California ISO West-wide Transmission Activities

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WEIM Governing Body Meeting
General Session
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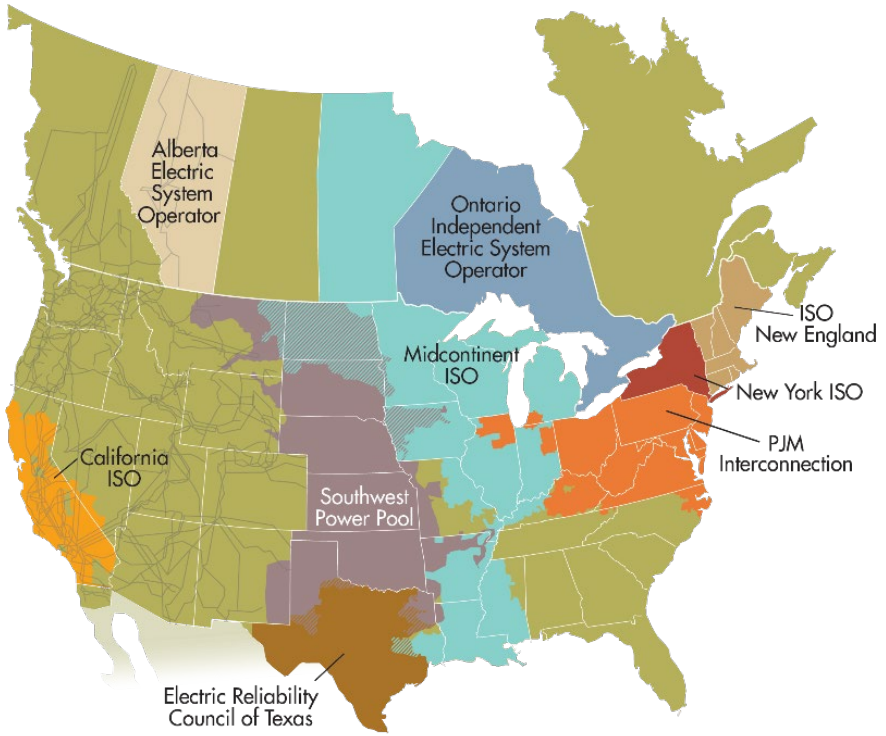
Most of the western interconnection is outside of an ISO/RTO structure, however other coordination frameworks exist.

CAISO Coordination Statistics	
52,061	MW recorded peak demand (September 6, 2022)
~80	% of California load in CAISO, plus a corner of Nevada
9	ISOs and RTOs in North America
39	Balancing Authorities in the Western Interconnection (CAISO is one)
~30	% of WECC load in CAISO
10	States in which Western Energy Imbalance Market operates
~80	% of WECC load in WEIM in 2023
42	BAs and TOPs receiving reliability coordinator services from CAISO's RC West



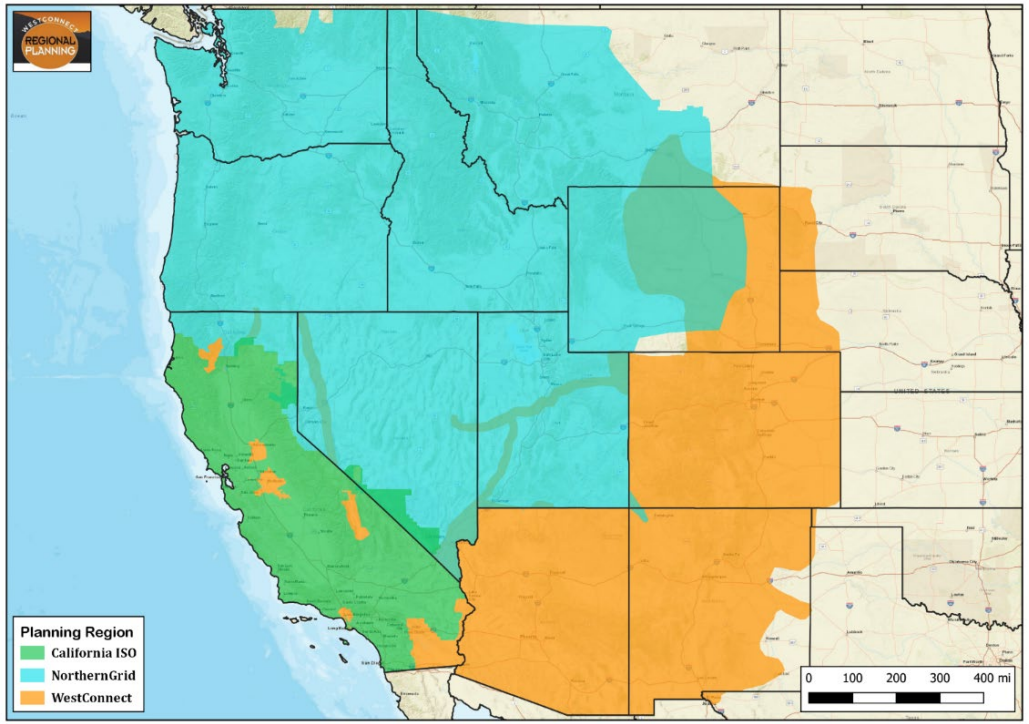
CAISO and our neighbors have an interregional coordination framework approved by FERC.

Interregional coordination

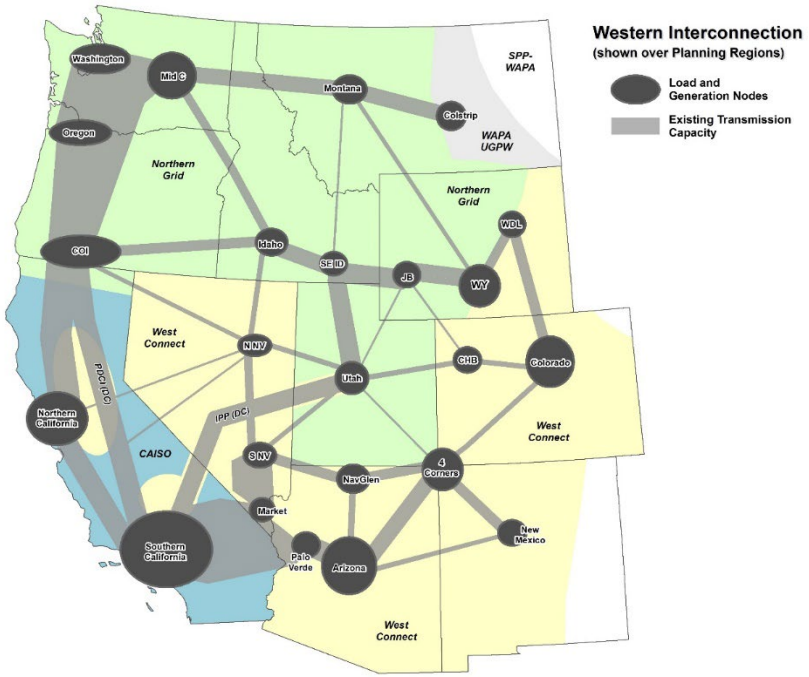
- Annual exchange of information
- Annual public interregional coordination meeting
- WestConnect's and Northern Grid's biennial processes have been coordinated with two cycles of the ISO's annual process

Interregional cost allocation

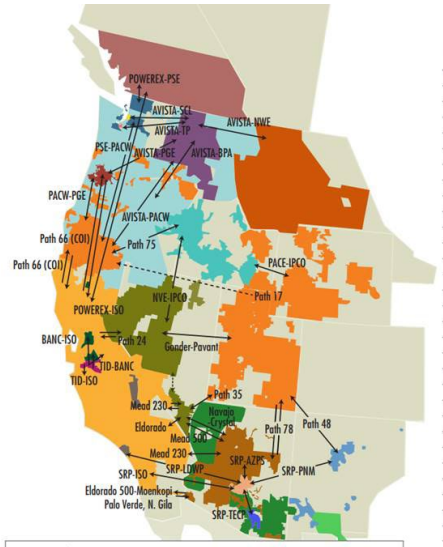
- Interregional projects only considered if comparing favorably to a regional solution to a regional need
- Costs shared in proportion to each region's share of total benefits (not capacity)



Connectivity in the West is critical both to long-term planning and market opportunities.



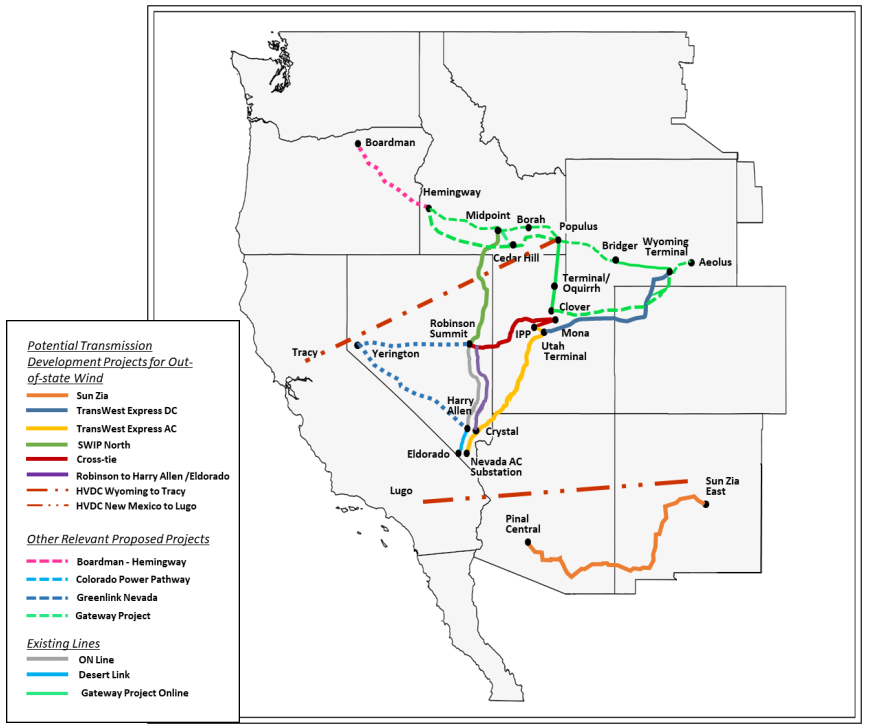
Courtesy of TransWest Express LLC



Estimated WEIM maximum transfer capacity

Path	Estimated Max Capacity (MW)
Path 24 *(west to east)*	100
Path 24 *(east to west)*	35-90
Eldorado	797
Path 35 *(west to east)*	580
Path 35 *(east to west)*	538
Gonder-Pavant	130
PACW to PGE	320
Path 66 *(ISO to PGE)*	627
Path 66 *(PGE to ISO)*	296
Path 66 *(ISO to PACW)*	331
Path 66 *(PACW to ISO)*	432
Path 17	0-400[1] [2]
PSE to PACW	300
Eldorado 500-Moenkopi	732
Palo Verde, N. Gila	3,151
Path 78 *(PACE to APS)*	625
Path 78 *(APS to PACE)*	660
Navajo-Crystal	522
Mead 500	349
Mead 230 *(APS <--> ISO)*	236
Mead 230 *(ISO to NVE)*	3,443
Mead 230 *(NVE to ISO)*	3,476
IPCO to PACW (Path 75)	1,500
PACW to IPCO (Path 75)	400-510
PACE to IPCO	2,557
IPCO to PACE	1,550
NVE to IPCO	262
IPCO to NVE	390-478
Powerex <--> PSE	150
Powerex <--> ISO	150
BANC <--> ISO	2,000-4,000
TID to ISO	1,400
TID to BANC	650
Path 48	2,100
SRP <--> TEPC	9,988
SRP <--> PNM	400
SRP <--> AZPS	10,021
SRP <--> ISO	14,488
SRP <--> LDWP	349
Avista <--> BPA	3,600
Avista <--> NorthWestern	764
Avista <--> PACW	500
Avista <--> SCL	500
Avista <--> TP	500
Avista <--> PGE	500

Significant transmission development is needed for CAISO load to access out-of-state wind.

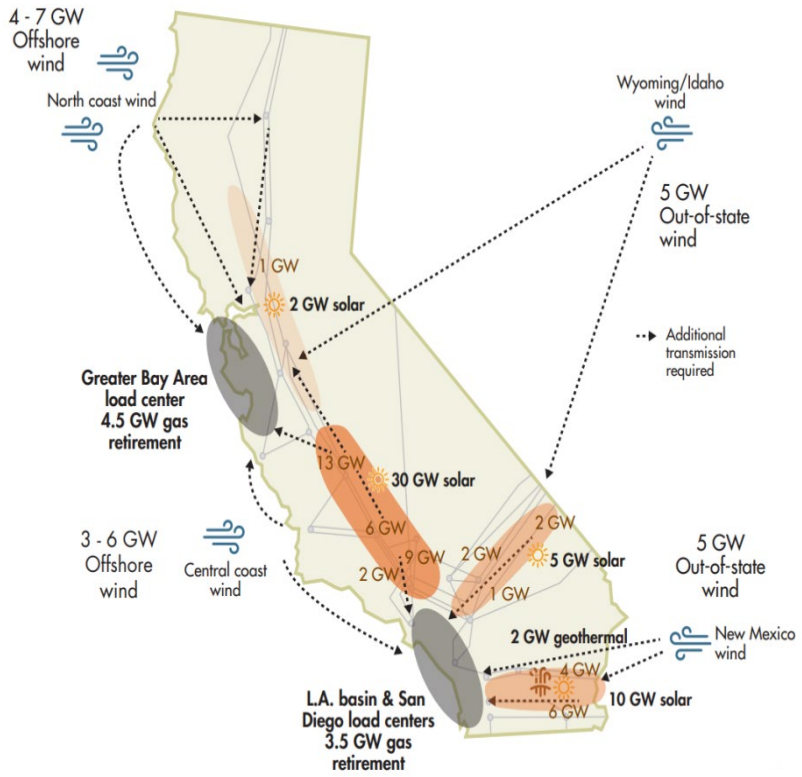


Achieving the targeted volumes of out of state wind requires the aggregate capacity of:

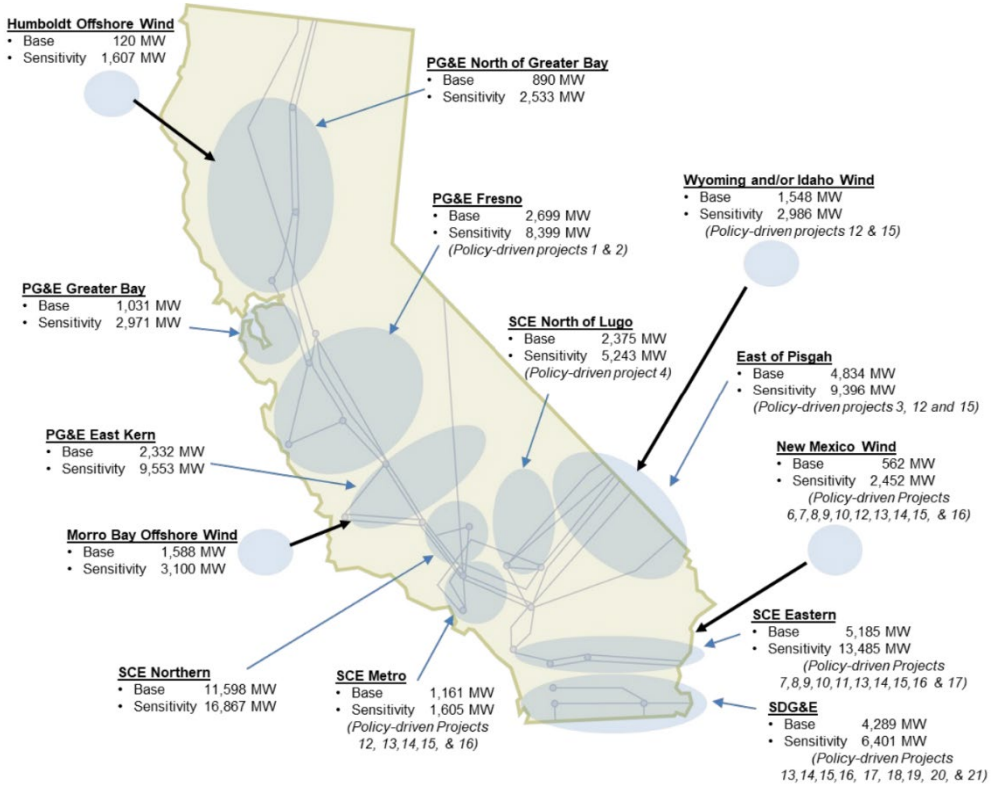
- TransWest Express
- SunZia
- SWIP North
- Cross Tie
- Robinson-Eldorado
- Additional (HVDC) transmission to Northern California
- Additional (HVDC) transmission to Southern California

Several of these projects are currently being developed under a subscriber model – with the transmission costs incorporated into the energy costs – and not rate-base projects receiving cost-of-service cost recovery that would be added to CAISO transmission access charges.

The CAISO's 20 Year Transmission Outlook and 2022-2023 Transmission Plan identified the need for interregional coordination.



20-year Transmission Outlook - 2022



2022-2023 Transmission Plan

The federal landscape is also evolving; FERC has Notices of Proposed Rulemakings pending orders.

- Three NOPRs on transmission planning:
  - Regional Transmission Planning and Cost Allocation and Generation Interconnection (RM21-17)
  - Transmission System Planning Performance Requirements for Extreme Weather (RM22-10)
  - One-Time Reports on Extreme Weather Vulnerability Assessments (RM22-16)
- Improvements to Generator Interconnection Procedures and Agreements (RM22-14)
- Interregional Planning NOPR (expected)

Also note:

- Joint Federal-State Task Force on Electric Transmission (AD21-15)
- Staff Workshop on Establishing Interregional Transfer Capability Transmission Planning and Cost Allocation Requirements (AD23-3-000)

Establishment of National Interest Electric Transmission Corridors (NIETCs) will remove some state-level barriers for large projects.

- Under the Infrastructure Investment and Jobs Act, Department of Energy (DoE) issued a framework to designate NIETCs to facilitate new transmission and unlock federal funding to accelerate electricity sector decarbonization.

  - Strengthen backstop transmission siting authority: DOE and FERC can grant permits with eminent domain for NIETCs
  - Project developers must advance to project routing and community and landowner outreach; DoE is considering additional involvement of tribal authorities, local governments, generation developers, and non-transmission entities.

Regional and Interregional Transmission - Opportunities and Challenges

- Coordinate and collaborate to identify the most effective solutions
  - Effective dialogue is critical
  - Interregional transmission planning needs to be coordinated with resource planning – we cannot wait until resources are developed and then look for opportunities
  - We need tighter linkages between procurement processes and interconnection and planning processes for regional and interregional transmission
  - Cost allocation discussions for ratepayer-recovered transmission facilities struggle with FERC Order 1000 one-size-fits-all cost allocation structure in place
- Explore funding options to lower the delivered cost of electricity to consumers
  - The ISO has had ample investor interest in competitively procured transmission
- Be creative and flexible
  - Develop and support options like the subscriber transmission owner model