

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

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Executive Director  
California Energy Commission  
August 2, 2016

# 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



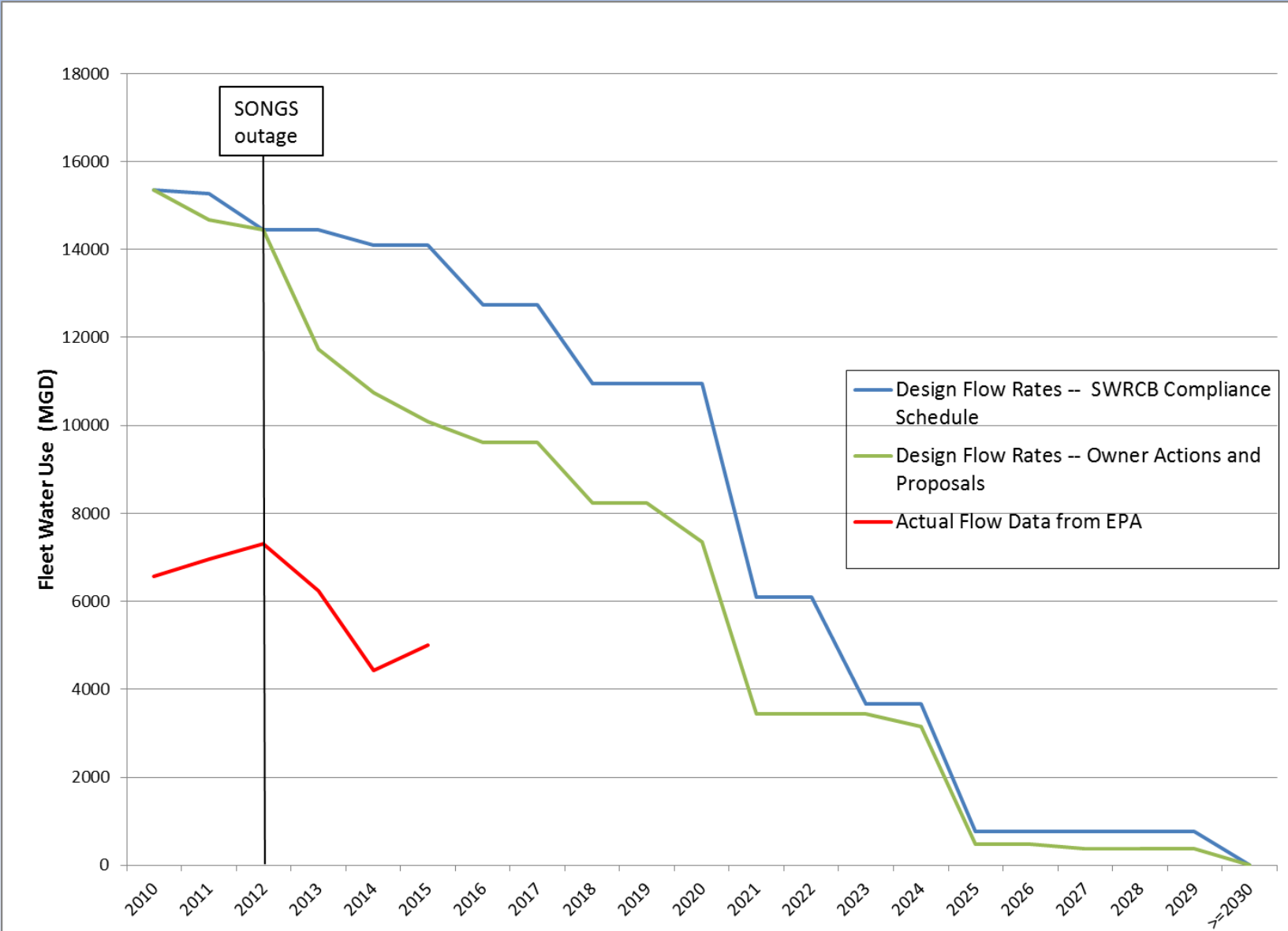
# Current Status



# 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



1993

Imagery Date: 4/1/2015 38°02'05.23" N 121°54'10.08" W elev 1 ft eye alt 10276 ft

# 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

**SACCWIS does not recommend a change in compliance date**



# Moss Landing



Moss Landing, CA

Google earth

1949

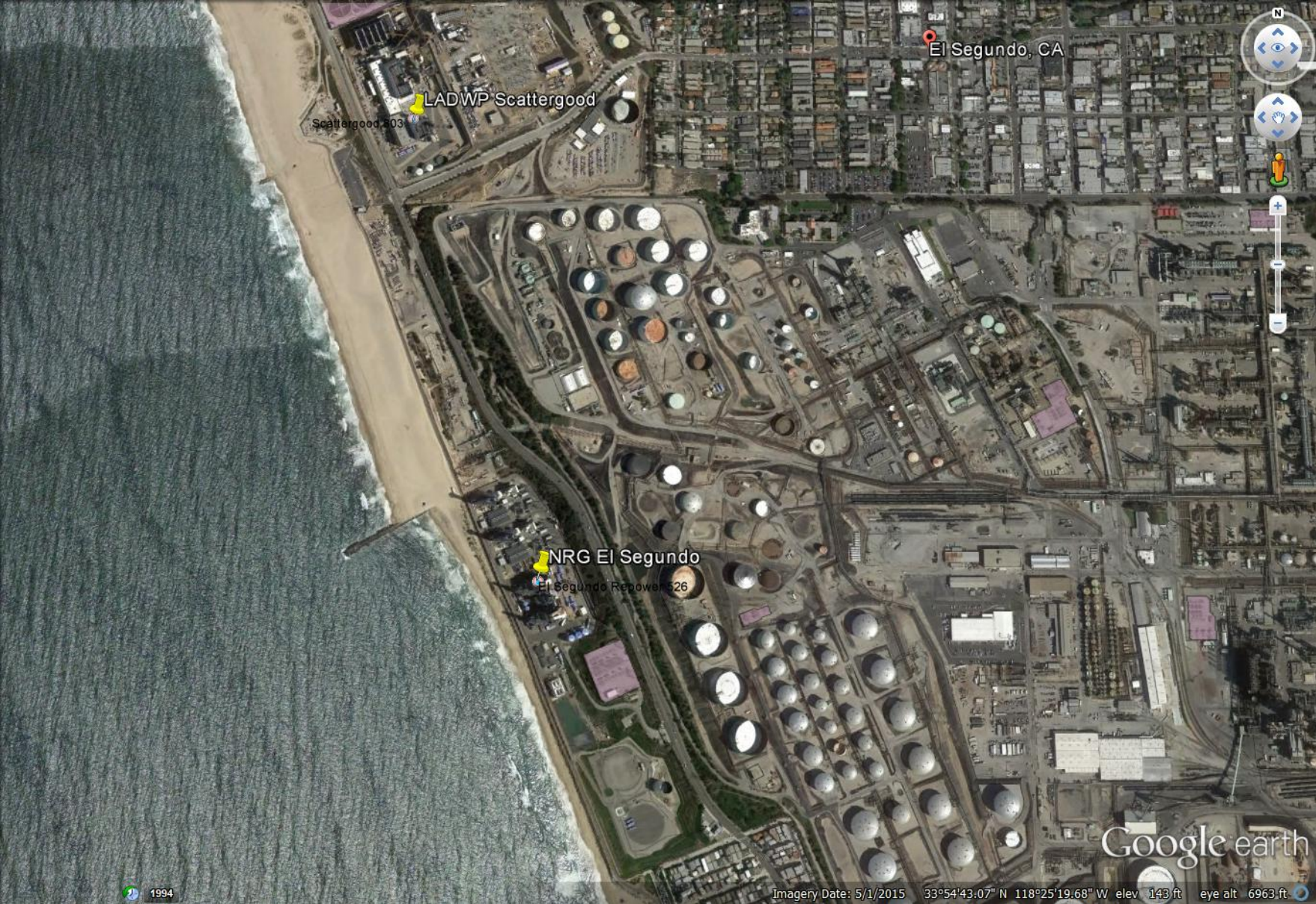
Imagery Date: 4/13/2015 36°48'20.83" N 121°46'55.57" W elev. 30 ft eye alt. 5957 ft

# 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



Scattergood 303  
LADWP Scattergood

NRG El Segundo  
El Segundo Repower 526

El Segundo, CA

Google earth

1994

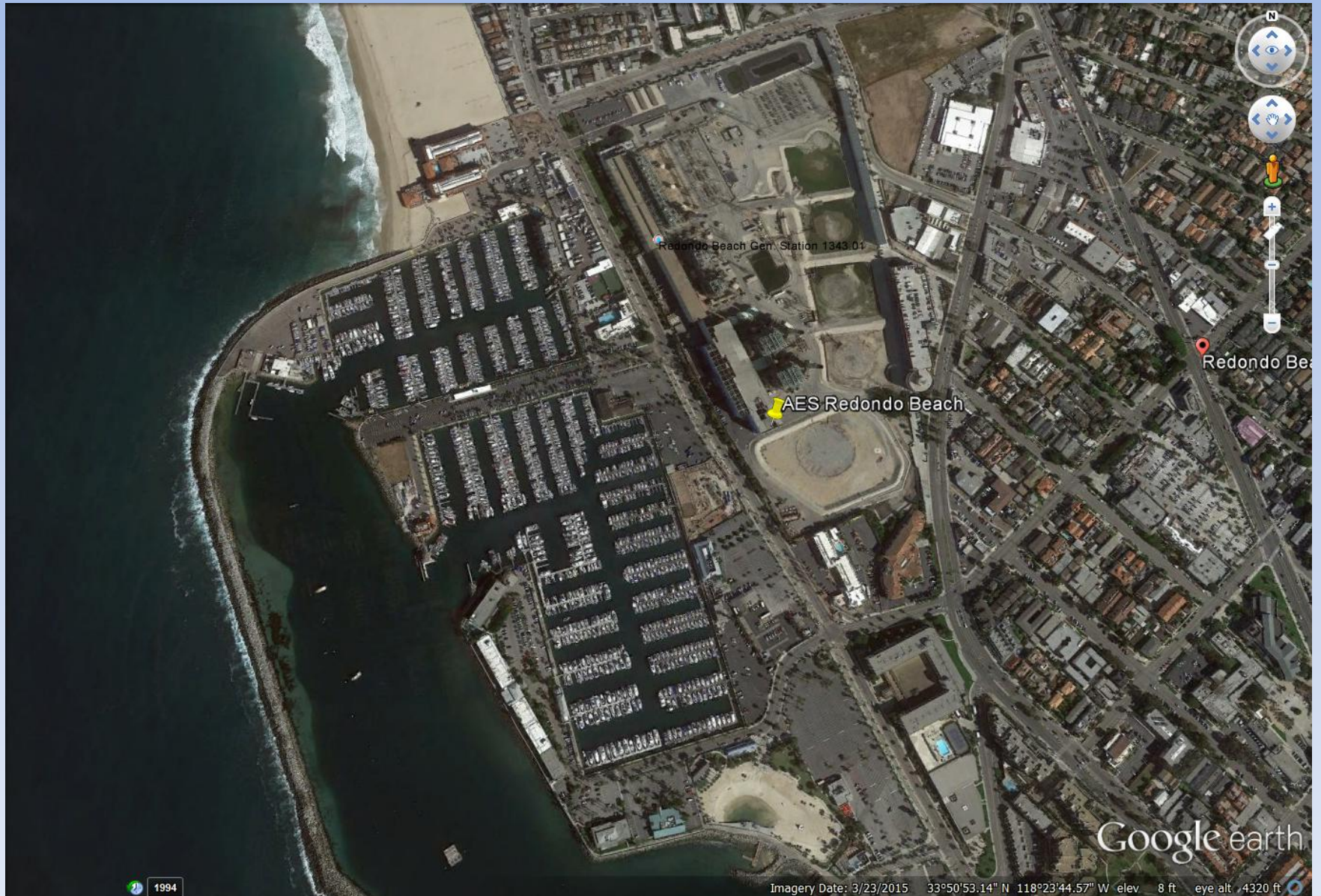
Imagery Date: 5/1/2015 33°54'43.07" N 118°25'19.68" W elev. 143 ft eye alt 6963 ft

# 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)

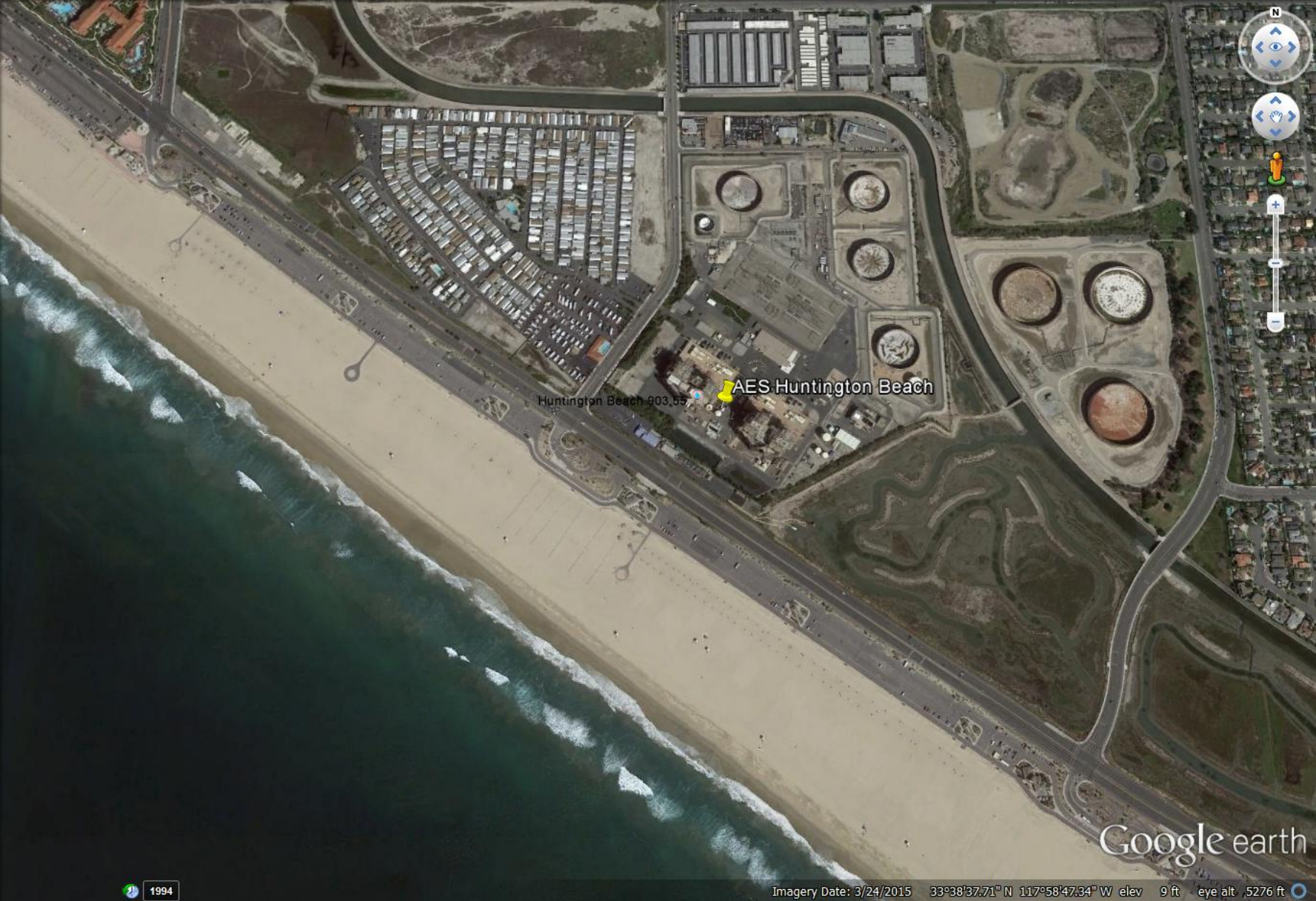
- Consists of four units; 1,300 MW total
- Proposed repowering project dropped by AES
- CEC licensing suspended November 2015
- AES did not receive a PPA
- AES plans to use some Redondo Beach air credits to repower Huntington Beach
- CAISO 2015-16 TPP indicates that potential delay of Mesa Loop-In beyond 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



Huntington Beach 903.55

AES Huntington Beach

Google earth

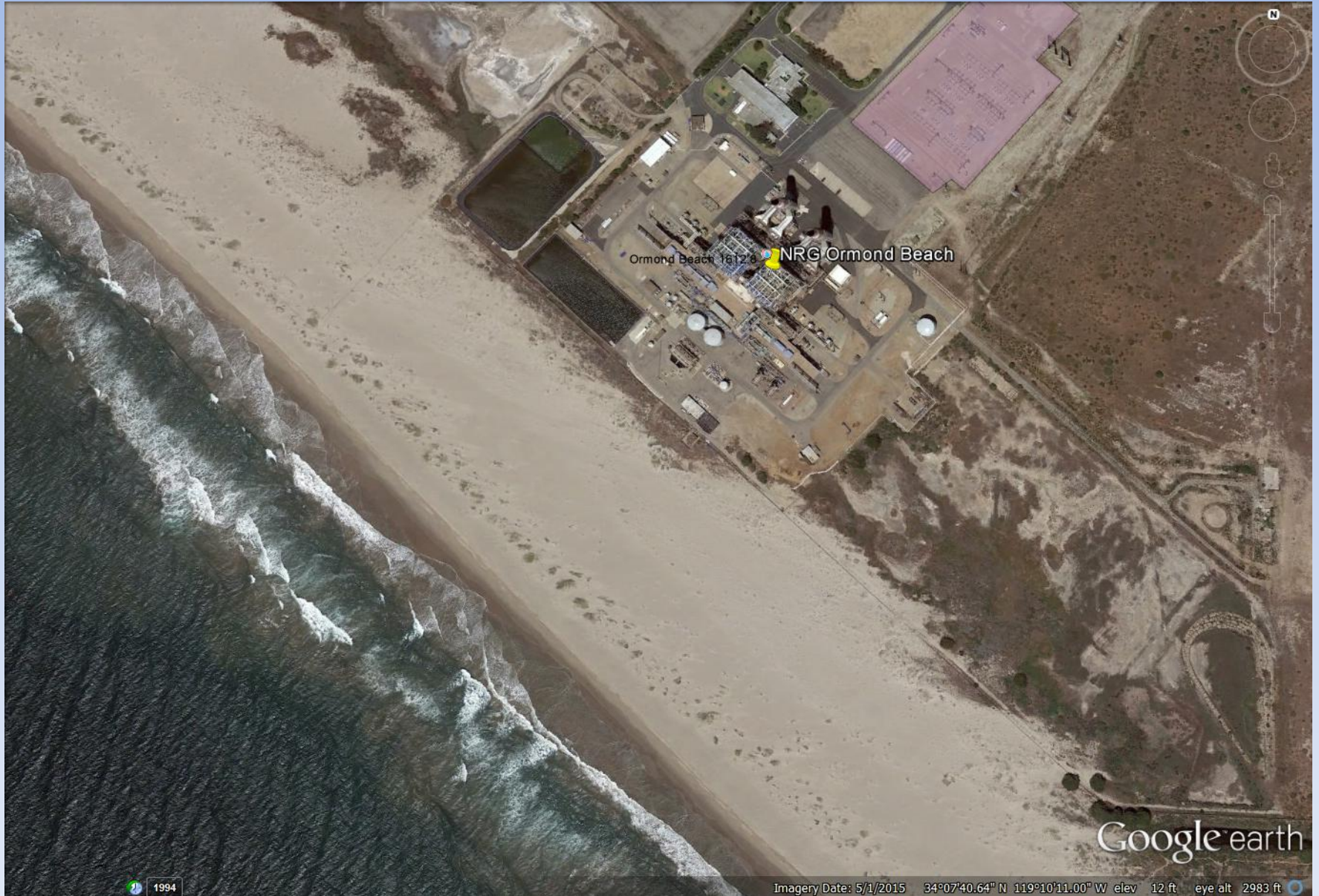
# Huntington Beach (2020) - Watch

- 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



# 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



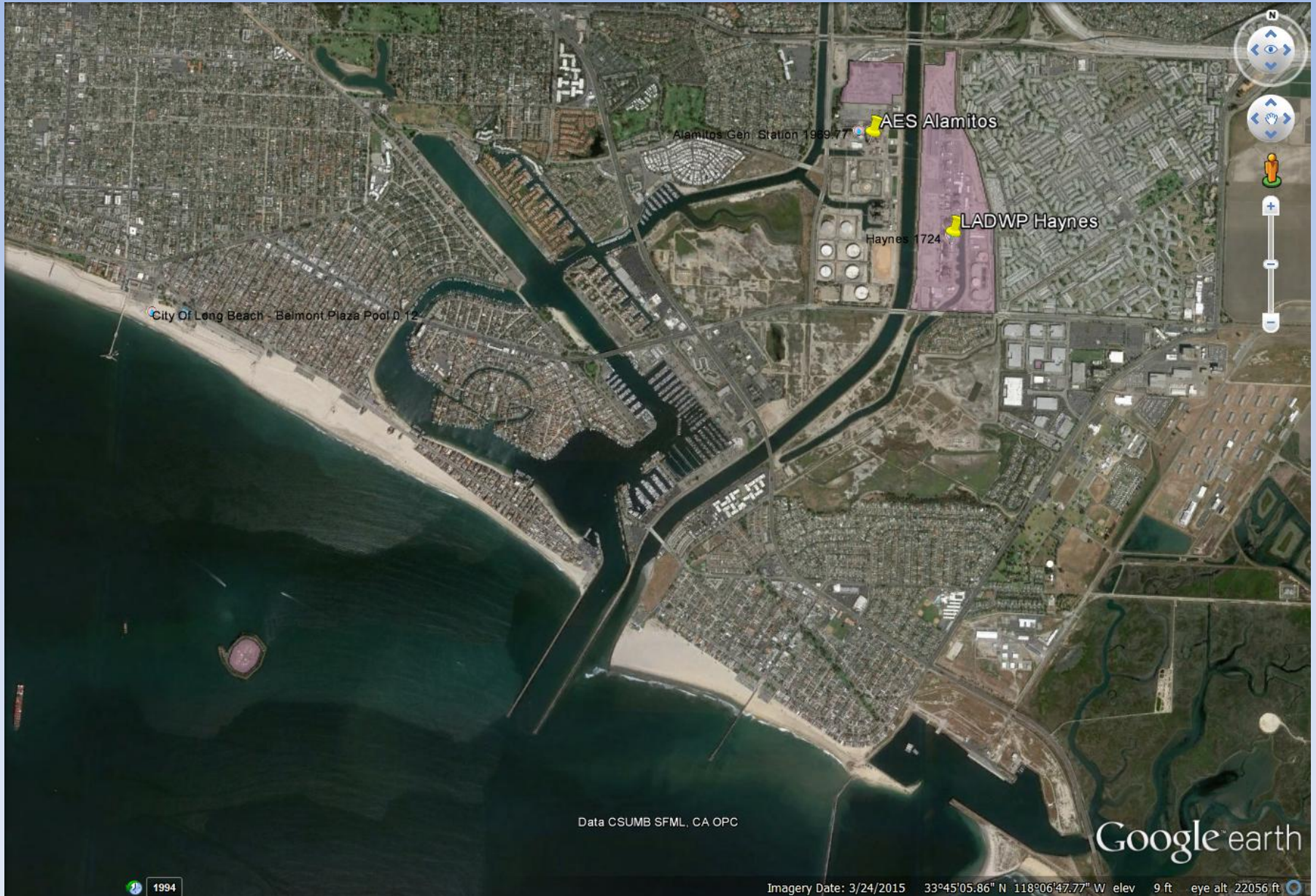
# Mandalay (2020) - Watch

- 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

**SACCWIS does not recommend a change in compliance dates**



# Alamitos



Data CSUMB SFML, CA OPC

Google earth

1994

Imagery Date: 3/24/2015 33°45'05.86" N 118°06'47.77" W elev 9 ft eye alt 22056 ft

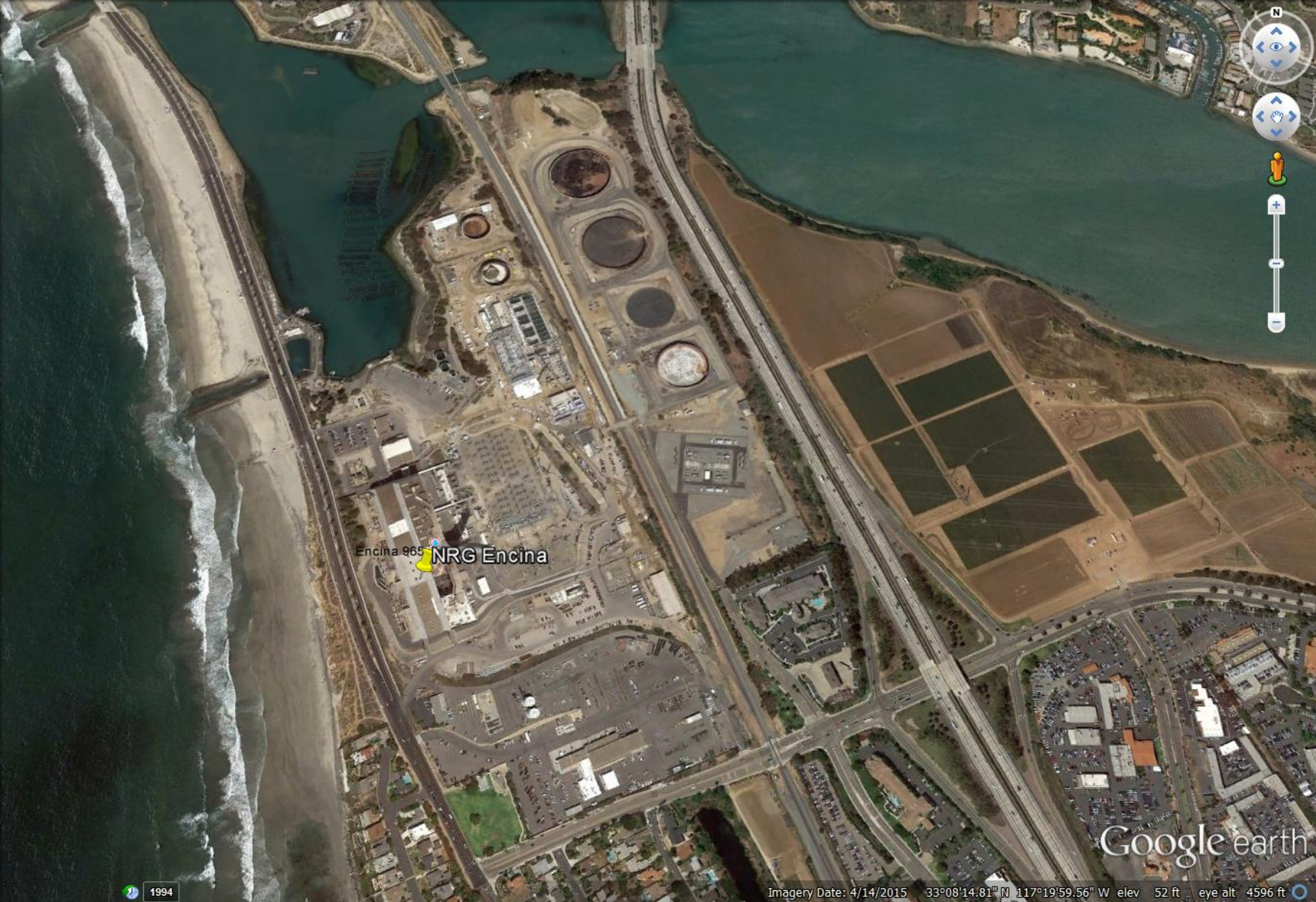
# Alamitos (2020) - Watch

- 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



# 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