Proposed Updates to the Busbar Mapping Methodology

Integrated Resource Planning Staff, Energy Division

Modeling Advisory Group Webinar

June 16, 2026

California Public
Utilities Commission

Introduction

Logistics & Scope

- *Webinar slides* will be available on the Assumptions for the 2027-2028 TPP.
  - Methodology was last updated September 2025 and is available here.
- The webinar *will be recorded*, with the recording posted to the same webpage.
- The objectives of this webinar are to:
  - Provide an overview of the busbar mapping process and its role in the transmission planning process.
  - Familiarize stakeholders with the potential updates to the criteria and the criteria alignment thresholds.
  - Give opportunity to stakeholders to ask questions and provide input on the busbar mapping methodology and the proposed criteria updates.
  - Request stakeholders' informal written feedback to be incorporated in the final updated methodology.

Questions

- We invite clarifying questions to use the "Q&A" feature of this WebEx throughout the presentations.
  - Open Slido by clicking on the three dots on the bottom right, or try clicking the "Apps" icon.
  - Write your question in the provided box.
  - Staff will post the written log of Q&As following the MAG.
- If time allows, we will try to invite verbal clarifying questions at the end of the webinar.
  - All attendees have been muted. To ask questions:
    - In Webex:
      - Please "raise your hand."
      - Webex host will unmute your microphone and you can proceed to ask your question.
      - Please "lower your hand" afterwards.
    - For those with phone access only:
    - Dial *3 to "raise your hand."
    - Once you have raised your hand, you'll hear the prompt, "You have raised your hand to ask a question. Please wait until the host calls on you."
    - Webex host will unmute your microphone and you can proceed to ask your question.
- Staff also invite stakeholders to submit informal written feedback by July 3rd; please refer to Next Steps slide for instructions.

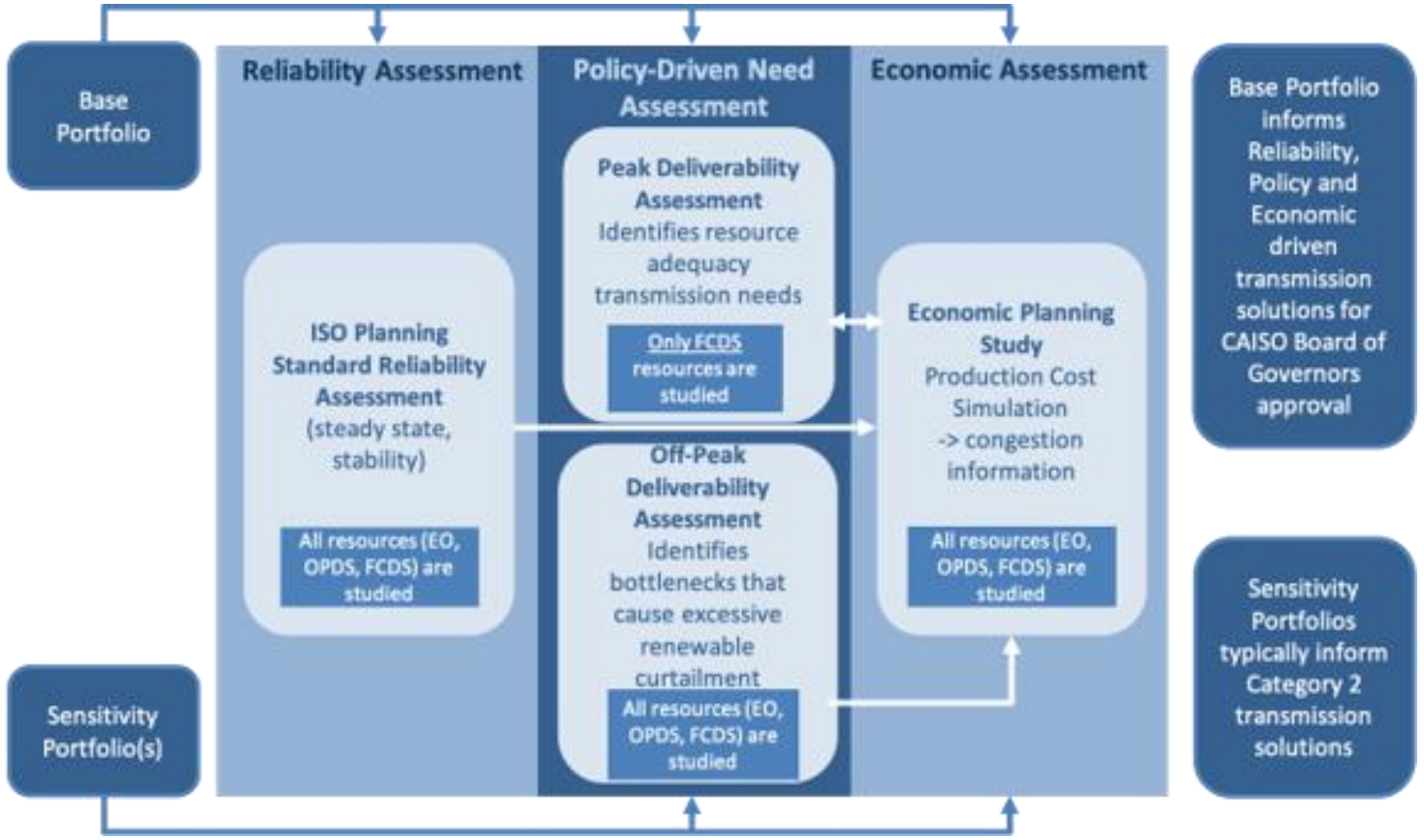
Agenda

Timing (PDT)	Topic
9:00 AM	Introduction
9:10 AM	TPP and Busbar Mapping Overview & Background
9:15 AM	Busbar Mapping Process and Criteria Overview
9:20 AM	Resource Potential Upgrades Impacting Busbar Mapping
9:50 AM	Baseline Reconciliation
10:00 AM	Busbar Mapping Criteria and Criteria Alignment
10:20 AM	CEC Land-Use and Environmental Evaluation
11:00 AM	Busbar Mapping Criteria and Criteria Alignment
11:35 AM	Gas Capacity Not Retained
11:45 AM	Questions
11:55 AM	Wrap up and Next Steps

TPP and Busbar Mapping Overview

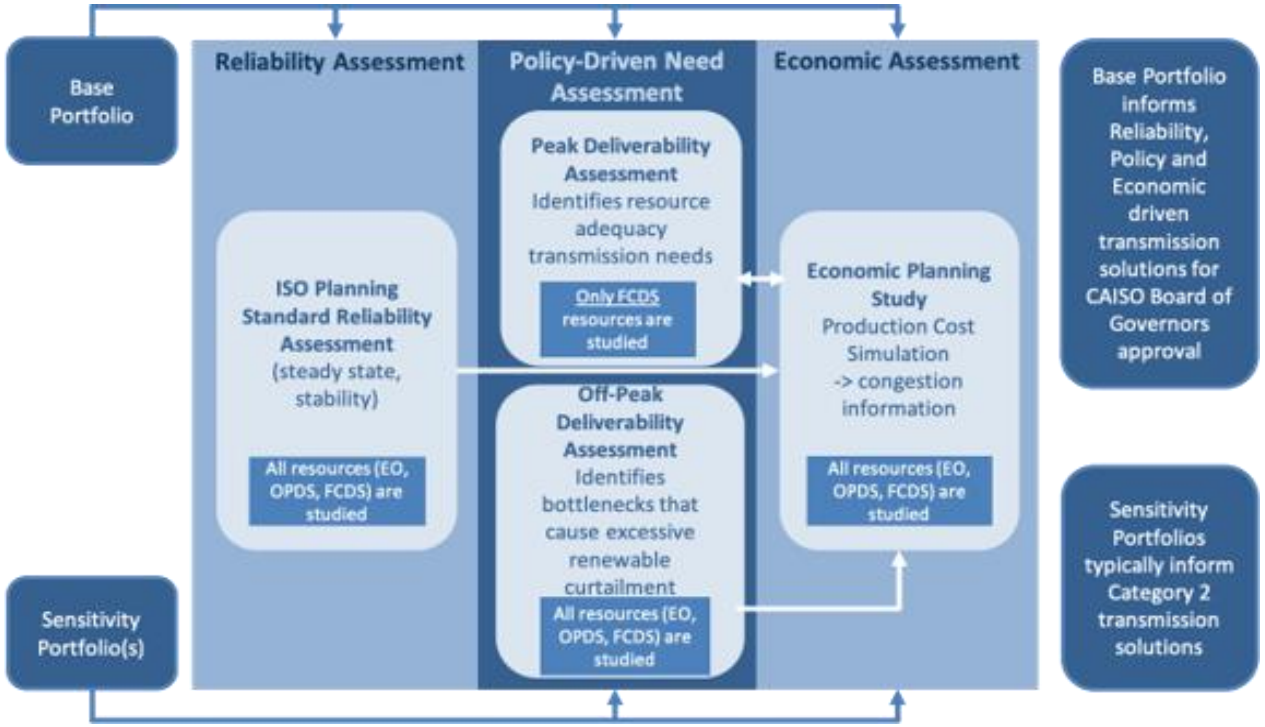
IRP Role in the CAISO's Transmission Planning Process

- The CAISO's TPP is an annual comprehensive evaluation of the CAISO's transmission grid to:
  1. Address grid reliability requirements,
  2. Identify upgrades needed to successfully meet California's policy goals, and
  3. Explore projects that can bring economic benefits to consumers.
- CPUC develops resource portfolios and CEC develops load scenarios for use by CAISO in the TPP.
  - In accordance with CPUC-CEC-CAISO Memorandum of Understanding (MOU) agreed to in December 2022.
  - Replaced and expanded on the May 2010 MOU between the CAISO and the CPUC.



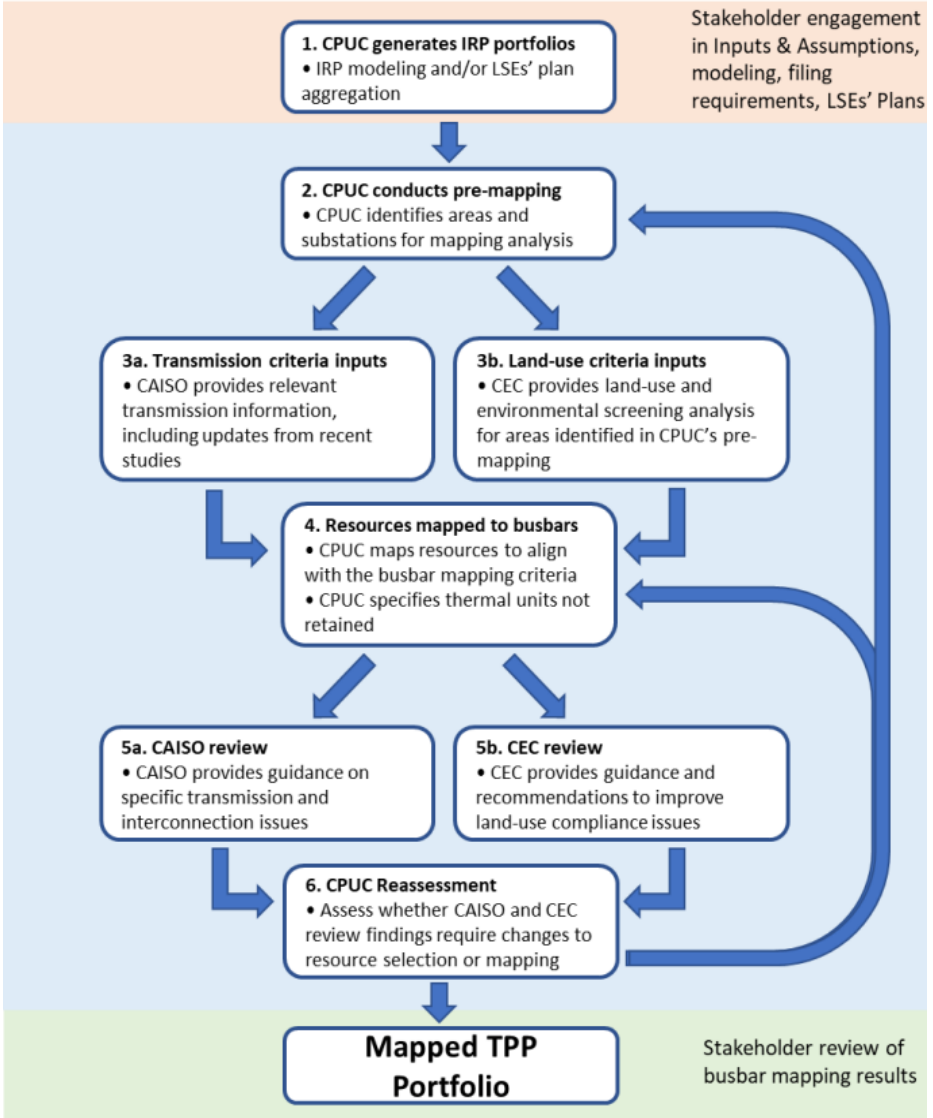
IRP Role in the CAISO's Transmission Planning Process

- The CPUC typically transmits multiple distinct portfolios developed in the IRP process:
  - Reliability and Policy-Driven Base Case portfolio
  - Policy-Driven Sensitivity portfolio(s)
- Base Cases are designed to reflect CPUC policy guidance, including reliability and GHG reduction targets, and provide regulatory certainty for transmission planning.
  - Lead to identified transmission solutions going to the CAISO Board of governors for approval.
- Policy-Driven Sensitivities are designed to either:
  - Support a "least regrets" approach that provides a reasonable range of future scenarios that can be linked to the base case, or
  - Gather additional transmission information to support future portfolio development and explore incremental optionality or risk.
- Identified transmission solutions in Policy-Driven Sensitivities do not directly go to the CAISO board for approval but can help inform base case solutions.



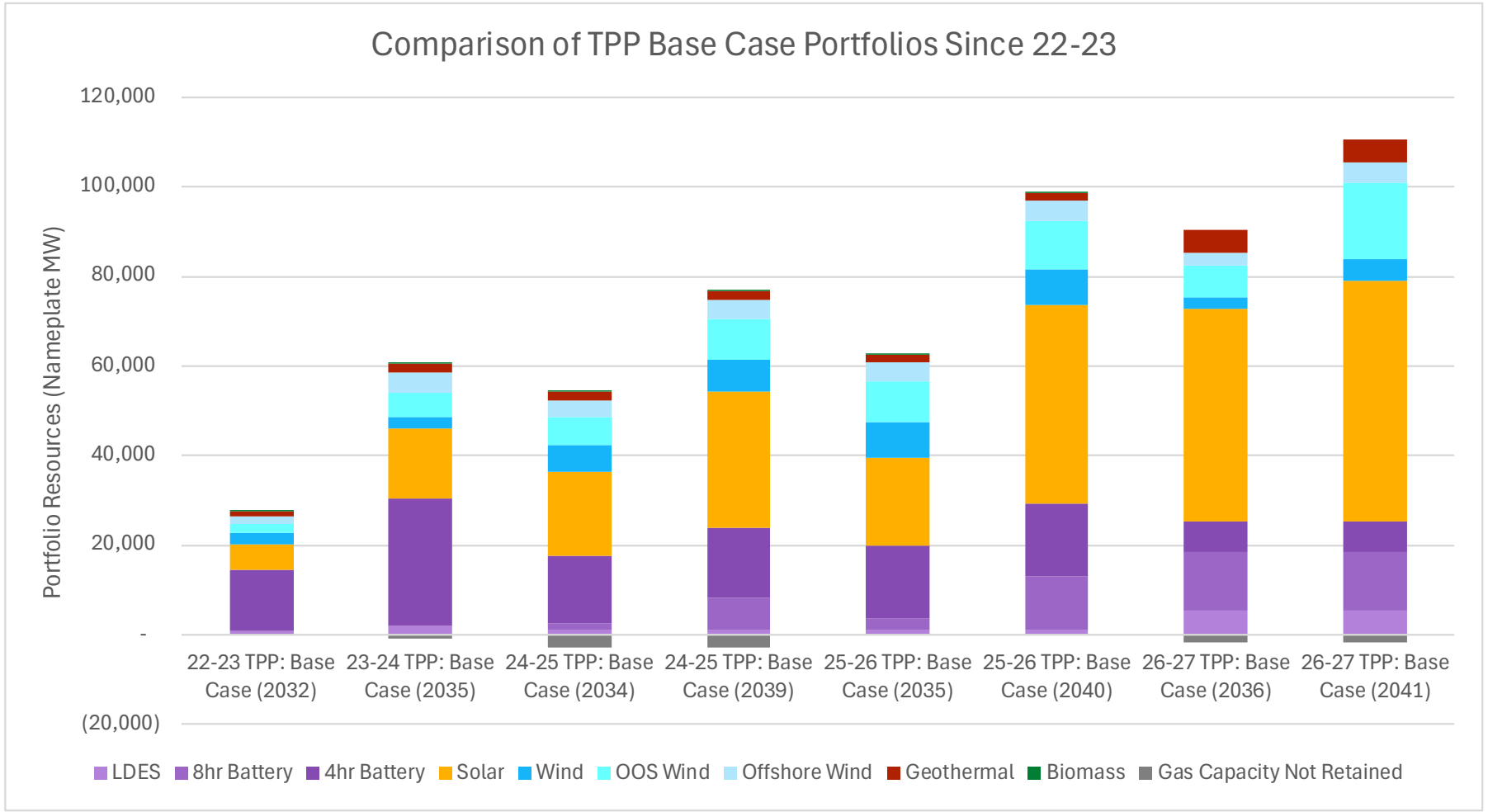
Role of Busbar Mapping in IRP and TPP

- **Resource to Busbar Mapping** ("busbar mapping"): The process of refining the geographically coarse portfolios developed through IRP to specific interconnection locations (i.e., substations) for analysis in the CAISO's annual Transmission Planning Process (TPP).
  - First conducted as "proof of concept" for the 2018-2019 TPP portfolio (CEC proof of concept report).
  - Formalized into a joint effort by a working group comprised of CPUC, CEC, and CAISO staff.
  - Mapping is conducted based on stakeholder vetted methodology.
- **Busbar Mapping Scope:** Mapping focuses on utility-scale generation and storage resources that are not already in baseline.
- **Busbar Mapping Methodology:** Methodology document states guiding principles, establishes mapping criteria, and outlines the iterative inter-agency mapping process.



Busbar Mapping Flow Chart from 26-27 TPP Methodology Document

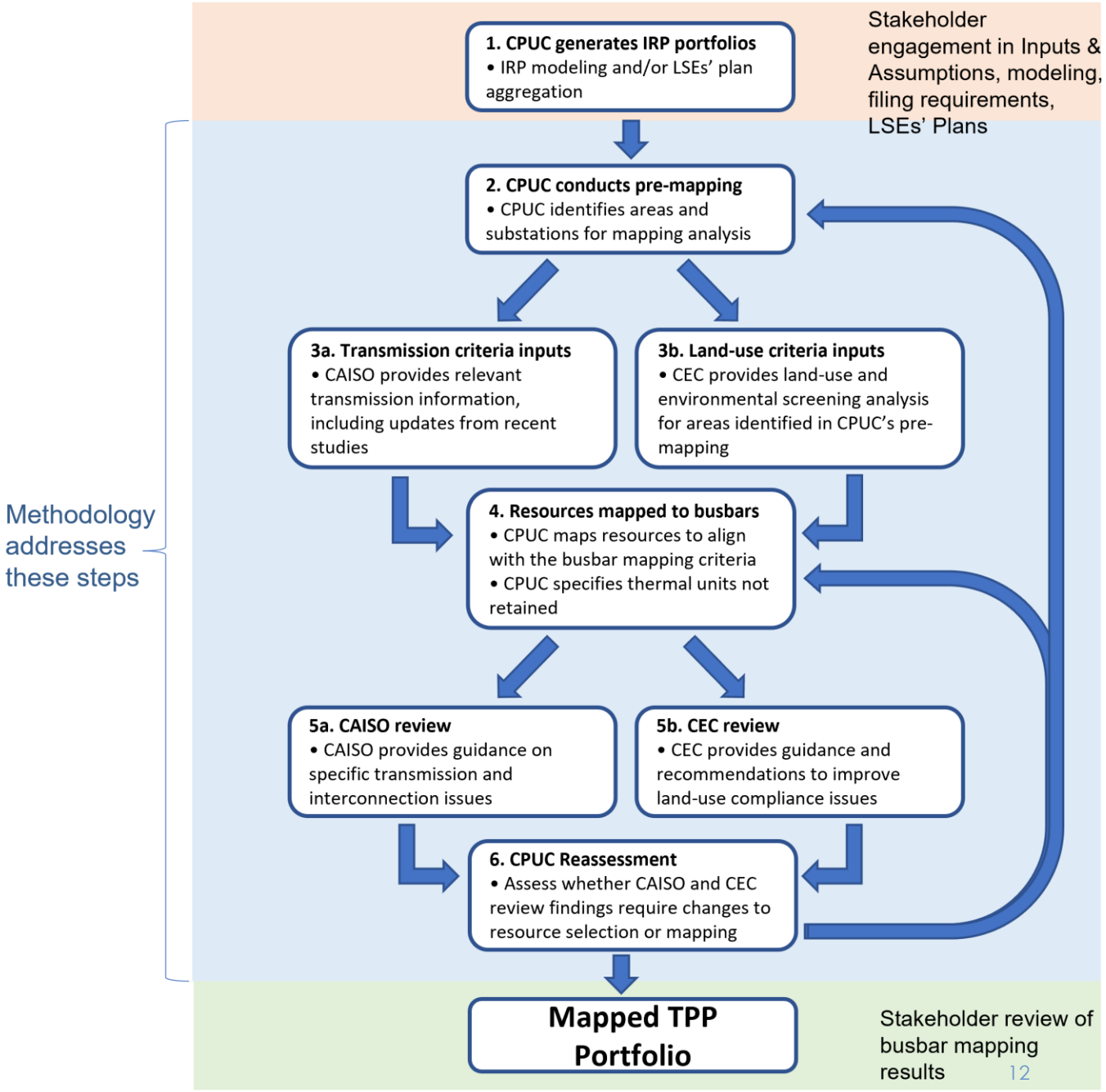
Base Case Portfolios since the 2022-2023 TPP



Busbar Mapping Process and Criteria Overview

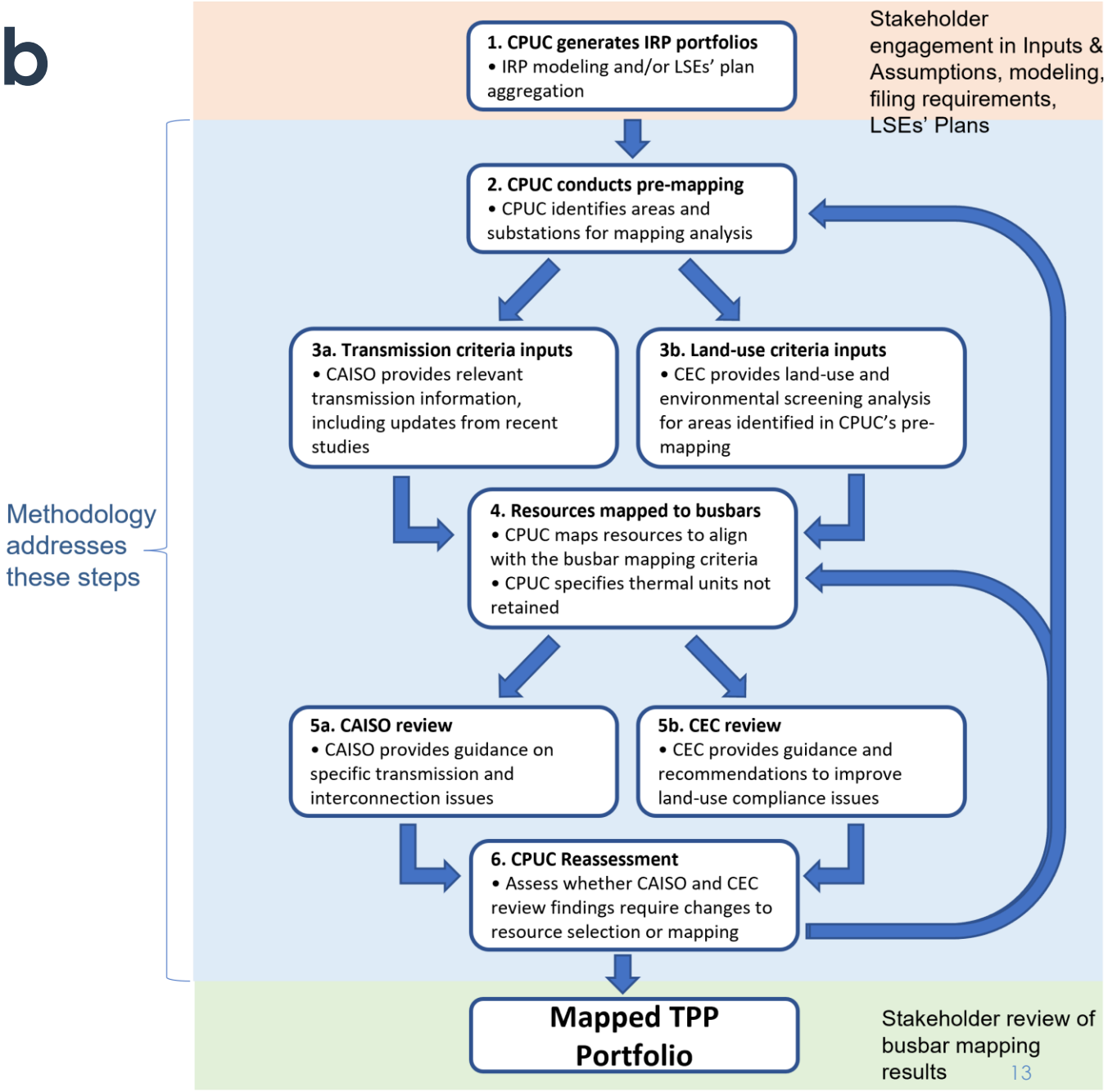
Mapping Steps #1 & #2

- The first two steps are centered on CPUC staff preparing and sharing with CEC and CAISO staff the portfolio results and relevant information for mapping analysis.
- Step 1: CPUC staff compiles selected portfolio information necessary for mapping:
  - Portfolio resources, RESOLVE identified transmission upgrades, newly in-development resources not in baseline.
- Step 2: CPUC staff conduct pre-mapping to identify key substations and areas that resources can be mapped to.
  - Identify additional information and analysis that CEC and CAISO staff need to provide.



Mapping Steps #3a & #3b

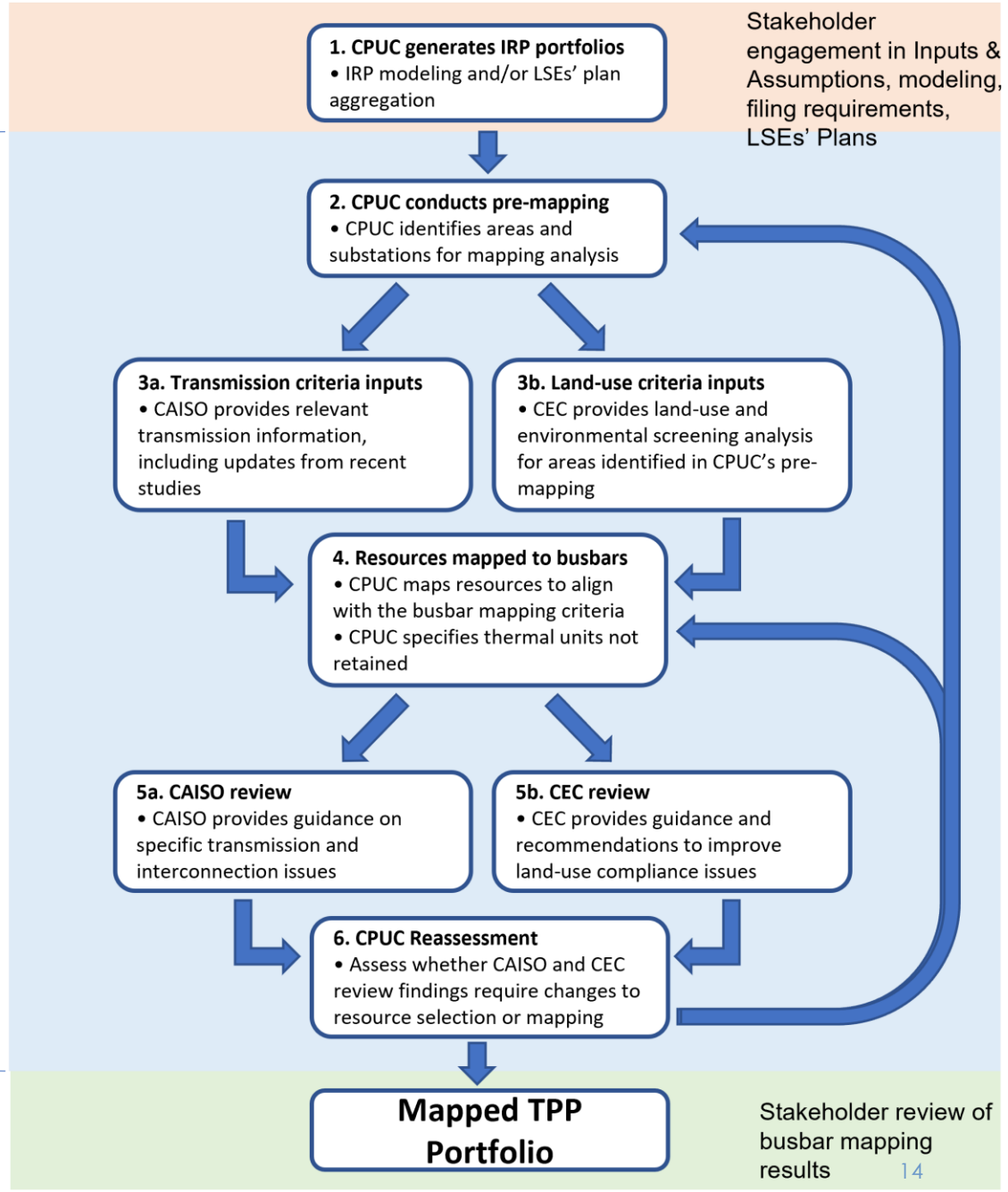
- Step 3a is centered on obtaining the information on transmission and interconnection needed to conduct busbar mapping analysis.
  - This step would utilize the most recently released CAISO transmission White Paper.
  - Any additional constraint information and recent updates.
  - Engaging with PTOs for specific substation-level interconnection info.
- Step 3b is centered on obtaining information and analysis for land-use and environmental criteria.
- Note that these steps do not have to take place sequentially as displayed.
  - Staff have been already working on portions of this information gathering and analysis.



Mapping Steps #4 - #6

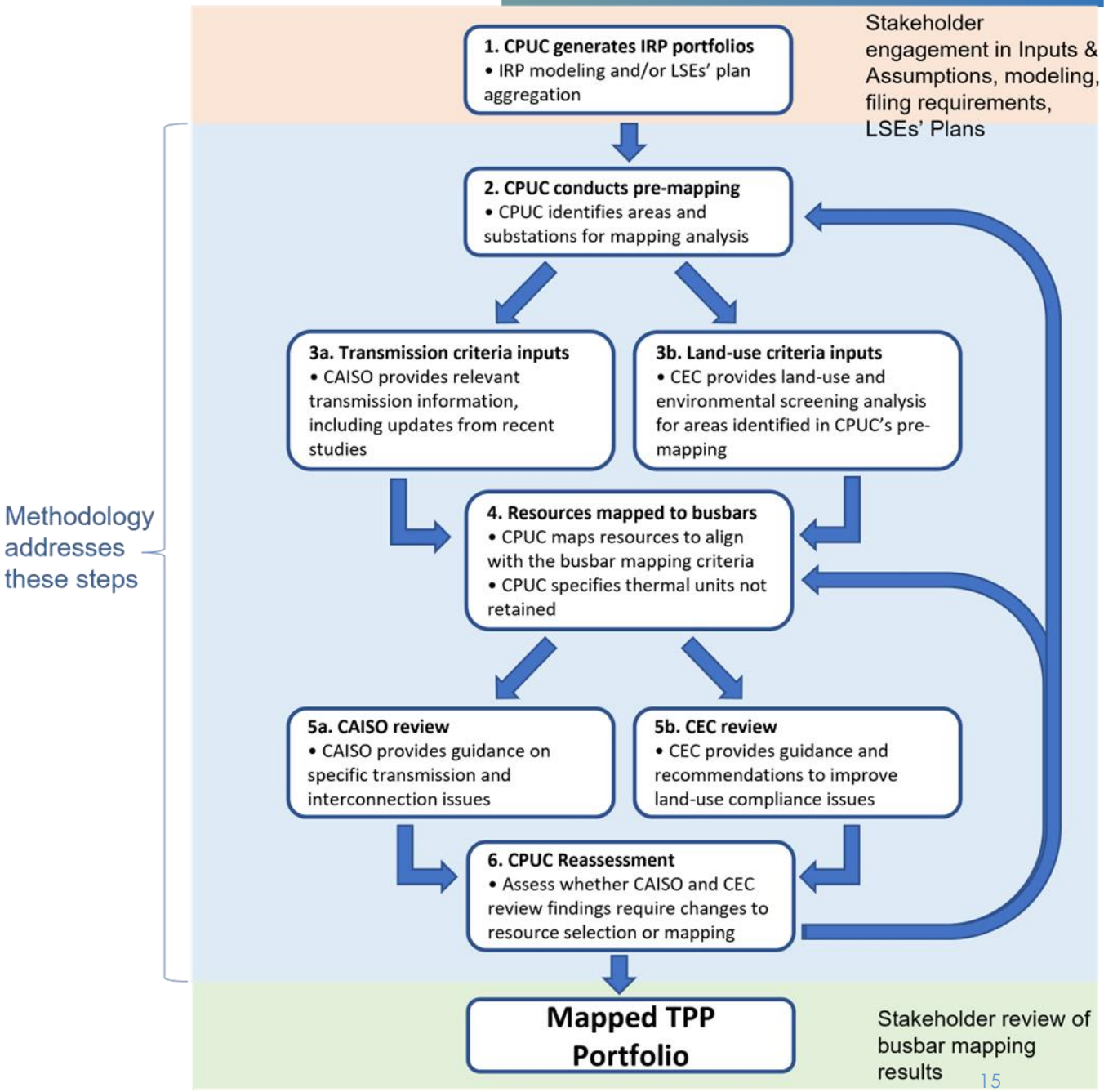
- Step 4: CPUC staff conduct mapping and criteria analysis using information provided in Step 3.
  - Amalgamate mapping results into a "Dashboard" that summarizes mapped resource compliance with criteria.
  - Identify non-compliant resources that may need further review and mapping adjustments.
- Step 5: CEC and CAISO staff review the mapping results and provide feedback and recommendations on improving criteria alignment.
  - High-level general feedback and recommendations on specific issues identified by CPUC staff.
- Step 6: CPUC staff assess, based on Step 5 reviews and criteria alignment dashboard, whether further rounds of mapping are needed.

Methodology addresses these steps



Mapping Criteria Goals

- Goals of the mapping process:
  - Identify plausible locations for portfolio resources that do not violate established busbar mapping criteria.
  - Align mapped resources to the extent feasible with the mapping priorities of each criteria.
- In the iterative mapping process, the Working Group will seek to address mapped resources' non-compliance with criteria on an individual situation basis.
- Working Group will assess if alternative mapping locations would improve alignment within the non-compliant criterion without decreasing overall criteria alignment.



Busbar Mapping Methodology & Criteria

- The busbar mapping criteria are organized into seven categories:
  1. System level transmission capability and available upgrades
  2. Substation level interconnection viability
  3. Land-use implications and feasibility factors
  4. Environmental (conservation and biological) impact factors
  5. Community and environmental (societal) impact factors
  6. Commercial development interest
  7. Consistency with prior TPP portfolios
- Staff rank criteria alignment scale in five levels to summarize mapped resources' alignment with the various criteria priorities.

Level 1	Level 2	Level 3	Level 4	Level 5
Strong compliance with criteria, alignment with criteria's prioritized conditions	Mostly favorable compliance with criteria, not fully aligned with priorities but not near to triggering unfavorable criteria	Mixed compliance with criteria, little alignment with prioritizes, potential alignment with conditions criteria seek to limit or avoid	Some noncompliance with criteria, some alignment with conditions criteria seeks to limit or avoid	Significant noncompliance with criteria, no alignment with stated criteria, fully meets conditions criteria seek to limit or avoid

Resource Potential Updates Impacting Busbar Mapping

Summary of Candidate Resource Updates

- First available year for generic in-state wind and geothermal resources not identified in generator interconnection queues updated to 2036 and 2037 (respectively), reflecting increased development lead-time for these technologies
- Revised assumptions for out-of-state wind and geothermal resources, including new transmission pathways, costs, and availability tranches for WY/NM Wind and NV/UT/ID/OR geothermal and Enhanced Geothermal Systems (EGS)
  - Revisions to the list of planned, in-development, or proposed transmission projects that can deliver out-of-state resources to CAISO before 2035
  - First available years for generic out-of-state wind, geothermal, and EGS resources (apart from previous bullet) delayed to 2035-2037
- Incorporation of findings from the 25-26 TPP, including representation of the Trout Canyon-Lugo project, new deliverability constraints affecting AZ resources, and revised expansion options for Path 26/15

In-State Wind Availability Updates since Previous I&A

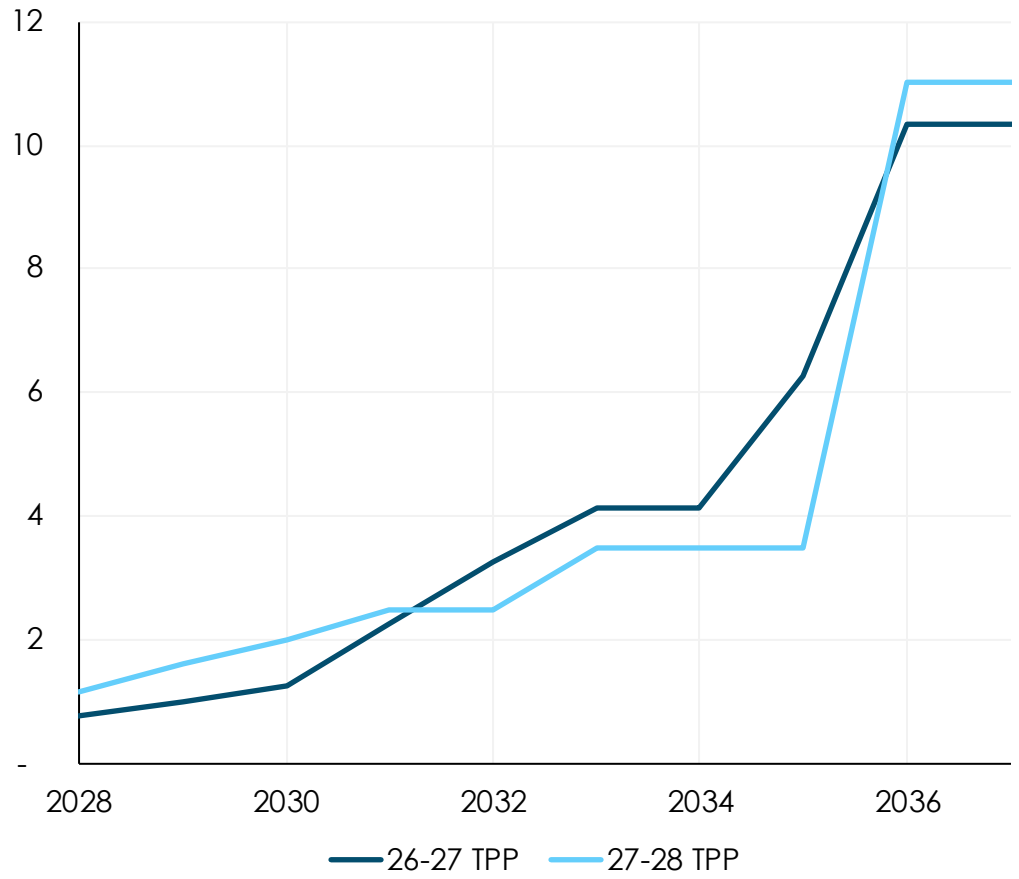
26-27 TPP Assumptions:

- Technology-wide annual build limits (250 MW per year thru 2031, with an additional 1 GW per year thru 2035)
- Regional near-term build limits based on queue data (thru 2034)
- Geospatial resource potential limits for generic wind (incremental to queue) with first available year in 2035

Updates for 27-28 TPP:

- Remove technology-wide annual build limits
- Update regional near-term build limits based on latest queue data (thru 2035)
- Geospatial resource potential limits for generic wind (incremental to queue) with first available year in 2036
  - Northeast CA (1,015 MW) and Baja California (1,910 MW) potentials updated to reflect latest commercial interest, totaling ~700 MW of additional resource potential by 2036

In-State Wind Maximum Build Limit, GW



Near-Term Geothermal Resource Build Limits

- The first available year for in-state geothermal (both conventional and EGS) has been updated to 2037, reflecting a 10-year development lead time for a project not already in the queue
- Geothermal resources identified by the queue analysis are allowed earlier in RESOLVE, up to the resource potential limits informed by the geospatial land use assessment

Technology	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037+
Northeast CA Geothermal	-	-	-	-	-	-	-	-	-	Full Resource Potential
PGE NGBA Geothermal	9	62	62	62	62	62	62	62	62	
SCE NOL Geothermal	-	-	-	-	-	-	-	-	-	
SCE Eastern Geothermal	-	-	-	-	-	-	-	-	-	
SDGE Imperial Geothermal	-	-	-	-	-	-	-	-	-	
Total	9	62	62	62	62	62	62	62	62	

Out-of-State (OOS) Resources

In-Development Transmission for OOS Wind Resources

- **SunZia (NM)**
  - CAISO has secured deliverability (MIC) of 2,131 MW thru Palo Verde; additional MWs cannot currently be imported
  - Nearly all of SunZia Wind utilizing this transmission capability has been contracted to California LSEs and is now reflected in the IRP Baseline
  - SunZia will no longer be a candidate resource in RESOLVE
- **TransWest Express (WY)**
  - 1.5 GW of the 3 GW HVDC line from Aeolus to IPP is allocated to CAISO, delivered via a second 1.5 GW HVAC line from IPP to Harry Allen
  - 900 MW of wind resource at Aeolus is under development with estimated COD by 2030[1]
- **SWIP-North (ID)**
  - CAISO has secured rights for 1,100 MW of this line with resource delivery at Harry Allen
  - Taurus Wind, LLC is a 1 GW nameplate project under development at Midpoint, ID[2]

1 https://www.oasis.oati.com/ppw/, Cluster 1 (C1-35) and Transition Cluster 2 (T2-057)
2 https://www.oasis.oati.com/ipco/ (635)
3 https://www.oasis.oati.com/NEVP/ (25-00404 thru 25-00408)

Out-of-State Resources

Near-Term Build Limits for OOS Resources

- In addition to the in-development projects for OOS wind, three pathways for near-term delivery of OOS EGS resources are being introduced this cycle:
  - In comments submitted to CAISO, GLW requested study of the proposed High West Transmission Project in the 26-27 TPP[2], which could deliver 2,000 MW of Utah EGS to CAISO
  - Staff identified an additional 270 MW of Nevada EGS in the interconnection queue[1] that could secure rights on Greenlink West with delivery to Harry Allen
  - Staff also identified 800 MW of Nevada EGS projects that could utilize capacity on SWIP-N[3]
- Costs for in-development transmission projects are taken from the 2021-2022 TPP (TransWest), SWIP-N Appplication Memo (SWIP-N), public reporting on Greenlink, and per-unit cost estimation of High West

Technology	Transmission Line	Delivery Point	Transmission Cost ($/kW-yr)	2028	2029	2030	2031	2032
Wyoming Wind	TransWest	Harry Allen	$108	-	-	900	900	1,500
Utah EGS	High West	Sloan Canyon	$81	-	-	-	-	2,000
Nevada EGS	Greenlink West	Harry Allen	$83	-	270	270	270	270
Nevada EGS	SWIP-N	Harry Allen	$67	800	800	800	800	800
Idaho Wind	SWIP-N	Harry Allen	$67	-	-	-	1,100	1,100

1 https://stakeholdercenter.caiso.com/Common/DownloadFile/4f62ffb1-69ca-40a8-b30b-0436d1e79b7d
2 https://www.oasis.oati.com/NEVP/ (Executed; Company LB and Company LM)
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Nevada EGS	Greenlink					270	270	270
Nevada EGS	SWIP-N	Harry Allen	$67	800	800	800	800	800
Idaho Wind	SWIP-N	Harry Allen	$67	-	-	-	1,100	1,100

Total selections along SWIP-N capped at 1,100 MW

1 https://stakeholdercenter.caiso.com/Common/DownloadFile/4f62ffb1-69ca-40a8-b30b-0436d1e79b7d
2 https://www.oasis.oati.com/NEVP/ (Executed; Company LB and Company LM)
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Generic OOS Resources in RESOLVE

- Additional tranches of OOS wind, geothermal, and EGS resources on new (generic) transmission are modeled in RESOLVE, under both **existing right-of-way (ROW)** and **greenfield** project assumptions, using per-unit cost estimates adopted from the CAISO 20-Year Transmission Outlook[1]
- First available year for generic OOS resources depends on technology and path type:

Technology	Path Type	First Available Year
OOS Wind	Existing ROW	2037
OOS Wind	Greenfield	2042
OOS Geo/EGS	Existing ROW	Not Modeled
OOS Geo/EGS	Greenfield	2037[2]

- Staff estimated transmission line path lengths for use in the per-unit costing:
  - **Existing ROW** paths were collected from planned interregional transmission projects
  - **Greenfield** line lengths were estimated using geospatial analysis of likely origination and termination points, incorporating terrain-based routing multipliers

[1] https://www.caiso.com/documents/2024-20-year-transmission-outlook-jul-31-2024.pdf

[2] Approximately 700 MW of geothermal resources in the NEVP interconnection queue are made available in 2035

Per-Unit Cost Estimation for Generic OOS Transmission

- To estimate the costs of generic transmission lines, per-unit cost estimates as reported in the CAISO 20-Year Transmission Outlook[1] are used:
  - HVAC (500 kV): $6M/mi, single-circuit, 1,500 MW per line
  - HVDC (500 kV): $7M/mi, double-circuit, 3,000 MW per line + 2x HVDC converter stations ($1.5B total)
  - Substations: $125M per unit, 2 per line plus 1 every 200 miles
- The length of each transmission line is determined by applying a routing factor that considers terrain and other factors:
  - For lines over mostly flat terrain, a 1.15x factor to the straight-line path length is applied
  - For lines over mountainous terrain, a 1.5x factor is applied
- For lines that use an existing ROW, a 15% haircut to the final cost is assumed to account for reduced site work and permitting costs
- **In RESOLVE, transmission costs for OOS resources are bundled with the resource cost**

[1] https://www.caiso.com/documents/2024-20-year-transmission-outlook-jul-31-2024.pdf; all values reported in 2023$; costs assumed to include contingency and AFUDC, as well as series compensation (to maintain transfer capability)

Out-of-State (OOS) Resources

Generic OOS Resource Availability

Detailed Results in Appendix!

- The generic OOS potentials reflect the total capacities of all generic transmission options modeled in RESOLVE (wind)[1] or the total known resource potential (conventional geothermal and EGS)[2]
- Only Near-Field EGS is modeled in neighboring states
- Likely tie-in locations for out-of-state resources were identified through coordination with the Working Group

Resource	Tie-in Location	Total Potential (MW)	First Available Year	Transmission Cost Range ($/kW-yr)	Remarks
New Mexico Wind (SCE)	Eldorado, Lugo, Rancho Vista	10,500	2037-2042	$171 - $300	Total capacity across all lines
New Mexico Wind (SDGE)	Imperial Valley	3,000	2037-2042	$215 - $245	Total capacity across all lines
Wyoming Wind (SCE)	Eldorado, Lugo	13,500	2037-2042	$211 - $323	Total capacity across all lines
Wyoming Wind (PGE)	Tesla	6,000	2037-2042	$267 - $402	Total capacity across all lines
Idaho EGS	Harry Allen	1,872	2037	$159	Revised first available year
Nevada Geo/EGS (SCE)	Eldorado, Control, Beatty [3]	783 / 3,376 [4]	2035-2037	$62 - $128	Revised first available year
Nevada Geo/EGS (PGE)	Malin	288 / 873	2035-2037	$145	Revised first available year
Northeast CA Geo/EGS	Malin	178 / 178	2037	$75	Revised first available year
Oregon Geo/EGS	Malin	520 / 1,893	2037	$114	Revised first available year

[1] Land availability for estimating total wind resource potential is assumed to be non-binding in WY and NM
[2] Resource potential estimates unchanged from the Final 2025 I&A for most OOS geothermal/EGS resources
[3] The delivery points for SCE Nevada Geothermal/EGS resources are subject to optimization decisions in RESOLVE among these three locations
[4] Relative to the Final 2025 I&A, the resource potential for SCE Nevada Geothermal/EGS reflects adjustments accounting for known geothermal contracts to non-CAISO LSEs and procurement forecasts from the NVE IRP

Out-of-State (OOS) Resources

Summary of OOS Resource Availability

Wind Resource	Tie-in Location	2028	2030	2032	2035	2037	2040	2042
New Mexico Wind (SCE)	Eldorado, Lugo, Rancho Vista	-	-	-	-	1,500	1,500	10,500
New Mexico Wind (SDGE)	Imperial Valley	-	-	-	-	1,500	1,500	3,000
Wyoming Wind (SCE)	Eldorado, Lugo	-	900	1,500	1,500	3,000	3,000	15,000
Wyoming Wind (PGE)	Tesla	-	-	-	-	1,500	1,500	6,000
Idaho Wind	Harry Allen	-	-	1,100	1,100	1,100	1,100	1,100
Total – OOS Wind		**-**	**900**	**2,600**	**2,600**	**8,600**	**8,600**	**35,600**

Geo/EGS Resource	Tie-in Location	2028	2030	2032	2035	2037	2040	2042
Idaho EGS	Harry Allen	-	-	-	-	1,872	1,872	1,872
Utah EGS	Sloan Canyon	-	-	2,000	2,000	2,000	2,000	2,000
Nevada Geo/EGS (SCE)	Eldorado, Control, Beatty	800	1,070	1,070	1,773	4,159	4,159	4,159
Nevada Geo/EGS (PGE)	Malin	-	-	-	85	1,161	1,161	1,161
Northeast CA Geo/EGS	Malin	-	-	-	-	357	357	357
Oregon Geo/EGS	Malin	-	-	-	-	2,413	2,413	2,413
Total – OOS Geo/EGS		**800**	**1,070**	**3,070**	**3,858**	**11,962**	**11,962**	**11,962**

Transmission Updates Impacting Busbar Mapping

In-State Transmission Updates

Modeling of Trout Canyon-Lugo 500 kV

- When transmission upgrades get approved by CAISO in the TPP, the RESOLVE model is updated to "sink" those projects' costs by forcing in approved upgrades
- Given the approval of the Trout Canyon-Lugo 500 kV transmission line to address the Lugo-Victorville Area Constraint, the following updates are made:
  - Starting in 2035, the available TPD behind this constraint will be augmented by 5,410 MW, as confirmed in the Working Group
  - The approved project's estimated cost of $1.685 B will be added to RESOLVE's non-optimized costs
- Since RESOLVE may determine additional OOS resources delivered to EOP are cost-effective, an additional tranche of transmission upgrades will be introduced to provide additional headroom:
  - Cost: $1.685 B * 1.25x = **$2.106 B**
  - First Available Year: **2037** (available in the 10-year plan)
  - Incremental Capability: **5,410 MW**
- No other updates will be made in RESOLVE; changes to TPD estimates and constraint boundaries due to Trout Canyon-Lugo will be studied in CAISO's 2026 Whitepaper and later in the CPUC's 27-28 TPP Busbar Mapping Analysis

New Arizona Solar TPD Constraint

- RESOLVE's system-level transmission constraints are sourced from CAISO's 2024 Transmission Capability Estimates Whitepaper, developed specifically for the CPUC IRP process
- In the 26-27 TPP RESOLVE analysis, large volumes of solar were selected in the SDGE Arizona Study Area, exceeding the available transmission capability
- A new constraint has been added to more accurately represent deliverability limitations in this area:
  - RESOLVE and the busbar mapping process will now include the **Hoodoo Wash–North Gila and Palo Verde–Colorado River Deliverability Constraint**, with bus memberships at Hassayampa, Hoodoo Wash, and Palo Verde, to appropriately restrict the selection of solar resources and reflect real-world transmission limits in this corridor
- The headroom of the constraint is 4 GW, further limited by existing resources at these busbars, and no upgrade is modeled to alleviate this transmission constraint

RESOLVE PGE<>SCE Transmission Upgrade Tranches

- The Working Group identified that a Path 26 upgrade studied in isolation (which was introduced as an upgrade tranche in the 26-27 TPP RESOLVE analysis) would not provide significant congestion reduction, as Path 15 would remain constrained
  - Revised Tranche 1 reflects a new Windhub to Tesla 500 kV line, as studied in the 25-26 TPP, providing an incremental 2,500 MW of transfer capacity
  - Revised Tranche 2 reflects additional Path 26/15 reinforcements, as well as an extension to Lugo
- RESOLVE may select each tranche sequentially, if they are found to be cost-optimal, on top of the existing PGE<>SCE transmission capability (3,000 MW from SCE to PGE, 4,000 MW from PGE to SCE)

Tranche #	Incremental Upgrade (MW)	Total Upgrade (MW)	Total Path Rating (MW)	Cost of Tranche (2024 $)	Levelized Cost ($/kW-yr)[1]	First Available Year	Description	Source
Tranche 1 (Path 26/15)	2,500	2,500	5,500 (SCE to PGE) 6,500 (PGE to SCE)	$3,187 M	$100	**2037**	New Windhub to Tesla line (Alternative 6 from the 25-26 TPP Congestion Economic Study[2])	CAISO 25-26 TPP[2]
Tranche 2 (Path 26/15 + Extension)	3,000	5,500	8,500 (SCE to PGE) 9,500 (PGE to SCE)	$6,090 M	$158	**2040**	Path 15 upgrade (Alternative 8 from the 23-24 TPP Congestion Economic Study[3]) Two new Vincent to Midway 500 kV lines[4] New Lugo to Vincent 500 kV line[4]	CAISO 23-24 TPP[3] CAISO per-unit cost guide[4]

1 Real 2024$; assumes a 7.80% CRF
2 https://stakeholdercenter.caiso.com/InitiativeDocuments/Board-Approved-2025-2026-Transmission-Plan.pdf
3 https://www.caiso.com/documents/appendix-g-board-approved-2023-2024-transmission-plan.pdf
4 https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/20-Year-transmission-outlook-2023-2024

Baseline Updates

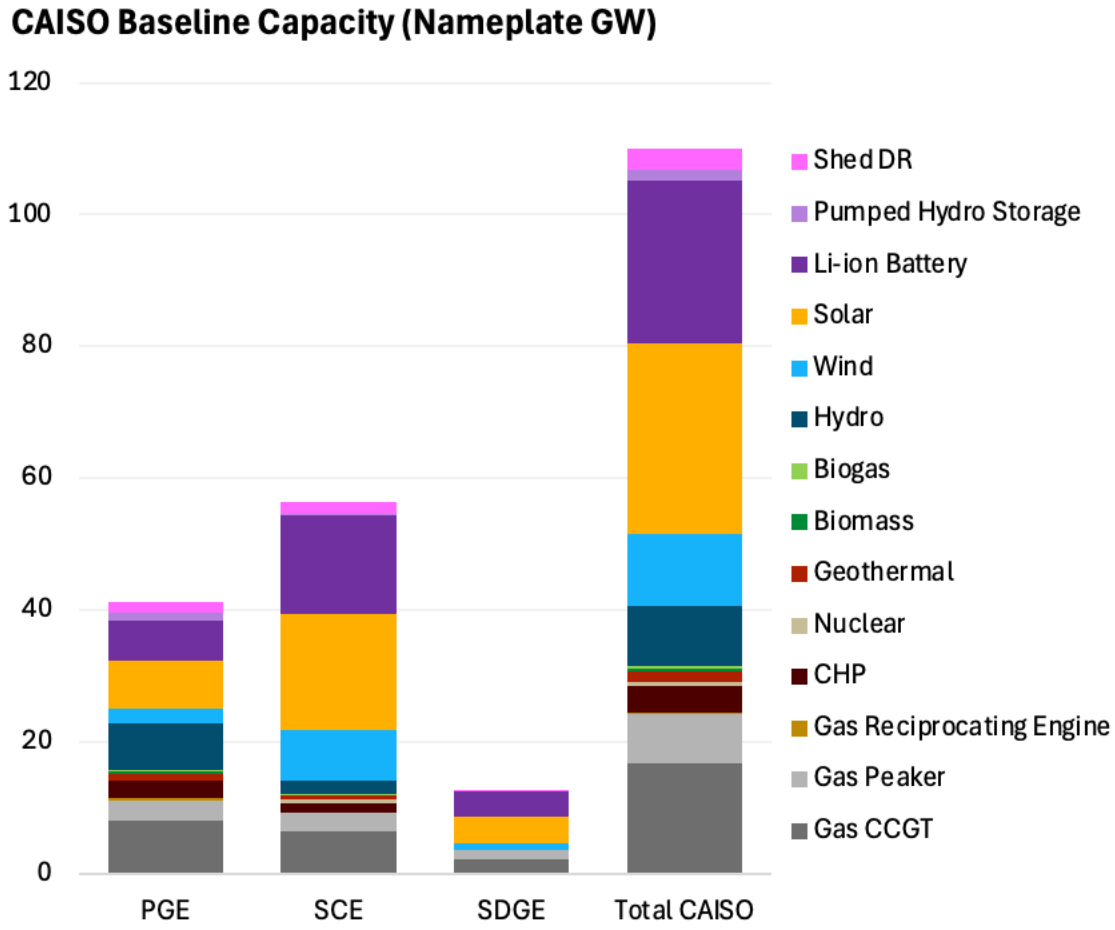
Defining the Baseline

- The resource baseline is an input to both RESOLVE and SERVM, and includes both online and in-development resources for both CAISO and non-CAISO zones
  - **Online**: Units already built and operating, net of scheduled retirements
  - **In-Development**: Units with approved contracts and/or under construction
- The baseline does not include **candidate** resources, which can be selected by RESOLVE as new additions
- The baseline is constructed from multiple sources:
  - Online CAISO: CAISO Master Generating Capability List (MGC)[1] and the CAISO Retirement and Mothball List[2]
  - In-Development CAISO: CAISO Generator Interconnection Resource ID Report (GIRR)[3]
  - Non-CAISO (external): WECC Anchor Data Set (ADS)[4]
- In previous TPPs, in-development resources were sourced from LSE filings; by updating to CAISO GIRR, the threshold for inclusion in the baseline is stricter than in previous years

1 http://oasis.caiso.com/mrioasis/logon.do; 2 https://www.caiso.com/Documents/AnnouncedResourceRetirement-MothballListPosted-051321.html#:~:text=The%20California%20ISO%20has%20posted%20an%20updated%20list.The%20list%20includes%20all%20resources%2C%20regardless%20of%20size.;
3 https://www.caiso.com/documents/new-generator-interconnection-resource-id-report-083023.html;
4 https://www.wecc.org/program-areas/reliability-planning-performance-analysis/reliability-modeling/anchor-data-set-ads

CAISO Baseline Capacity and Changes since Previous I&A

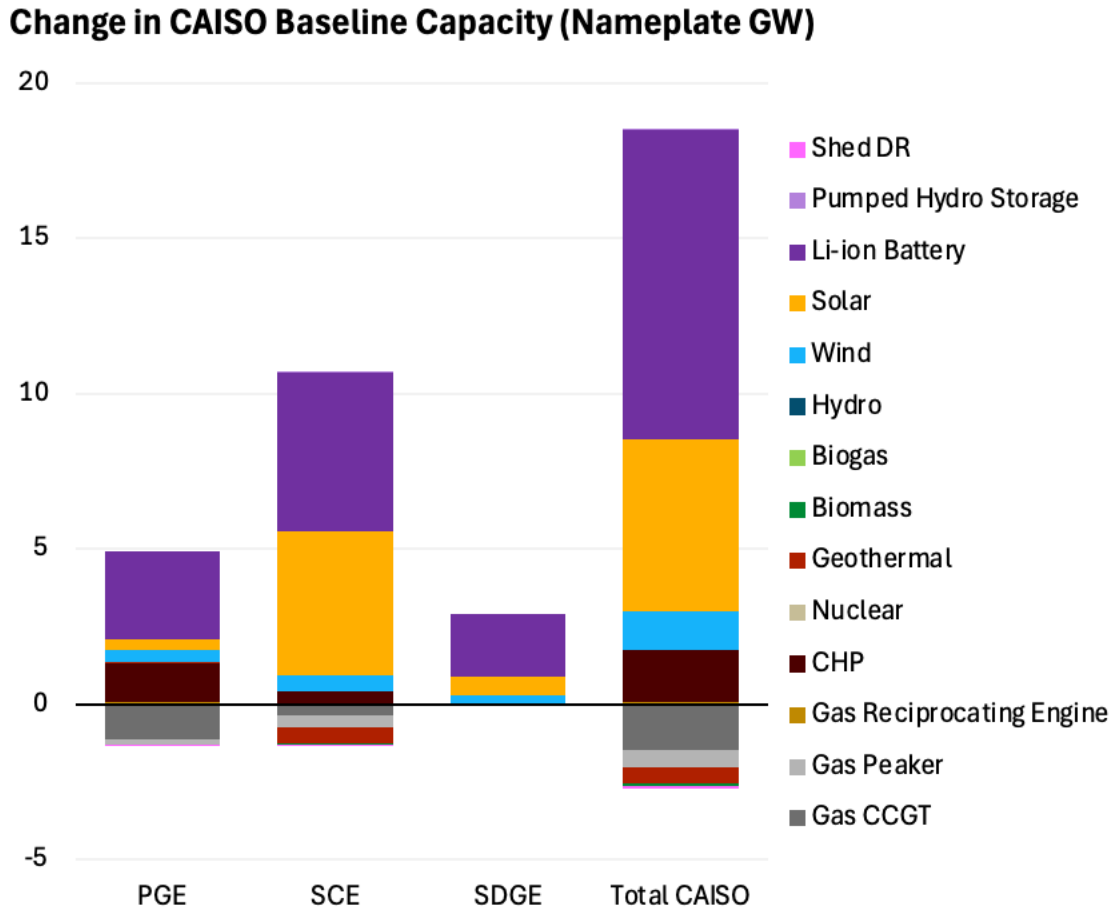
- Reflects the CAISO MGC and GIRR data sources as of September 2025
- Several GW of new resources compared to the previous baseline
  - Mostly solar and storage; small increases in wind and geothermal
- Roughly 110 GW of total baseline resources in CAISO:
  - ~29 GW solar
  - ~26 GW storage
  - ~11 GW wind, including >2 GW out-of-state
  - ~12 GW clean firm (nuclear, geothermal, biomass/biogas, hydro)
  - ~28 GW gas
  - ~3 GW DR



CAISO CHP is forced to phaseout from 2031-2040; this is done as a post-processing step to generator list data.

CAISO Baseline Capacity and Changes since Previous I&A

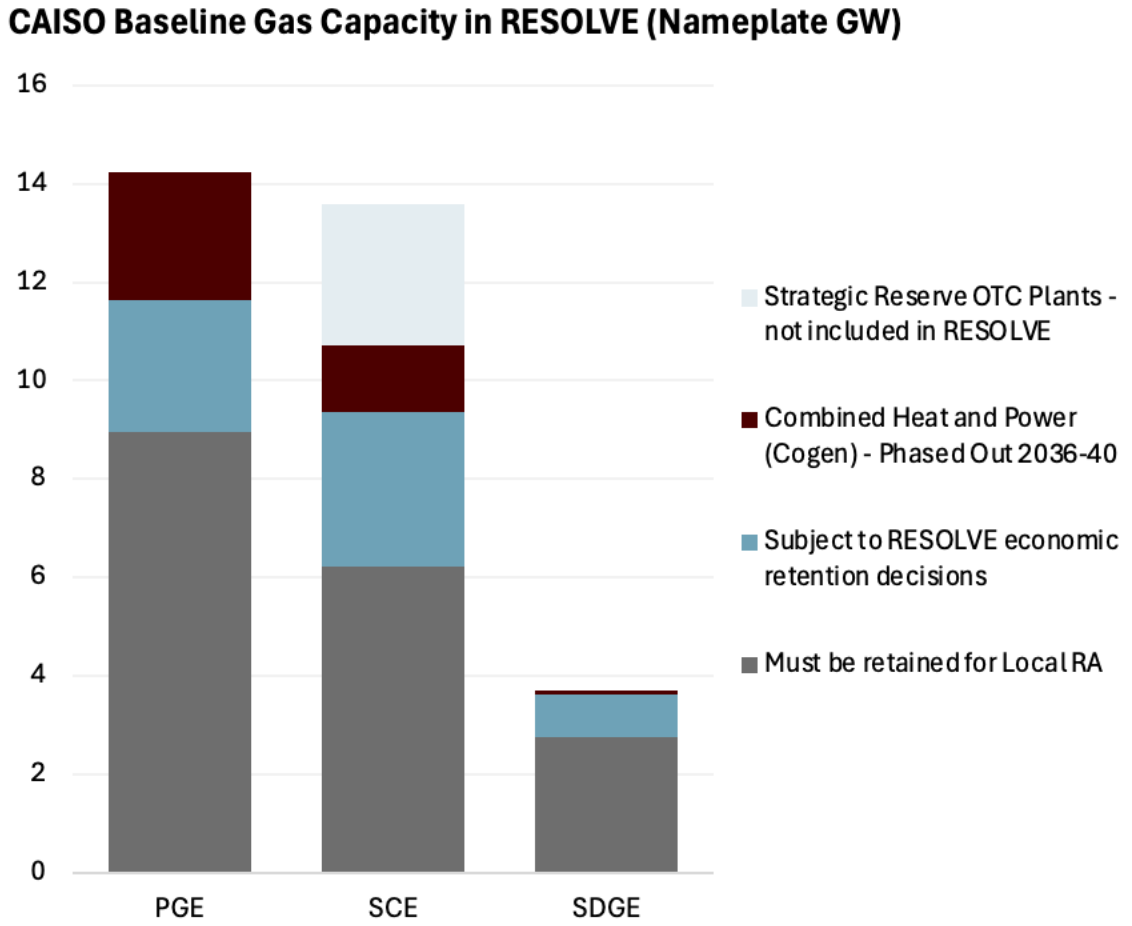
- New online resources (CAISO MGC)
  - If units were in-development in a previous baseline, COD and capacity were verified
- New in-development resources (CAISO GIRR)
  - For in-development resources, changed data sources from LSE filings to CAISO GIRR, to represent higher-confidence in-development resources only
  - A handful of units on the previous baseline we not on the GIRR and dropped from the baseline (delayed projects, and/or projects with COD 2028 or later)
  - Incremental contracts from LSE filings are included in RESOLVE minimum builds instead
- Re-assignment of CHP and non-CHP gas units based on CEC and EIA data[1]



[1] CAISO CHP is forced to phaseout from 2036-2040; this is done as a post-processing step to generator list data.

Summary: Gas Retention in RESOLVE

- Combined Heat and Power (CHP/Cogen) units in CAISO are assumed to phaseout linearly from 2036 to 2040
- Gas CCGT, Peaker, and Reciprocating Engines in CAISO are subject to economic retention decisions
  - Decision is whether or not to retain on the CAISO system (could serve non-CAISO load)
  - RESOLVE optimizes the amount of gas retained, weighing the fixed cost of gas generators against their contribution to reliability
  - For the 27-28 TPP, existing gas facilities that have a higher likelihood of developing CCS retrofits will be excluded from non-retention
  - ~18 GW of CAISO gas capacity must be retained in RESOLVE (~14,5 GW for local RA requirements, ~3.5 GW CCS capability)
  - ~7 GW is eligible for non-retention (~5 GW are in local areas, but replaceable by 4-hr batteries)
- Three CAISO steam turbines in the Strategic Reserve are not included in modeling



MW totals represent all existing gas in CAISO

Baseline Reconciliation

Baseline Reconciliation Methodology

- Staff perform a reconciliation to account for resources that are not in both the modeling baseline and the transmission constraints baseline to ensure both resource amounts and transmission utilization are properly accounted for
- Staff utilize this process to also identify the in-development resources to align with in mapping
- The reconciliation process focuses on matching resources across datasets, standardizing key attributes (e.g., technology, capacity, online date), and resolving conflicts or discrepancies
- Staff crosswalk data from CAISO, E3, and CPUC sources, verifying facility-level details and addressing inconsistent naming conventions or missing fields
- The resulting dataset provides a verified baseline that supports procurement modeling, resource adequacy assessments, and identification of incremental resource need
- This clean baseline can also be re-used in downstream analyses, including cost and siting evaluations, commercial interest filters, and transmission planning input
- In collaboration with the commercial interest analysis, contracted projects are subtracted from the CAISO interconnection queue to avoid double-counting of new versus existing capacity

Data Sources for Baseline Reconciliation

Name and Link	Description
RESOLVE/ERM Baseline	Recently calibrated across E3 and ERM, a complete list of generators and operating characteristics used in RESOLVE.
Resource Data Template (RDT) Error Checking, Aggregation and Reallocation Tool (RECART) LSE Filings, June 2025 vintage	Utility-provided filings listing contracted capacities across generators, used for tracking LSE procurement and various Energy Division efforts.
CAISO Interconnection Queue	CAISO dataset mapping interconnection queue numbers to resource IDs, enabling tracking of project progression into market operations.
CAISO Master Generating Capability List	Official CAISO list of generating and storage resources used for resource accounting.
CAISO Resource ID Mapping to Queue Number^	CAISO dataset mapping interconnection queue numbers to resource IDs, enabling tracking of project progression into market operations.
Master Resource Database Workbook*	Monthly dataset detailing generator operational status, capacities, and attributes, used for tracking resource development and commercialization.

- RECART is an internal tool that, compiles energy and capacity under contract, contracted resources by technology type and LSE, identifies error, and aggregates new resources that were in development or planned future purchases.

^Confidential data source

Baseline Reconciliation Details and Results

- For each data source, a cleaned and filtered list of resource names and/or IDs is used to identify matching resources across different datasets.
  - January 1st, 2024 cut-off online date, to ensure that projects with reported CODs within one year of the online date used in CAISO Transmission Capability Estimates White Paper (1/1/2025) expected later this summer are re-verified as part of the analysis.
  - In-development and online resources only.
- Matches between data sources are performed using formula-based matches and by manually identifying matches.
  - Units that have matches across one or multiple datasets are aligned and "linked."
  - Units that do not have matches across any datasets are still retained in the resource list.
- A list is developed with all unique resources across the RESOLVE/ERM Baseline, LSE Filings, CAISO Interconnection Queue, and the CAISO Master Generating Capability List.
- For each resource in each data source, relevant data is pulled: ResID, queue number, POI/substation, contracted online date, resource type, deliverability, and resource capacity.
- To reconcile the resource baseline with the commercial interest datasets, resources identified in both the RECART LSE Filings and the interconnection queues are flagged.
  - The contracted capacities of these resources are subtracted from the nameplate capacities in the CAISO IX Queue to ensure no double-counting in the commercial interest criteria analysis.
- Results are posted to the CPUC IRP website alongside Busbar Mapping results.

Criteria 1: System Level Transmission Capacity

System Level Tx Capability Criteria Analysis

- Mapped resources should abide by the estimated system level transmission constraints, triggering only those upgrades which are determined to be cost-effective or necessary to meet policy and reliability requirements.
- Mapping uses information from the most current CAISO White Paper Transmission Capability Estimates for use in the CPUC's Resource Planning Process.
  - Includes substations and constraint info, including approved upgrades from recent TPPs.
- Analysis incorporates on-peak and off-peak limits and identified upgrades for CAISO transmission constraints
  - Actual constraints (binding amounts identified in CAISO studies) and Default constraints (non-binding limits – largest amount CAISO has studied)
- Identify mapped OOS resources as utilizing existing Maximum Import Capability (MIC) or require MIC expansion

Base Case (2041) Tx Constraint Exceedances		Constraint's White Paper		Calculated Largest On-peak (HSN) Exceedance	Calculated Off-peak Exceedance	White Paper Upgrade Info	
CAISO Zone	Constraint Name	On-Peak Capability (MW)	Off-Peak Capability (MW)			Capability Increase (MW)	Estimated Cost (millions)
PGE North of Greater Bay Area	Collinsville – Tesla 500 kV line	3,379	7,706	(3,002)	None	8,645	$2,852

Flags without (left) and with (right) upgrades

CAISO Study Area	Substation	Voltage	Resource Type	FCDS (or 4-hr for Battery)	EODS (or 8-hr for Battery)	Total	FCDS (or 4-hr for Battery)	EODS (or 8-hr for Battery)	Total	FCDS (or 4-hr for Battery)	EODS (or 8-hr for Battery)	Total	FCDS Alignment pre-upgrades	Final FCDS Alignment w/ Upgrade	EODS Alignment pre-upgrades	Final EODS Alignment w/ Upgrade
PG&E NGBA	Bridgeville	115	Geothermal	185	-	185	-	-	-	185	-	185	5	2	1	1
PG&E NGBA	Cloverdale	115	Geothermal	112	-	112	4	-	4	108	-	108	5	2	1	1
PG&E NGBA	Eagle Rock	115	Geothermal	7	-	7	7	-	7	-	-	-	5	2	1	1

Table: 26-27 TPP non-compliance flags determined from transmission constraints utilization calculations

Transmission Capability – Calculating Tx Utilization

- *Multi-step process to calculate transmission utilization within a constraint.*
  1. Aggregate all resources within constraint.
     - Includes recently online resources in addition to in-development and generic resources.
     - Need to account for all resources within constraint that have come online since the White Paper information was developed.
  2. Calculate transmission utilization of each resource type for each transmission use scenario.
  3. Sum across all resources for each constraint and comparing to existing transmission capacity.
  4. Assess exceedances and if any CAISO identified upgrades could alleviate the exceedances.
- Rely on CAISO Local Capacity Requirement studies to aide in storage and resource mapping in local areas.

Criteria	Comparative Point(s)		Level 1	Level 2	Level 3	Level 4	Level 5
System-Level Transmission	**On-peak Capability Limit**	**FCDS transmission capacity**	No Exceedance	No Exceedance with identified upgrade	Small Exceedance in default constraint	Large Exceedance in default constraint	Exceedance in actual constraint, upgrade is likely not cost-effective
	Off-peak Capability Limit	**EODS transmission capacity**	No Exceedance	No Exceedance with identified upgrade	Small Exceedance in default constraint	Large Exceedance in default constraint	Exceedance in actual constraint, upgrade is likely not cost-effective
	LCR areas	**MW amount & Resource type**	Generation in LCR area w/ displaced gas; stand-alone storage within charging limit	Level 1 requirements but met by cost-effective transmission upgrade	Resources outside LCR area	Stand-alone storage in LCR area exceeds charging limit	-

- Tables show the alignment thresholds for the FCDS and EODS constraint exceedances and the mapping priorities for LCR areas.
- Specific values for the exceedance thresholds will be determined during the mapping process, working with CAISO staff.

Criteria 2: Substation Level Interconnection Viability

Substation-level Interconnection Criteria

- Mapped resources should
  1. Be within a viable distance of transmission from economic, land-use, and environmental perspectives and
  2. Be able to interconnect to transmission of an appropriate voltage in a viable and cost-effective manner.
- Initial mapping analysis includes only:
  - Distance from substation for in-CAISO solar, onshore wind, and geothermal resources.
  - Interconnection voltage analysis for in-CAISO solar, onshore wind, and storage resources.

Criteria Alignment levels for Distance to interconnection

	Wind &Geothermal		Solar	
Level	**< 200 MW**	**200 MW or more**	**< 400 MW**	**400 MW or more**
1	<10 mi	<10 mi	<5 mi	<10 mi
2	<15 mi	<20 mi	<10 mi	<15 mi
3	<20 mi	<30 mi	<15 mi	<20 mi
4	<30 mi	>30 mi	<20 mi	<30 mi
5	>30 mi	-	>20 mi	>30 mi

	Interconnection Substation Voltage			
Level	**Less than 100 kV**	**100 - 200 kV**	**230 or 345 kV**	**500 kV**
1	-	<50 MW	>200 MW & <1,500 MW	>400 MW & <3,000 MW
2	-	<100 MW	>50 MW & <2,000 MW	>200 MW & <3,000 MW
3	<50 MW	<200 MW	>50 MW & <3,000 MW	>200 MW & <4,000 MW
4	<100 MW	<400 MW	>3,000 MW	<200 MW or >4,000 MW
5	>100 MW	>400 MW	<50 MW	<100 MW

Substation-level Interconnection Criteria: Potential Updates to Interconnection Criteria

- Last cycle, the interconnection criteria was expanded to integrate PTO feedback and per-unit cost guide data to estimate the economic feasibility to interconnect at individual busbars.
- For the 27-28 TPP, this expanded criteria is going to be enhanced as follows:
  - Staff are expanding PTO engagement to include additional PTOs
  - Consistent interconnection data is being collected for uniform data processing across busbars
  - The requests to the PTOs include more busbars, increasing Staff's visibility into interconnection feasibility
  - Based on PTO feedback, the busbar upgrade need will be identified, and the corresponding cost will be estimated
  - The interconnection upgrade cost criterion dynamically scores each busbar based on the $/kW cost of the required upgrade as a function of how much capacity is mapped there, benchmarked against empirically-derived thresholds specific to each PTO, voltage class, and upgrade type.
  - Busbars are rewarded for either avoiding upgrade cost triggers entirely or mapping enough capacity to utilize the upgrade efficiently, and penalized for partial placements that drive up the per-MW cost of the required upgrade.

Identification of Substations for PTO Review

- Default interconnection limits by voltage match the assumptions in RESOLVE:
  - 500 kV: 3,000 MW
  - 230 kV: 1,500 MW
  - 115 kV: 100 MW
  - < 100 kV: 100 MW
- Data requests have been issued to include no more than 60 busbars for each PTO.
- For buses not studied by PTOs for the 26-27 TPP, interconnection criteria based on the above default headroom values will be applied instead.

Priority	Description
1	>100 kV: Either (1) Highest mapped total exceeds 100% of default limit; (2) high-confidence Commercial Interest exceeds 150% of default limit; or (3) total CI exceeds 3,000 MW <100 kV: Highest mapped total exceeds 200 MW
2	>100 kV: Either (1) Highest mapped total exceeds 50% of default limit; (2) high-confidence Commercial Interest exceeds 100% of default limit; or (3) total Commercial Interest exceeds 1,500 MW <100 kV: Highest mapped total exceeds 100 MW
3	>100 kV: Either (1) Highest mapped total exceeds 25% of default limit; (2) high-confidence Commercial Interest exceeds 75% of default limit; or (3) total Commercial Interest exceeds 500 MW <100 kV: Highest mapped total exceeds 50 MW
4	>100 kV: Either (1) Highest mapped total exceeds 50 MW; (2) high-confidence Commercial Interest exceeds 50% of default limit; or (3) total Commercial Interest exceeds 100 MW <100 kV: Highest mapped total exceeds 0 MW
5	All other buses

Busbar Upgrades based on PTO Feedback

- Categorizations of substation upgrade needs are determined based on PTO feedback.

Upgrade Scope	Description of Interconnection Feasibility and Required Upgrade(s)
Minimal	High position availability; only a new gen-tie and circuit breakers are required
Moderate	Moderate position availability, or open positions are expected soon; interconnecting is assumed to require additional connecting lines and/or a step-down transformer
High	Little or no position availability, but there exists room to expand within the existing footprint; interconnection will require bus extension within the fence line, as well as a step-down transformer and new connecting lines
New Substation	No room to expand within the fence line; new loop-in substation required
Short Circuit Duty Limit	Loading at the substation has surpassed the short circuit duty limit, making new interconnections infeasible at the location

Per-Unit Cost Estimation

- For each PTO, voltage, and scope, the per-unit cost guides are used to estimate the cost of interconnection.
- Upgrades increase incomplexity and cost, depending on the upgrade feasibility indicated in PTO feedback.

Upgrade	Transformer	Breaker	Switches	Infrastructure	Line Stringing	Miles of Line
Minimal	n/a	Breaker and a half	Disconnect switch	n/a	n/a	n/a
Moderate	Single step-down transformer	Breaker and a half	Disconnect switch	n/a	New line, single-circuit, lattice tower	2
High	Single step-down transformer	Breaker and a half	Disconnect switch	Bus expansion within fence	New line, single-circuit, lattice tower	5
New Substation	Single step-down transformer	n/a	Disconnect switch	New loop-in substation	New line, single-circuit, lattice tower	5
Short-Circuit Duty Limit	6x step-down transformers	6x breakers	6x disconnect switches	New loop-in substation	New line, single-circuit, lattice tower	5

Criteria Thresholds

- Cost thresholds A, B, C, and D correspond to the $/kW cost of the upgrade at 80%, 60%, 40%, and 20% utilization of the capacity limit of the upgrade.
- The cost thresholds also vary by PTO, voltage class, and upgrade type.
- Data requests have been issued to include no more than 60 busbars for each PTO.
- For buses not studied by PTOs for the 27-28 TPP, interconnection criteria based on the ratio of mapped capacity to default headroom values will be applied instead.

Score	Threshold	Interpretation
1	Mapped capacity = 0 OR Estimated $/kW upgrade cost < Cost threshold A	No upgrade triggered, or upgrade efficiently utilized
2	Cost threshold A ≤ estimated $/kW upgrade cost < Cost threshold B	Upgrade triggered, mostly utilized
3	Cost threshold B ≤ estimated $/kW upgrade cost < Cost threshold C	Upgrade triggered, partially utilized
4	Cost threshold C ≤ estimated $/kW upgrade cost < Cost threshold D	Upgrade triggered, largely underutilized
5	Mapped capacity exceeds capacity limit of upgrade OR Estimated $/kW upgrade cost ≥ Cost threshold D	Highly inefficient per-MW cost, or placement exceeds upgrade capacity

Updated Criteria Thresholds

- The criteria alignment score for a busbar is dynamically updated based on the mapped capacity. For example, as more capacity is mapped to a busbar, the $/kW cost of the upgrade decreases so the criteria alignment score of that busbar improves as utilization increases.
- Score thresholds are unique to each PTO, voltage class, and upgrade type combination, reflecting real differences in upgrade costs.
- A busbar that requires no upgrade scores a 1 by default; a busbar where mapped capacity exceeds the upgrade's implied limit scores a 5 regardless of cost

Example: PGE, New Substation

Voltage	Score 1		Score 2	Score 3	Score 4	Score 5
	Mapped capacity = 0 MW	$/kW < Threshold A	Threshold A ≤ $/kW < Threshold B	Threshold B ≤ $/kW < Threshold C	Threshold C ≤ $/kW < Threshold D	Threshold D ≤ $/kW OR Mapped capacity > limit
115 kV *Cap: 100 MW*	No upgrade cost	$468/kW	$624/kW	$936/kW	$1,871/kW	≥$1,871/kW
230 kV *Cap: 1,500 MW*	No upgrade code	$38/kW	$51/kW	$76/kW	$152/kW	≥$152/kW
500 kV *Cap: 3,000 MW*	No upgrade cost	$64/kW	$85/kW	$128/kW	$256/kW	≥$256/kW

Thresholds A, B, C, and D correspond to the $/kW cost of the upgrade at 80%, 60%, 40%, and 20% utilization of the implied capacity limit, respectively.

Criteria 3: Land-Use Implications and Feasibility

Land-Use Implications and Feasibility Criteria

- This criteria serves to screen for areas that have less implications to alternative land-use and conservation priorities and, overall, are more favorable for development of the mapped resources.
- CEC Core Land-use Screen: key screen that combines the broader land-use and environmental datasets to provide an overall potential implications impact.
- Staff will also use the following datasets as screens for the land-use criteria:
  - CEC parcelization model screen,
  - CEC Cropland Index Model screen,
  - Critically Overdrafted Groundwater Basins, and
  - High Fire Threat Areas.

Criteria 4: Environmental (Conservation and Biological) Impact

Environmental (Conservation and Biological) Implications Criteria

- Criteria are proposed to provide a more detailed breakdown of land-use implications focusing on the conservation and biological diversity implications and planning priorities.
  - Several of the screens in this criteria are included in the analysis used to develop the CEC's Core Land-use Screen.
- Criteria includes screens centered on the following:
  - CDFW's Areas of Conservation Emphasis (ACE) datasets, specifically:
    - Terrestrial Connectivity,
    - Biodiversity, and
    - Irreplaceability.
  - Conservation Biology Institute's Terrestrial Landscape Intactness.
  - Wetland category of California's Habitat and Land Cover dataset.

CEC Land-Use and Environmental Evaluation

Criteria 5: Community and Environmental (Societal) Impact

Community and Environmental (Societal) Impact Factors

- These criteria prioritize locating batteries in local areas and pollution burdened communities and near existing fossil-fueled generators.
  - Goal: Reduce criteria pollutants by limiting the need to rely on pollutant emitting existing resources.
- Criteria include:
  - Proximity to disadvantaged communities as identified by CalEnviroScreens 4.0[1].
  - Located in a $PM_{2.5}$ or Ozone EPA[2] non-attainment zone.
  - Proximity to fossil-fueled generator (particularly those identified through the Thermal Retirement Assumptions).
  - Located in an IRA Energy Community[3]
  - Located in an LCR area (incorporated into transmission analysis criteria).

Criteria	Comparative Point(s)		Level 1	Level 2	Level 3	Level 4	Level 5
Societal - Environmental Factors	**Disadvantaged Communities**	Majority of area around substation	Is in DAC	<5 mi from DAC	>5 mi from DAC	-	-
	Ozone Non-Attainment Zone	Majority of area around substation	Is in O3 NAZ	Not in O3 NAZ	-	-	-
	PM2.5 Non-Attainment Zone	Majority of area around substation	Is in NOx NAZ	Not in NOx	-	-	-
	Proximity to existing thermal resources	Substation Location	Thermal generator interconnects to the substation	Adjacent to thermal (<1 mi)	<5 mi from thermal	<10 mi from thermal	>10 mi from thermal
	I.R.A. Energy Communities	Majority of area around substation	Is in IRA Community	Outside IRA Community	-	-	-

[1] SB 535 Disadvantaged Communities - OEHHA (This map was last updated in May 2024 with additional tribal lands based on consultations that occurred in 2023 and 2024.)
[2] PM 2.5 (2012) and Ozone Non-Attainment Area Shapefiles - Green Book GIS Download | US EPA
[3] IRA: IRA Energy Community Data Layers - Submissions - EDX (4/3/2024)

Criteria 6: Commercial Development Interest

Commercial Interest Criteria from the 26-27 TPP

The Commercial Interest Criteria aligns mapped resources with locations of commercial interest and identifies locations where misalignment occurs to ensure that differences are supported by strong rationale.

When mapped resources **exceed** the amount of commercial interest:

- Level 1 alignment:
  - Mapped resources align with in-development resources and commercial interest with TPD or an executed IA.
- Level 2 alignment:
  - Mapped with TPD or an executed IA resource amount exceeds the amount of commercial interest.
- Level 3 alignment:
  - Mapped resource amount exceeds the amount of higher confidence commercial interest.
- Level 4 alignment:
  - Mapped resource amount exceeds the total amount of commercial interest.
- Level 5 alignment:
  - There is no commercial interest at the substation where resources are mapped.

When the mapped resources **are less than** the various amounts of commercial interest:

- Level 1 alignment:
  - Amount mapped is significantly less than only the total commercial interest.
- Level 2 alignment:
  - Amount mapped is less than higher confidence commercial interest by a to be specified MW amount.
- Level 3 alignment:
  - Amount mapped is less than the amount of commercial interest with TPD or an executed IA by a to be specified amount.
- Level 4 alignment:
  - Amount mapped is significantly less than the amount of commercial interest with TPD or an executed IA by a to be specified amount.
- Level 5 alignment:
  - Amount mapped is less than the amount of identified in-development and contracted resources.

Commercial Interest

Updates to the Commercial Interest Criteria in the 27-28 TPP

- Due to FERC approval of CAISO's interconnection queue reform plan in 2024, Staff has a proposal to incorporate a broader set of supplemental data into the commercial interest criteria for the 2027-2028 TPP.
- Additional data sources under consideration:
  - The BLM (Bureau of Land Management) permit application queue (NEPA), used to identify developer interest on federal lands.[1,2]
  - The CEQA (California Environmental Quality Act) permit application queue, which tracks early-stage project applications on non-federal lands in California.[3]
- Staff are proposing a consistent method for synthesizing ISO and non-ISO queues and permit data to identify projects with clear indications of forward progress or commercial viability.

[1] *BLM NEPA Register:* https://eplanning.blm.gov/eplanning-ui/home
[2] *BLM CA Renewable Energy Projects, BLM GIS Hub:* https://gbp-blm-egis.hub.arcgis.com/maps/BLM-EGIS::blm-ca-renewable-energy-projects/about
[3] *CEQANet:* https://ceqanet.lci.ca.gov/Search/Advanced
[4] *IRP Plan data compiled by WestTEC:* https://www.westernpowerpool.org/about/programs/western-transmission-expansion-coalition

Commercial Interest Data Sources

Information Type	Data Sources	Notes
Interconnection Agreements	Interconnection Queues	Same treatment as in previous TPPs.
Interconnection Agreements	CAISO NRI	Same treatment as in previous TPPs.
Interconnection Agreements	TPD Allocations	Same treatment as in previous TPPs.
Land Use Permits	**(New)** BLM NEPA Register	Additional database of renewable energy permit applications on federal land, with limited geospatial information.
Land Use Permits	**(New)** CEQANet	Permit application database for in-state projects on non-federal lands.
Offtake Agreements	LSE Plans	Same treatment as in previous TPPs.

NEPA and CEQANet Data will be incorporated in the commercial interest analysis this cycle.

Steps to Incorporating Permitting Data in CI

1. Understand the CEQA and NEPA processes and how they relate to project development.
2. Construct commercial interest categories based on 1.
   - **Challenges:** Categories should be simple, accurate, and easy to assign.
3. Assess the quality of the permitting data and process it so that permitting-based commercial interest can be sorted into categories and placed at busbars.
   - **Challenges:** Cleaning data, matching projects to queue, ensuring project lat/lons are accurate, etc.
4. Revise the commercial interest criteria to include the permitting-based commercial interest categories.
5. Receive stakeholder feedback, iterate on 2 and 4.
6. Codify process in methodology.

1) Understanding CEQA Data

- Querying the CEQANet database for energy projects yields results like at right.
- Essential project information is not always present (location, resource, amount, etc.) and manual checks are needed to extract key information.
- "Document Type," is almost always present and can give useful information on where a project is in documentation.
  - E.g., A "FIN" typically indicates that a project has been approved and can begin construction.
- Ideally, staff would have time to manually check if each project is complete or in-progress, but with ~50 new projects initiating CEQA each year and dozens more receiving updates, proxies are needed.

Raw

Project Identifiers

Description sometimes has resource and amount.

SCH Number	Document Title	Docume	Received	Document Description	Location Coordinates
1998082005	Acquisition, Permanei	ADM	8/4/2016	Note: Addendum to the FEIRThe activities ad	
1999012033	MID Electrical System	SIR	6/29/2018	Note: Review Per LeadMID provides local ele	
2000062079	UP99-017A1	ADM	7/11/2016	Note: Review Per LeadT	40°59'47"N 121°37'3
2004031072	Centennial Project	FIN	5/22/2018	The Project involves the	34°47'38"N 118°43'7
2004031072	Centennial Project	EIR	5/17/2017	The Project involves the	34°47'38"N 118°43'7
2004031072	Centennial Project	NOP	10/1/2015	The Project involves the	34°47'38"N 118°43'7

"Document Type" denotes step in documentation

Location not always present

Processed

Sub assigned either through queue match or location

CI category assigned

Resources and MW's identified

Project Name	Assigned Sub	Queue Match	CEQA Category	NEPA Category	Battery	LDES	Solar	Geothermal	Wind
Panoche Valley Solar Farm Project	Las Aguilas	none	High		-	-	399.00	-	-
RID 07-10; Specific Plan Amendment No. 15, Map 232; Zone Change Case No. 32, Map 232, Conditional Use Permit No. 26, Map 232; Willow Springs Solar Project By	Rosamond	none	High		-	-	150.00	-	-
Wind Repowering Project Final Subsequent EIR	Tesla	MULQUEENEY	High		-	-	-	-	80.00

Commercial Interest

1) Understanding NEPA Data

- NEPA data is cleaner than CEQA data but less informative.
- It does not have resource, capacity or location extracted.
- However, it does have a "NEPA Status" column indicating if permitting is in progress, complete, or withdrawn/cancelled.
- Given that **a)** it would take significant manual effort to analyze NEPA documentation and pull out critical project details, and **b)** that projects undergoing NEPA often also undergo CEQA, this proposal only considers NEPA data that can be matched to CEQA and/or queue projects.

NEPA #	Type	Project Na	Lead Office	Program	NEPA Status	Fiscal Year	NOI Date	Decision Date	FONSI Date
DOI-BLM	EA	Abengoa Mojave Solar Power Plant	Barstow FO	Renewable Energy	Completed	2011		7/6/2011	7/6/2011
DOI-BLM	EIS	Abengoa Mojave Solar Power Plant	Barstow FO	Renewable Energy	Cancelled	2011		7/6/2011	
DOI-BLM	CX	Additional Office Trailer - Oberon Solar	Palm Springs an	Renewable Energy	Cancelled	2024			

2) Proposed Commercial Interest Categories

The table below describes how commercial interest categories will be assigned to projects in both the NEPA register and CEQANet database. Due to time limitations, category assignment will be automated, however stakeholders will have the ability to correct assignments throughout the IRP cycle.

	NEPA	CEQA
Data Source	NEPA Register	CEQANet
How are Categories Assigned?	Through the "NEPA Status" column	Through the "Document Type" column
High Confidence Meaning	Documentation Complete or Project Exempt	Documentation Complete or Project Exempt
High Confidence Codes	"Completed", "Completed & Monitoring"	"FIN", "NOD" or "CE", "SE", "NOE"
Medium Confidence Meaning	Documentation is in-progress	Documentation is in-progress
Medium Confidence Codes	"Analysis & Document", "Decision & Appeal Period", "Preparation & Planning"	"CON", "NOP", "EIR", "SIR", "SBE", "NOC", "MND", "NEG", "NOI", "RC", "RIR", "OTH", "ADM"
Low Confidence Meaning	The project has been withdrawn or cancelled	Low confidence is not assigned due to limitations in what can be understood about a project based on the type of CEQA document that has been issued
Low Confidence Codes	"Withdrawn", "Cancelled"	N/A

Refer to the appendix for definitions of CEQA terms

Commercial Interest

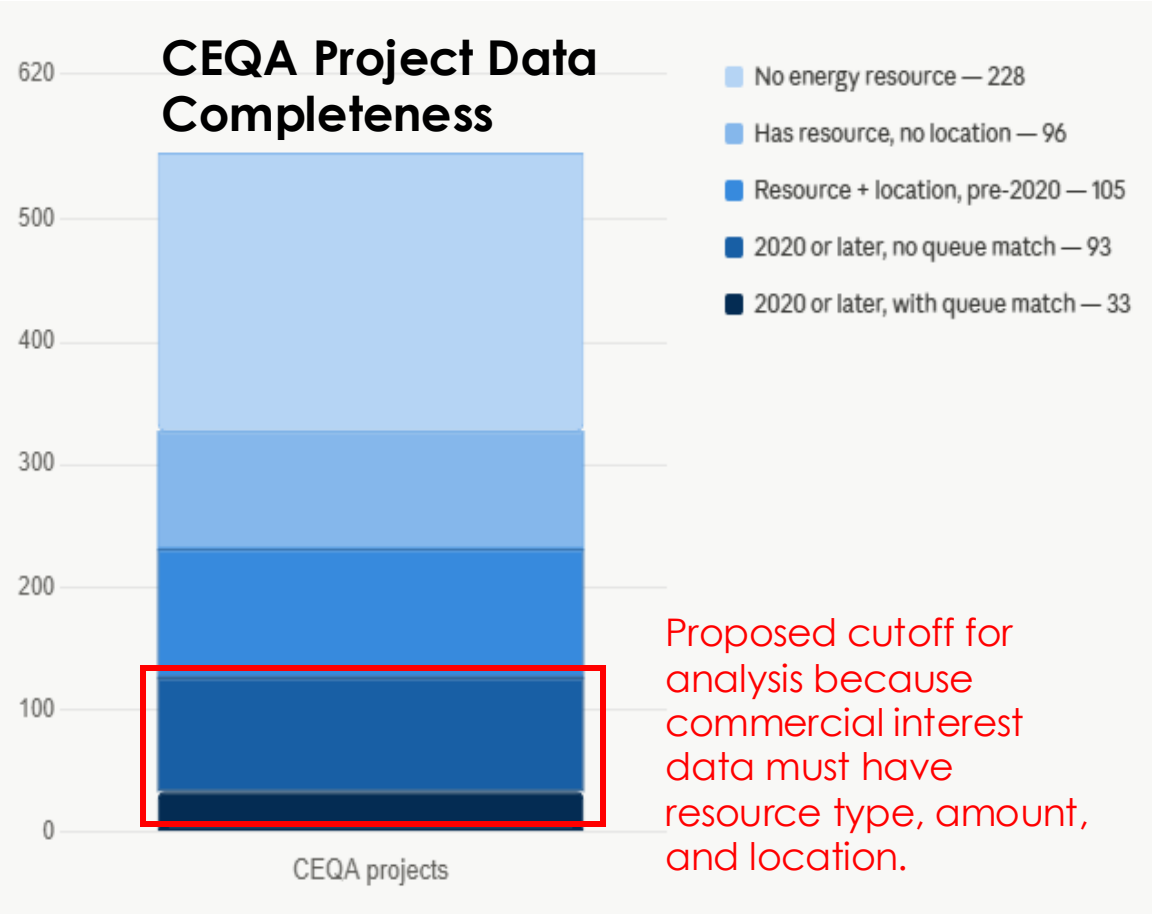
2) Proposed Combined Commercial Interest Categories for CEQA and NEPA Statuses

The matrix below provides proposed commercial interest categories for projects based on both their NEPA and CEQA categories defined in the previous slide. For example, if a project had completed CEQA documentation based on it having been issued a categorical exemption (CE) and it had no NEPA category based on the project not being on federal land, it would be placed in the "High" category.

Commercial Interest Category		NEPA			
		Documentation Complete or Exempt (High)	Documentation in Progress (Medium)	Application Cancelled or Withdrawn (Low)	N/A (no NEPA)
CEQA	Documentation Complete or Exempt (High)	High	Medium	Low	High
	Documentation in Progress (Medium)	Medium	Low	Very Low	Medium

3) CEQA and NEPA as Sources of Commercial Interest

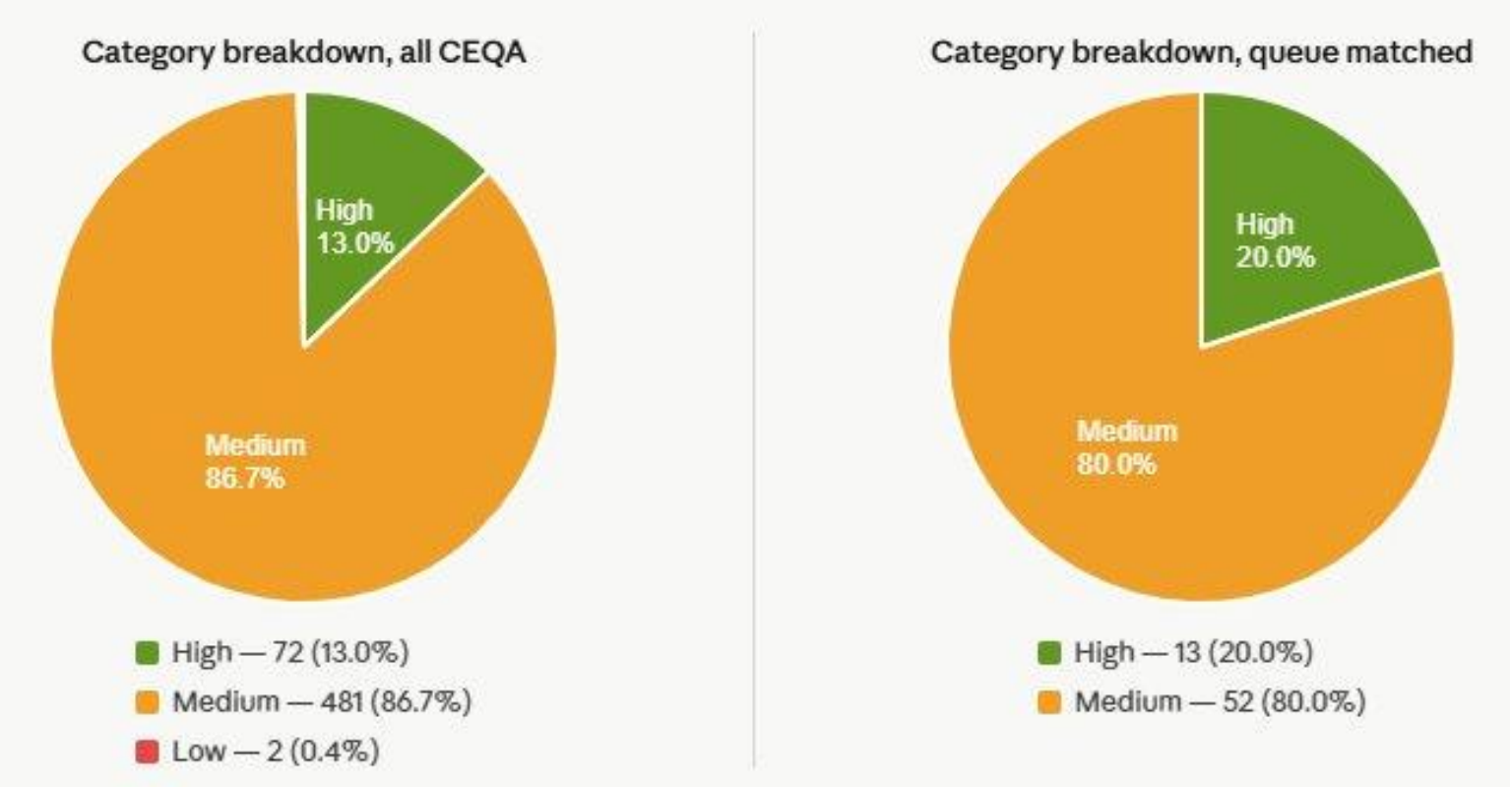
- Staff pulled, cleaned, and analyzed CEQA and NEPA data this cycle to evaluate their suitability for the 27-28 TPP commercial interest analysis.
- CEQA data pulled as of 5/5/2026 from 2015 onward[1].
  - 555 unique energy projects
  - ~126 suitable for analysis based on having a resource and location and being active after 2020[2].
  - 33 were found to have corresponding projects in the queue.
- NEPA data was also pulled over the same timeframe[3].
  - However, only 11 of the 119 total projects with NEPA review in CA could be matched to queue or CEQA projects. NEPA data does not have spatial information, so its inclusion in the commercial interest analysis is contingent on matches.



[1] Data pulled from here: https://ceqanet.lci.ca.gov/
[2] This is only a potential cutoff year; a shorter or longer cutoff may be appropriate.
[3] Data pulled from here: https://eplanning.blm.gov/

3) Permitting Data as a Complement to the Queue

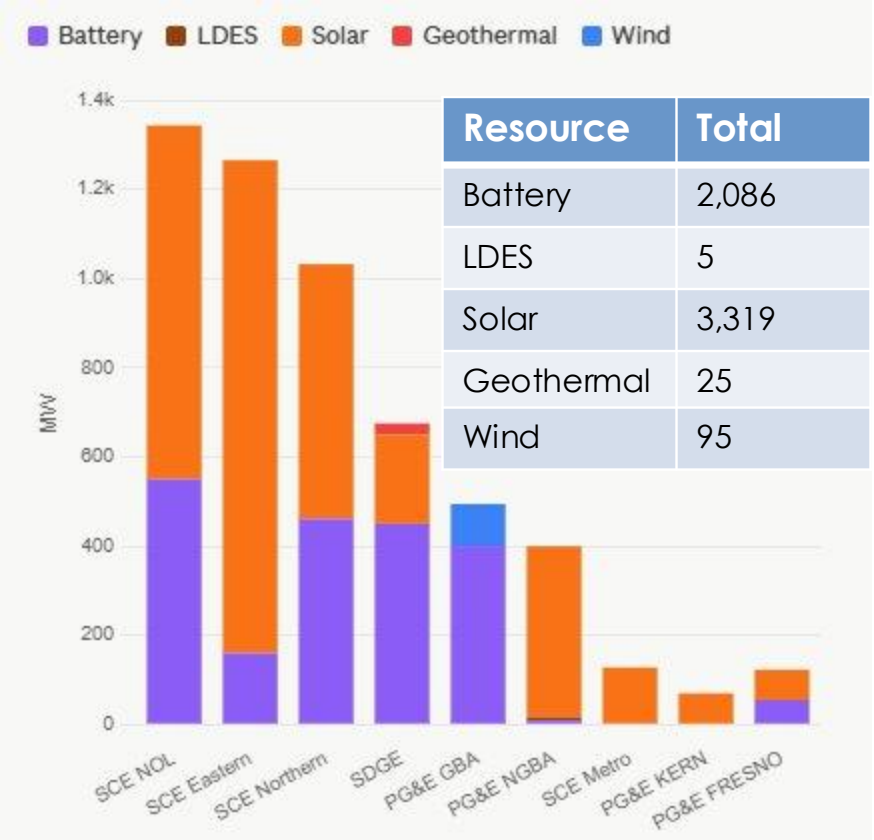
The charts below show the permitting category for all CEQA projects (left) and for those that were able to be matched to active queue projects (right). One can see that 20% of the queue-matched projects with CEQA applications have completed documentation whereas 80% are undergoing documentation.



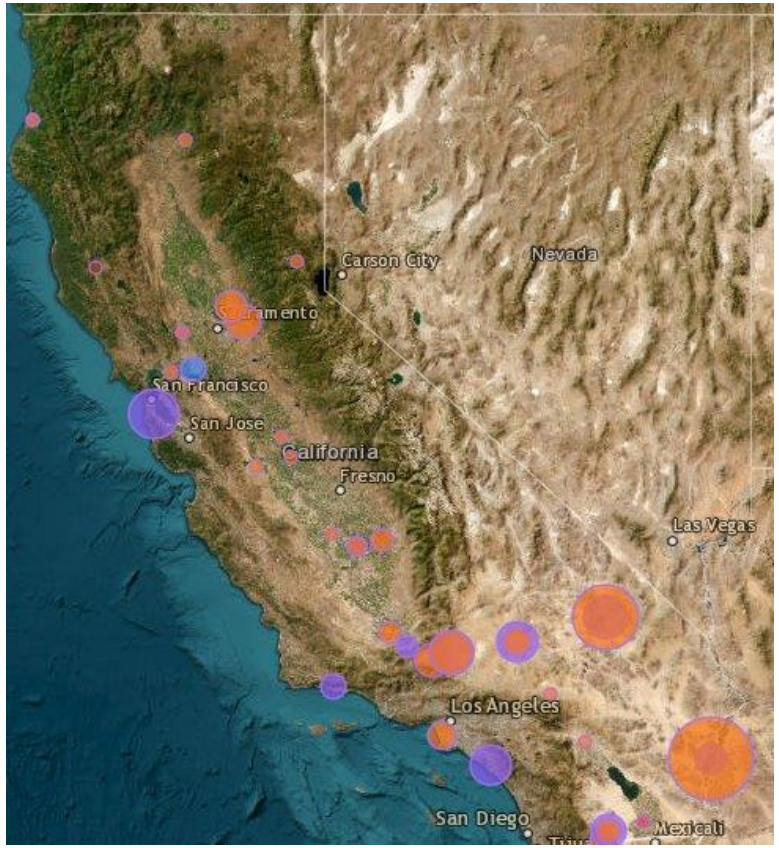
Commercial Interest

3) Permitting Data as a Supplement to the Queue

The data below are CEQA projects at substations[1] with no active queue projects. The CEQA database contains several GW of solar and battery projects across CAISO that are not in the queue, providing a supplemental measure of commercial interest.



Resource	Total
Battery	2,086
LDES	5
Solar	3,319
Geothermal	25
Wind	95



[1] This includes projects that don't have a queue match where an approximate POI was determined based on project latitude/longitude

Commercial Interest

4) Proposed Changes to 27-28 TPP Commercial Interest Criteria

Proposal	Details
Change alignment levels to incorporate projects that have entered the queue and completed permitting documentation.	*Projects that have entered the queue and completed permitting would have equivalent confidence as projects with TPD or signed IA's.*
Have **permitting data** (both queue-matched and not) **viewable** in the dashboard for Staff and stakeholders.	*Permitting data would appear in both the supplemental commercial interest workbook and dashboard under the "CI" tabs*
Report metrics for where **permitting-based commercial interest has been mapped** to in the dashboard.	*This would allow stakeholders and Staff to see where projects that have begun permitting but not yet entered the queue have been mapped.*

Commercial Interest

4) Revised Commercial Interest Criteria for the 27-28 TPP (Proposal)

When mapped resources **exceed** the amount of commercial interest:

- Level 1 alignment:
  - Mapped resources align with in-development resources and commercial interest with TPD, an executed IA, **or projects that have entered the queue and completed permitting**.
- Level 2 alignment:
  - Mapped with TPD, an executed IA, **or permitted** resource amount exceeds the amount of commercial interest.
- Level 3-5 alignment:
  - *(Same as 26-27 TPP)*

When the mapped resources **are less than** the various amounts of commercial interest:

Level 1-2 alignment:

- *(Same as 26-27)*

Level 3 alignment:

- Amount mapped is less than the amount of commercial interest with TPD, an executed IA, **or completed permitting** by a to-be-specified amount.

Level 4 alignment:

- Amount mapped is significantly less than the amount of commercial interest with TPD, an executed IA, **or completed permitting** by a to-be-specified amount.

Level 5 alignment:

- *(Same as 26-27 TPP)*

5) Questions for Stakeholders on Commercial Interest Updates

- Is the proposal to categorize permitting-based commercial interest based on CEQA and NEPA status accurate and fair?
- Is the proposal to include permitting-based commercial interest in the commercial interest alignment levels accurate and fair?
  - Do stakeholders agree with making projects that have completed documentation and are in the queue equivalent to projects with TPD or a signed IA in the alignment levels?
  - What filters or logic should be applied to CEQA data to inform categories, e.g., cutoff year for consideration?
- Is the treatment of permitting-based commercial interest that is not in the queue accurate and fair?
  - Do stakeholders agree that metrics describing how much of this commercial interest is mapped should be available but that this commercial interest should not be in the alignment levels?

Criteria 7: Consistency with Prior TPP Portfolios

Alignment with prior TPP portfolios

- Mapping should be relatively consistent with prior years.
  - The Base Case is compared to base cases of prior years and similar sensitivity portfolios.
  - Sensitivity Portfolios are compared to similar issue-focused portfolios of prior years.
- Goal is to avoid significantly reducing transmission impacts of prior years' mapping without clear reasons which are explicitly justified.
- Following working group discussion, non-compliance can be reduced if changes are estimated to not significantly affect transmission implications.

Criteria	Comparative Point(s)		Level 1	Level 2	Level 3	Level 4	Level 5
Consistency with prior TPP Portfolios	**Previous TPP portfolios mapped resources**	**MW amounts mapped**	Not less than in previous most similar TPP portfolio	Not less than (FCDS & Total) total in previous base case	Slightly less FCDS or total than in previous base case	Significantly less total than in previous base case	Level 4 but in area with approved/triggered Tx upgrade

Gas Capacity Not Retained

Mapping Methodology for Modeled Gas Non-Retention

- Portfolios can include two types of gas non-retentions:
  - Policy-driven non-retentions that are forced into RESOLVE and do not appear as RESOLVE-selected resources
  - RESOLVE-selected capacity not retained due to RESOLVE's economic costs optimization
- RESOLVE only identifies the aggregate amount of gas capacity not retained, but individual units need to be specified for the TPP studies. To identify which units to model as offline, staff implement a scoring criteria to develop a prioritized ranking of units to model as not retained:
- Environmental/Community Factors:
  1. Proximity to Disadvantaged communities (DACs): Units in or near a DAC receive higher score
  2. Emission info and non-attainment zones: Units in Ozone and PM2.5 non-attainment areas receive higher score and units with higher per MWh NOx and SO2 emissions per available EIA data receive higher score
- Performance-Related Factors:
  3. Age of plant: Older units receive higher score
  4. Heat Rate: Plants with highest heat rate (by plant type) receive highest score/priority
- Local Reliability factor:
  5. CAISO LCR study info: Units with lower effectiveness factors receive higher score
- In these selections, the CPUC is seeking to identify transmission needs and impacts of potential plant non-retentions. The CPUC is not directing specific gas generators to retire via these studies

Prioritizing Existing Gas Generators for Non-Retention

- For each unit type (CCGT, Peaker), scores are calculated for six impact factors across three categories
- The average score across all factors within each category is computed; a weighted sum is then taken to get the unit's total score
- Units will be identified for non-retention in descending score order, up to the total amount (MW) not retained by RESOLVE
  - Exemptions are made for units built or repowered in the last ten years, units with high (>15%) Local Effectiveness Factors, and CCGT units suitable for CCS retrofitting
- The volume of Li-ion batteries that could replace gas capacity on a 1-for-1 MW basis within each LCR area are taken from the 2031 CAISO Long-Term Local Capacity Technical Report[2]

Environmental / Community Factors (50%)				
NAA	Outside			Inside
DAC	> 10 mi	< 10 mi	< 5 mi	Inside
NOx + SOx	Normalized scoring – prioritize high emitters			

Performance-Related Factors (25%)	
Age	Normalized scoring – prioritize older units
Heat Rate	Normalized scoring – prioritize inefficient units

Local Reliability Factor (25%)	
LEF[1]	Normalized scoring – prioritize low LEF units

[1] *Units that do not have a reported LEF are assumed to receive the mean score for this factor*
[2] https://stakeholdercenter.caiso.com/InitiativeDocuments/Final-2031-Long-Term-Local-Capacity-Technical-Report.pdf

Updates to the Gas Capacity Not Retained Criteria

- The three impact factor categories (Environmental/Community, Performance, and Local Reliability) and their respective weights in the final scoring of existing gas plants, are consistent with the 2026-2027 TPP
- To score each individual factor, the data has been normalized (continuously) over the range [1,4], replacing the quartile binning used in previous cycles
  - The age threshold for non-retention exemption has been set to 10 years
  - The effectiveness factor threshold for non-retention exemption has been set to 15%
  - Units missing data for a given factor (including data from the 2031 Long-Term LCT Study) are assigned the mean score of 2.5
- Staff analysis identified CCGT units suitable for CCS retrofits; those units have been excluded from non-retention
- Major maintenance data from EIA Form 860 is no longer used to adjust the plant age used for the Performance Factor

Gas Capacity Not Retained

Candidates for CCS Technology Retrofits

- For the 27-28 TPP, existing gas facilities that have a higher likelihood of retrofitting with CCS technology will be excluded from non-retention, irrespective of their score in the Gas Capacity Not Retained workbook
- Likelihood is based on factors including:
  - Proximity to carbon storage facilities in the Class VI permitting process as identified by storage operators
  - Publicized information on completed front-end engineering design studies
  - An academic study from Stanford[1] cited in the docket
  - Publicized development memoranda of understanding
  - Unit-specific citation available in the proceeding
- We invite stakeholders to comment on the list of units identified and the methodological approach, recognizing this is a limited intervention for the 27-28 TPP
  - We also invite stakeholders to comment on other decarbonization technologies under active development in the CAISO BAA

Facility	Size
Delta Energy Center	880 MW
Elk Hills Combined Cycle	552 MW
Gateway Generating Station	585 MW
High Desert Power Project	850 MW
La Paloma Generating Plant	1,066 MW
Lodi Energy Center	303 MW
Los Esteros Energy Facility	310 MW
Los Medanos Energy Center	580 MW
Metcalf Energy Center	597 MW
Moss Landing Power Blocks	1,020 MW
Pastoria Energy Facility	799 MW
Russell City Energy Center	615 MW
Sunrise Power Project	586 MW
Tracy Combined Cycle	336 MW

[1] https://sccs.stanford.edu/california-projects/opportunities-and-challenges-for-CCS-in-California

Questions for Stakeholders

Questions for Stakeholders

- As the webinar concludes, CPUC IRP staff will finalize responses to questions posed on specific sections of the presentation and post the written Q&A on the CPUC website. We appreciate the feedback you have already shared on busbar mapping criteria and criteria alignments.
- Staff are also seeking broad feedback on how the Busbar Mapping Working Group provides busbar mapping materials and the overall busbar mapping process:
  - Are there any concerns or issues with how the final busbar mapping workbooks and supporting data are provided to stakeholders? Would you like to see data presented in a different format?
  - More generally, do you have any feedback on the overall process of busbar mapping, particularly its relationship to the overall Transmission Planning Process?

Questions for Stakeholders - Continued

- Are there any concerns related to the updates to near-term availability for in-state wind or geothermal resources?
- Are there other in-development, planned, or proposed transmission projects that could deliver out-of-state resources to California that are not being captured in CPUC analysis?
- Do you have feedback on the revised methodology for estimating the transmission costs for out-of-state resources?
- Do you have any other feedback on how CPUC is modeling out-of-state resources in the TPP?

Next Steps

Next Steps

- Staff invite stakeholders to submit informal comments written feedback by **Friday, July 3rd, 2026**.
  - Please submit your comments to IRPDataRequest@cpuc.ca.gov and use "Busbar Mapping Methodology" in the subject line.
  - Stakeholders are encouraged to include the IRP service list as well.
  - Please categorize your comments based on sections and topics in September 2025 Busbar Mapping Methodology Document or sections of this presentation.
  - Stakeholders should support their input with data and/or explanations. If referring to specific data, please provide the link(s) to those data.
  - Reminder that slide decks are available here Assumptions for the 2027-2028 TPP.
- Staff will review and, as appropriate, will consider incorporating input the updated Busbar Mapping Methodology.
- Updated Busbar Mapping Methodology Document will be posted on the IRP's webpage this Fall and may include the potential updates outlined today.
  - Previous Busbar Mapping Methodology available here.

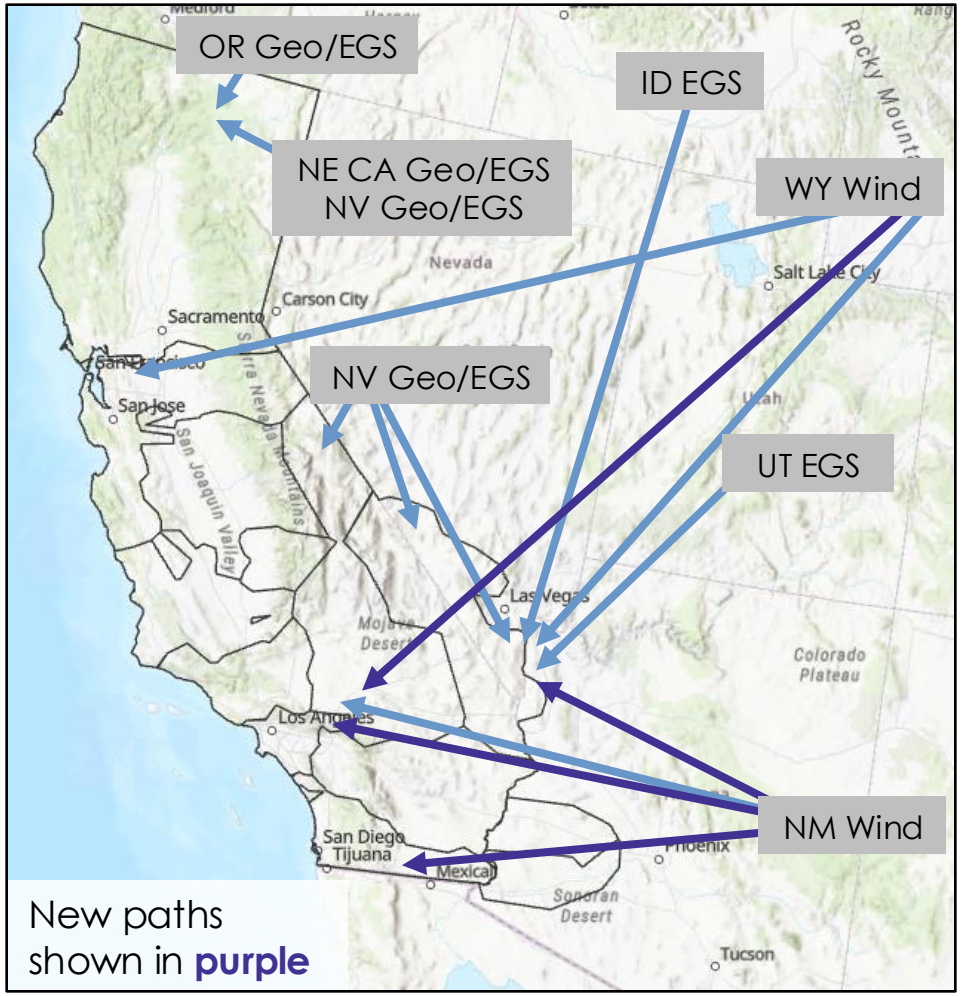
Verbal Questions

Appendix

Out-of-State (OOS) Resources

Delivering Generic OOS Resources to CAISO

Resource	Tie-in Location	Type	Total Potential	First Year
NM Wind	Imperial Valley	HVAC	3,000	2036-2041
NM Wind	Rancho Vista	HVAC	3,000	2036-2041
NM Wind	Eldorado	HVAC	1,500	2041
NM Wind	Lugo	HVDC	3,000	2041
WY Wind	Tesla	Both	6,000	2036-2041
WY Wind	Eldorado	Both	7,500	2036-2041
WY Wind	Lugo	HVDC	6,000	2041
ID EGS	Harry Allen	HVDC	1,872	2037
NV Geo/EGS	Eldorado	HVDC	783 / 3,376	2035-2037
NV Geo/EGS	Control	HVAC		
NV Geo/EGS	Beatty	HVDC		
NV Geo/EGS	Malin	HVAC	288 / 873	2035-2037
NE CA Geo/EGS	Malin	HVAC	178 / 178	2037
OR Geo/EGS	Malin	HVAC	520 / 1,893	2037



Out-of-State (OOS) Resources

Out-of-State Wind Transmission Paths

Project Name	Project Type	RESOLVE Resource	Tie-In Location	IOU	First Available Year	Capacity, MW[1]	Total Cost, $/kW-yr
TransWest Express	In-Development	Wyoming Wind	Harry Allen	SCE	2030-2032	1,500	$107.78
SWIP-North	In-Development	Idaho Wind	Harry Allen	SCE	2031	1,100	$67.31
Hilltop/Malin/Round Mountain	Greenfield (HVAC)	Northeast CA Wind	Malin	PGE	2037	1,015[2]	$75.44[2]
Existing Path to Tesla	Existing ROW + Greenfield (HVAC)	Wyoming Wind	Tesla	PGE	2037	1,500	$402.37
WY/Tesla	Greenfield (HVDC)	Wyoming Wind	Tesla	PGE	2042	3,000	$266.85
WY/Yerington/Tesla	Greenfield (HVAC)	Wyoming Wind	Tesla	PGE	2042	1,500	$313.66
Existing Path to Eldorado	Existing ROW (HVAC)	Wyoming Wind	Eldorado	SCE	2037	1,500	$322.68
WY/Eldorado	Greenfield (HVDC)	Wyoming Wind	Eldorado	SCE	2042	3,000	$211.26
WY/Lugo	Greenfield (HVDC)	Wyoming Wind	Lugo	SCE	2042	3,000	$254.43
WY/IPP/Eldorado	Greenfield (HVDC)	Wyoming Wind	Eldorado	SCE	2042	3,000	$258.20
WY/IPP/Lugo	Greenfield (HVDC)	Wyoming Wind	Lugo	SCE	2042	3,000	$296.00
Pinal Central/PV/IV (Wheeling)	Existing ROW (HVAC)	New Mexico Wind	Imperial Valley	SDGE	2037	1,500	$245.47
Pinal Central/PV/Rancho Vista (Wheeling)	Existing ROW (HVAC)	New Mexico Wind	Rancho Vista	SCE	2037	1,500	$300.21
Four Corners/Eldorado	Greenfield (HVAC)	New Mexico Wind	Eldorado	SCE	2042	1,500	$201.78
NM/PV/Imperial Valley	Greenfield (HVAC)	New Mexico Wind	Imperial Valley	SDGE	2042	1,500	$215.02
NM/PV/Rancho Vista	Greenfield (HVAC)	New Mexico Wind	Rancho Vista	SCE	2042	1,500	$269.75
NM/Eldorado	Greenfield (HVDC)	New Mexico Wind	Eldorado	SCE	2042	3,000	$170.61
NM/Lugo	Greenfield (HVDC)	New Mexico Wind	Lugo	SCE	2042	3,000	$209.10

[1] Generic assumption of 1,500 MW for a new HVAC line and 3,000 MW for a HVDC line
[2] Capacity reflects resource potential; line capacity used to calculate levelized cost is 1,500 MW for a new HVAC line

Out-of-State (OOS) Resources

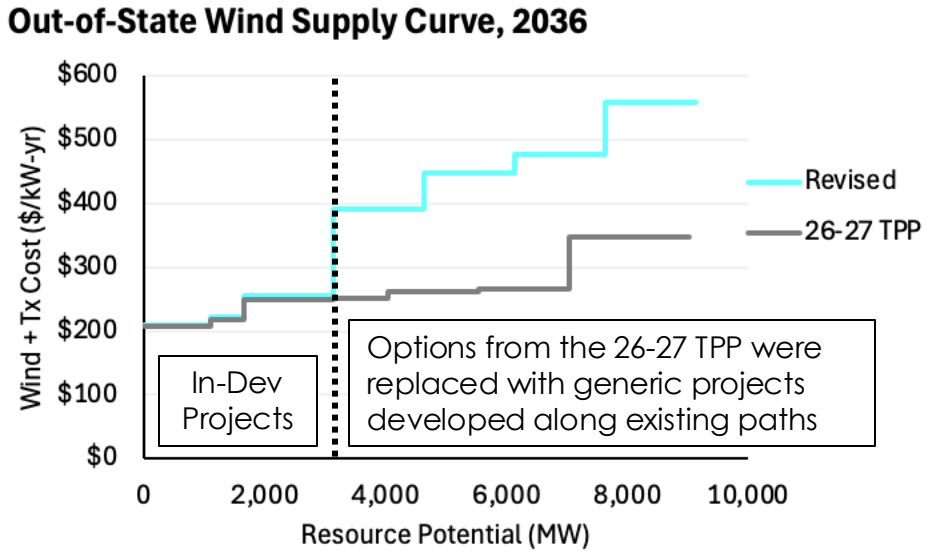
Out-of-State Geothermal Transmission Paths

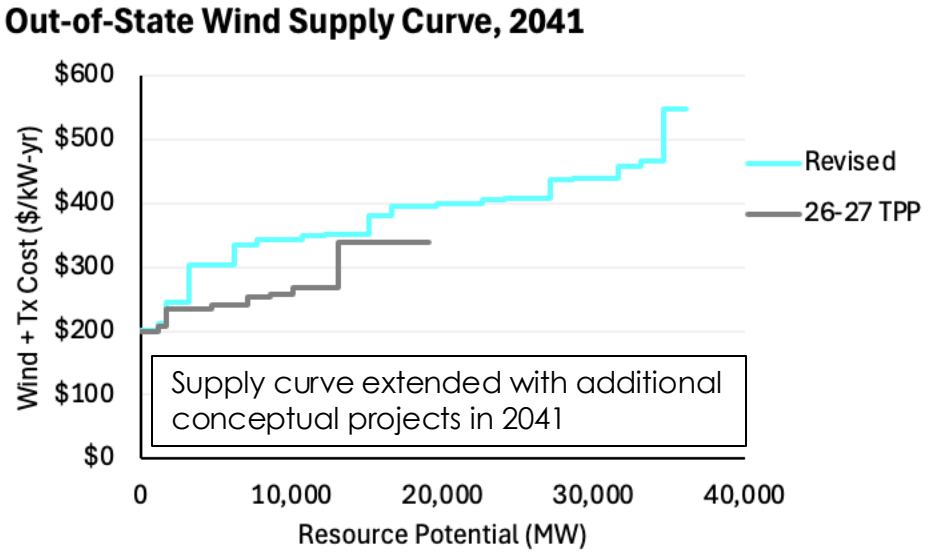
Project Name	Project Type	RESOLVE Resource	Tie-in Location	IOU	First Available Year	Potential, MW[1]	Total Cost, $/kW-yr[2]
Greenlink West	In-Development	Nevada EGS	Harry Allen	SCE	2029	270	$82.68
SWIP-N	In-Development	Nevada EGS	Harry Allen	SCE	2028	800	$67.31
Clover/Sloan Canyon (HWT)	Proposed	Utah EGS	Sloan Canyon	SCE	2032	2,000	$80.68
Bannister/Mirage	Greenfield (HVAC)	IID Geothermal/EGS	Mirage	SCE	2037	1,883	$35,43
Hilltop/Malin/Round Mountain	Greenfield (HVAC)	Northeast CA Geothermal/EGS	Malin	PGE	2037	357	$75.44
NV/Bannock/Beatty	Greenfield (HVDC)	Nevada Geothermal/EGS	Beatty	SCE	2035-2037	4,159	$103.10
NV/Fort Churchill/Control	Greenfield (HVAC)	Nevada Geothermal/EGS	Control	SCE	2035-2037		$61.63
NV/Bannock/Eldorado	Greenfield (HVDC)	Nevada Geothermal/EGS	Eldorado	SCE	2035-2037		$127.54
NV/Eagle/Hilltop/Malin/Round Mountain	Greenfield (HVAC)	Nevada Geothermal/EGS	Malin	PGE	2037	1,161	$145.30
OR/Corral/Malin/Round Mountain	Greenfield (HVAC)	Oregon Geothermal/EGS	Malin	PGE	2037	2,413	$113.91
ID/Midpoint/Eldorado	Greenfield (HVDC)	Idaho Geothermal/EGS	Eldorado	SCE	2037	1,872	$159.30

[1] Potential reflects total resource potential (conventional geothermal and EGS)
[2] Line capacity used to calculate levelized cost is 1,500 MW for a new HVAC line and 3,000 MW for a new HVDC line

Revised Out-of-State Wind Supply Curve

- Transmission options provided by CAISO were used as the basis for updating resource potentials and transmission costs for New Mexico and Wyoming Wind
- 1.5 GW of capability assumed per AC line, and 3 GW per HVDC line, totaling 15 new line options, 9 GW by 2036, and **36 GW of potential by 2041**
- Transmission costs were derived from GIS analysis and CAISO per-unit costs





Glossary of CEQA Terms

Code	Meaning	CI Category
CE	**Categorical Exemption:** an exemption from CEQA for a class of projects based on a finding by the Secretary for Resources that the class of projects does not have a significant effect on the environment.	High
SE	**Statutory Exemption:** an exemption from CEQA granted by the legislature.	High
FIN	**Final Document:** The final document (EIR, NEG, MND) issued before certification	High
NOD	**Notice of Determination:** The lead agency shall file a Notice of Determination within five working days after deciding to carry out or approve the project.	High
NOE	**Notice of Exemption:** When a public agency decides that a project is exempt from CEQA pursuant to Section 15061, and the public agency approves or determines to carry out the project, the agency may file a Notice of Exemption.	High
ADM	**Addendum:** Issued for certified documents (EIR, NEG, MND).	High
RIR	**Revised Environmental Impact Report:** A revised draft EIR.	Medium
OTH	**Other Document:** A document indicating a project is in the CEQA process.	Medium
CON	**Early Consultation:** An early consultation to identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the environmental impact report	Medium

Glossary of CEQA Terms

Code	Meaning	CI Category
NOP	**Notice of Preparation:** A notice of preparation of a draft EIR	Medium
EIR	**Environmental Impact Report:** A detailed statement prepared under CEQA describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects.	Medium
SIR	**Supplemental EIR**: An updated EIR necessitated by substantial project changes or new information.	Medium
SBE	**Subsequent EIR:** Equivalent to an SIR.	Medium
NOC	**Notice of Completion:** Issued ahead of a draft EIR being posted.	Medium
MND	**Mitigated Negative Declaration:** A negative declaration prepared for a project that avoids significant impacts through mitigation.	Medium
NEG	**Negative Declaration:** A written statement briefly describing the reasons that a proposed project will not have a significant effect on the environment and does not require the preparation of an environmental impact report.	Medium
NOI	**Notice of Intent:** A notice to adopt a negative declaration or mitigated negative declaration to the public.	Medium
RC	**Response to Comments:** Written responses to comments on a draft EIR.	Medium

Results by IOU, MW

IOU	Total Capacity	Eligible for CCS Retrofits	Exempt from Non-Retention (Other)	Low Priority for Non-Retention (< 2.5)	High Priority for Non-Retention (>= 2.5)
PGE	11,598	7,429	95	2,926	1,147
SCE	8,781	1,649	740	2,382	4,009
SDGE	3,569	-	2,529	1,041	-
Total	**23,948**	**9,079**	**3,781**	**6,349**	**5,156**