

## DOCKETED

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Project Introduction  
Mission Rock Energy Center  
CEC Informational Hearing  
*July 28, 2016*



CLEAN MODERN EFFICIENT FLEXIBLE POWER GENERATION

## ABOUT CALPINE

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- Developer, Owner & Operator
- Fleet of over 27,000 MW throughout America
- One of the nation's cleanest generators of natural gas and geothermal power
- Largest geothermal power producer in America
- Provides California with about 15% of its renewable energy
- 1,000 MW of wind power in development today

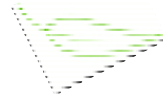


## OUR PHILOSOPHY

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- Commitment to environmental excellence in power generation
- Leader in use of recycled water and minimizing water use throughout our CA fleet
- Safety is a top priority throughout our organization
- Community engagement and support where Calpine's people live and work is an important part of Calpine's culture

## Environmental Leader



Calpine has been an early and consistent supporter of state and federal initiatives to reduce pollutants and GHG emissions from power plants.

- Supported AB 32
- Supported SB 350
- Supportive of Clean Power Plan
- Attended Paris Climate Summit with Governor Brown delegation
- Lone energy producer to file Amicus Brief in support of EPA's right to regulate greenhouse gas emissions from power plants in *Murray Energy*
- Supported Governor's Executive Order to requiring the state to reduce GHG emissions 40% below 1990 levels by 2030

# What is the Mission Rock Energy Center?



## Innovative Peaking Facility for Local Reliability

### *3 Ways to Serve the Grid*

- ❑ 5 natural gas turbine generators at 55 MW each for 275 MW of capacity
- ❑ Clutch system offers voltage support without turbines in operation
- ❑ 25 MW battery stores and delivers 100 MWhrs of electricity





# Mission Rock Energy Center - View Simulation



# Why Choose a Peaking Facility?



## Highly Flexible Operating Capabilities to Serve Changing Grid Needs

- ❑ Supports renewables integration by always being available
- ❑ Quick starting (< 10 minutes) technology responds rapidly to changes
- ❑ Can maintain transmission grid integrity with or without turbines running

### Gas Turbines

- Clean - Turbines meet Best Available Control Technology (BACT)
- Safe - Fueled by same natural gas used in homes and businesses
- Reliable - Millions of operating hours in energy and aircraft use

### Batteries

- Store excess renewable power when demand is lower and shift delivery to later in the day when demand is higher

### Clutch

- Lets generators run as Synchronous Condensers without having to operate the gas turbines - no fuel consumption

# LAND USE



# GRID RELIABILITY



# INTERCONNECTIONS





# Mission Rock Site Selection Evaluation



## CRITERIA

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- Land Use: *Respect local land use decisions already in place*
  - Are there properly zoned sites that ALSO have compatible neighboring industries?
- Grid Reliability: *Identify the point of interconnection that's most effective for grid reliability*
  - Is there a reasonable route from the site to the point of interconnection?
- Interconnections: *Locate nearest sources for other necessary interconnections*
  - Can natural gas, recycled water and waste water discharge connections be secured over a relatively short distance?

## EVALUATION RESULTS

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- Proposed site is on properly zoned (M3) heavy industrial
  - No zoning change required and neighboring industries are compatible with energy generation
- Southern California Edison's Santa Clara Substation is believed to be the most effective point of interconnection for a local capacity resource
  - The substation is approximately 4.5 miles northwest of Mission Rock and most of the of the route either parallels existing transmission lines or is visually screened
- Natural gas and recycled water connections are 2 and 1.7 miles west respectively; can be accessed via buried pipeline and a waste water discharge line runs past the northern fence line
  - Potable/domestic water connection is already in place; no sanitary sewer connection needed

# Mission Rock Energy Center- Land Use

*Approximately 10 acres zoned heavy industrial (M3) in unincorporated Ventura County*

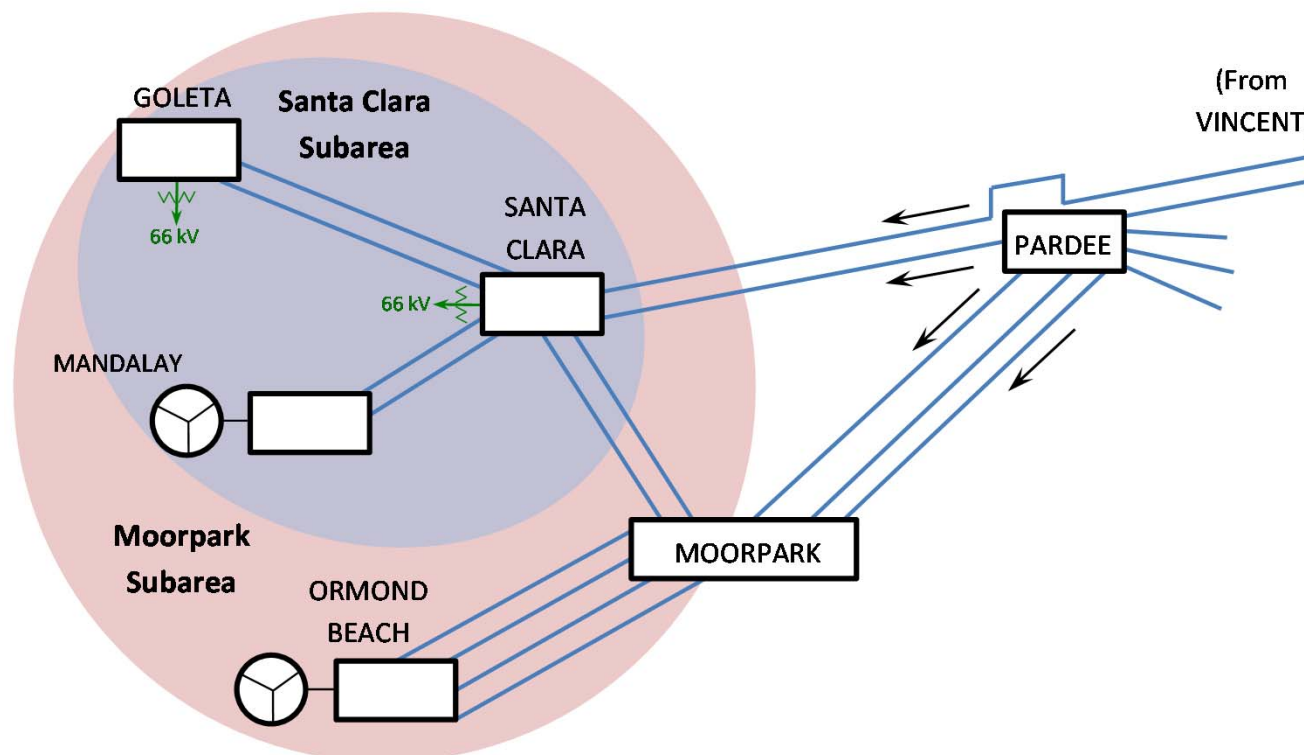


- Brownfield Site; completely paved
- Currently operated as a RV and Boat storage business
- Adjacent businesses include:
  - Auto salvage
  - Oil field services
  - Asphalt plant
  - Agriculture



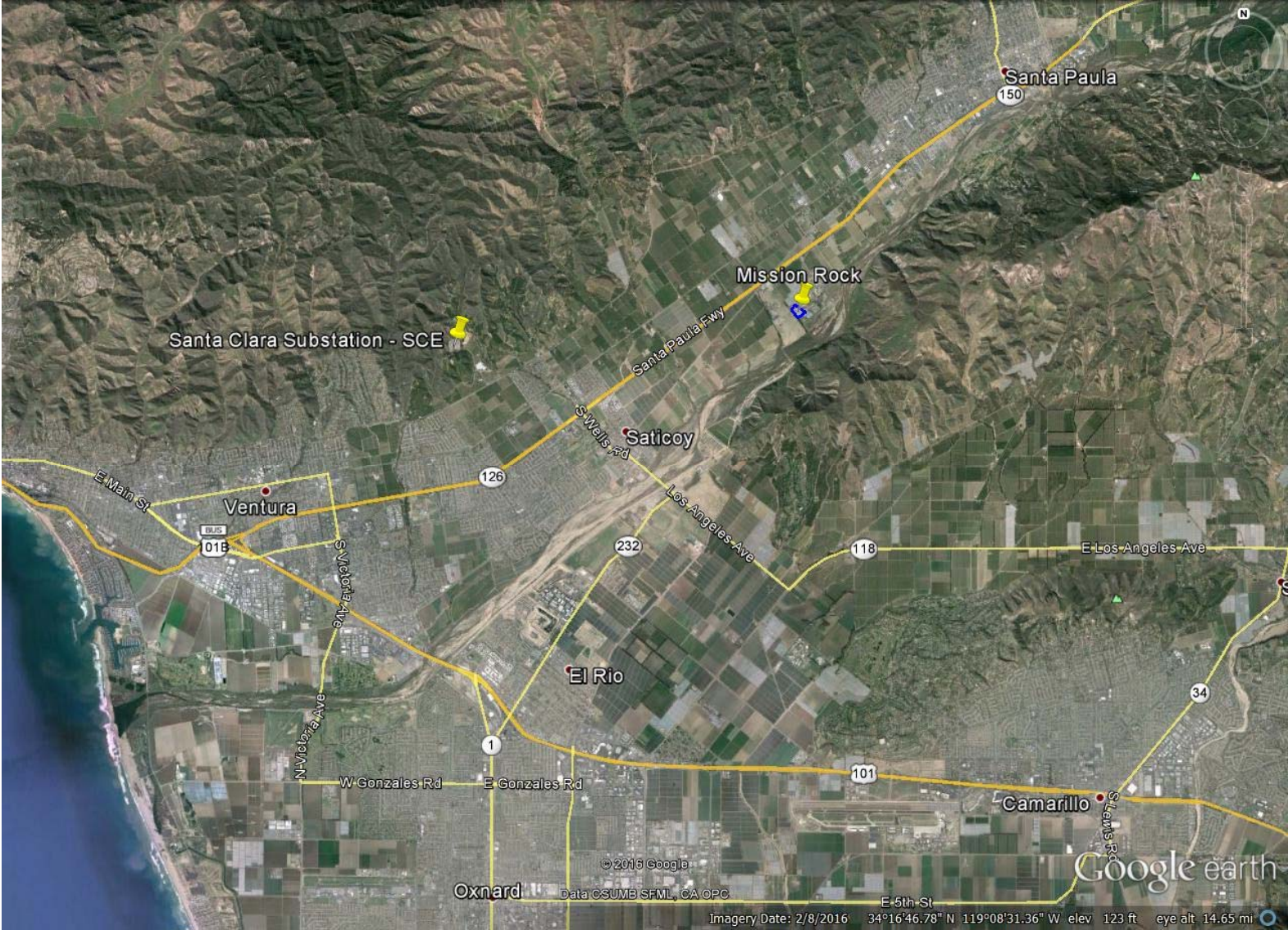
# Mission Rock Energy Center - Grid Reliability

- Retiring Coastal Plants create a need for new local generation resources
- In 2010, the State Water Resources Control Board (SWRCB) ordered coastal power plants to stop using ocean water for cooling in a practice known as Once Through Cooling (OTC)
  - Ormond Beach (1600 MW) and Mandalay (400 MW) plants are both OTC facilities





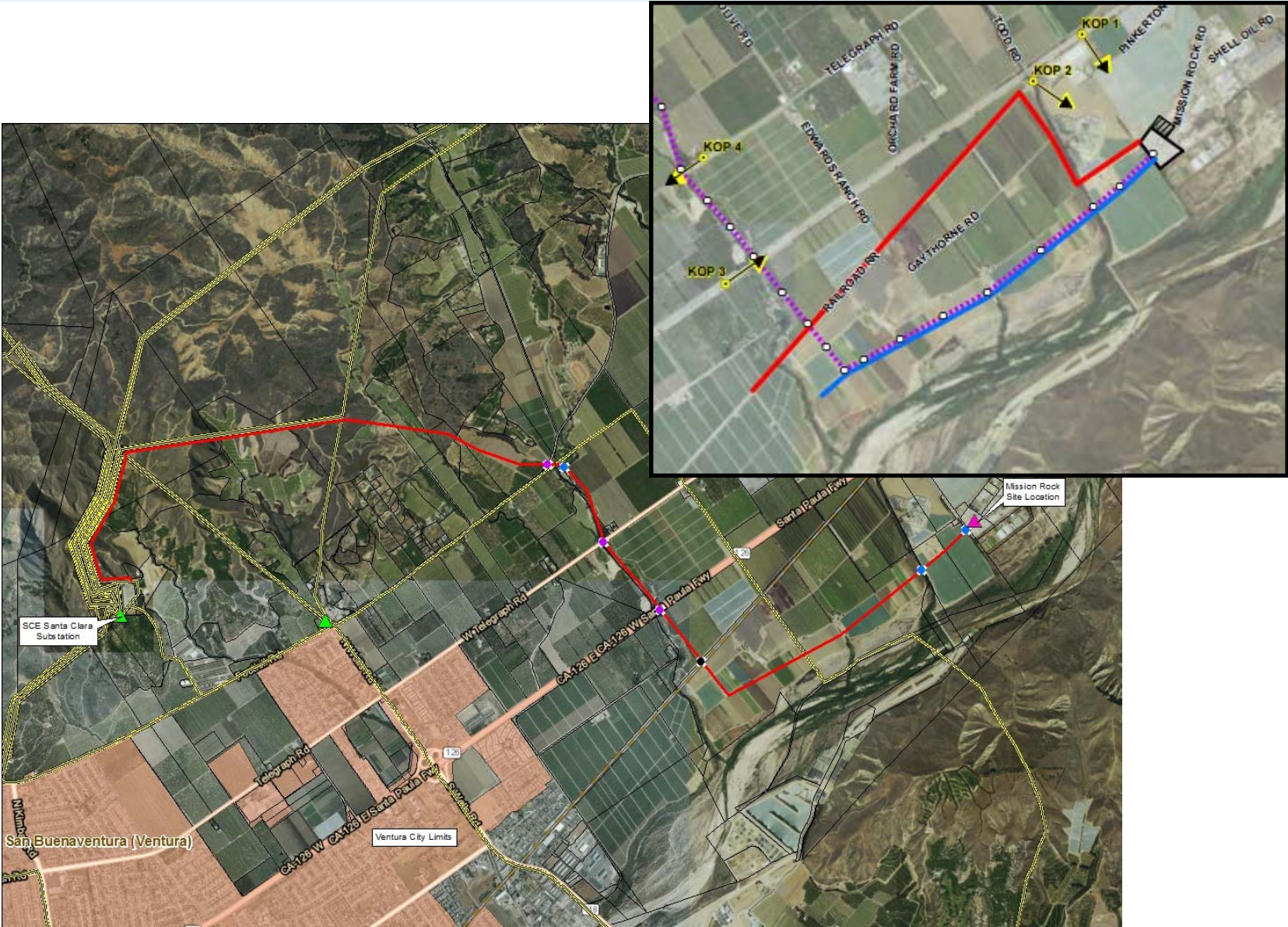
# Mission Rock Energy Center - Location





# Mission Rock Energy Center - Interconnections

Gen-Tie Line, Gas Line & Recycled Water Line





# Mission Rock Energy Center - Location

View from 126 west of Briggs Road Exit - KOP1





# Mission Rock Energy Center - Next Steps



## NEED FOR NEW GENERATION

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- 2,000 MW of old, inefficient generation on the coast is set to retire by 2020
- The amount of generation needed to support the grid and the desired attributes of that generation are determined by statewide agencies and the local utility:
  - CAISO, CPUC, CEC, and SCE

*A modern power grid that is dependent on renewable resources needs a back-up source of reliable generation to ensure the availability of energy.*

*Mission Rock Energy Center is well suited to provide that reliability.*

## PERMITTING - will comply with applicable Laws, Ordinances, Regulations & Standards!

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- Complete environmental review with CEC as the “Lead Agency” for California Environmental Quality Act (CEQA) review of thermal generation  $\geq$  50 MW
- Air Permit from Ventura County Air Pollution Control District (VCAPCD)
  - Must install Best Available Control Technology (BACT)
  - Meet all National Ambient Air Quality Standards (NAAQS)

## JOBS

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- Mission Rock has negotiated Labor Agreements with the Trades; signatures pending
- Estimated 23-month construction period with approximately 175 construction jobs and 440,000+ labor-hours
- Approximately 16 new full time, living wage jobs with annual payroll of more than \$2.5 million

## LOCAL REVENUE

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- Annual property tax of approximately \$3,000,000 with over \$1,000,000 going to Briggs Elementary School and Santa Paula High School combined and nearly \$500,000 to the Fire Protection District
- Estimated operations and maintenance budget is \$1,300,000 which includes significant local commerce
- Transmission line easement payments of \$200,000 per year to the Limoneira Foundation dedicated exclusively to charitable contributions in Santa Paula



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