California ISO

UPDATE ON CAISO MARKET ACTIVITIES
to the Nevada Regional Transmission Task Force

Stacey Crowley Vice President, External Affairs
Holly Taylor, Manager, Regional Affairs

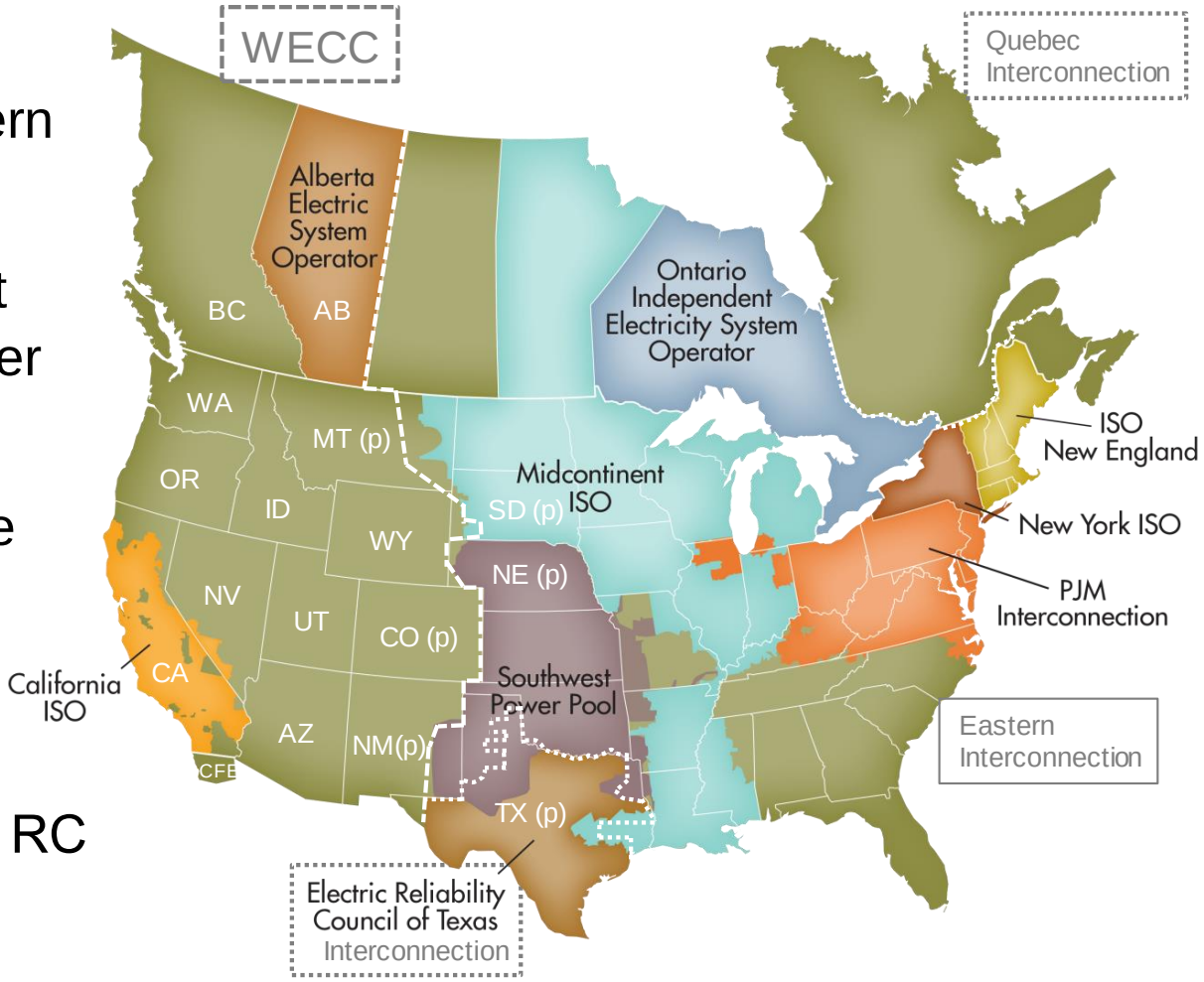
October 12, 2022

Key Topics

- Transmission planning
- Current market activities
- Governance topics
- Summer 2022 heat event

The ISO manages the high-voltage electric grid and wholesale energy market for CA and a portion of NV

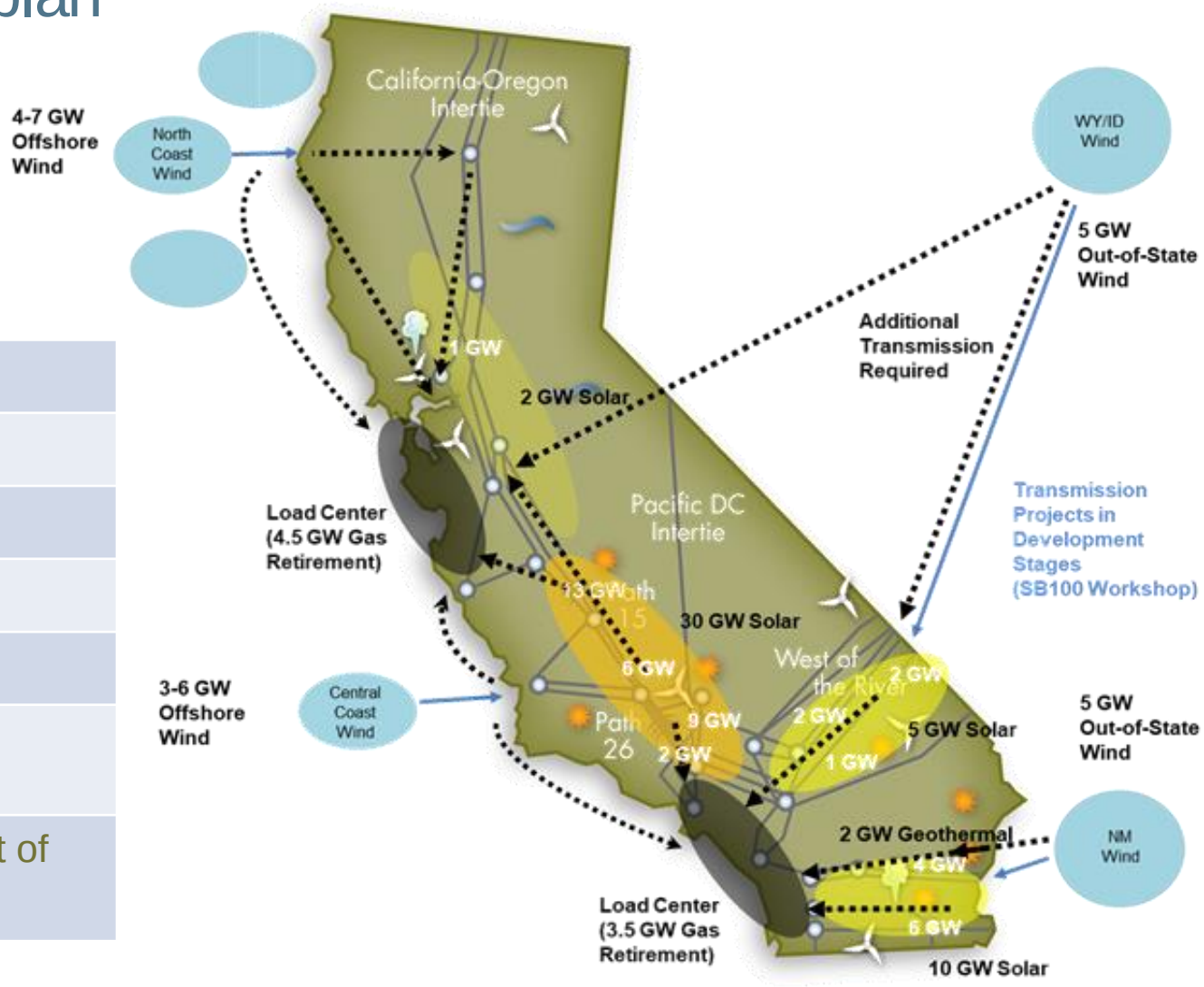
- One of 38 balancing authorities in the western interconnection
- Nonprofit public benefit corporation, serving over 32 million consumers
- Serving 10 states in the WEIM
- 42 entities receiving reliability coordinator services from CAISO's RC West



TRANSMISSION PLANNING

Overview of 20-year resource and transmission development plan

Key Findings	
53 GW	Solar
22.2 GW	Wind
2.3 GW	Geothermal
37 GW	Battery
4 GW	Long-duration Storage
$30.5B	Estimated cost of transmission



CAISO responsible for identifying and developing solutions to meet future needs of ISO-controlled grid

Transmission Planning Process Enhancements include:

- Adjust timeline for releasing draft transmission plans (from January to March)
- Coordinate with other planning processes and enable approvals for major long lead time transmission projects needed beyond the 10 year planning horizon
- Retain policy-driven transmission upgrade capacity for the specific policy purposes for which it was developed.
- Comments on straw proposal due Oct 13

Significant transmission projects in the Western Interconnection

Northern California OSW
- Sea Cable and overhead lines

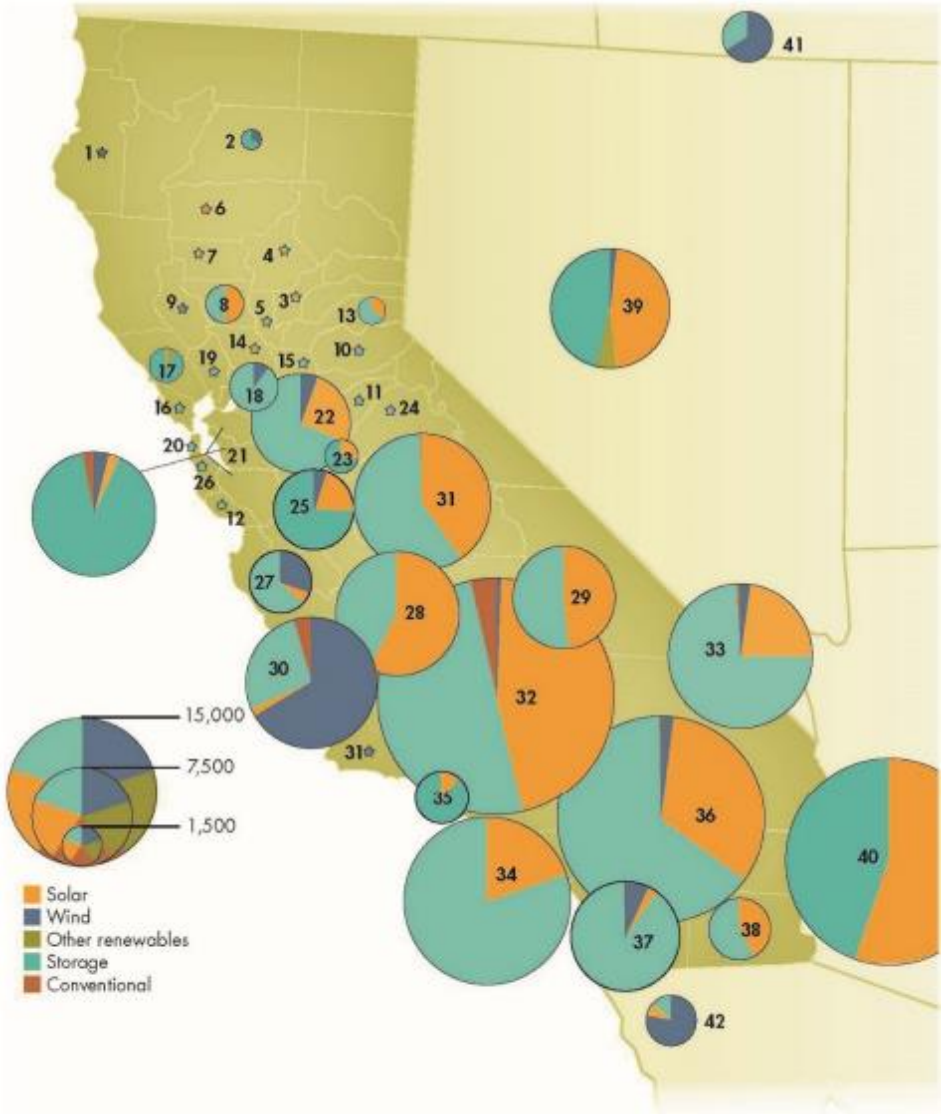
Other Proposed Projects
- Ten West Project
- Boardman - Hemingway
- Colorado Power Pathway
- Sun Zia
- Greenlink Neveda
- Gateway Project
- PTE

2020-2021 ITP Submittals
- TransWest Express DC
- TransWest Express AC
- Cross-tie
- NW Tie Upgrade
- SWIP North

Existing Lines
- ON Line
- Desert Link

CAISO interconnection queue

Categorized by Technology	
94,765 MW	Renewable
140,937 MW	Storage
848 MW	Conventional
236,550 MW	**TOTAL**

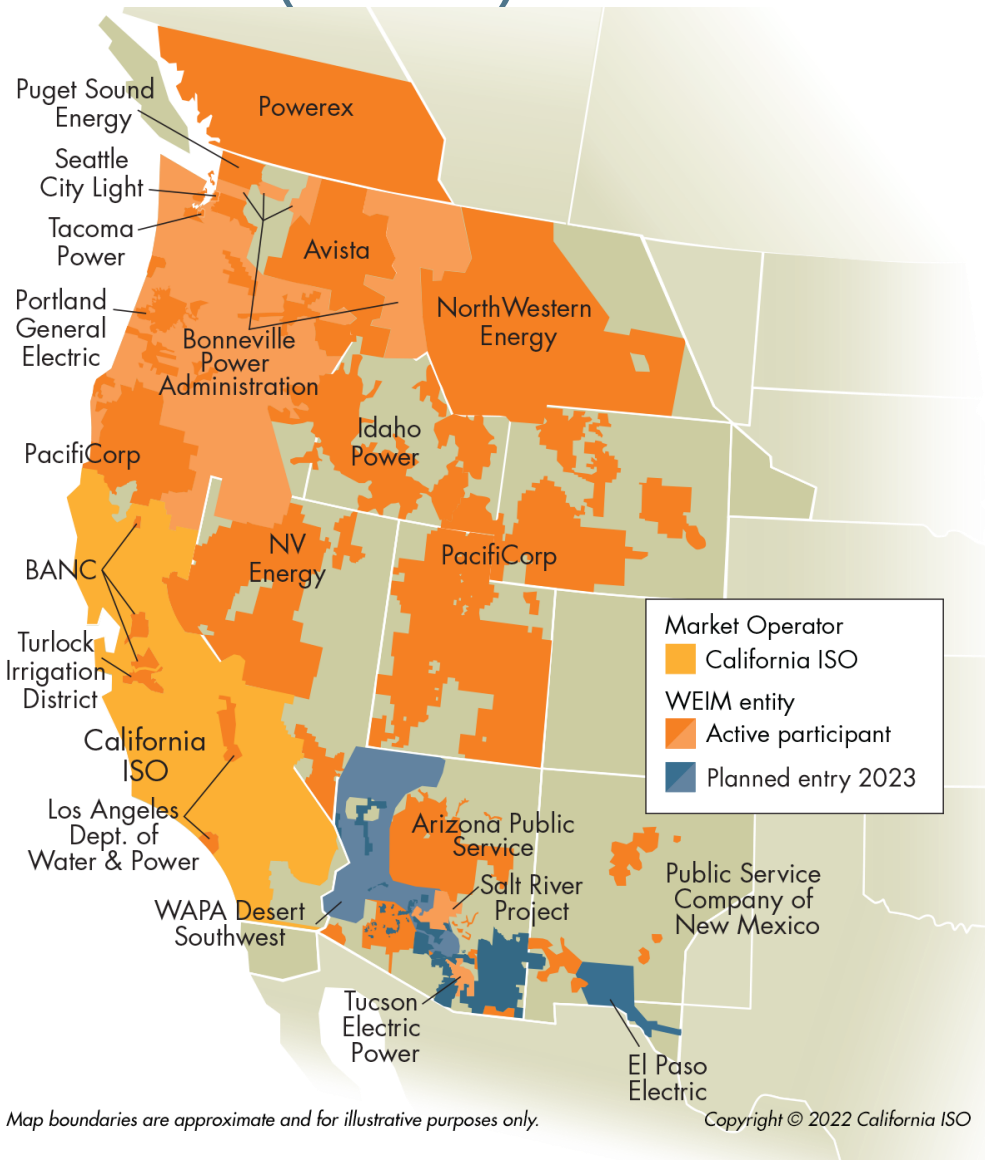


CURRENT MARKET ACTIVITIES

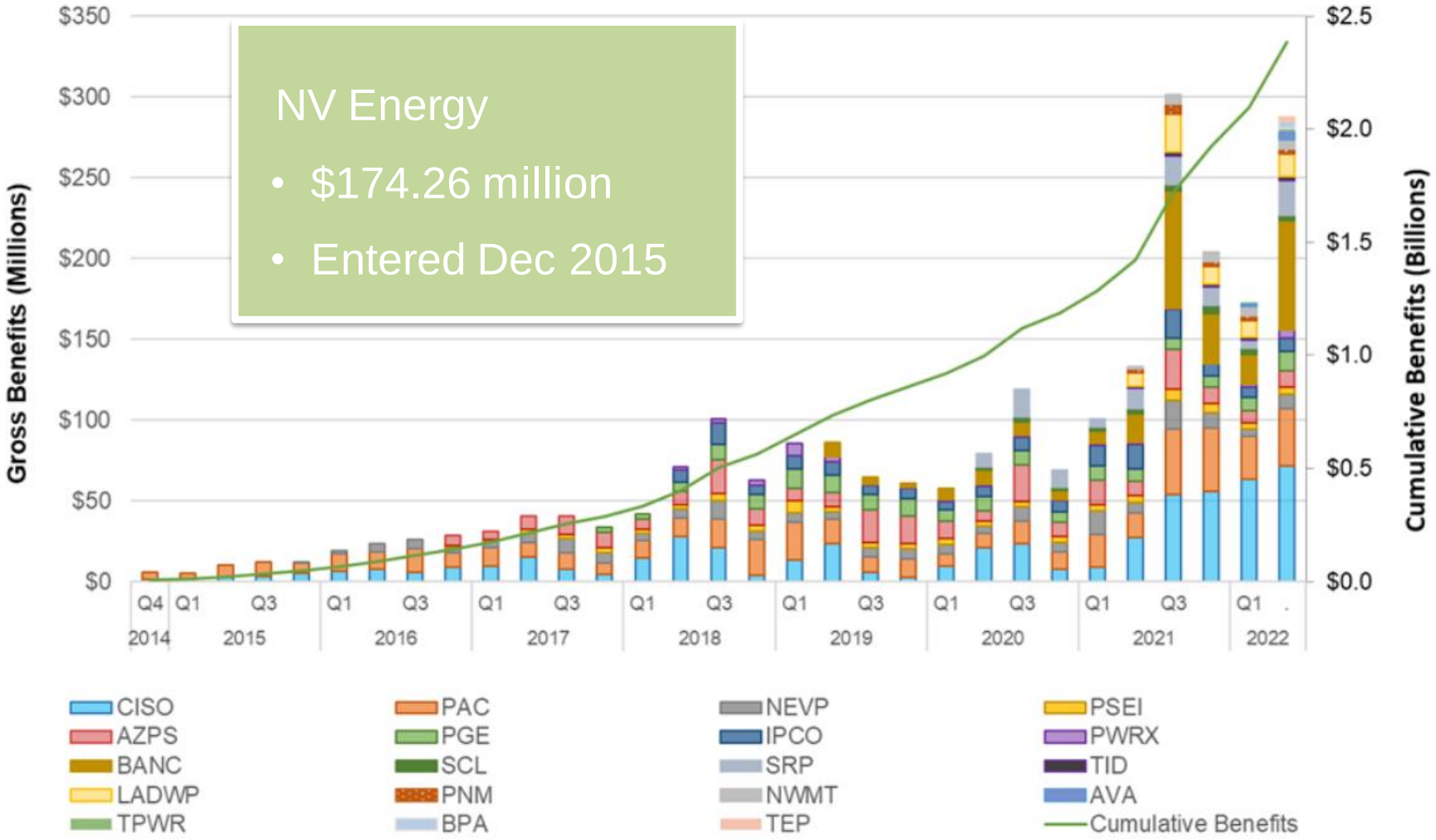
Western Energy Imbalance Market (WEIM)

Since its launch in 2014 the WEIM has provided:

- enhanced grid reliability
- economic benefits for participants
- improved integration of renewable energy resources
- improved operational efficiencies including the reduction of the need for real-time flexible reserves.
- reduction of over 760,000 metric tons of CO_2



WEIM benefits reach $2.39 billion



Harnessing the benefits of a day-ahead market in the West

Economic

- Optimized unit commitment in day ahead timeframe across footprint
- Operational and capacity benefits

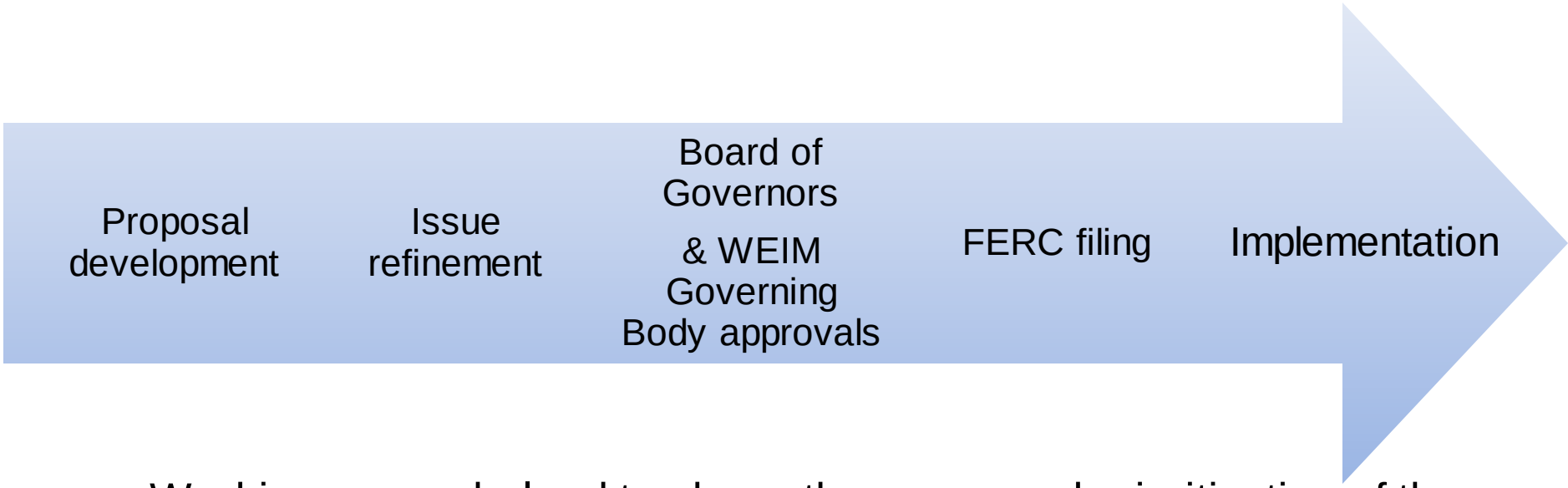
Reliability

- Confidence in transfers
- Improved operational coordination

Environmental

- Enhanced tracking and accounting greenhouse gas emissions
- Respecting state policies

EDAM timeline includes direct feedback and discussion with stakeholder



- Working groups helped to shape the scope and prioritization of the issues
- Straw proposal and stakeholder meetings provided robust dialogue on most challenging issues
- Commitment from Board of Governors to support Joint Authority for decision making on EDAM proposal

Key EDAM design areas

Day Ahead Resource Sufficiency

Each entity must bring sufficient supply to reliably serve its load.

Transmission Availability to EDAM

Transmission customers and providers bring transmission to support transfers.

Day Ahead Market Structure

Different market components ensure optimized, efficient, commitment of generation.

Confidence in Market Transfers

Design features contribute to collective confidence that transfers can be relied upon in stressed conditions.

Greenhouse Gas (GHG) Accounting

Framework for accounting for GHG emissions under different western regulatory programs.

Settlements

All transactions emerging from the day ahead market are settled.

Transmission service & market scheduling priorities – wheeling through CAISO transmission system

Proposed design:

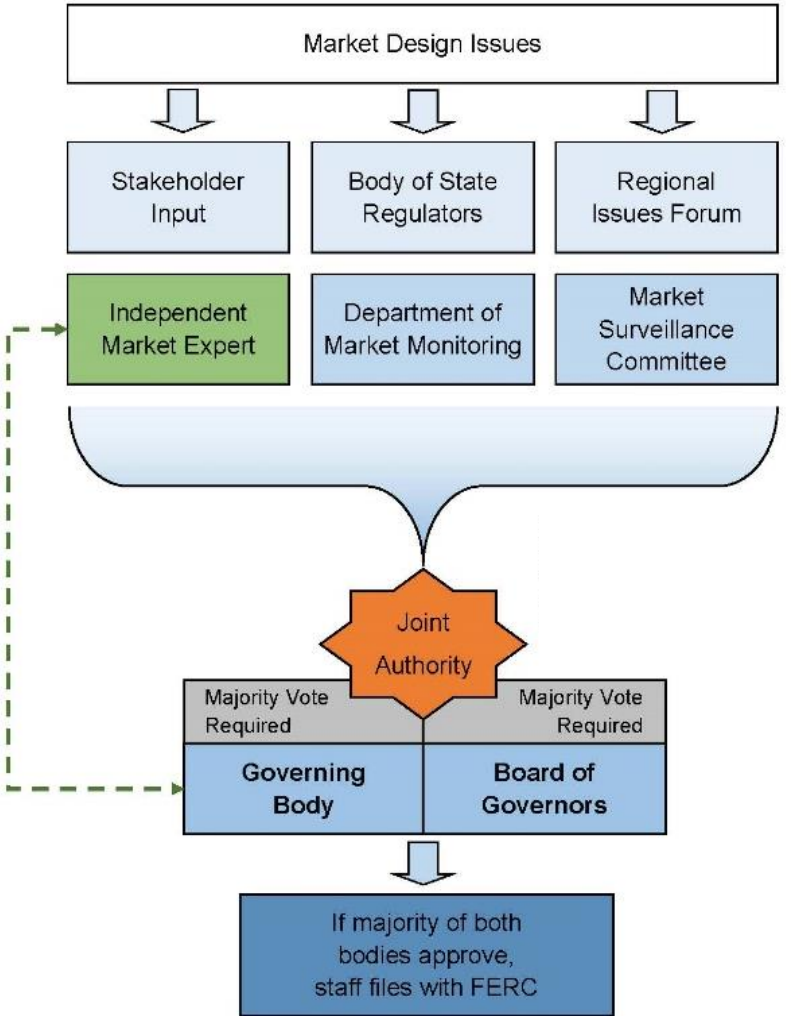
- Calculation of available transfers capability (ATC) on ISO interties.
  - Setting aside of transmission capacity to reliably serve ISO native load.
- Remaining ATC can be accessed and reserved by entities seeking to wheel through ISO system.
  - Need to demonstrate supply contract to access and reserve the ATC.
- Calculation of ATC across different time horizons and process for pursuing transmission upgrades on ISO system.

GOVERNANCE TOPICS

WEIM governance structure includes stakeholder engagement and shared authority for the Board and the WEIM Governing Body

Key elements:

- Independent **WEIM Governing Body** selected by stakeholders and confirmed by the Governing Body
- Self-governing **Body of State Regulators** with separate staff, providing opinions on key initiatives, role on Nominating Committee and governance committee
- Self-governing **Regional Issues Forum** to discuss relevant issues
- **Independent market expert** with direct oversight by the Governing Body



WEIM Governance Review Committee - members

Michele Beck	Utah Office of Consumer Services
Tony Braun	Braun Blaising Smith Wynne, PC
Suzanne Cooper	Bonneville Power Administration
Eric Eisenman	Pacific Gas and Electric Company
John Prescott*	WEIM Governing Body
Angelina Galiteva*	ISO Board of Governors
Jeff Nelson	Southern California Edison
Amanda Ormond	Ormond Group LLC
Commissioner Letha Tawney	Body of State Regulators
Rob Taylor	Salt River Project
Pam Sporborg	Portland General Electric
Rebecca Wagner	Independent consultant
Cameron Yourkowski	EDP Renewables North America LLC
In memoriam: Therese Hampton, consultant representing public power	

** non-voting member*

A stakeholder driven WEIM Governance Review Committee considering aspects of governance impacted by EDAM.

Delegation of Authority

- Type of delegation
- Scope of delegation
- Decisional classification
- Dispute resolution

Stakeholder Engagement & Policy Development

- Stakeholder initiative working groups
- RIF roundtable on discretionary items
- Consumer advocate/Public Interest Organization RIF sector liaisons

Governing Body & ISO Board

- Governing Body – size, qualifications, compensation
- ISO Board – bylaws amendment

ACR 188: Setting stage for conversations on regional electric grid collaboration

- Chris Holden's bill, ACR 188, passed both legislative chambers on a unanimous, bipartisan vote.
- Requests CAISO produce a report that:
  - summarizes recent relevant studies on the impacts of expanded regional electric grid cooperation on California and;
  - identifies key issues that will most effectively advance the state's energy and environmental goals, including any available studies that reflect the impact of regionalization on transmission costs and reliability for California ratepayers.
- Report to be submitted to legislature by February 28, 2023

CAISO implementation activities on ACR 188

- Communicating with other California Balancing Authorities
- Contracted with NREL to help produce the report
- Posting list of relevant studies for stakeholder input
  - Seeking feedback on list of studies by Oct 26
- Hosting public call on Oct 17, 10:00 am PT, to discuss project and answer questions.

"California is working to accelerate progress on its clean energy goals, spur offshore wind development, and scale our energy infrastructure and transmission to meet our energy needs. All of this is only possible if we work with our neighbors in the West and create a regional system that expands the footprint for clean energy resources and enables better collaboration, transparency and integration across the western power grid system. Engaging with the rest of the region to ensure electric reliability and affordability for California households is critical, and I'm pleased to see such broad support for ACR 188, which will help pave the way," -- Assembly member Chris Holden.

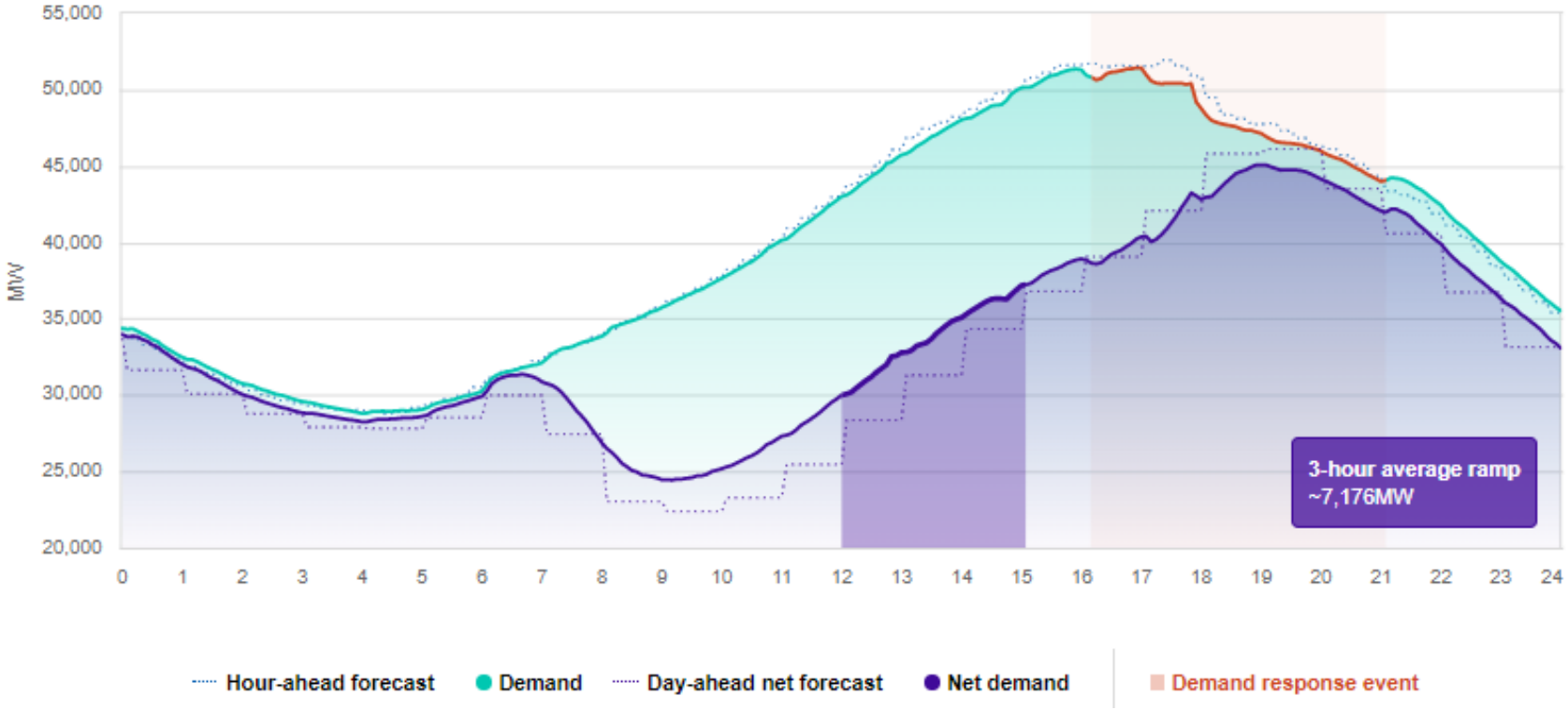
SEPTEMBER 2022 HEAT EVENT

September 2022 heat event

- ISO balancing authority area and other areas in the west experienced stressed conditions September 5 - 9.
  - Declared different stages of energy emergency.
  - Reliance on demand response, emergency programs and collaboration among western partners.
- ISO load reached an all time record on September 6th at 52,061 MW
  - Western Interconnection hit record 167.5 GW
- Limited curtailment of low priority exports from the ISO balancing authority area, no wheel through curtailments.
- Extensive west wide operational coordination and collaboration during stressed system conditions.

September 2022 heat event

September 6, 2022



New mix of resources helping to meet increased demand

Historical statistics and records

Solar peak
14,352 MW
June 7, 2022 at 12:16 p.m.
Previous record:
14,136 MW, May 16, 2022

Wind peak
6,465 MW
May 28, 2022 at 5:39 p.m.
Previous record:
6,265 MW, Mar 4, 2022

Peak percentage of renewables compared to demand
103.5%
May 8, 2022 at 3:39 p.m.
Previous record:
99.87%, Apr 30, 2022

Peak net imports
11,894 MW
Sept 21, 2019 at 6:53 p.m.

Peak demand NEW!
52,061 MW
Sept 6 at 4:57 p.m.
Second highest:
50,270 MW, Jul 24, 2006

Steepest ramp over 3-hour period
17,660 MW
Mar 11, 2022 starting at 2:59 p.m.
Second highest:
17,298 MW, Apr 24, 2022

Transformation of the electric system requires collaboration

Resources and demand

Electrification and technology

External forces

Regional collaboration

Contact information

Stacey Crowley
scrowley@caiso.com
(916) 300-4603
www.caiso.com