

## **Roza Powerplant Yakima Project**

### **Ancillary Services**

| <b>Roza<br/>Ancillary Services</b> |     |
|------------------------------------|-----|
| Spinning Reserve                   | No  |
| Non-Spinning Reserve               | No  |
| Replacement Reserve                | No  |
| Regulation/Load Following          | No  |
| Black Start                        | No  |
| Voltage Support                    | Yes |

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.

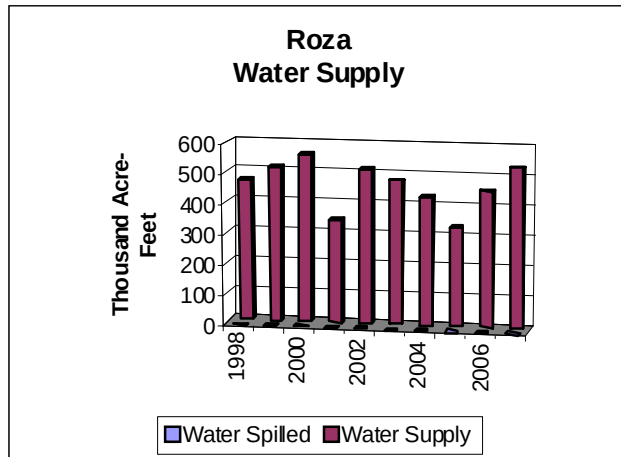
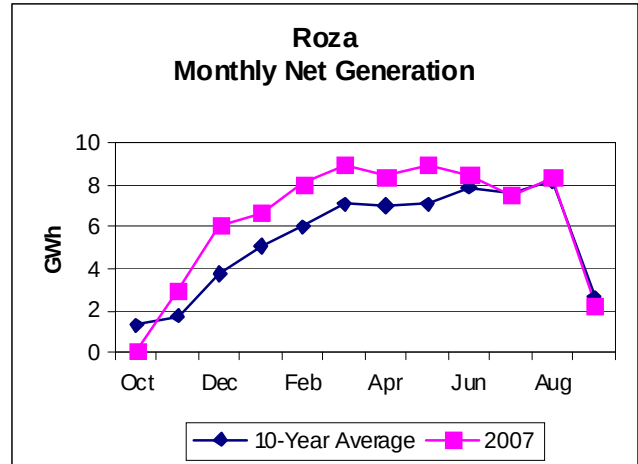
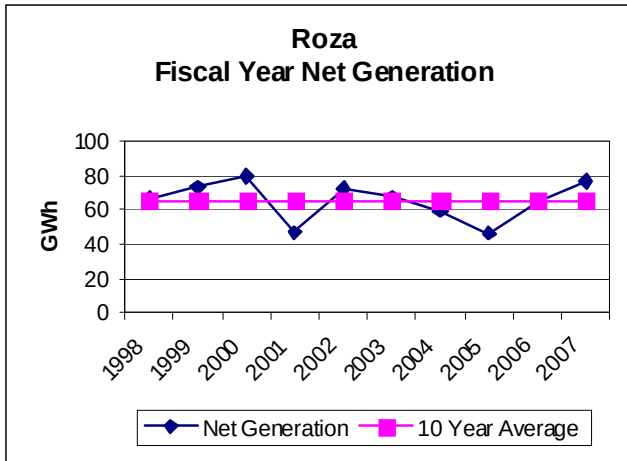
### **Generators**

| <b>Roza Generators</b>       |                           |                            |                             |
|------------------------------|---------------------------|----------------------------|-----------------------------|
| Existing Number and Capacity |                           |                            |                             |
| Unit #                       | Original Capacity<br>(kW) | Capacity Increased<br>(kW) | Present<br>Capacity<br>(kW) |
| 1                            | 11,250                    | 1,687                      | 12,937                      |
| 1 unit                       | 11,250                    | 1,687                      | 12,937                      |

Winding capacity is 12,937 kW, but actual capacity of plant  
is 11,845 kW due to canal restrictions on load rejection.

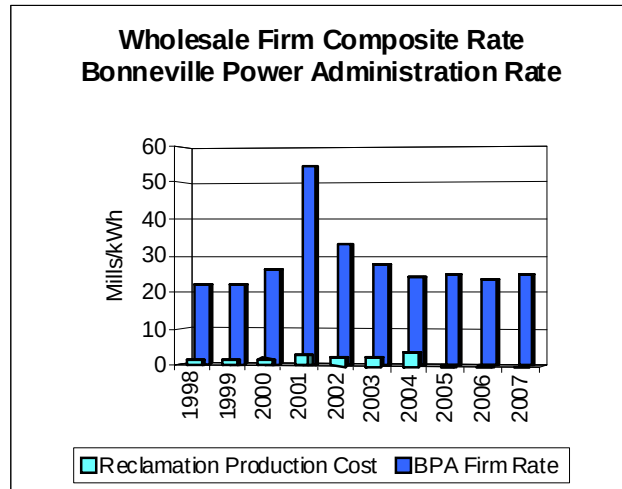
**Roza Powerplant**  
**10-30 MW**

**Generation**

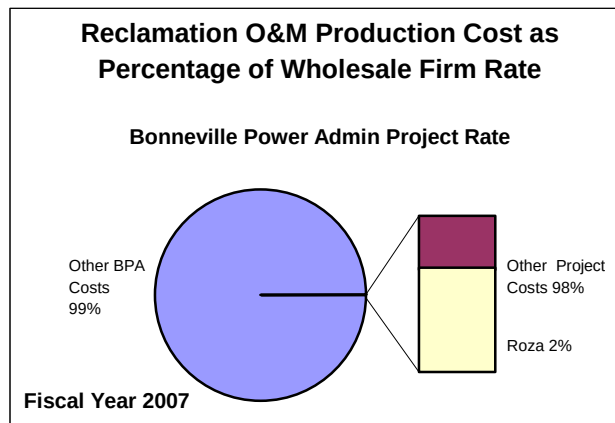


## Prime Laboratory Benchmarks

### Benchmark 1 Wholesale Firm Rate

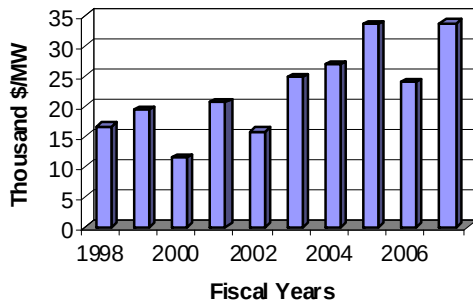


### Benchmark 2 Reclamation's Production Costs as Percentage of Wholesale Firm Rate

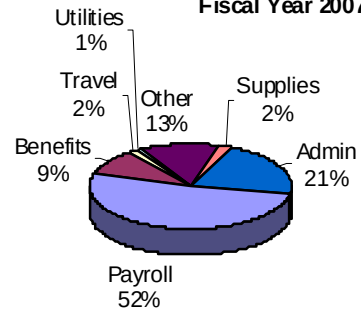


**Benchmark 3  
Production Costs**

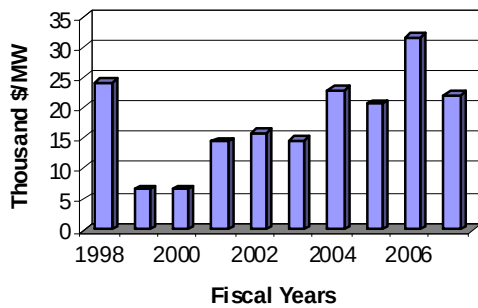
**Roza  
Operation Costs**



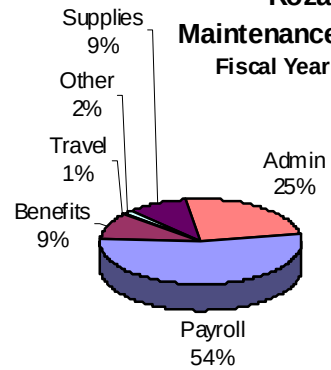
**Roza  
Operation Costs  
Fiscal Year 2007**



**Roza  
Maintenance Costs**

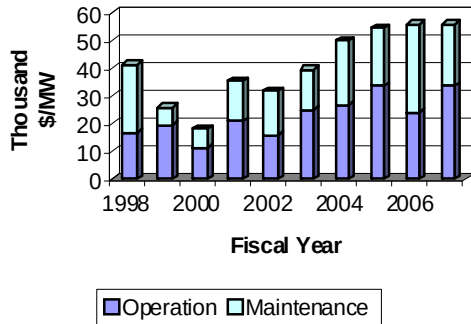


**Roza  
Maintenance Costs  
Fiscal Year 2007**

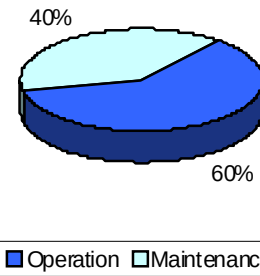


**Benchmark 3**  
**Production Cost**

**Roza**  
**Operation and Maintenance Costs**

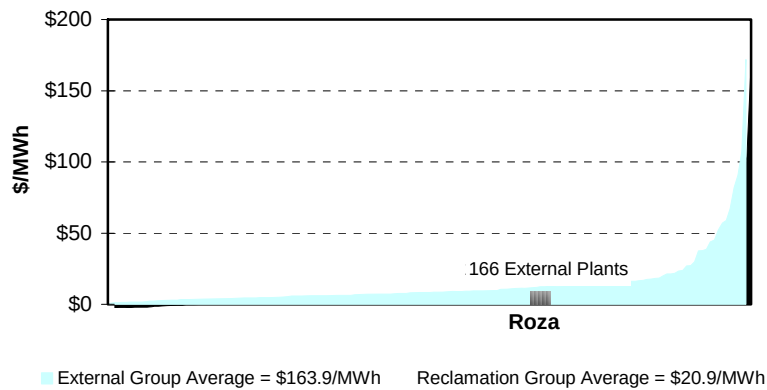


**Roza**  
**Operation and Maintenance Costs**  
**Fiscal Year 2007**



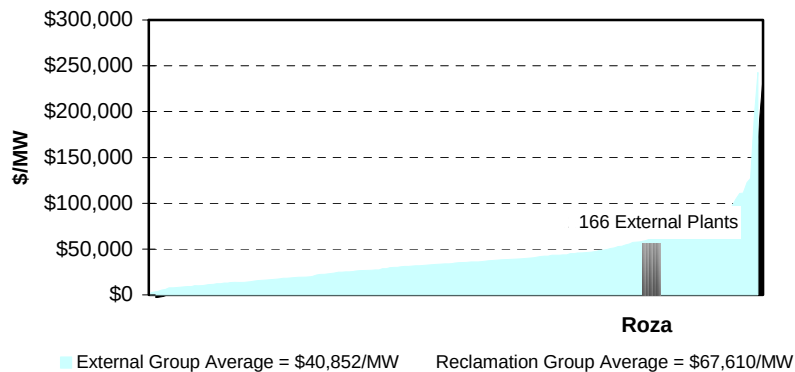
**Fiscal Year 2007**

**Total Production Costs**  
**External Comparison**



**Fiscal Year 2007**

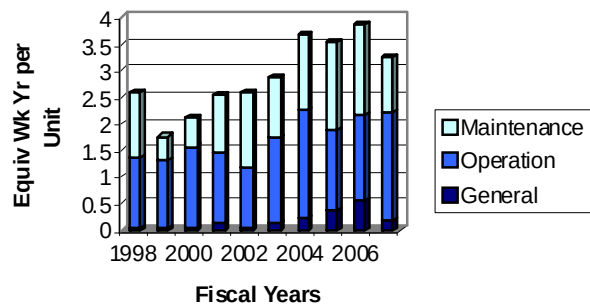
**Total Production Costs**  
**External Comparison**



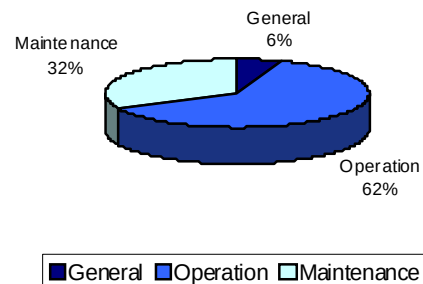
**Benchmark 4**  
**Workforce Deployment**

| <b>Roza FY 2007 Equivalent Work Staffing Year Levels</b> |                                                     |                |                                                              |                                                    |                                                         |                                                  |
|----------------------------------------------------------|-----------------------------------------------------|----------------|--------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|--------------------------------------------------|
|                                                          | Equivalent Work Year Staffing Charged to Powerplant | Leave Additive | Denver and Washington Equivalent Work Year Staffing Additive | Total Equivalent Work Year Allocated to Powerplant | Total Equivalent Staffing Work Year per Generating Unit | Total Equivalent Work Year Staffing per Megawatt |
| General                                                  | 0.15                                                | 0.02           | 0.02                                                         | 0.18                                               | 0.18                                                    | 0.01                                             |
| Operation                                                | 1.84                                                | 0.20           | 0.00                                                         | 2.04                                               | 2.04                                                    | 0.16                                             |
| Maintenance                                              | 0.94                                                | 0.10           | 0.00                                                         | 1.04                                               | 1.04                                                    | 0.08                                             |
| Total Staffing                                           | 2.93                                                | 0.31           | 0.02                                                         | 3.26                                               | 3.26                                                    | 0.25                                             |

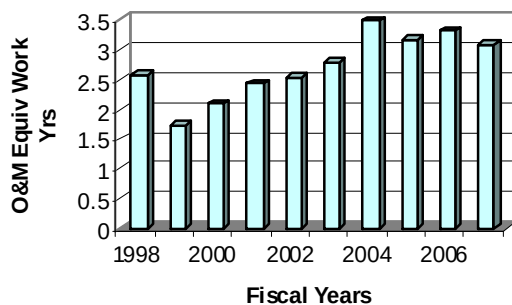
**Roza**  
**Equivalent Work Year per Unit**



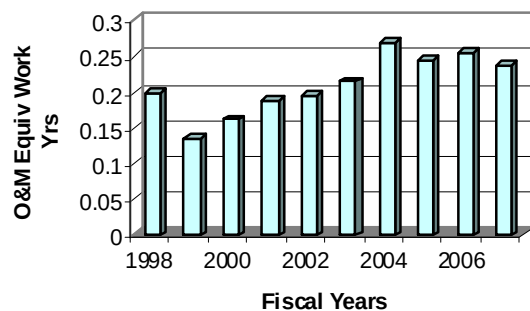
**Roza**  
**Equivalent Work Year per Unit 2007**



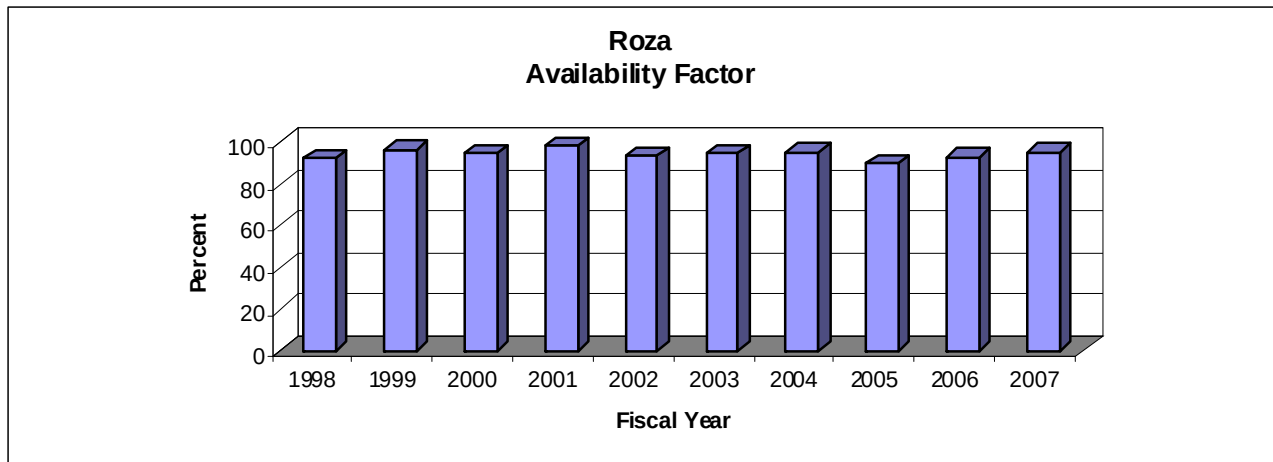
**Roza**  
**O&M Equivalent Work Years per Unit**



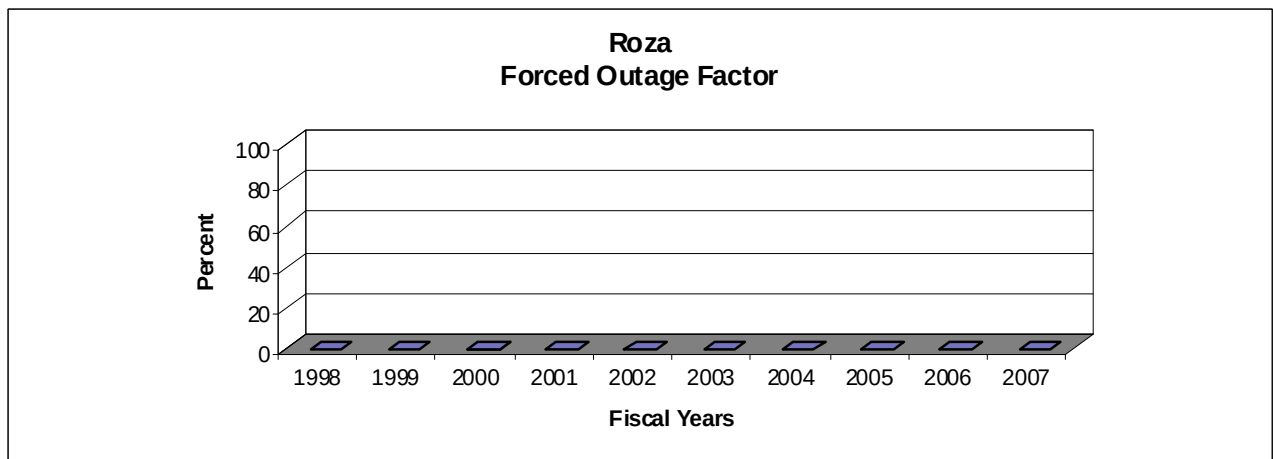
**Roza**  
**O&M Equivalent Work Years per MW**



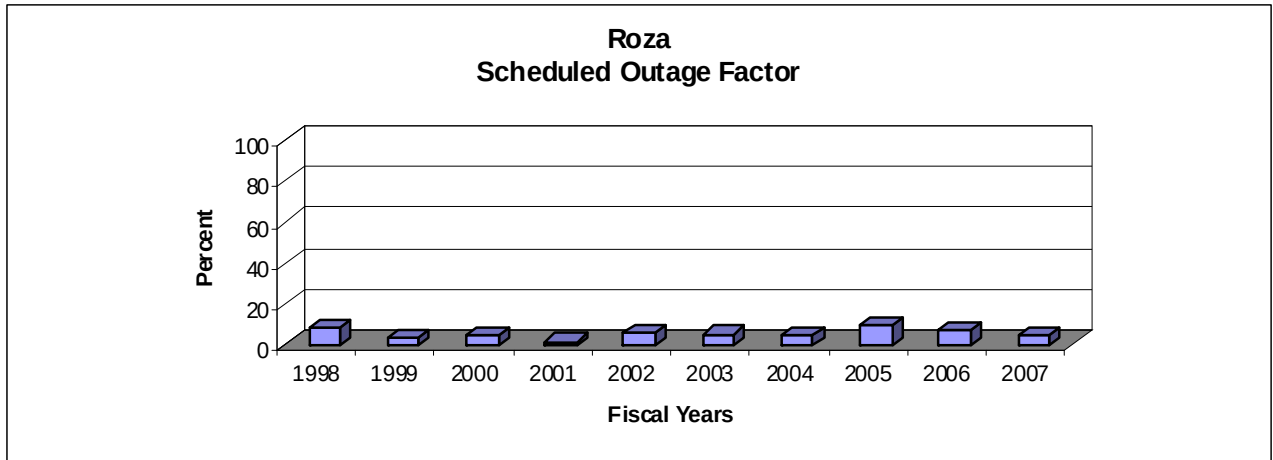
**Benchmark 5  
Availability Factor**



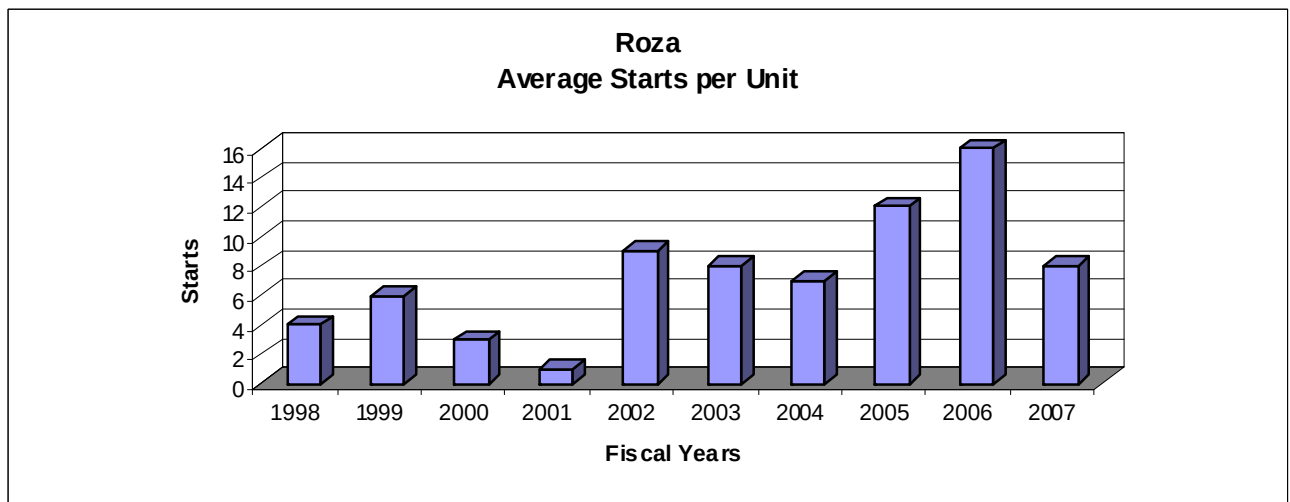
**Benchmark 6  
Force Outage Factor**



**Benchmark 7**  
**Scheduled Outage Factor**



**Starts**





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

\*Weighted by Net Generation

\*\*2006 NERC Average

\*\*\*Energy Information Administration Data