



California ISO

Reliability Coordinator West Oversight Committee

March 14, 2019

Agenda

Time:	Topic:	Presenter:
12:30 – 12:40	Welcome/safety	Kristina Osborne – CAISO Kimberlee Sackman - CAISO
12:40 – 1:00	Briefing: RC West Oversight Committee structure	Phil Pettingill - CAISO
1:00 – 1:15	Election: Chair/Vice Chair	Nancy Traweek - CAISO
1:15 – 1:45	Decision: Voting rules and process	Nancy Traweek - CAISO
1:45 – 2:15	Decision: Chair/Vice Chair term limits	Nancy Traweek – CAISO
2:15 – 2:45	Update: RC Operations	Tim Beach - CAISO
2:45 – 3:15	Update: WECC certification	Trish Johnstone - CAISO
3:15 – 3:30	Future agenda items	Chair
3:30 – 4:00	Public comment	
4:00	Adjourn	

Briefing on RC West Oversight Committee Structure

Phil Pettingill, Director, Regional Integration
California ISO

Composition of the RC West Oversight Committee

- Senior-level representative from each NERC-certified BA and/or TOP taking RC services from California ISO; and
- California ISO Vice President of Operations or designee

Meeting administration

- Chair and Vice-Chair (selected by Oversight Committee)

RC West Oversight Committee

Chair/Vice-Chair: To be elected

Members (by entity):

ISO Vice President of Operations: Eric Schmitt

Avista	PUD No. 2 Grant County, WA
Avangrid	NaturEner Power Watch, LLC
Arizona Public Service	Imperial Irrigation District
Balancing Authority of Northern California	Idaho Power Company
• Sacramento Municipal Utility District	Los Angeles Department of Water and Power
• Western Area Power Administration Sierra Nevada Region	NV Energy
• Modesto Irrigation District	NorthWestern Energy
Bonneville Power Administration-Transmission	• Montana Alberta Tie Line
• PUD No. 1 Snohomish County	PacifiCorp
California ISO	Portland General Electric
• Arizona Electric Power Cooperative	Public Service Company of New Mexico
• City & County of San Francisco (Hetch Hetchy)	• Los Alamos
• Pacific Gas & Electric	• Tri-State Generation and Transmission Association
• Silicon Valley	Puget Sound Energy
• Southern California Edison	Seattle City Light
• San Diego Gas & Electric	Salt River Project
• Trans Bay Cable	Turlock Irrigation District
• Valley Electric Association	Tacoma Power
Centro Nacional de Control de Energía	NaturEner Wind Watch, LLC
PUD No. 1 Chelan County, WA	
PUD No. 1 Douglas County, WA	

Role of the RC West Oversight Committee

- The Oversight Committee provides input and guidance to ISO RC management on matters relating to the RC function, including:
 - operational issues relating to RC service
 - overarching RC policies and procedures
 - new tools or staffing significantly affecting budget and costs for RC service
 - review of working groups and their composition and structure

Oversight Committee Engagement with External Parties

- Conduct public meetings
 - Determine meeting schedule
 - Establish agenda
 - Document decisional items
- Receive input and feedback from state policy makers and regulators through the establishment of a Regulatory Liaison

Note: Items involving changes to the ISO Tariff or Business Practice Manuals will be considered in the ISO's public stakeholder process.

Approximate timeline for creation of meeting materials

Guidelines for Meeting Process

Note: The following milestones occur in connection with each public meeting.

Task	Publicly notice the meeting / call	Agenda topics proposed by public	Post and publicly notice agenda	Post meeting documents	Post decisions* / meeting recording
Timeline	At least 3 weeks prior to in person meeting / 1 week prior to call	2 weeks prior to the meeting	At least 1 week prior to meeting	1 week prior to meeting for approval items / 2 business days prior to meeting for non-approval items	After meeting, 2 business days for decisions / 3-5 days for recording

*This applies to decisional items approved by the RC West Oversight Committee.

2019 Meeting Schedule

Date	Type:
March 14, 2019	In-person meeting
April 17, 2019	Webinar
May 21, 2019	In-person meeting
June 18, 2019	Webinar
July 18, 2019	In-person meeting
August 22, 2019	Webinar
September 24, 2019	In-person meeting
October 23, 2019	Webinar
November 19, 2019	In-person meeting
December 17, 2019	Webinar

Note: The committee is planning to meet monthly as entities onboard in 2019. Starting in 2020, the committee anticipates meeting quarterly with additional meetings as necessary.

Online resources:

- [RC West Oversight Committee webpage](#)
- [RC Oversight Committee Charter](#)
- [General RC information](#)

To receive information about upcoming RC West Oversight Committee meetings:

- Subscribe to ISO's [Daily Briefing](#)
- Follow us on Twitter ([@isomarketnotice](#))
- Reference the ISO [public calendar](#)

Please send RC-related questions to RCWest@caiso.com.

Election of Chair and Vice Chair

Nancy Traweek, Executive Director, System Operations
California ISO

Election Process

- Nomination of Chair and Vice Chair
- Proposed term
 - 2019: One year term at time of election
 - 2020 and beyond: Two year term at time of election
- Election will be based on majority vote for each position

Decision: Voting Rules and Process

Nancy Traweek, Executive Director, System Operations
California ISO

Voting Rules/Process

- RC West Oversight Committee is responsible for approving the following RC-related items:
 - Overarching RC policies and procedures
 - Revisions to the RC West Oversight Committee Charter
- Decisional item documentation
 - Posted to the RC Portal two weeks in advance of Oversight Committee meeting
- Quorum for voting to proceed
 - At least 50% of the RC committee members represented in person, on the phone at the meeting, or having voted by email in advance

Voting Rules/Process (continued)

- Approvals based on simple majority of the quorum
- Chair takes vote by verbal roll call in-person and on phone during meeting
 - One vote per approval item allowed per RC entity committee member
 - Votes can be emailed in advance of meeting to be counted
 - Dissenting positions captured
- Decisions are posted on the ISO public website within 2 business days following the meeting

Decision: Chair/Vice Chair Term Limits

Nancy Traweek, Executive Director, System Operations
California ISO

Chair/Vice Chair Term Limits

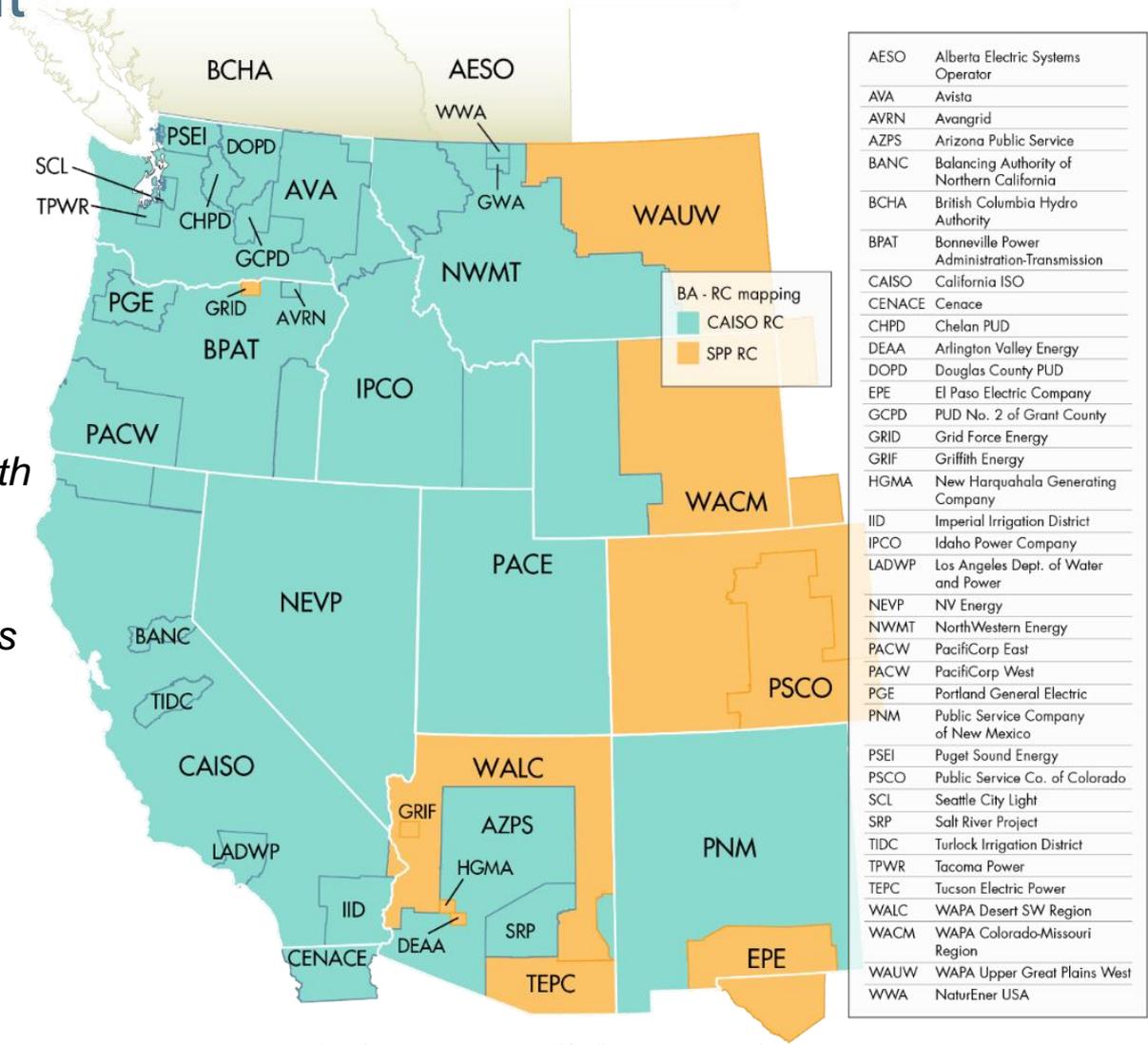
- 2019: One year term at time of election
- 2020 and beyond: Two year term at time of election

RC West Reliability Coordination Operational Update

Tim Beach, Director Reliability Coordination, System Operations
California ISO

RC West Footprint

- *FERC approved RC rate established via ISO Tariff*
- *RC Agreement established with 12 month entry and exit*
- *Executed 39 of 39 agreements*



AESO	Alberta Electric Systems Operator
AVA	Avista
AVRN	Avangrid
AZPS	Arizona Public Service
BANC	Balancing Authority of Northern California
BCHA	British Columbia Hydro Authority
BPAT	Bonneville Power Administration-Transmission
CAISO	California ISO
CENACE	Cenace
CHPD	Chelan PUD
DEAA	Arlington Valley Energy
DOPD	Douglas County PUD
EPE	El Paso Electric Company
GCPD	PUD No. 2 of Grant County
GRID	Grid Force Energy
GRIF	Griffith Energy
HGMA	New Harquahala Generating Company
IID	Imperial Irrigation District
IPCO	Idaho Power Company
LADWP	Los Angeles Dept. of Water and Power
NEVP	NV Energy
NWMT	NorthWestern Energy
PACW	PacifiCorp East
PACW	PacifiCorp West
PGE	Portland General Electric
PNM	Public Service Company of New Mexico
PSEI	Puget Sound Energy
PSCO	Public Service Co. of Colorado
SCL	Seattle City Light
SRP	Salt River Project
TIDC	Turlock Irrigation District
TPWR	Tacoma Power
TEPC	Tucson Electric Power
WALC	WAPA Desert SW Region
WACM	WAPA Colorado-Missouri Region
WAUW	WAPA Upper Great Plains West
WWA	NaturEner USA

BA boundaries are approximate and for illustrative purposes only

The ISO RC Core Services, meeting NERC standards

	Current PTOs	Future RC customers
Core Services		
Outage Coordination	Existing service	New service - non ISO BA
Next Day Operations Planning Analysis	Existing service	New service - non ISO BA
Real-time Situational Awareness	Existing service	New service - non ISO BA
Real-time Analysis and Assessment	Existing service	New service - non ISO BA
SOL Methodology	New service for RC area	
RC wide system restoration plan review, coordination, and training	New service for RC area	
Stakeholder/ Working Group Processes	New service for RC area	
Secure centralized site: Operating Plans, Procedures, Studies, and Reports	New service for RC area	
Centralized Messaging for RC Area	New service for RC area	

The ISO RC Services are enhanced beyond those required by NERC Standards

- *Forward system view day ahead and intra-day*
- *Full 24hr system analysis vs only peak hour*
- *Developed Look Ahead RTCA*

Reliability Coordinator staffing focused on industry experience

- Goal - equal demographic of: Peak / CAISO Internal / External
- 70 interviews through a 2 step hiring process
 - Emphasizes on fundamentals, power theory, standards, behavior and soft skills
- 18 Reliability Coordinators hired (Full Staff)
 - 6 Peak RC's
 - 6 CAISO Internal (Former Lead Transmission and Generation Dispatchers)
 - 6 external (MISO-PJM-ERCOT, MRO, Training, Lead Transmission)
 - 345 years of industry experience
- 10 additional Operational Engineers

RC Operations from Two Control Centers 24/7

- Folsom, CA
- Lincoln, CA



Newly Constructed RC Control Room in Folsom Provides Dedicated Space



RC Tools Provide Situational Awareness

- Modified EMS Alarming for RC situational awareness
- Created 80 of new displays and overviews, changes to 200 existing. (CA footprint only)
- Developed a vendor and web based messaging tool (GMS)
 - Interfaces with adjacent RC messaging tools
- Enchantments to existing tools
 - Network Apps (RTCA and Study tool)
 - Outage Management System (OMS) enhancements
 - Enhanced Curtailment Calculator
 - Fully Integrated Tracking tool (FIT), load and weather forecasts, unit commitment, Gen unit information

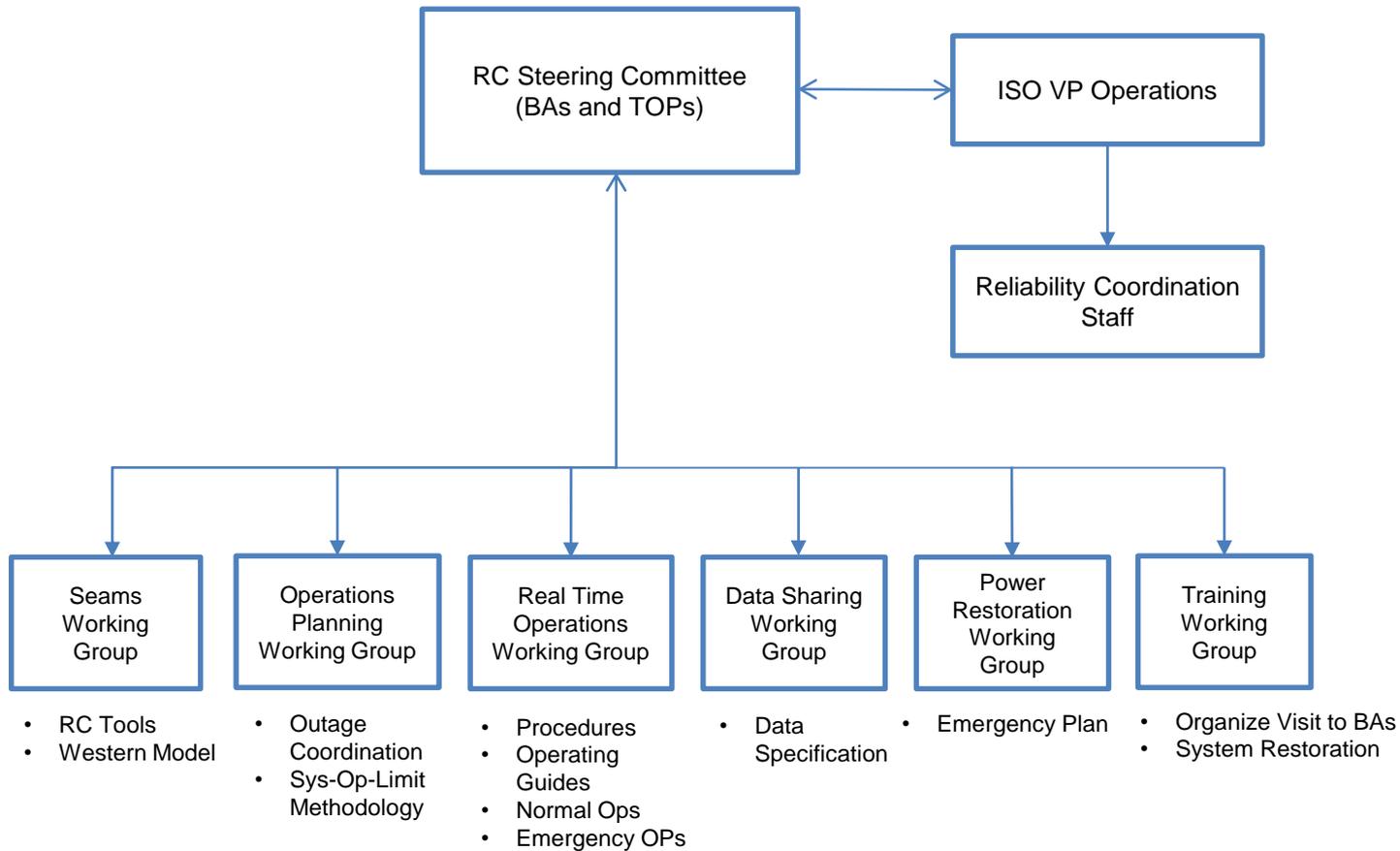
Reliability Coordinators Receive Internal and External Training

- Internal training
 - Standard Operating Procedures
 - IROL Operating Guides training
 - System Simulations Exercises
 - Tool Training
 - Soft skills (Leadership, Conflict Resolution, Communications)
 - Restoration
 - Task Sign offs
- External Training effort
 - Joint training (hosted BA/TOP trainers)
 - Desert SW Training seminars
 - Visited BA/TOPs
 - Peak Restoration Training

Shadow Operations Activities Commence on May 1, 2019

- Readiness criteria established
 - Data Verification
 - BA Monitoring
 - SOL/IROL Monitoring
 - Unscheduled Flow monitoring
 - Outage Coordination
 - Messaging Tool
 - EMS Alarms

Readiness Included: Establishing the RC Steering Committee and Working Groups



Completed 164 RPSC, Working Group, Task Force Meetings

- 35 Standard Operating Procedures
- 12 Operating Guides
- SOL Methodology and Seasonal Assessment Process
- Day Ahead Operations Planning Analysis
- Operations Planning Coordination Process
- IRO-10 Data Specification and Guideline
- Provided Input to CAISO-Peak Coordination Agreement
- RC Readiness Criteria
- Restoration Plan, Principles and Review Process
- Training Program

Coordination with Reserve Sharing Groups

- CAISO RC meet with NWPP and SWRSG to train on RSG processes, reviewed program guides/manuals
- Worked with RTWG members, NWPP and SWRSG to develop Monitoring Frequency and BA Performance procedure
- Developed Situational Awareness Displays

Coordination with Adjacent RCs

- Peak Reliability Org (Peak)
 - Southwest Power Pool (SPP)
 - Alberta Electric System Operator (AESO)
 - British Columbia Hydro (BCH)
 - GridForce
-
- CAISO – Peak RC Coordination Agreement - Completed

Joint RC Coordination Group Formed April 2018

- Members
 - Peak CAISO, SPP, AESO, BCHA, GridForce
 - WEIL - RC Transition Coordination Group (BANC, BPA, SRP, Tri-State, Chelan PUD)
- Focus on reliability of the Western Interconnection with multiple RCs
- West wide tools, methodologies, processes, data sharing
- Seams coordination

Joint RC Subgroups Working on Seams Coordination

- ICCP transitions – Kevin Colmer, CAISO
- ECC/WIT/USFM – Dede Subakti, CAISO
- Messaging tool – Tim Beach, CAISO
- Network modeling – Dede Subakti, CAISO
- Operations planning – Will Tootle, SPP
- Shadow operations – Tim Beach, CAISO
- SOL methodology - Eric Desjardins, BCH
- Synchrophasors – Dede Subatki, CAISO
- IRO-10 RC-RC Data Exchange – Asher Steed, BCH
- Shared tools governance – Nancy Traweek, CAISO

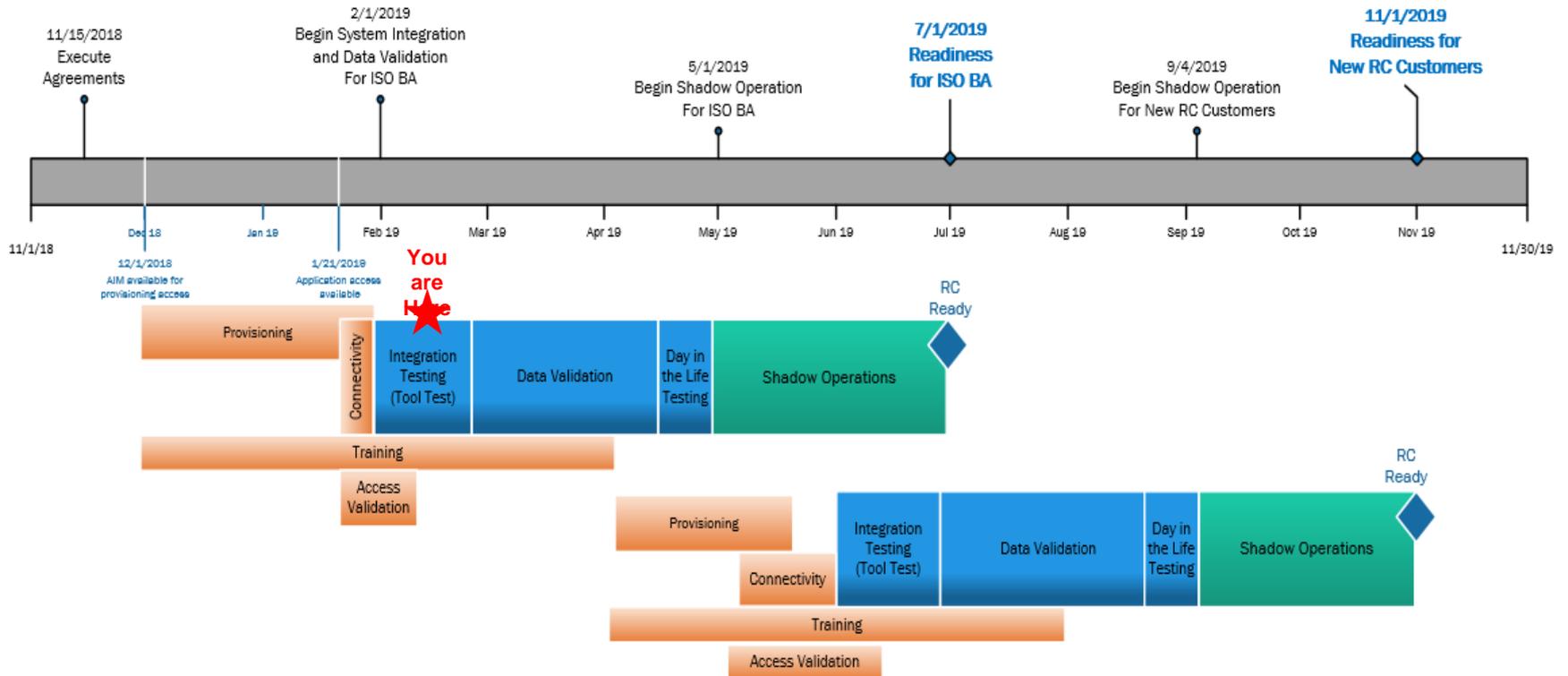
Working with Industry Organizations

- NERC Operating Reliability Subcommittee
 - Reliability plan endorsed
 - Looking at RC metrics
 - Reference documents
- Standard Drafting Team
 - IRO-002, system modeling
- WECC RC forums / summits

RC Customer Onboarding Process Started May 2018

- 140 onboarding webinars held to date
- 28 documents posted for customers including
 - Onboarding Plan
 - Full Network Model Overview
 - Architecture Overview
 - System Integration and Data Validation Overview
 - Communication Plan
 - Onboarding Criteria and Checklists

RC Participant Onboarding Timeline



All July 1 RC Customers EMS Network Model Updates Completed

- CAISO network model currently represents entire WECC footprint.
- CAISO to make incremental updates to the model we have in place for all RC Customers, if needed.
- For each RC Customer,
 - CAISO provides the RC Customer's network model representation
 - RC Customer reviews and returns required incremental updates
 - ISO FNM team will update the network model aligning with one of the existing quarterly update timeline
 - 2018 Q4 in Nov
 - 2019 Q1 in Feb
 - 2019 Q2 in May

Applications Available to Customers Starting February 2019

- CMRI (UI, API)
- ALFS (API)
- RC BSAP (UI, API)
- BSAP (UI, API) for EIM entities only
- EIDE (API)
- GMS (UI)
- RC Portal (UI)
- DARA Report (UI download)
- HANA Base (UI)
- webOMS (UI, API)

Hosted Advanced Network Application (HANA) Update

Gina Wansor, Sr. Client Representative, Customer Experience
California ISO

HANA Update

- 3 Levels of service: Base, Visualization, Study
 - Base: Monitor Real Time Contingency Analysis
 - Provides greater situational awareness
 - Available in time for July 1 as part of RC contract
 - Currently available for RC integration testing for RC West customers
 - Study & Visualization: Add-on services
 - 20 customers have requested HANA Services
 - Entities with their own RTCA/Study Tools may not need these level
 - Utilizes CAISO RC West Network Model
 - Readiness for December 2019

HANA Update

- Training:
 - HANA Working Group webinar 2 weeks ago
 - Basic features and demo on the HANA Base UI
 - Material available on RC Collaboration Site
 - Future webinars
 - Tentatively scheduled April 2019
 - Updates in Track 3 Onboarding webinars
 - HANA Computer Based Training – May 2019
 - HANA Classroom Training – August 2019
 - Train the Trainer format
 - More details to come

Update: RC Certification

Tricia Johnstone, Sr. Advisor Operations Compliance and Integration, System
Operations
California ISO

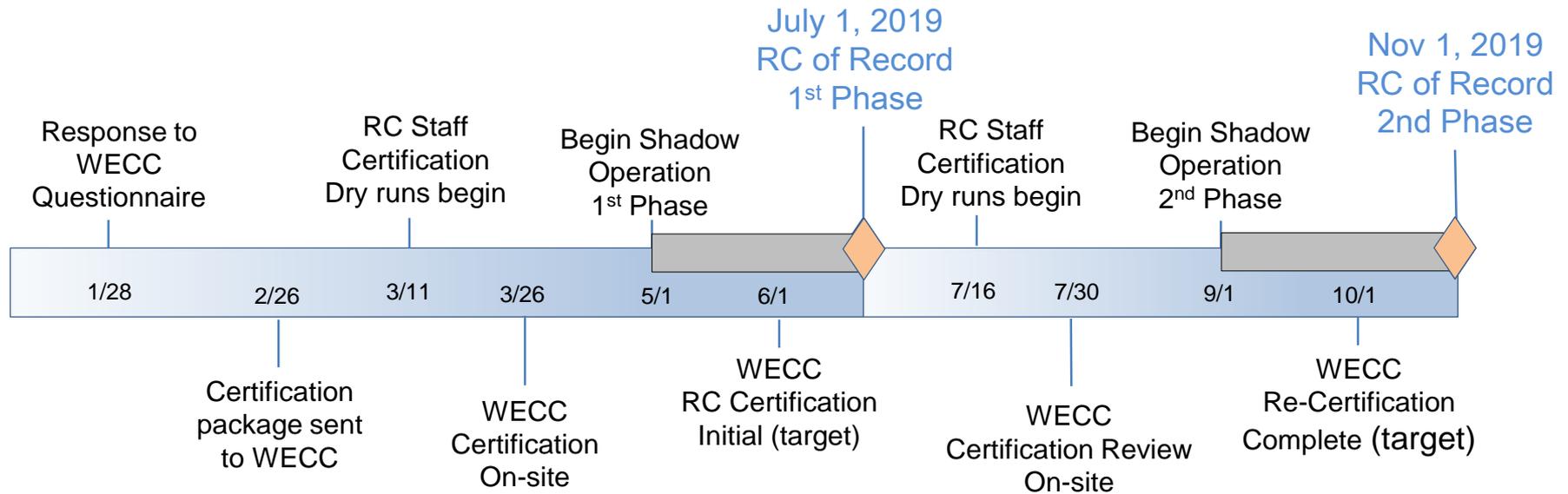
Certification Process Overview

- NERC has responsibility for the process and for effective and consistent implementation throughout the 8 regional entities.
- WECC (Regional Entity) has responsibility for execution of process, oversees Certification Team (CT), data collection, development of report and approval of entity certification.
- Certification Team (CT) reviews evidence, develops questions and requests for entity response, interviews entity and comments on report.

RC Certification Team

- NERC Rules of Procedure (ROP) Appendix 5A requires the RC Certification Team (CT) to have representation from:
 - Existing RC (4)
 - Balancing Authority and Transmission Operator in the proposed RC area (5)
 - Regional Entity (WECC) (2 Ops & Planning, 12 CIP)
 - NERC (2)
- Additional members may be added as necessary (2)
- Entities such as government representatives or other stakeholders may be observers in the certification process (7) (CEC, WIEB, FERC, NRDC, WECC)

California ISO Reliability Coordinator West Certification Timeline



Progress To Date

- Responses to 125 Question – Per Certification Questionnaire
- Submitted 200 pieces of evidence
 - Standards 35 total – CIP = 10, OPS = 25 (7 new)
 - Requirements 377 total – CIP = 160, OPS = 217
 - 45 RC Operating Procedures, Operating Guides, Methodologies, Processes
- Delivery and Training on Expanded Tools
- Pre-Certification Dry Runs

March 26 – 28 - RC CT On-Site Visit

- On-site review of capabilities required to perform the functions and meet the requirements of an RC:
 - Processes, procedures, tools, training and personnel
- Agenda
 - CT and RC West opening presentations
 - Subject Matter Expert interviews for all applicable NERC standards
 - RC Operator interviews and demonstrations at work stations
 - Debrief presentation with findings and suggestions

Future Agenda Items

- Determine agenda topics for next public session on April 17, 2019

Note: Stakeholders can submit agenda topic suggestions for upcoming meetings. Submit to <https://www.surveymonkey.com/r/RCWOCagenda> at least two weeks prior to the next public meeting. Topics may or may not be discussed.

Public Comment