Overview of 2016 Report by Statewide Advisory Committee on Cooling Water Intake Structures

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OTC Progress and Reliability Assessment

- SACCWIS annual review of OTC facility compliance dates
- CPUC, ISO and CEC continue to assess resource, infrastructure and reliability needs
Power Plants Phasing Out Once-Through Cooling
Current Status
Overview

• 7 plants achieved compliance - some early

• 7 plants are on track to achieve compliance

• 4 plants bear watching, and may not meet deadlines

• *1 plant (Diablo) has just announced plans to retire
Historic and Projected Water Usage by the Combined OTC Fleet
Important Pending Actions

CEC

– Licensing proceedings for Alamitos, Huntington Beach, and Mandalay/Puente

– Suspended licensing proceedings for El Segundo and Redondo Beach
Important Pending actions

CPUC

– Commission Decision for Carlsbad is under review by the Court of Appeal
– CPUC approval of repowering projects at Alamitos and Huntington Beach have also been challenged in the Court of Appeal
– SCE’s proposed Puente power plant (replacing Mandalay) and preferred resource applications in Big Creek/Ventura area are under CPUC review
Important Pending Actions

CAISO

– Mesa Loop-In project ties 500kV transmission to load serving circuits in Western LA Basin

– Potential delay of Mesa Loop-In transmission project to 2021 could result in need for temporary extension of Redondo Beach or Alamitos OTC compliance dates

– ISO will be conducting additional sensitivity studies in 2016 to determine impact of potential delay of online date for Carlsbad Energy Center
Pittsburg
Pittsburg (2017)

• Units 5-6 are twin 340MW; Unit 7 is 720MW
• NRG intends to eliminate OTC at Units 5 and 6, and retire Unit 7, but needs PPA (CPUC decision)
• Pittsburg may not be required for local capacity needs once four transmission line upgrades are implemented
  – 3 of 4 of these upgrades will be completed by 12/31/2017
  – The ISO is assessing need with only 3 upgrades

SACWIS does not recommend a change in compliance date
Moss Landing (2020)

- Units 5-6 are old steam boilers, 750MW each; Units 1-2 are new combined cycles, 500MW each

- Dynegy stated intent to pursue Track 2 compliance

- CAISO assumes that plant is operated under high peak load conditions for the Greater Bay Area

- Dynegy plans to install variable speed pumps and drive controls on Units 1-2 by December 31, 2016 deadline to comply with the SWRCB OTC Policy
El Segundo (2015)

- El Segundo Unit 3 was retired August 1, 2013 and was replaced by 560 MW CCGT; Units 1 and 2 previously retired

- El Segundo 4 retired December 31, 2015 and is in compliance
Redondo Beach
Redondo Beach (2020)

• Consists of four units; 1,300 MW total
• Proposed repowering project dropped by AES
• CEC licensing suspended November 2015
• AES did not receive a PPA
• AES plans to use some Redondo Beach air credits to repower Huntington Beach
• CAISO 2015-16 TPP indicates that potential delay of Mesa Loop-In beyond June 2021 could result in need for temporary extension of Redondo Beach or Alamitos compliance dates

SACCWIS does not recommend a change in compliance dates
Watch List

• Huntington Beach
• Alamitos
• Mandalay/Puente
• Encina/Carlsbad
Huntington Beach (2020) - Watch

- AES submitted an application to CEC to repower
  - CEC licensed two combined cycles totaling 939 MW in October 2014
  - In September 2015, AES submitted a Petition to Amend the existing license at Huntington Beach for 644 MW CCGT and 200 MW peakers

- CPUC approved 644 MW PPA in June 2016

- AES plans to retire Unit 1 by December 31, 2019 to facilitate the replacement facility by May 2020, and Huntington Beach Unit 2 will retire by end of 2020

SACCWIS does not recommend a change in compliance date at this time
Ormond Beach (2020)

- Two units combined capacity of 1,486 MW
- CPUC authorized 215-290 MW in the area where Ormond Beach and Mandalay are located
- SCE selected a 262 MW repower of Mandalay, which the CPUC has approved
- Following preparation of the SACCWIS report, NRG revised its plans, and now will comply by retiring no later than December 31, 2020

SACCWIS does not recommend a change in compliance dates
Mandalay
Mandalay (2020) - Watch

- Units 1 & 2 OTC; 215 MW each
- NRG:
  - Intends to build Puente Power Project, 262 MW peaker to replace Units 1 & 2 by June 1st, 2020 in the existing Mandalay site
  - An application with CEC in April, 2015; and application for air permits in March, 2015 – both applications under review
- ISO modeling 262 MW project as well as 12.5 MW of preferred resources to replace both Mandalay and Ormond Beach generation
- CEC is processing an application for certification for a competing project, Mission Rock Energy Center, which does not have a power purchase agreement

SACWIS does not recommend a change in compliance dates
Alamitos (2020) - Watch

- Existing six OTC units totaling 2,010 MW
- October 2015 AES applied to CEC to repower with a single 640 MW combined cycle, 300 MW energy storage, plus 400 MW peakers
- CPUC approved 640 MW PPA in November 2015
- AES expects to retire some OTC capacity prior to 12/31/2020 to meet air pollution requirements
- Delay of Mesa Loop-In beyond June 2021 could result in need for temporary extension of Redondo Beach or Alamitos compliance

SACCWIS does not recommend a change in compliance dates
Encina (2017) - Watch

- Five OTC units with an aggregate capacity of 950 MW
- CEC licensing of replacement at Carlsbad is complete
- CPUC Decision under review by Court of Appeal
- NRG expects delay of Carlsbad online date to winter 2017-2018 (Q1 2018)
- CAISO will study summer 2018 to determine if some Encina capacity is needed for local reliability
- SACCWIS will continue to monitor and bring forward any recommended compliance date change based on more complete information, but does not recommend a change in compliance dates at this time
Conclusions

• No recommendations for compliance date changes, but some facilities require watching

• CAISO, CEC, and CPUC believe IOU procurement authorizations are sufficient to maintain reliability, but will continue to monitor developments and perform additional analyses with most recent data available

  – To the extent that any proposed plans don’t come to pass, staff is evaluating timelines necessary to form a contingency, which could be procuring new resources or deferring existing deadlines

• Recent analyses - not all OTC units need to be replaced

• It may be necessary to modify final compliance dates for specific generating units