

### Ancillary Services

Roza Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	Yes
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.

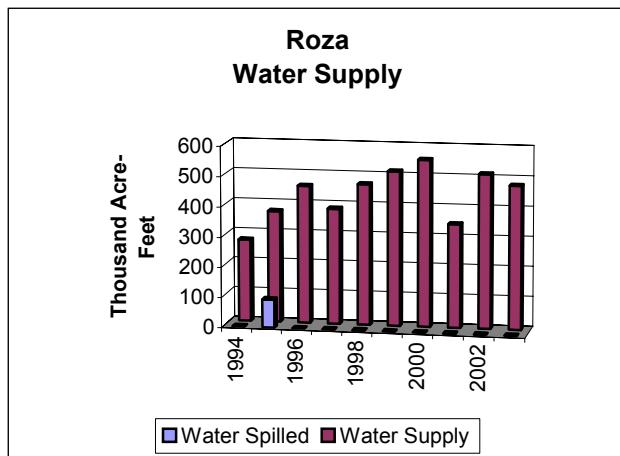
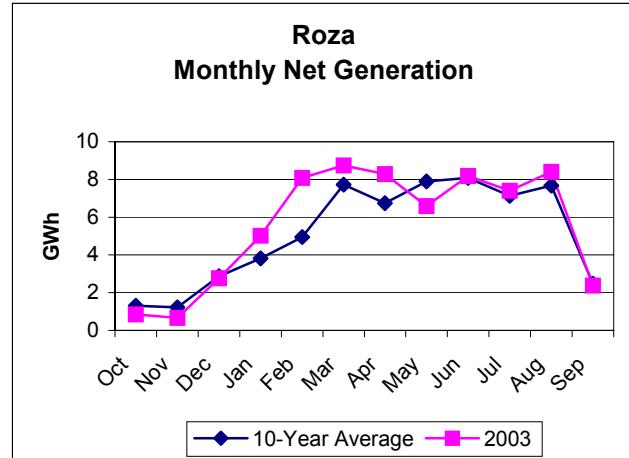
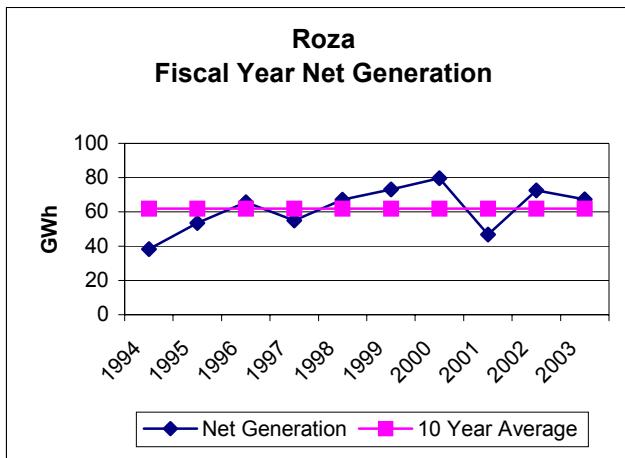
### Generators

Roza Generators			
Existing Number and Capacity			
Unit #	Original Nameplate (kW)	Increased (kW)	Present Nameplate (kW)
1	10,660	2,277	12,937
1 Unit	10,660	2,277	12,937

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

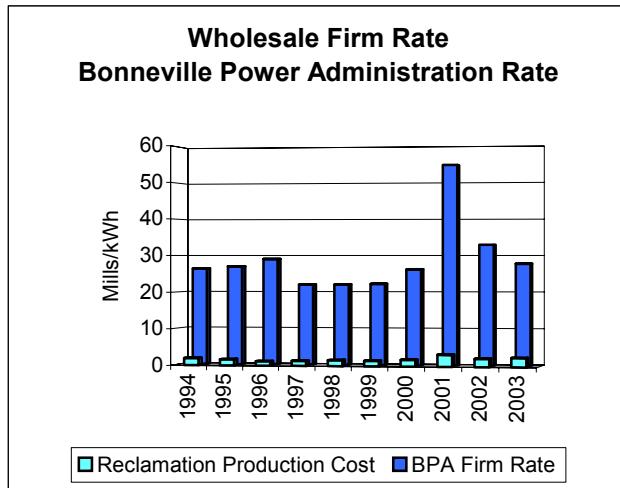
**Roza Powerplant**  
**10-30 MW**

**Generation**

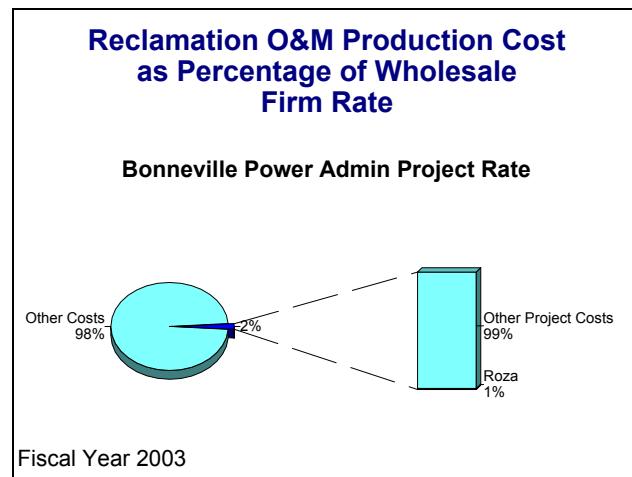


### **Prime Laboratory Benchmarks**

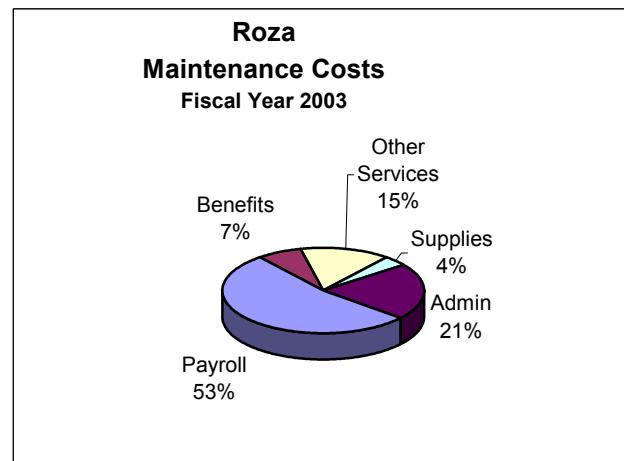
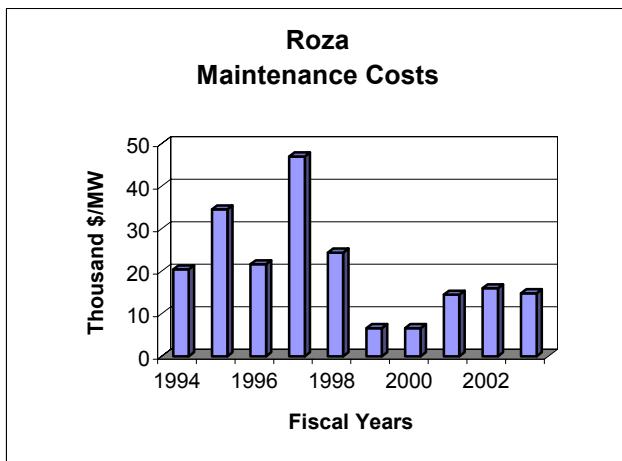
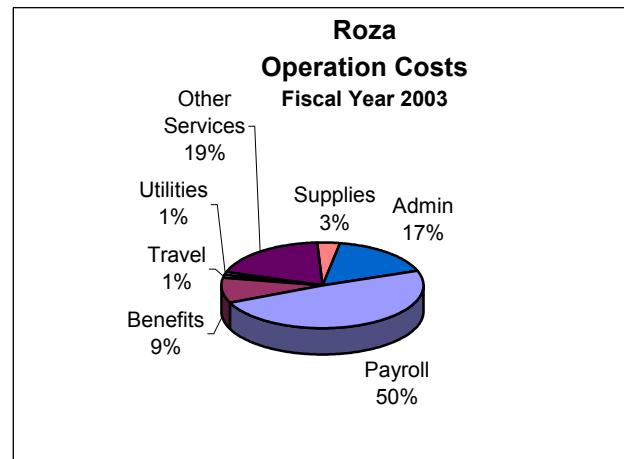
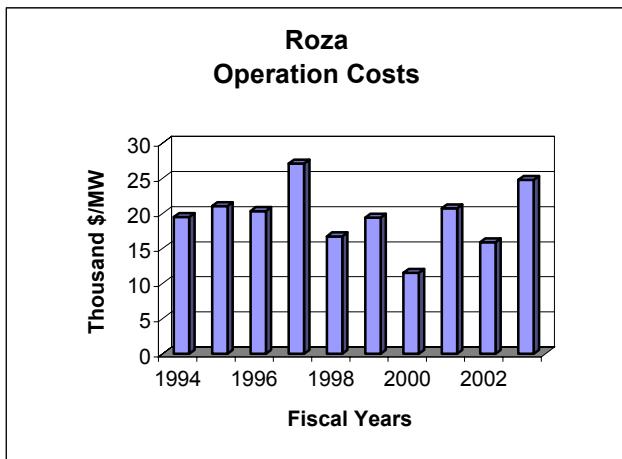
#### **Benchmark 1** **Wholesale Firm Rate**



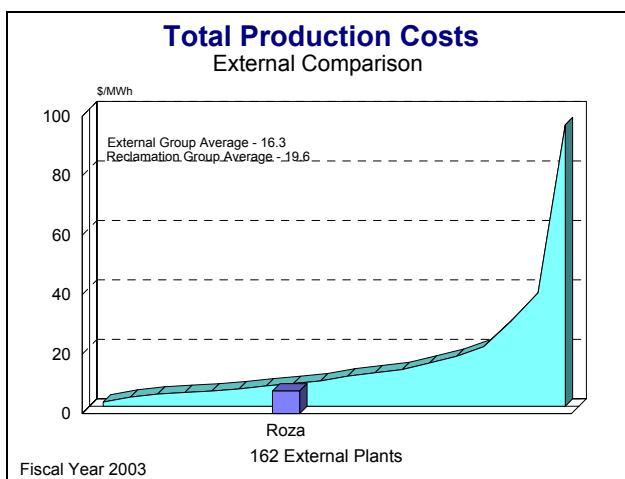
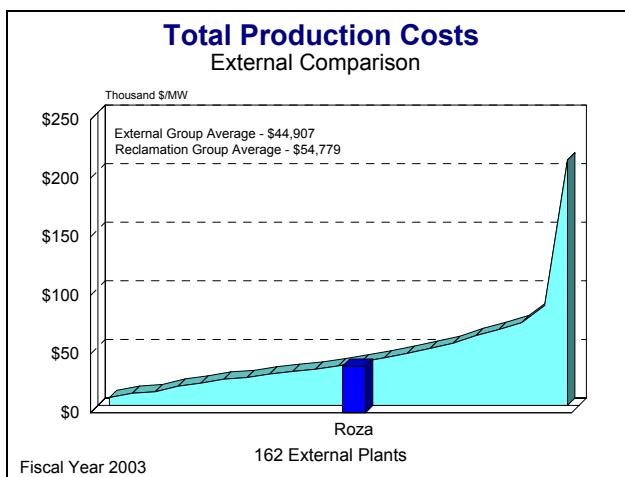
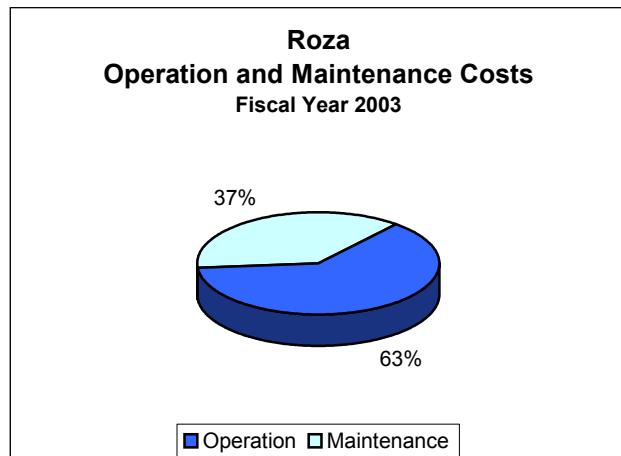
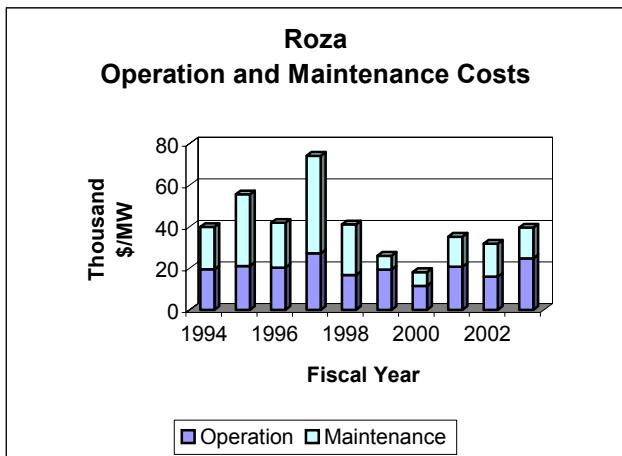
#### **Benchmark 2** **Reclamation's Production Costs as Percentage of Wholesale Firm Rate**



**Benchmark 3**  
**Production Costs**



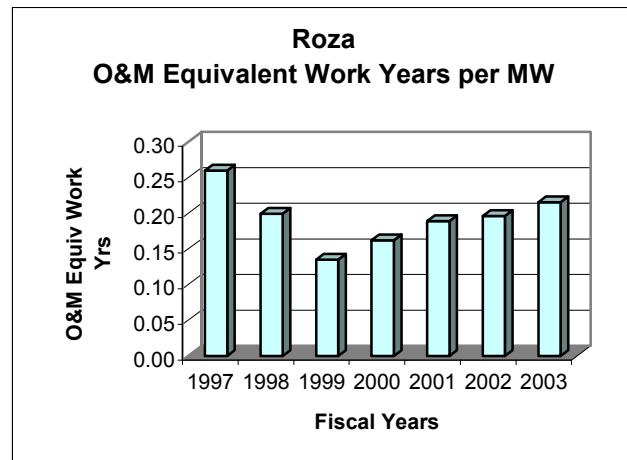
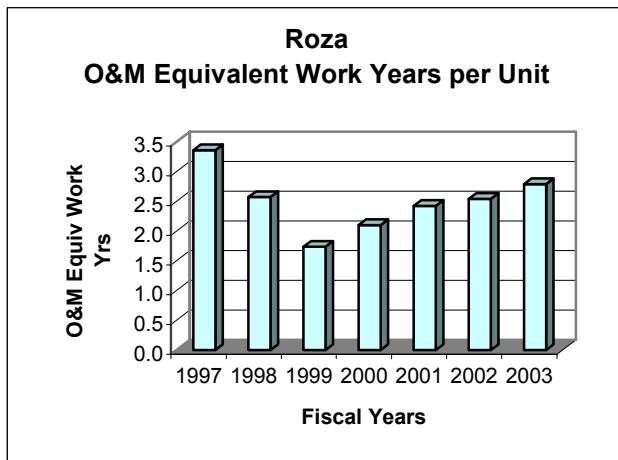
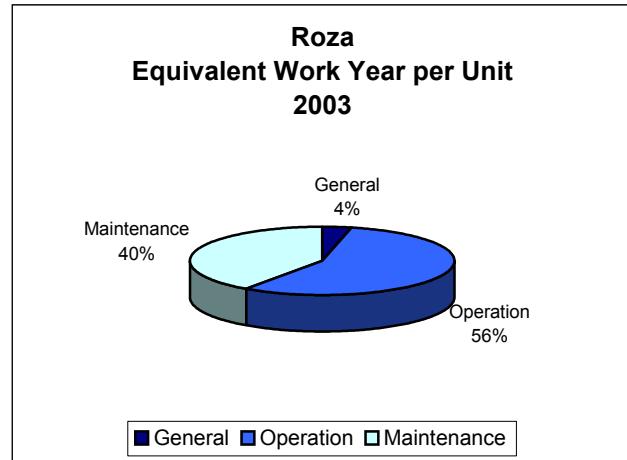
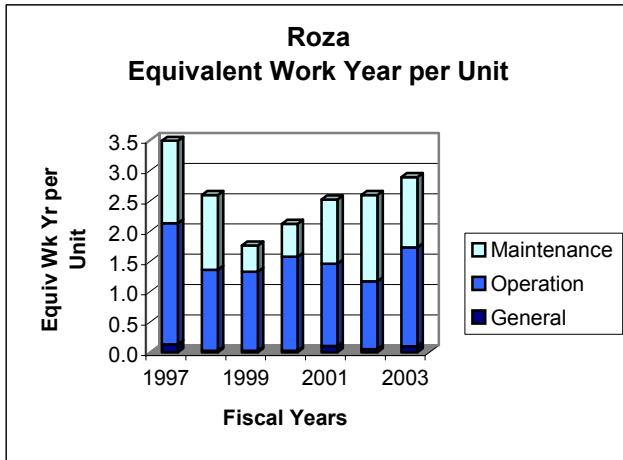
**Benchmark 3**  
**Production Cost**



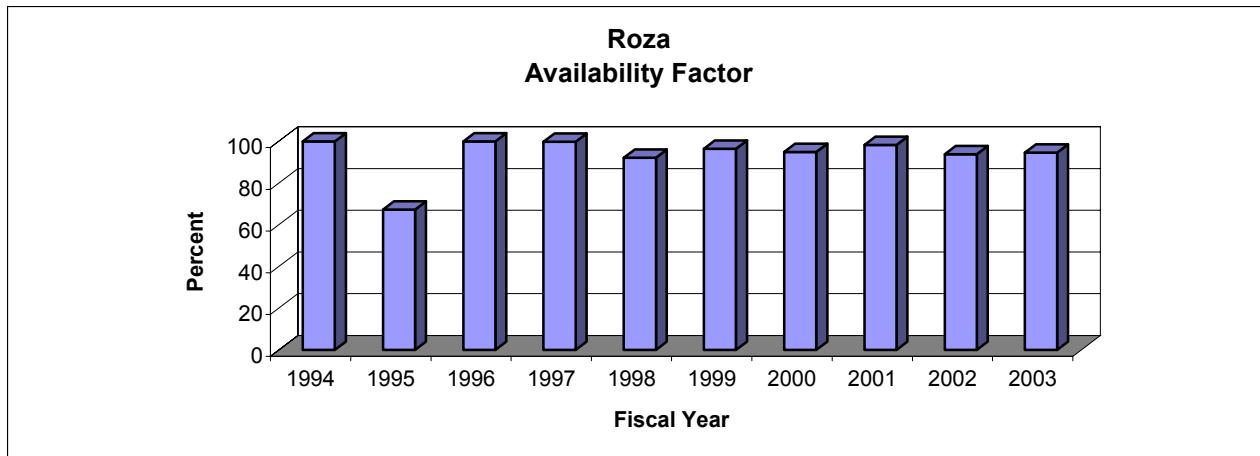
**Roza Powerplant**  
**10-30 MW**

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

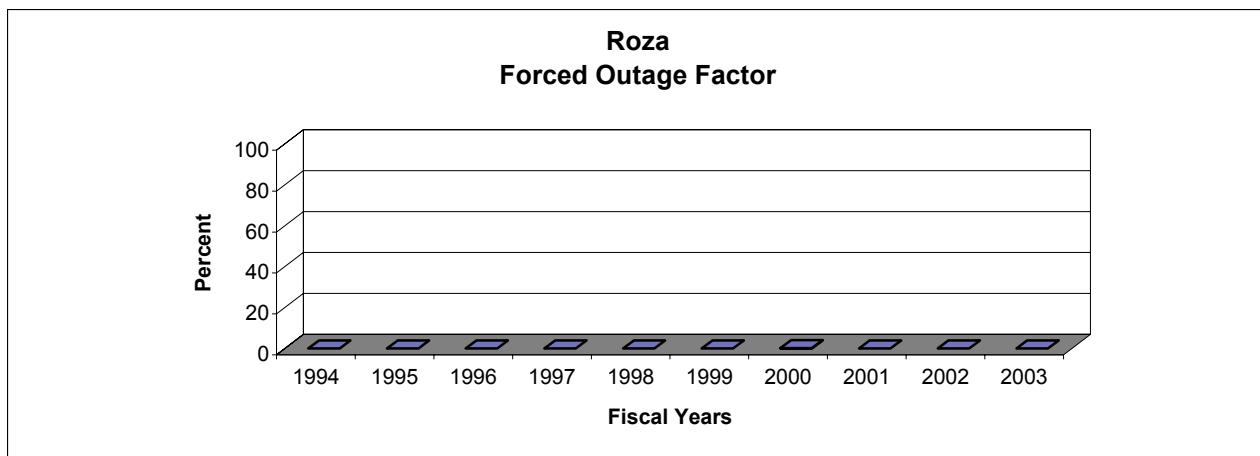
<b>Roza</b> <b>2003 Equivalent</b> <b>Work Year Levels</b>						
	Equiv Work Year Charged to Powerplant	Leave Additive	Denver and Washington Equiv Work Year Additive	Total Equiv Work Year Allocated to Powerplant	Total Equiv Work year per Generating Unit	Total Equiv Work Year per Megawatt
General	0.07	0.01	0.02	0.1	0.1	0.01
Operation	1.47	0.16	0	1.63	1.63	0.13
Maintenance	1.05	0.11	0	1.16	1.16	0.09
Total Staffing	2.59	0.28	0.02	2.89	2.89	0.22



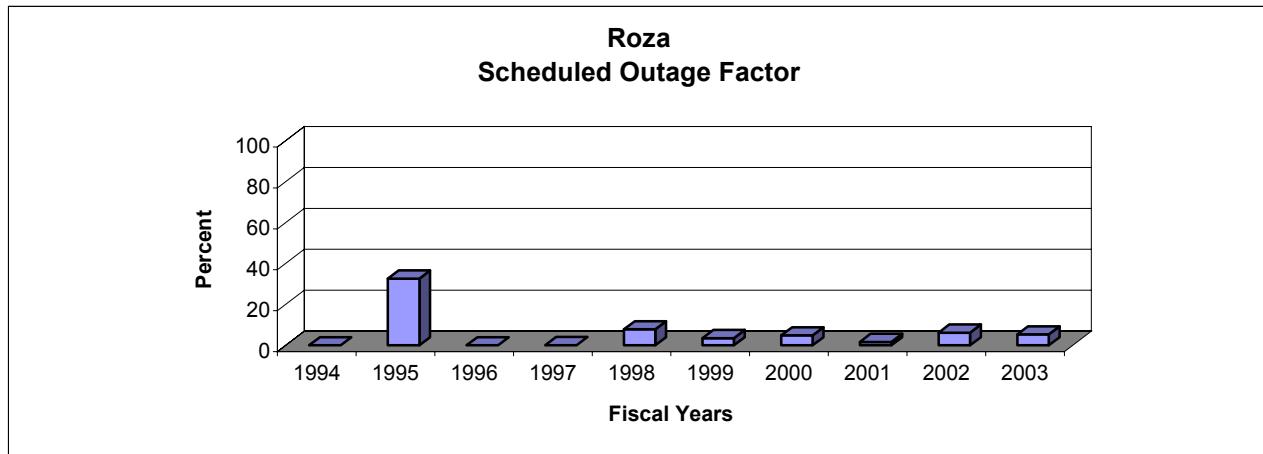
**Benchmark 5**  
**Availability Factor**



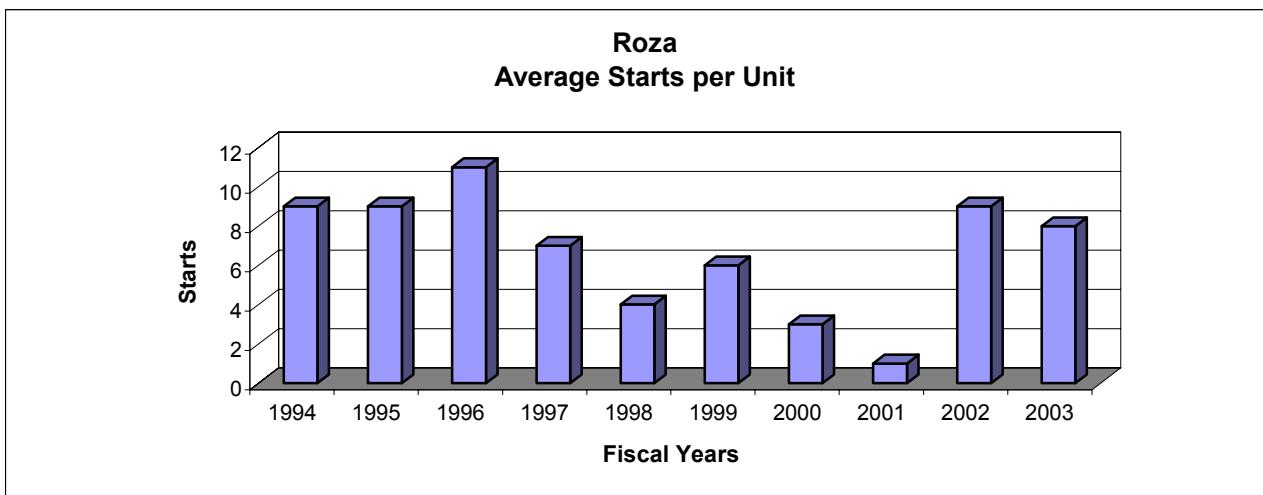
**Benchmark 6**  
**Force Outage Factor**



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



**Starts**



## Benchmark Data Comparison

Fiscal Year 2003	Roza Powerplant	Reclamation Average 10-30 MW Group	Total Reclamation Average	Industry Average	Best Performers
<b>Wholesale Firm Rate Mills/kWh</b>	27.7	Not Applicable	*23.1	Not Available	Not Available
<b>Production Cost as Percentage of Wholesale Firm Rate</b>	0.02%	Not Applicable	12.0%	Not Applicable	Not Applicable
<b>O&amp;M Cost \$/MWh</b>	7.6	17.0	2.7	16.3	1.1
<b>O&amp;M Costs \$/MW</b>	39,618	54,175	7,315	44,907	3,108
<b>O&amp;M Equiv Work Year per MW</b>	0.2	0.28	0.04	Not Available	0.0
<b>Availability Factor</b>	94.6	84.2	83.6	**88.9	99.1
<b>Forced Outage Factor</b>	0.0	0.7	1.5	**2.4	0.0
<b>Scheduled Outage Factor</b>	5.4	15.1	14.9	**8.7	0.0

\*Weighted by Net Generation

\*\*2002 NERC Average