

# Overview of 2018 Report of the Statewide Advisory Committee on Cooling Water Intake Structures

Prepared by the Inter-Agency Working Group

SACCWIS Meeting

March 5, 2018

# Agenda

- Background
- Progress towards goals
- Water Usage by the OTC Fleet
- Relevant Actions by CEC, CPUC, and ISO
- Update on Existing OTC Plants & Generator Plans
- Recommendations & Next Steps

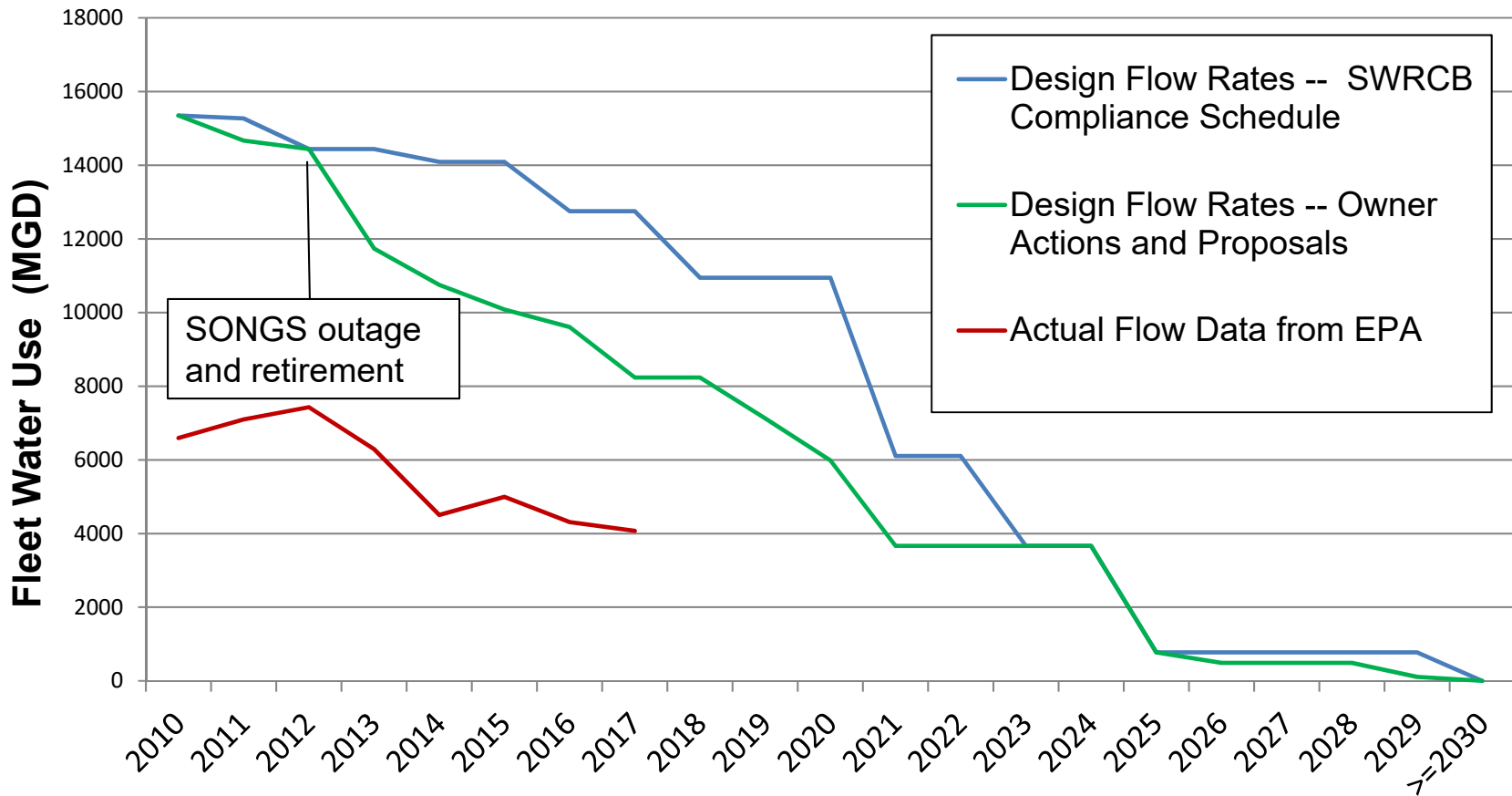
# OTC Compliance and Infrastructure Planning

- SACCWIS annual review of adopted OTC facility compliance dates for infrastructure realities is a key element of adopted OTC policy
- CPUC, ISO and CEC continue to assess resource, infrastructure and reliability needs:
  - CPUC Long-Term Procurement Plan (LTPP)
  - ISO Transmission Planning Process (TPP)
  - CEC Application for Certification Process (AFC)

# Once-Through Cooling Compliance Achievement

Facility & Units	NQC	Compliance Date	Retirement Date
Humboldt Bay 1, 2	135	Dec. 31, 2010	Retired Sept. 30, 2010
South Bay	296	Dec. 31, 2011	Retired Dec. 31, 2010
Potrero 3	206	Oct. 1, 2011	Retired Feb. 28, 2011
Huntington Beach 3, 4	452	Dec. 31, 2020	Retired Nov. 1, 2012
Contra Costa 6, 7	674	Dec. 31, 2017	Retired April 30, 2013
El Segundo 3	335	Dec. 31, 2015	Retired July 27, 2013
Haynes 5, 6	318	Dec. 31, 2013	Retired June 13, 2013
San Onofre 2, 3	2,246	Dec. 31, 2022	Retired June 7, 2013
Morro Bay 3, 4	650	Dec. 31, 2015	Retired Feb. 5, 2014
El Segundo 4	335	Dec. 31, 2015	Retired Dec. 31, 2015
Scattergood 3	497	Dec. 31, 2015	Retired Dec. 31, 2015
Pittsburg	1,159	Dec 31, 2017	Operations ceased Dec 31, 2016
Moss Landing 6, 7	1,509	Dec. 31, 2020	Retired January 1, 2017
Encina 1	106	Dec 31, 2017	Retired March 1, 2017
Mandalay 1, 2	430	Dec 31, 2020	Retired February 6, 2018

# Historic and Projected Water Usage Combined OTC Fleet



Source: CEC and SWRCB Staff

# Compliance Plans for Remaining Units

Facility & Units	NQC	Compliance Date	Owner proposed Compliance Method
Alamitos 1,2,6	848	Dec. 31, 2020	Plans to retire on Dec.31, 2019 to allow Alamitos be repowered
Alamitos 3,4,5	1,163	Dec. 31, 2020	Retire units
Encina Units 2-5	844	Dec. 31, 2018	Retire units by compliance date
Harbor 5	229	Dec. 31, 2029	Plans to repower on Dec.31,2029
Haynes 1, 2	444	Dec. 31, 2029	Plans to repower on Dec.31,2025
Haynes 8	575	Dec. 31, 2029	Plans to repower on Dec. 31, 2028
Huntington Beach 1	215	Dec. 31, 2020	Plans to retire on Dec. 31, 2019
Huntington Beach 2	215	Dec. 31, 2020	Retire unit
Moss Landing 1, 2	1,020	Dec. 31, 2020	Track 2 *
Ormond Beach 1, 2	1,516	Dec. 31, 2020	Retire Units
Redondo Beach 7	493	Dec. 31, 2020	Plans to retire on Oct 1, 2019 to allow Huntington Beach repower
Redondo Beach 5,6,8	848	Dec. 31, 2020	Retire units
Scattergood 1, 2	367	Dec. 31, 2024	Plans to repower by Dec 31, 2024

\* Track 2 of the OTC Policy to reduce impingement and entrainment

## CEC Actions

- Alamitos – AFC was approved by the CEC on April 12, 2017.
- Huntington Beach – AFC was approved by the CEC on April 12, 2017.
- Redondo Beach – AFC is currently suspended.
- NRG Puente – AFC is suspended until May 1, 2018.

## CPUC Actions

- Approved contracts for a total of 2,087 MW of capacity in SCE territory
  - 1,644 MW of gas fired generation
  - 443 MW of preferred resources and energy storage
  - 54.5 MW of resources under review
- Approved 500 MW re-power of Encina Power Station in SDG&E territory
- Operational 300 MW from Pio Pico in SDG&E territory



# ISO Actions

- Continued facilitation of Board Approved Transmission Projects
  - Synchronous Condensers in service at Talega, Miguel and San Luis Rey (SDG&E territory) and Santiago (SCE service territory). Huntington Beach synchronous condensers retired.
  - Two other SDG&E territory and one SCE territory transmission projects are expected from July 2018 through 2022.
- The Draft 2017-2018 Transmission Plan (TPP) indicates that the authorized resources and previously-approved transmission projects are working together to meet the reliability needs in the LA Basin and San Diego areas.
- The Draft 2017-2018 TPP recommends approval of an alternate solution in the Moorpark and Santa Clara subareas due to the retirement of Mandalay and to allow Ormond Beach to retire.
- The ISO's 2018 Local Capacity Technical Analysis was posted on May 1, 2017, and submitted to the SWRCB.

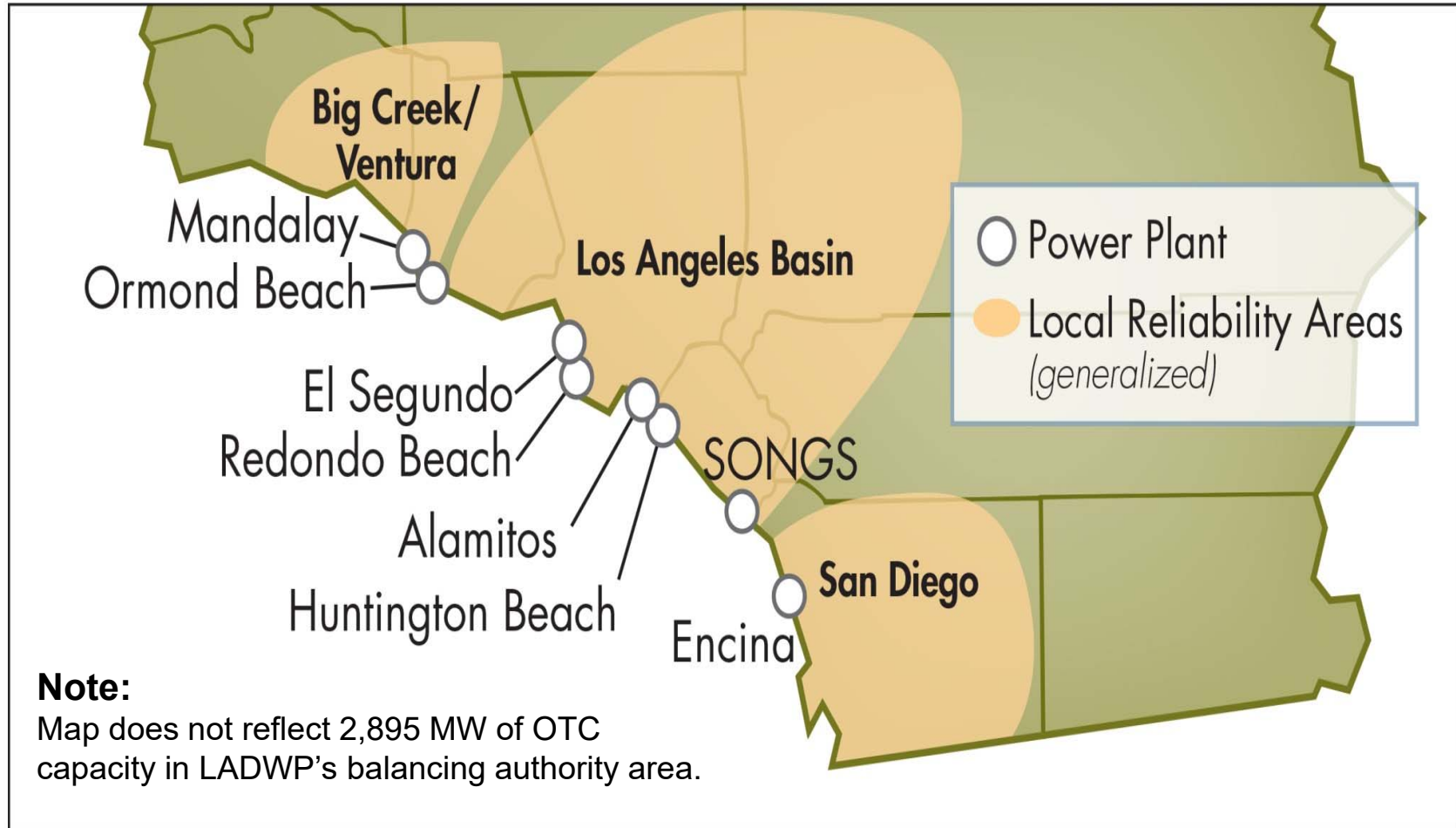
# Moss Landing (2017, 2020)

- Moss Landing is single largest power generating facility in CA
  - Units 6 & 7 are old steam boilers, 750 MW each
  - Units 1-2 are new combined cycles, 510 MW each
- Units 6 & 7 retired December 31, 2016
- Variable speed drive controls on Units 1-2 completed December 16, 2016
- Units 1 & 2 are scheduled for Track 2 compliance by December 31, 2020
  - All construction is expected to occur during scheduled maintenance outages (no dual unit outages anticipated)
  - Track 2 is not expected to impact operating range in MW of units or maximum achievable capacity factor.
- SACCWIS does not recommend a change in compliance dates

## Ormond Beach (2020)

- Consists of two steam boiler units with total combined capacity of 1,486 MW
- CPUC authorized 215-290 MW in area where Ormond Beach and Mandalay are located (i.e., Moorpark subarea)
- Settlement with SWRCB in October 2014 determined Track 1 compliance infeasible
- January 19, 2018, NRG confirmed its intent to retire the facility by its compliance date with no further operations
- SACCWIS does not recommend a change in compliance dates

# Los Angeles Basin and San Diego Local Capacity Areas



# Encina (2018)

- Consists of five steam boiler generating units using once-through cooling with an aggregate capacity of 950 MW.
- May 21, 2015, the CPUC approved 500 MW of the 600 MW originally requested - allocated remaining 100 MW to preferred or energy storage
- November 2015 CEC approved 600 MW Carlsbad Energy Center Project (CECP)
- February 23, 2017, SACCWIS adopted the Encina deferral request and a recommendation that the SWRCB defer the OTC compliance date for Encina Units 2-5 from December 31, 2017 to December 31, 2018.
- August 15, 2017, the State Water Board adopted the SACCWIS recommendation.
- On November 30, 2017, the Office of Administrative Law approved the OTC policy change.
- NRG is on track to complete the CECP by Q4 2018 to allow for retirement of the remaining Encina OTC units by December 31, 2018.

# Redondo Beach (2020)

- Consists of four units; total capacity is approximately 1,300 MW
- Proposed repowering project is a natural-gas fired, combined-cycle, air-cooled electrical generating facility with net generating capacity of 496 MW
- AFC suspended November 2015
- Unit 7 is scheduled to shut down October 31, 2019 in advance of the OTC Policy compliance date
- Units 5, 6, and 8 are scheduled to shutdown December 31, 2020, on the OTC Policy compliance date.
- SACCWIS does not recommend a change in compliance dates

# Alamitos (2020)

- Six units with a total capacity of approximately 2,000 MW and an OTC compliance date of December 31, 2020
- November 2014 AES awarded 640 MW PPA with SCE
  - Units 1, 2, and 6 are expected to be retired early on December 31, 2019
  - Units 3, 4, and 5 are expected to retire by December 31, 2020 compliance date
- April 12, 2017 Application for Certification (AFC) was approved by the CEC
- Construction is underway and on track to be online April 2020.
- SACCWIS does not recommend a change in compliance dates at this time

# Huntington Beach (2020)

- Units 3 and 4
  - Retired October 31, 2012 and converted to synchronous condensers to provide voltage support in 2013
  - Both synchronous condensers shut down and retired on December 31, 2017
- Units 1 and 2
  - Capacity of 226 MW with an OTC Policy compliance date of December 31, 2020.
  - RA contract has been executed that would extend the operation of Huntington Beach units 1 and 2 through December 31, 2019 and December 31, 2020 respectively
  - Will be shut down and permanently retired at those contract end dates
- Repowering project - Awarded a PPA for 644 MW capacity with a planned initial delivery date of May 1, 2020
- Petition to Amend (PTA) was approved by the CEC on April 12, 2017.
- Construction is underway and on track to be online April 2020
- SACCWIS does not recommend a change in compliance date at this time



# Conclusions

- No additional recommendations for compliance date are proposed at this time.
- ISO and CPUC have authorized resources to ensure reliability.
- ISO, CEC, and CPUC will continue to monitor developments and perform additional analyses with most recent data available to ensure reliability.
  - To the extent that any proposed plans do not come to pass, staff is evaluating timelines necessary to form a contingency, which could be procuring new resources or deferring existing deadlines.
- The Water Board should recognize that it may be necessary to modify final compliance dates for some generating units.