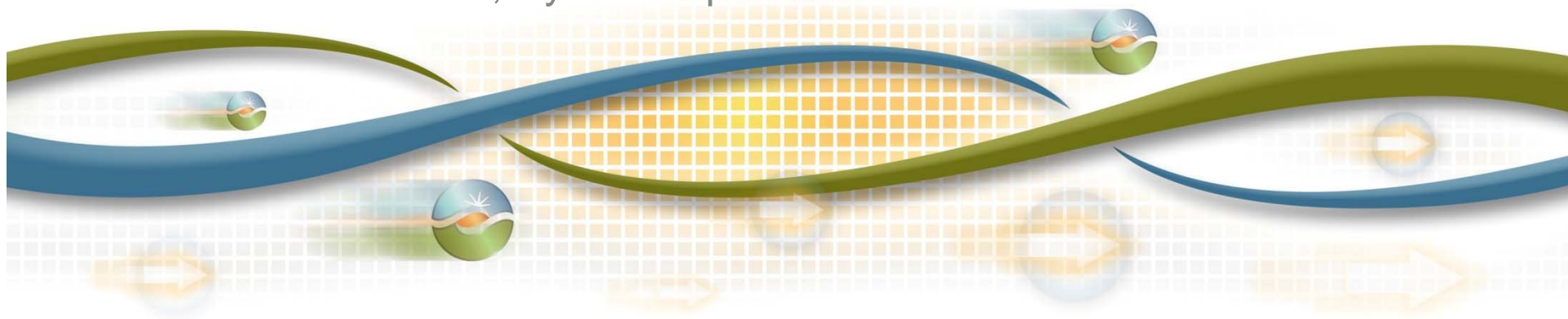




November 9, 2016 Frequency Event

WECC / NERC Lessons Learned Webinar
March 28, 2017

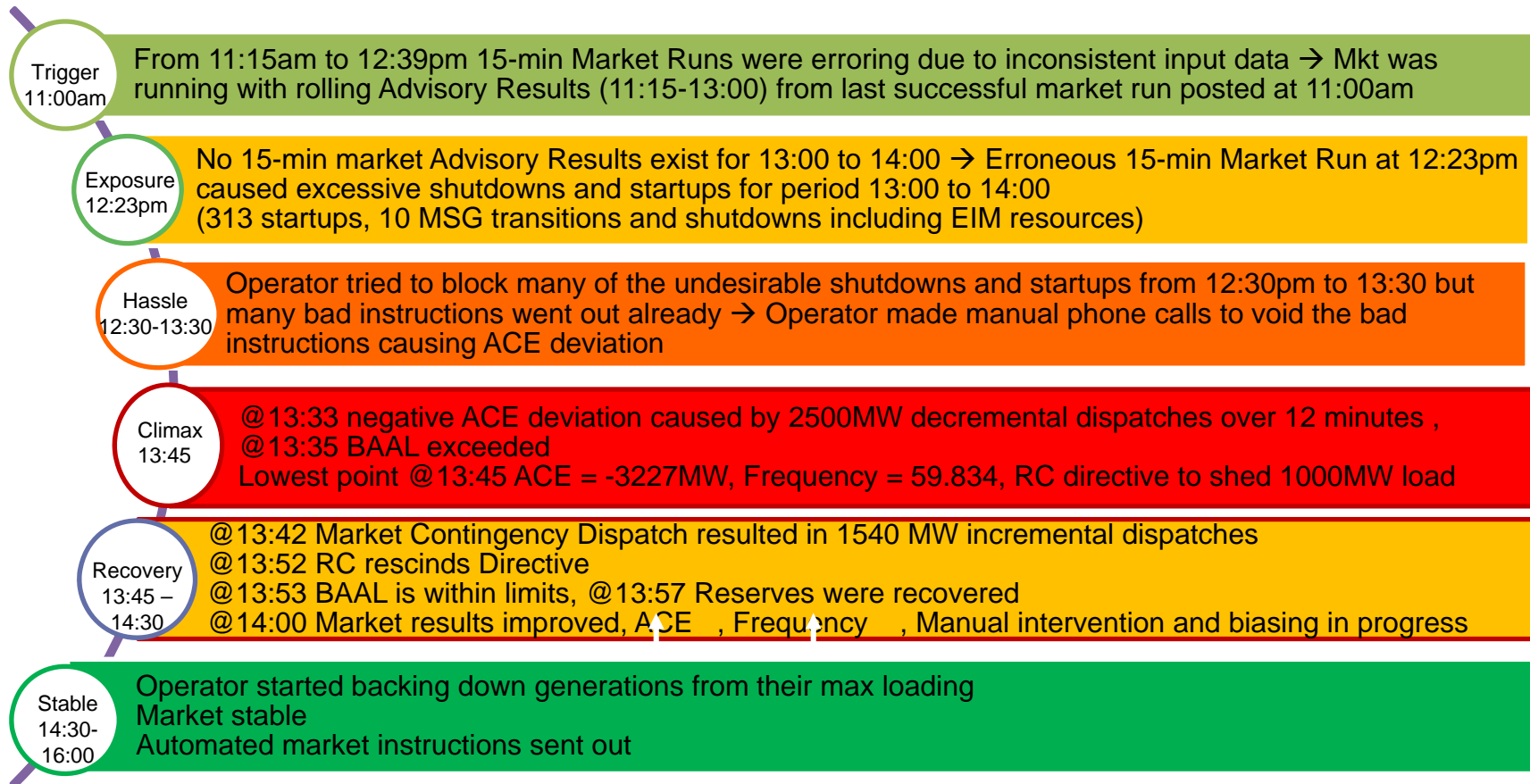
Nancy Traweek
Executive Director, System Operations



Post Event - Actions

- The ISO Compliance Department performed a compliance self-assessment of all potentially-affected standards using the Compliance Assessment Report template suggested in the NERC Compliance Monitoring and Enforcement Implementation Plan.
- Completed Brief Incident Report - Submitted to WECC on 11/28/16
- Postmortem review of Lessons Learned with identified actions
- Completed Lessons Learned Report – Submitted to WECC on 01/23/17
- Responded to questions from Operations Integration Working Group (OIWG)
- Provided presentation/discussion via webinar to WIRAB on 2/17/17
- Provided presentation/discussion to WECC OC on 3/21/17

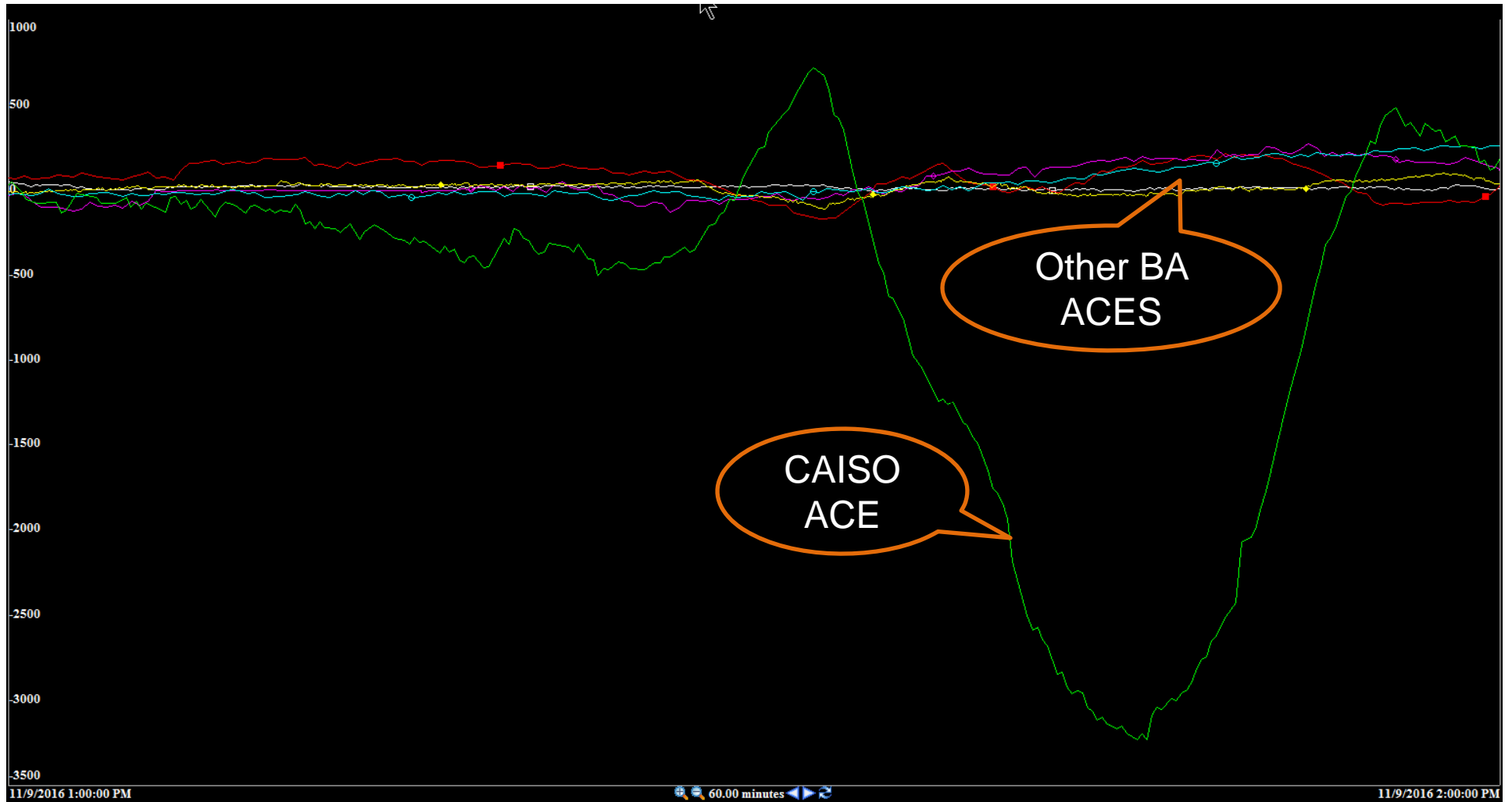
November 9th, 2016 Event



ACE, Hz & Total Generation, 13:30 – 14:00



Event mostly contained within the CAISO



Postmortem Finding and Actions

Finding	Actions	
Inconsistent nomogram data transfer due to a de-linked parent/child relationship	<ul style="list-style-type: none"> Resolve Data transfer – link parent/child as one transfer 	<ul style="list-style-type: none"> Completed
Operator Displays Slow to Respond	<ul style="list-style-type: none"> Redesign display logic 	<ul style="list-style-type: none"> Completed Real Time Display 5 other displays in progress
Abort Attempt blocked broadcast but transferred instruction to the market	<ul style="list-style-type: none"> The “abort” button must be clicked before the review instruction countdown is completed 	<ul style="list-style-type: none"> Completed – Reviewed during training
Improve timely market updates to account of manual intervention	<ul style="list-style-type: none"> Lessons Learned training for Operators (include Technology support staff) 	<ul style="list-style-type: none"> Completed – Reviewed during training

Postmortem Finding and Actions

Finding	Actions	Status
Auto-Block mechanism does not include Startup/Shutdowns	<ul style="list-style-type: none"> Enhance auto block functionality to include max number of start-ups/shutdowns 	<ul style="list-style-type: none"> In progress – anticipated prior to summer 2017
Market interprets “no advisory results” as de-commitment	<ul style="list-style-type: none"> Improve the market optimization resiliency when experiencing data quality issues to use previous good solution 	<ul style="list-style-type: none"> In progress – anticipated prior to summer 2017
Enhance Operator awareness of market system conditions	<ul style="list-style-type: none"> Provide situational awareness via new display 	<ul style="list-style-type: none"> In progress – anticipated prior to summer 2017
Enhance Operator Displays for Emergency functionality	<ul style="list-style-type: none"> Design a “emergency” screen that only contains the critical buttons 	<ul style="list-style-type: none"> In progress – anticipated prior to summer 2017

Postmortem Finding and Actions

Finding	Actions	Status
Some resources have very fast or infinite ramp rate	<ul style="list-style-type: none">• Determine the fastest ramp rate the system can absorb considering the remaining fleets ramp capacity.	<ul style="list-style-type: none">• Future Analysis
Consider adding frequency responsiveness requirement to non-conventional resources	<ul style="list-style-type: none">• Determine policy / standard change is needed to require frequency responsiveness	<ul style="list-style-type: none">• Future Analysis



Questions ?