Combustion Turbine
CT1 – Lodi / Alameda
FY 2018 Proposed Budget
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  - Trend, Project Expenditures Including Maintenance Reserve
Assumptions

- Capacity Value $30/KW-Yr
- Projects Identified Based on 10 Year Operation
  - Perform turbine maintenance based on condition only
  - Defer availability projects
- Permit Limited Operation
## FY 2018 – CT1 Proposed Budget

<table>
<thead>
<tr>
<th></th>
<th>FY 2016 Budget</th>
<th>FY 2016 Actual</th>
<th>FY 2017 Budget</th>
<th>Proposed FY 2018 Budget</th>
<th>Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Variable Costs</strong></td>
<td></td>
<td></td>
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<td>Variable O&amp;M</td>
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<td>$14,018</td>
<td>$10,040</td>
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<td>$219,101</td>
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<td>(443)</td>
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<td>40,693</td>
<td>43,774</td>
<td>43,285</td>
<td>44,017</td>
<td>732</td>
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<td>Mandatory Costs</td>
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<td>137,695</td>
<td>159,818</td>
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<tr>
<td>Inventory</td>
<td>0</td>
<td>0</td>
<td>45,000</td>
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<tr>
<td><strong>Total Routine Fixed Costs</strong></td>
<td>591,942</td>
<td>597,796</td>
<td>655,243</td>
<td>669,659</td>
<td>14,416</td>
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<tr>
<td>Unplanned Expenses</td>
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<td>133,093</td>
<td>0</td>
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<tr>
<td><strong>Labor</strong></td>
<td>682,506</td>
<td>871,226</td>
<td>793,990</td>
<td>839,372</td>
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<td>Non-Variable Routine Total</td>
<td>1,274,448</td>
<td>1,602,115</td>
<td>1,449,233</td>
<td>1,509,031</td>
<td>59,798</td>
</tr>
<tr>
<td><strong>Total Routine O&amp;M Costs</strong></td>
<td>1,290,158</td>
<td>1,885,539</td>
<td>1,634,214</td>
<td>1,709,245</td>
<td>75,031</td>
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## FY 2018 – CT1 Proposed Budget

<table>
<thead>
<tr>
<th></th>
<th>FY 2016 Budget</th>
<th>FY 2016 Actual</th>
<th>FY 2017 Budget</th>
<th>Proposed FY 2018 Budget</th>
<th>Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Routine O&amp;M Costs</strong></td>
<td>1,290,158</td>
<td>1,885,539</td>
<td>1,634,214</td>
<td>1,709,245</td>
<td>75,031</td>
</tr>
<tr>
<td><strong>Other Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Service</td>
<td>0</td>
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<td>Other Costs</td>
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<td>112,143</td>
<td>116,904</td>
<td>113,442</td>
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<td>Generation Services Shared</td>
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<td>47,978</td>
<td>57,864</td>
<td>61,831</td>
<td>3,967</td>
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<td>331,092</td>
<td>314,348</td>
<td>350,654</td>
<td>36,306</td>
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<td>491,213</td>
<td>489,116</td>
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<td><strong>Total O&amp;M Costs</strong></td>
<td>1,803,115</td>
<td>2,376,752</td>
<td>2,123,330</td>
<td>2,235,172</td>
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<tr>
<td><strong>Projects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
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<td>20,000</td>
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<td>0</td>
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<td>525,000</td>
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<tr>
<td><strong>Total Projects Costs</strong></td>
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<td>870,446</td>
<td>525,000</td>
<td>545,000</td>
<td>20,000</td>
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<tr>
<td><strong>Annual Budget Cost</strong></td>
<td>2,877,315</td>
<td>3,247,198</td>
<td>2,648,330</td>
<td>2,780,172</td>
<td>131,842</td>
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<td>Revenue</td>
<td>71,877</td>
<td>597,719</td>
<td>55,906</td>
<td>118,990</td>
<td>63,084</td>
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<tr>
<td><strong>Net Cost to Members</strong></td>
<td>2,805,438</td>
<td>2,649,479</td>
<td>2,592,424</td>
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<td>68,758</td>
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<td>Capacity Cost ($/KW-Yr)</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
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</table>
Routine O&M w/ Labor

- FY17 is forecast in the Actual trend line
# FY 2018 – CT1 Proposed Projects

<table>
<thead>
<tr>
<th>Category</th>
<th>Project Description</th>
<th>Notes</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td><strong>O&amp;M Projects</strong></td>
<td>Gas Compressor Lubricators</td>
<td>D</td>
<td>20,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>20,000</td>
</tr>
<tr>
<td><strong>Capital Projects</strong></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Maintenance Reserve</strong></td>
<td>Fuel Nozzle Refurbishment</td>
<td></td>
<td>30,000</td>
</tr>
<tr>
<td></td>
<td>Gas Line Emergency Stop</td>
<td></td>
<td>50,000</td>
</tr>
<tr>
<td></td>
<td>Other (CB Maint, GG Work, Insulator Maint)</td>
<td></td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>130,000</td>
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</table>
# FY 2018 – CT1 Gas Compressor Lubricators

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT1 Gas Compressor Lubricators</td>
<td>D</td>
<td>$20,000</td>
<td></td>
<td></td>
<td>$20,000</td>
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### Notes:

- **D**: Discretionary
- **M**: Mandatory
- **CR**: Annual deposit to the Capital Reserve

### AFE Financial Measurements

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>NPV @ Discount Rate</td>
<td>$4,130</td>
<td>$</td>
</tr>
<tr>
<td>IRR</td>
<td>8.9%</td>
<td>%</td>
</tr>
<tr>
<td>Average Annual Benefits</td>
<td>$2,877</td>
<td>$</td>
</tr>
<tr>
<td>Payback</td>
<td>6</td>
<td>Years</td>
</tr>
<tr>
<td>Useful Life</td>
<td>10.0</td>
<td>Years</td>
</tr>
<tr>
<td>B/C Ratio</td>
<td>1.21</td>
<td>B/C Ratio</td>
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</table>

- Maintain Critical Lubrication Supply
- Correct High Failure Rate Component
- If probability of failure >10%, economic project.
- 30 years old, one of three has failed.
- 168 hours outage, 2 units
## FY 2018 – CT1 Proposed Projects

<table>
<thead>
<tr>
<th>Maintenance Reserve</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Nozzle Refurbishment</td>
<td>30,000</td>
</tr>
<tr>
<td>Gas Line Emergency Stop</td>
<td>50,000</td>
</tr>
<tr>
<td>Other (CB Maint, GG Work, Insulator Maint)</td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130,000</strong></td>
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### FY 2018 – CT1 Parts Refurbishment

<table>
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<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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</thead>
<tbody>
<tr>
<td>CT1 Parts Refurbishment</td>
<td>D</td>
<td>$30,000</td>
<td></td>
<td></td>
<td>$30,000</td>
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**AFE Financial Measurements**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Units</th>
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<tbody>
<tr>
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<tr>
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<td>Payback</td>
<td>2.0</td>
<td>Years</td>
</tr>
<tr>
<td>Useful Life</td>
<td>10.0</td>
<td>Years</td>
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<tr>
<td>B/C Ratio</td>
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<td>B/C Ratio</td>
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</table>

**Notes:**

- D: Discretionary
- M: Mandatory
- CR: Annual deposit to the Capital Reserve

- Required for outage planned in 2020
- Re-Stock Essential Parts
  - (Fuel Nozzle refurbishment)
- Back up for U2 which is showing signs of increasing temperature spreads
- Reduce future outage duration as these are 14 weeks for refurbishment
- Saves 7 weeks

**February 9, 2017**
<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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</thead>
<tbody>
<tr>
<td>Emergency Stop</td>
<td>S</td>
<td>$50,000</td>
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<td></td>
<td>$50,000</td>
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### AFE Financial Measurements

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Units</th>
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<tbody>
<tr>
<td>NPV @ Discount Rate</td>
<td>0</td>
<td>$</td>
</tr>
<tr>
<td>IRR</td>
<td>5.0%</td>
<td>%</td>
</tr>
<tr>
<td>Average Annual Benefits</td>
<td>2,000</td>
<td>$</td>
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<tr>
<td>Payback</td>
<td>7.0</td>
<td>Years</td>
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<tr>
<td>Useful Life</td>
<td>10.0</td>
<td>Years</td>
</tr>
<tr>
<td>B/C Ratio</td>
<td>1.00</td>
<td>B/C Ratio</td>
</tr>
</tbody>
</table>

**Notes:**

- D Discretionary
- M Mandatory
- S Safety

- No remote method to isolate either Lodi or Alameda plants from gas supply.
- Detected leaks would require drive to site to isolate.
- Potentially hazardous situation for employees and may not be able to isolate.
### FY 2018 – CT1 Other Maintenance

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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<tbody>
<tr>
<td>Other Maintenance</td>
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<td>$50,000</td>
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<td></td>
<td></td>
<td>$50,000</td>
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</table>

#### Notes:
- **D** Discretionary
- **M** Mandatory
- **CR** Annual deposit to the Capital Reserve

<table>
<thead>
<tr>
<th>AFE Financial Measurements</th>
<th>Value</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>NPV @ Discount Rate</td>
<td>0 $</td>
<td></td>
</tr>
<tr>
<td>IRR</td>
<td>5.0%</td>
<td>%</td>
</tr>
<tr>
<td>Average Annual Benefits</td>
<td>2,000 $</td>
<td></td>
</tr>
<tr>
<td>Payback</td>
<td>7.0 Years</td>
<td></td>
</tr>
<tr>
<td>Useful Life</td>
<td>10.0 Years</td>
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</tr>
<tr>
<td>B/C Ratio</td>
<td>1.00 B/C Ratio</td>
<td></td>
</tr>
</tbody>
</table>

- Circuit Breaker Maintenance
- Additional Ground Grid lines
- Insulator Maintenance
## FY 2018– CT1 Project Forecast

**Operate until 2025, Option to Continue**

<table>
<thead>
<tr>
<th></th>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
<th>FY 2026</th>
<th>FY 2027</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O &amp; M PROJECTS</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Compressor Lubricators</td>
<td>20,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>TOTAL O&amp;M PROJECTS</strong></td>
<td>20,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

|                      |          |          |          |          |          |          |          |          |          |          |
| **CAPITAL PROJECTS** |          |          |          |          |          |          |          |          |          |          |
|                      |          |          |          |          |          |          |          |          |          |          |
| **TOTAL CAPITAL PROJECTS** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|                      |          |          |          |          |          |          |          |          |          |          |
| **RESERVE FUND SPENDING** |          |          |          |          |          |          |          |          |          |          |
| BEGINNING YEAR BALANCE | 460,000  | 855,000  | 1,090,000 | 215,000  | 37,000   | 270,000  | 260,000  | 260,000  | 250,000  | 250,000  |
| Annual Outage, Routine Maint | 130,000  | 280,000  | 125,000  | 553,000  | 0        | 0        | 0        | 0        | 2,458,830 | 0      |
| Turner CT and Gen Maint | 0  | 10,000   | 75,000   | 75,000   | 0        | 10,000   | 0        | 10,000   | 1,250,000 | 10,000 |
| ALA1 CT and Gen Maint   | 0  | 0        | 75,000   | 75,000   | 0        | 0        | 0        | 0        | 1,250,000 | 0      |
| ALA2 CT and Gen Maint   | 0  | 0        | 1,125,000| 0        | 0        | 0        | 0        | 0        | 450,000   | 0      |
| **TOTAL RESERVE FUND SPENDING** | 130,000  | 290,000  | 1,400,000| 703,000  | 0        | 10,000   | 0        | 10,000   | 5,408,830 | 10,000 |
| ADDITIONAL FUNDING      | 525,000  | 525,000  | 525,000  | 525,000  | 233,000  | 0        | 0        | 0        | 5,408,830 | 10,000 |
| **END OF YEAR BALANCE** | 855,000  | 1,090,000| 215,000  | 37,000   | 270,000  | 260,000  | 260,000  | 250,000  | 250,000  | 250,000  |

|                      |          |          |          |          |          |          |          |          |          |          |
| **TOTAL O&M, ALL PROJECTS, FUNDING** | 545,000  | 525,000  | 525,000  | 525,000  | 233,000  | 0        | 0        | 0        | 5,408,830 | 10,000 |
## FY 2018 – CT1 10 Year Net Cost to Member

<table>
<thead>
<tr>
<th></th>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
<th>FY 2026</th>
<th>FY 2027</th>
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<tbody>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<td>525,000</td>
<td>233,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,408,830</td>
<td>10,000</td>
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<tr>
<td>O&amp;M Costs</td>
<td>2,054,031</td>
<td>2,095,111</td>
<td>2,137,013</td>
<td>2,179,754</td>
<td>2,223,349</td>
<td>2,267,816</td>
<td>2,313,172</td>
<td>2,359,435</td>
<td>2,406,624</td>
<td>2,454,757</td>
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<tr>
<td>A&amp;G</td>
<td>525,927</td>
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<td>547,174</td>
<td>558,118</td>
<td>569,280</td>
<td>580,666</td>
<td>592,279</td>
<td>604,125</td>
<td>616,207</td>
<td>628,531</td>
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<tr>
<td>Revenues</td>
<td>9,645</td>
<td>12,658</td>
<td>21,644</td>
<td>33,534</td>
<td>29,003</td>
<td>35,869</td>
<td>39,172</td>
<td>116,717</td>
<td>109,816</td>
<td>126,846</td>
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<tr>
<td>Capacity Cost ($/KW-Yr)</td>
<td>42</td>
<td>42</td>
<td>43</td>
<td>43</td>
<td>40</td>
<td>38</td>
<td>38</td>
<td>38</td>
<td>111</td>
<td>40</td>
</tr>
</tbody>
</table>

![Graph showing net cost to member over 10 years]
Combustion Turbine

CT2 – STIG

FY 2018 Proposed Budget
Contents

- Assumptions
- FY2018 Proposed Budget
- Trend, Routine O&M with Labor
- Current Year Actuals
- FY2018 Proposed Projects
  - Overview and Cost Breakdown
    - O&M Projects
    - Capital Projects
    - Maintenance Reserve Projects
  - Description and Justification of Each Proposed Project
- 10-Year Project Forecast
  - Schedule and Cost
  - Trend, Project Expenditures Including Maintenance Reserve
CT2 Assumptions

- Capacity $30/KW-Yr
- Debt paid in 2026
- Air New Zealand expects to service LM5000 until 2018
- Expected STIG will retire in 2026 or shortly thereafter
- Repower Options
  - Estimate $50mm +100%
  - NPV -$38mm
  - IRR -4.1%
- Decommissioning, no estimates at this time
- Maintenance / Project Plan based on 9 remaining years
## FY 2018 – CT2 Proposed Budget

<table>
<thead>
<tr>
<th></th>
<th>FY 2016 Budget</th>
<th>FY 2016 Actual</th>
<th>FY 2017 Budget</th>
<th>Proposed FY 2018 Budget</th>
<th>Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Variable Costs</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Variable O&amp;M</td>
<td>$84,300</td>
<td>$83,646</td>
<td>$86,700</td>
<td>$88,607</td>
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<tr>
<td>Fuel &amp; Pipeline Net Transport</td>
<td>$489,583</td>
<td>$14,535</td>
<td>$521,052</td>
<td>($3,467)</td>
<td>($524,519)</td>
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<td>CAISO Charges (Variable)</td>
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<td>39,585</td>
<td>2,289</td>
<td>463</td>
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<td>610,041</td>
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<td>2,339</td>
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<td>$/MWhr</td>
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<td><strong>Routine Fixed Costs</strong></td>
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<td>659,452</td>
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<td>1,326,202</td>
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<td>Total Routine O&amp;M Costs</td>
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<td>1,439,108</td>
<td>1,936,243</td>
<td>1,467,254</td>
<td>-468,989</td>
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# FY 2018 – CT2 Proposed Budget

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<th>FY 2016 Budget</th>
<th>FY 2016 Actual</th>
<th>FY 2017 Budget</th>
<th>Proposed FY 2018 Budget</th>
<th>Increase/Decrease</th>
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<td><strong>Total Routine O&amp;M Costs</strong></td>
<td>1,751,297</td>
<td>1,439,108</td>
<td>1,936,243</td>
<td>1,467,254</td>
<td>-468,989</td>
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<td><strong>Other Costs</strong></td>
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<td>Debt Service</td>
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<td>Operations &amp; Maintenance</td>
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<td>91,348</td>
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<td><strong>Total Projects Costs</strong></td>
<td>80,060</td>
<td>90,042</td>
<td>133,000</td>
<td>121,348</td>
<td>(11,652)</td>
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<td><strong>Annual Budget Cost</strong></td>
<td>7,967,632</td>
<td>7,640,028</td>
<td>8,172,220</td>
<td>7,717,103</td>
<td>(455,117)</td>
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<td>Revenue</td>
<td>70,820</td>
<td>304,120</td>
<td>300,297</td>
<td>131,724</td>
<td>(168,573)</td>
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<td>Net Cost to Members</td>
<td>7,896,812</td>
<td>7,335,908</td>
<td>7,871,923</td>
<td>7,585,379</td>
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<td>Capacity Cost ($/KW-Yr)</td>
<td>158</td>
<td>147</td>
<td>157</td>
<td>152</td>
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FY17 is forecast in the Actual trend line.
Debt Service Requirements

Northern California Power Agency
Capital Facilities - Debt Service Requirements

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<th>PRINCIPAL</th>
<th>INTEREST</th>
<th>TOTAL</th>
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<td>1,873,068</td>
<td>5,625,568</td>
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<td>7/1/2018</td>
<td>3,975,417</td>
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<td>7/1/2019</td>
<td>4,178,333</td>
<td>1,538,375</td>
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<td>7/1/2020</td>
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<td>1,331,004</td>
<td>5,796,421</td>
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<td>4,545,000</td>
<td>1,107,733</td>
<td>5,652,733</td>
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<tr>
<td>7/1/2022</td>
<td>4,834,167</td>
<td>880,483</td>
<td>5,714,650</td>
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<tr>
<td>7/1/2023</td>
<td>5,125,833</td>
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<td>5,753,471</td>
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<td>7/1/2024</td>
<td>5,370,000</td>
<td>358,531</td>
<td>5,728,531</td>
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<tr>
<td>7/1/2025</td>
<td>1,375,000</td>
<td>76,606</td>
<td>1,451,606</td>
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<tr>
<td>7/1/2026</td>
<td>84,167</td>
<td>4,419</td>
<td>88,585</td>
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$37,705,833  $9,515,363  $47,221,196
## FY 2018– CT2 Proposed Projects

### O&M Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Notes</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCS Software Upgrade (Contract Yr 3 of 3)</td>
<td>M</td>
<td>30,000</td>
</tr>
<tr>
<td>PG&amp;E / NCPA Share Relay Replacement</td>
<td>M</td>
<td>11,348</td>
</tr>
<tr>
<td>Rebuild Bellows</td>
<td>S</td>
<td>50,000</td>
</tr>
<tr>
<td>STIG 480V MCC Breaker Maintenance (15.13%)</td>
<td>M</td>
<td>30,000</td>
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</tbody>
</table>

Total: 121,348

### Capital Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Notes</th>
<th>Cost</th>
</tr>
</thead>
</table>

Total: 0

### Maintenance Reserve

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Notes</th>
<th>Cost</th>
</tr>
</thead>
</table>

Total: 0
### FY 2018 – CT2 DCS Operating System

<table>
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<th>Project</th>
<th>Notes</th>
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<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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<tr>
<td>DCS Operating System</td>
<td>D</td>
<td>$150,000</td>
<td>90,000</td>
<td>30,000</td>
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**Notes:**
- D Discretionary
- M Mandatory
- CR Development Reserve

<table>
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<tr>
<th>AFE Financial Measurements</th>
<th>Value</th>
<th>Units</th>
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<tbody>
<tr>
<td>NPV @ Discount Rate</td>
<td>13,593</td>
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<tr>
<td>IRR</td>
<td>7.8%</td>
<td>%</td>
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<tr>
<td>Average Annual Benefits</td>
<td>15,938</td>
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<tr>
<td>Payback</td>
<td>3.0</td>
<td>Years</td>
</tr>
<tr>
<td>Useful Life</td>
<td>10.0</td>
<td>Years</td>
</tr>
<tr>
<td>B/C Ratio</td>
<td>1.09</td>
<td>B/C Ratio</td>
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</tbody>
</table>

- Approved Project in 2015
- FY16/17 Complete, HMI Installation Successful
- FY2017-18, Final Year Agreement
# FY 2018 – PGE Relay Replacement

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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</thead>
<tbody>
<tr>
<td>PG&amp;E Relay Upgrade</td>
<td>D</td>
<td>$75,000</td>
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<td>$75,000</td>
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</table>

Shared (CT2 = $11,347; LEC=$63,653)

<table>
<thead>
<tr>
<th>Notes:</th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Discretionary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Mandatory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Annual deposit to the Capital Reserve</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- PGE Replacement Program for obsolete, unsupported Relays.
- Equipment type is demonstrating high failure rates on their system.
- Fault clearing too slow.
- Construction (demolition, installation)
- Commissioning (relay testing and PGE witness testing)
## FY 2018 – CT2 Rebuild Bellows

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT2 Repack Bellows</td>
<td>S</td>
<td>$50,000</td>
<td></td>
<td></td>
<td>$50,000</td>
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</table>

**Notes:**
- D: Discretionary
- M: Mandatory
- CR: Annual deposit to the Capital Reserve

**AFE Financial Measurements**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Units</th>
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<td>NPV @ Discount Rate</td>
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<td>$</td>
</tr>
<tr>
<td>IRR</td>
<td>0</td>
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<td>Average Annual Benefits</td>
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<tr>
<td>Payback</td>
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<td>Years</td>
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<tr>
<td>Useful Life</td>
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<td>Years</td>
</tr>
<tr>
<td>B/C Ratio</td>
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<td>B/C Ratio</td>
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</tbody>
</table>

- Repack Bellows and Mitigate Hot Gas Leak
- Fabric has deteriorated
## FY 2018 – CT2 Breaker Maintenance

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
<th>Total Cost</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
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<tbody>
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<td>$30,000</td>
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</table>

### Notes:

<table>
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<tr>
<th>D</th>
<th>Discretionary</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Mandatory</td>
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<tr>
<td>CR</td>
<td>Annual deposit to the Capital Reserve</td>
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### AFE Financial Measurements

<table>
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<tr>
<th>Value</th>
<th>Units</th>
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<tbody>
<tr>
<td>NPV @ Discount Rate</td>
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</tr>
<tr>
<td>IRR</td>
<td>%</td>
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<tr>
<td>Average Annual Benefits</td>
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<tr>
<td>Payback</td>
<td>Years</td>
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<tr>
<td>Useful Life</td>
<td>Years</td>
</tr>
<tr>
<td>B/C Ratio</td>
<td>B/C Ratio</td>
</tr>
</tbody>
</table>

### Project Details:

- 480 VAC Breaker Maintenance
- Maintenance to ensure proper operation of breakers to eliminate
  - Faulting
  - Arcing
  - Hot spots / fire
  - Shock
<table>
<thead>
<tr>
<th></th>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
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<th>FY 2027</th>
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<td>STIG 480V MCC Breaker Maintenance</td>
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<td>Annual Outage, Routine Maintenance</td>
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<td>Turner CT and Gen Maint</td>
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<td><strong>TOTAL RESERVE FUND SPENDING</strong></td>
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<td>Additional Funding</td>
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10 Year Net Cost to Members

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<th>FY 2018</th>
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<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
<th>FY 2026</th>
<th>FY 2027</th>
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<td>O&amp;M /Debt Costs</td>
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<td>7,339,839</td>
<td>7,486,636</td>
<td>7,636,369</td>
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<td>8,103,776</td>
<td>8,265,851</td>
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<td>A&amp;G</td>
<td>435,579</td>
<td>444,291</td>
<td>453,176</td>
<td>462,240</td>
<td>471,485</td>
<td>480,914</td>
<td>490,533</td>
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<td>Revenues (net)</td>
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<td>4,382</td>
<td>5,732</td>
<td>7,564</td>
<td>6,970</td>
<td>6,594</td>
<td>7,706</td>
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<td>13,856</td>
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<td>8,454,199</td>
<td>8,586,603</td>
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<td>Capacity Cost ($/KW-Yr)</td>
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February 9, 2017