<table>
<thead>
<tr>
<th><strong>Docket Number:</strong></th>
<th>12-AFC-03</th>
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</thead>
<tbody>
<tr>
<td><strong>Project Title:</strong></td>
<td>Redondo Beach Energy Project</td>
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<tr>
<td><strong>TN #:</strong></td>
<td>200746</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>AES RBEP Presentation for CEC Informational Mtg Oct 1 2013</td>
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<tr>
<td><strong>Description:</strong></td>
<td>AES RBEP Presentation from Oct 1, 2013 CEC Meeting</td>
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<tr>
<td><strong>Filer:</strong></td>
<td>Karen Mitchell</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>Ellison, Schneider &amp; Harris L.L.P.</td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
<td>Applicant Representative</td>
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<tr>
<td><strong>Submission Date:</strong></td>
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<td><strong>Docketed Date:</strong></td>
<td>10/4/2013</td>
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The AES Corporation

Safely providing affordable, sustainable energy to 23 countries on five continents

- U.S. based company with a diverse portfolio of generation technologies
- Global leader in renewables, energy storage and natural gas technologies – over 50% of portfolio
- Directly serve nearly 11 million customers worldwide
- Responsible developer of over 20,000 MW across >50 projects globally
- Over 30 year operating history in California
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<th>Why Modernize the Redondo Beach Generating Station?</th>
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<tbody>
<tr>
<td><strong>Environmental Goals</strong></td>
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<tr>
<td>➢ Eliminates ocean water use</td>
</tr>
<tr>
<td>➢ Employs Best Available emissions Control Technology</td>
</tr>
<tr>
<td>➢ Exceeds carbon reduction targets</td>
</tr>
<tr>
<td><strong>Infrastructure Upgrades</strong></td>
</tr>
<tr>
<td>➢ Necessary for renewable energy</td>
</tr>
<tr>
<td>➢ Operate only when needed</td>
</tr>
<tr>
<td>➢ Up to 50% more efficient</td>
</tr>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>➢ Generation needs to be located close to population centers</td>
</tr>
<tr>
<td>➢ Twice as effective as inland plants</td>
</tr>
<tr>
<td>➢ Existing site and infrastructure</td>
</tr>
<tr>
<td><strong>Community Benefits</strong></td>
</tr>
<tr>
<td>➢ Reinvents the sky-line</td>
</tr>
<tr>
<td>➢ Revitalizes the harbor</td>
</tr>
<tr>
<td>➢ Repurposes land</td>
</tr>
</tbody>
</table>
LA Basin Local Reliability Area

Eastern Region

Major Power Plants

Western Region

Source: California Independent System Operator.
When the Energy Supply Falls Short, Natural Gas Bridges the Gap
When the Energy Supply Falls Short, Natural Gas Bridges the Gap
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When the Energy Supply Falls Short, Natural Gas Bridges the Gap

MORNING DEMAND

NATURAL GAS CAN FILL THE GAP

EVENING DEMAND

SOLAR GENERATION

WIND GENERATION
Redondo Beach Project Objectives

- Modernize a 60 year old plant
- Remove existing facility and free up nearly 75% of site for alternative use
- Create a sustainable business that supports California in achieving its clean energy and environmental goals
- Help minimize consumer electricity costs
Existing Plant Site
Proposed Modernization Project
3-on-1 CCGT Power Block
~500 MW output
Three Mitsubishi 501DA gas turbines
Three 501DA gas turbines
~122 MW power output
3-on-1 CCGT Power Block
~500 MW output
Three Mitsubishi 501DA gas turbines
~122 MW power output
Condensing steam turbine generator
~151 MW power output
3-on-1 CCGT Power Block

- ~500 MW output
- Three Mitsubishi 501DA gas turbines
- ~122 MW power output
- Condensing steam turbine
- Generator
- ~151 MW power output
- Condensing steam generator
- 3 Heat Recovery Steam Generators (HRSGs)
Air Cooled Condenser
3-on-1 CCGT Power Block
~500 MW output
Three Mitsubishi 501DA gas turbines
~122 MW power output
Condensing steam turbine
~151 MW power output
Condensing steam generator
3 Heat Recovery Steam Generators (HRSGs)
Air Cooled Condenser
3-on-1 CCGT Power Block
~500 MW output
Three Mitsubishi 501DA gas turbines
~122 MW power output
Condensing steam turbine generator
~151 MW power output
Condensing steam generator
3 Heat Recovery Steam Generators (HRSGs)
Air Cooled Condenser
A 3-on-1 Combined Cycle Gas Turbine (CCGT) Power Block with ~500 MW output consists of:

- Three Mitsubishi 501DA gas turbines, each with ~122 MW power output
- A Condensing steam turbine and generator, providing ~151 MW power output
- Three Heat Recovery Steam Generators (HRSGs)
- An Air Cooled Condenser
Existing Plant Site
View from Moonstone Park, looking east
Proposed Modernization Project

Existing Plant Site
View from Moonstone Park, looking east

AES
Redondo Beach
Existing Plant Site
View from Herondo Street
Existing Plant Site
View from PCH and Herondo, looking southwest
Proposed Modernization Project
Existing Plant Site
View from Broadway and Beryl
Proposed Modernization Project

Existing Plant Site
View from Broadway and Beryl

[AES Redondo Beach Logo]
Existing Plant Site
View from 700 Block Irena
Existing Plant Site
View from Hermosa Beach
Existing Plant Site
View from Hermosa Beach Pier
Proposed Modernization Project
Air Quality

- Smaller, more efficient plant = less emissions
- Lowest particulate matter guarantees ever presented
- Lowest greenhouse gas emissions for the project objectives
- Air quality analysis and health risk assessment must be fully vetted
  - South Coast AQMD
  - US EPA
  - California Energy Commission
  - Federal Land Managers
- Over $40 million in air quality improvement funds available
- Expected to produce more energy in a year but use the same amount of fuel as the current plant
Existing Plant (1,310 MW)  New Plant (496 MW)
PM2.5 (tons/yr)
Maximum Allowable Emissions
Estimated Emissions
Measured Emissions
5% Annual Capacity Factor
20% Annual Capacity Factor
Existing Plant (1,310 MW)  New Plant (496 MW)
PM2.5 (tons/yr)
Maximum Allowable Emissions
Estimated Emissions
Measured Emissions
5% Annual Capacity Factor 20% Annual Capacity Factor

AES
Redondo Beach
Project Economic Benefits

- Approximately $500 million private investment
- Construction benefits:
  - $113 million construction payroll
  - Peak construction force of 338; average 149
  - Additional 93 indirect jobs during construction
  - $23 million for local supplies and materials
- Ongoing benefits:
  - Maintain 21 permanent high paying, highly skilled jobs
  - Approximately $3 million annually in local expenditures
  - Continued and increased property taxes
- Lowest cost of energy for all rate payers
Thank You!