The Roza Powerplant is capable of black start, but it has doubtfully ever been done. The canal feed makes it impractical to operate separate from BPA.

Generators

<table>
<thead>
<tr>
<th>Unit #</th>
<th>Original Capacity (kW)</th>
<th>Capacity Increased (kW)</th>
<th>Present Capacity (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11,250</td>
<td>1,687</td>
<td>12,937</td>
</tr>
<tr>
<td>1 unit</td>
<td>11,250</td>
<td>1,687</td>
<td>12,937</td>
</tr>
</tbody>
</table>

Winding capacity is 12,937 kW, but actual capacity of plant is 11,845 kW due to canal restrictions on load rejection.
Roza Powerplant
10-30 MW

Generation

Roza Fiscal Year Net Generation

Roza Monthly Net Generation

Roza Water Supply
Prime Laboratory Benchmarks

Benchmark 1
Wholesale Firm Rate

![Wholesale Firm Composite Rate](chart1)

Benchmark 2
Reclamation’s Production Costs as Percentage of Wholesale Firm Rate

![Reclamation O&M Production Cost as Percentage of Wholesale Firm Rate](chart2)
Benchmark 3
Production Cost

Roza Powerplant
10-30 MW

Roza
Operation and Maintenance Costs

Fiscal Year

$0 10 20 30 40 50 60

Operation Maintenance

Roza
Operation and Maintenance Costs
Fiscal Year 2007

40%
60%

Roza
Operation and Maintenance Costs
Fiscal Year 2007

Total Production Costs
External Comparison

Fiscal Year 2007

$0 $50 $100 $150 $200

$/MWh

166 External Plants

Roza
Operation and Maintenance Costs
Fiscal Year 2007

Total Production Costs
External Comparison

Fiscal Year 2007

$0 $50,000 $100,000 $150,000 $200,000 $250,000 $300,000

$/MW

166 External Plants

Roza
Operation and Maintenance Costs
Fiscal Year 2007

External Group Average = $163.9/MWh
Reclamation Group Average = $20.9/MWh

Fiscal Year

Operation Maintenance

External Group Average = $40,852/MW
Reclamation Group Average = $67,610/MW
## Roza FY 2007 Equivalent Work Staffing Year Levels

<table>
<thead>
<tr>
<th></th>
<th>Equivalent Work Year Staffing Charged to Powerplant</th>
<th>Leave Additive</th>
<th>Denver and Washington Equivalent Work Year Staffing Additive</th>
<th>Total Equivalent Work Year Allocated to Powerplant</th>
<th>Total Equivalent Staffing Work Year per Generating Unit</th>
<th>Total Equivalent Work Year Staffing per Megawatt</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>0.15</td>
<td>0.02</td>
<td>0.02</td>
<td>0.18</td>
<td>0.18</td>
<td>0.01</td>
</tr>
<tr>
<td>Operation</td>
<td>1.84</td>
<td>0.20</td>
<td>0.00</td>
<td>2.04</td>
<td>2.04</td>
<td>0.16</td>
</tr>
<tr>
<td>Maintenance</td>
<td>0.94</td>
<td>0.10</td>
<td>0.00</td>
<td>1.04</td>
<td>1.04</td>
<td>0.08</td>
</tr>
<tr>
<td>Total Staffing</td>
<td>2.93</td>
<td>0.31</td>
<td>0.02</td>
<td>3.26</td>
<td>3.26</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Graphs

**Roza Equivalent Work Year per Unit**
- Maintenance, Operation, General

**Roza O&M Equivalent Work Years per Unit**

**Roza O&M Equivalent Work Years per MW**
Roza Powerplant
10-30 MW

Benchmark 5
Availability Factor

Benchmark 6
Force Outage Factor
Roza Powerplant
10-30 MW

Benchmark 7
Scheduled Outage Factor

Roza
Scheduled Outage Factor

Starts

Roza
Average Starts per Unit
## Benchmark Data Comparison

<table>
<thead>
<tr>
<th>Fiscal Year 2007</th>
<th>Roza Powerplant</th>
<th>Reclamation Average 10-30 MW Group</th>
<th>Total Reclamation Average</th>
<th>Industry Average</th>
<th>Best Performers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale Firm Rate Mills/kWh</td>
<td>24.8</td>
<td>Not Applicable</td>
<td>*22.45</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Production Cost as Percentage of Wholesale Firm Rate</td>
<td>0.03%</td>
<td>Not Applicable</td>
<td>12.1%</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>O&amp;M Cost $/MWh</td>
<td>9.42</td>
<td>16.40</td>
<td>2.76</td>
<td>**163.95</td>
<td>1.00</td>
</tr>
<tr>
<td>O&amp;M Costs $/MW</td>
<td>55,950</td>
<td>62,731</td>
<td>7,847</td>
<td>**40,852</td>
<td>2,897</td>
</tr>
<tr>
<td>O&amp;M Equiv Work Year per MW</td>
<td>0.24</td>
<td>0.22</td>
<td>0.03</td>
<td>Not Available</td>
<td>0.00</td>
</tr>
<tr>
<td>Availability Factor</td>
<td>95.2</td>
<td>88.5</td>
<td>82.3</td>
<td>**88.64</td>
<td>98.5</td>
</tr>
<tr>
<td>Forced Outage Factor</td>
<td>0.0</td>
<td>0.1</td>
<td>2.6</td>
<td>**2.61</td>
<td>0.0</td>
</tr>
<tr>
<td>Scheduled Outage Factor</td>
<td>4.8</td>
<td>11.4</td>
<td>15.1</td>
<td>**8.74</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Weighted by Net Generation
**2006 NERC Average
***Energy Information Administration Data