
AMES DISTRIBUTION 115 kV	PG&E GBA	3													√	
APPLE HILL 115 kV	PG&E NGBA	5	√						√		√					
APPLIED MATERIALS SW STA 115 kV	PG&E GBA	3													√	
ARCATA 60 kV	PG&E NGBA	1	√													
ARCO 230 kV	PG&E KERN	3														
ARCO 70 kV	PG&E KERN	3														
Arco-Carneras 70 kV line	PG&E KERN	3														
ASHLAN AVE 230 kV	PG&E FRESNO	8														
ATASCADERO 70 kV	PG&E KERN	5														
ATLANTIC 115 kV	PG&E NGBA	5	√						√		√					
ATLANTIC 230 kV	PG&E NGBA	7	√			√			√	√	√					
ATLANTIC 60 kV	PG&E NGBA	7	√			√			√	√	√					
ATWATER 115 kV	PG&E FRESNO	9							√							
BAHIA 230 kV	PG&E NGBA	9	√												√	√
BAIR 115 kV	PG&E GBA	3	√												√	
BAIR 60 kV	PG&E GBA	3	√												√	
BAKERSFIELD 230 kV	PG&E KERN	2														

Walkthrough of Interconnection Data posted on August 29, 2024

Example 1 (for illustration purpose only)

PG&E NGBA	TPD
PG&E GBA	TPD
PG&E FRESNO	TPD
PG&E KERN	TPD

Point of Interconnection (POI)	Study Area	Number of Constraints	Collinsville-Tesla 500 kV Line	Cortina-Eagle Rock 115 kV line	Lakeville-Ignacio 230 kV line	Sobrante-Moraga 230 kV line	Windmaster-Delta pumps 230 kV line	Contra Costa- Windmaster 230 kV line	Tesla-Tracy-Pump 230 kV line #2	Tesla-Bellota 230 kV line	Tesla-Tracy Pump 230 kV Line #1	Birds Landing-Contra Costa 230kV Line
Transmission Plan Capability			3379	971	2257	3140	546	1233	4574	3154	9287	656
Allocated TPD			3379	96	1925	546	546	578	3046	1072	3974	655
Available TPD			0	875	332	2595	0	655	1528	2082	5313	1
1-Number of POI behind Constraint			273	15	9	142	50	54	172	204	75	88
FULTON 115 kV	PG&E NGBA	10	√	√	√	√	√	√	√	√	√	√

Project in a TPD zone, proposing to connect at a POI which is behind at least one constraint with zero available TPD will not move forward to the intake process.

Walkthrough of Interconnection Data posted on August 29, 2024

Example 2 (for illustration purpose only)

PG&E NGBA	TPD
PG&E GBA	TPD
PG&E FRESNO	TPD
PG&E KERN	TPD

Point of Interconnection (POI)	Study Area	Number of Constraints	Bellota-Weber 230kV line	Tesla-Tracy-Pump 230 kV line #2	Kasson Jct-Heinz 115 kV line	Tesla-Bellota 230 kV line	Tesla-Salado 115 kV line	Tesla-Tracy Pump 230 kV Line #1
		Transmission Plan Capability	1661	4574	298	3154	179	9287
		Allocated TPD	591	3046	115	1072	115	3974
		Available TPD	1070	1528	183	2082	64	5313
		1-Number of POI behind Constraint	147	172	14	204	8	75
RIPON 115 kV	PG&E GBA	6	√	√	√	√	√	√

Project in a TPD zone, proposing to connect at a POI which is behind no constraint with zero available TPD will move forward to the intake scoring process. A projects potential for TPD is limited to the constraint with the lowest amount of available capacity, 64 MW in this example.

Treatment of offshore wind preserved capacity within the Interconnection Data posted on August 29, 2024

- The Interconnection Data posted on August 29, 2024 doesn't reflect capacity preserved for offshore wind resources. In other word, the estimated available capacities in the data is a total available capacity, which includes capacity preserved for offshore wind resources.
- At this point, based on the 2024 TPD allocation study, 426 MW of capacity is preserved for offshore wind resources in the Central Coast area.
- In the Humboldt area, based on the amount of offshore wind resources modeled in the 2024-2025 TPP baseline portfolio for the year 2039, 1607 MW of capacity will be preserved in future TPD allocation studies.
- Regardless of the resource technology selected through the resource interconnection intake process for study, the capacity for offshore wind resources will continue to be preserved in the future TPD study cycles to the amount of offshore wind resources modeled in the baseline portfolio at that time.

Reminder regarding restricted substations for new generation interconnection based on the list in PG&E's Interconnection Handbook.

- Interconnection Customers are responsible to be aware of PTO restrictions.
- PG&E is working to update the Transmission Interconnection Handbook to reflect the Substations that cannot accept new POI
  - Section G2: Protection and Control Requirements for Transmission Generation Entities (pge.com)
- Projects proposing to interconnect to such restricted substations will not move forward in the intake process.

PG&E Substations that Cannot Accept New Poi's – Fault Duty Limitations

2. Fault Duty Limitations

Certain substation buses have reached the ultimate fault duty limitation of 63 kA and no longer have physical space for additional reactors to correct the fault duty. POIs that are within sufficient electrical distance to the substations in Table G2 and that may contribute to more than 100 Amps of fault current may require additional mitigations in order to be considered feasible. The substation buses shown in Table G2 can no longer accommodate new POI requests. Note: The 500kV system is operated at nominal 525kV voltage level.

Table G2

List of Substation Buses That Cannot Accept New POI's

Based on fault duty limitations

Gates 230kV	Newark 115 kV
Metcalf 115 kV	Newark 230 kV
Metcalf 230 kV	Pittsburg 115 kV
Metcalf 500kV	Pittsburg 230 kV
Midway 115 kV	Tesla 115 kV
Midway 230 kV	Tesla 230 kV
Midway 500 kV	Tesla 500 kV

PG&E Substations that Cannot Accept New POI's – Space Limitations

4. Space Limitations

Certain substation locations have been fully built out and no longer have the physical space in the surrounding area to accommodate substation expansions. The substation locations shown in table G2-A can no longer accommodate new POI requests. To clarify, POIs in table G2-A can only be requested if the generation site has an existing POI at that location and thus will not require any substation expansion.

Table G2-A

List of Substation Buses That Cannot Accept New POIs based on Space Limitations

Cottle 230kV	Los Esteros 230kV
Diablo Canyon 500kV	Martin 115kV
Diablo Canyon 230kV	Moss Landing 500kV
Gates 500 kV	Oakland C 115kV
Ignacio 60kV	Pittsburg 230 kV
Ignacio 115kV	Santa Teresa 115kV
Ignacio 230kV	Schulte 115kV
Lakeville 60kV	Tranquillity 230 kV
Lakeville 115kV	Weber 60kV
Lammers 115kV	Wheeler Ridge 70kV
Los Esteros 115kV	

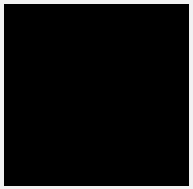
Note: The list in Table G2-A includes only previously studied POIs from generation interconnection studies and publicly available CAISO Cluster 15 queue dated April 2021.

FERC Order No. 2023 – Points of Interconnection Heatmap

Dorothy Vance – *Customer Readiness Trainer*

Andrew Rivera – *Transmission Planning Specialist*

Points of Interconnection Heatmap



FERC Order No. 2023
Heatmap updated by the ISO every 30 calendar days after a Cluster Study (roughly 3x a year).

Interactive webpage for interconnection customer's potential requests.

Depicts geographical locations of available capacity on the CAISO transmission system.

Disclaimer: The information provided in this tool serves as a general guideline on where transmission constraints are expected. It does not consider all system conditions, and does not include voltage or stability constraints. Results are for information only. Additional constraints may show in the actual Interconnection Studies.

Utilizing the Heatmap

Select one of the listed scenarios *(Cluster Study).*

Determine and enter the amount of MW injection desired.

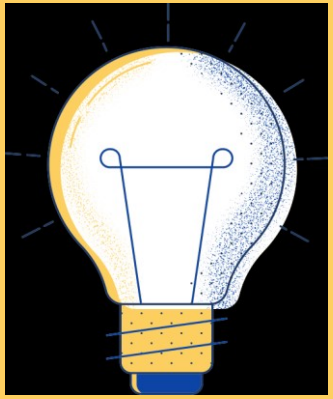
Look over the interactive Heatmap *(changes colors to mirror available capacity)*.

Review the list of substations listed.

Analyze the results of the potential interconnection locations impacted by MW injection.

POI Heatmap demo

- Pull up Heatmap for live demo.



WRAP UP

- Will be located on the CAISO website under the Generator Interconnection page!
- Tentative activation scheduled for September 20, 2024.
- Remember, the Heatmap has a tutorial to refer back to.
- For questions, please submit a CIDI ticket titled "Heatmap" or use the "Contact us" page on the CAISO website.

Grid Resource Interconnection Portal

Technical Validation

- ISO will notify projects advancing to technical validation in February and March 2025
- ISO and PTO will review technical data within 10BD of notification of projects satisfying the Cluster Study Criteria
  - Customer will be notified of errors through the GRIP and will make adjustments in the platform within 10BD
  - ISO and PTO will review within 5BD
- 4/21/2025 preferred cut-off to cure all deficiencies
  - Interconnection Requests with invalid technical data will not proceed to the Cluster Study

Technical Data

Common issues:

- Misalignment between what is entered in the data fields vs other attachments
- Incorrect qmax, qmin, pmax, and pmin parameters in models
- Incorrect calculations
- Epc/dyd/SLD missing values
- Reactive power capability issues
- Incorrect sign on Positive Sequence Power Factor Angle
- GPS coordinates do not match site map
- Incorrect short circuit data

Scoping Meeting

- The FERC 2023 Order has discontinued individual meetings.
- One scoping meeting will be held per transmission zone, prior to the Cluster Study, late April to early May.
- Customers will have the opportunity to ask questions during the meeting
- Each participant will be required to register and have an appropriate NDA on file

NDA Overview

Martha Sedgley
Manager, Paralegal and Office Administration

NDA Overview

Transmission Planning (TP) NDA

All participants in scoping meetings are required to have a company TP NDA (with their own Exhibit A), on file

- Previously, participating entities could invite anyone to attend their individual scoping/study meetings without additional TP NDA documentation
- Now, *all* attendees are required to have TP NDA documentation on file to participate in multiple-entity transmission zone scoping meetings
- Please timely submit any new TP NDA documentation to allow for processing *prior to* scoping meetings
- Send all NDA-related correspondence to caisonda@caiso.com

NDA Overview

Interconnection Customers:

- If your company already has a TP NDA on file, provide additional Exhibit As for new meeting participants (extract from TP NDA template)
- If you are a new entity, provide complete TP NDA packet as *one* document, in this order:
  - body of TP NDA
  - an Exhibit A for each participant
  - one Exhibit B describing entity's need for access to data/participation in scoping meeting
  - ❖ Also provide separate WECC confidentiality agreement if not already a WECC member (one for the entity); agreement template located in instructions document- extract and provide

NDA Overview

Consultants:

- Consulting entity must have established client(s) before signing TP NDA
- If consulting entity already has a TP NDA on file, provide additional Exhibit As for new meeting participants (extract from TP NDA template)
- If consulting entity obtains new clients:
  - New client must already have TP NDA on file
  - New client must confirm the consulting engagement via email to caisonda@caiso.com
  - Consulting entity must provide a new/updated Exhibit C indicating addition of the new client

NDA Overview

Common issues with NDA documentation:

- Incomplete: missing information, missing signatures, missing exhibits, missing WECC agreement
- New NDA submitted in multiple parts: please submit new NDA as *one* document: body, Exhibits A and B (and C for consultants) *in that order*
- Date of NDA: leave blank as DocuSign will fill in date
- Providing entire NDA document when adding Exhibit As for new participants when TP NDA already on file: provide just one Exhibit A per person (extract from template)
- Consultants submitting new NDA: clients do not already have TP NDA on file

NDA Overview

References:

- TP NDA template: https://www.caiso.com/documents/regionaltransmissionnon_disclosureagreement.pdf
- TP NDA instructions (includes WECC agreement template): https://www.caiso.com/documents/regionaltransmissionnondisclosureagreementsubmissioninstructions.pdf
- User Access Administrator (UAA) guide: https://www.caiso.com/systems-applications/user-access-administrator-uaa#uaa-guide
- UAA-related questions: uaarequests@caiso.com

Studies Overview

Study Process Overview

- Cluster Study
- Re-Study
- Facilities Study
- TPD

C15 Study Timeline Summary

Cluster 15 Application Resubmission Window	Constraint Screen	Technical Validation	Scoping Meeting	Cluster Study	Cluster Study Report Meeting	5% IFS CR Deposit	Cluster Study Heat Map	Reassessment & Re-Study	TPD (C14 and prior)	Reassessment & Re-Study Cluster Report Meeting	Re-Study Heat Map & 10% IFS CR Deposit	Interconnection Facilities Study	Cluster IFS Report Comments	Interconnection Facilities Study Report	TPD Study(C15 and Prior)
Oct 1-Dec 1, 2024	Jan-Feb 2025	Feb-May 2025	April -May 2025	June -Oct 2025	Oct - Nov 2025	+20 CD	Dec 2025	Oct-2025 April 2026	Aug 2025 -Mar 2026	May 2026	June 2026	June -Oct 2026	Oct-Nov 2026	Dec 2026	Q1 2027*

* Proposed in IPE 2023 Track 3

Cluster Study 6/2/25-10/29/25 (150 Days)

- For those projects that meet eligibility criteria and move to the cluster study, the cluster study will:
  - Evaluate impact of Interconnection requests received during the application Window
  - Assess the POI selected by each IC and potential alternatives
  - Identify Local Deliverability Network Upgrades (LDNU), Area Deliverability Network Upgrades (ADNU), Reliability Network Upgrades (RNU), Conditionally Assigned Network Upgrades (CANU), and Precursor Network Upgrades (PNU)
  - Preliminarily Identify required Interconnection Facilities (IF)
  - Provide Cost Estimate for ADNUs
  - Establish non-binding Current Cost Responsibility (CCR) ,Maximum Cost Responsibility (MCR) ,Maximum Cost Exposure (MCE) until the issuance of the interconnection Facility Study report

Reassessment/ Restudy 10/30/25-4/30/26 (180 Days)

- The CAISO will perform a reassessment after each Cluster Study.
- The reassessment will evaluate the impacts on those Network Upgrades identified in previous interconnection studies and assumed in the Cluster Study of:
  - Interconnection Request withdrawals occurring after the completion of the Interconnection Studies for the immediately preceding Queue Cluster;
  - downsizing requests from Interconnection Customers pursuant to Section 6.7.2.3;
  - the performance of earlier queued Interconnection Customers with executed GIAs with respect to required milestones and other obligations;
  - changes in TP Deliverability allocations or Deliverability Status;
  - the results of the TP Deliverability allocation from the prior Interconnection Study cycle; and,
  - transmission additions and upgrades approved or removed in the most recent TPP cycle.
- CANUs may become ANUs or they may change to PNUs
- An Interconnection Customer shall also be eligible for an adjustment to its Maximum Cost Responsibility for Network Upgrades if a reassessment undertaken pursuant to this Section 7.4 reduces its estimated cost responsibility for Network Upgrades by at least twenty (20) percent and $1 million, as compared to its current Maximum Cost Responsibility for Network Upgrades based on its Interconnection Studies or a previous reassessment.

Reassessment and Restudy 10/30/25-4/30/26 (180 Days) continues

- If one or more Interconnection Customers withdraw from the Cluster or are deemed withdrawn pursuant to Section 3.8 of this RIS, the CAISO will conduct a Cluster Restudy as part of the annual reassessment. If the CAISO determines a Cluster Restudy is not necessary, the CAISO will notify Interconnection Customers in the Cluster that a Cluster Restudy is not required and the CAISO will provide an updated Cluster Study Report within thirty (30) days of such determination.
- The scope of any Cluster Restudy will be consistent with the scope of an initial Cluster Study pursuant to Section 6.2 of this RIS. The results of the Cluster Restudy will be combined into a single report (Cluster Restudy Report). The CAISO will hold a meeting with the Interconnection Customers in the Cluster (Cluster Restudy Report Meeting) within ten (10) Business Days of simultaneously furnishing the Cluster Restudy Report to each Interconnection Customer in the Cluster Restudy and publishing the Cluster Restudy Report on the CAISO Website.

Facilities Study (120 days after executed IF Study Agreement)

- The Interconnection Facilities Study will be performed on a clustered basis.
- The Interconnection Facilities Study will specify and provide CCR, MCR and MCE to implement the conclusions of the Cluster Study Report
- The Interconnection Facilities Study will also identify the electrical switching configuration of the connection equipment, including, without limitation: the transformer, switchgear, meters, and other station equipment;
- The nature and estimated cost of any the Participating TO's Interconnection Facilities and Network Upgrades necessary to accomplish the interconnection;
- An estimate of the time required to complete the construction and installation of such facilities.

Transmission Plan Deliverability

- After the Interconnection Facilities Study reports are issued, the CAISO will perform the allocation of the TP Deliverability to Deliverable Option Generating Facilities that meet the eligibility criteria set forth in Section 8.9.2, and Merchant Option Generating Facilities that did not require ADNUs in their Interconnection Studies. The TP Deliverability available for allocation will be determined from the most recent Transmission Plan.
- Updated base case will be utilized which includes the most recently approved TPP projects modeled.
- Allocation is based on scores
- Once a Generating Facility is allocated TP Deliverability, the facility will be required to comply with retention criteria specific in Section 8.9.3 in order to retain the allocation.

- Follow IPE Track 3 for updates on TPD study

Study Process Customer Actions

- Cluster Study
- Reassessment/ Cluster Restudy
- Facilities Study

Cluster Study

- CAISO will issue report November 2025
- CAISO will host a report meeting November 2025
- Demonstrate continued Site Control within 20 CD of report meeting
- Submit 5% commercial readiness deposit to PTO within 20 CD of report meeting
- Demonstrate secured rights to share IC interconnection Facilities through COD by submitting an effective agreement within 20 CD of report meeting, if applicable

Appendix B Updates After Cluster Study

Cluster 15 Application Resubmission Window	Constraint Screen	Technical Validation	Scoping Meeting	Cluster Study	Cluster Study Report Meeting	5% IFS CR Deposit	Cluster Study Heat Map	Reassessment & Re-Study	TPD (C14 and prior)	Reassessment & Re-Study Cluster Report Meeting	Re-Study Heat Map & 10% IFS CR Deposit	Interconnection Facilities Study	Cluster IFS Report Comments	Interconnection Facilities Study Report	TPD Study(C15 and Prior)
Oct 1-Dec 1, 2024	Jan-Feb 2025	Feb-May 2025	April -May 2025	June -Oct 2025	Oct - Nov 2025	+20 CD	Dec 2025	Oct-2025 April 2026	Aug 2025 -Mar 2026	May 2026	June 2026	June -Oct 2026	Oct-Nov 2026	Dec 2026	2027

- Appendix B (to Interconnection Facilities study agreement) due 30 calendar days after receipt:
  - Confirms project milestone dates, and other data provided in the IR
  - Identifies allowable modifications:
    - Decrease in MW output
    - Modify technical parameters of technology
    - Modify the interconnection configuration
    - Modify the ISD, TOD, and or COD
    - Permissible Technological Advancements

Reassessment /Cluster Restudy

- CAISO will issue report May 2026
- CAISO will host a report meeting early May 2026
- Sign the Interconnection Facilities Study Agreement within 30 days of receipt which includes the Appendix B May/June 2026
  - Required technical data to support Appendix B changes
  - Demonstration of 100% site control
  - Submit 10% Commercial Readiness Deposit to PTO

Interconnection Facilities Study

- CAISO will issue a draft report October 2026
- Interconnection Customer has 30 days to provide written comments to CAISO
- CAISO will issue final Interconnection Facilities Study Report November 2026
- CAISO will host a report meeting early November 2026

Commercial Readiness Deposit

All commercial readiness deposits are to be sent directly to the PTO.
Send deposits early to allow time for updates and verifications.
Any deposit not complete by COB on the due date will not be accepted, and the project will be deemed withdrawn.

Due Date	Amount
IR Submission	2X study deposit
20 CD after Cluster Study Report Meeting	5% NU
Simultaneous with the execution of IF Study Agreement/Appendix B (within approx. 37 days of Cluster Restudy Report Meeting)	10% NU
Upon GIA execution or within 10 BD of request for unexecuted filing	20% NU

Withdrawals

Withdrawals

IC may withdraw at any time.

Email

or

Written Notice

ISO may withdraw an IR if the IC fails to adhere to Tariff requirements

Commercial Readiness Withdrawal Penalty

Timing of Withdraw (Section 3.8.1)	Amount of Forfeiture
Prior to the commencement of the Cluster Study (C15 - June 1, 2025)	$5K Application fee is non-refundable
During Cluster Study or after Cluster Study Report Meeting and prior to Reassessment or Interconnection Facilities Study if no Reassessment	IC will forfeit the greater of their Study Deposit and two (2) times its actual allocated study costs
During Reassessment or after Reassessment Report Meeting and prior to Interconnection Facilities Study	IC will forfeit the greater of their Study Deposit and 5% of the estimated NU
During Facilities or after Facilities Report Meeting and prior to GIA execution or filed unexecuted GIA	IC will forfeit the greater of their Study Deposit and 10% of the estimated NU
GIA has been executed or has requested to be filed unexecuted and all other requirements have been met, but does not reach Commercial Operation	IC will forfeit the greater of their Study Deposit and 20% of the estimated NU

Auction Deposit Forfeiture

Timing of Withdraw (Section 4.1.2)	Amount of Forfeiture
Prior to commencement of the Cluster Restudy or Interconnection Facilities Study if no Restudy	15%
Commencement of Cluster Restudy or end of Cluster Study if no Restudy and prior to commencement of Interconnection Facilities Study	30%
Commencement of Interconnection Facilities Study and prior to execution or filing of an unexecuted GIA	50%
Executed or filed unexecuted GIA	100%

Merchant Zone Commercial Readiness Deposit Forfeiture

Timing of Project (Section 4.2)	Amount of Forfeiture
Prior to close of the Customer Engagement Window	0%
After Customer Engagement Window	50%

Resources

Generator Interconnection Webpage

Generator interconnection | California ISO (caiso.com)

ISO Generator Interconnection Queue

https://www.caiso.com/documents/cluster-15-interconnection-requests.xlsx

Participating Transmission Owner:

Financial Security Instruments and Per Unit Cost Guides

Interconnection request and study | California ISO (caiso.com)

Resource Interconnection Standards Fair Presentations

Generator interconnection | California ISO (caiso.com)

Appendix B to Interconnection Facilities Study Agreement

In Progress

Resources

Sample Interconnection Request

https://www.caiso.com/documents/interconnection-request-application-appendix-1.pdf

Pending Tariff Section 25

https://www.caiso.com/documents/ferc-order-2023-pending-iso-tariff-section-25.pdf

Pending Tariff Appendix KK (RIS)

https://www.caiso.com/documents/ferc-order-and-ipe-2023-pending-iso-tariff-appendix-kk.pdf

Pending Business Practice Manuals (BPM)

In Progress

RIS Process Timeline

https://www.caiso.com/documents/resource-interconnection-standards-interconnection-study-timeline.xlsx

Questions?

IRInfo@caiso.com

Lunch Break

California ISO

RESOURCE INTERCONNECTION STANDARDS

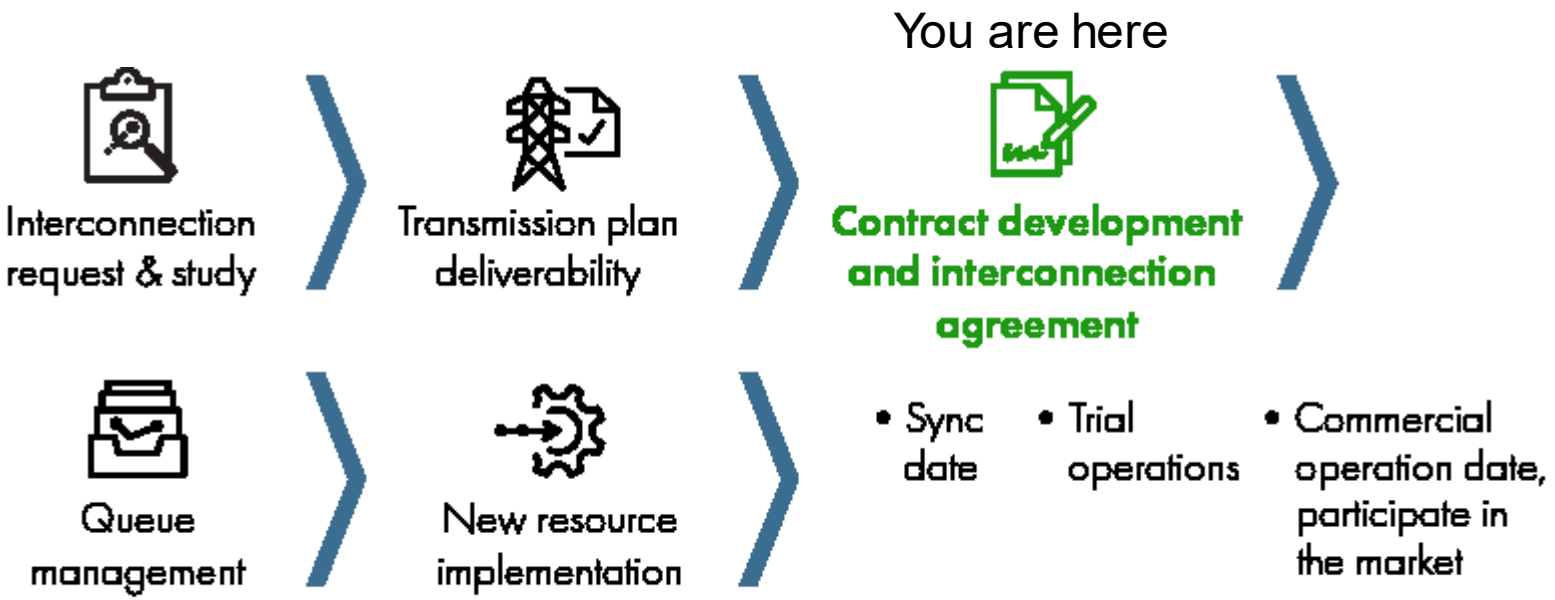
Interconnection Agreements and Retirement Scenarios

Infrastructure Contracts and Management

Eric East, Sr. Contracts Negotiator
Jocelyne Ramirez, Contracts Administrator
Angela Randall, Contracts Analyst

September 17, 2024

Interconnection Process Map



Contract Negotiation

Eric East, Sr. Contracts Negotiator

Cluster 14 and earlier GIAs

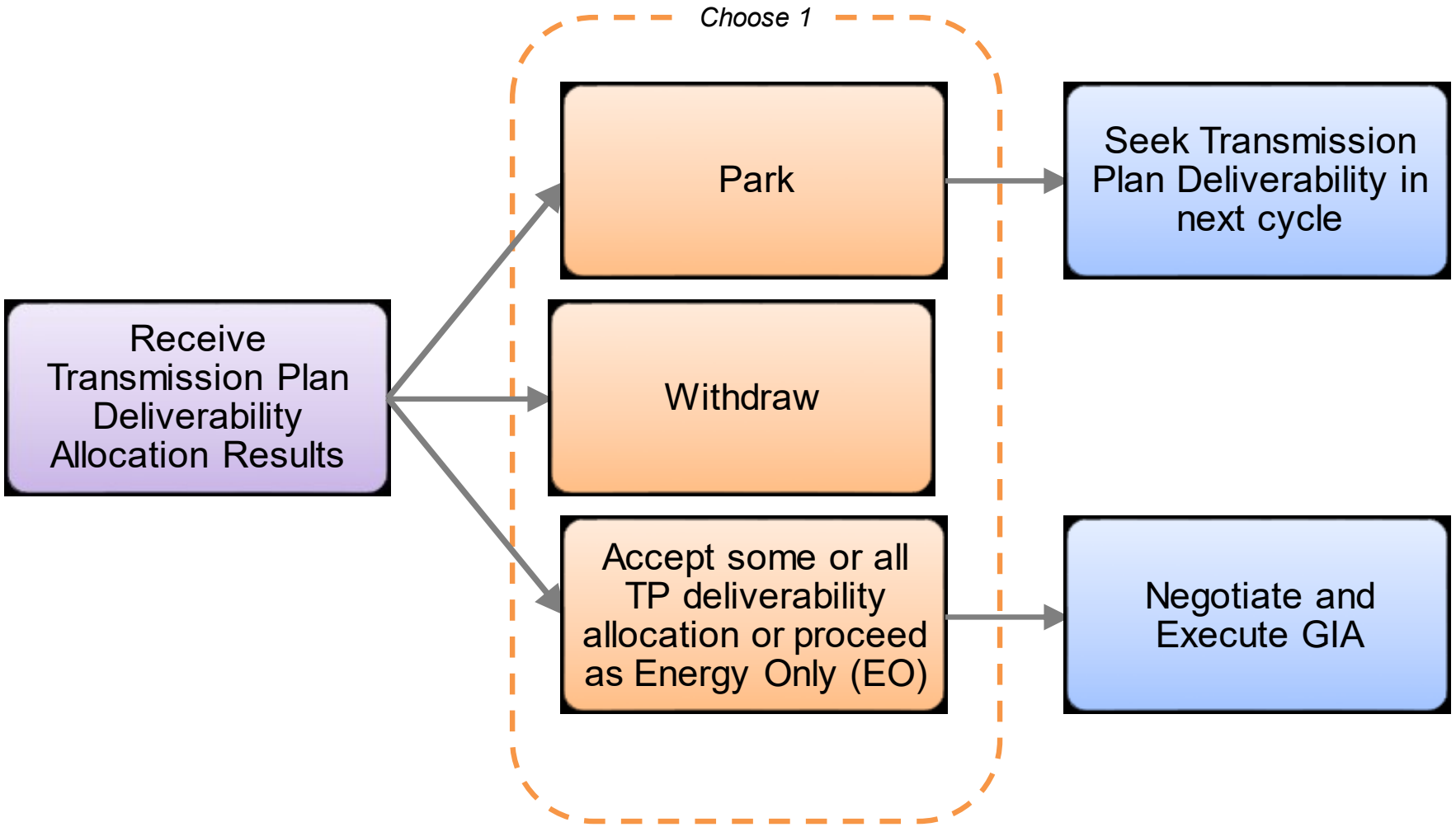
Generator Interconnection Agreement (GIA)

- A project interconnecting to the CAISO controlled grid shall execute a Generator Interconnection Agreement (GIA) between the interconnection customer, the participating transmission owner, and the CAISO

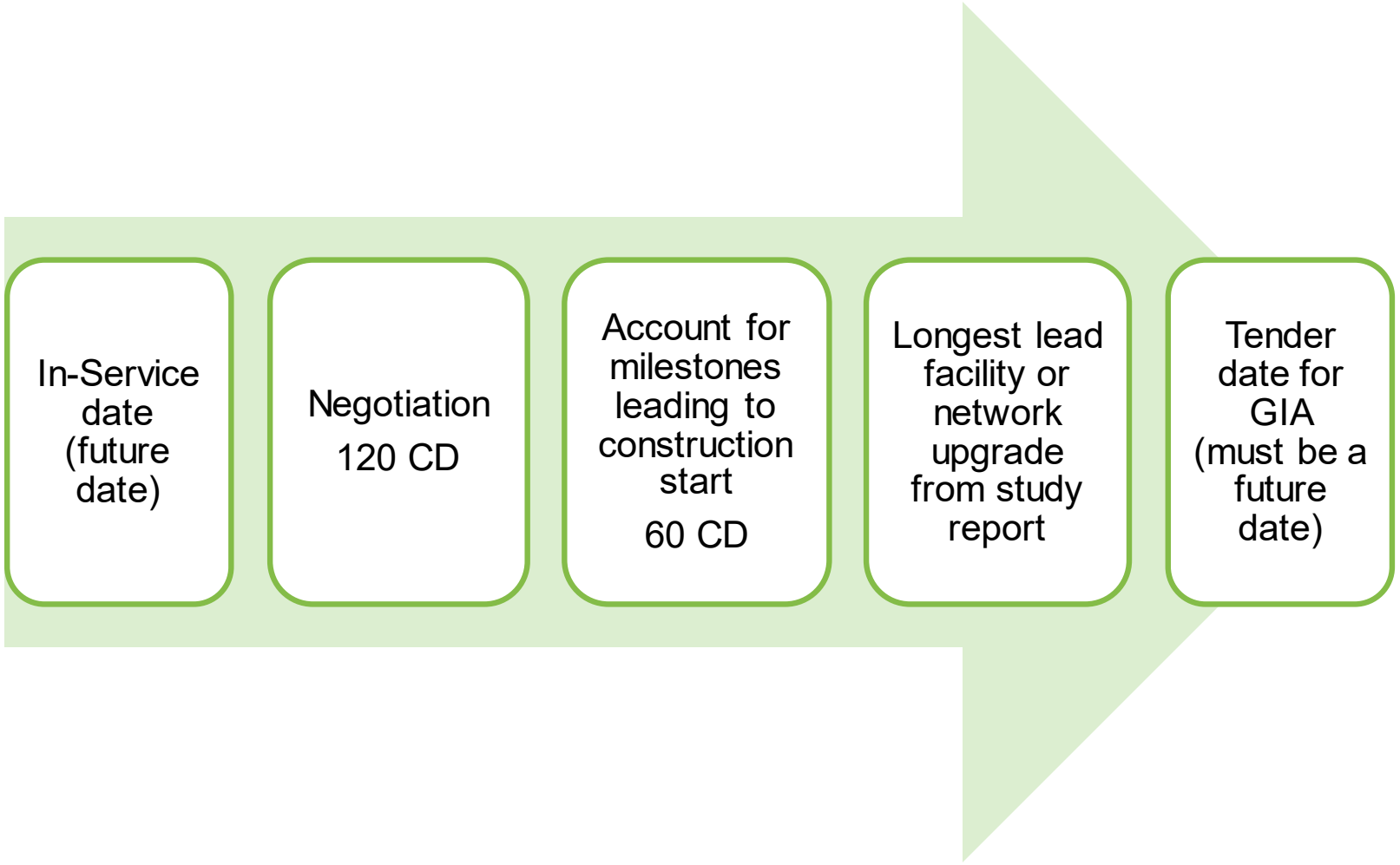
- The GIA consists of:
  - Pro forma approved by Federal Energy Regulatory Commission
    - Appendix EE and FF (LGIA, SGIA) associated with Appendix DD
  - Appendices are specific to an interconnection customer
  - The GIA is specific to an interconnection customer and its generating facility and may cover more than one resource ID and CAISO queue position

- A project interconnecting to the non-CAISO controlled grid may execute an agreement with the participating transmission owner or the utility distribution company

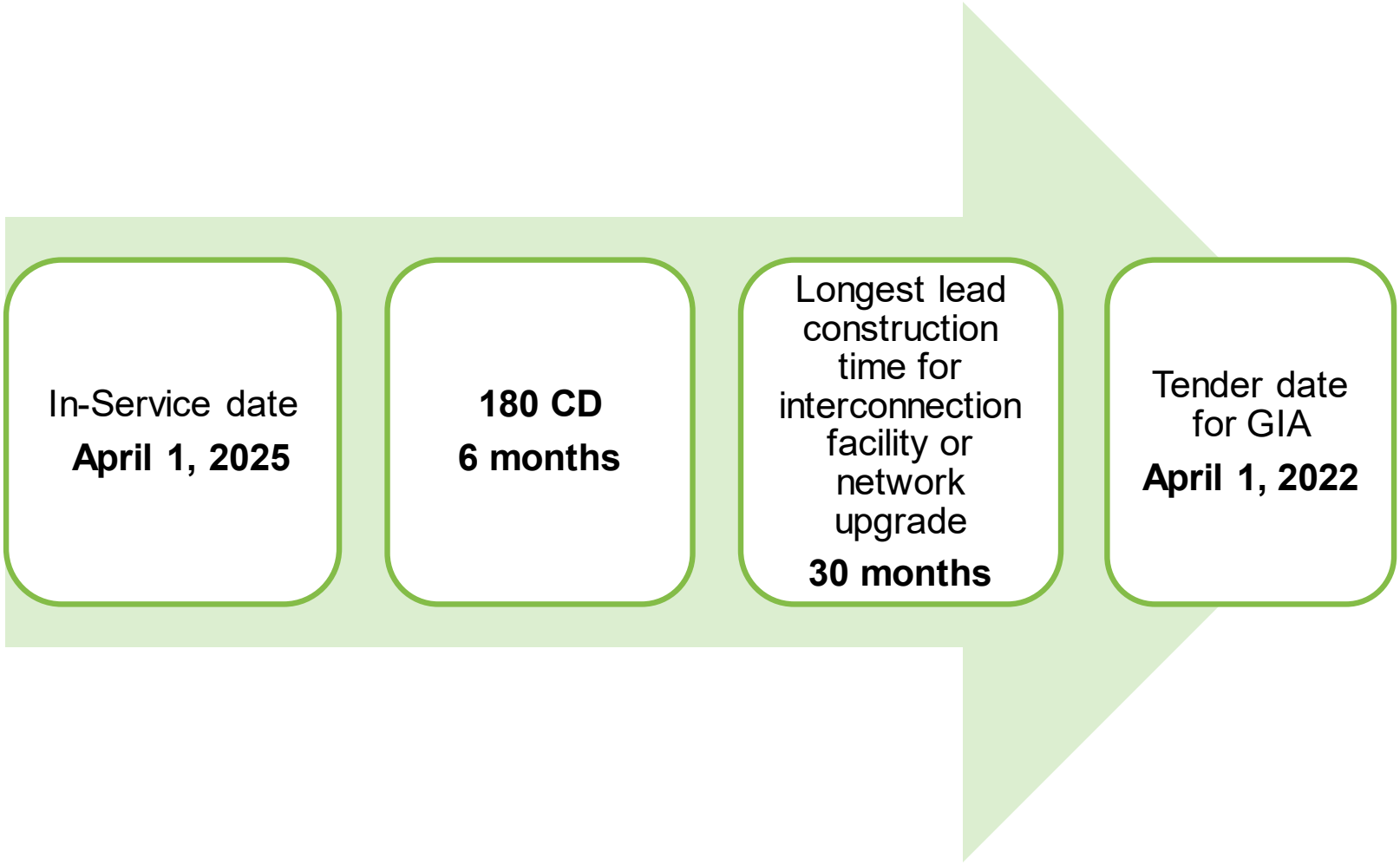
GIA Implications for Transmission Plan Deliverability Allocation Choices



GIA Tender


In-Service date (future date)
Negotiation 120 CD
Account for milestones leading to construction start 60 CD
Longest lead facility or network upgrade from study report
Tender date for GIA (must be a future date)

GIA Tender (Calculation Example)



GIA Negotiation

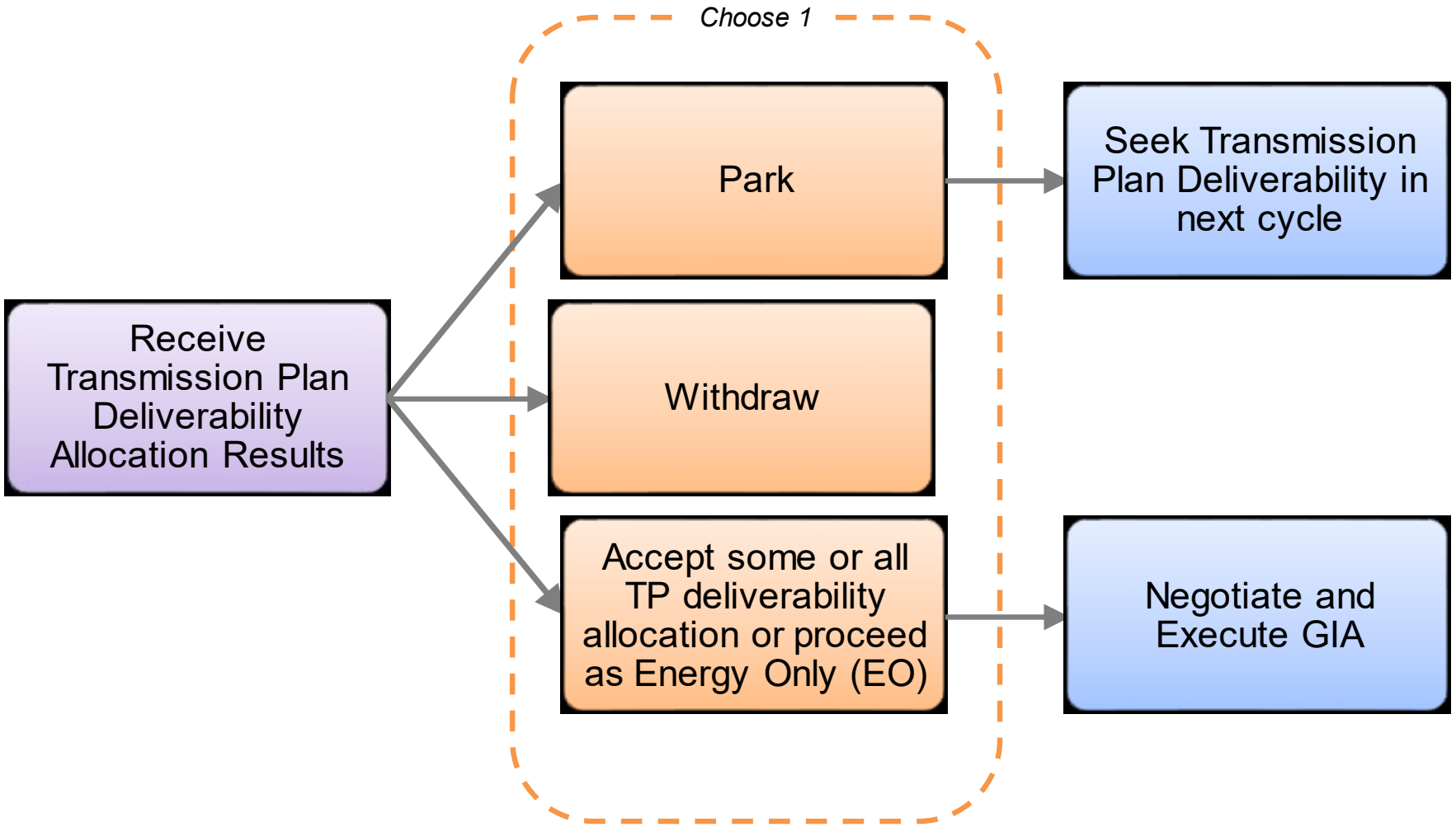
- Participating transmission owner tenders the GIA and all parties negotiate the GIA to finalization
- PTO sends execution ready GIA to CAISO following finalization and approval by all parties
- CAISO contract negotiator receives signatory information from the PTO and interconnection customer, and sends the package to CAISO regulatory contracts to process for execution

Cluster 15 and forward GIAs

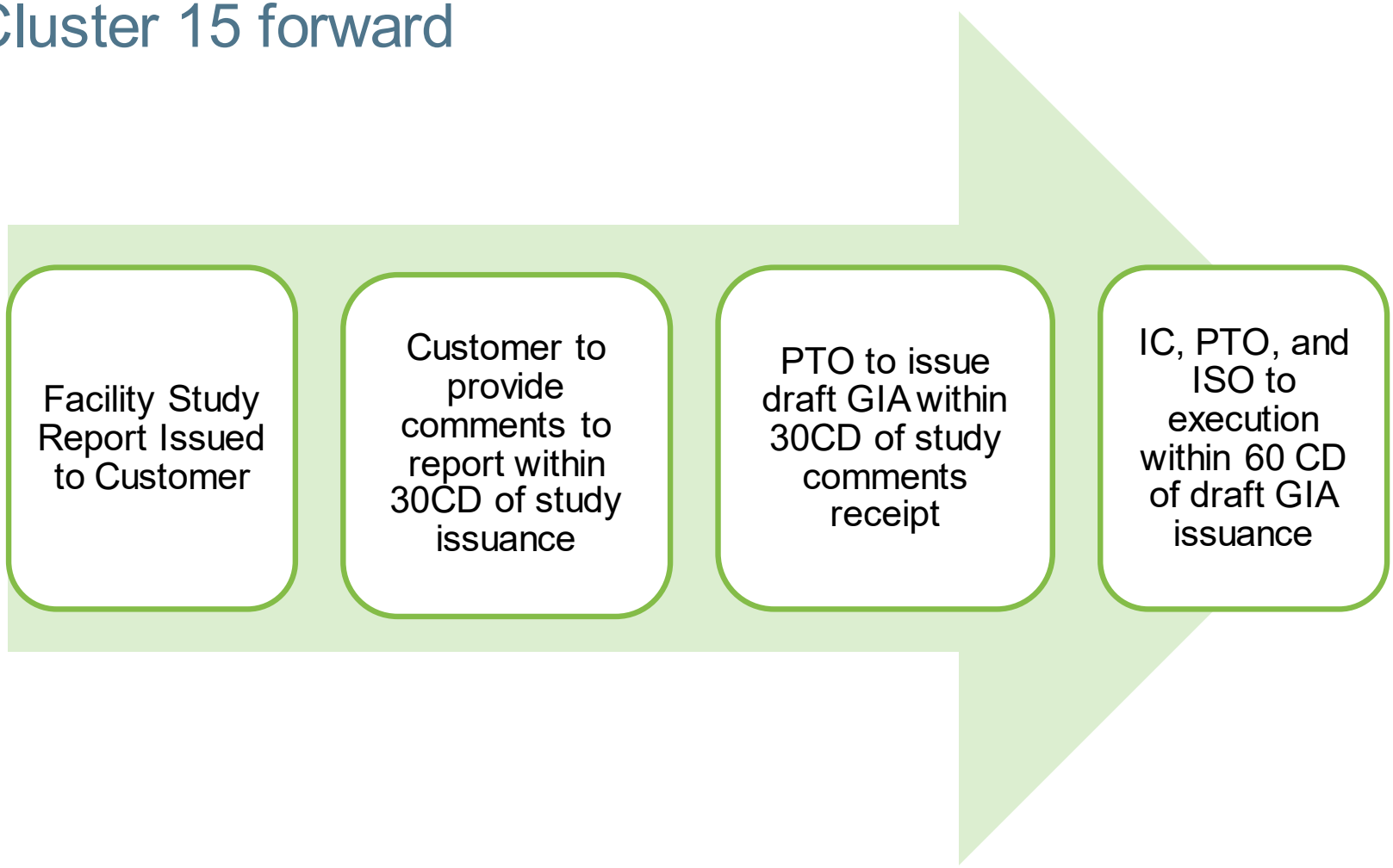
Generator Interconnection Agreement (GIA)

- The CAISO will apply the Order No. 2023 tariff revisions beginning with Cluster 15
- The new revisions will be implemented in a new tariff appendix, Appendix KK – the Resource Interconnection Standards ("RIS")
- A project interconnecting to the CAISO controlled grid shall execute a Generator Interconnection Agreement (GIA) between the interconnection customer, the participating transmission owner, and the CAISO
- The GIA consists of:
  - Pro forma approved by Federal Energy Regulatory Commission
    - Appendix LL (LGIA) and Appendix MM (SGIA)
  - Appendices are specific to an interconnection customer
  - The GIA is specific to an interconnection customer and its generating facility and may cover more than one resource ID and CAISO queue position
- A Project interconnecting to the non-CAISO controlled grid may execute an agreement with the participating transmission owner or the utility distribution company

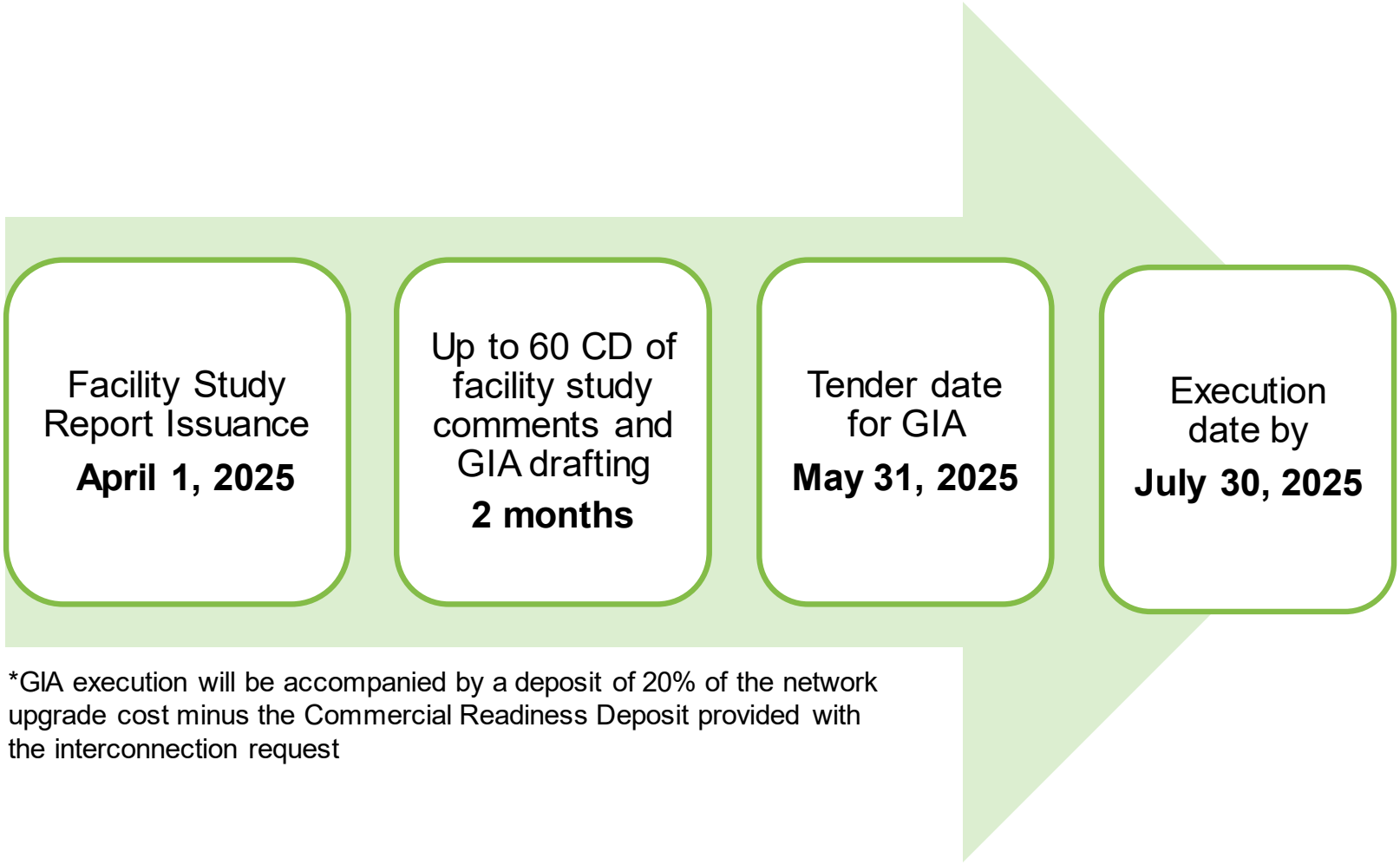
GIA Implications for Transmission Plan Deliverability Allocation Choices



GIA Tendering, Negotiations, & Execution Cluster 15 forward



GIA Tender (Calculation Example)



*GIA execution will be accompanied by a deposit of 20% of the network upgrade cost minus the Commercial Readiness Deposit provided with the interconnection request

GIA Negotiation

- Participating transmission owner tenders the GIA and all parties negotiate the GIA to finalization

- PTO sends execution ready GIA to CAISO following finalization and approval by all parties not more than 60 CD after tender of the final facilities study report*

- If affected systems are identified*
  - upon request of the Interconnection Customer, extend this deadline to thirty (30) calendar days after the Interconnection Customer's receipt of the Affected System Study Report, or two hundred and ten (210) calendar days after the tendering of the GIA and appendices, whichever is earlier

- CAISO contract negotiator receives signatory information from the PTO and interconnection customer, and sends the package to CAISO regulatory contracts to process for execution

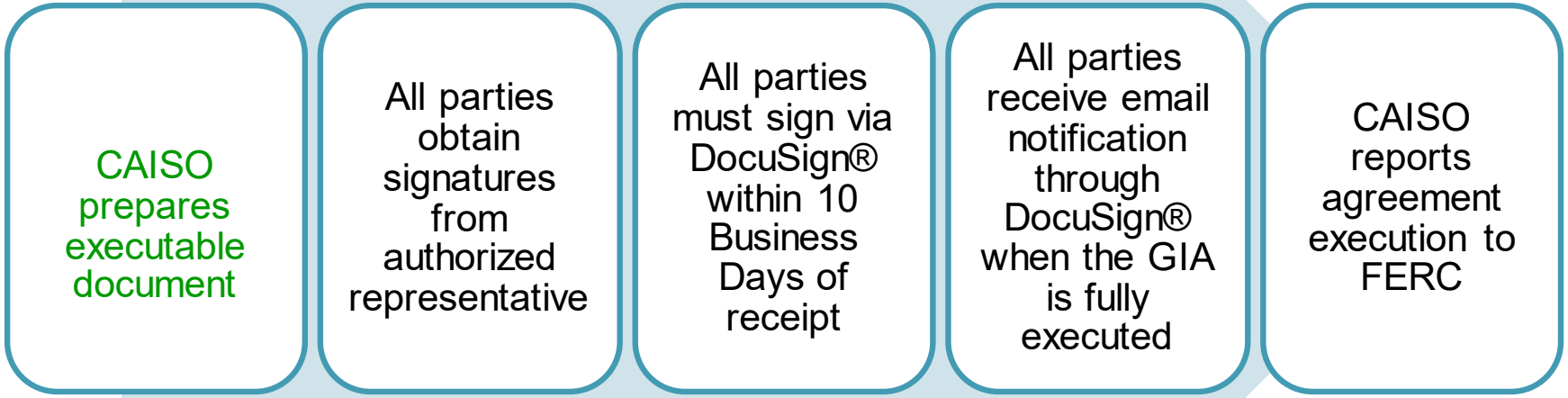
Questions?

Regulatory Contracts Agreement Execution and Changes

Jocelyne Ramirez, Contracts Administrator

RegulatoryContracts@caiso.com

GIA Execution Process



- Agreement are distributed for execution via email through DocuSign
- Final version of executed GIA is available for parties to download or print
- DocuSign Account is not mandatory in order to use their service

Market Agreements

- Terms for participating in CAISO markets
  - Participating Generator Agreement (PGA) or Net Scheduled Participating Generator Agreement (NSPGA)
  - Participating Load Agreement (PLA) (e.g., pumps, pump-generating, energy storage)
  - Meter Service Agreement for a CAISO Metered Entity (MSACAISOME)
  - Meter Service Agreement for Scheduling Coordinators (MSASC)
  - Scheduling Coordinator Agreement (SCA)

Contract Changes

Submit requests to RegulatoryContracts@caiso.com

Changes to Customer Information

- Assignments to affiliates and non affiliates
  - Assignee must meet the PTO's Interconnection Financial Security ("IFS") posting requirements
- Entity Name changes only
- Ownership changes

Required Documentation (varies on type of change)

- Secretary of State certificate
- Proof of ownership
  - Sale agreement
  - Membership interest agreement

Questions?

Regulatory Contracts
Resource Retirement Scenarios

Julia Payton, Lead Contracts Analyst
RegulatoryContracts@caiso.com

Resource Retirements – Scenarios

Scenario 1	Scenario 2	Scenario 3	Scenario 4
Repowering / Entered Queue	Undecided / Decommission	Permanent Retirement	Mothball
Resource has either been approved for the affidavit repower process or has entered the queue to be studied for repowering	Resource has not completed repowering study process, or has not entered interconnection queue	Resource goes offline, releases deliverability, and has no intention of repowering	Resource remains intact and is made unavailable while next steps are determined

Resource Retirements – Deliverability Retention

Deliverability Retention Period
3 years from effective date

CAISO receives notarized *Notice of Retirement or Mothball Affidavit*

Deliverability Study Assessment results are available within 90 calendar days

Depending on which scenario the retirement falls under, the generator owner *may* have specific actions to take during the Deliverability Retention Period.

Retirement requests must be submitted to RegulatoryContracts@caiso.com at least 90 calendar days prior to effective date.

Resource Retirements – Affidavit for Retirement

Notice of Generating Unit Retirement or Mothball Affidavit

- Affidavit will be reviewed by Regulatory Contracts for completion and accuracy.
- Regulatory Contracts cannot begin processing the retirement request until this notice is received completed and notarized.
- Regulatory Contracts reserves the right to request further information in order to process the retirement request.

Notice of Generating Unit Retirement or Mothball

Including Rescission of Retirement or Mothball

This is a notification of the retirement or mothballing of a Generating Unit in accordance with Section 41 of the CAISO Tariff and the CAISO BPM for Generator Management. An electronic copy of this completed form should be sent to the CAISO at RegulatoryContracts@caiso.com.

The CAISO may request additional information as reasonably necessary to support its review of planned non-operations.

Legal Owner of the Generating Unit: _____

Legal Owner's state of organization or incorporation: _____

Name of Scheduling Coordinator:_____

Identity of Generating Unit(s) Subject to Retirement/Mothball (Resource Name, Resource ID): _____

_____

Category of Retirement: _____

Reason for retirement: _____

Pursuant to the terms of the CAISO Tariff, Owner hereby certifies that:

[ ] In accordance with the Business Practice Manual for Generator Management, it is retiring the Generating Unit effective _____ [month],_____ [day], _____ [year]. The Generating Unit does not have a contract for Resource Adequacy Capacity for [check one or both] _____ the current year and/or _____ the upcoming year, it is uneconomic for the Generating Unit to remain in service for such year(s), and the decision to retire is definite unless the CAISO procures the Generating Unit, the Generating Unit is sold to an unaffiliated third-party, a third-party contracts with the Generating Unit for Resource Adequacy purposes, or the Generating Unit obtains some other contract.

[ ] In accordance with the Business Practice Manual for Generator Management, it is retiring the Generating Unit effective _____ [month], _____ [day], _____ [year]. The Generating Unit does not have a contract for Resource Adequacy Capacity for [check one or both] _____ the current year and/or _____ the upcoming year, it is retiring the Generating Unit for reasons other than it is uneconomic for the unit to remain in service during such year(s).

Owner is retiring the Generating Unit for the following reason(s) (state with specificity the reason for retiring the unit):

_____

Resources

- Contracts and agreements
  http://www.caiso.com/rules/Pages/ContractsAgreements/Default.aspx

- Generating unit conversion process (located under “Already connected?”)
  http://www.caiso.com/participate/Pages/ResourceInterconnectionGuide/default.aspx

- Reliability Requirement information
  http://www.caiso.com/planning/Pages/ReliabilityRequirements/Default.aspx

- Business Practice Manual for Generator Management
  https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator_Management

- Notice of Generating Unit Retirement or Mothball Affidavit
  http://www.caiso.com/Documents/Notice-GeneratingUnitRetirement-Mothball.docx

- Announced Retirement and Mothball List:
  http://www.caiso.com/Documents/AnnouncedRetirementAndMothballList.xlsx

Questions?

California ISO

2024 RESOURCE INTERCONNECTION STANDARDS FAIR

Queue Management

Ryan Cox, Queue Management Specialist
Kelsey Campbell, Queue Management Specialist

Agenda

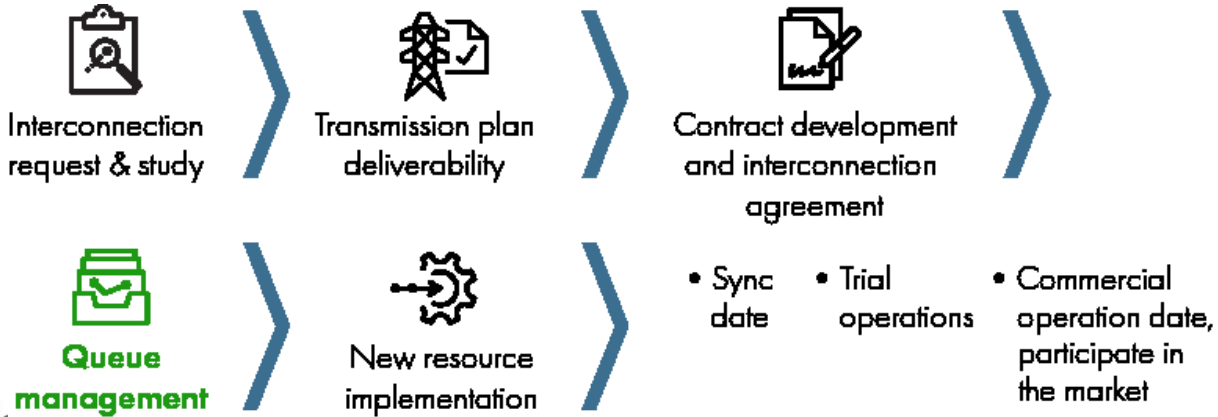
- QM Responsibilities and Overview
- TP Deliverability
  - Retention
  - Commercial Viability
- Modifications
- Limited Operation Studies
- Repowering
- Affected System Coordination
- Initial Synchronization and Commercial Operation

Queue Management Responsibilities

- Maintain an accurate Queue of viable Projects
- Enforce Tariff and BPM policy as Projects proceed through development
- Assist Projects toward achieving commercial operation within the bounds of the Tariff
- Prior to Initial Synchronization and COD, Queue Management verifies GIA obligations have been met

Queue Management Overview

- Part of Infrastructure Contracts and Management
  - Regulatory Contracts
  - Contract Negotiators
- Project management responsibility after Generator Interconnection Agreement (GIA) execution
- Project modification management after Phase II study
- Coordination with New Resource Implementation (NRI)



TP Deliverability - Retention

- Each year, the Queue Management team coordinates with Interconnection Resources to manage the TPD Retention Process
- Projects in **Group B** or **Group D** must demonstrate that they have met the requirements to retain their TP Deliverability (PPA or shortlisting/negotiating)
- Once an executed PPA has been provided, no future demonstration is required **for TPD retention**

Commercial Viability Criteria (CVC) to retain TPD

- If a Project requests a COD beyond 7 years in Queue, it must demonstrate that it meets CVC requirements
- These requirements include having a GIA in good standing, site exclusivity, applied for all governmental permits, and an executed PPA
- Once a Project demonstrates that it meets the CVC requirements, it **must demonstrate annually** that it continues to meet CVC
- This demonstration is typically due at the same time as TP Deliverability Retention annually

Modifications to Interconnection Requests

Before Phase II Results Meeting Minutes are published

- Certain changes are allowed without a Material Modification Assessment (MMA) between Phase I and Phase II
- Modification requests are processed by your Interconnection Specialist (the Interconnection Resources team)

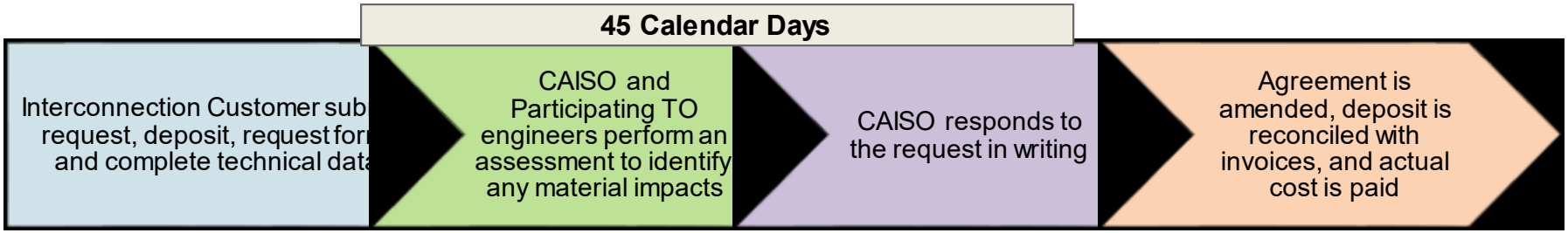
After Phase II Results Meeting Minutes are published

- Changes to a project will require an MMA or Post-COD Modification
- Modification requests are submitted to QueueManagement@caiso.com

Modifications

- There are many types of modification requests that can be submitted:
  - **Material Modification Assessments (MMA)**: Used for pre-commercial operation modifications to queued projects
  - **Post-COD Modifications**: Used for modifications to generators after they achieve commercial operation
  - **Permissible Technological Advancements (PTA)**: Used for smaller changes that can usually be processed more quickly, like aligning a COD with a PPA
  - **Construction Sequencing**: projects have a cumulative 6 month period to extend their COD when construction activities take longer than expected.
- For most modifications, the best place to start is with the Modification Request Form, located in the Queue Management section of the CAISO website. This form and any other applicable documentation will need to be submitted to the Queue Management Inbox.

Modification Review Process



- Modification timeline is 45 days*, but requests involving technical data take more time for technical data validation
- The deposit amount is $10,000*
  - Please note project name and 'for MMA' on the wire transfer
  - Interconnection Customer will be charged actual costs incurred by the CAISO and Participating TO, and remaining deposit, if any, is returned
- In the event a facility reassessment is required, an additional 45 days* may be required to complete the assessment

*IPE Track 2 is proposing 60 days and $30,000 deposit

Modification Request Form

- The Modification Request Form is designed to walk customers through the questions and requirements that must be addressed prior to submitting a Modification Request
  - Covers required documents, initial checks, and is used in drafting the final reports
  - Most questions and issues can be addressed before MMA is even submitted
- A Milestone Evaluation Table was recently added, which requires customer to evaluate the timeline for their Project to make sure they are proposing reasonable milestones

Event	Duration (in months)	Resulting Date	Resulting Action	General Guideline:
Project's Current COD		Month/Year		
Today's Date		Month/Year		
Modification: Assume for set-up and validation process	**+1** if COD-only **+3** for all others	Month/Year	Modification Evaluation Begins	Todays' date + # months
Modification: Assume for Study Process	**+1** if COD-Only **+2** if all others	Month/Year	Modification Report Published	Validation date + # Months
GIA: ISO/PTO Tender GIA or *Amendment	**Insert #**	Month/Year	GIA Finalized	Modification Process + # months
GIA: GIA or *Amendment negotiations and execution	**Insert #**	Month/Year		Tender GIA + # Months
PTO Design & Construction Set-up**	**Insert #**	Month/Year	PTO Construction Start	GIA Execution + X Months
Longest Construction Upgrade Duration (ANU, CANU, or PNU)**	**Insert ##**	Month/Year	Projects Earliest ISD	Construction Kick-off complete + ## Months Upgrade timeline
ISD to COD Interval	**Insert #**	**Month/Year**	***Project's earliest reasonable COD	Upgrade Timeline + ISD to COD Months

Modifications to Add Energy Storage

- Customers may request to add energy storage to their Interconnection Request or operating Generating Facility
  - Energy storage addition does not alter the approved Net-to-Grid MW capacity
  - If a project is increasing the Net-to-Grid MW then a new Interconnection Request is required

- If an existing Generating Facility that has added energy storage retires its original generating unit, a Post-COD modification request is required to verify not electrical characteristic impacts, remove the unit fro the model, and ensure the energy storage can continue to operate.

Deliverability Transfers

- Customers may request to transfer deliverability to energy storage additions or other generating units located at the same Point of Interconnection (POI) and voltage level
- The deliverability transfer cannot result in a deliverability amount that exceeds the maximum output at POI associated with the projects
- The Project which is receiving deliverability from a transfer must meet the retention and CVC requirements of the transferring Project
- To request a deliverability transfer, send the Deliverability Transfer Request form to QueueManagement@caiso.com either as its own request or as part of a MMA

Limited Operation Studies

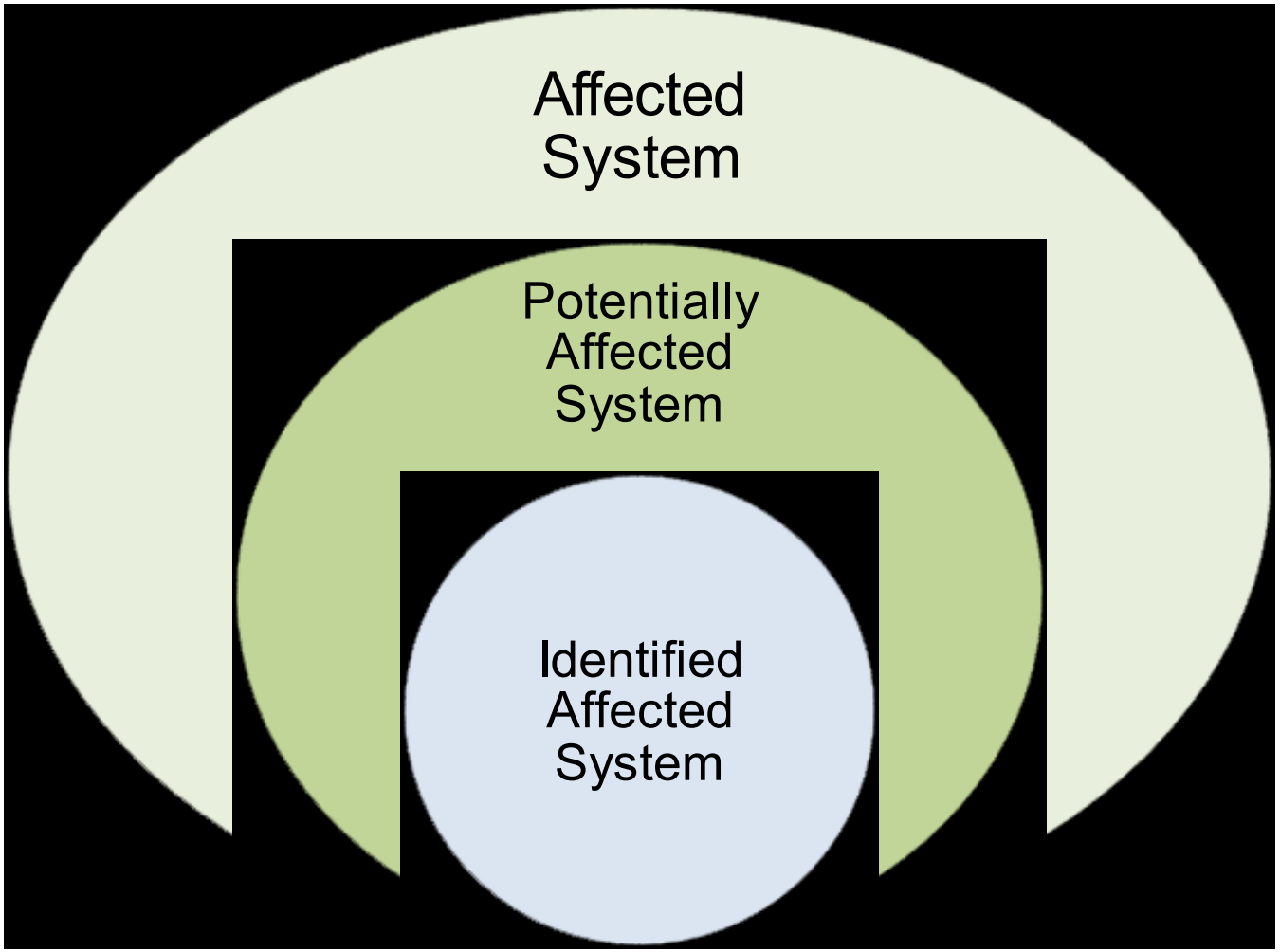
- A LOS are used to determine the extent to which a Project may achieve commercial operation prior to the completion of network upgrades
- All reliability network upgrades and pre-cursor transmission projects must be in-service prior to initial synchronization date
- Limited Operation Studies
  - The study requires a $10,000 deposit from the Interconnection Customer
  - May be requested no sooner than 5 months* prior to Initial Synchronization
  - Submit request to QueueManagement@caiso.com

*Upcoming BPM change will increase to 9 months

Repowering Requests

- Repowering is for existing generating facilities, including QFs, that wish to make unsubstantial changes
  - Facilities who propose substantial changes must enter Generation Interconnection and Deliverability Allocation Procedures (GIDAP)
  - Substantiality is determined based on impact of changed electrical characteristics as outlined in the Generator Management BPM
- Must utilize the same fuel source and point of interconnection
  - Energy storage can be considered the same fuel source
  - May require a facilities study with the Participating TO
- Repowering Affidavit and technical data can be submitted to queuemanagement@caiso.com
  - Information provided in the affidavit is subject to audit by the CAISO
- Study deposit is $50,000

Affected Systems



Affected System Process

Potentially Affected System

- CAISO invites Potentially Affected Systems to scoping meeting and Phase I results meeting
- Must identify as Identified Affected Systems within 60 calendar days of notification from the CAISO after initial Interconnection Financial Security has been posted.

Identified Affected system

- CAISO will notify Interconnection Customer of their Identified Affected Systems
- Interconnection Customer to affirmatively contact the Identified Affected System operators and make reasonable efforts to address system impacts

Impacts Resolved

- Impacts must be resolved no later than six months prior to the generating unit's Initial Synchronization Date

Initial Synchronization and Commercial Operation

- Prior to Initial Synchronization and COD, Queue Management verifies GIA obligations have been met
  - Upgrades
  - Inverters
  - Affected Systems
  - Asynchronous Obligations
  - MW values in GIA, PGA, and Master File
  - **No Financial Shortfalls**
- Projects also need to complete both tabs of the Queue Management Status Report and submit it to Queue Management 3 months prior to Synch

Thank you!

If you have any further questions, please contract us at:

QueueManagement@caiso.com

Questions?

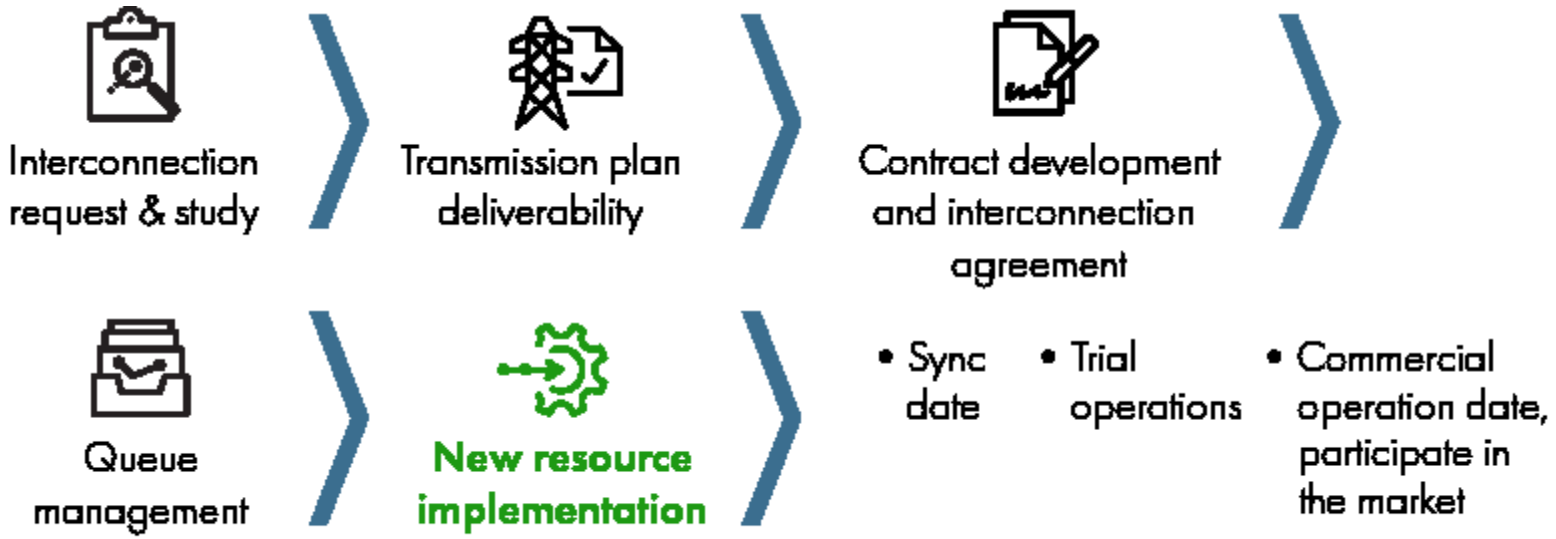
California ISO

2024 RESOURCE INTERCONNECTION STANDARDS FAIR

NRI Process Goals and Impacts

NRI Process Goals
Current Impacts
Things to Have Before Starting

New Resource Implementation Overview



[2024 NRI Stakeholder Meeting (caiso.com)]

New Resource Implementation Goals

<u>Our Goal</u>: Efficiently implement reliable resources into the CAISO market through effective resource validation and integration.

- Verify each new resource enters the market correctly, following FERC and NERC standards, and the CAISO Tariff and BPMs, with the ability to operate reliably.
  - ***Reliable operation is key to the CAISO's core responsibility as a balancing authority.***
- Provide a clear, process for customers to enter the market following the above referenced standards.
- Provide support for customers participating in the market.
- Manage a fair environment where new resources can enter the market and operate commercially.
  - **The CAISO is committed to moving projects in an orderly manner from initial request to Commercial Operation. We want to help!**

Before Starting the NRI Process

These requirements should be considered prior to starting the NRI Process

- ✓ Have an executed Interconnection Agreement.
- ✓ No open MMAs or anticipated MMAs during the NRI Process.
- ✓ Resources should be construction ready.
- ✓ Review FNM schedule and Bucket timelines to ensure that project schedule is feasible.
  - ❖ ***Projects should <u>not</u> count on expedited reviews or escalations to reach project milestones***
- ✓ Achieving CAISO commercial operations approval means your project is ready to operate in the market. Make sure your construction and contractual schedules line up with this.
  - ❖ ***Resource Adequacy timelines are not factored into the NRI process***

Before Starting the NRI Process

Completion Timelines

- Average time to complete is between 6-9 months but projects should analyze their agreements, equipment and construction requirements, and CAISO timelines prior to starting the process.
- Estimated time to complete an NRI project can vary based on various factor including, but not limited to:

- FNM Schedule
- Document completeness
- Project complexity
- Project type
- IA requirements
- Construction and equipment status
- Transmission impacts
- Market impacts
- PPA requirements
- Process changes

Reference Links -

New Resource Implementation Webpage:
California ISO - New Resource Implementation (caiso.com)
NRI Checklist:
https://www.caiso.com/Documents/NewResourceImplementationChecklist.xlsx
NRI Guide:
https://www.caiso.com/Documents/NewResourceImplementationGuide.doc
New Scheduling Coordinator and Resource Owner Reference Guide:
https://www.caiso.com/Documents/new-scheduling-coordinator-and-resource-owner-reference-guide.pdf
Full Network Model Webpage:
California ISO - Network and Resource Modeling (caiso.com)
Operating Procedure 5320 and 5320A:
https://www.caiso.com/Documents/5320.pdf, https://www.caiso.com/Documents/5320A.pdf
RIMS Quick Start Guide:
https://www.caiso.com/Documents/NRIQuickStartGuide2018RIMS.pdf
UAA and Application Access Webpage:
California ISO - Application access (caiso.com)
Metering and Telemetry Webpage:
California ISO - Metering and telemetry (caiso.com)

Thank you!

If you have any further questions, please contract us at:

NewResourceImplementation@caiso.com

Questions?

REGISTRATION IS OPEN

2024 STAKEHOLDER SYMPOSIUM

Welcome reception - Oct. 29
at Kimpton Sawyer Hotel, Sacramento, CA

Symposium program - Oct. 30
SAFE Credit Union Convention Center
Sacramento, CA

Visit the event website: www.reg.eventmobi.com/2024stakeholdersymposium

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