

# Boysen Powerplant Pick-Sloan Missouri Basin Program

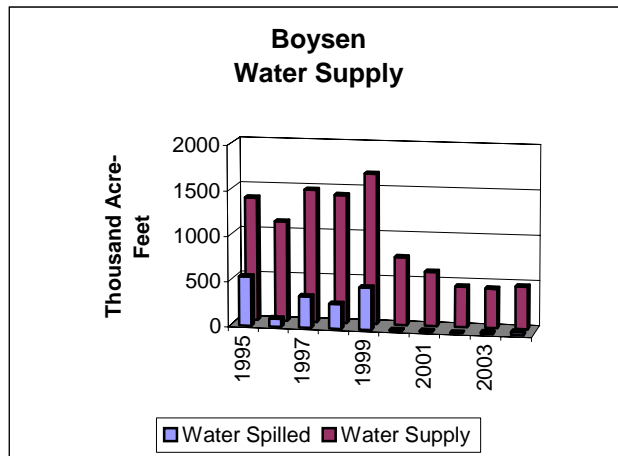
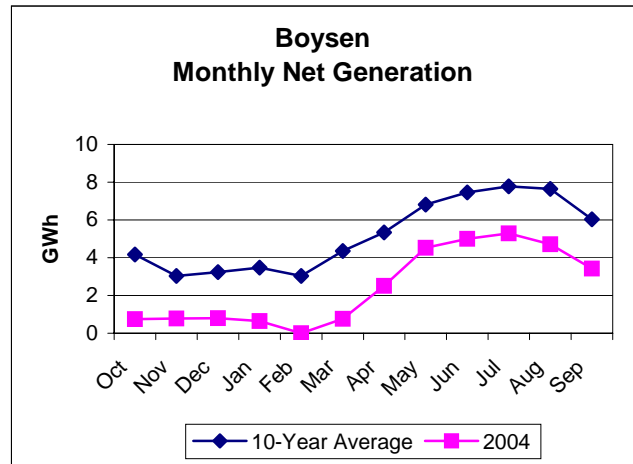
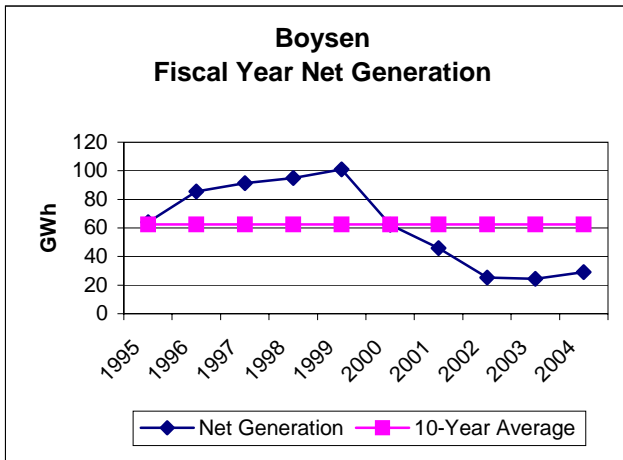
## Ancillary Services

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

## Generators

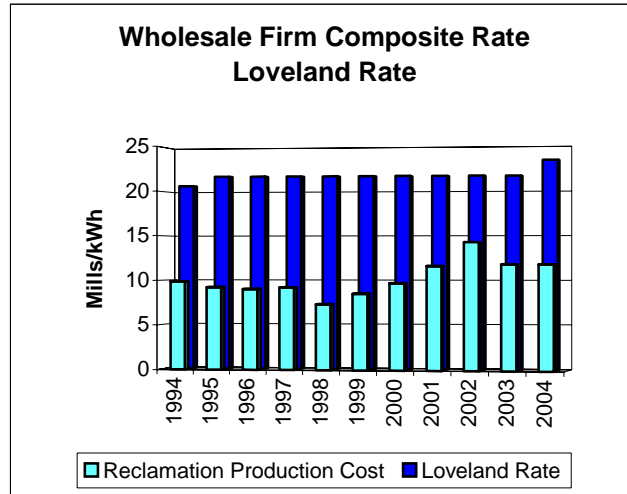
<b>Boysen Generators</b> Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	7,500	0	7,500
2	7,500	0	7,500
2 Units	15,000	0	15,000

**Generation**

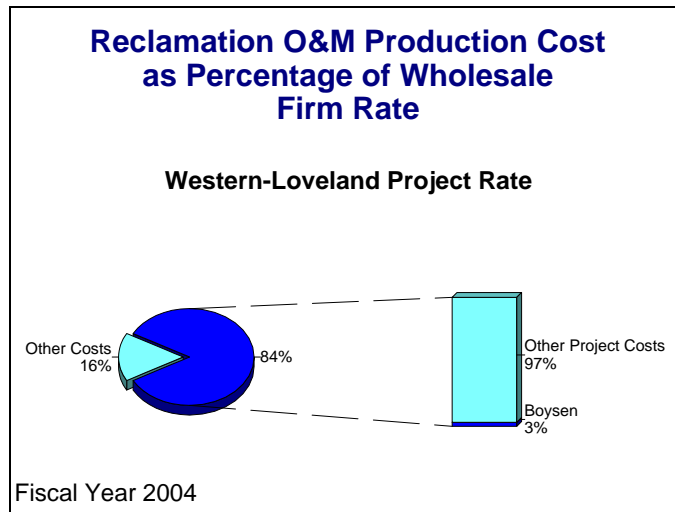


**Prime Laboratory Benchmarks**

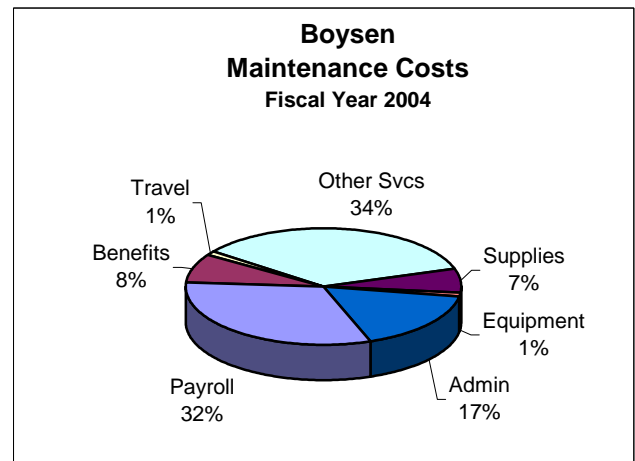
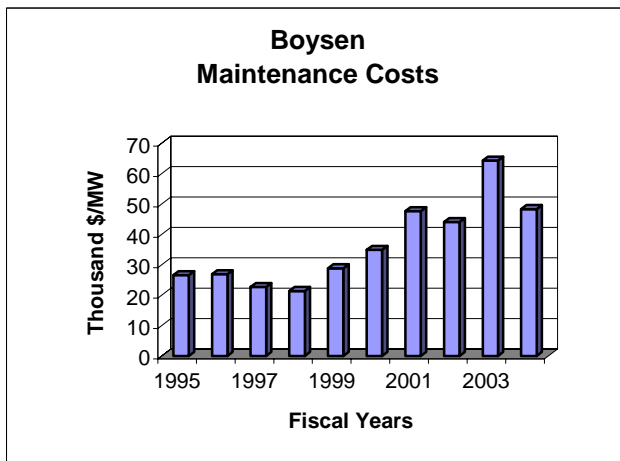
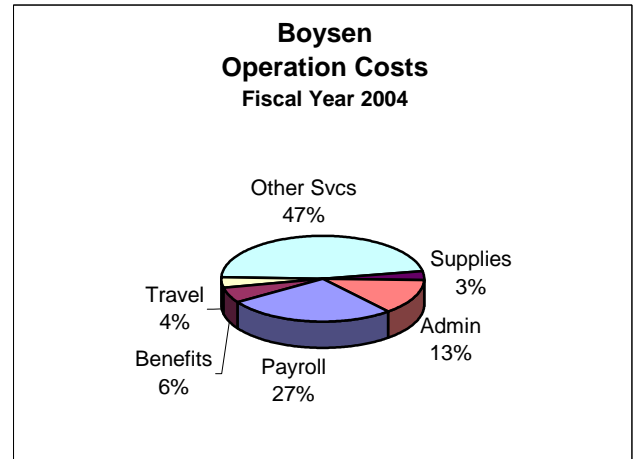
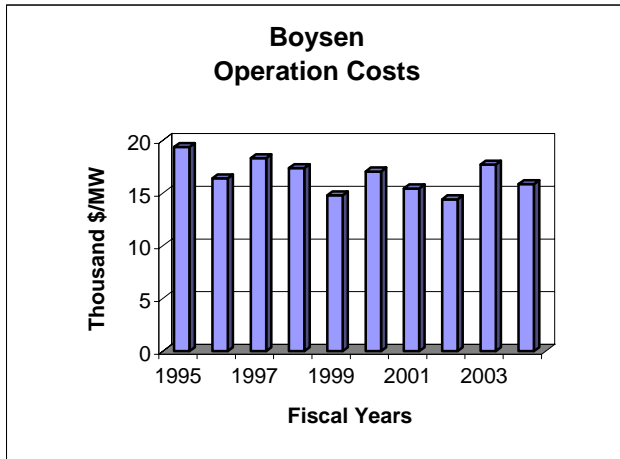
**Benchmark 1  
Wholesale Firm Rate**



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



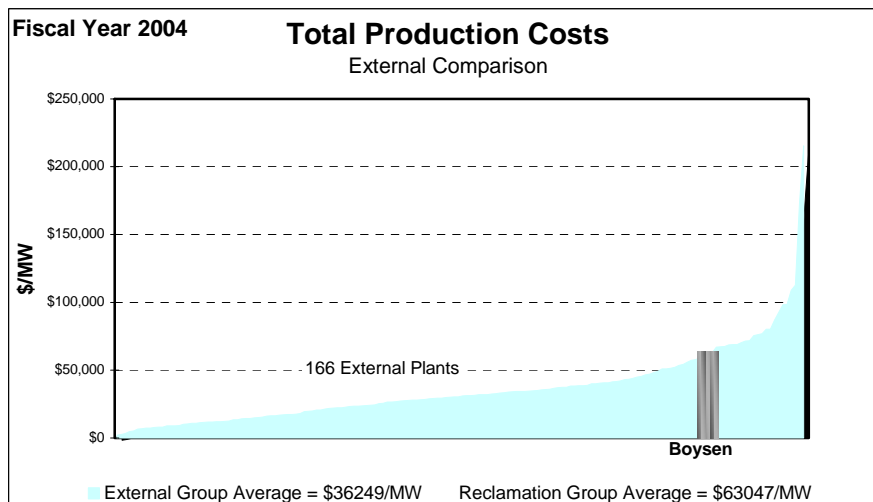
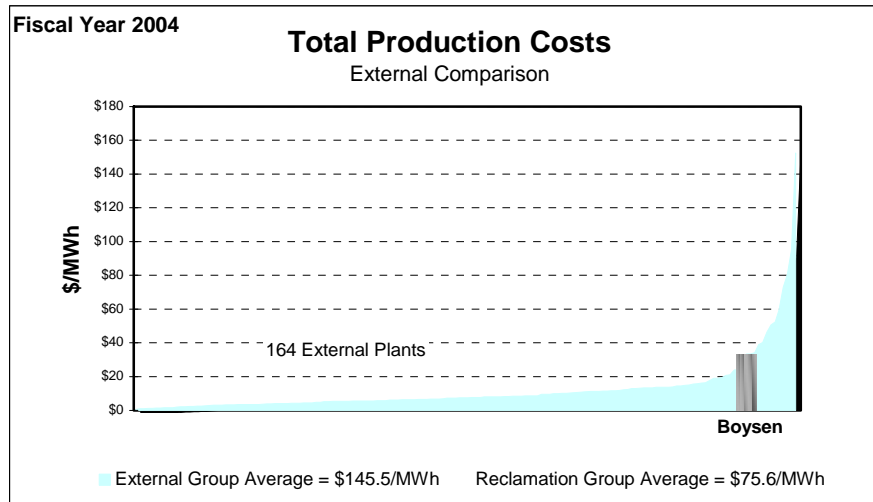
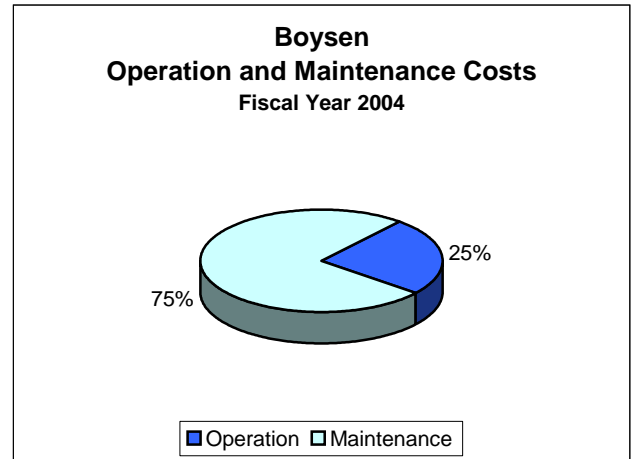
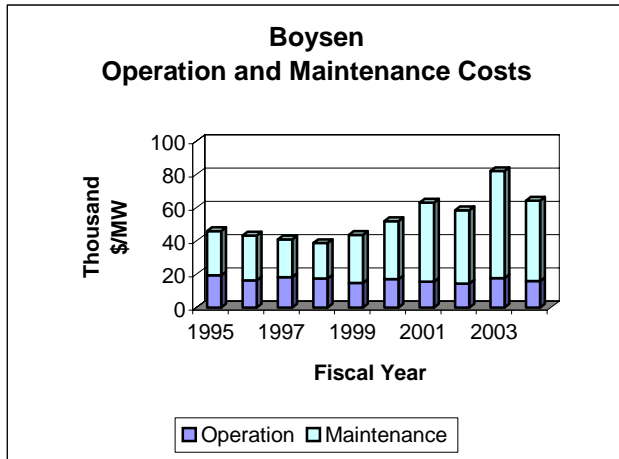
**Benchmark 3  
Production Cost**



FY 01 – Repair of Unit #2 wicket gates and re-packing of penstock expansion joints.

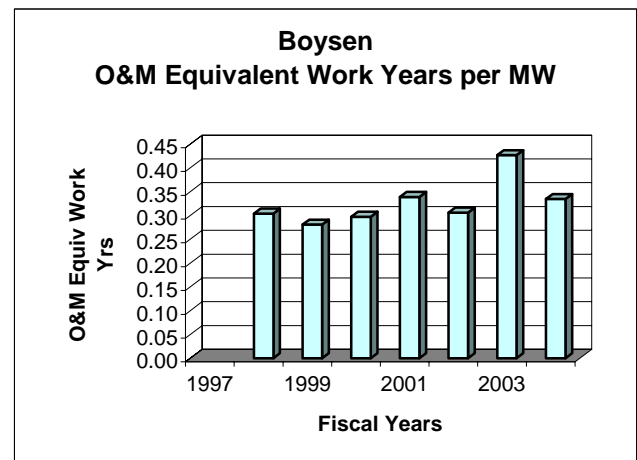
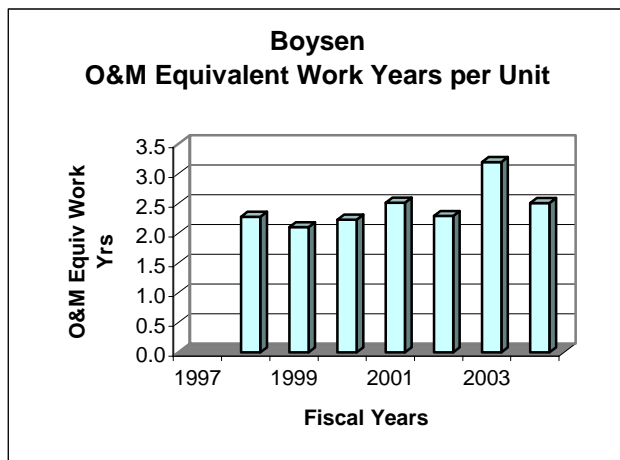
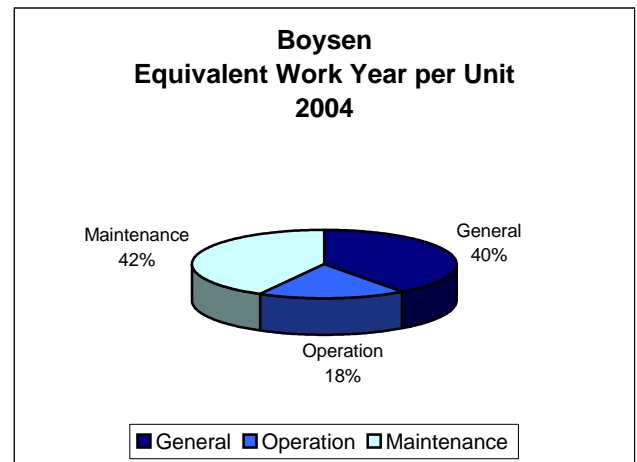
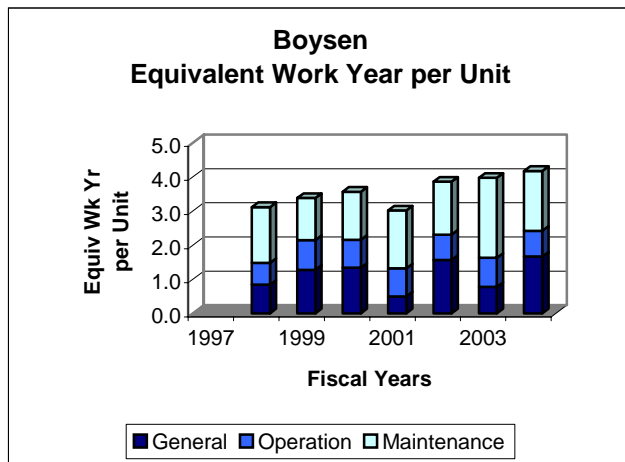
FY 03 – Maintenance Costs include wicket gate greasing system repairs and transformer Doble testing.

**Benchmark 3  
Production Cost**



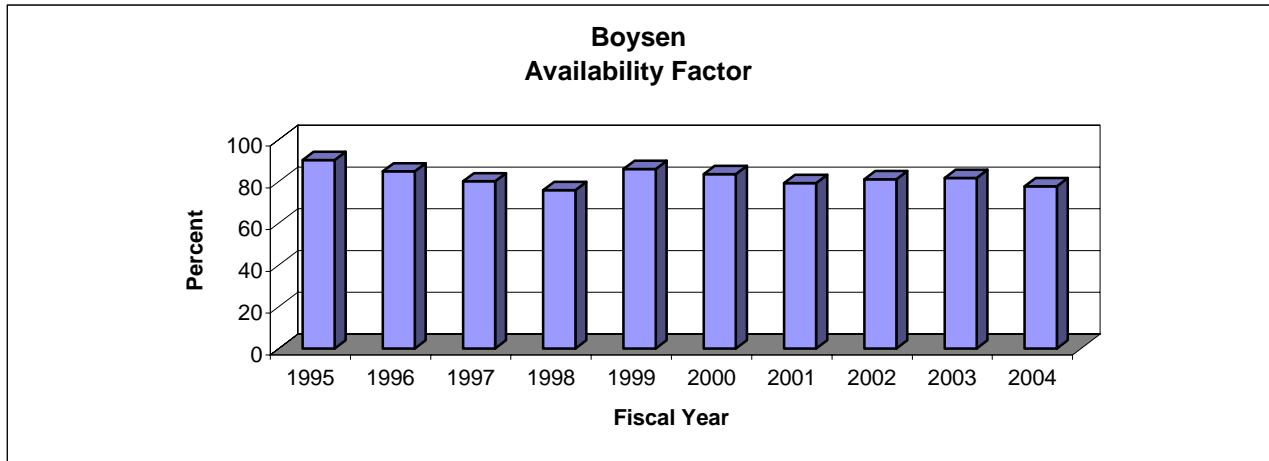
**Benchmark 4  
Workforce Deployment**

<b>Boysen 2004 Equivalent Work Year Levels</b>						
	<b>Equiv Work Year Charged to Powerplant</b>	<b>Leave Additive</b>	<b>Denver and Washington Equiv Work Year Additive</b>	<b>Total Equiv Work Year Allocated to Powerplant</b>	<b>Total Equiv Work Year per Generating Unit</b>	<b>Total Equiv Work Year per Megawatt</b>
General	2.95	0.34	0.03	3.33	1.66	0.22
Operation	1.35	0.16	0.00	1.51	0.75	0.10
Maintenance	3.15	0.36	0.00	3.51	1.75	0.23
Total Staffing	7.45	0.86	0.03	8.34	4.17	0.56

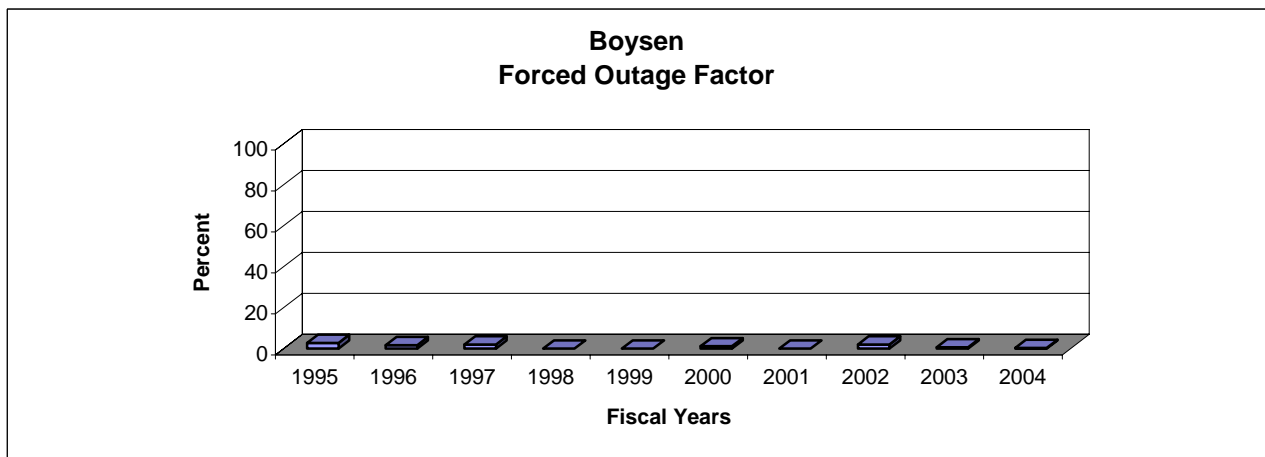


Distributive Accounts not available for FY-97

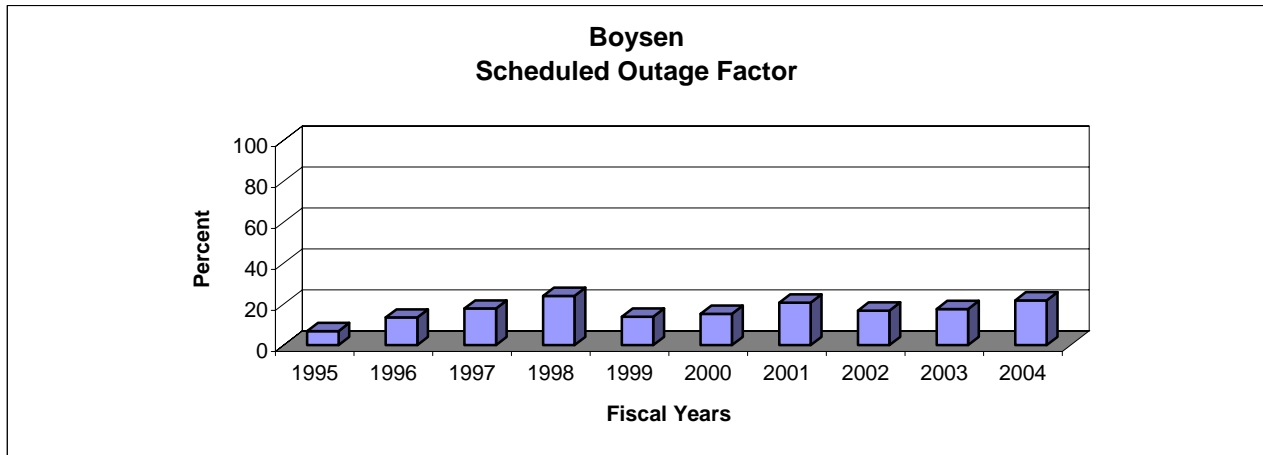
**Benchmark 5  
Availability Factor**



**Benchmark 6  
Forced Outage Factor**

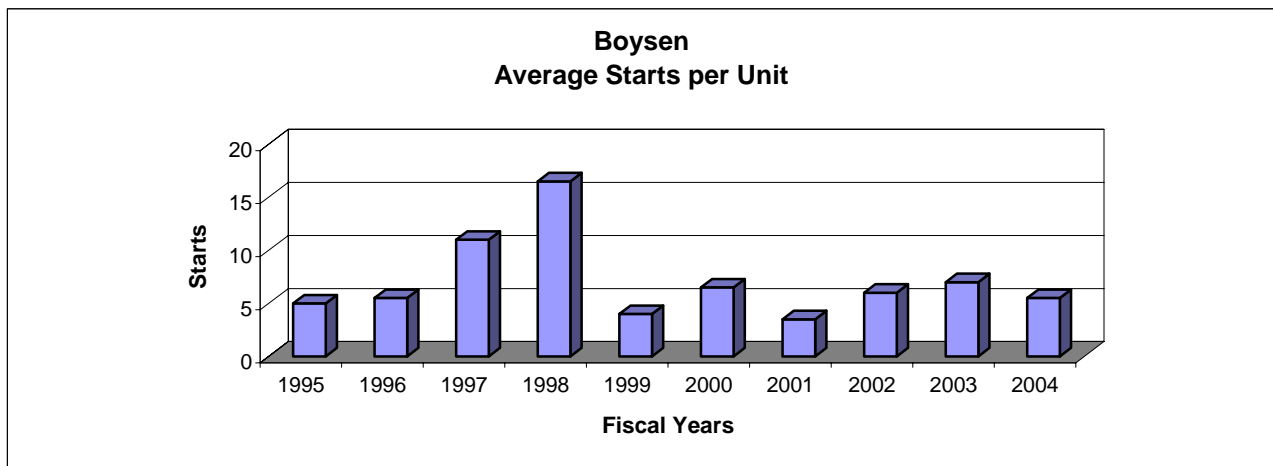


**Benchmark 7  
Scheduled Outage Factor**



- FY-94 – Unit 1 rewiring RTC and watt-hour meter
- FY-97 – Unit 2 extended maintenance
- FY-98 – Units 1 and 2 replace voltage regulator and exciter

**Starts**





<b>Benchmark Data Comparison</b>					
<b>Fiscal Year 2004</b>	<b>Boysen Powerplant</b>	<b>Reclamation Average 10-30 MW Group</b>	<b>Total Reclamation Average</b>	<b>Industry Average</b>	<b>Best Performers</b>
<b>Wholesale Firm Rate Mills/kWh</b>	21.7	Not Applicable	*21.06	Not Available	Not Available
<b>Production Cost as Percentage of Wholesale Firm Rate</b>	2.66%	Not Applicable	13.5%	Not Applicable	Not Applicable
<b>O&amp;M Cost \$/MWh</b>	33.17	24.61	2.77	145.47	1.23
<b>O&amp;M Costs \$/MW</b>	64,197.10	65,356.27	7,316.97	36,248.69	2,951.22
<b>O&amp;M Equip Work Year per MW</b>	0.33	0.3	0.04	Not Available	0.000
<b>Availability Factor</b>	77.8	71.0	86.9	**89.2	99.97
<b>Forced Outage Factor</b>	0.35	0.1	0.7	**1.9	0.00
<b>Scheduled Outage Factor</b>	21.8	28.9	12.4	**8.9	0.02

\*Weighted by Net Generation

\*\*2003 NERC Average

\*\*\*Energy Information Administration Data