

RECLAMATION

Managing Water in the West

Mid-Pacific Region Power Performance

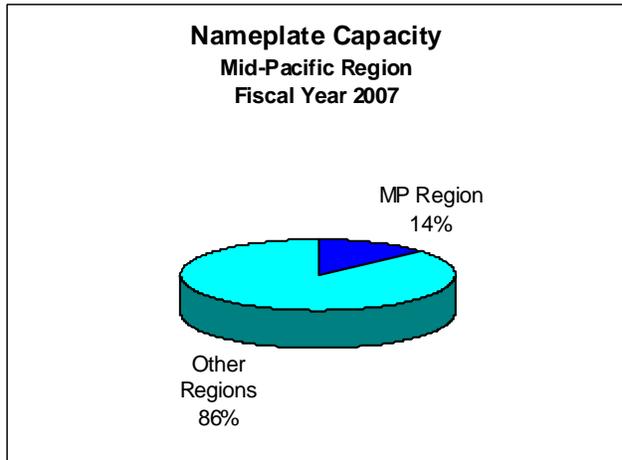
For Fiscal Year 2007



U.S. Department of the Interior
Bureau of Reclamation

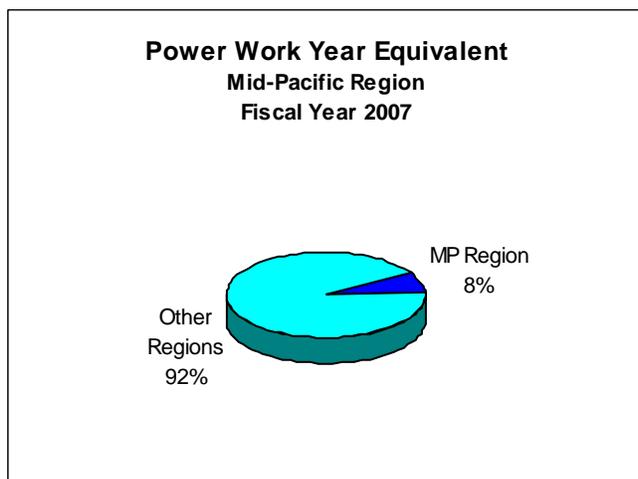
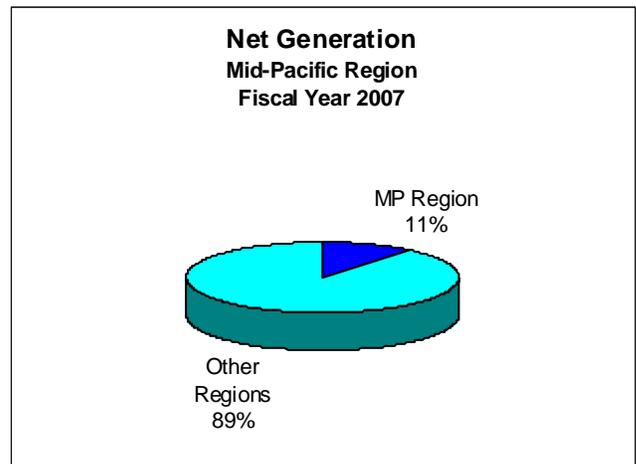
Mid-Pacific Regional Power Overview

The Mid-Pacific Regional Office is located in Sacramento, California. The regional office oversees the operation of 12 powerplants: Folsom, Judge Francis Carr, Keswick, Lewiston, New Melones, Nimbus, O’Neill, San Luis, Shasta, Spring Creek, Stampede, and Trinity.



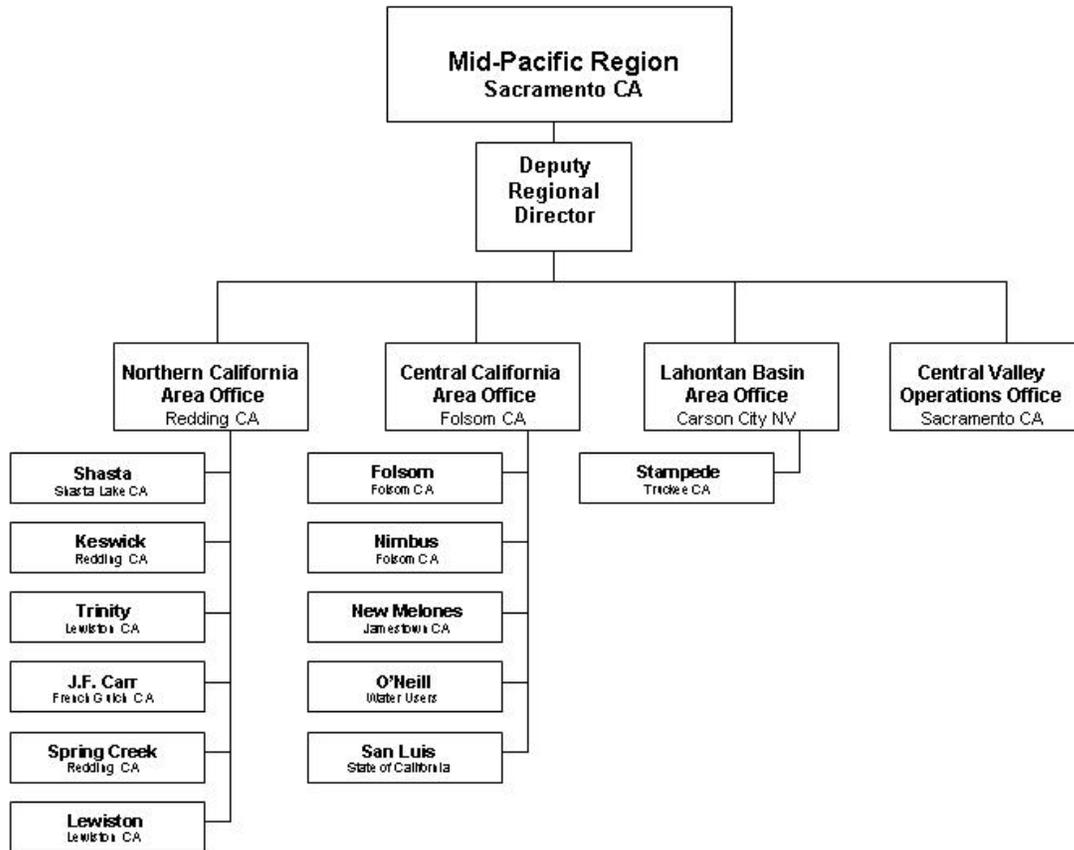
The total capacity for this region is 2,032 megawatts, which comprises 14 percent of the Reclamation total capacity.

In 2007, this region produced 4,466 net gigawatt-hour. This comprises 17 percent of the total net generation for Reclamation in 2007.



In 2007, this region consisted of 9 percent of the total work year equivalent worked at power facilities. Of the 12 facilities located in this region, 8 have no staff assigned on site.

Organizational structure:



This organizational structure displays the offices directly involved with the power program.

Regional Office:

Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento CA 95825-1898

Donald Glaser, Regional Director
MP-100
(916) 979-2200

Central Valley Operations Office:

Ron Milligan, Office Manager
(916) 979-2199

Barry Mortimeyer, CVO-600
(916) 979-3001

North Central California Area Office:

Central California Area Office
7794 Folsom Dam Road
Folsom CA 95630-1799

Mike Finnegan
Area Manager, NCC-100
(916) 988-7213

Northern California Area Office:

Northern California Area Office
16349 Shasta Dam Boulevard
Shasta Dam
Shasta Lake CA 96019-8400

Brian Person
Area Manager, NC-100
(530) 275-1554

Lahontan Basin Area Office:

Lahontan Basin Area Office
PO Box 640
Carson City NV 89702-0640

Betsy Rieke
Area Manager, LO-100
(775) 882-3436

● Bureau of Reclamation

■ Bureau of Reclamation
and State of California



Judge Francis Carr Powerplant Central Valley Project

**Plant Contact:**

Brian Person
Area Manager

Plant Address:

Judge Francis Carr Powerplant
Lewiston CA

Telephone Numbers:

Phone: (530) 275-1554
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

The Trinity River Division was authorized by Public Law 386, 84th Congress, and 1st Session, approved August 12, 1955.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

**Judge Francis Carr
100-500 MW**

Plant Location:	Judge Francis Carr Powerplant is located on Clear Creek in Shasta County, California, at the outlet of Clear Creek Tunnel on the northwestern extremity of Whiskeytown Lake.		
Plant Purpose:	Judge Francis Carr Powerplant is a peaking plant that is dedicated first to meeting the energy requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.		
Plant Facts:	The Judge Francis Carr Powerhouse has two generators with a total capacity of 154,400 kilowatts.		
Plant History:	Judge Francis Carr was originally designated Clear Creek Powerplant. The units were up rated in 1984.		
Present Activities:	Generation of power from water exported from the Trinity River Basin.		
Future Planned Activities:	Generator rewinds and turbine replacement is expected to start in 2009.		
Special Issues:	Plant power production has a degree of fluctuation from tunnel wall organic and mineral coating. Trinity County has first preference to the power benefit for the Central Valley Project from the Judge Francis Carr Powerplant.		
River:	Clear Creek Tunnel	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	143,680 kW	Installed Capacity:	154,400 kW
Year of Initial Operation:	1963	Age:	44 years
Net Generation (FY-2007):	288.1 GWh	Rated Head:	535 feet
Average Plant Factor (FY-2007):	21.4 percent	Remotely Operated:	Yes
Production Mode:	Peaking		

Ancillary Services

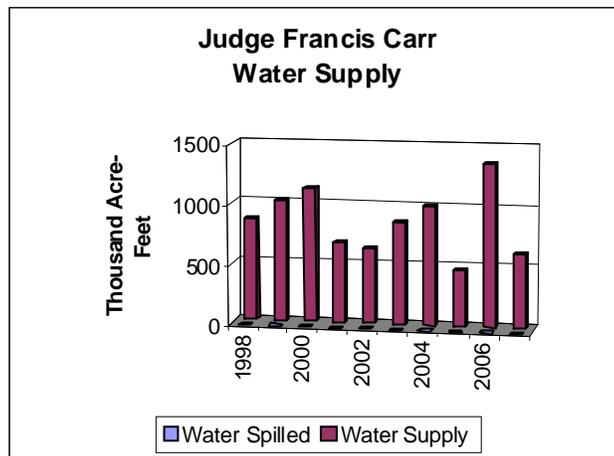
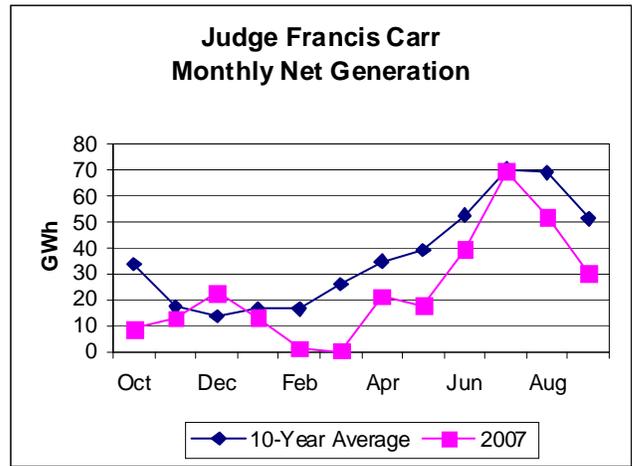
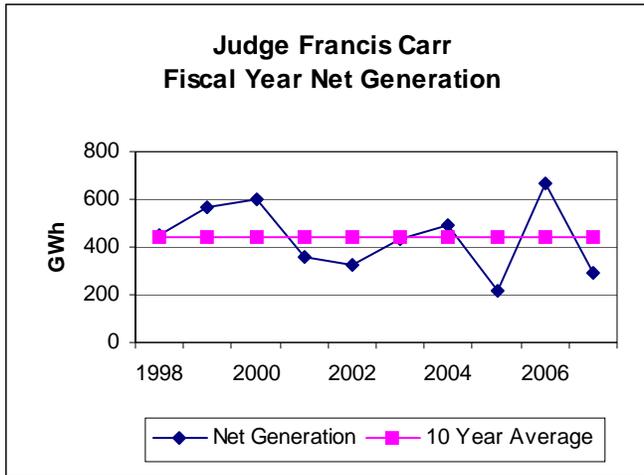
Judge Francis Carr Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	No
Voltage Support	Yes

Generators

Judge Francis Carr Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	70,722	6,478	77,200
2	70,722	6,478	77,200
1 units	141,444	12,956	154,400

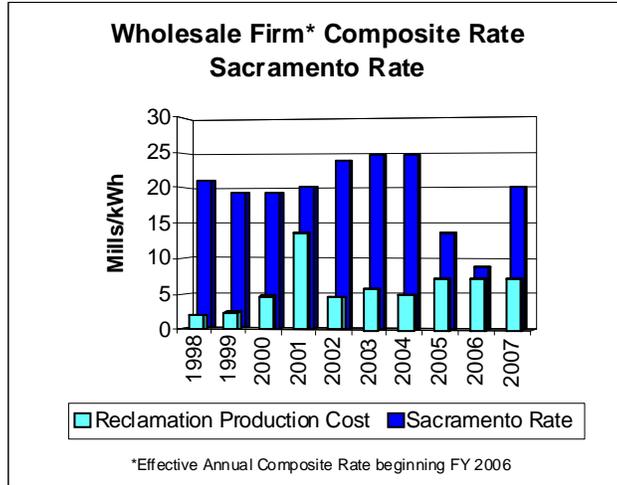
The maximum operational capacity is restricted to 150,000 kW due to the tunnel.

Generation

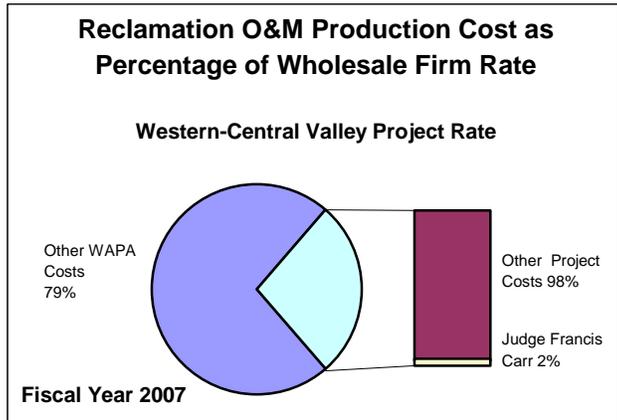


Prime Laboratory Benchmarks

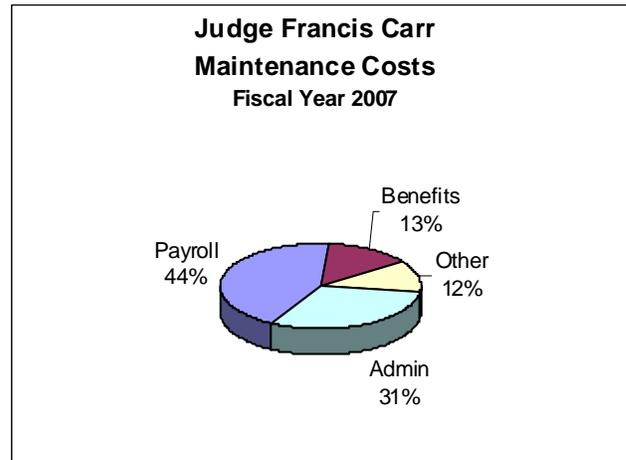
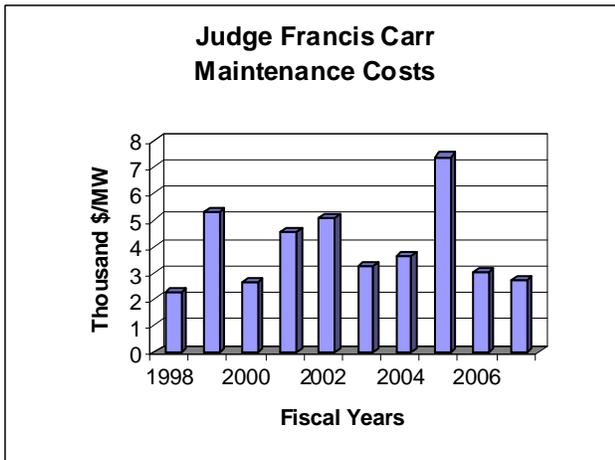
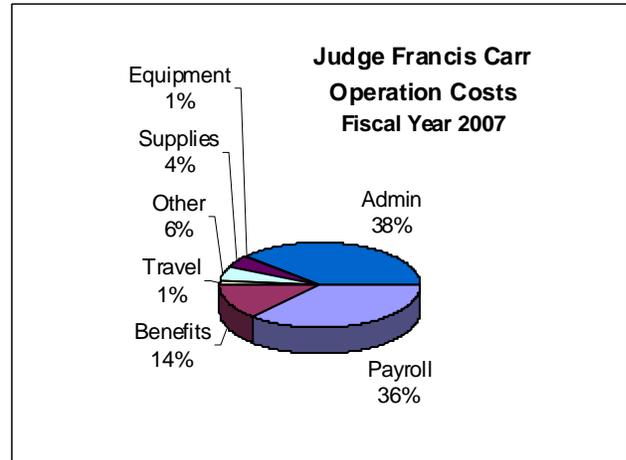
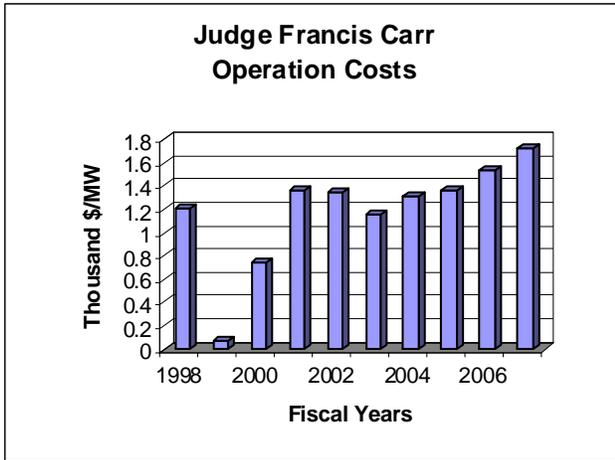
**Benchmark 1
Wholesale Firm Rate**



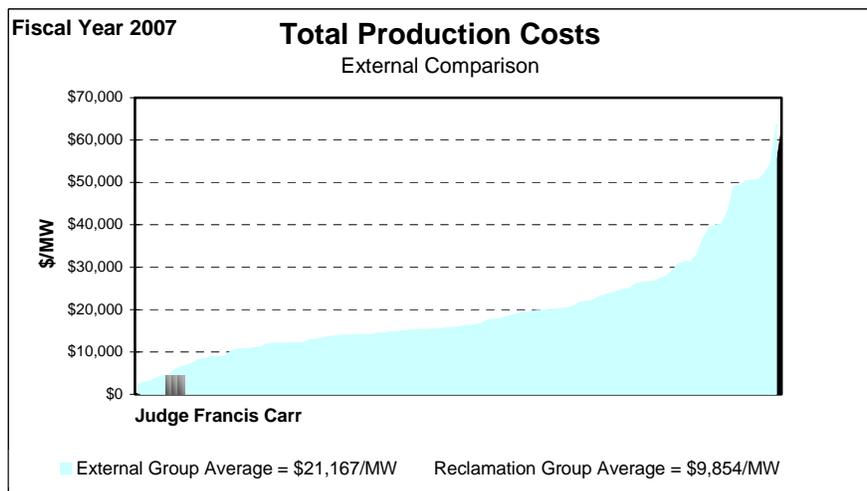
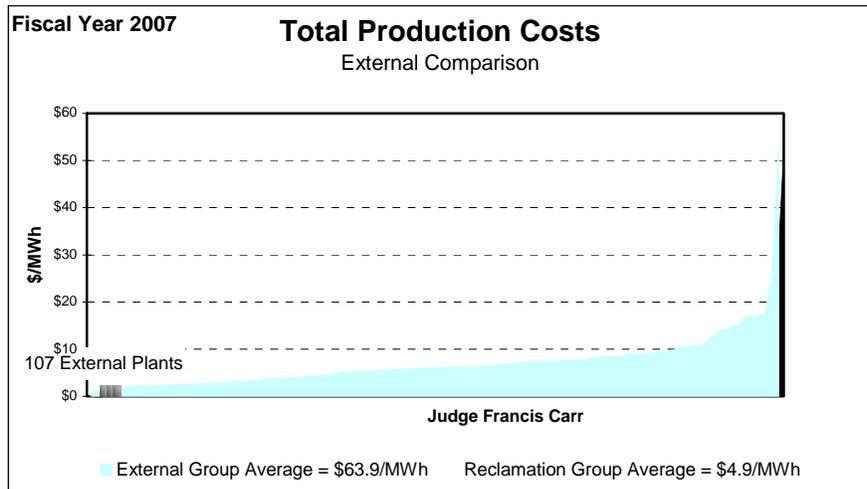
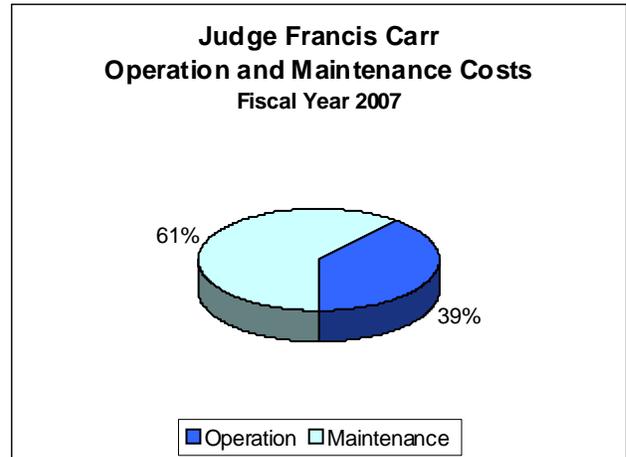
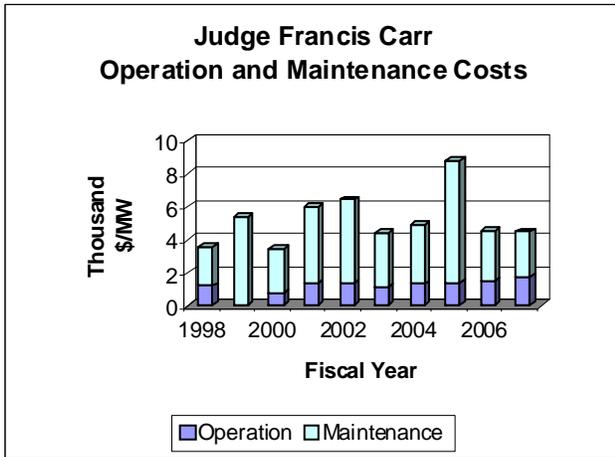
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



**Benchmark 3
Production Cost**

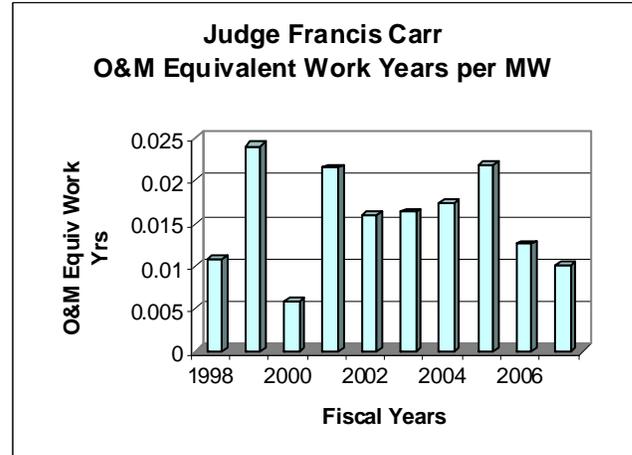
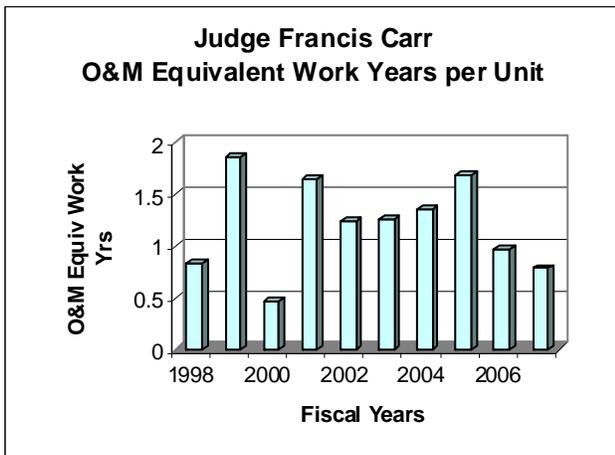
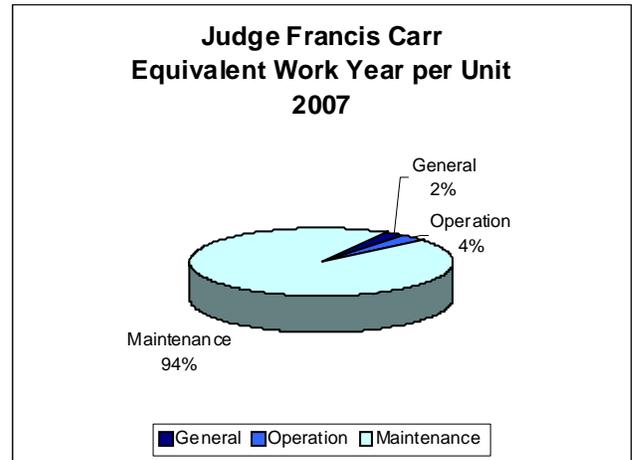
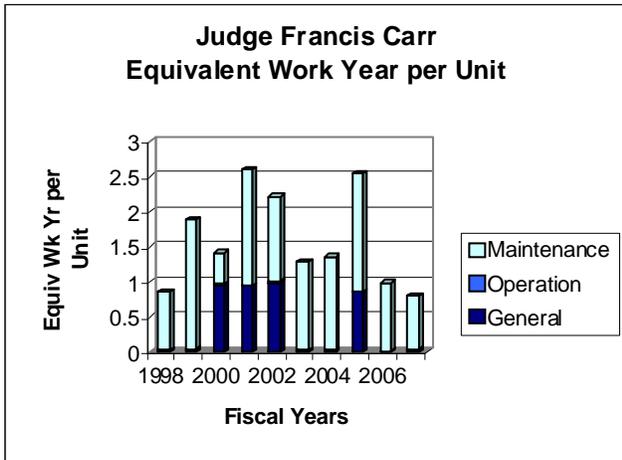


**Benchmark 3
Production Cost**

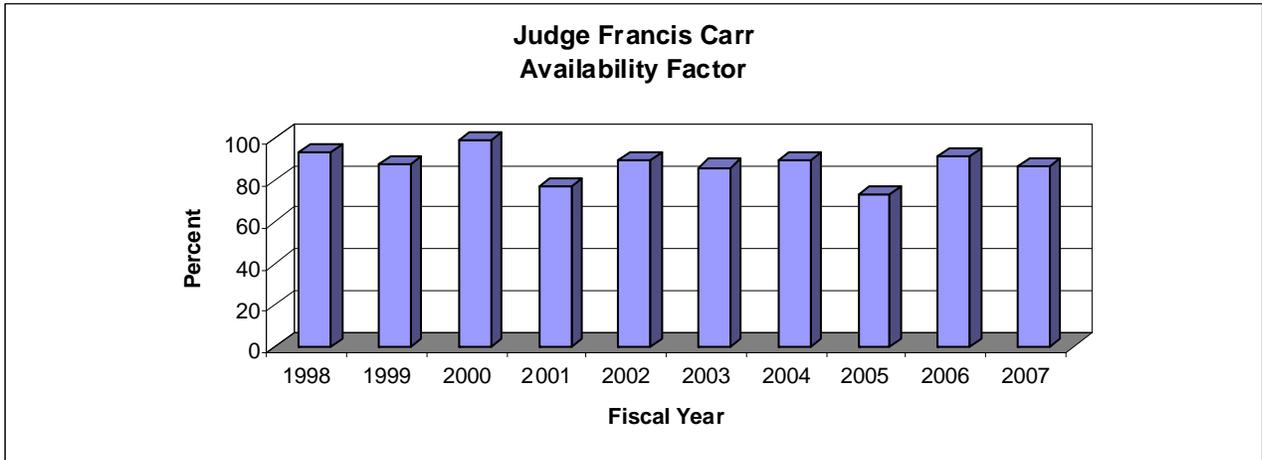


**Benchmark 4
Workforce Deployment**

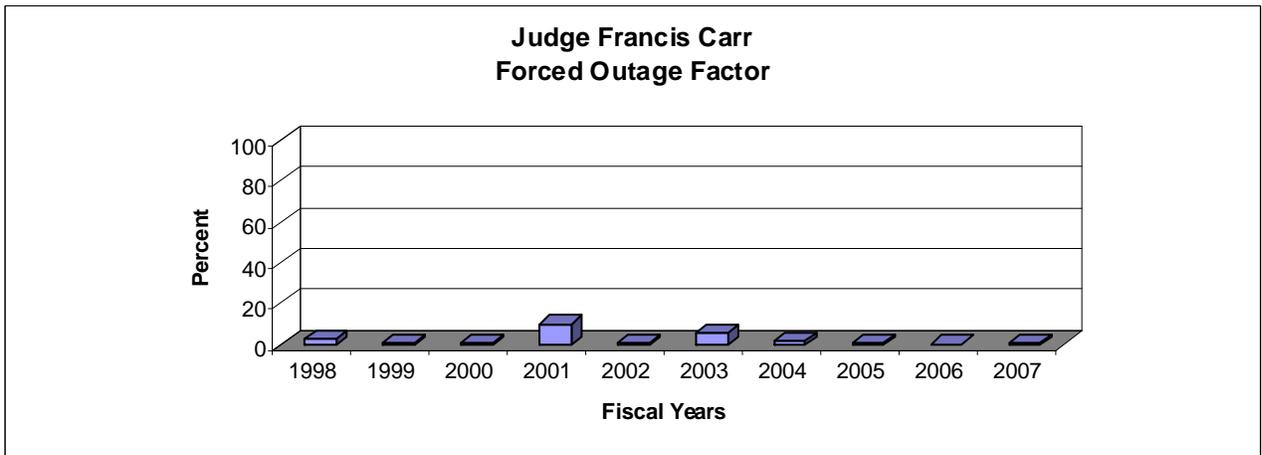
JF Carr FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.00
Operation	0.05	0.01	0.00	0.06	0.03	0.00
Maintenance	1.37	0.13	0.00	1.51	0.75	0.01
Total Staffing	1.43	0.14	0.04	1.60	0.80	0.01



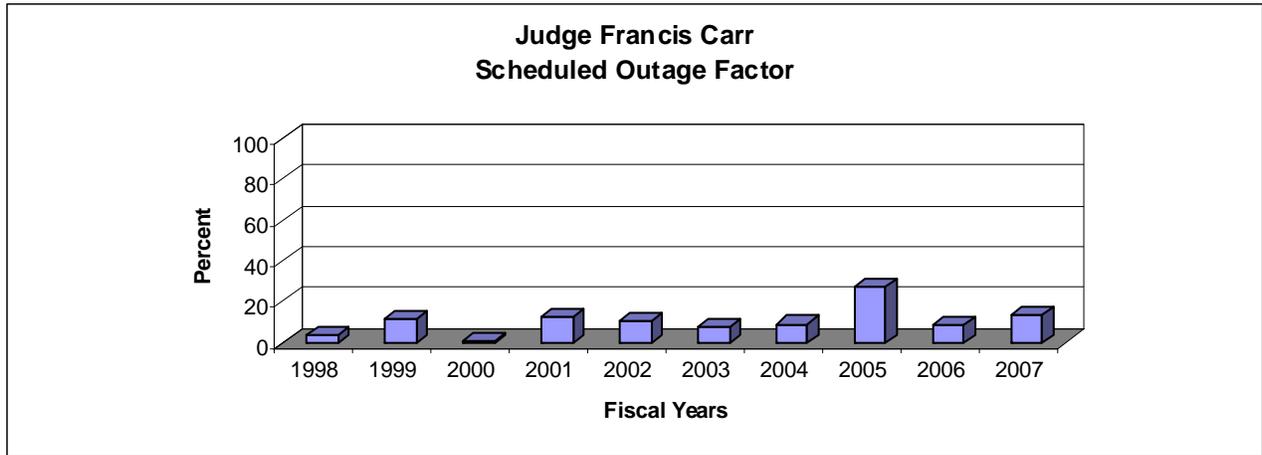
**Benchmark 5
Availability Factor**



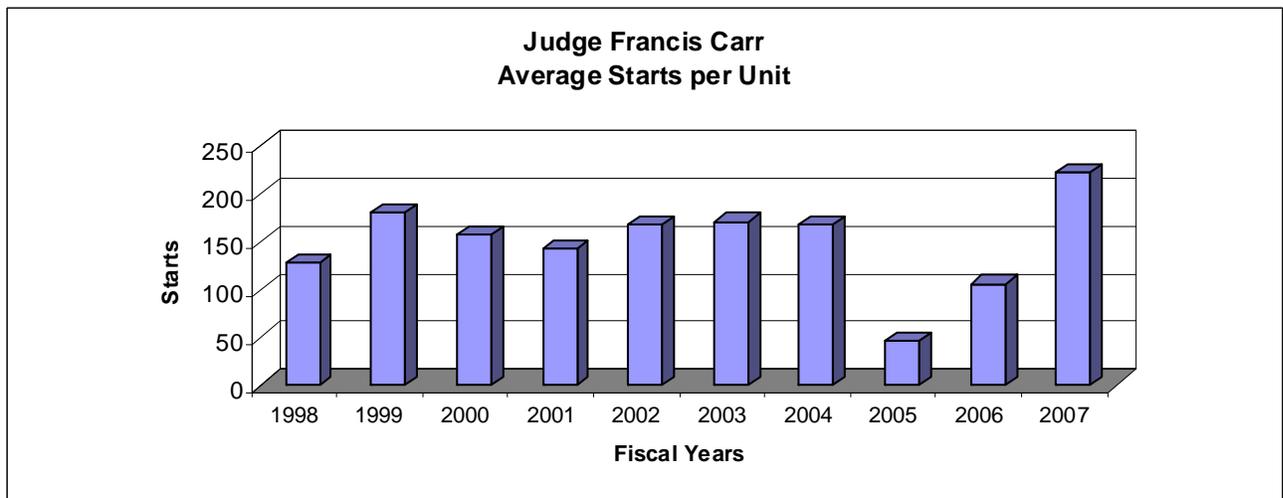
**Benchmark 6
Forced Outage Factor**



**Benchmark 7
Scheduled Outage Factor**



Starts



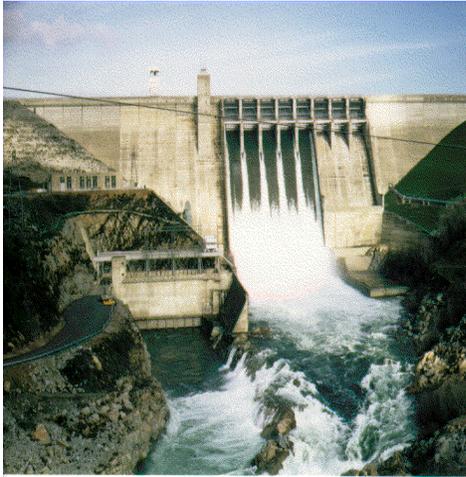
Benchmark Data Comparison					
Fiscal Year 2007	Judge Francis Carr Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	0.8%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	2.38	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	4,450	10,502	7,847	***21,167	2,897
O&M Equip Work Year per MW	0.01	0.04	0.03	Not Available	0.0
Availability Factor	86.7	83.5	82.3	**88.64	98.5
Forced Outage Factor	0.1	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	13.1	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Folsom Powerplant Central Valley Project



Plant Contact:

Mike Finnegan, Area Manager
Central California Area Office

Plant Address:

Folsom Powerplant
Central California Area Office
7794 Folsom Dam Road
Folsom CA 95630

Telephone Numbers:

Phone: (916) 989-7200

Fax: (916) 989-7208

E-Mail Address:

mfinnegan@mp.usbr.gov

- Reclamation Region:** Mid-Pacific
- NERC Region:** Western Electricity Coordinating Council, California-Southern Nevada Power Area
- PMA Service Area:** Western Area Power Administration, Sierra Nevada Region
- Project Authorization:** Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.
- Project Purposes:** The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.
- Although the Folsom Unit, American River Division, was developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

Ancillary Services

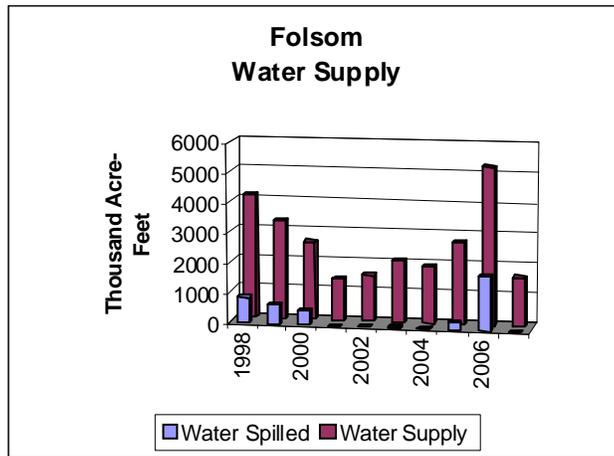
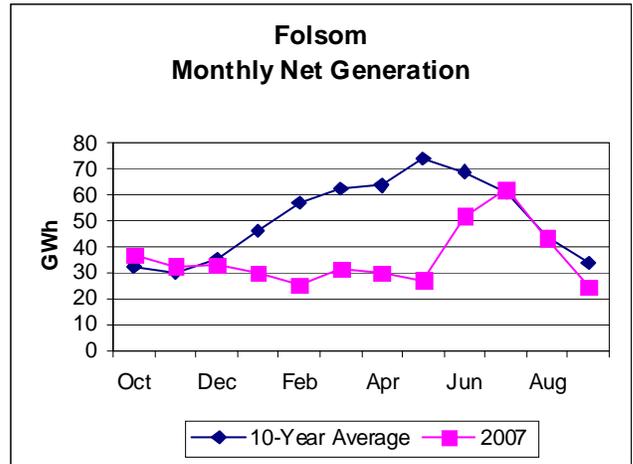
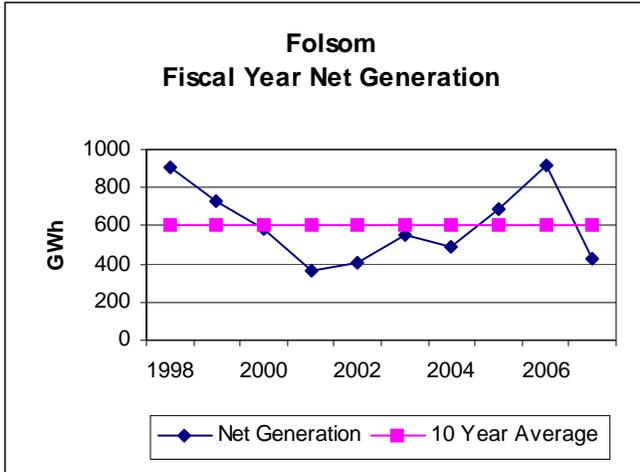
Folsom Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	Yes
Voltage Support	Yes

Generators

Folsom Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	54,000	12,240	66,240
2	54,000	12,240	66,240
3	54,000	12,240	66,240
3 units	162,000	36,720	198,720

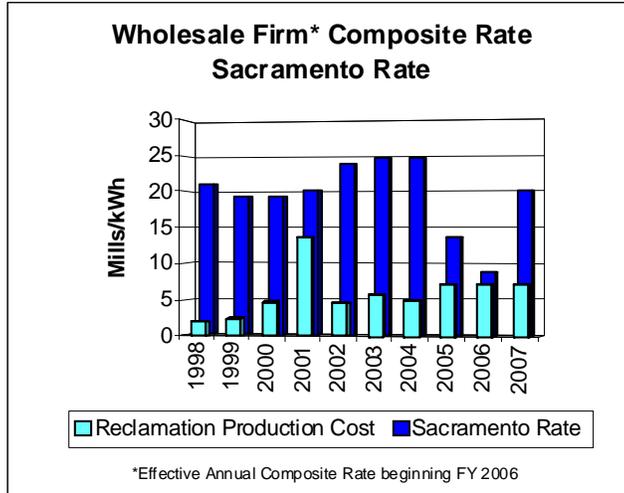
The maximum operational capacity is 210,000 kW

Generation

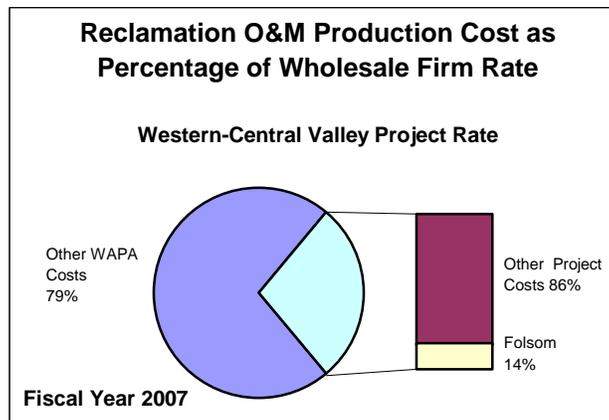


Prime Laboratory Benchmarks

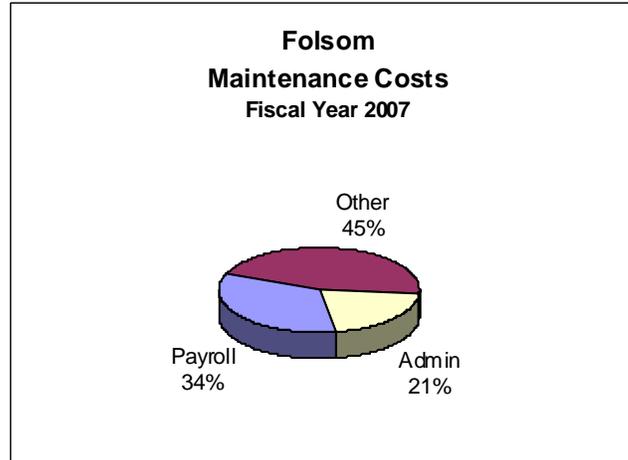
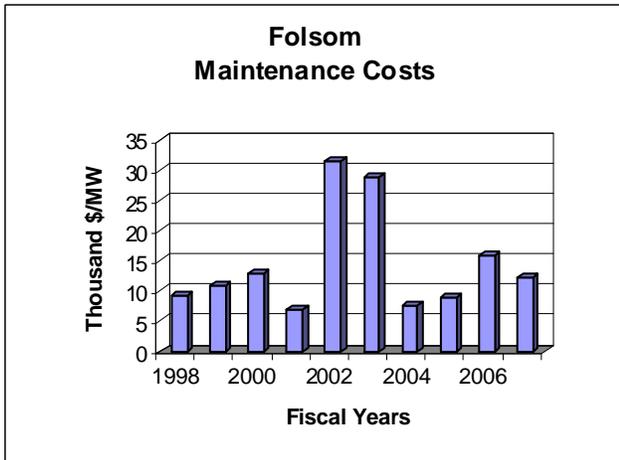
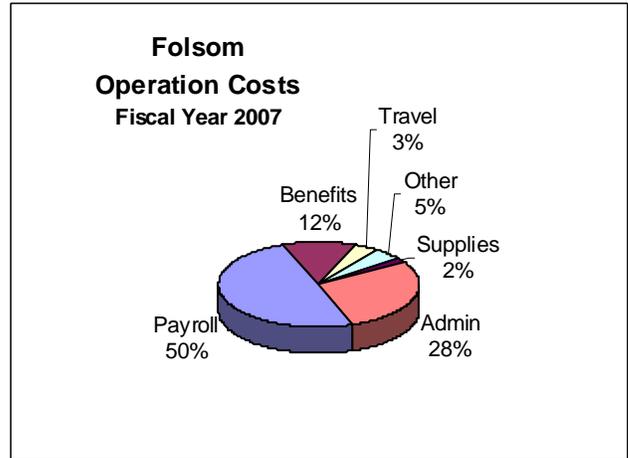
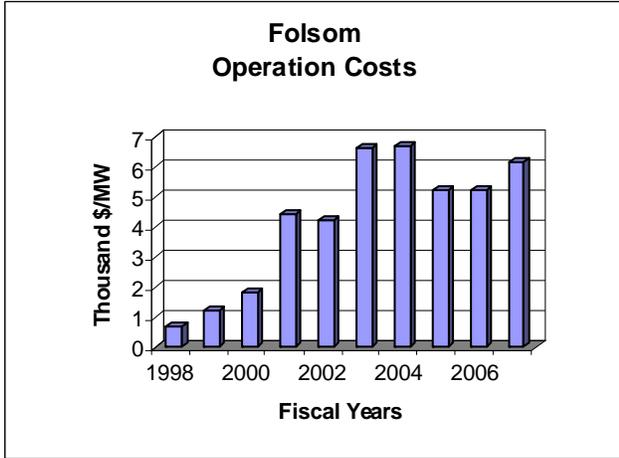
**Benchmark 1
Wholesale Firm Rate**



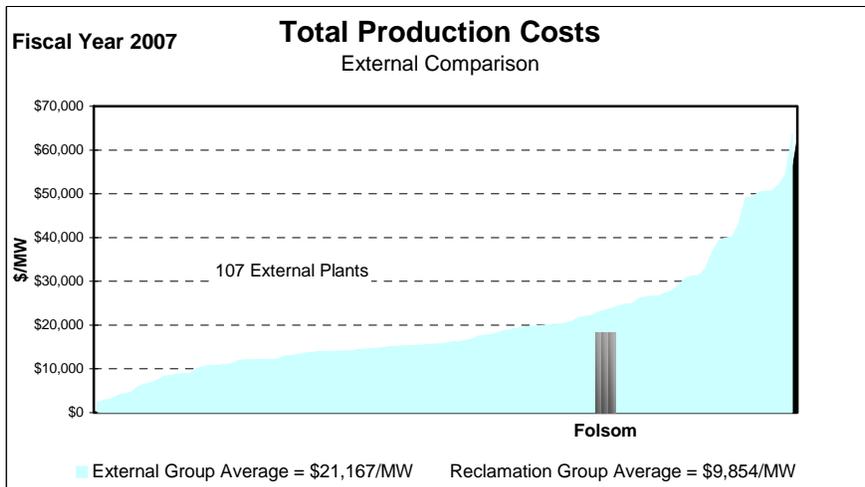
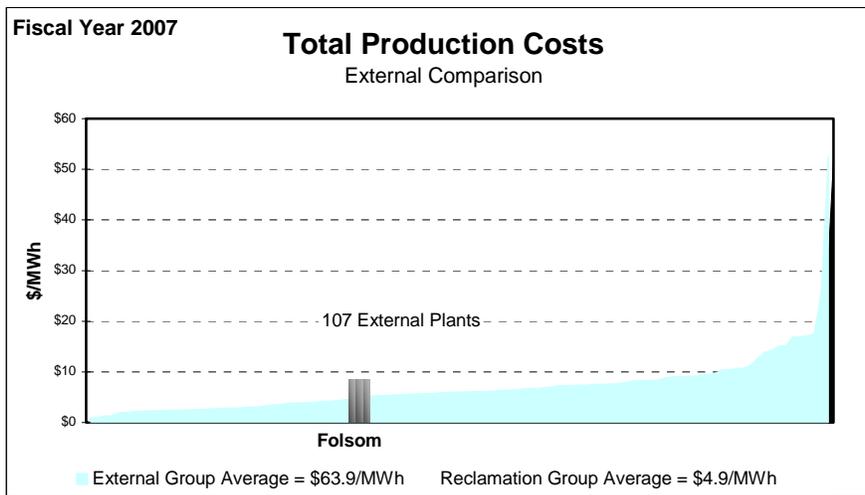
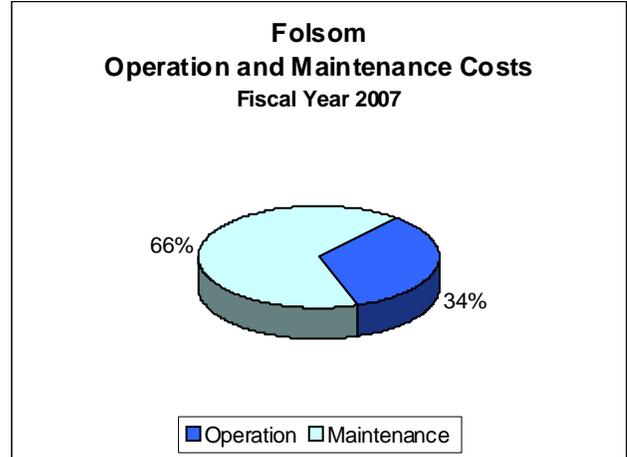
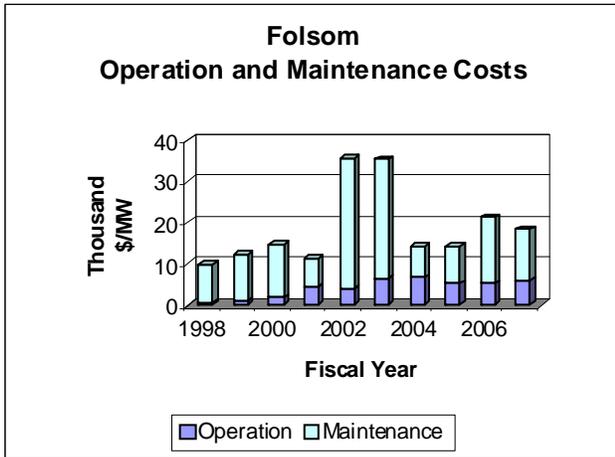
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



**Benchmark 3
Production Cost**

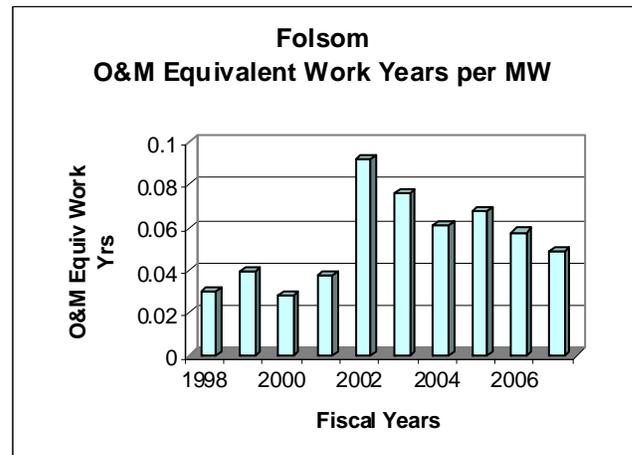
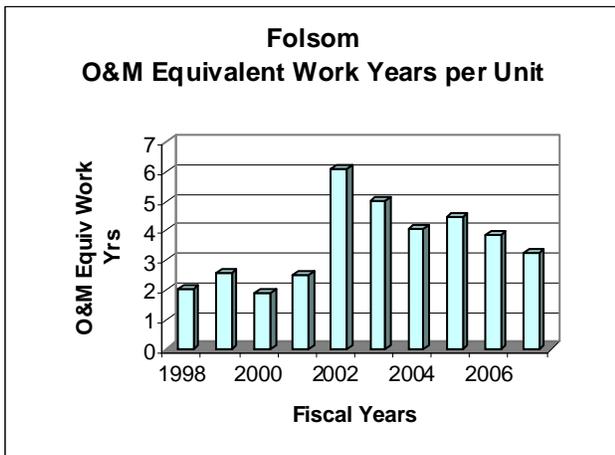
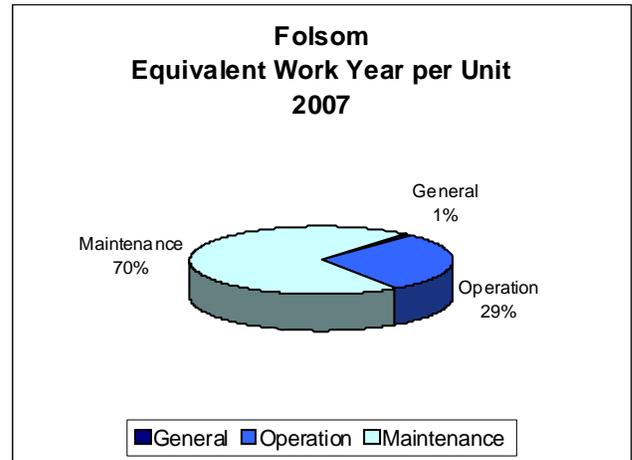
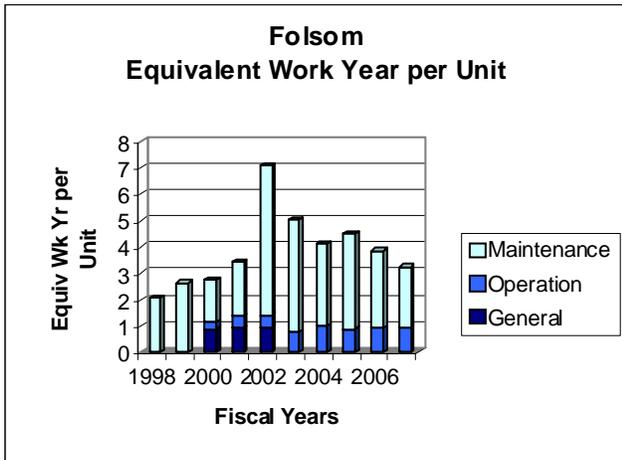


**Benchmark 3
Production Cost**

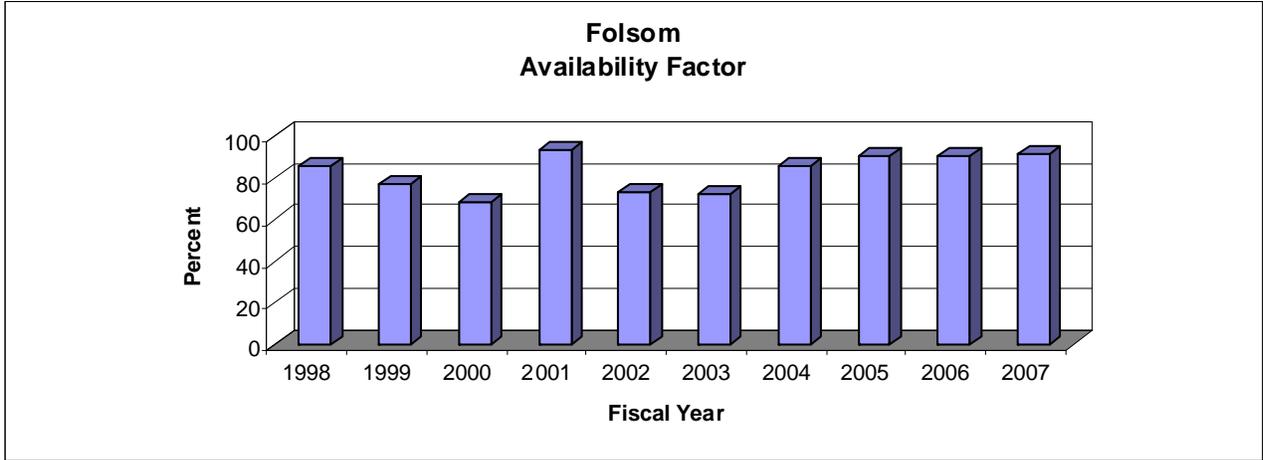


Benchmark 4
Workforce Deployment

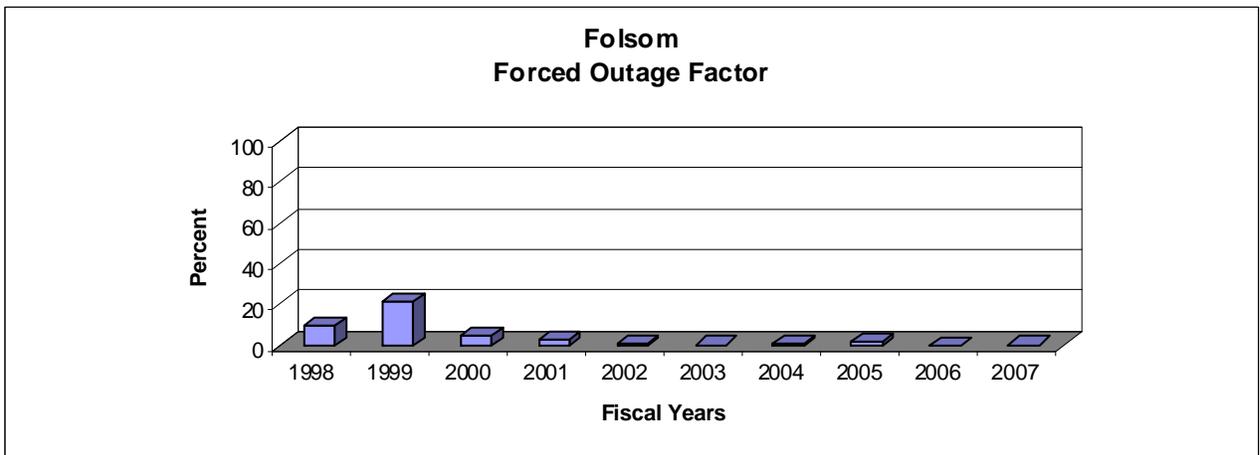
Folsom FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.05	0.05	0.02	0.00
Operation	2.55	0.25	0.00	2.80	0.93	0.01
Maintenance	6.26	0.60	0.00	6.87	2.29	0.03
Total Staffing	8.82	0.85	0.05	9.72	3.24	0.05



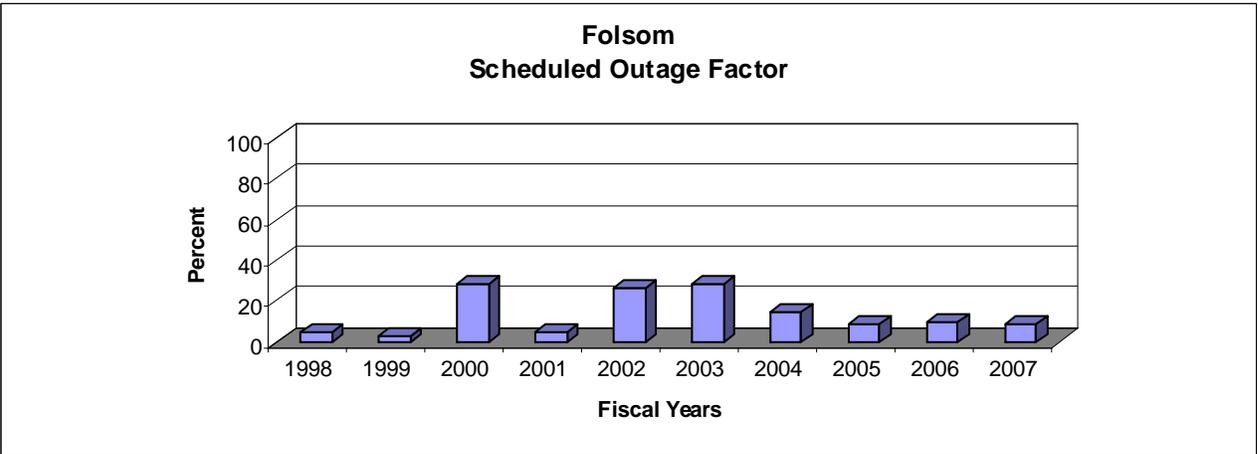
**Benchmark 5
Availability Factor**



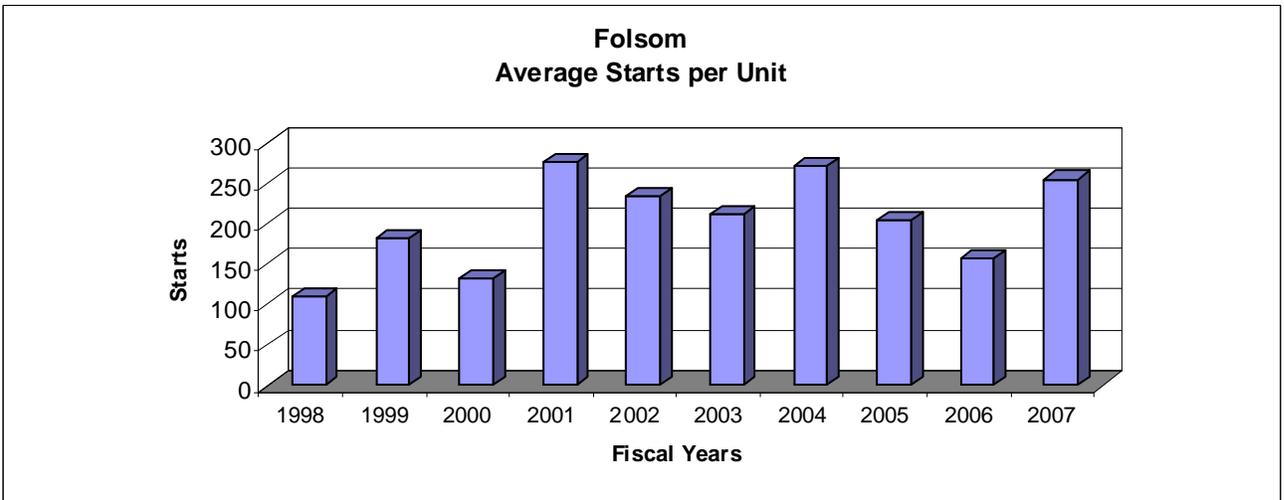
**Benchmark 6
Forced Outage Factor**



**Benchmark 7
Scheduled Outage Factor**



Starts



**Folsom Powerplant
100-500 MW**

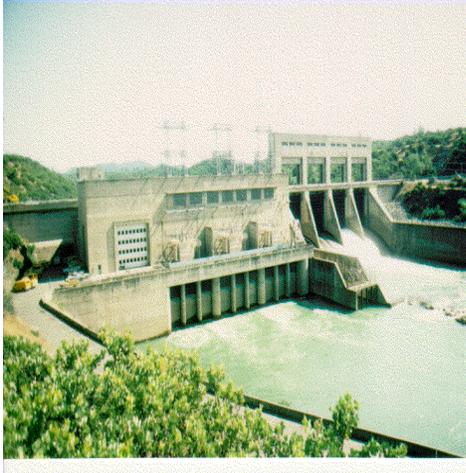
Benchmark Data Comparison					
Fiscal Year 2007	Folsom Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	4.3%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	8.56	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	18,346	10,502	7,847	***21,167	2,897
O&M Equiv Work Year per MW	0.05	0.04	0.03	Not Available	0.00
Availability Factor	91.9	83.5	82.3	**88.64	98.5
Forced Outage Factor	0.1	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	8.0	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Keswick Powerplant Central Valley Project



Plant Contact:

Brian Person
Area Manager

Plant Address:

Keswick Powerplant
Redding CA 96003

Telephone Numbers:

Phone: (530) 241-1246
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California - Southern Nevada Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region.

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

The Trinity River Division was authorized by Public Law 386, 84th Congress, 1st Session, approved August 12, 1955.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

Keswick Powerplant
100-500 MW

Plant Location:	Keswick Powerplant is located on the Sacramento River in Shasta County, California, 9 miles downstream from Shasta Dam about 4 miles west of Redding, California.		
Plant Facts:	Keswick Dam is a concrete gravity structure 157 feet high and 20 feet wide at the crest. The crest is 1,046 feet long. The Keswick Powerplant, located at Keswick Dam, has three generating units with a total capacity of 117,000 kilowatts.		
Plant Purpose:	Keswick Powerplant is a run-of-the-river plant, which is dedicated first to meeting the energy requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.		
Plant History:	Units were up rated in 1992.		
Present Activities:	Normal operations. Maintain and regulate river releases.		
Future Planned Activities:	Studies are being conducted to determine if flashboards can be added to the spillway gates.		
Special Issues:	Plant augments local loads during system disturbances.		
River:	Sacramento River	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	75,000 kW	Installed Capacity:	117,000 kW
Year of Initial Operation:	1949	Age:	58 years
Net Generation (FY- 2007):	419.0 GWh	Rated Head:	78 feet
Average Plant Factor (FY-2007):	41.0 percent	Remotely Operated:	No
Production Mode:	Intermediate		

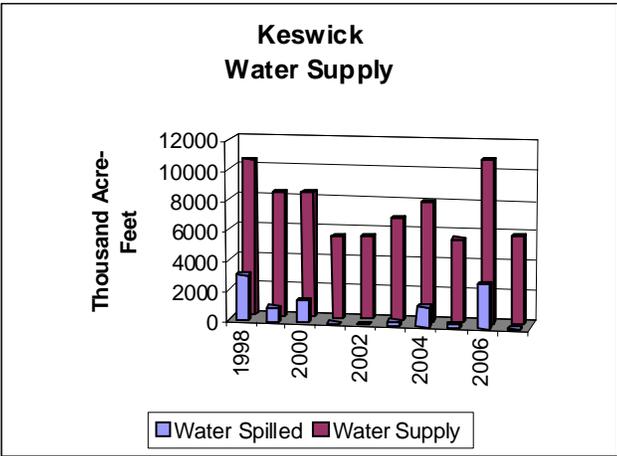
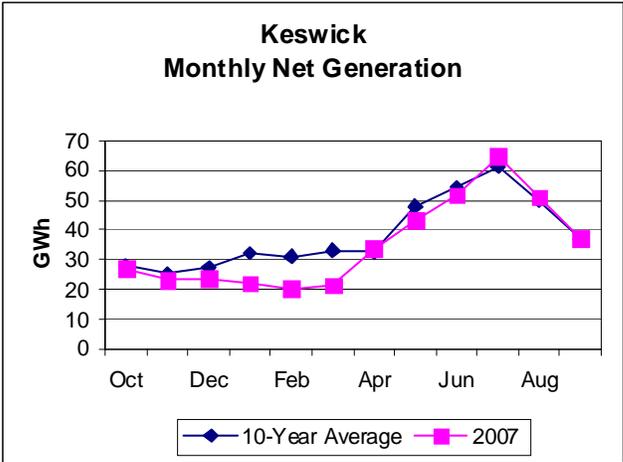
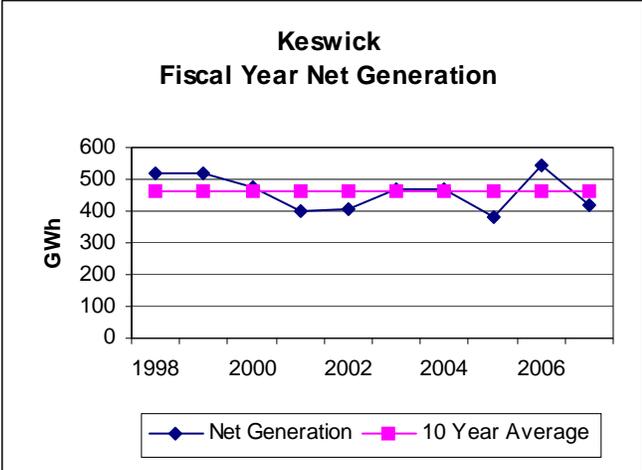
Ancillary Services

Keswick Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	Yes
Voltage Support	Yes

Generators

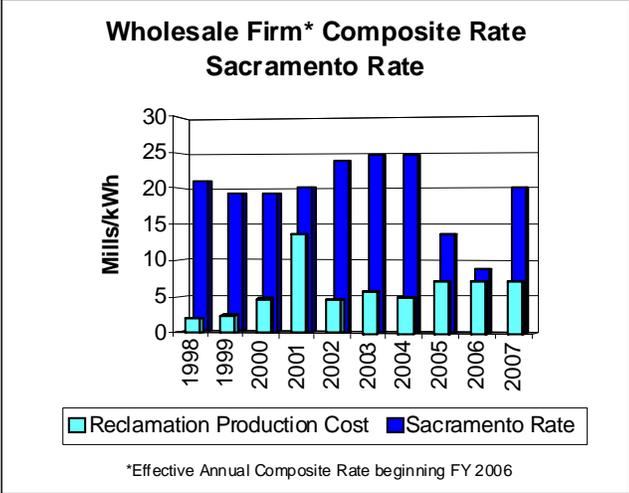
Keswick Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	25,000	14,000	39,000
2	25,000	14,000	39,000
3	25,000	14,000	39,000
3 units	75,000	42,000	117,000

Generation

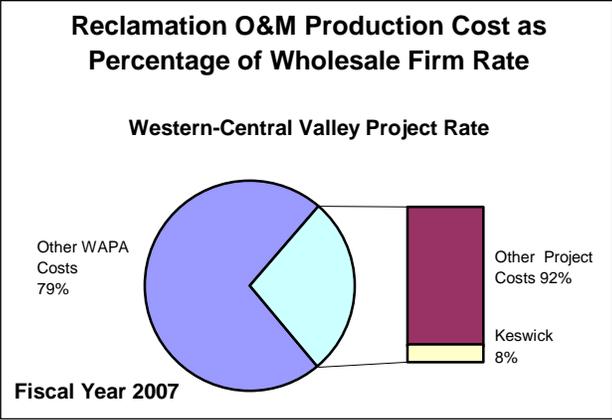


Prime Laboratory Benchmarks

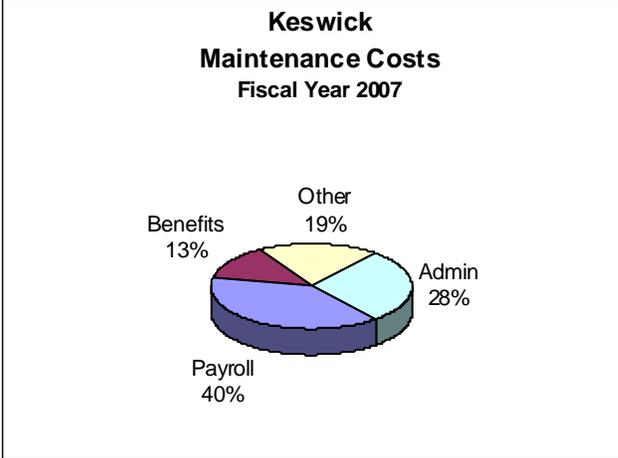
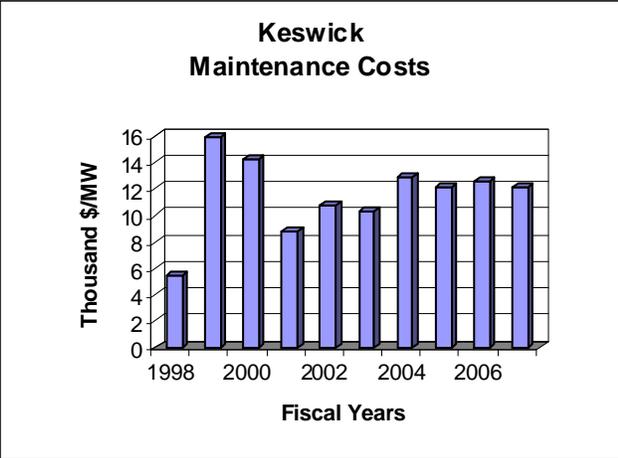
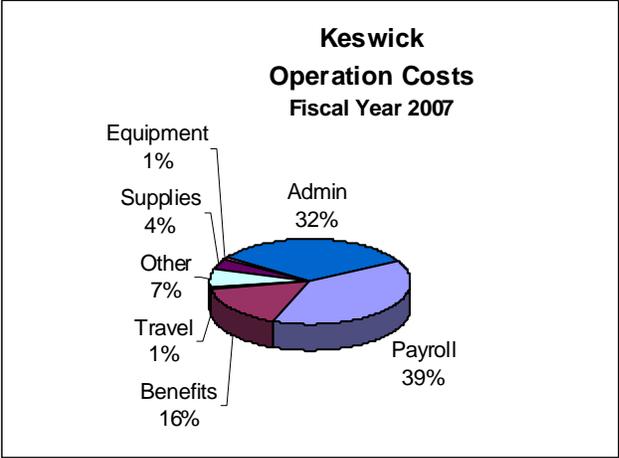
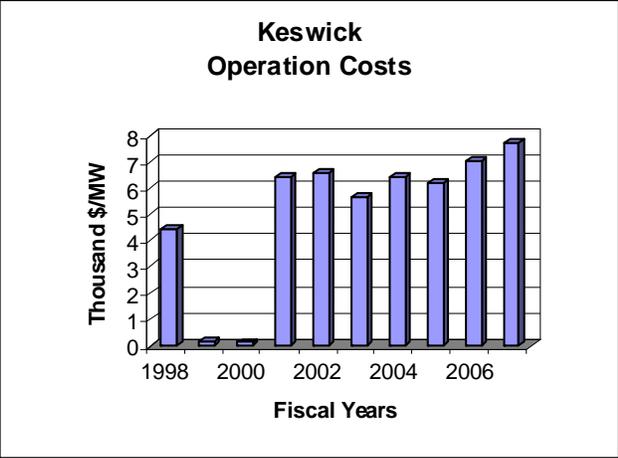
**Benchmark 1
Wholesale Firm Rate**



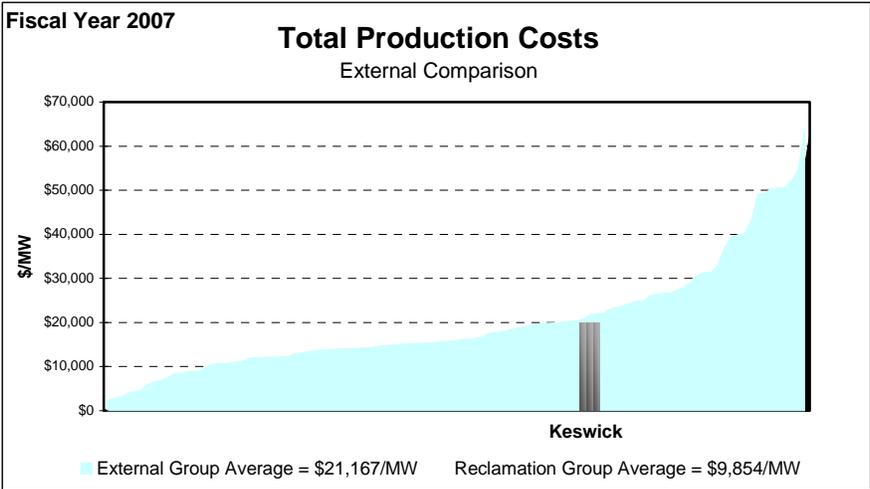
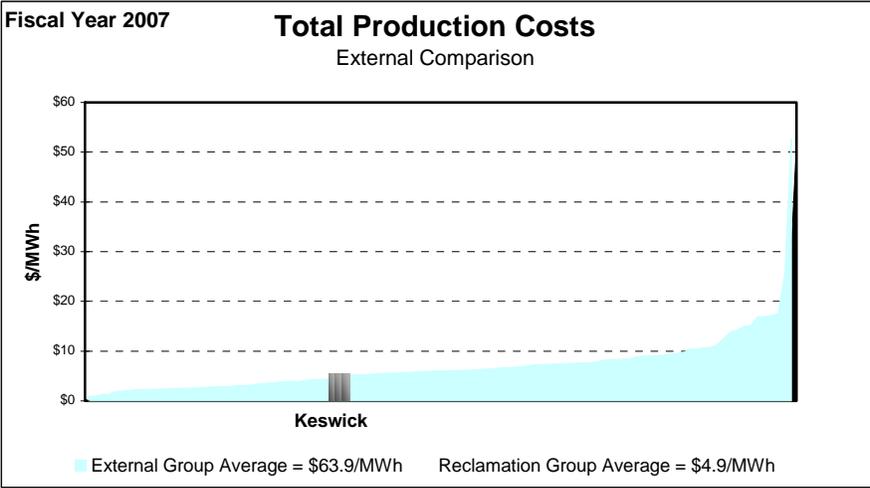
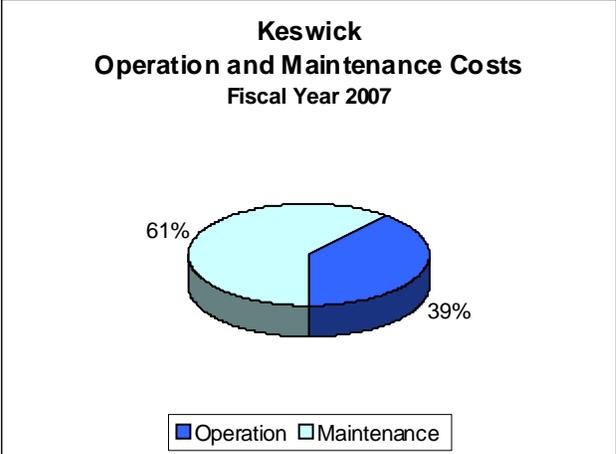
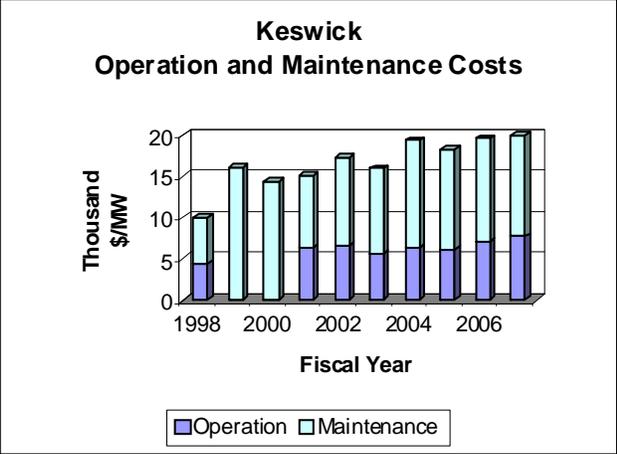
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



Benchmark 3
Production Cost

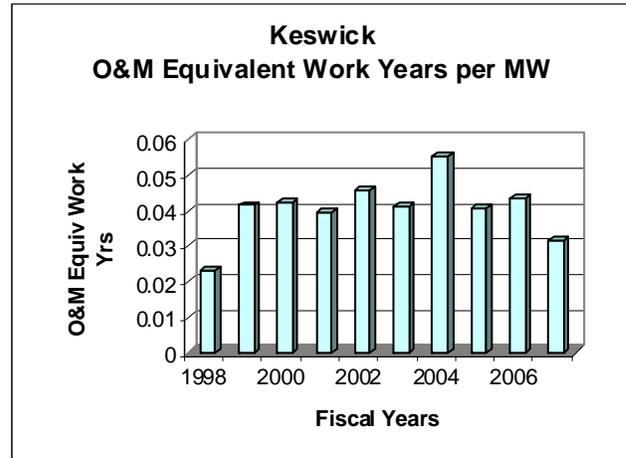
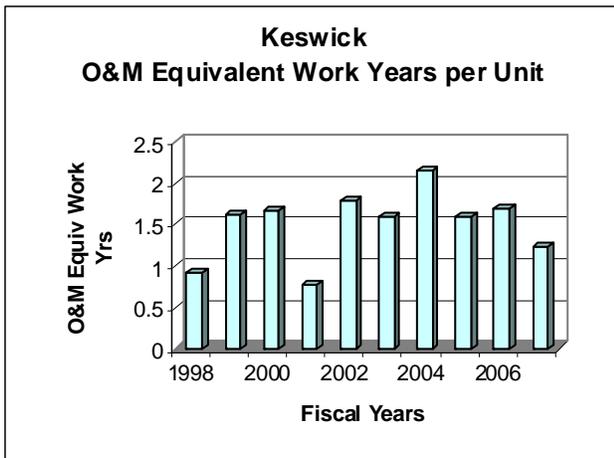
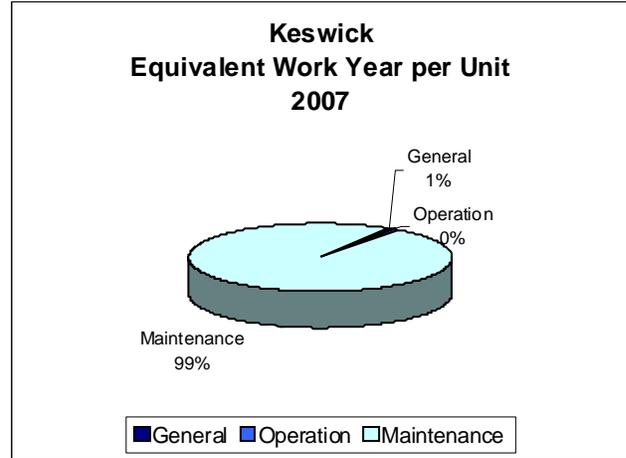
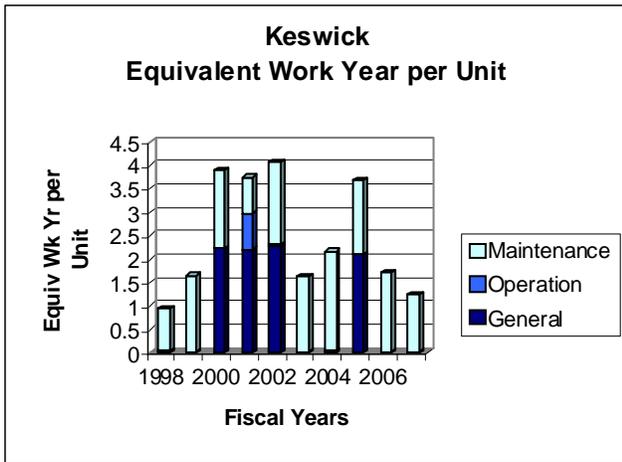


**Benchmark 3
Production Cost**

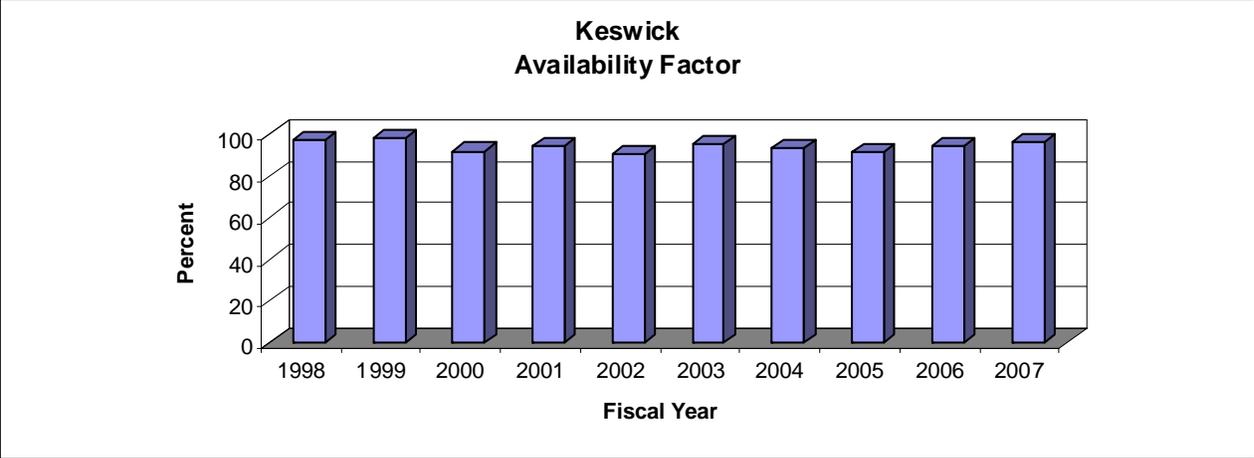


Benchmark 4
Workforce Deployment

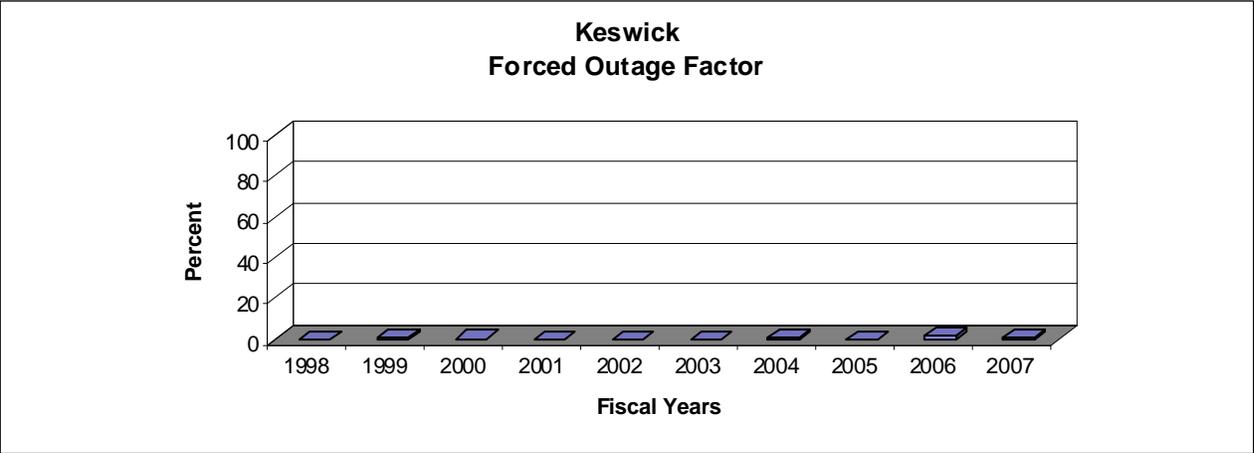
Keswick FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.05	0.05	0.02	0.00
Operation	0.01	0.00	0.00	0.01	0.00	0.00
Maintenance	3.38	0.33	0.00	3.71	1.24	0.03
Total Staffing	3.39	0.33	0.05	3.77	1.26	0.03



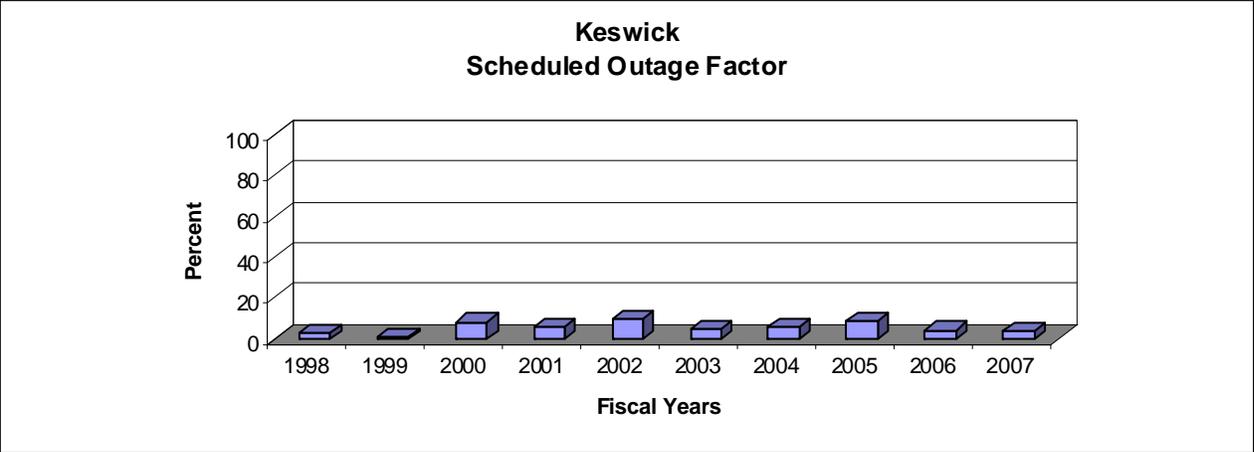
**Benchmark 5
Availability Factor**



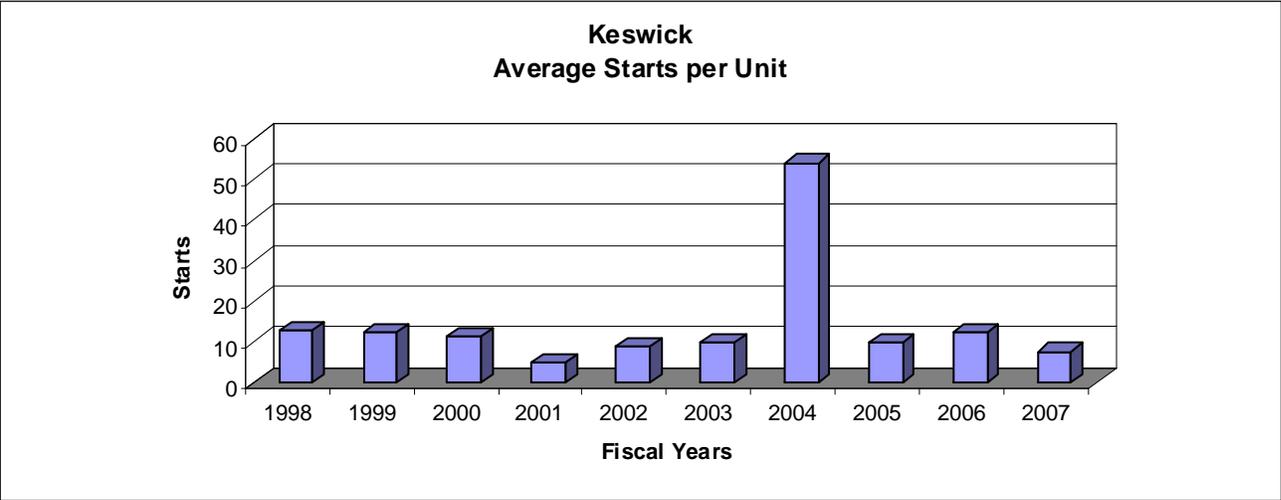
**Benchmark 6
Forced Outage Factor**



**Benchmark 7
Scheduled Outage Factor**



Starts



Benchmark Data Comparison					
Fiscal Year 2007	Keswick Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	2.7%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	5.55	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	19,878	10,502	7,847	***21,167	2,897
O&M Equip Work Year per MW	0.03	0.04	0.03	Not Available	0.00
Availability Factor	96.4	83.5	82.3	**88.64	98.5
Forced Outage Factor	0.2	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	3.3	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Lewiston Powerplant Central Valley Project



Plant Contact:

Brian Person
Area Manager

Plant Address:

Lewiston Powerplant
Lewiston, CA

Telephone Numbers:

Phone: (530) 275-1554
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada Power Area.

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region.

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

The Shasta and Trinity River Division of the Central Valley Project was authorized by Public Law 386, 84th Congress, 1st Session, approved August 12, 1955.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

**Lewiston Powerplant
Other**

The Trinity River Division consists of Trinity Dam and Clair Engle Lake, Trinity Powerplant, Lewiston Dam and Lake, Lewiston Powerplant, Clear Creek Tunnel, Judge Francis Carr Powerhouse, Whiskeytown Dam and Lake, Spring Creek Tunnel and Powerplant, Spring Creek Debris Dam and Reservoir, and related pumping and distribution facilities. These facilities were built and are operated by the Bureau of Reclamation.

Plant Location: Lewiston Powerplant is located on the Trinity River about 7 miles downstream from Trinity Dam.

Plant Facts: Lewiston Dam is a zoned earth fill structure 91 feet high and 25 feet wide at the crest. The crest is 754 feet long. Transmission lines were constructed and operated by the Bureau of Reclamation until October 1, 1977, when they were transferred to the Western Area Power Administration, Department of Energy.

Plant Purpose: Lewiston Power plant is operated in conjunction with the spillway gates to maintain the minimum flow in the Trinity River downstream of the dam. The turbine is normally set at maximum output with the spillway gates adjusted to regulate river flow. It provides power to the adjacent fish hatchery.

Plant History: The powerplant served hatchery loads and station service requirements for Trinity and Judge Francis Carr Power plants. Administration of the contract was transferred to Western in 1977 and the interconnection contract with Pacific Gas and Electric was canceled in 1989. A new interconnection contract was signed in 1990.

Present Activities: Lewiston maintains and regulates river releases. Energy in excess of hatchery loads is sold to Pacific Gas and Electric at 15 mills per kilowatt-hour.

Future Planned Activities: The Record of Decision (ROD) for the Trinity River Restoration Project has increased the base flows downstream from the Lewiston Dam. These flows exceed the maximum flows through the existing turbine. The Trinity County Public Utility District is considering the possible upgrade or replacement of the plant to take advantage of the increased generation potential due to the RODs increased flow.

Special Issues: The turbine capacity is exceeded by the Trinity River minimum flow established by the ROD.

**Lewiston Powerplant
Other**

River:	Trinity River	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	350 kW	Installed Capacity:	350 kW
Year of Initial Operation:	1964	Age:	44 years
Net Generation (FY-2007):	3.3 GWh	Rated Head:	60 feet
Average Plant Factor (FY-2007):	108.8 percent	Remotely Operated:	Yes
Production Mode:	Base Load		

Ancillary Services

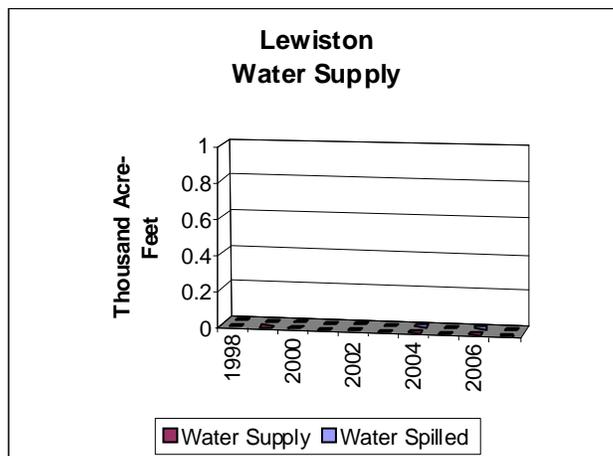
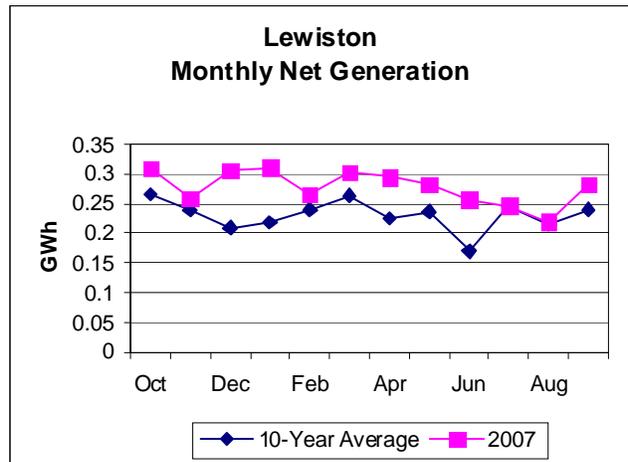
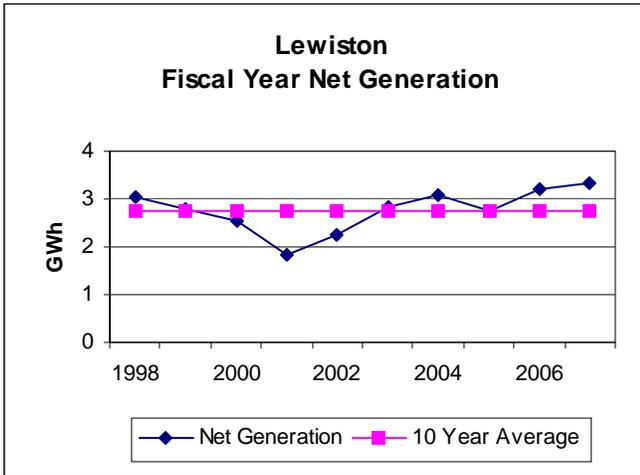
Lewiston Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	Yes
Voltage Support	No

Generators

Lewiston Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	350	-	350
1 Unit	350	-	350

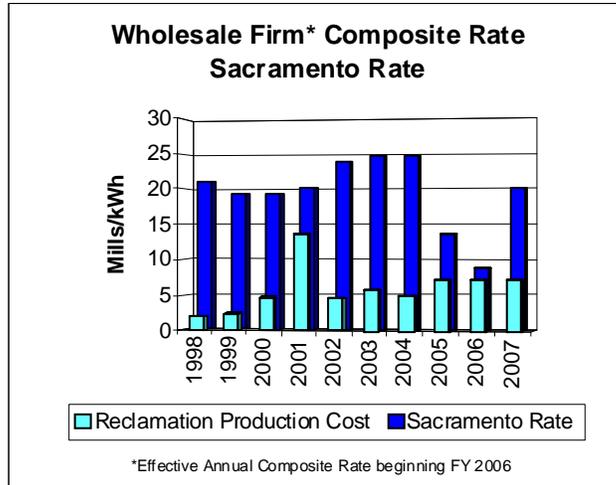
The maximum operational capacity is 504 kW.

Generation

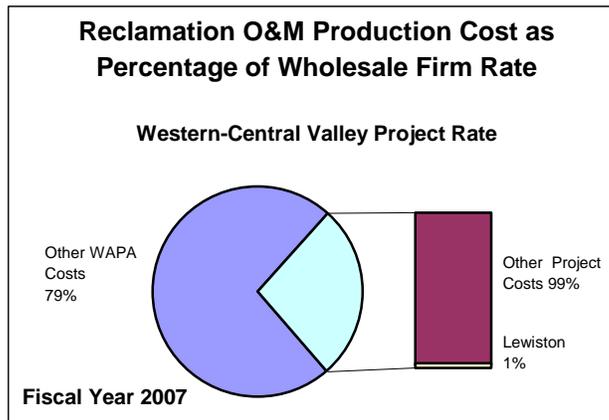


Prime Laboratory Benchmarks

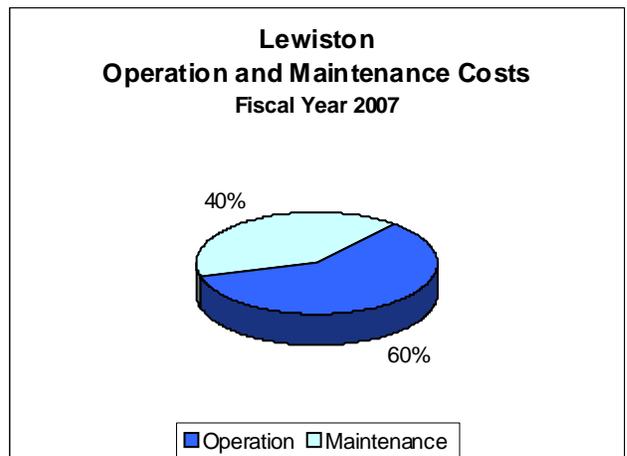
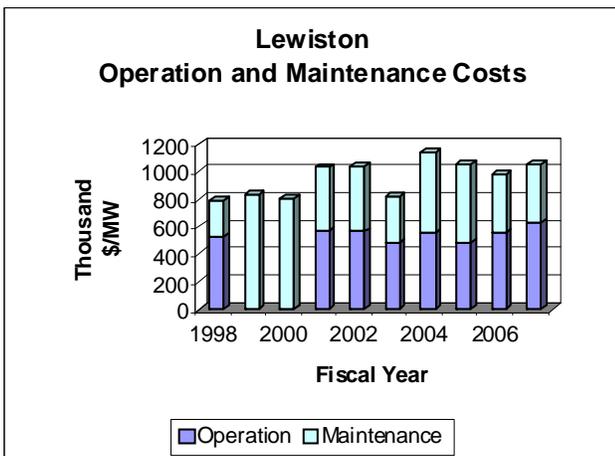
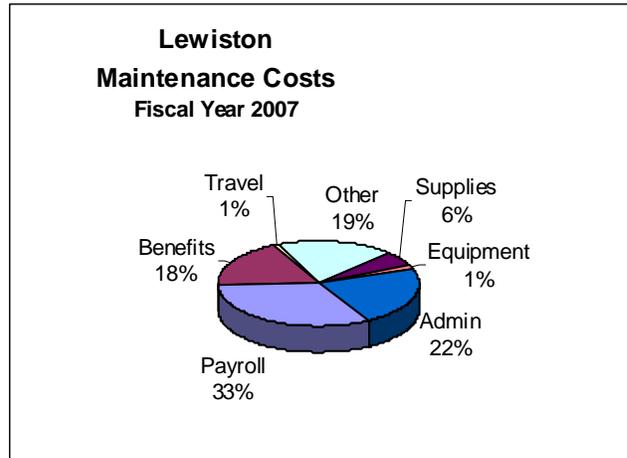
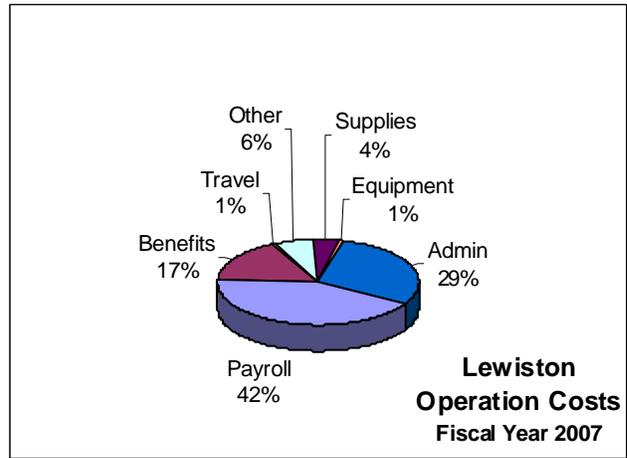
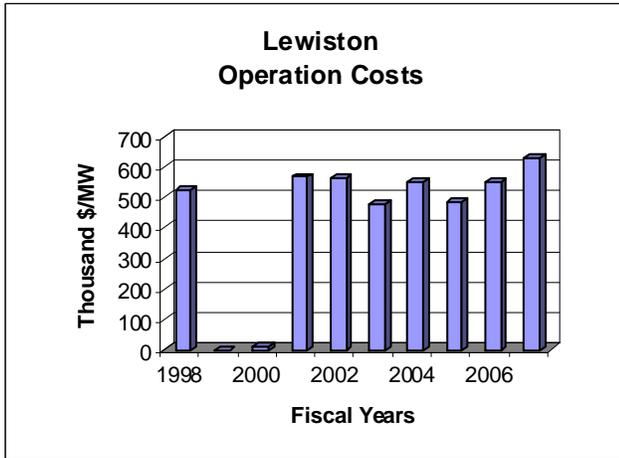
**Benchmark 1
Wholesale Firm Rate**



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

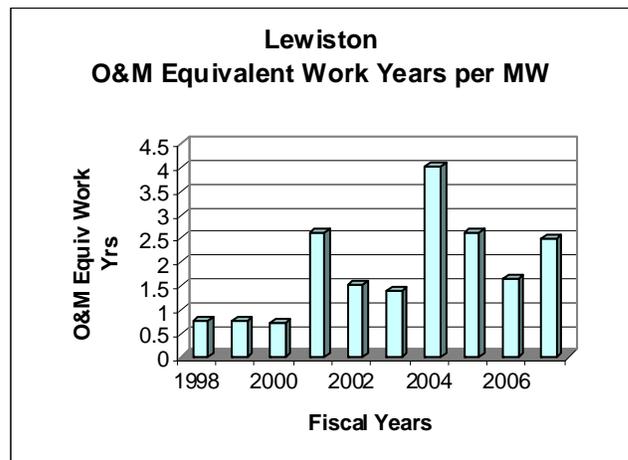
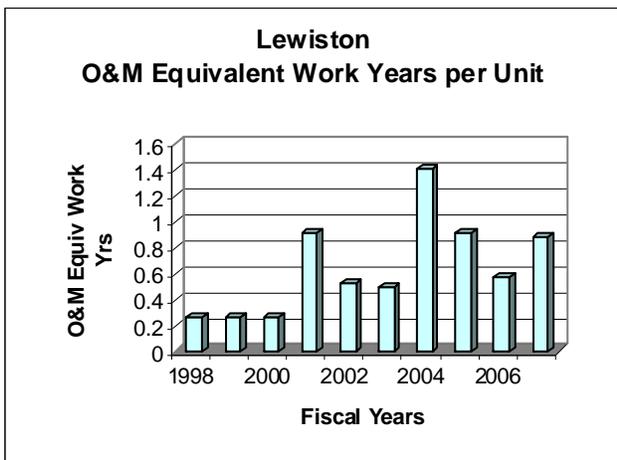
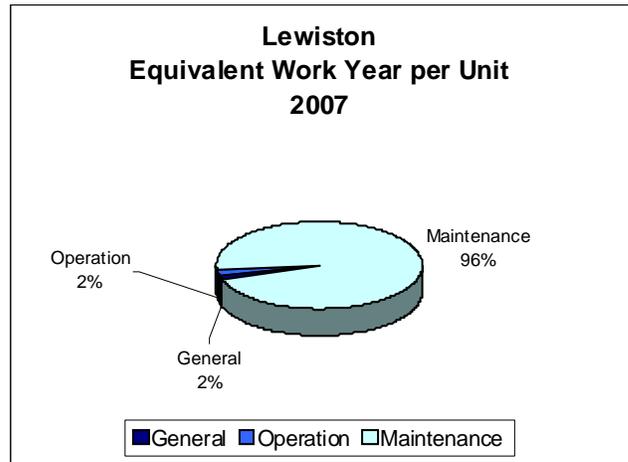
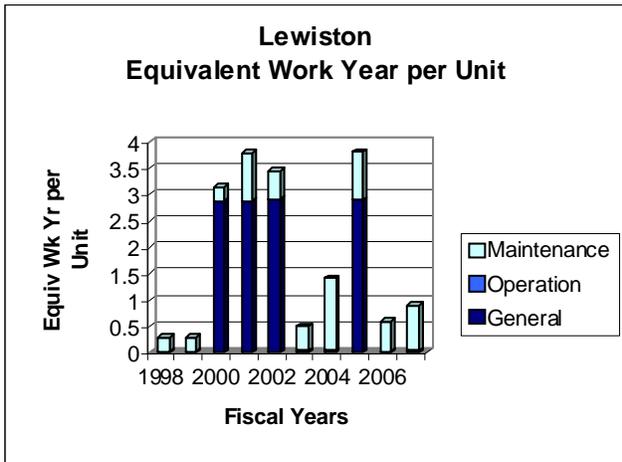


**Benchmark 3
Production Cost**

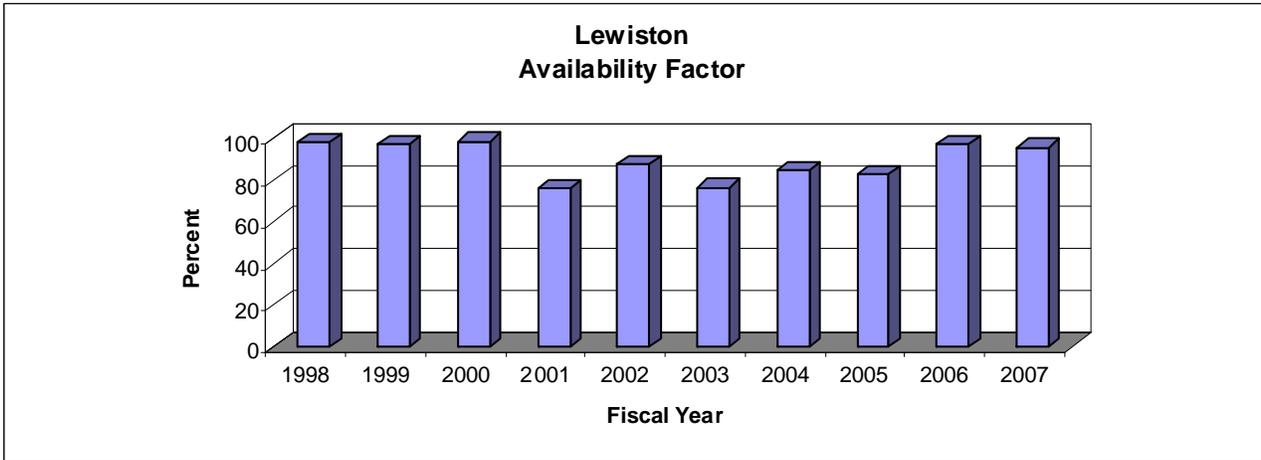


**Benchmark 4
Workforce Deployment**

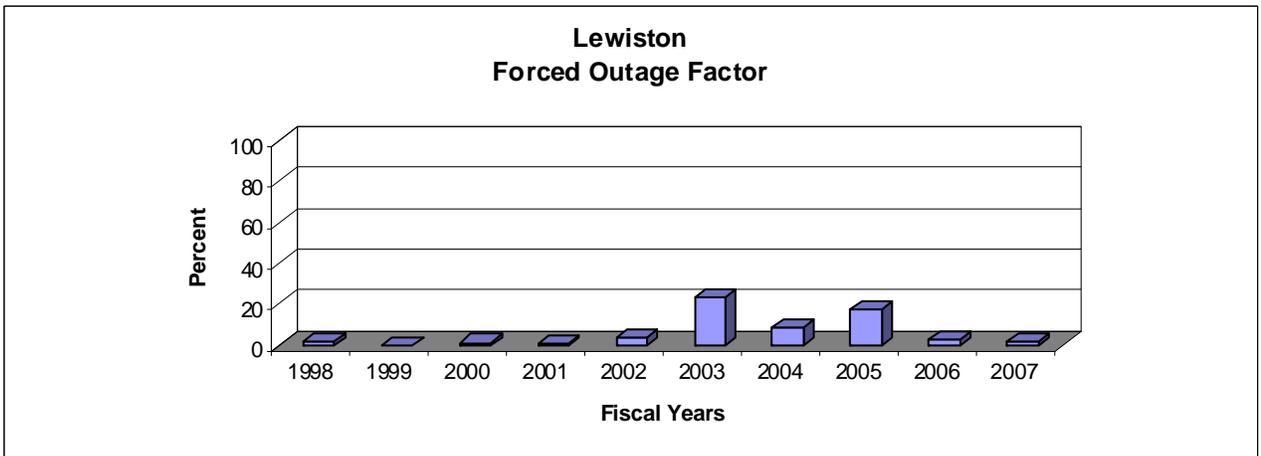
Lewiston FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.02	0.02	0.02	0.05
Operation	0.02	0.00	0.00	0.02	0.02	0.06
Maintenance	0.78	0.08	0.00	0.86	0.86	2.46
Total Staffing	0.80	0.08	0.02	0.90	0.90	2.57



**Benchmark 5
Availability Factor**

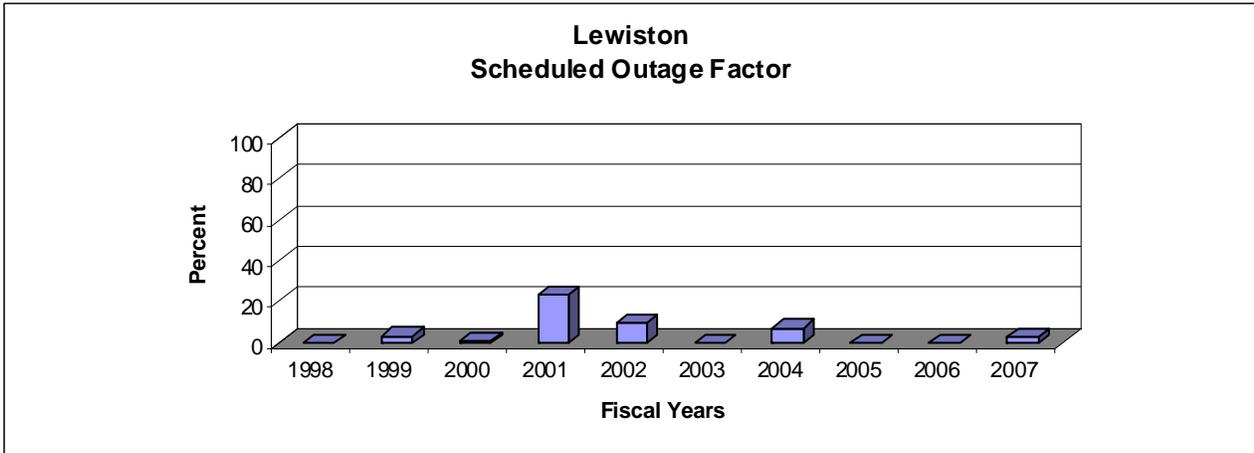


**Benchmark 6
Forced Outage Factor**

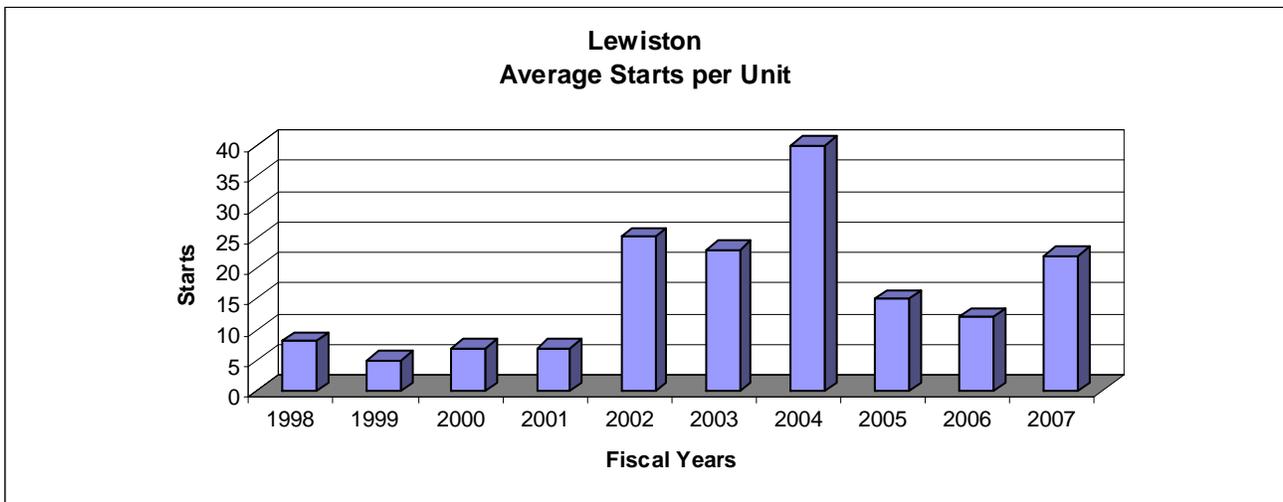


FY 03 – Several forced outages were the result of severe weather (lightning storms) and problems in the Trinity County Public Utility District distribution system. The remoteness of the site and the age of the equipment also contributed to the length of these outages.

**Benchmark 7
Scheduled Outage Factor**



Starts



Benchmark Data Comparison				
Fiscal Year 2007	Lewiston Powerplant	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	0.4%	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	110.58	2.76	Not Applicable	1.00
O&M Costs \$/MW	1,053,668	7,847	Not Applicable	2,897
O&M Equip Work Year per MW	0.00	0.03	Not Available	0.00
Availability Factor	95.8	82.3	**88.64	98.5
Forced Outage Factor	1.82	2.6	**2.61	0.0
Scheduled Outage Factor	2.3	15.1	**8.74	0.0

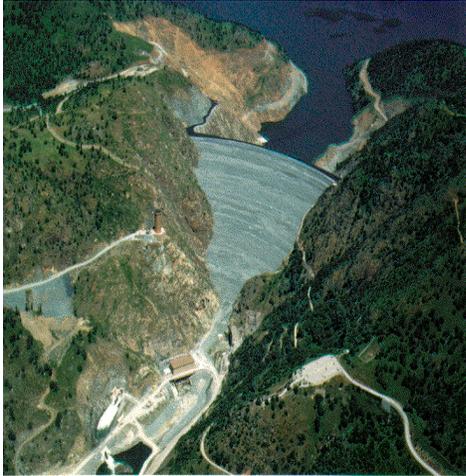
*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

At 350 kW, Lewiston is the smallest powerplant in Reclamation. As a result, the cost indicators are out of line compared to 40 MW units and larger.

New Melones Powerplant Central Valley Project



Plant Contact:

Mike Finnegan, Area Manager
Central California Area Office

Plant Address:

New Melones Powerplant
Central California Area Office
16805 Peoria Flat Road
Jamestown CA 95327-9749

Telephone Numbers:

Phone: (916) 989-7200

Fax: (916) 989-7208

E-Mail Address:

mfinnegan@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada
Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although New Melones Unit, East Side Division, was developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

**New Melones Powerplant
100-500 MW**

Plant Location: The New Melones Powerplant is located in Tuolumne County, California, on the Stanislaus River.

Plant Facts: New Melones Dam is an earth and rock fill structure 625 feet high and 40 feet wide at the crest. The crest is 1,560 feet long.

Plant Purpose: New Melones Powerplant is a peaking plant. The power generated at this plant is dedicated first to meeting the requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.

Plant History: In November 1979, the New Melones Unit, East Side Division, was officially transferred to Reclamation from the Corps of Engineers by Public Law 87-874.

Present Activities: Normal operations. Primary and peaking reservoir releases are made through the powerplant.

Future Planned Activities: The powerplant will continue to provide normal operations and peaking generation as releases permit.

Special Issues: None

River: Stanislaus River	Plant Type: Conventional
Powerhouse Type: Above Ground	Turbine Type: Francis
Original Nameplate Capacity: 300,000 kW	Installed Capacity: 300,000 kW
Year of Initial Operation: 1979	Age: 28 years
Net Generation (FY-2007): 524.3 GWh	Rated Head: 460 feet
Average Plant Factor (FY-2007): 20.0 percent	Remotely Operated: Yes
Production Mode: Peaking	

Ancillary Services

New Melones Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	Yes
Voltage Support	Yes

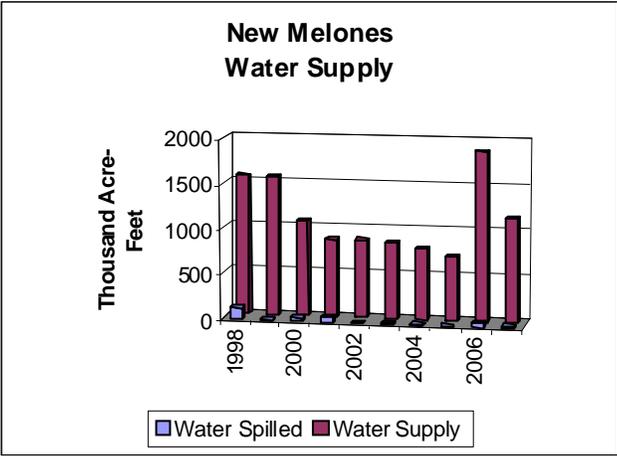
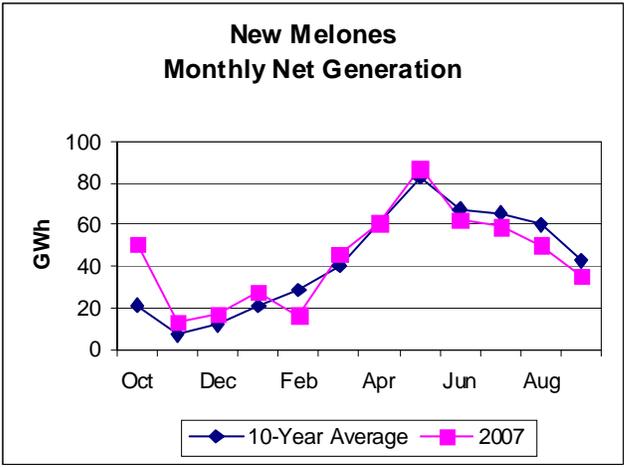
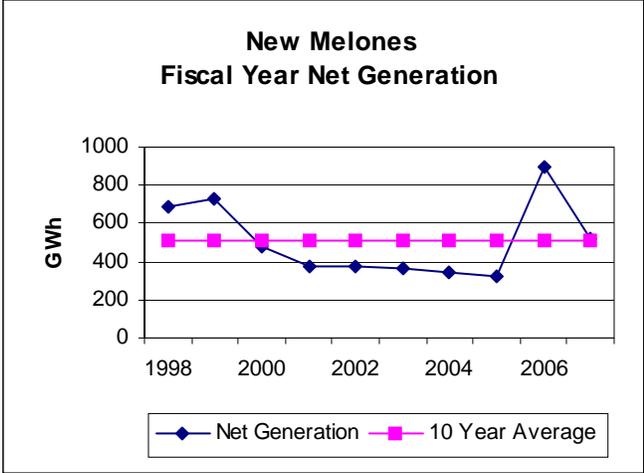
Generators

New Melones Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	150,000	-	150,000
2	150,000	-	150,000
4 units	300,000	-	300,000

The maximum operational capacity is 380,000 kW

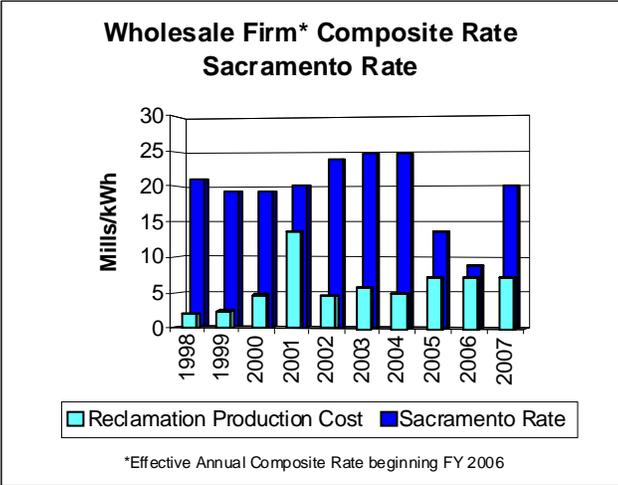
**New Melones Powerplant
100-500 MW**

Generation

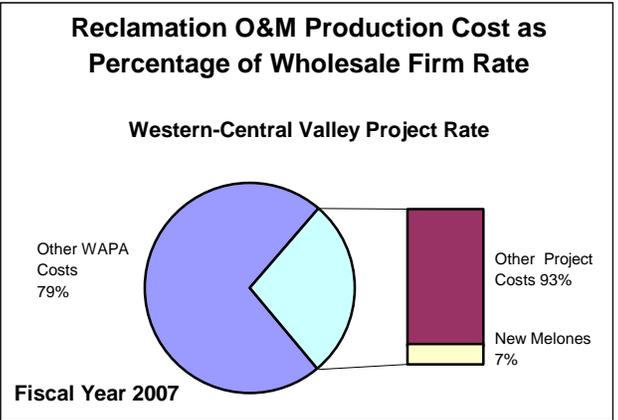


Prime Laboratory Benchmarks

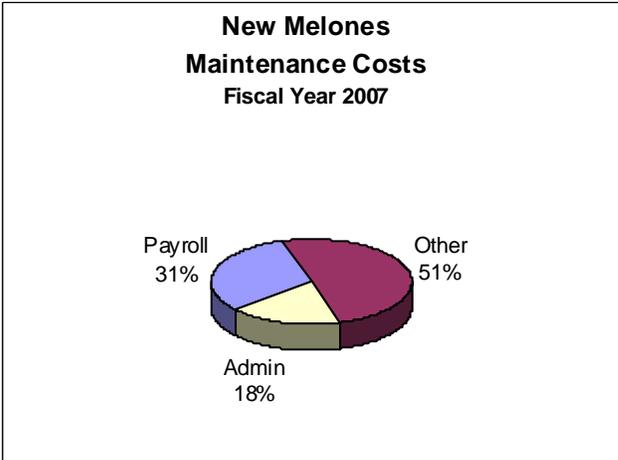
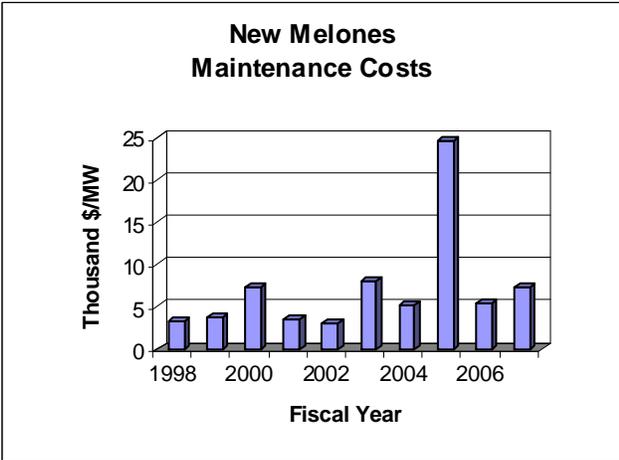
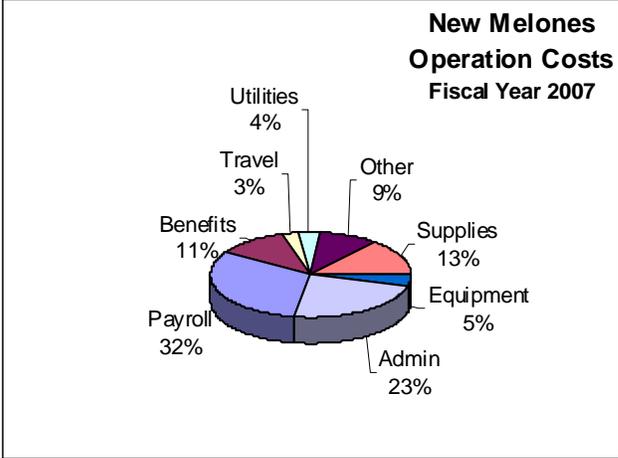
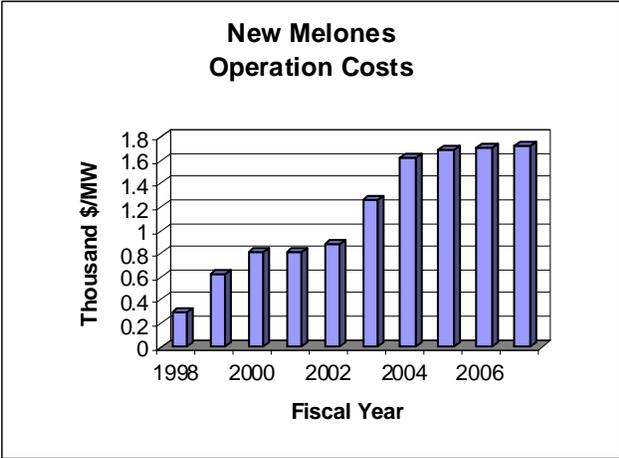
**Benchmark 1
Wholesale Firm Rate**



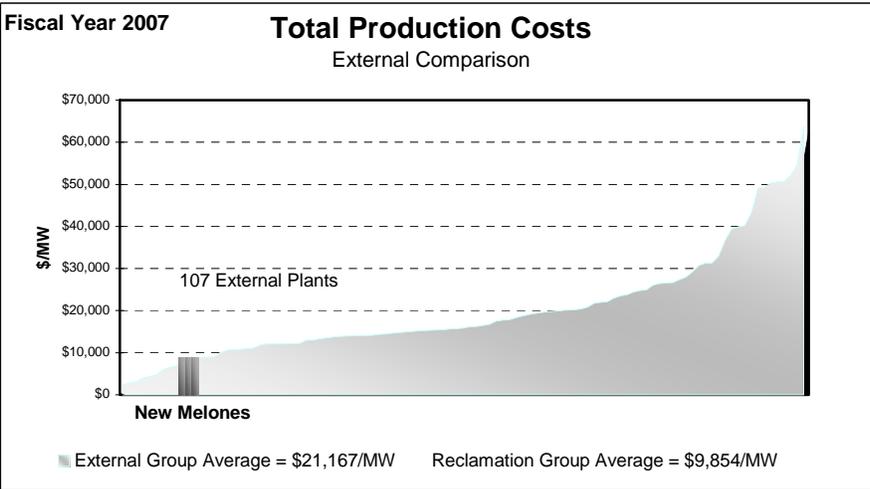
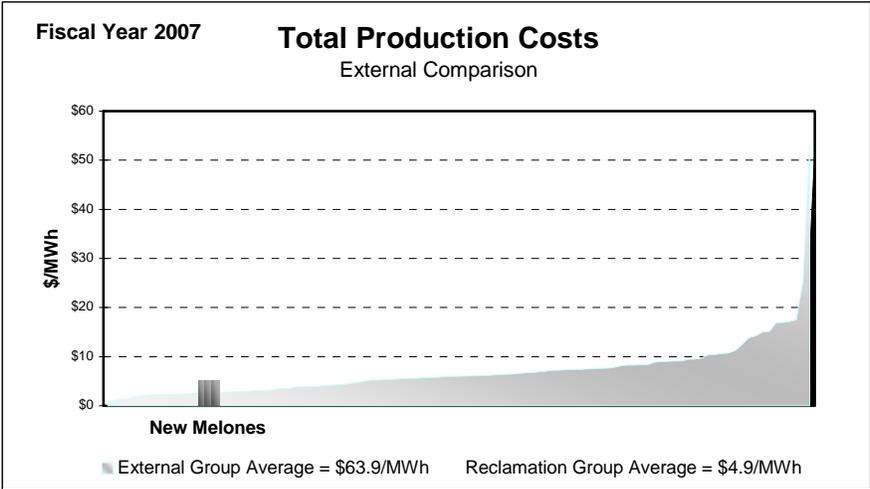
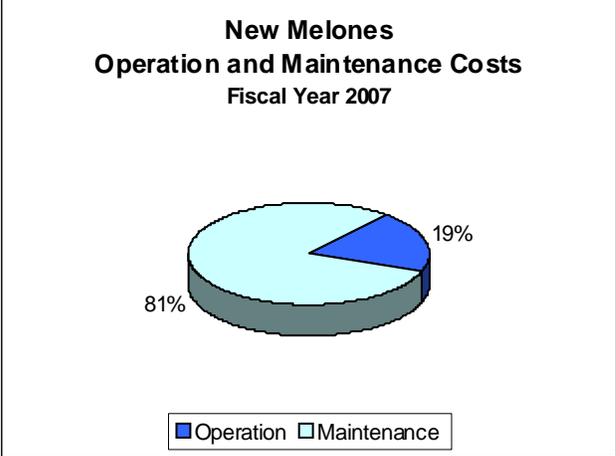
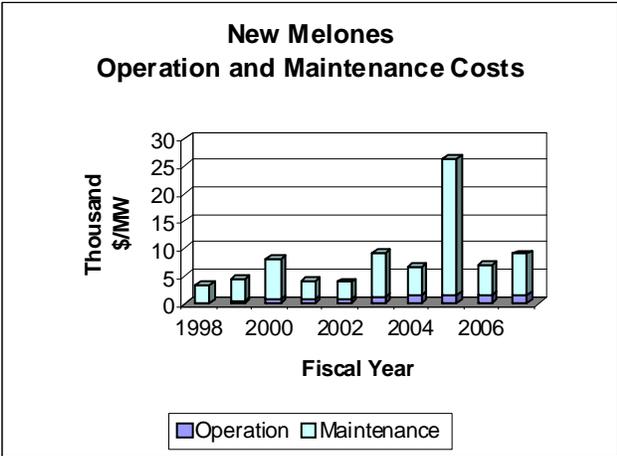
**Benchmark 2
Reclamation’s Production Cost as Percentage of Wholesale Firm Rate**



**Benchmark 3
Production Cost**

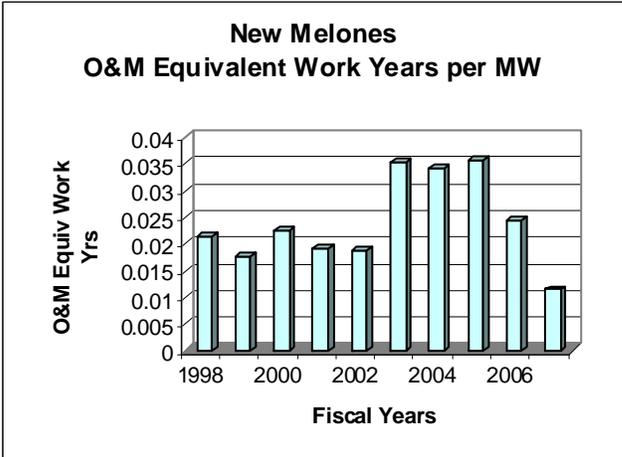
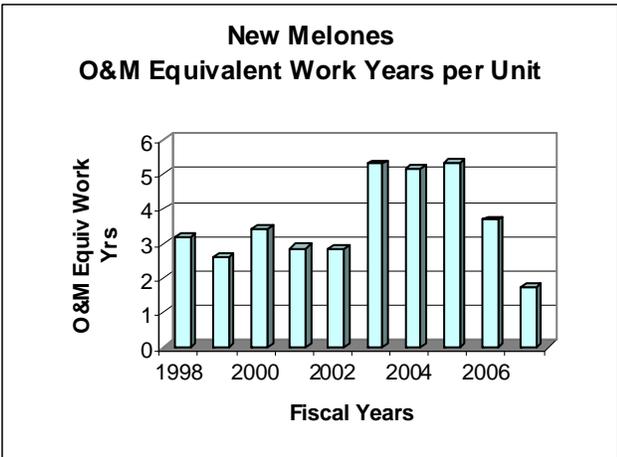
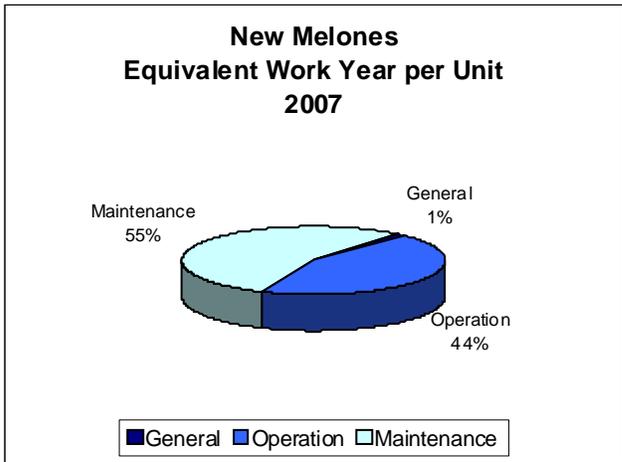
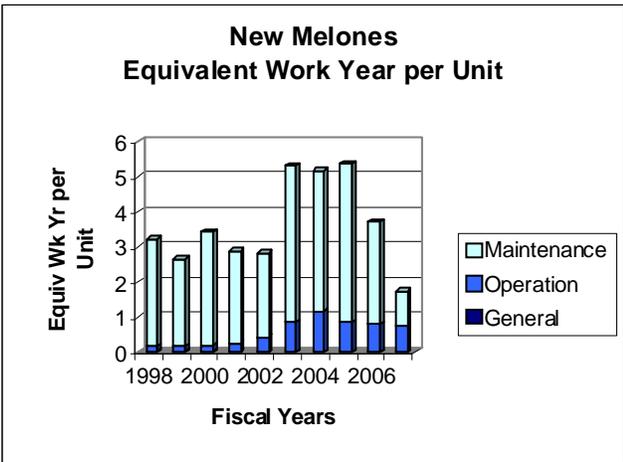


**Benchmark 3
Production Cost**

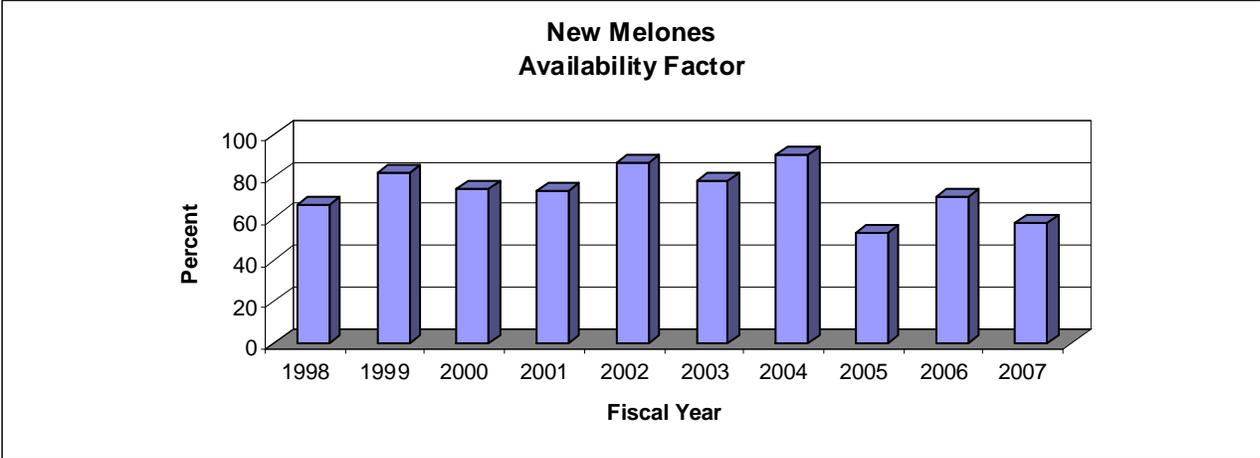


Benchmark 4
Workforce Deployment

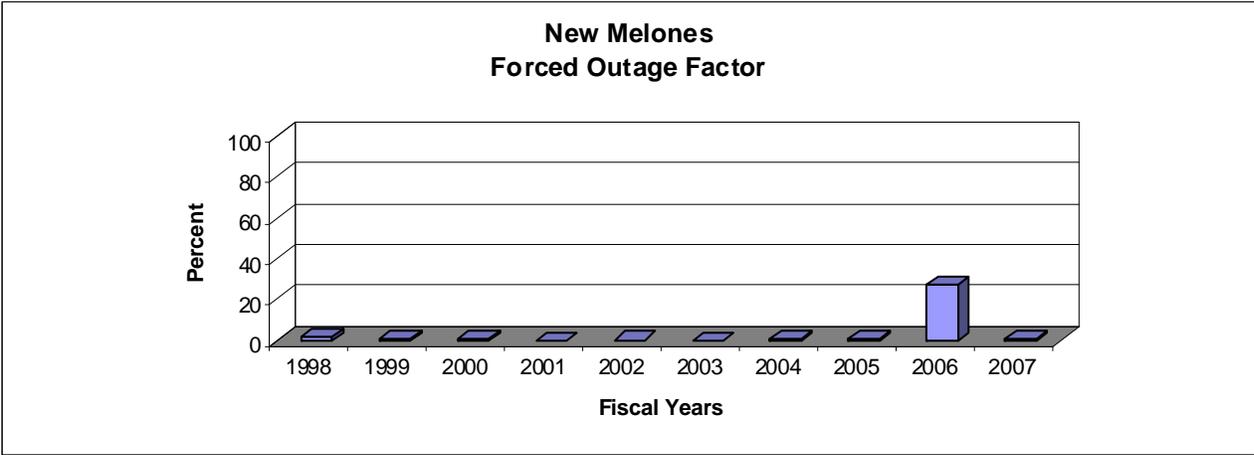
New Melones FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.00
Operation	1.40	0.14	0.00	1.54	0.77	0.01
Maintenance	1.73	0.17	0.00	1.90	0.95	0.01
Total Staffing	3.13	0.30	0.04	3.47	1.73	0.01



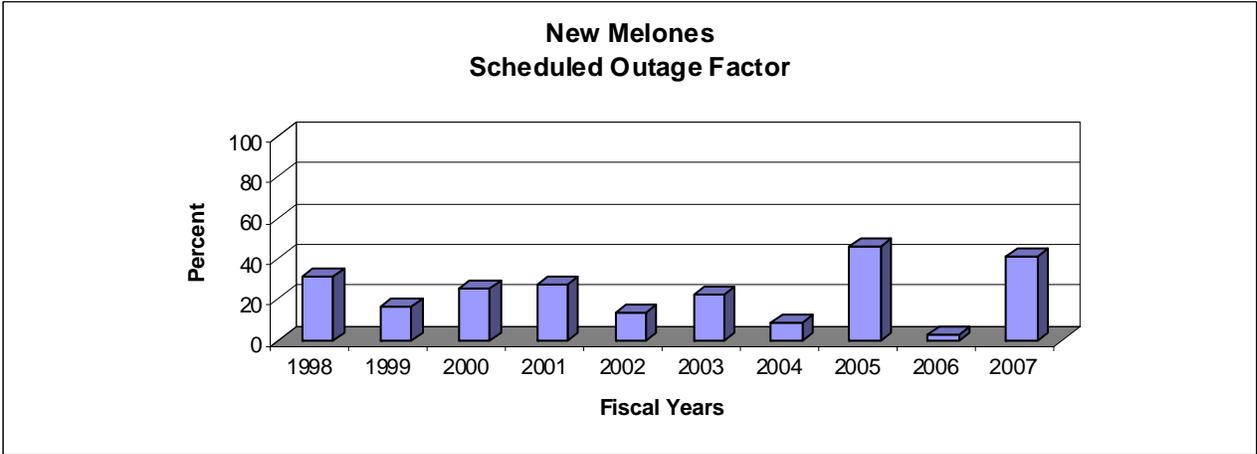
**Benchmark 5
Availability Factor**



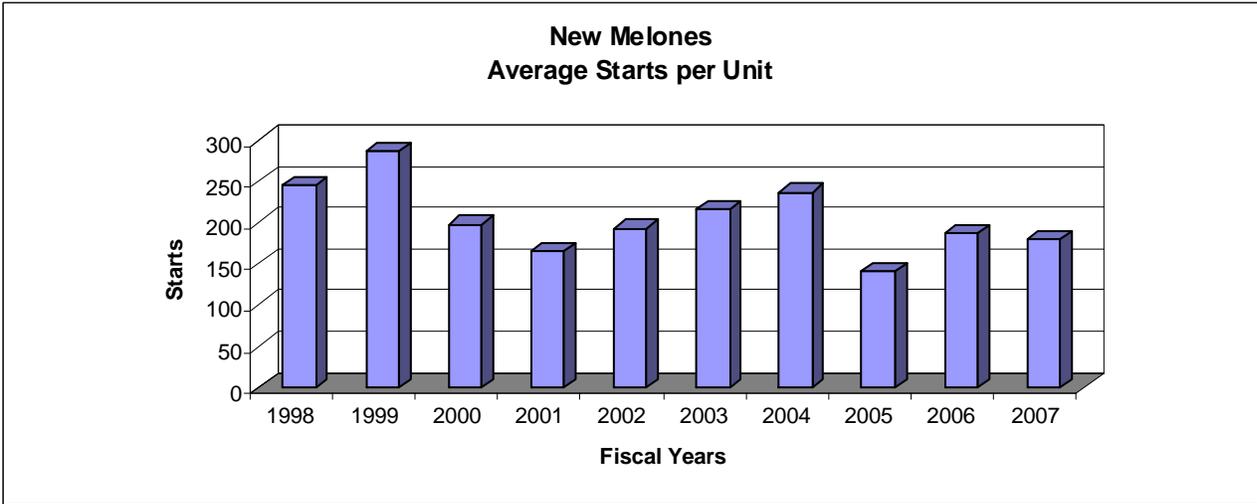
**Benchmark 6
Forced Outage Factor**



**Benchmark 7
Scheduled Outage Factor**



Starts



**New Melones Powerplant
100-500 MW**

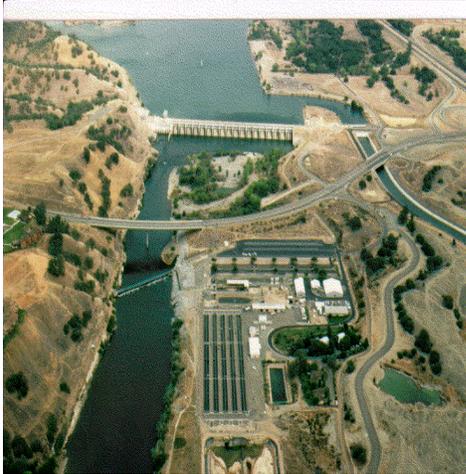
Benchmark Data Comparison					
Fiscal Year 2007	New Melones Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	3.2%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	5.16	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	9,020	10,502	7,847	***21,167	2,897
O&M Equip Work Year per MW	0.01	0.04	0.03	Not Available	0.0
Availability Factor	57.8	83.5	82.3	**88.64	98.5
Forced Outage Factor	0.8	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	41.3	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Nimbus Powerplant Central Valley Project



Plant Contact:

Mike Finnegan, Area Manager
Central California Area Office

Plant Address:

Nimbus Powerplant
Central California Area Office
7794 Folsom Dam Road
Folsom CA 95630-1799

Telephone Numbers:

Phone: (916) 989-7200

Fax: (916) 989-7208

E-Mail Address:

mfinnegan@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although the American River Project, Nimbus Dam Unit, was developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

**Nimbus Powerplant
10-30 Powerplant**

Plant Location:	The Nimbus Powerplant is located on the American River in Sacramento County, California, 7 miles downstream from Folsom Dam. The powerplant is located on the right abutment of Nimbus Dam on the north side of the river.		
Plant Facts:	Nimbus Dam forms Lake Natoma to reregulate the releases for power made through Folsom Powerplant. Nimbus Dam is a concrete gravity structure 87 feet high and 28 feet wide at the crest. The crest is 1,093 feet long.		
Plant Purpose:	Nimbus Powerplant is a run-of-the-river plant and provides station service backup for Folsom Powerplant.		
Plant History:	None		
Present Activities:	Normal operations. Maintain and regulate American River releases. Provide base-load generation.		
Future Planned Activities:	Continue to regulate the American River releases and provide base-load generation.		
Special Issues:	None		
River:	American River	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Kaplan
Original Nameplate Capacity:	13,500 kW	Installed Capacity:	13,500 kW
Year of Initial Operation:	1955	Age:	52 years
Net Generation (FY-2007):	51.1 GWh	Rated Head:	20 feet
Average Plant Factor (FY-2007):	43.4 percent	Remotely Operated:	Yes
Production Mode:	Base Load		

Ancillary Services

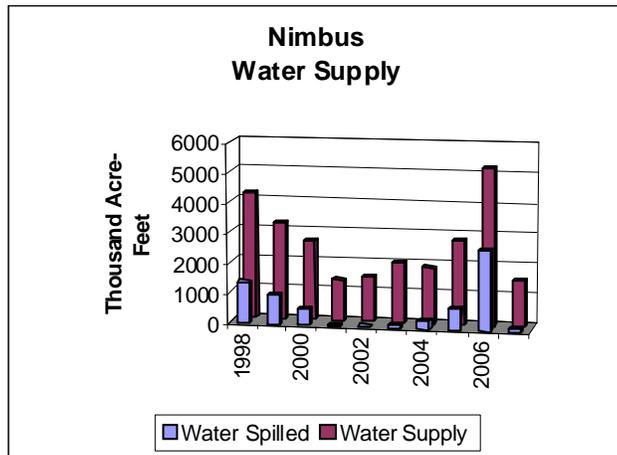
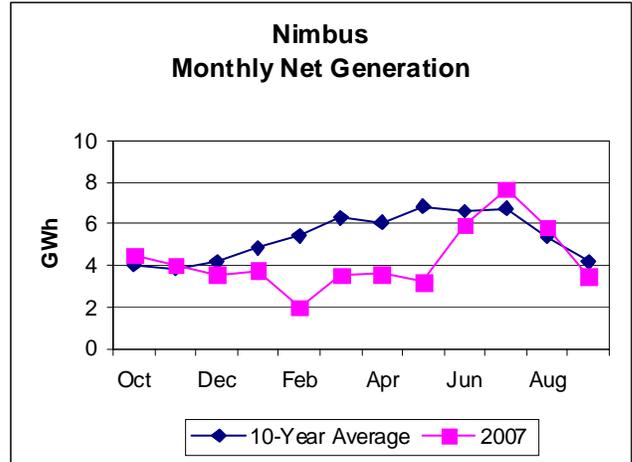
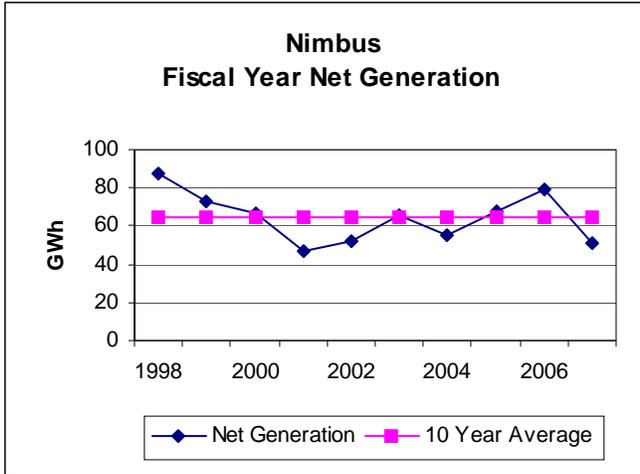
Nimbus Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	No
Voltage Support	Yes

Generators

Nimbus Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	6,750	-	6,750
2	6,750	-	6,750
4 units	13,500	-	13,500

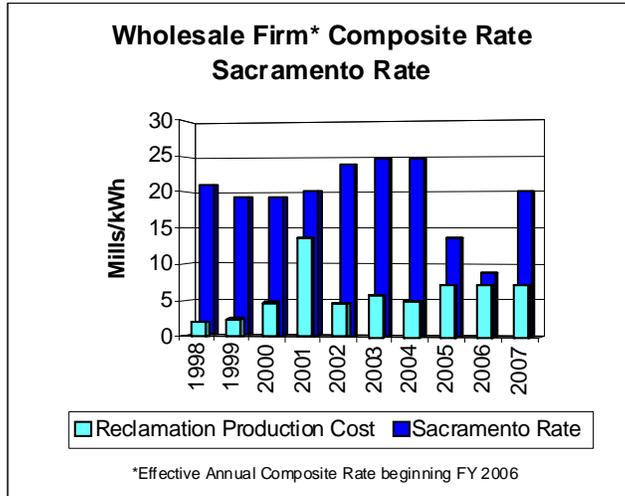
The maximum operational capacity is limited to 12,00 kW due to head.

Generation

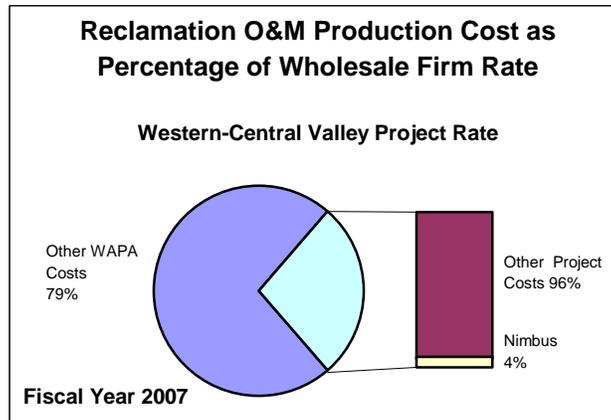


Prime Laboratory Benchmarks

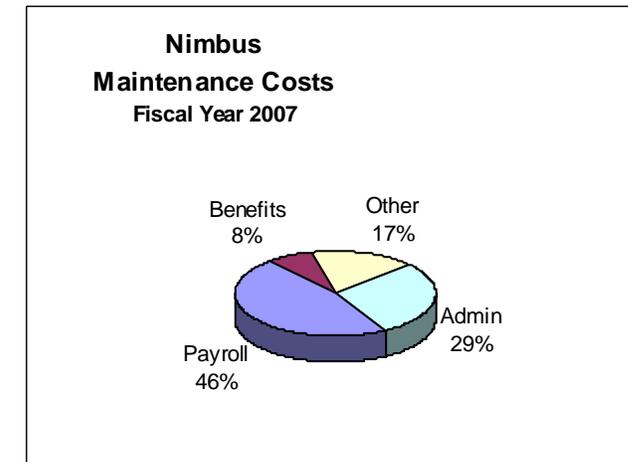
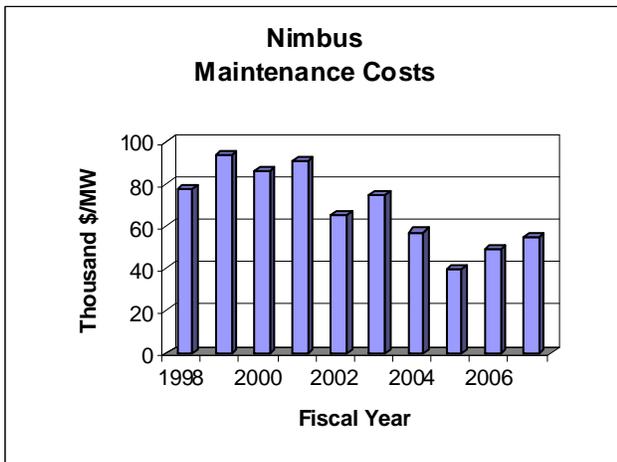
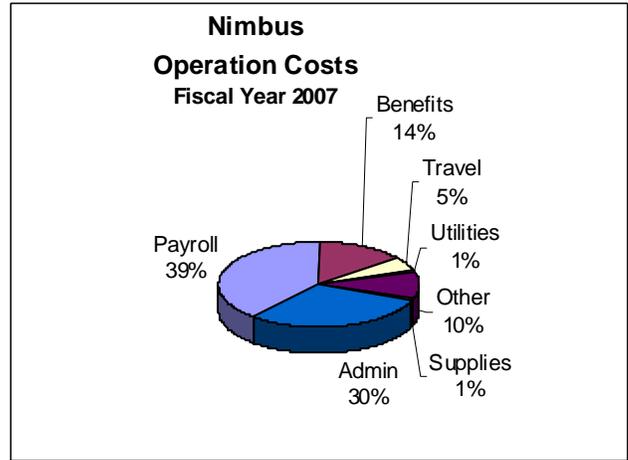
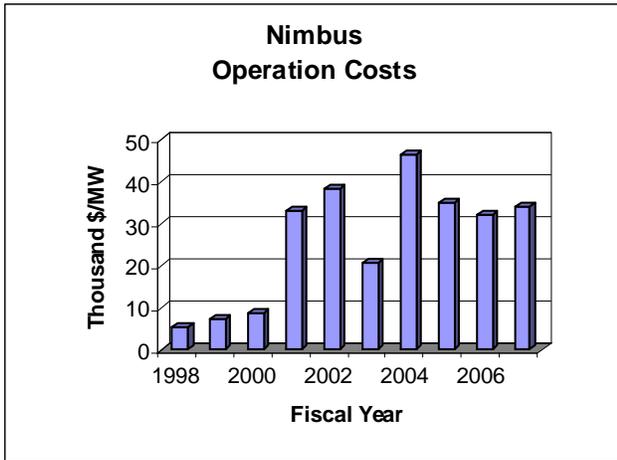
**Benchmark 1
Wholesale Firm Rate**



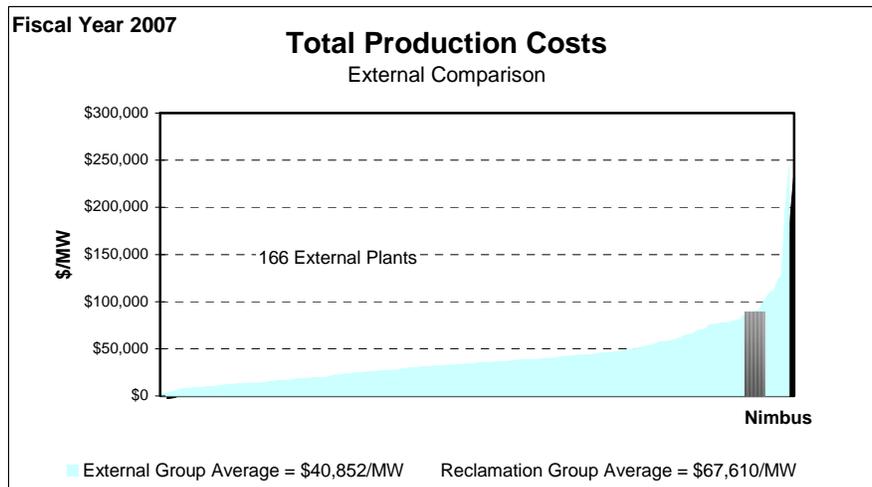
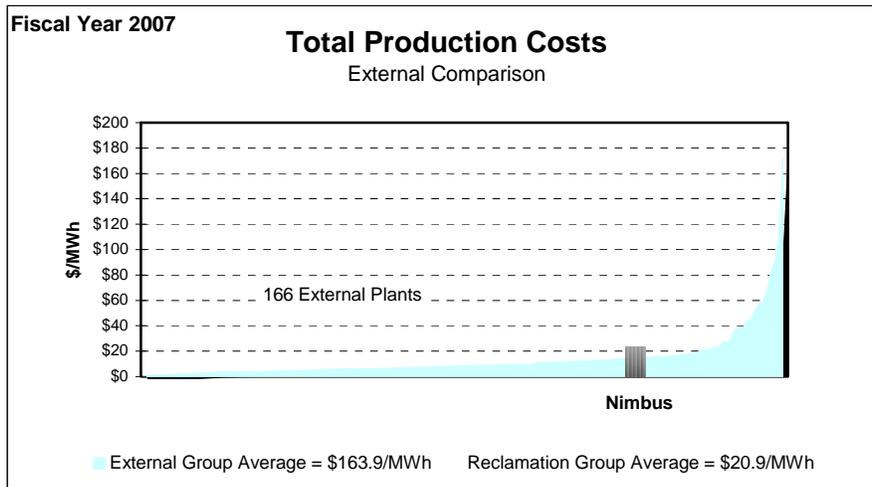
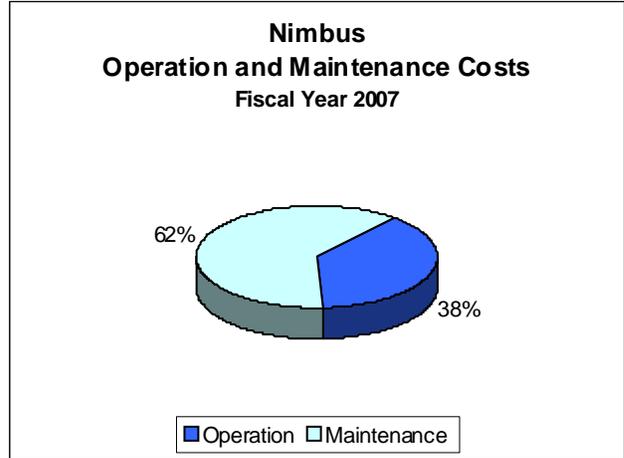
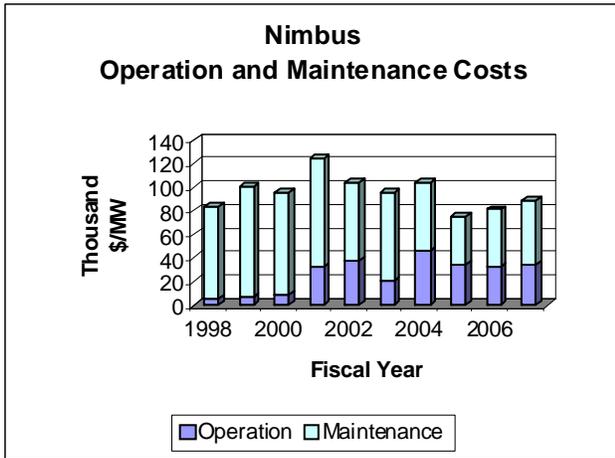
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



Benchmark 3
Production Cost

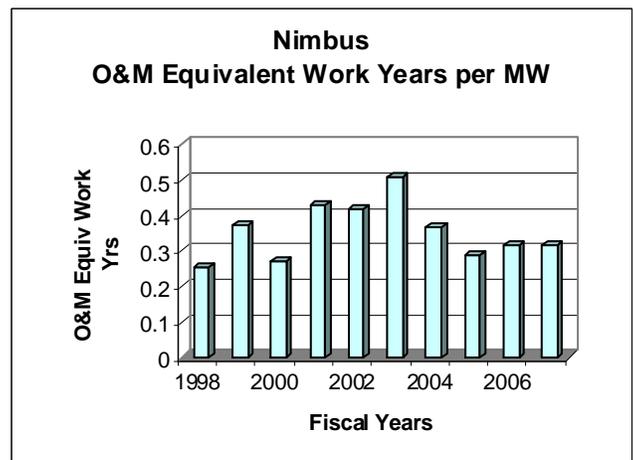
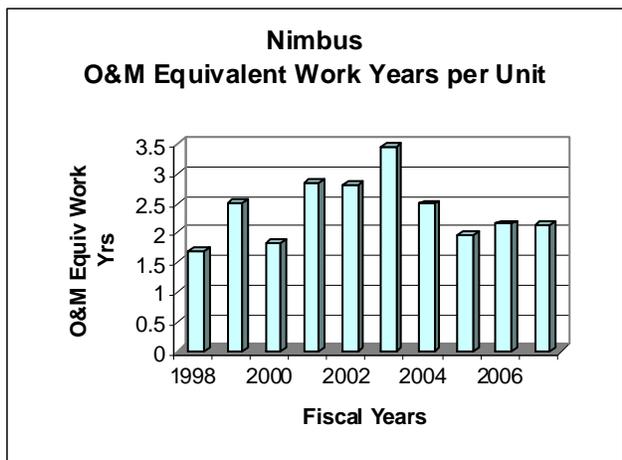
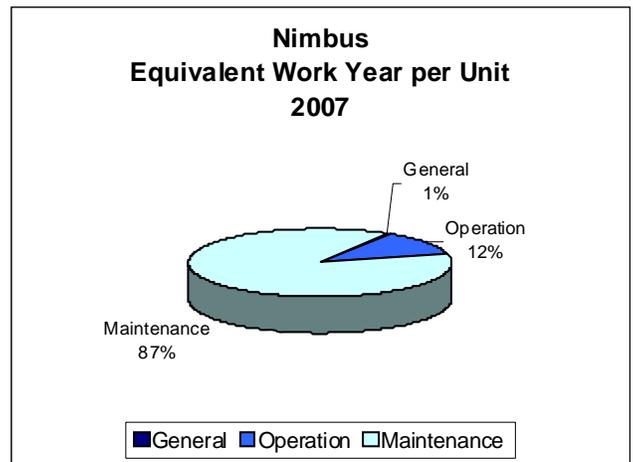
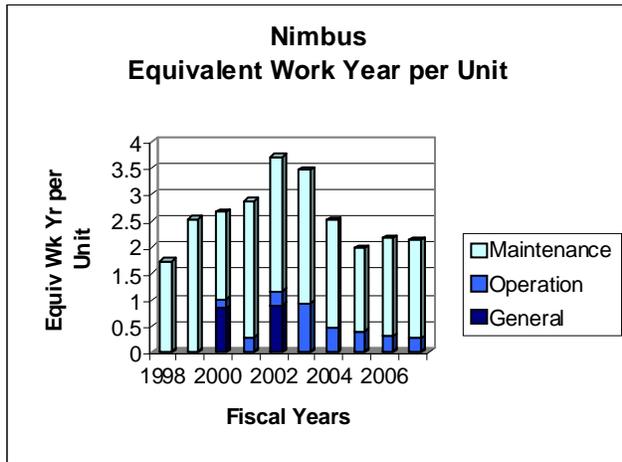


**Benchmark 3
Production Cost**

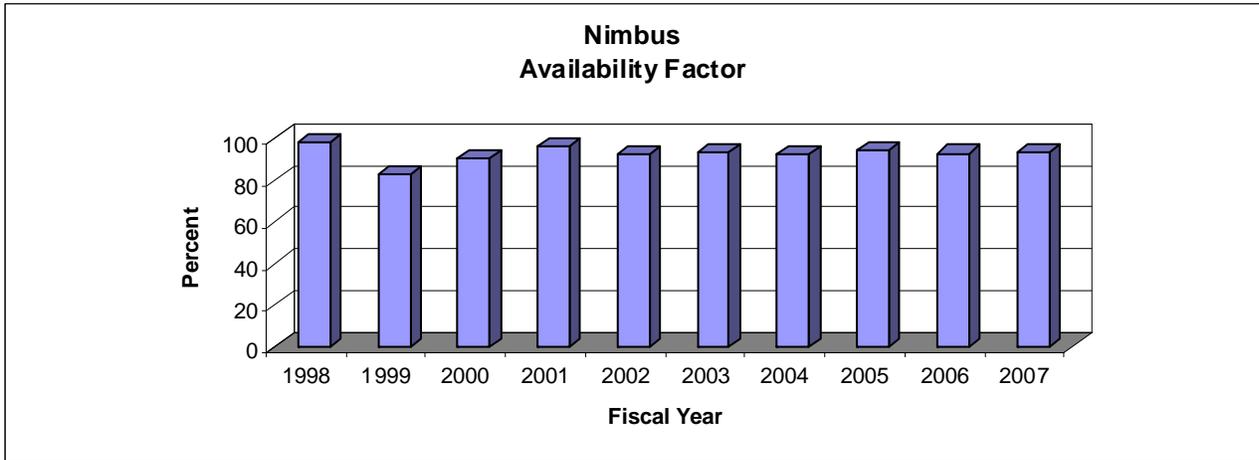


Benchmark 4
Workforce Deployment

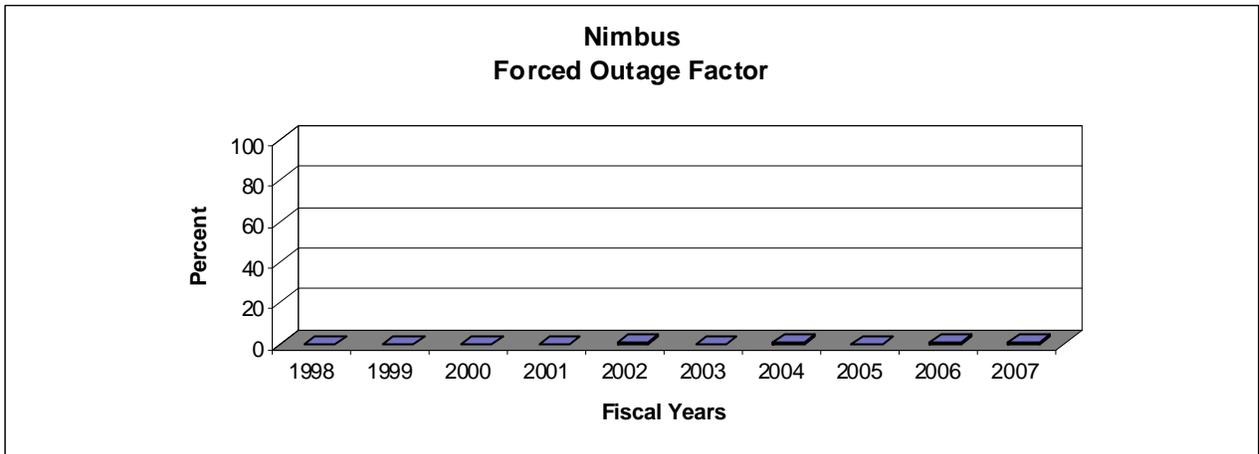
Nimbus FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.00
Operation	0.47	0.05	0.00	0.52	0.26	0.04
Maintenance	3.40	0.33	0.00	3.72	1.86	0.28
Total Staffing	3.87	0.37	0.04	4.28	2.14	0.32



**Benchmark 5
Availability Factor**

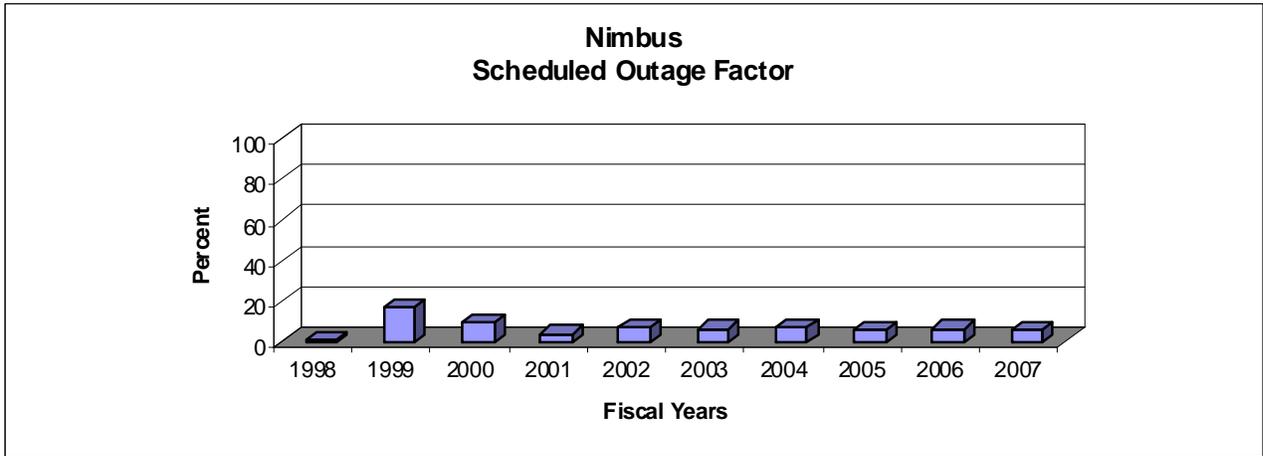


**Benchmark 6
Forced Outage Factor**

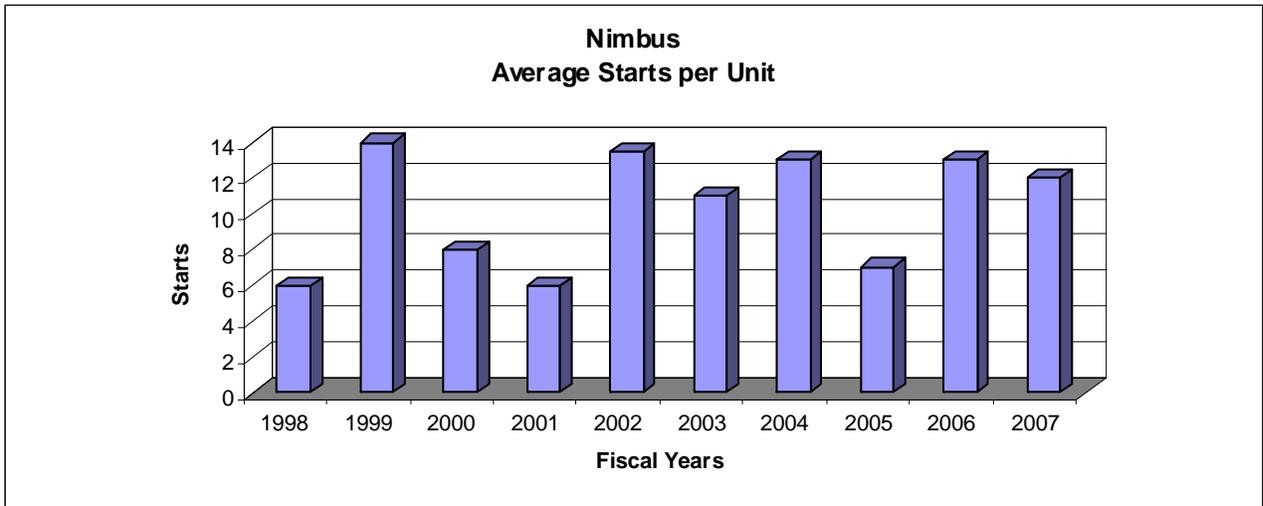


FY-97 - Oil leak in Unit 1 Kaplan wheel control line

**Benchmark 7
Scheduled Outage Factor**



Starts



Benchmark Data Comparison					
Fiscal Year 2007	Nimbus Powerplant	Reclamation Average 10-30 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	1.42%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	23.61	16.40	2.76	***163.95	1.00
O&M Costs \$/MW	89,353	62,731	7,847	***40,852	2,897
O&M Equip Work Year per MW	0.31	0.22	0.03	Not Available	0.00
Availability Factor	93.7	88.5	82.3	**88.64	98.5
Forced Outage Factor	0.2	0.1	2.6	**2.61	0.0
Scheduled Outage Factor	6.1	11.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

O'Neill Pump-Generating Plant Central Valley Project



Plant Contact:

San Luis-Delta Mendota Water Authority

Plant Address:

O'Neill Pumping - Generating Plant
Los Banos, CA

Telephone Numbers:

Phone: (209) 836-6297

Reclamation Region:	Mid-Pacific
NERC Region:	Western Systems Coordinating Council, California-Southern Nevada Power Area
PMA Service Area:	Western Area Power Administration, Sierra Nevada Region
Project Authorization:	<p>Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.</p> <p>The San Luis Unit, West San Joaquin Division, was authorized as a part of the Central Valley Project on June 3, 1960, Public Law 86-488.</p>
Project Purposes:	<p>The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.</p> <p>Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.</p>

Ancillary Services

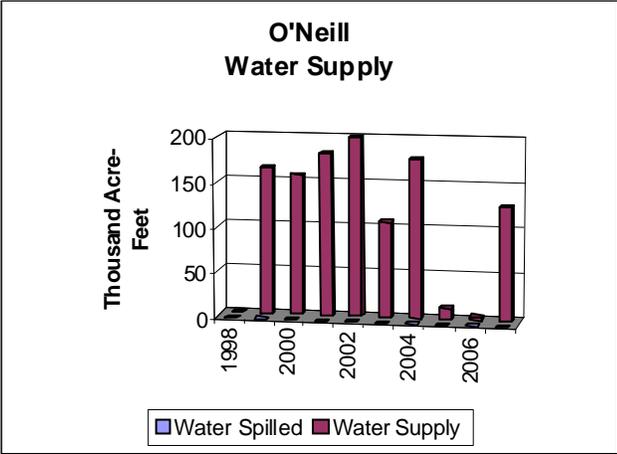
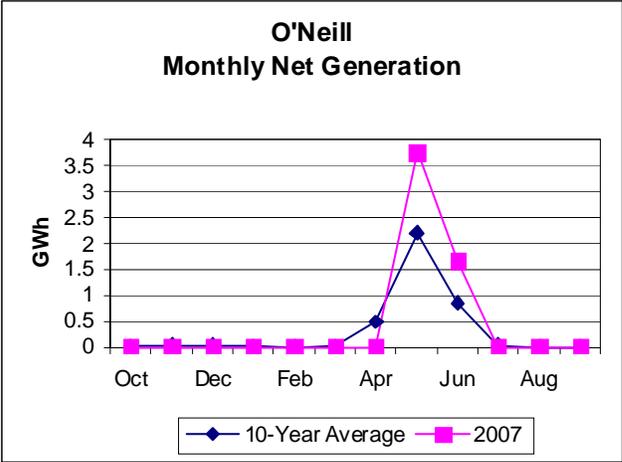
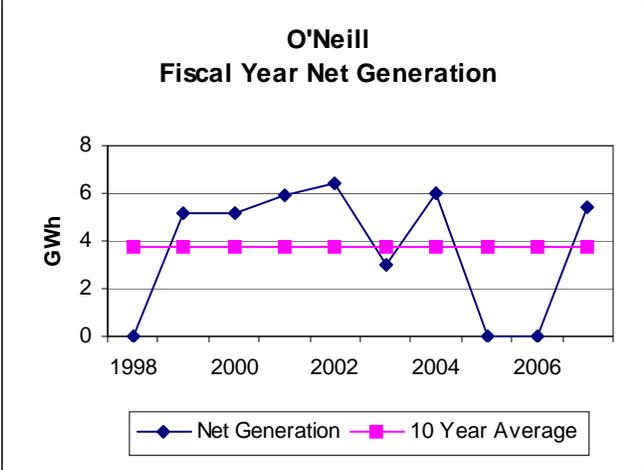
O'Neill Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	No
Voltage Support	No

Generators

O'Neill Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	4,200	-	4,200
2	4,200	-	4,200
3	4,200	-	4,200
4	4,200	-	4,200
5	4,200	-	4,200
6	4,200	-	4,200
6 units	25,200	-	25,200

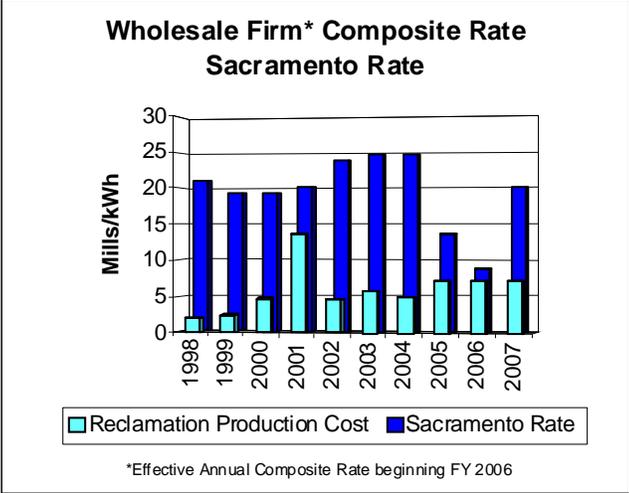
O'Neill Pumping Generating Plant
Other

Generation



Prime Laboratory Benchmarks

**Benchmark 1
Wholesale Firm Rate**



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

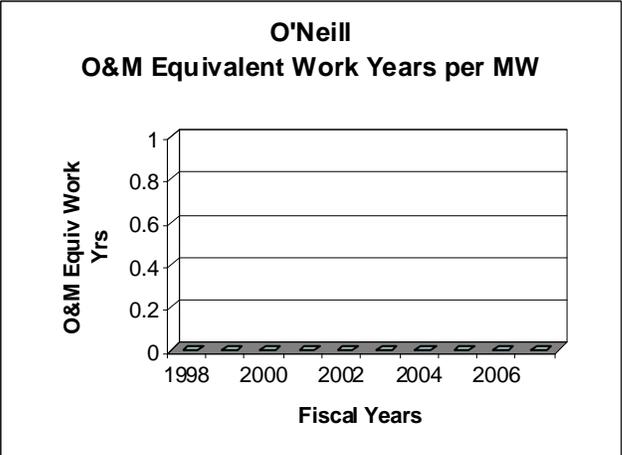
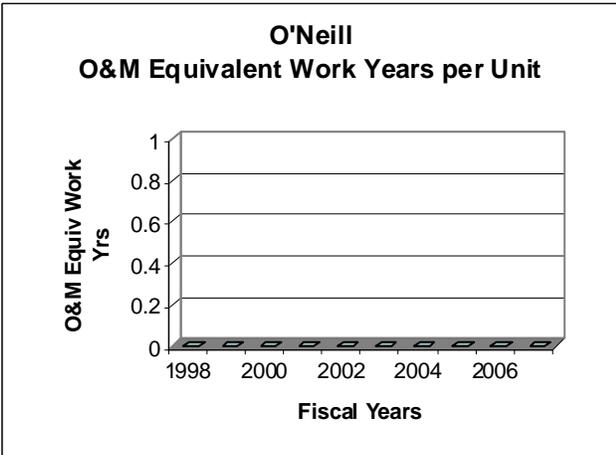
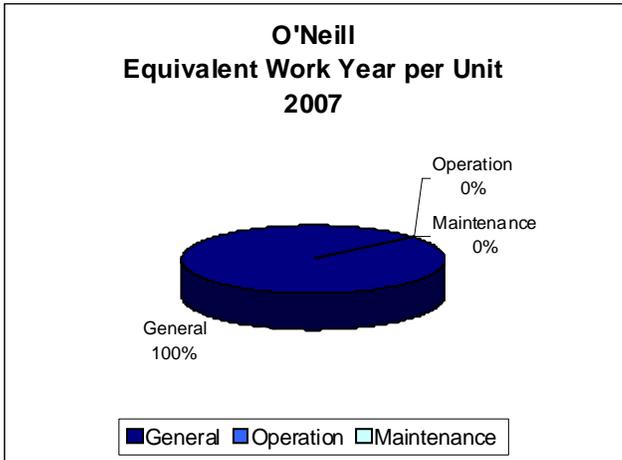
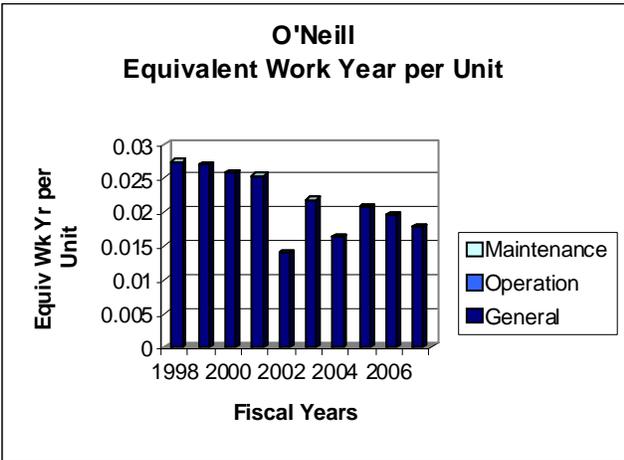
No Cost Data Available

**Benchmark 3
Production Cost**

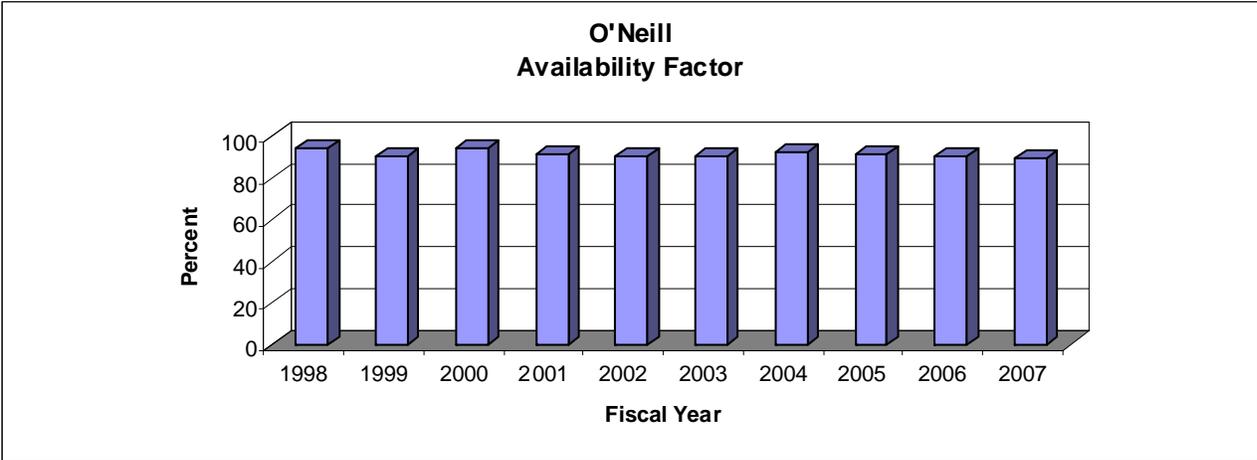
No Cost Data Available

Benchmark 4
Workforce Deployment

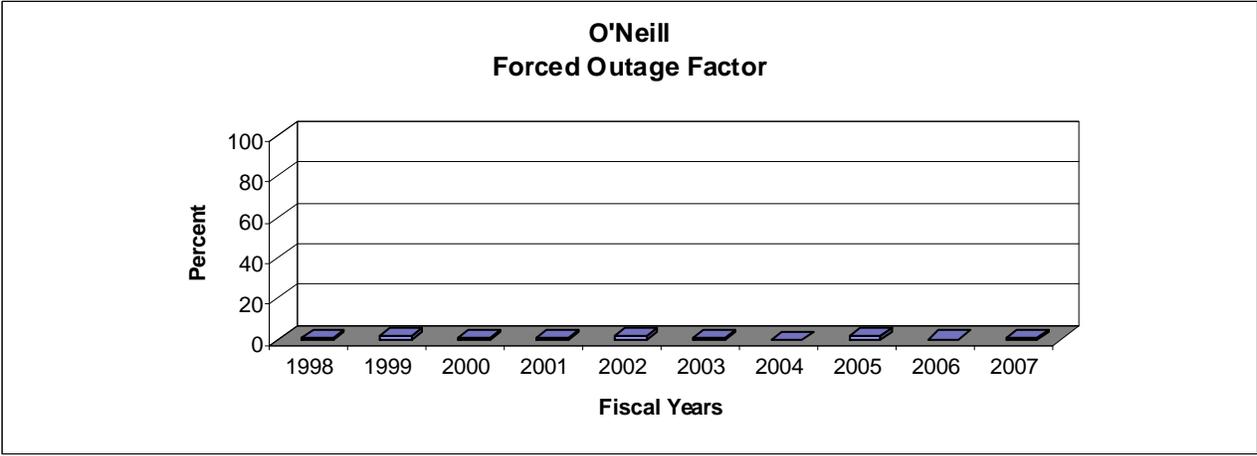
O'Neill FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.11	0.11	0.02	0.00
Operation	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance	0.00	0.00	0.00	0.00	0.00	0.00
Total Staffing	0.00	0.00	0.11	0.11	0.02	0.00



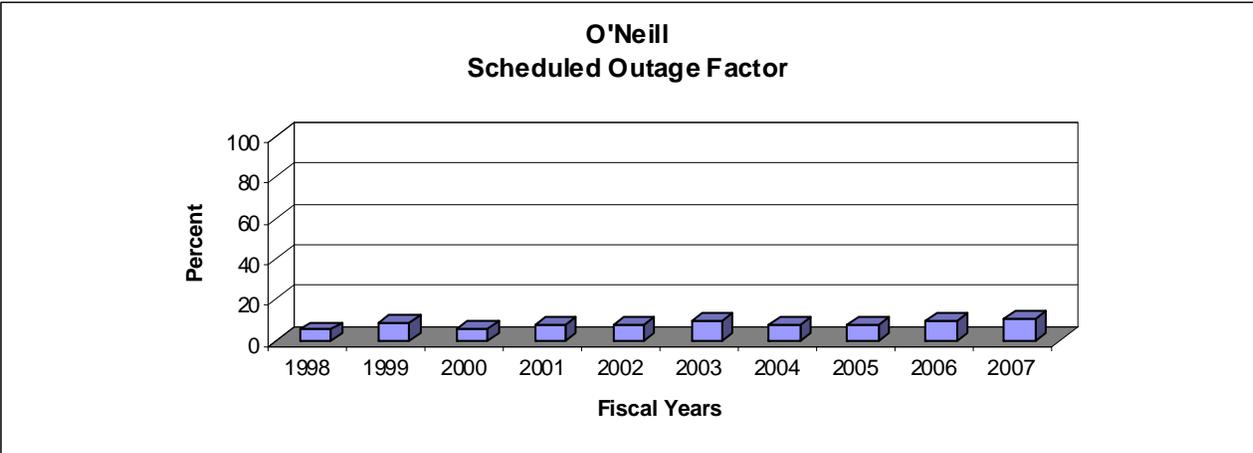
**Benchmark 5
Availability Factor**



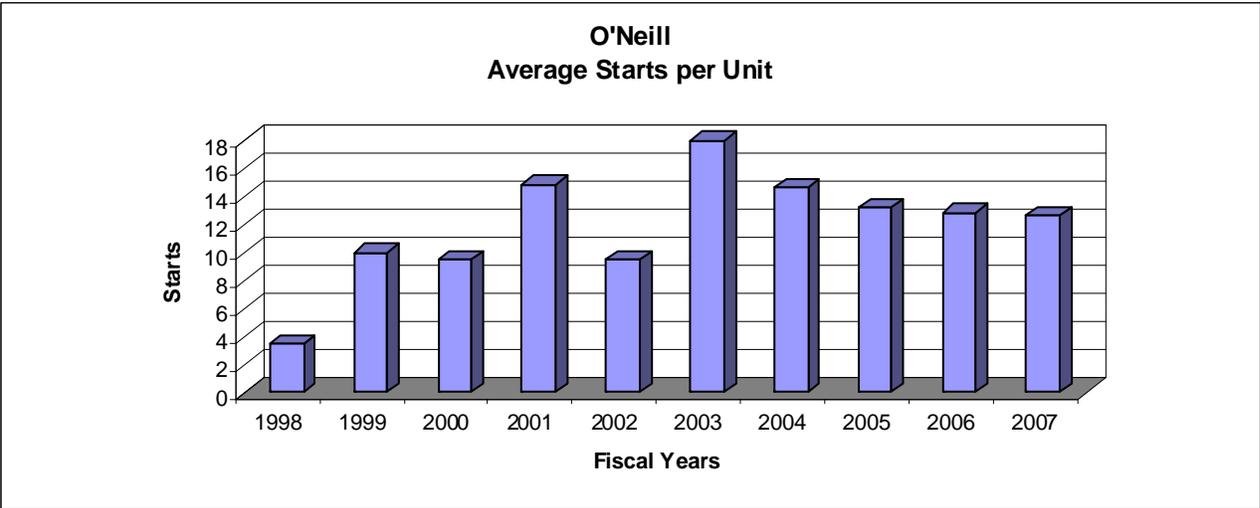
**Benchmark 6
Forced Outage Factor**



**Benchmark 7
Scheduled Outage Factor**



Starts



Benchmark Data Comparison				
Fiscal Year 2007	O'Neill Powerplant	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	Not Applicable	2.76	Not Applicable	1.00
O&M Costs \$/MW	Not Applicable	7,847	Not Applicable	2,897
O&M Equiv Work Year per MW	0.00	0.03	Not Available	0.00
Availability Factor	89.6	82.3	**88.64	98.54
Forced Outage Factor	0.2	2.6	**2.61	0.00
Scheduled Outage Factor	10.2	15.1	**8.74	0.00

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

San Luis Pump-Generating Plant Central Valley Project



Plant Contact:

State of California

Plant Address:

San Luis Pumping-Generating Plant
Los Banos, CA

Telephone Numbers:

Phone: (209) 826-1277

Reclamation Region:	Mid-Pacific
NERC Region:	Western Electricity Coordinating Council, California-Southern Nevada Power Area
PMA Service Area:	Western Area Power Administration, Sierra Nevada Region
Project Authorization:	<p>Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.</p> <p>The San Luis Unit, West San Joaquin Division, was authorized as a part of the Central Valley Project on June 3, 1960, Public Law 86-488.</p>
Project Purposes:	<p>The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.</p> <p>Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.</p>

**San Luis Powerplant
Other**

Plant Location:	San Luis Pump-Generating Plant is located in Merced County, California, on the San Luis Creek, 12 miles west of Los Banos, California.
Plant Facts:	<p>This joint Federal-State facility, located at San Luis Dam, lifts water by pump-turbines from the O'Neill forebay into the San Luis Reservoir. During the irrigation season, water is released from San Luis Reservoir back through the pump-turbines to the forebay and energy is reclaimed. Each of the eight pumping-generating units has a capacity of 63,000 horsepower as a motor and 53,000 kilowatts as a generator. As a pumping station to fill San Luis Reservoir, each unit lifts 1,375 cubic feet per second at 290 feet total head. As a generating plant, each unit passes 1,628 cubic feet per second at 197 foot head and 120 rpm.</p> <p>Each unit can pump or generate at either 120 rpm or 150 rpm in order to efficiently accommodate the large variations in operating head. Unit's 1 and 5 can operate at 120 rpm or 156.5 rpm. The higher speed on those units operates more efficiently when the reservoir is above EL 480.</p>
Plant Purpose:	The San Luis Pump-Generating Plant pumps Central Valley Project water for off-stream storage.
Plant History:	The powerplant is operated and maintained by the State of California under an operation and maintenance agreement with Reclamation. The powerplant name has been changed to Gianelli.
Present Activities:	Normal operations. The pump-generating plant pumps water from O'Neill to San Luis Reservoir. Offsets Central Valley Project pumping loads with generation during releases to O'Neill Forebay.
Future Planned Activities:	None
Special Issues:	Speed changes on two units have resulted in increased efficiency above 300 foot head. California State has requested that one to two more units be reconfigured for operation at higher speeds.

**San Luis Powerplant
Other**

River:	San Luis Creek	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	424,000 kW	Installed Capacity:	424,000 kW
Original Nameplate Capacity Owned by Reclamation:	202,000 kW	Installed Capacity Owned by Reclamation:	202,000 kW
Year of Initial Operation:	1968	Age:	40 years
Net Generation (FY-2007)	126.4 GWh	Rated Head:	323 feet
Average Plant Factor (FY-2007):	7.1 percent	Remotely Operated:	No
Production Mode:	Seasonal Base		

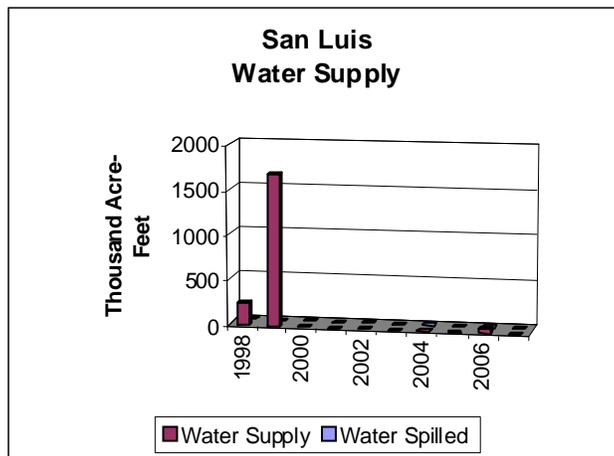
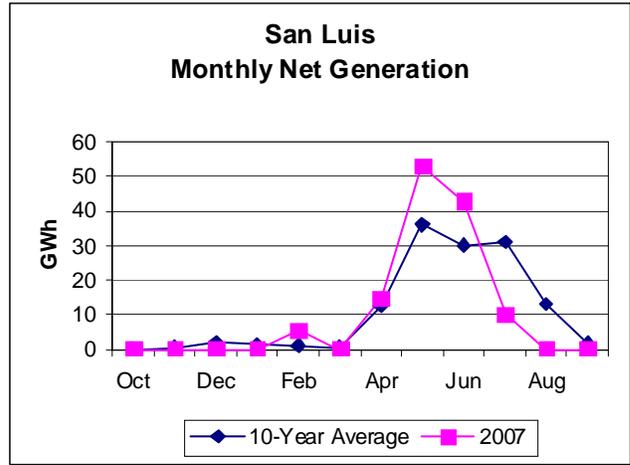
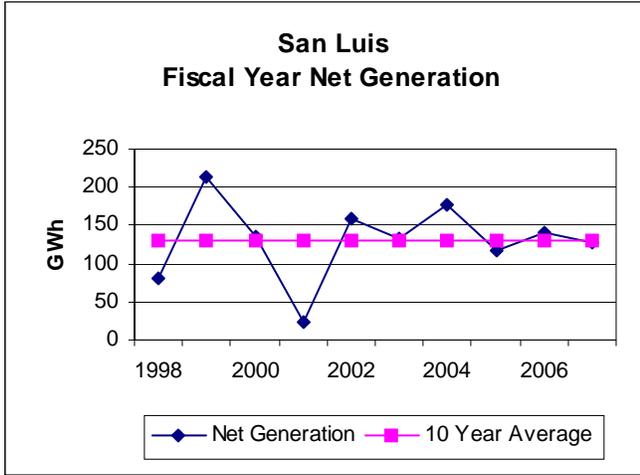
Ancillary Services

San Luis Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	No
Voltage Support	No

Generators

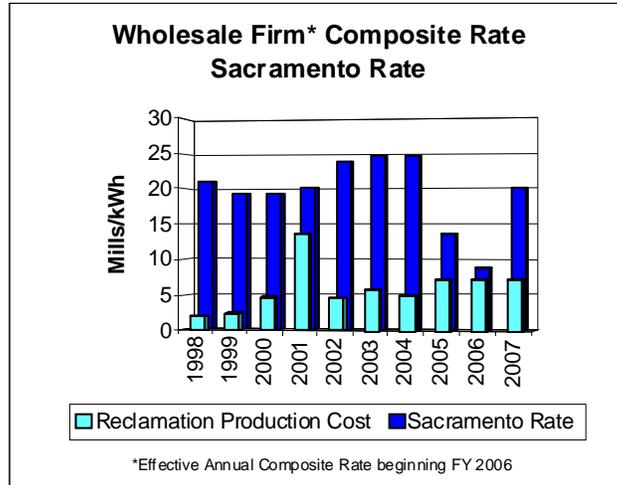
San Luis CA & US Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	53,000	-	53,000
2	53,000	-	53,000
3	53,000	-	53,000
4	53,000	-	53,000
5	53,000	-	53,000
6	53,000	-	53,000
7	53,000	-	53,000
8	53,000	-	53,000
8 units	424,000	-	424,000
Reclamation Owns 202,000 kW			

Generation



Prime Laboratory Benchmarks

Benchmark 1 Wholesale Firm Rate



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

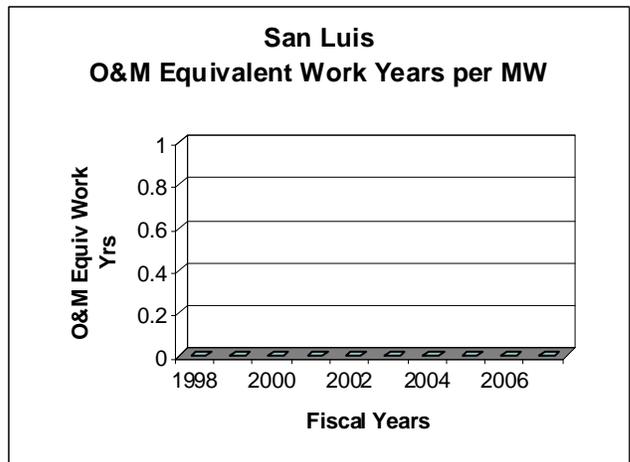
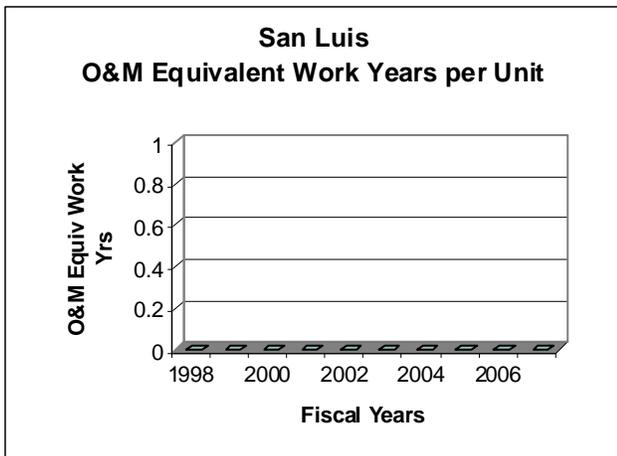
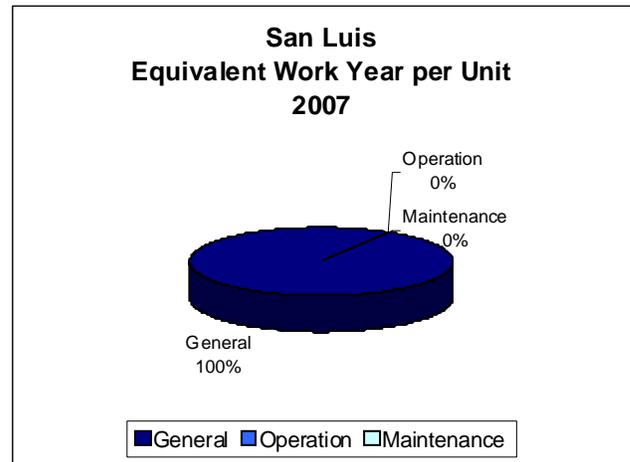
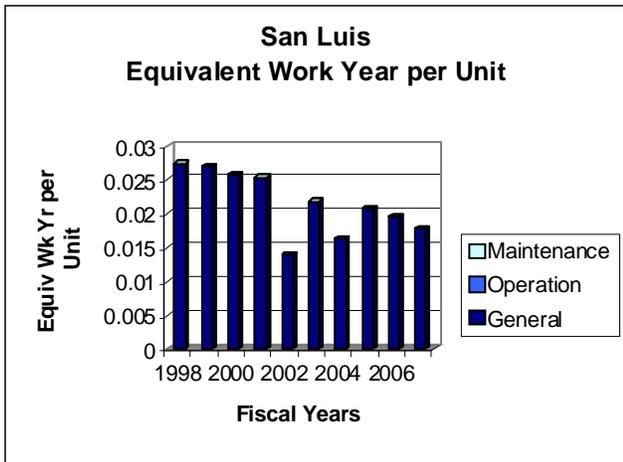
No Cost Data is Available

Benchmark 3 Production Cost

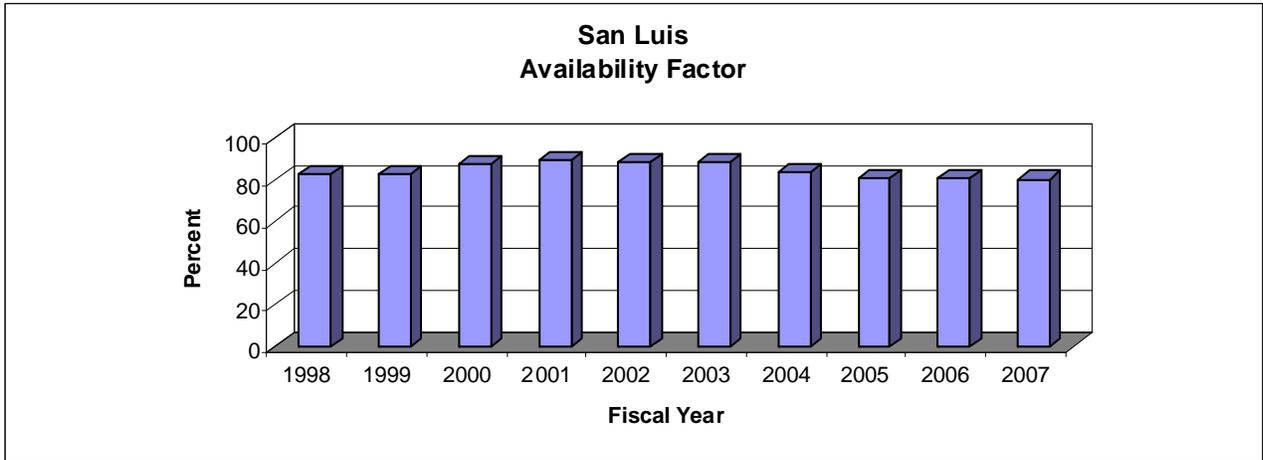
No Cost Data is Available

Benchmark 4
Workforce Deployment

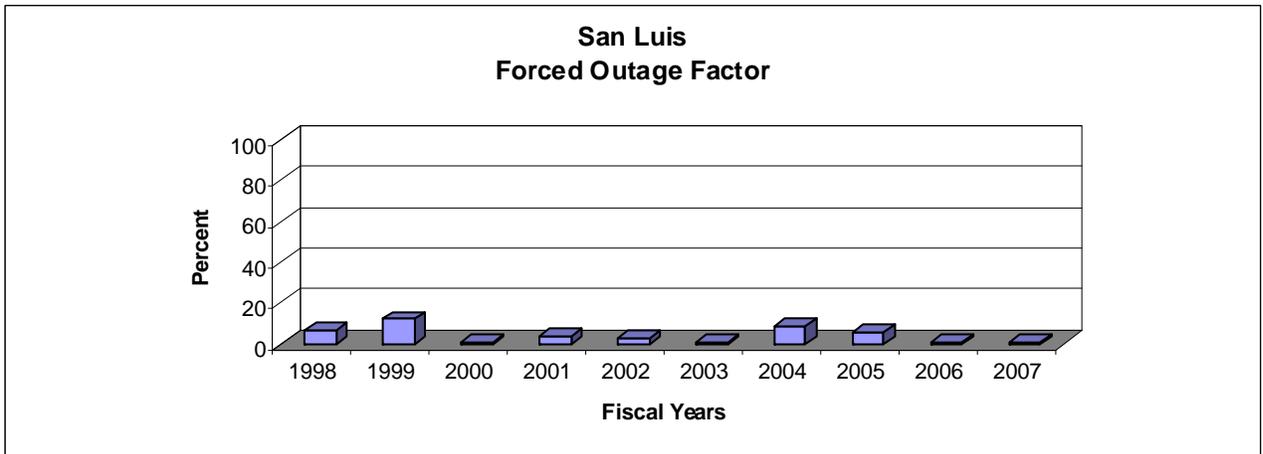
San Luis FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.14	0.14	0.02	0.00
Operation	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance	0.00	0.00	0.00	0.00	0.00	0.00
Total Staffing	0.00	0.00	0.14	0.14	0.02	0.00



**Benchmark 5
Availability Factor**

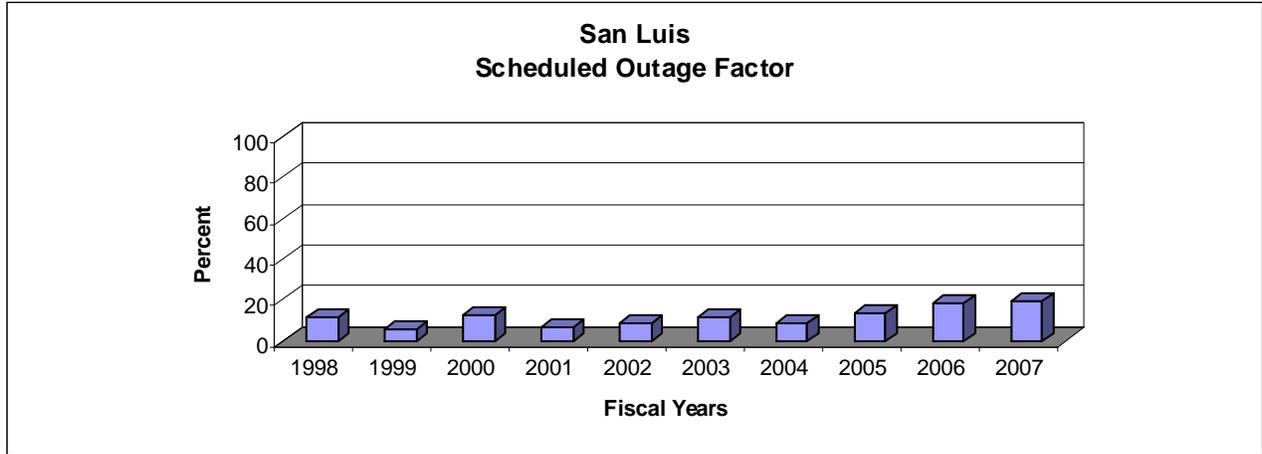


**Benchmark 6
Forced Outage Factor**

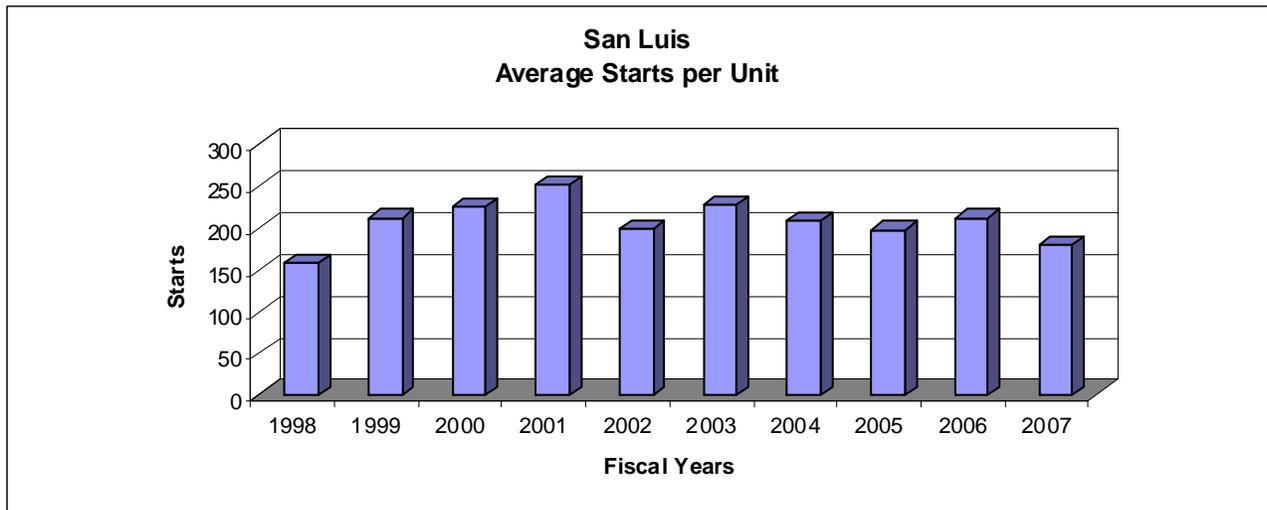


FY-98 - Fire in motor housing stator burned

Benchmark 7
Scheduled Outage Factor



Starts



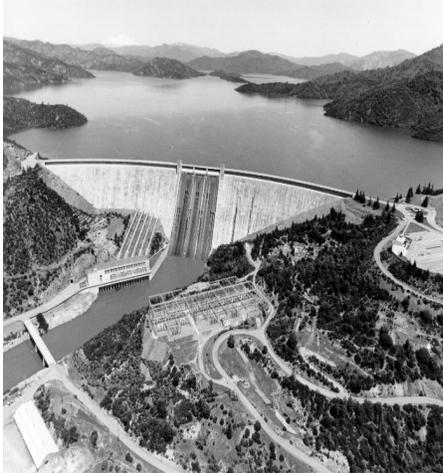
Benchmark Data Comparison				
Fiscal Year 2007	San Luis Powerplant	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	Not Applicable	2.76	Not Applicable	1.00
O&M Costs \$/MW	Not Applicable	7,847	Not Applicable	2,897
O&M Equiv Work Year per MW	0.00	0.03	Not Available	0.000
Availability Factor	80.3	82.3	**88.64	98.54
Forced Outage Factor	0.5	2.6	**2.61	0.00
Scheduled Outage Factor	19.2	15.1	**8.74	0.00

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Shasta Powerplant Central Valley Project



Plant Contact:

Brian Person
Area Manager

Plant Address:

Shasta Powerplant
Shasta Lake City, CA 96003

Telephone Numbers:

Phone: (530) 275-1554
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-So. Nevada Power Area.

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region.

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

The Shasta and Trinity River Division was authorized by Public Law 386, 84th Congress, 1st Session, approved August 12, 1955.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

Shasta Powerplant
>500 MW

Plant Location:	Shasta Power plant is located on the Sacramento River in Shasta County, California, 9 miles northwest of Redding, California.		
Plant Purpose:	The Shasta Powerplant is a peaking plant. Its power is dedicated first to meeting the requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.		
Plant Fact:	The Shasta Powerplant is located just below Shasta Dam. Water from the dam is released through five 15-foot penstocks leading to the five main generating units and two station service units.		
Plant History:	Transmission lines were operated by Reclamation until October 1, 1977, when they were transferred to the Western Area Power Administration, Department of Energy. Unit 4 and 5 were up rated to 142 MW in 1998 and 1999, respectively.		
	Units 1 and 2 were up rated to 125 MW each in 1980. Units 3, 4, and 5 were up rated in 1968-1974.		
Present Activities:	All five generators have been uprated to 142 MW and turbine replacements have been completed. Rehabilitation of the two station service units starts was completed in 2007.		
Future Planned Activities:	Rewind and uprating of unit 2 will start in 2006, unit 1 will follow in 2007.		
Special Issues:	Shasta Powerplant penstocks provide water supply for Livingston Stone National Fish Hatchery, which is located .125 miles south of Shasta Powerplant.		
River:	Sacramento River	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	379,000 kW	Installed Capacity:	697,000 kW
Year of Initial Operation:	1944	Age:	63 years
Net Generation (FY-2007):	1,978.0 GWh	Rated Head:	330 feet
Average Plant Factor (FY-2007):	32.5 percent	Remotely Operated:	Yes
Production Mode:	Peaking		

Ancillary Services

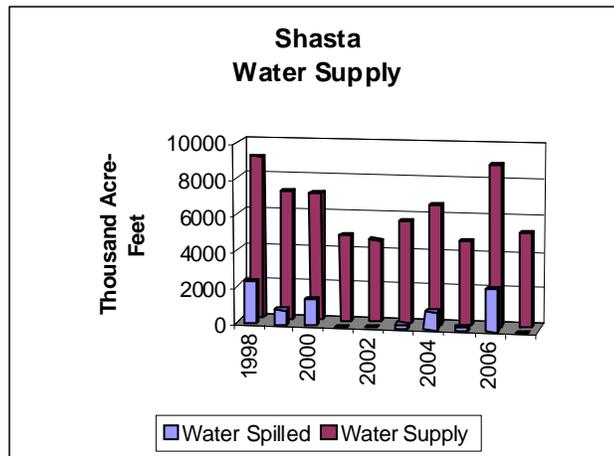
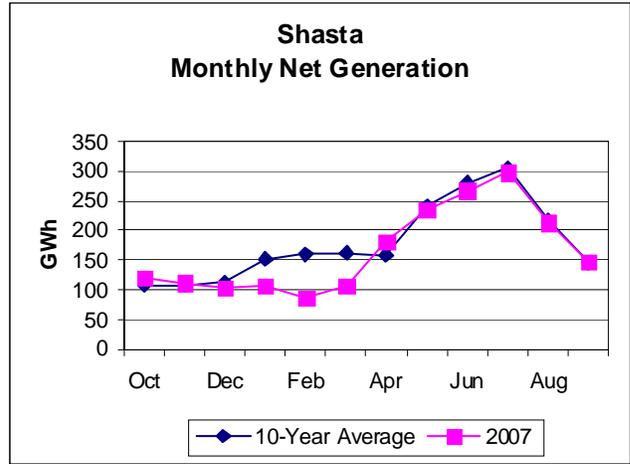
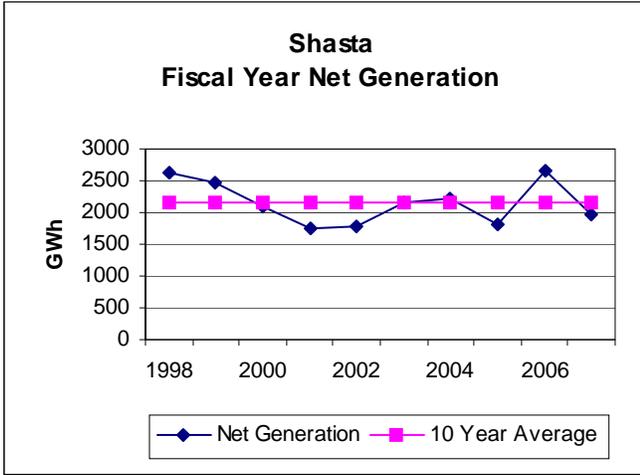
Shasta Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	Yes
Voltage Support	Yes

Generators

Shasta Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	75,000	67,000	142,000
2	75,000	50,000	125,000
3	75,000	67,000	142,000
4	75,000	67,000	142,000
5	75,000	67,000	142,000
S1	2,000	-	2,000
S2	2,000	-	2,000
7 Units	379,000	318,000	697,000

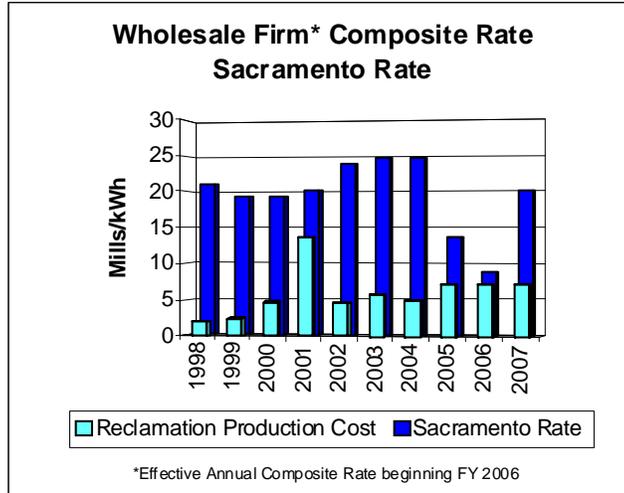
The maximum operational capacity is 612,000 kW.
Units 3, 4, and 5 are presently restricted to 125,000 kW because of the turbines which will be replaced in 2001.

Generation

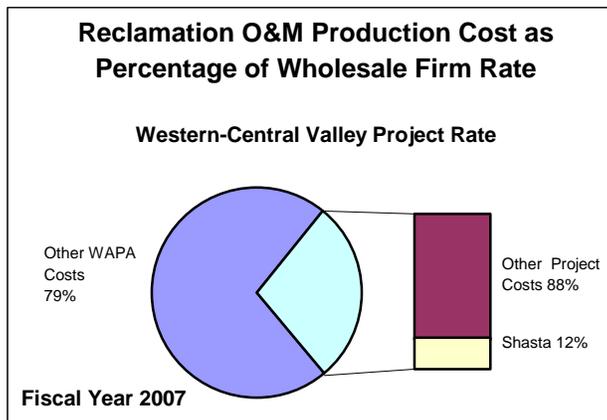


Prime Laboratory Benchmarks

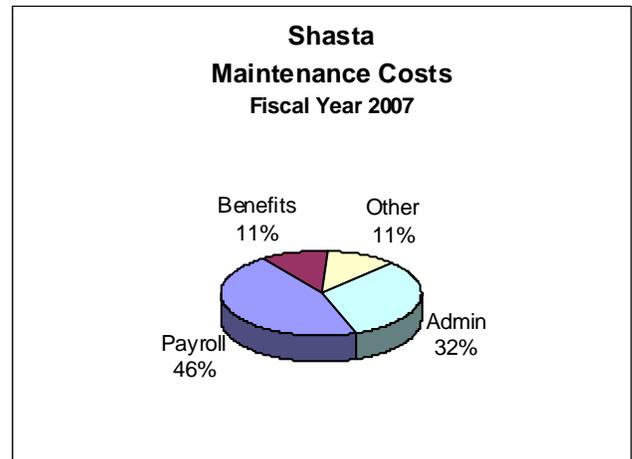
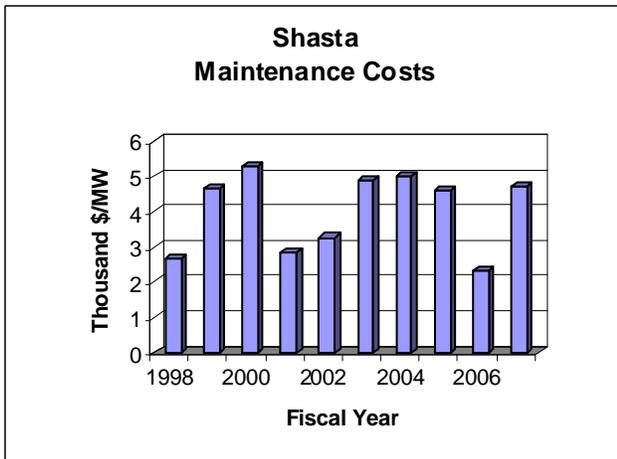
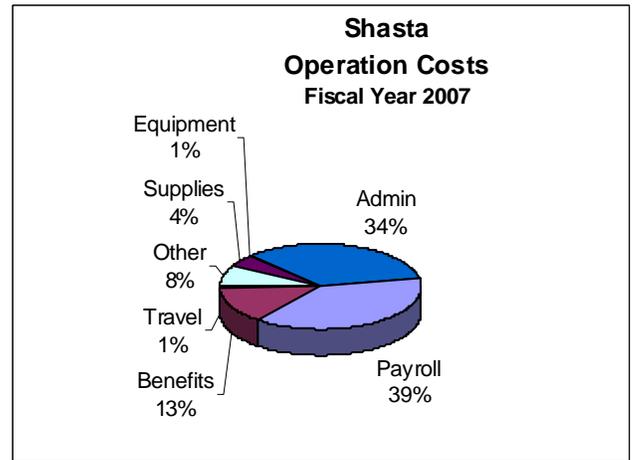
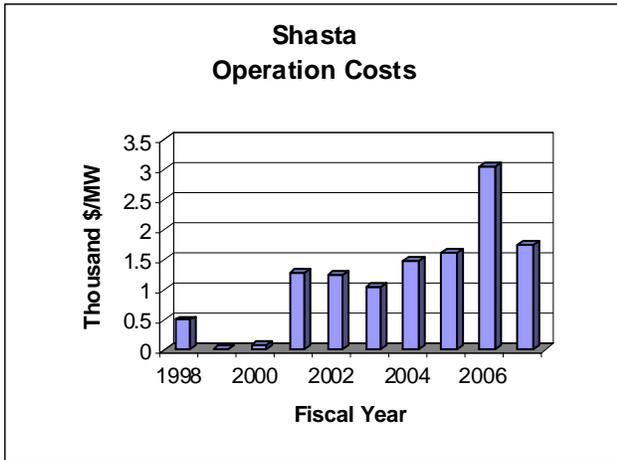
**Benchmark 1
Wholesale Firm Rate**



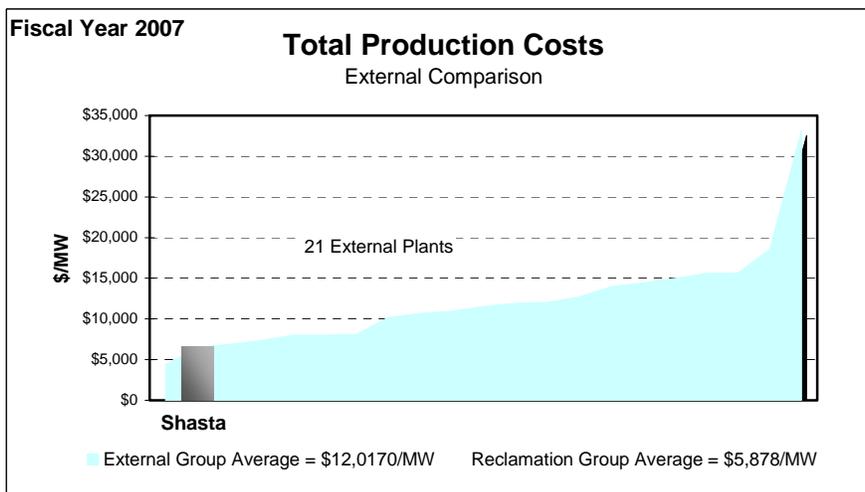
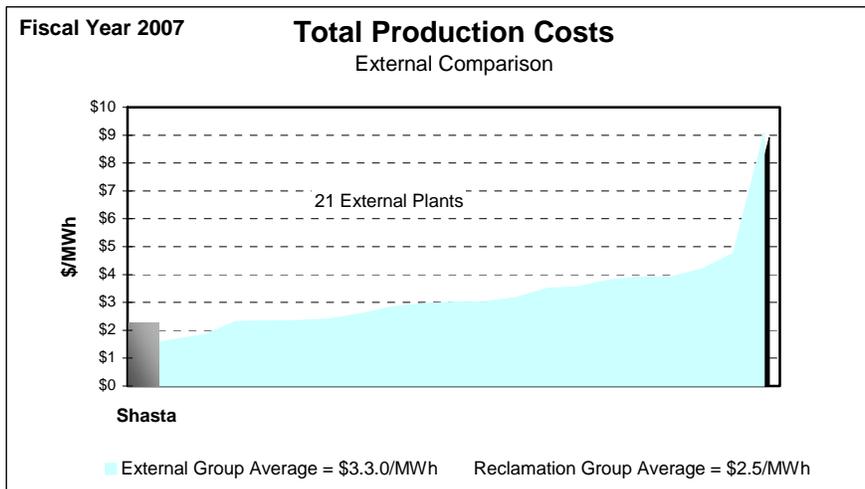
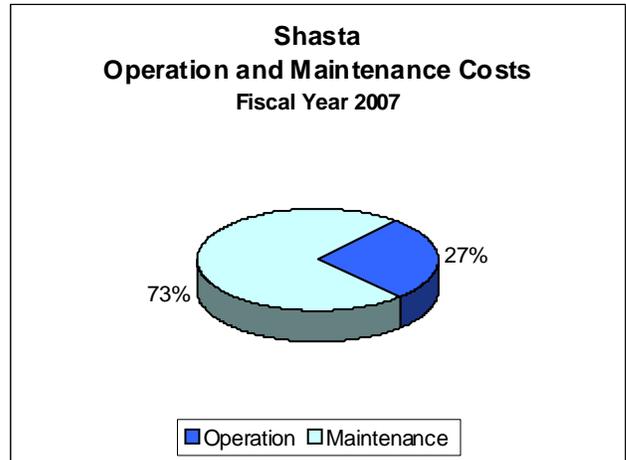
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



Benchmark 3
Production Cost

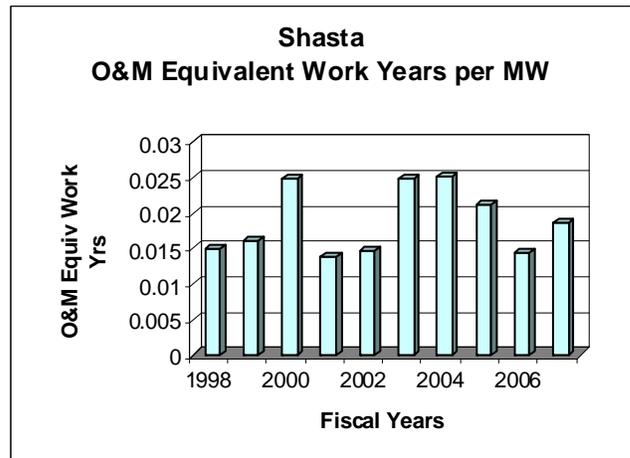
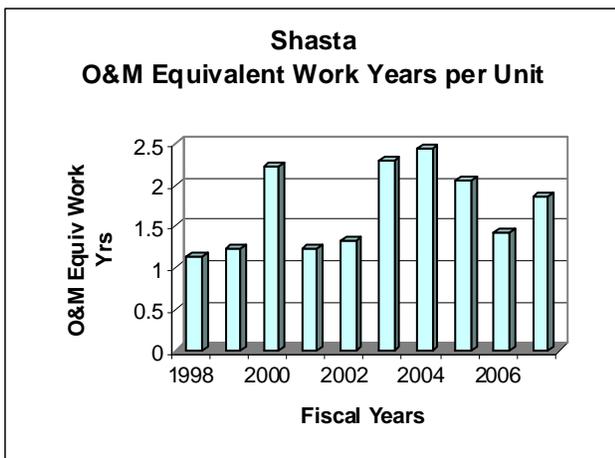
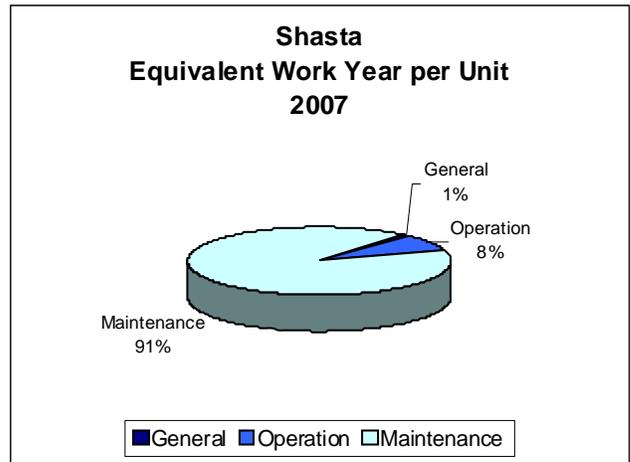
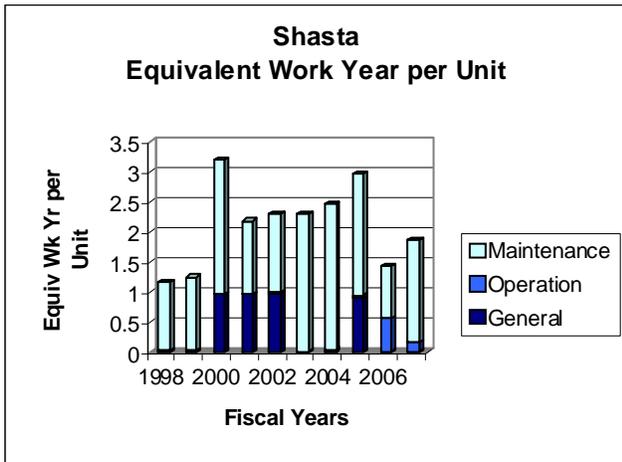


**Benchmark 3
Production Cost**

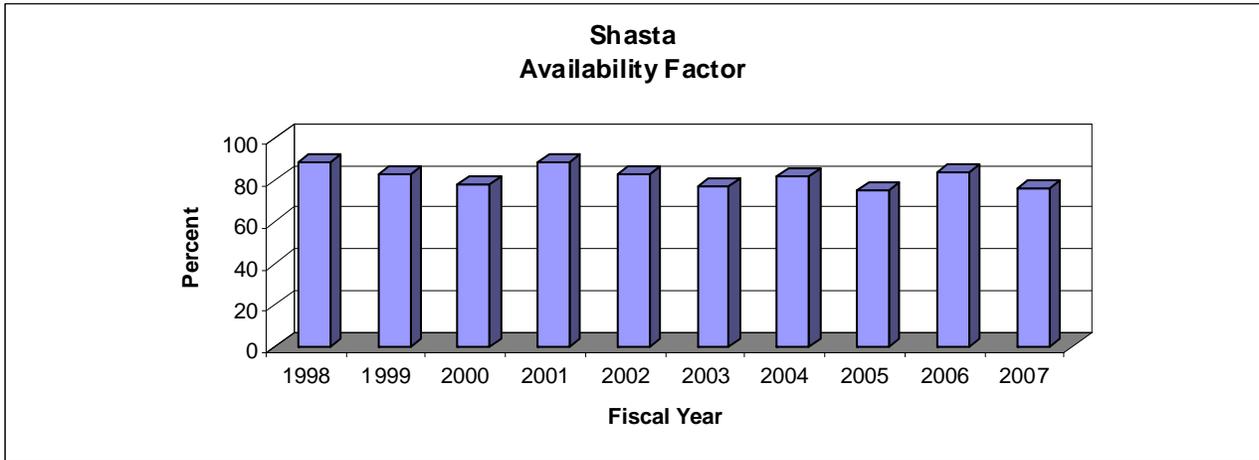


**Benchmark 4
Workforce Deployment**

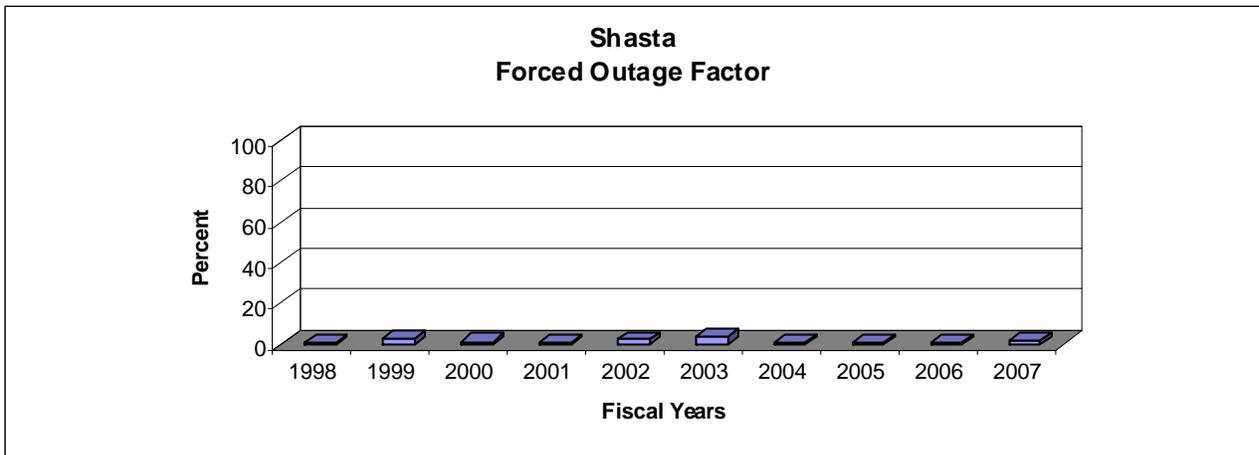
Shasta FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.12	0.12	0.02	0.00
Operation	0.98	0.09	0.00	1.07	0.15	0.00
Maintenance	10.84	1.05	0.00	11.89	1.70	0.02
Total Staffing	11.82	1.14	0.12	13.08	1.87	0.02



**Benchmark 5
Availability Factor**



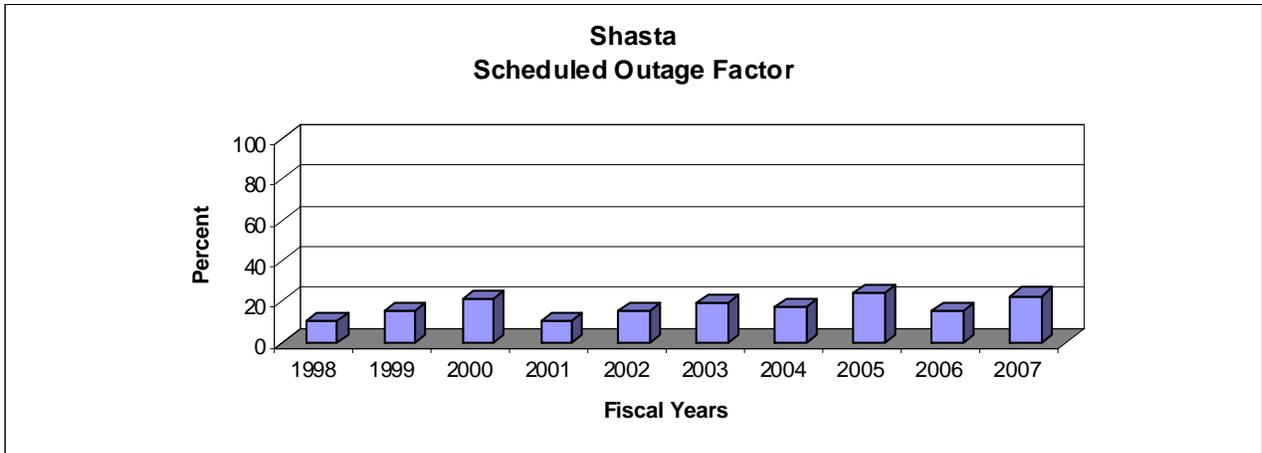
**Benchmark 6
Forced Outage Factor**



FY-99 – Unit 5 rewind - generator failed due to faulty contractor installation

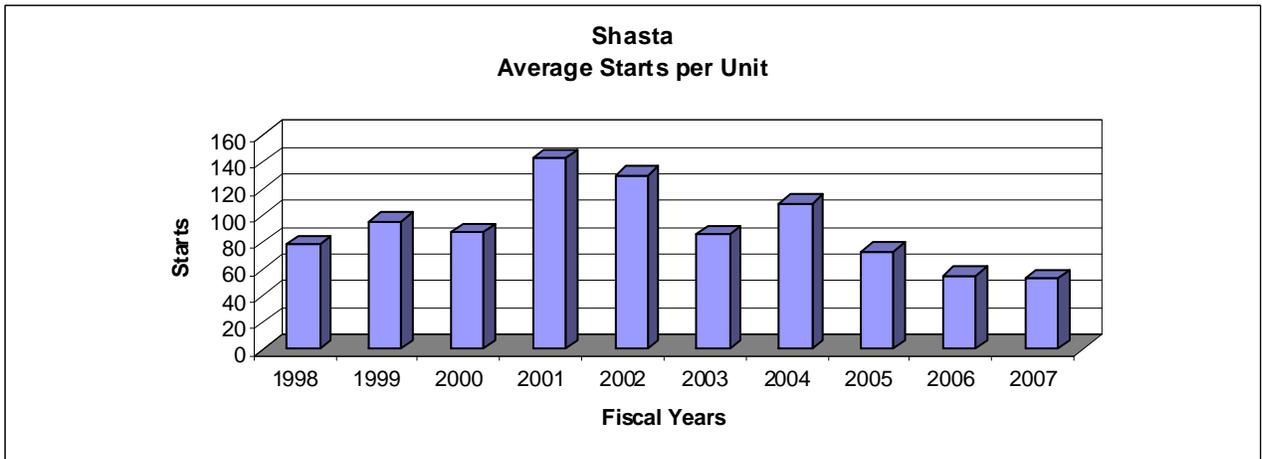
FY-03 – Unit 5 had in-service failure of a generator field winding that resulted in an outage from November 2002 – January 2003. The failure was due to faulty contract work during the rewind and was repaired under warranty by the contractor.

**Benchmark 7
Scheduled Outage Factor**



FY-97 - Units out for temperature control device
FY-97 and FY-98 – Unit 4 rewind
FY-99 – Unit 5 rewind
FY-99 to FY02 – Transformer re-gasketing
FY-00 – Unit 3 rewind
FY-03 – Unit 4 turbine runner replacement

Starts



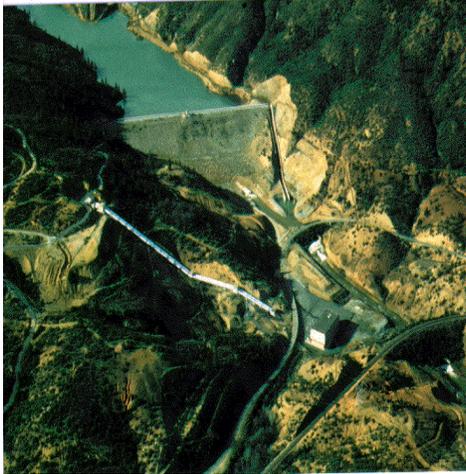
Benchmark Data Comparison					
Fiscal Year 2007	Shasta Powerplant	Reclamation Average 500+ MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	5.3%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	2.27	1.65	2.76	***3.28	1.00
O&M Costs \$/MW	6,443	4,863	7,847	***12,0170	2,897
O&M Equip Work Year per MW	0.02	0.02	0.03	Not Available	0.0
Availability Factor	76.0	81.93	82.3	**88.64	98.5
Forced Outage Factor	1.2	3.15	2.6	**2.61	0.0
Scheduled Outage Factor	22.8	14.92	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Spring Creek Powerplant Central Valley Project



Plant Contact:

Brian Person
Area Manager

Plant Address:

Spring Creek Powerplant
Redding, CA 96003

Telephone Numbers:

Phone: (530) 275-1554
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region

Project Authorization:

Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.

The Shasta and Trinity River Division was authorized by Public Law 386, 84th Congress, 1st Session, approved August 12, 1955.

Project Purposes:

The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.

Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.

**Spring Creek Powerplant
100-500 MW**

Plant Location:	Spring Creek Powerplant is located in Shasta County, California, on the Spring Creek arm of Keswick Reservoir near Redding, California.		
Plant Facts:	Spring Creek Powerplant is at the foot of Spring Creek Debris Dam. The dam is an earth-fill structure, 196 feet high with a crest length of 1,110 feet. Water for power is received through Spring Creek Tunnel which diverts water from Whiskeytown Lake on Clear Creek. Water from the plant is discharged to Keswick Reservoir.		
Plant Purpose:	Spring Creek Powerplant is a peaking plant. Its power is dedicated first to meeting the requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.		
Plant History:	These facilities were built and are operated by Reclamation. Transmission lines were operated by Reclamation until October 1, 1977, when they were transferred to the Western Area Power Administration, Department of Energy.		
Present Activities:	Excitation system replacements are in progress. Completion of these systems is expected to be done in 2008.		
Future Planned Activities:	Generator rewinds and turbine replacements are proposed beginning in 2011.		
Special Issues:	Spring Creek operation is tied to flow regimes aimed at minimizing the building of metal concentrations in the Spring Creek arm of the Keswick Reservoir. Trinity County has first preference to the power benefit of the Central Valley Project from Spring Creek Powerplant.		
River:	Spring Creek	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	150,000 kW	Installed Capacity:	180,000 kW
Year of Initial Operation:	1964	Age:	44 years
Net Generation (FY-2007):	274.2 GWh	Rated Head:	566 feet
Average Plant Factor (FY-2007):	17.5 percent	Remotely Operated:	Yes
Production Mode:	Peaking		

Ancillary Services

Spring Creek Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	No
Voltage Support	Yes

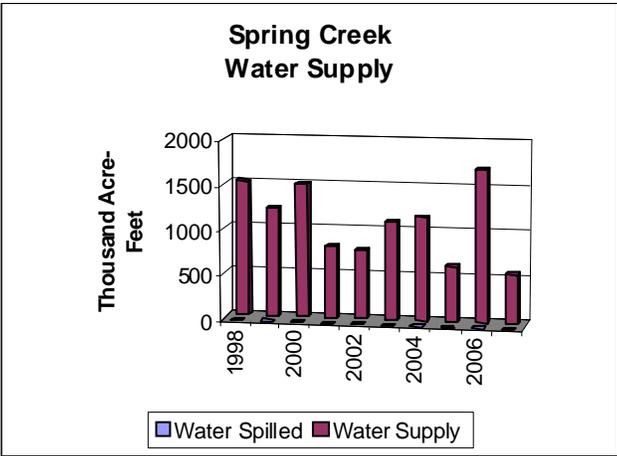
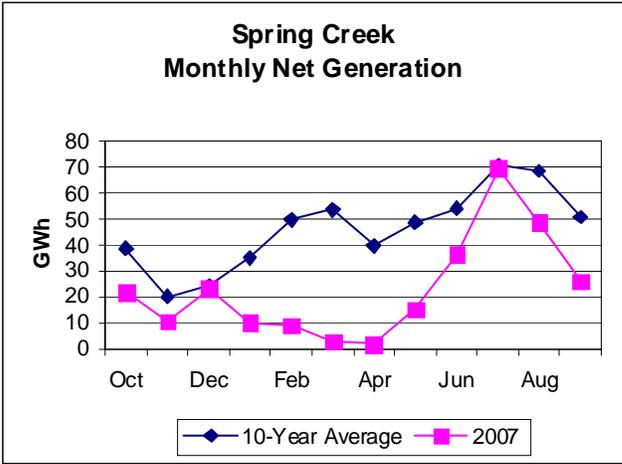
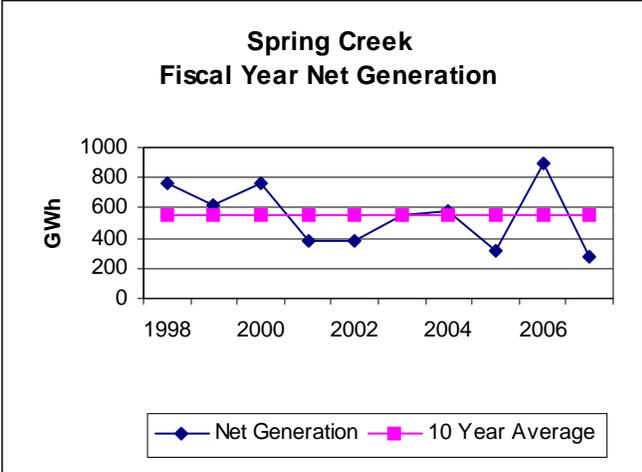
Generators

Spring Creek Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	75,000	15,000	90,000
2	75,000	15,000	90,000
2 units	150,000	30,000	180,000

The maximum operational capacity is 190,000 kW

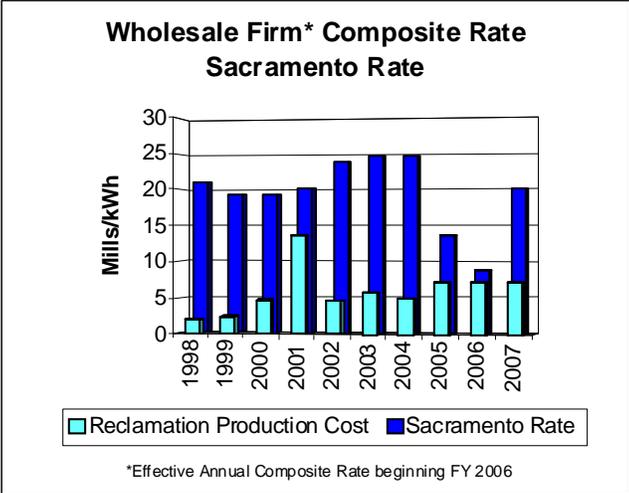
**Spring Creek Powerplant
100-500 MW**

Generation

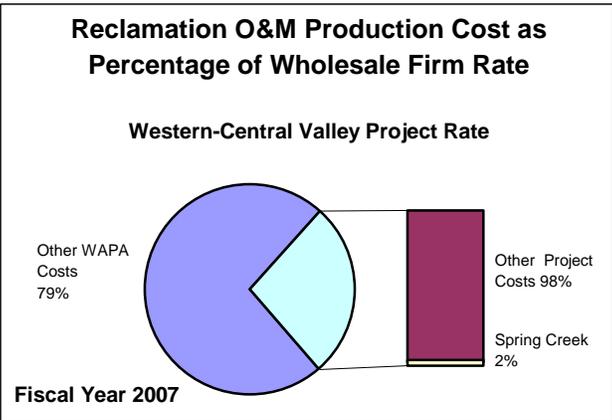


Prime Laboratory Benchmarks

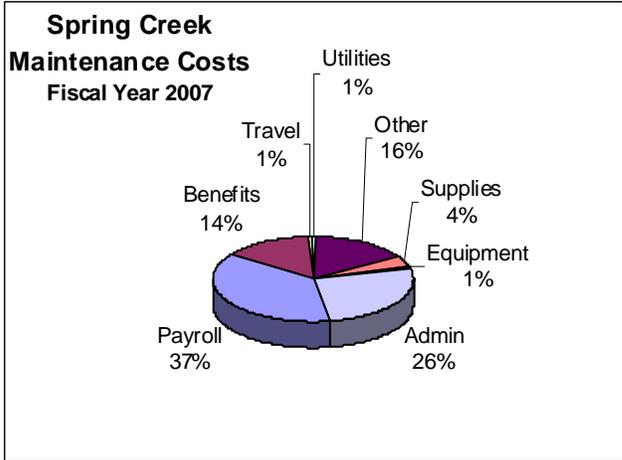
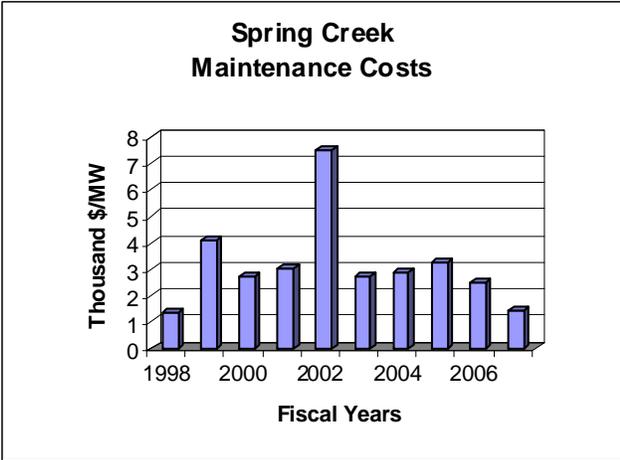
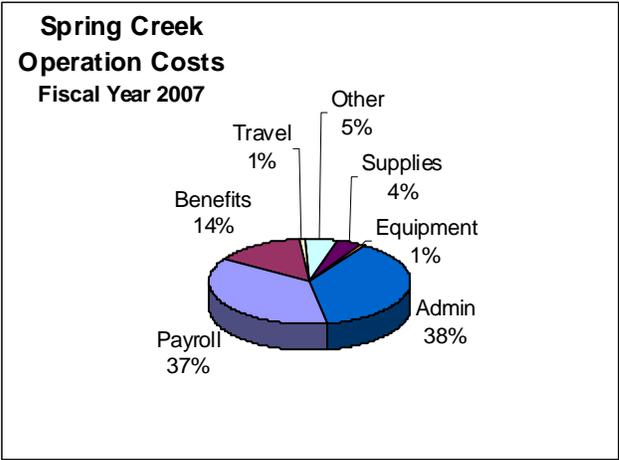
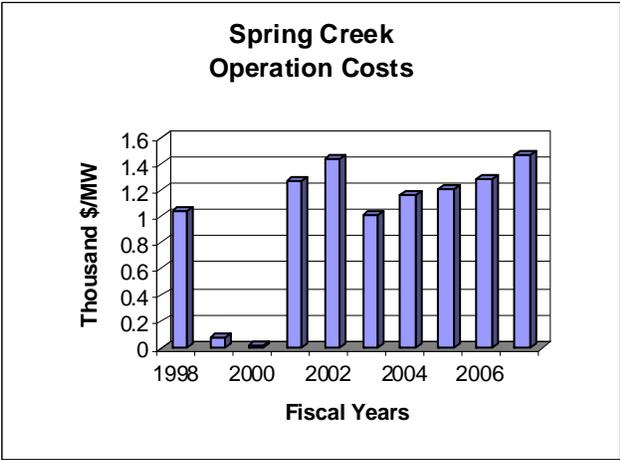
**Benchmark 1
Wholesale Firm Rate**



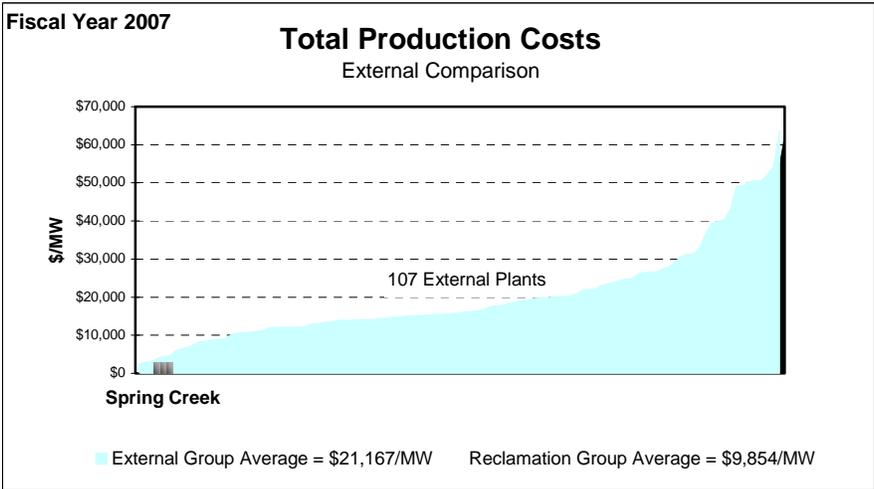
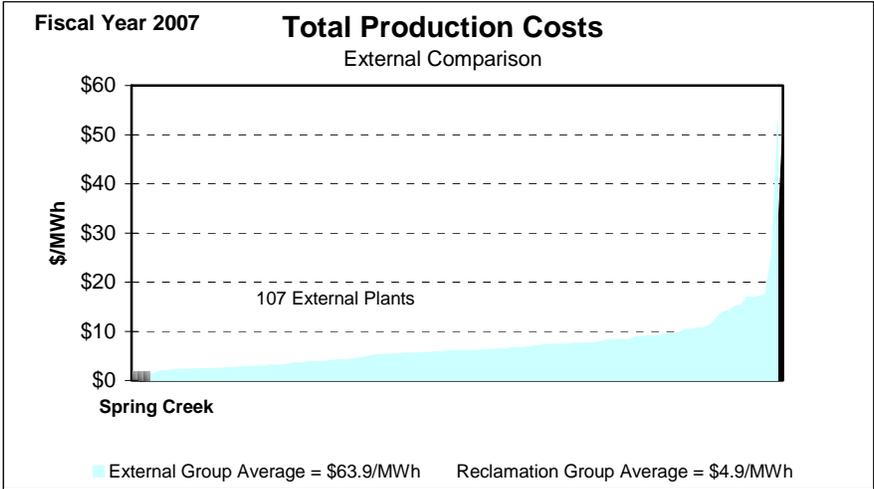
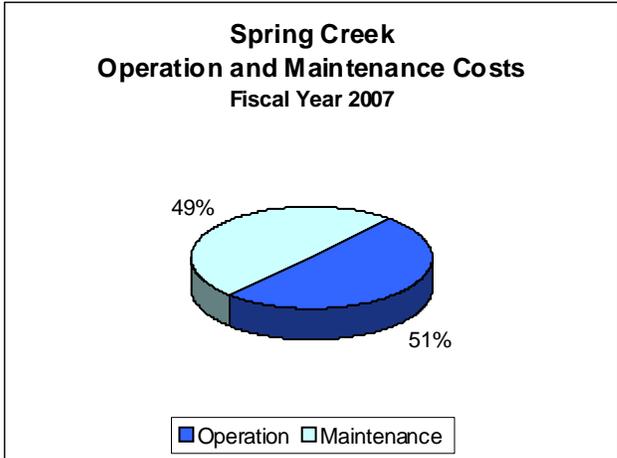
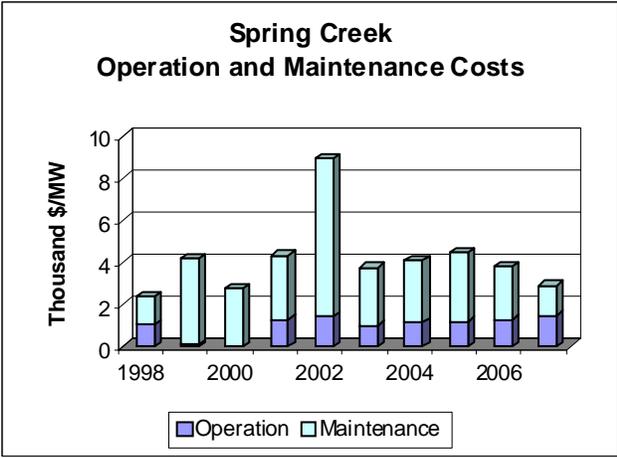
**Benchmark 2
Reclamation’s Production Cost as Percentage of Wholesale Firm Rate**



Benchmark 3
Production Cost

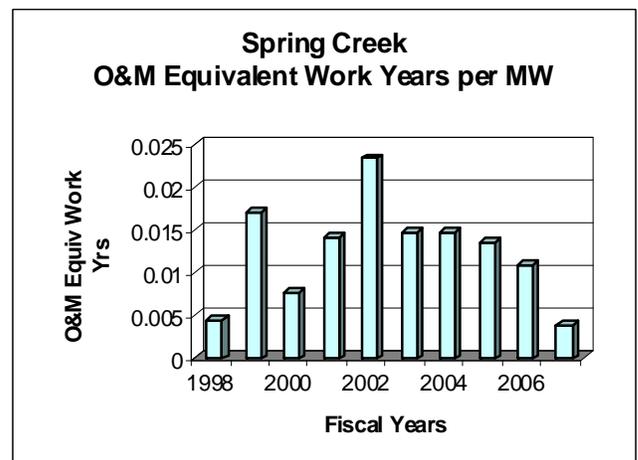
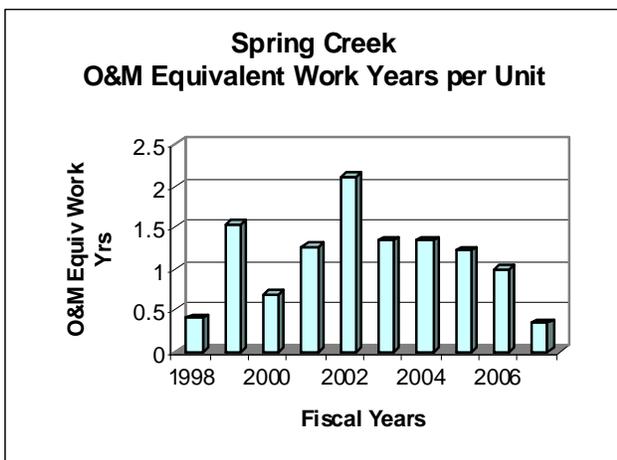
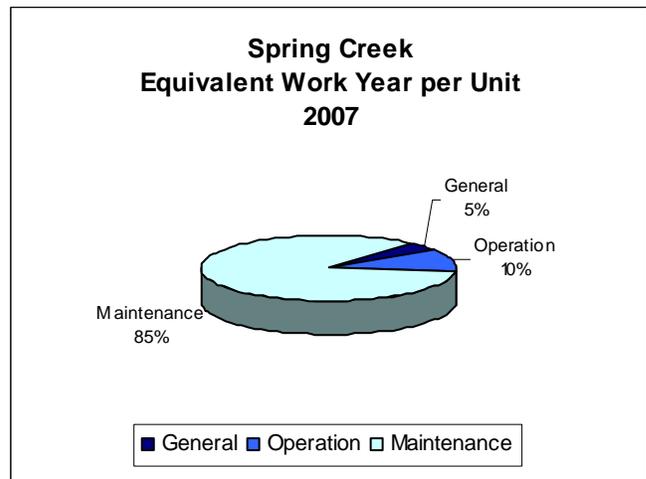
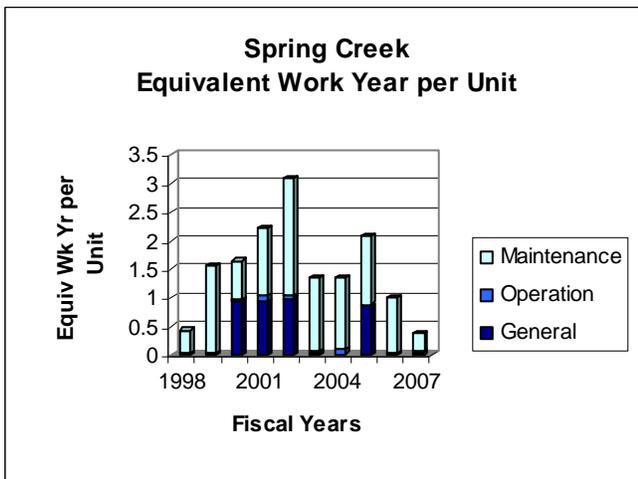


Benchmark 3
Production Cost

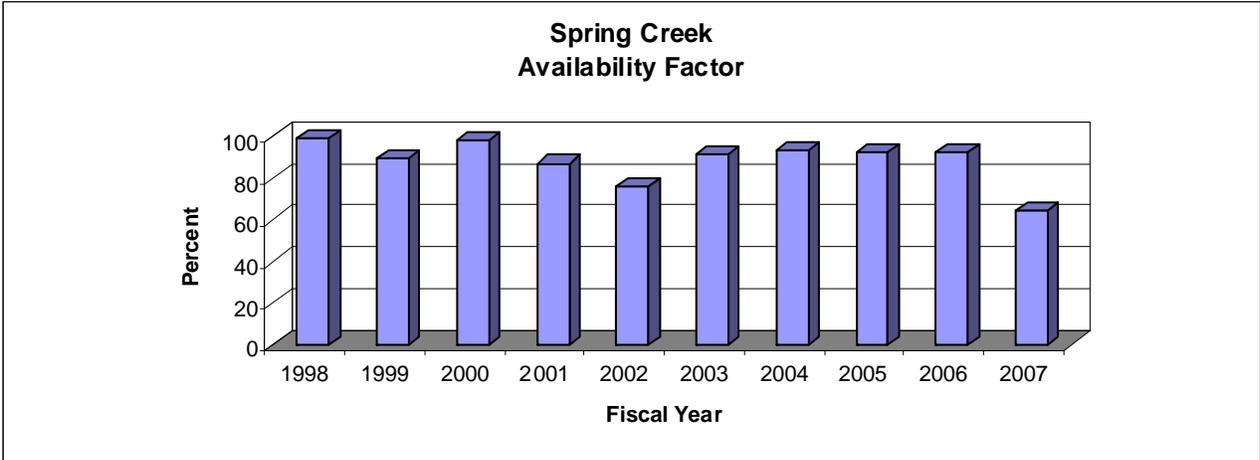


Benchmark 4
Workforce Deployment

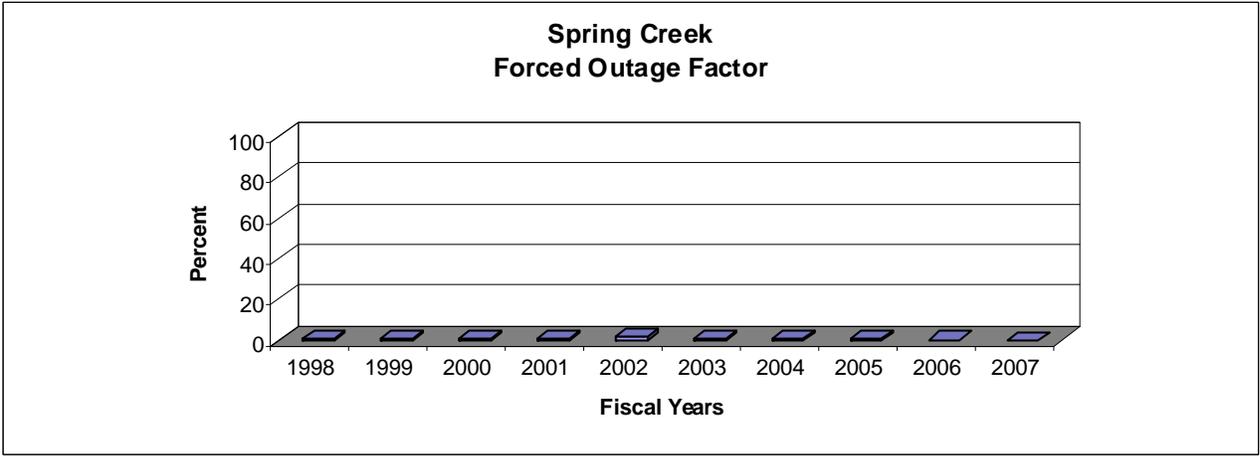
Spring Creek FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.00
Operation	0.07	0.01	0.00	0.08	0.04	0.00
Maintenance	0.57	0.06	0.00	0.63	0.31	0.00
Total Staffing	0.64	0.06	0.04	0.74	0.37	0.00



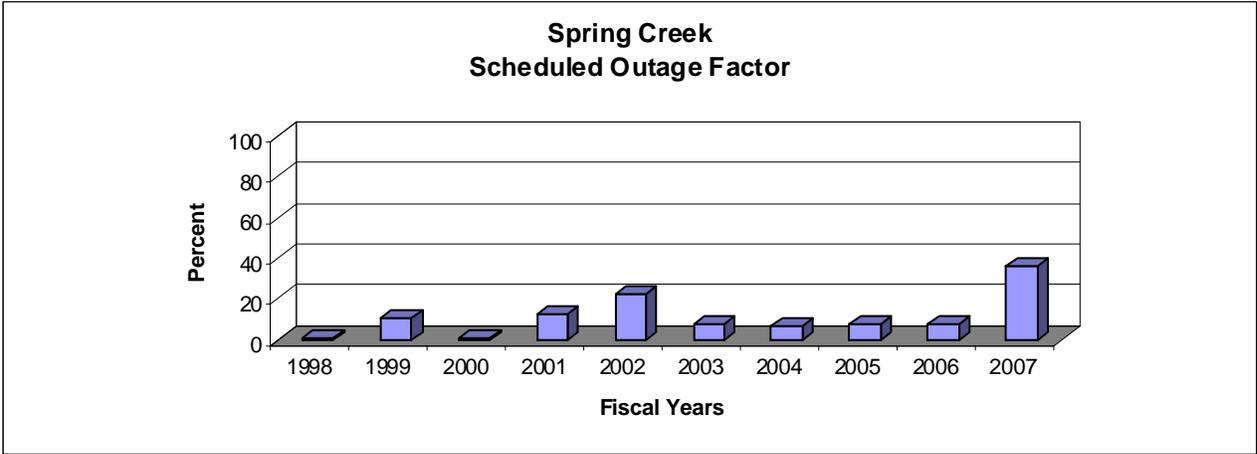
**Benchmark 5
Availability Factor**



**Benchmark 6
Forced Outage Factor**



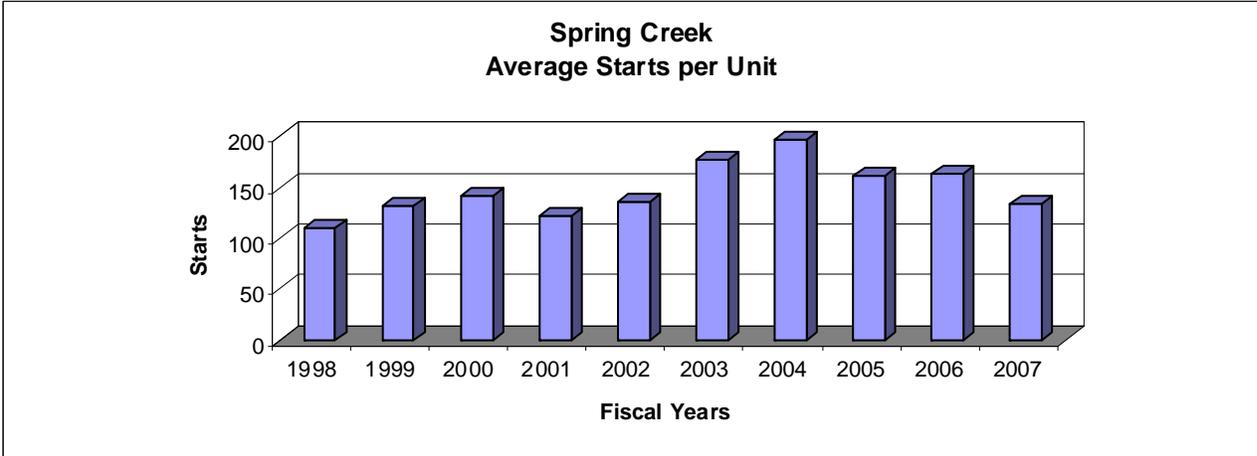
**Benchmark 7
Scheduled Outage Factor**



FY-01 – Re-gasketed transformers

FY-01 and FY-02 – Re-gasketed transformers and installation of penstock flow meters.

Starts



**Spring Creek Powerplant
100-500 MW**

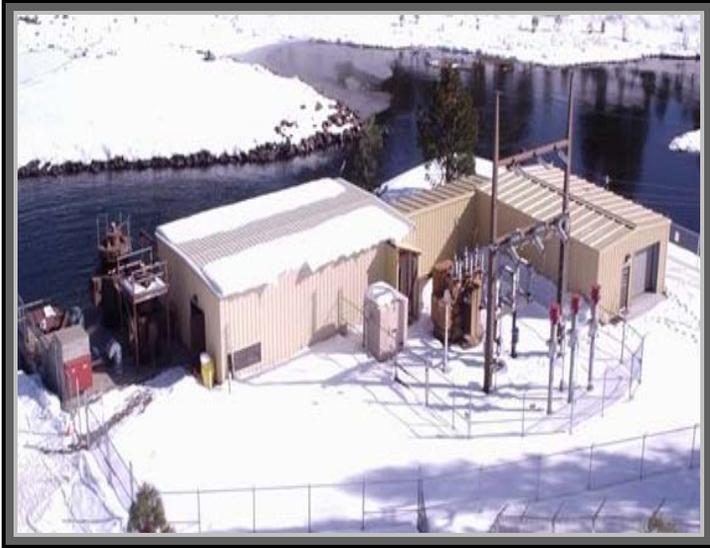
Benchmark Data Comparison					
Fiscal Year 2007	Spring Creek Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	0.6%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	1.90	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	2,897	10,502	7,847	***21,167	2,897
O&M Equip Work Year per MW	0.00	0.04	0.03	Not Available	0.00
Availability Factor	64.2	83.5	82.3	**88.64	98.5
Forced Outage Factor	0.1	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	35.7	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

*** Energy Information Administration Data

Stampede Powerplant Washoe Project

**Plant Contact:**

Robert MacDougal, Civil Engineer
Steve Barker Plant Operator
Lahontan Basin Area Office

Plant Address:

Stampede Powerplant
Truckee, CA

Telephone Numbers:

Phone: (702) 882-3436 (LBAO 24 hours)
(530) 587-5087 (Powerplant)
Fax: (702) 882-7592 (LBAO)
(530) 587-5097 (Plant Office)

E-Mail Address:

rmacdoug@mp.usbr.gov
sbarkerl@mp.usbr.gov

Reclamation Region:

Mid-Pacific

NERC Region:

Western Electricity Coordinating Council, California-Southern Nevada Power Area

PMA Service Area:

Western Area Power Administration, Sierra Nevada Region

Project Authorization:

The project was authorized by Public Law 858, 84th Congress, 2d Session, August 1, 1956, as amended August 21, 1958, by Public Law 85-706.

Project Purposes:

The project was designed to improve the regulation of runoff of the Truckee and Carson River systems and provide supplemental irrigation water and drainage for presently irrigated lands, as well as water for municipal and industrial and fishery uses, flood protection, fish and wildlife benefits, and recreation development.

The Washoe Project was designed to develop water supplies to meet additional needs by conserving excess runoff in project reservoirs, and by saving water now lost to non-beneficial evaporation and transpiration. The plan also called for using storage capability to regulate flows for such non-consumptive purposes as flood control, fishery improvement, and power production.

Plant Location:

Stampede Powerplant is located in Sierra County, California, on the Little Truckee River. Stampede Dam and Reservoir are located immediately below the mouth of Davies Creek and approximately 8 miles above the confluence of the Little Truckee and Truckee Rivers.

**Stampede Powerplant
0-10 MW**

Plant Facts: The dam is a zoned earth fill structure with a height of 239 feet, a crest length of 1,511 feet, and an embankment volume of 4.5 million cubic yards. The dam is 40 feet wide at the crest. The reservoir, with a capacity of 226,500 acre-feet, provides flood control, recreation, a new reservoir fishery, and other fishery improvements on the main Truckee River, Little Truckee River, and Boca Reservoir.

Plant Purpose: Stampede Powerplant is a run-of-the-river plant. The power generated is dedicated first to meeting the requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.

Plant History: The powerplant was placed on-line in 1988.

Present Activities: Normal operations. Maintain and regulate river releases.

Future Planned Activities: None

Special Issues: Stampede Powerplant provides the economic equivalent of project-use power to Lahontan and Marble Bluff fish facilities.

River: Little Truckee River **Plant Type:** Conventional

Powerhouse Type: Above Ground **Turbine Type:** Francis

Original Nameplate Capacity: 3,650 kW **Installed Capacity:** 3,650 kW

Year of Initial Operation: 1987 **Age:** 20 years

Net Generation (FY-2007): 11.1 GWh **Rated Head:** 183 feet

Average Plant Factor (FY-2007): 35.7 percent **Remotely Operated:** No

Production Mode: Intermediate

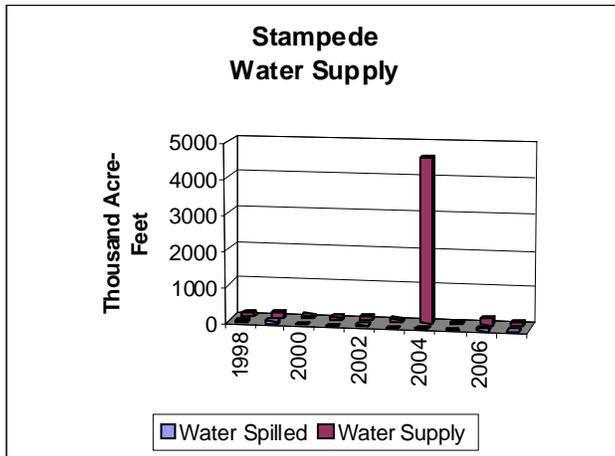
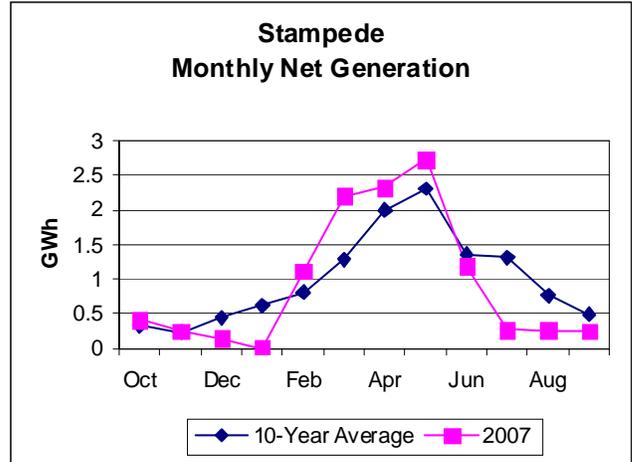
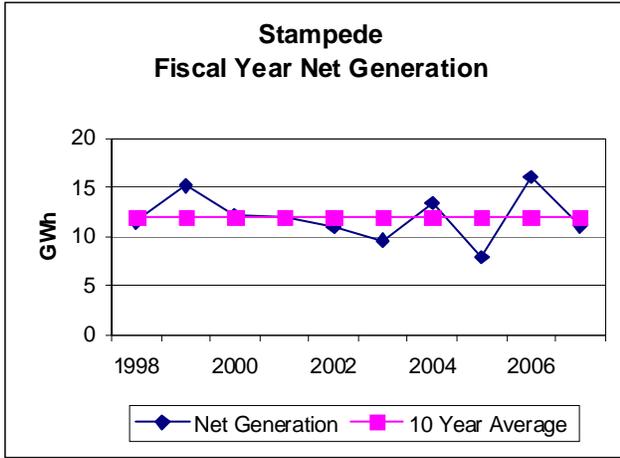
Ancillary Services

Stampede Ancillary Services	
Spinning Reserve	No
Non-Spinning Reserve	No
Replacement Reserve	No
Regulation/Load Following	No
Black Start	No
Voltage Support	Yes

Generators

Stampede Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	3,000	-	3,000
2	650	-	650
2 units	3,650	-	3,650

Generation



Prime Laboratory Benchmarks

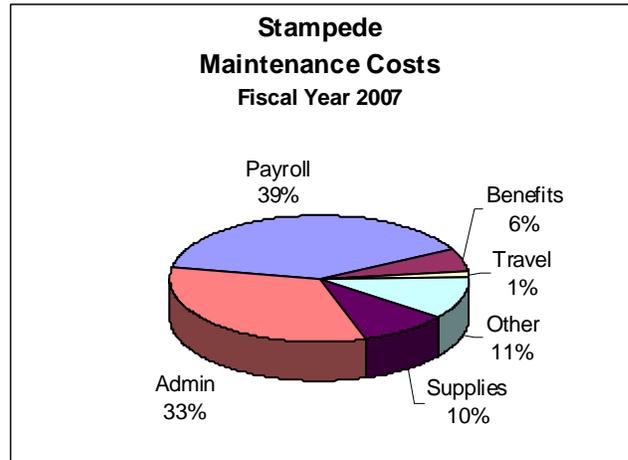
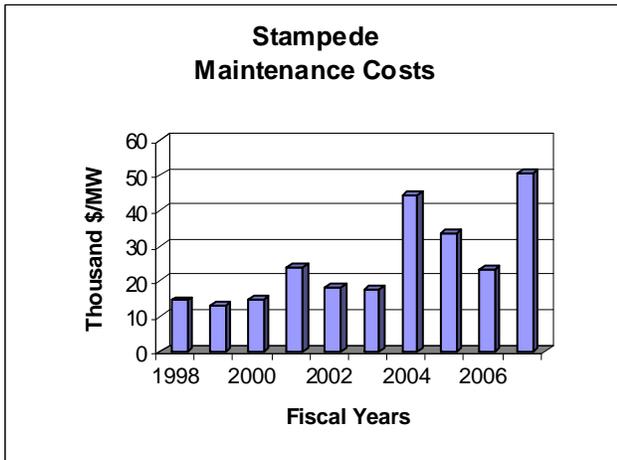
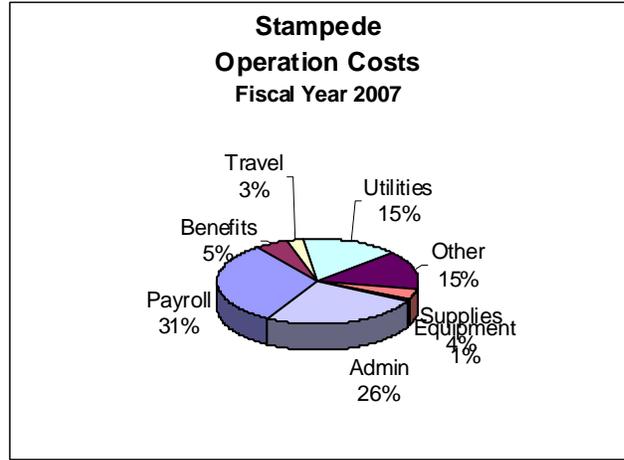
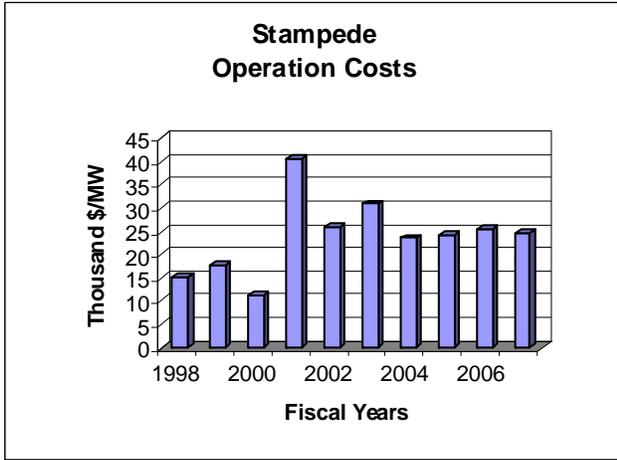
**Benchmark 1
Wholesale Firm Rate**

Stampede Powerplant power is not included
in the wholesale firm rate.

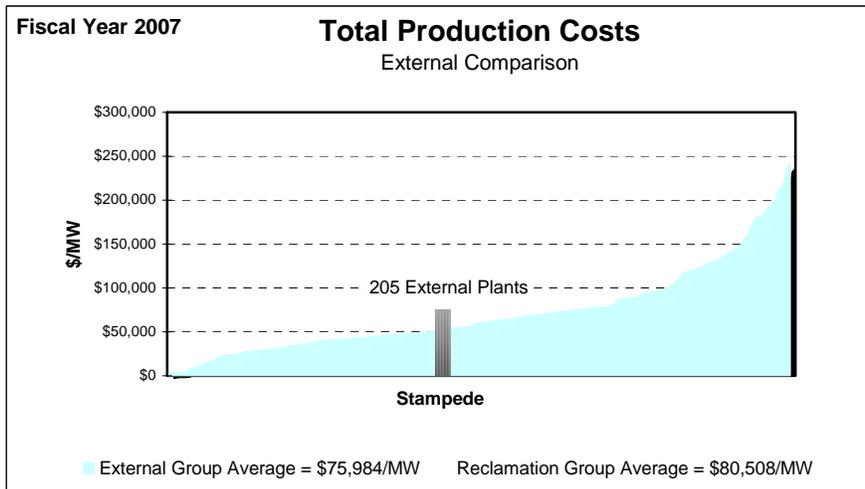
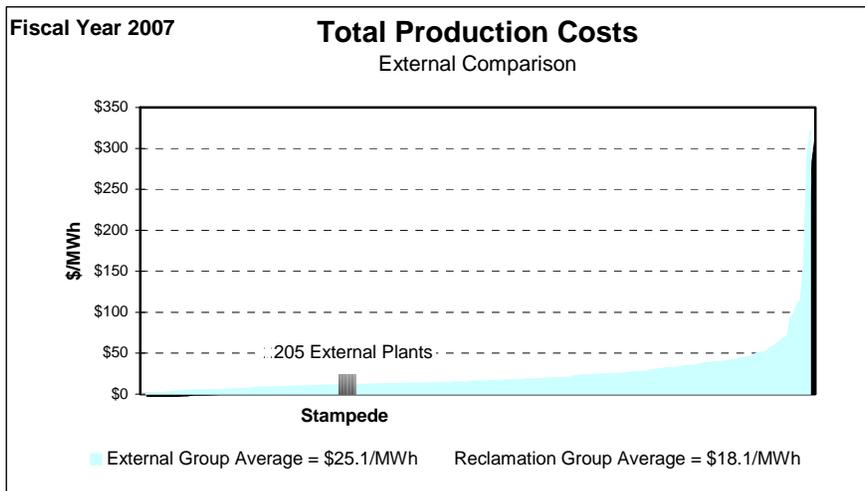
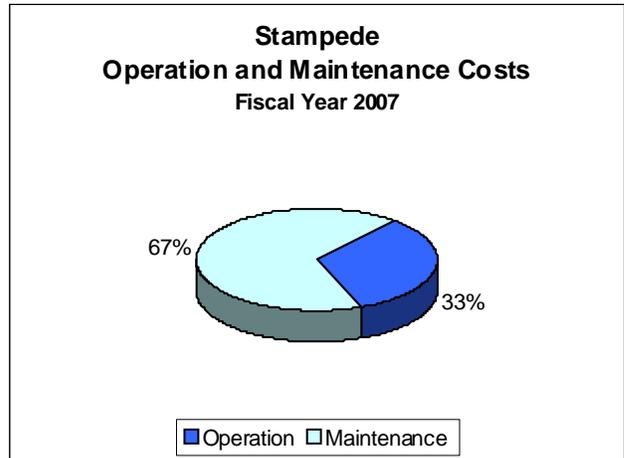
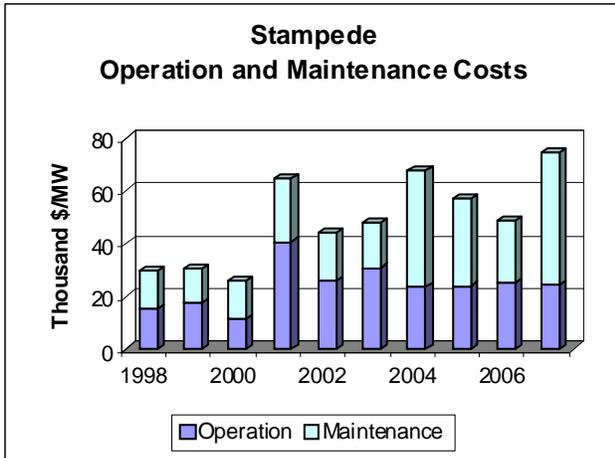
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**

Not Applicable

Benchmark 3
Production Cost

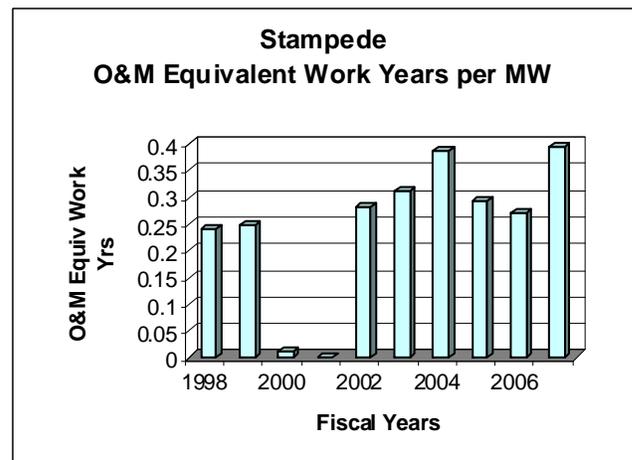
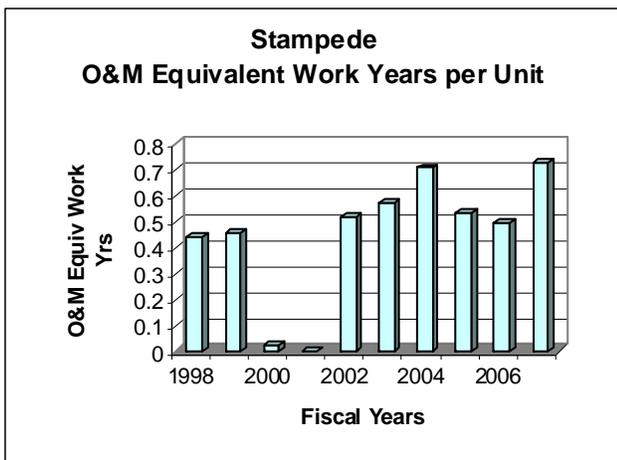
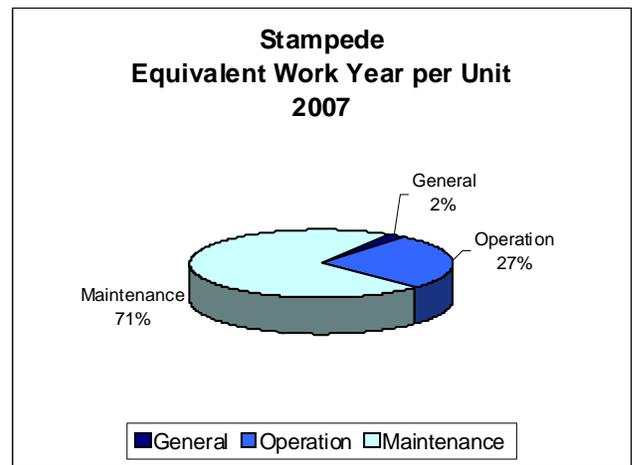
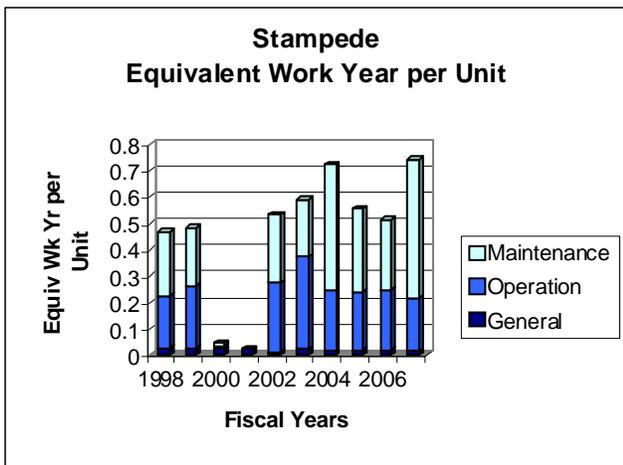


**Benchmark 3
Production Cost**

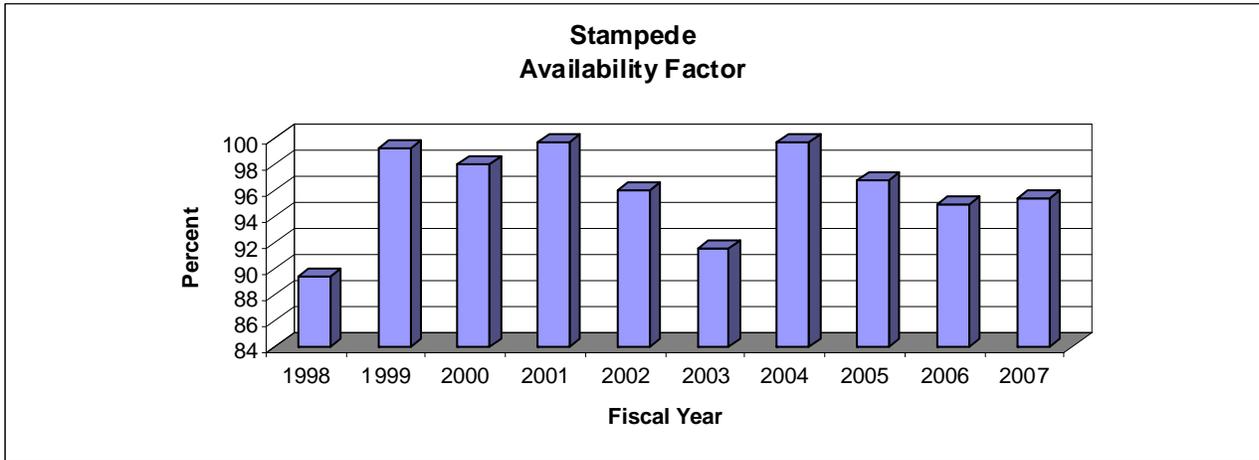


Benchmark 4
Workforce Deployment

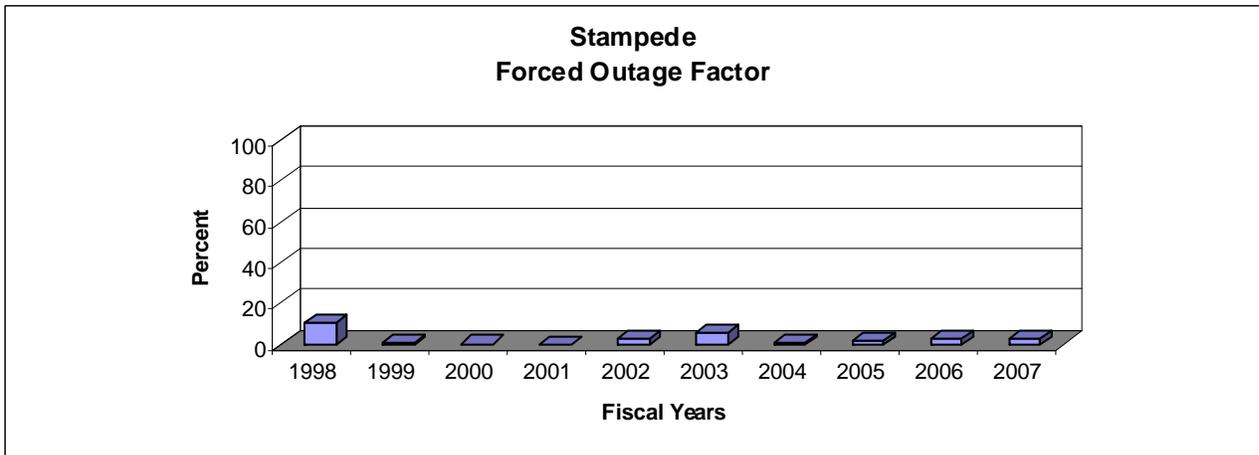
Stampede FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.01
Operation	0.36	0.03	0.00	0.40	0.20	0.11
Maintenance	0.96	0.09	0.00	1.05	0.53	0.29
Total Staffing	1.32	0.13	0.04	1.48	0.74	0.41



**Benchmark 5
Availability Factor**

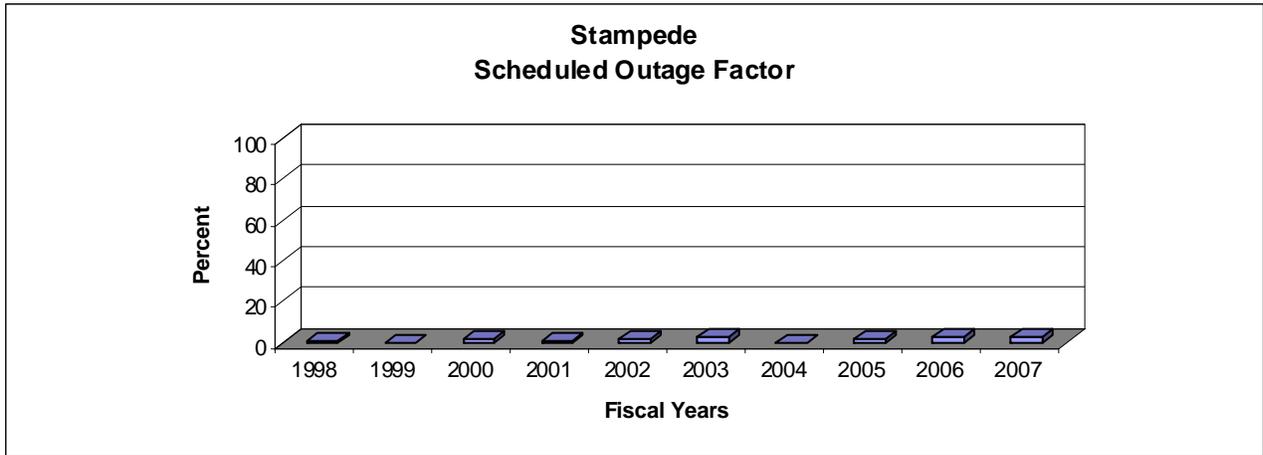


**Benchmark 6
Forced Outage Factor**

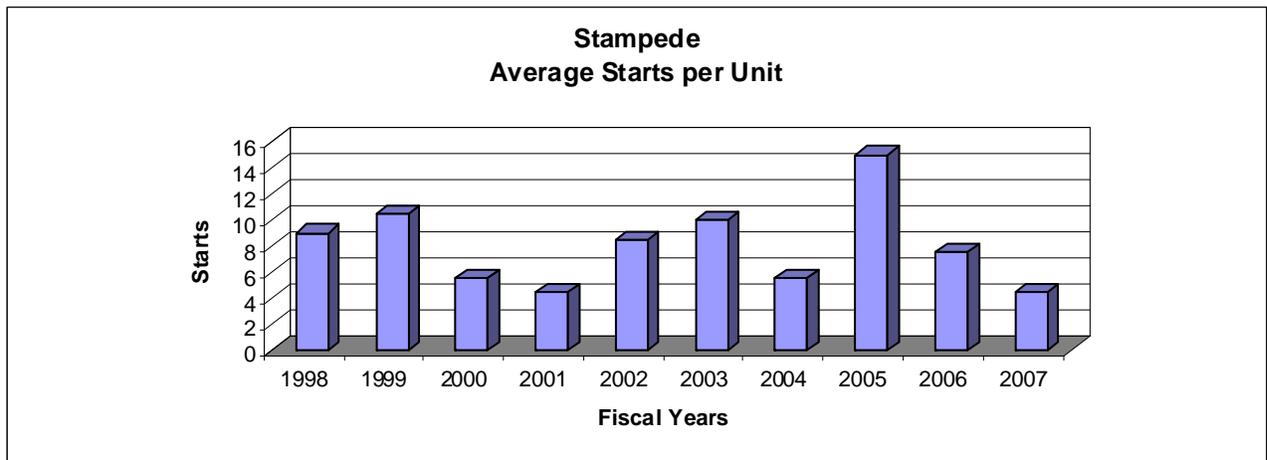


FY-97 - Unit 1 rotor experienced moisture damage during January 1997 floods
FY-98 - Unit 1 arcing in brush housing

**Benchmark 7
Scheduled Outage Factor**



Starts



**Stampede Powerplant
0-10 MW**

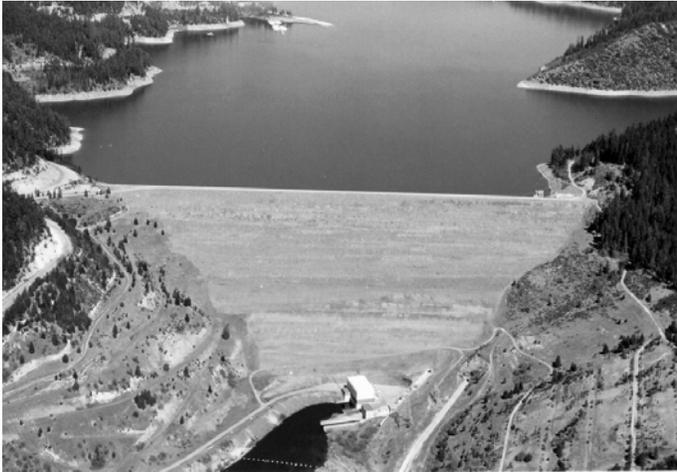
Benchmark Data Comparison					
Fiscal Year 2007	Stampede Powerplant	Reclamation Average 0-10 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	Not Applicable	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	Not Applicable	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	24.63	14.71	2.76	***25.9	1.00
O&M Costs \$/MW	74,902	60,518	7,847	***75,984	2,897
O&M Equiv Work Year per MW	0.40	0.39	0.03	Not Available	0
Availability Factor	95.4	88.73	82.3	**88.64	98.54
Forced Outage Factor	2.4	0.91	2.6	**2.61	0.00
Scheduled Outage Factor	2.3	10.36	15.1	**8.74	0.00

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data

Trinity Powerplant Central Valley Project

**Plant Contact:**

Brian Person
Area Manager

Plant Address:

Trinity Powerplant
Lewiston, CA

Telephone Numbers:

Phone: (530) 275-1554
Fax: (530) 275-2441

E-Mail Address:

bperson@mp.usbr.gov

Reclamation Region:	Mid-Pacific
NERC Region:	Western Electricity Coordinating Council, California-Southern Nevada Power Area
PMA Service Area:	Western Area Power Administration, Sierra Nevada Region
Project Authorization:	<p>Funds for construction of the initial features of the Central Valley Project were provided by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). The Secretary of the Interior authorized the project and the President approved it on December 2, 1935.</p> <p>The Shasta and Trinity River Division was authorized by Public Law 386, 84th Congress, 1st Session, approved August 12, 1955.</p>
Project Purposes:	<p>The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range on the north to the semiarid but fertile plains along the Kern River on the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods. New project units were built to provide water and power to match the continued growth of the State.</p> <p>Although developed primarily for irrigation, this multiple-purpose project also provides flood control, improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.</p>

**Trinity Powerplant
100-500 MW**

The Trinity River Division consists of Trinity Dam and Clair Engle Lake, Trinity Powerplant, Lewiston Dam and Lake, Lewiston Powerplant, Clear Creek Tunnel, Judge Francis Carr Powerhouse, Whiskeytown Dam and Lake, Spring Creek Tunnel and Powerplant, Spring Creek Debris Dam and Reservoir, and related pumping and distribution facilities.

Plant Location:	Trinity Powerplant is located on the Trinity River in Trinity County, California, 9 miles upstream from Lewiston, California.		
Plant Facts:	Trinity Dam is a zoned earth fill structure 538 feet high and 40 feet wide at the crest. The crest is 2,600 feet long.		
Plant Purpose:	Trinity Powerplant is a peaking plant. The power generated is dedicated first to meeting the requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California.		
Plant History:	These facilities were built and are operated by the Bureau of Reclamation. Transmission lines were constructed and operated by the Bureau of Reclamation until October 1, 1977, when they were transferred to the Western Area Power Administration, Department of Energy.		
Present Activities:	Normal operations. Primary reservoir releases are made through the powerplant.		
Future Planned Activities:	Replacement of generator exciters is expected to start in 2008.		
Special Issues:	Trinity County has first preference to the power benefit to the Central Valley Project from Trinity Powerplant.		
River:	Trinity River	Plant Type:	Conventional
Powerhouse Type:	Above Ground	Turbine Type:	Francis
Original Nameplate Capacity:	100,000 kW	Installed Capacity:	140,000 kW
Year of Initial Operation:	1964	Age:	44 years
Net Generation (FY-2007):	359.0 GWh	Rated Head:	426 feet
Average Plant Factor (FY-2007):	29.4 percent	Remotely Operated:	Yes
Production Mode:	Peaking		

Ancillary Services

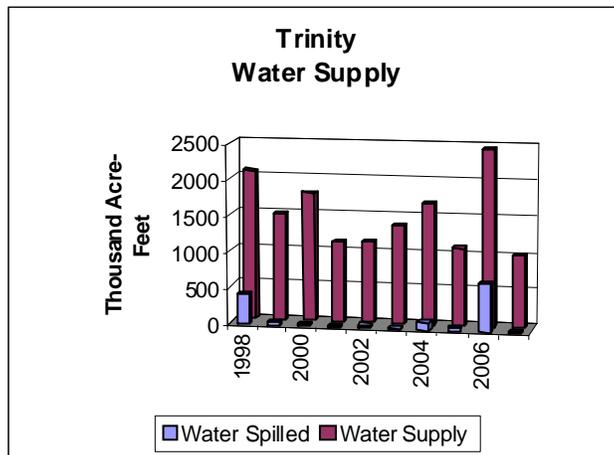
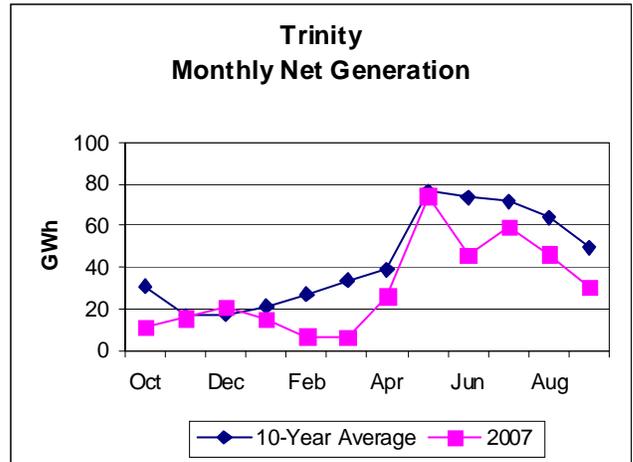
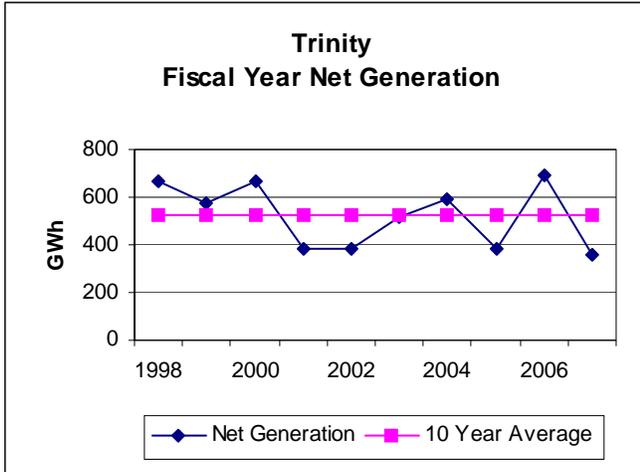
Trinity Ancillary Services	
Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	No
Voltage Support	Yes

Generators

Trinity Generators			
Existing Number and Capacity			
Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	50,000	20,000	70,000
2	50,000	20,000	70,000
2 units	100,000	40,000	140,000

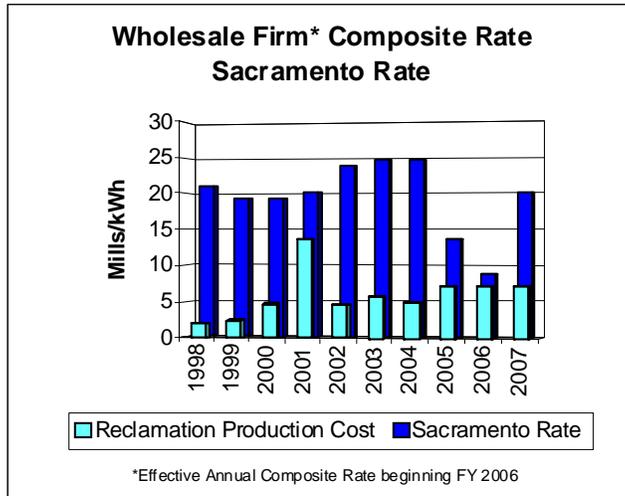
The maximum operational capacity is restricted by transformers to 130,000 kW

Generation

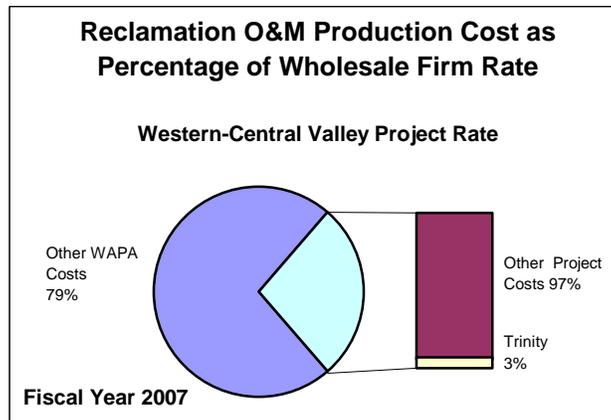


Prime Laboratory Benchmarks

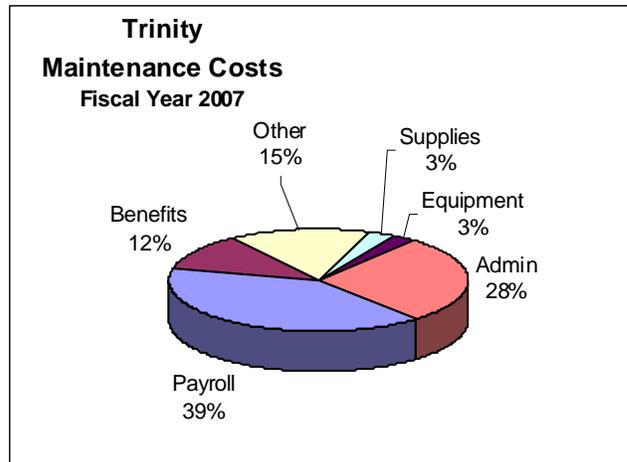
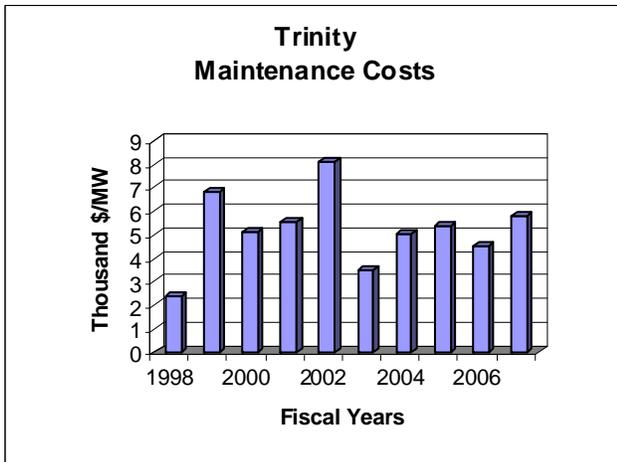
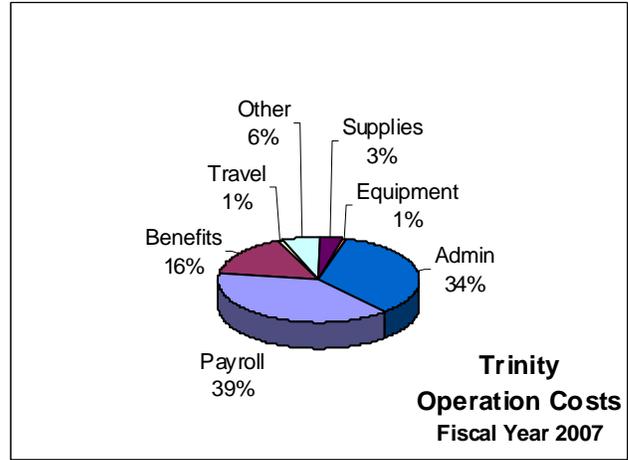
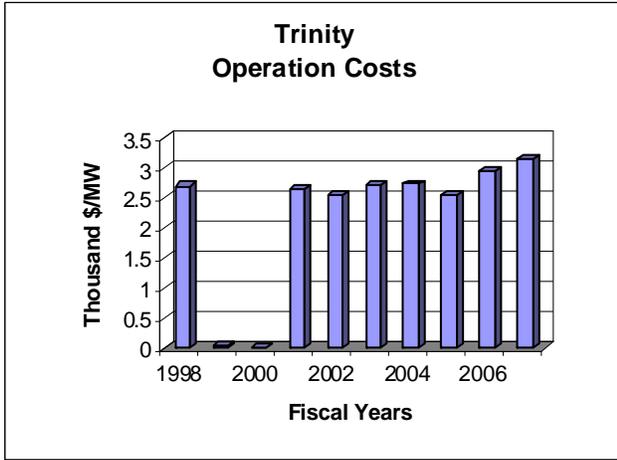
**Benchmark 1
Wholesale Firm Rate**



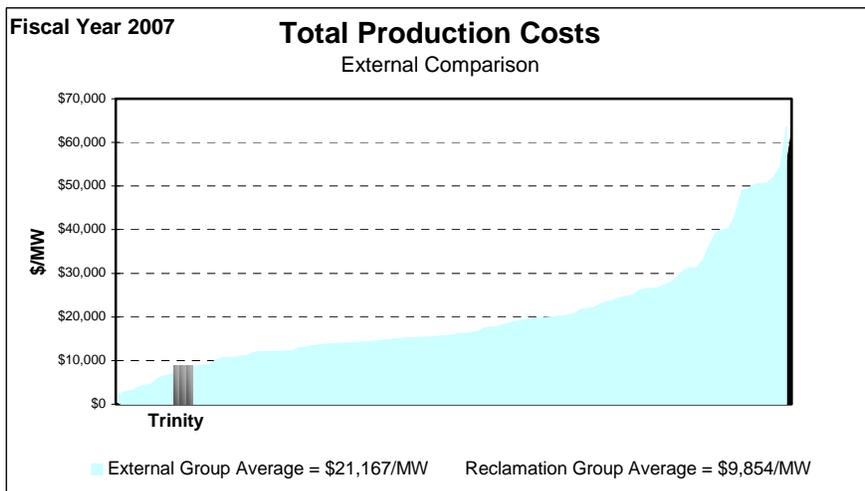
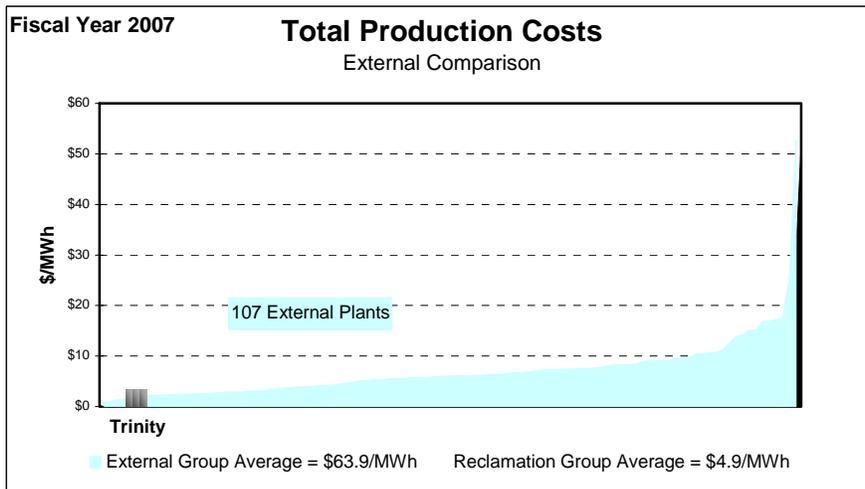
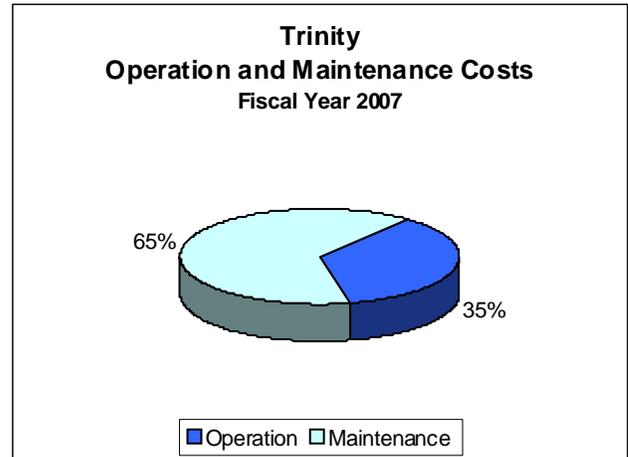
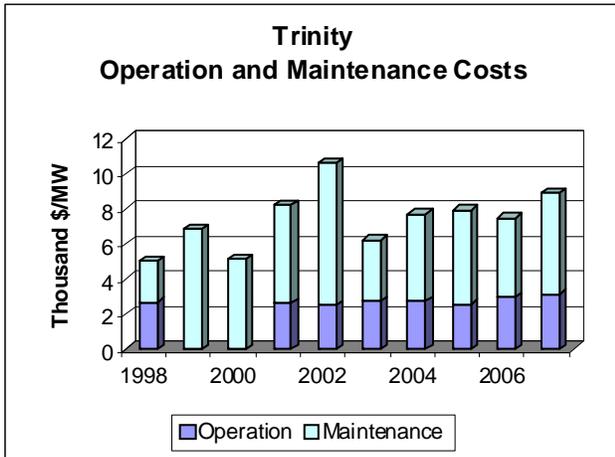
**Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate**



**Benchmark 3
Production Cost**

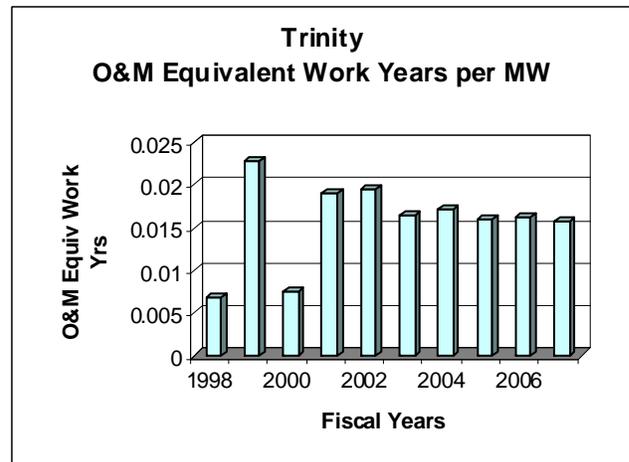
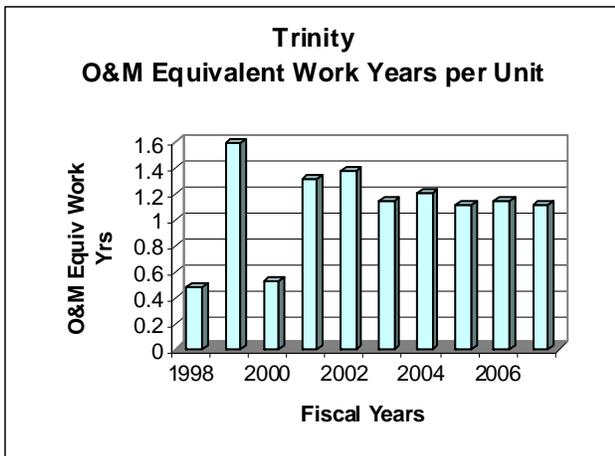
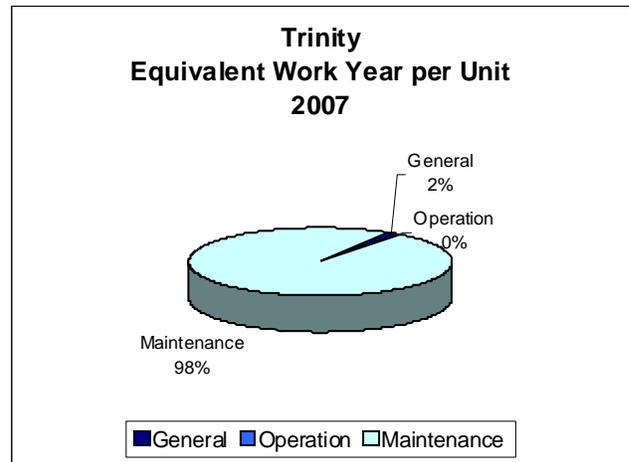
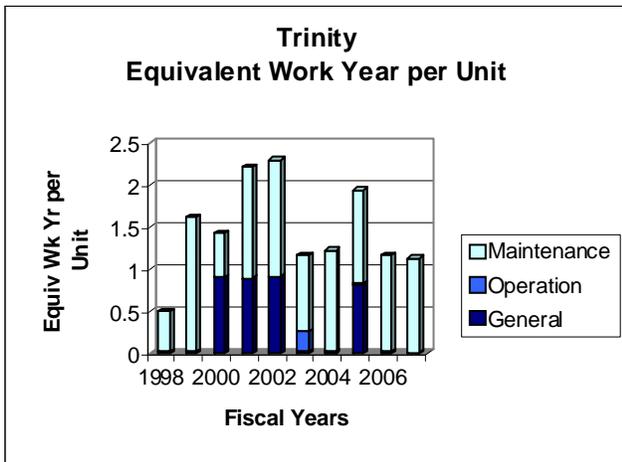


Benchmark 3
Production Cost

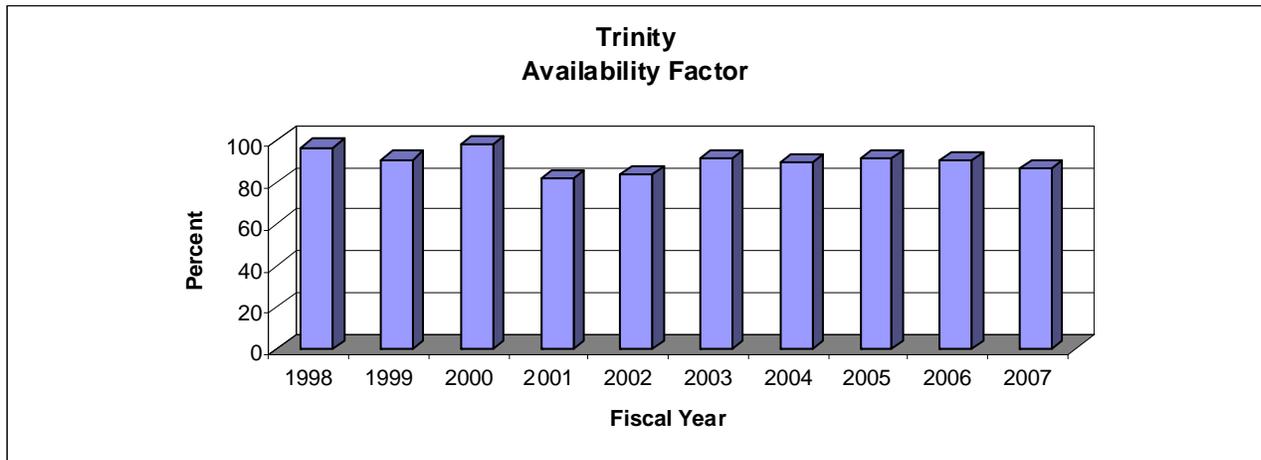


Benchmark 4
Workforce Deployment

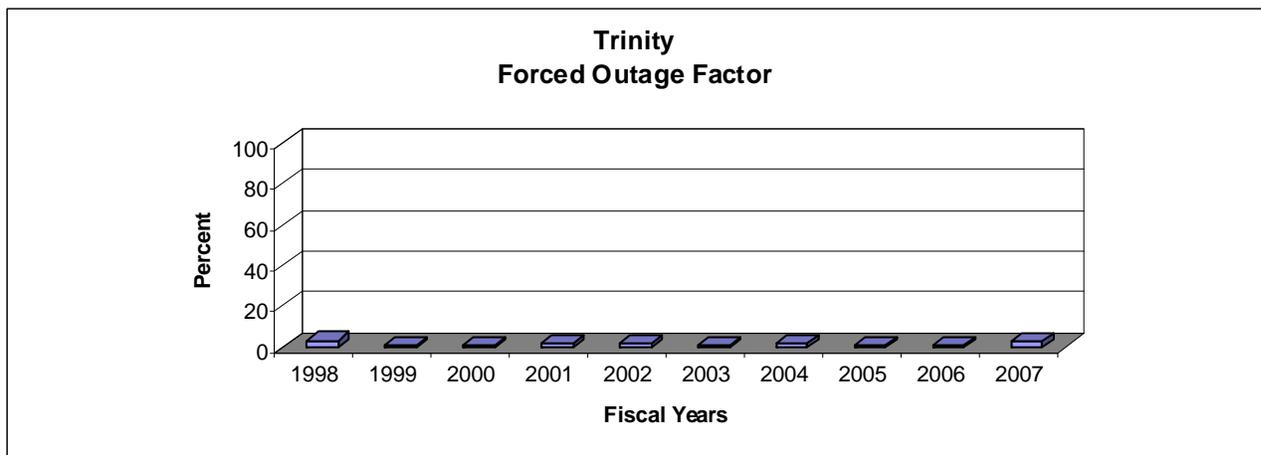
Trinity FY 2007 Equivalent Work Staffing Year Levels						
	Equivalent Work Year Staffing Charged to Powerplant	Leave Additive	Denver and Washington Equivalent Work Year Staffing Additive	Total Equivalent Work Year Allocated to Powerplant	Total Equivalent Staffing Work Year per Generating Unit	Total Equivalent Work Year Staffing per Megawatt
General	0.00	0.00	0.04	0.04	0.02	0.00
Operation	0.01	0.00	0.00	0.01	0.00	0.00
Maintenance	2.02	0.19	0.00	2.21	1.10	0.02
Total Staffing	2.02	0.20	0.04	2.25	1.13	0.02



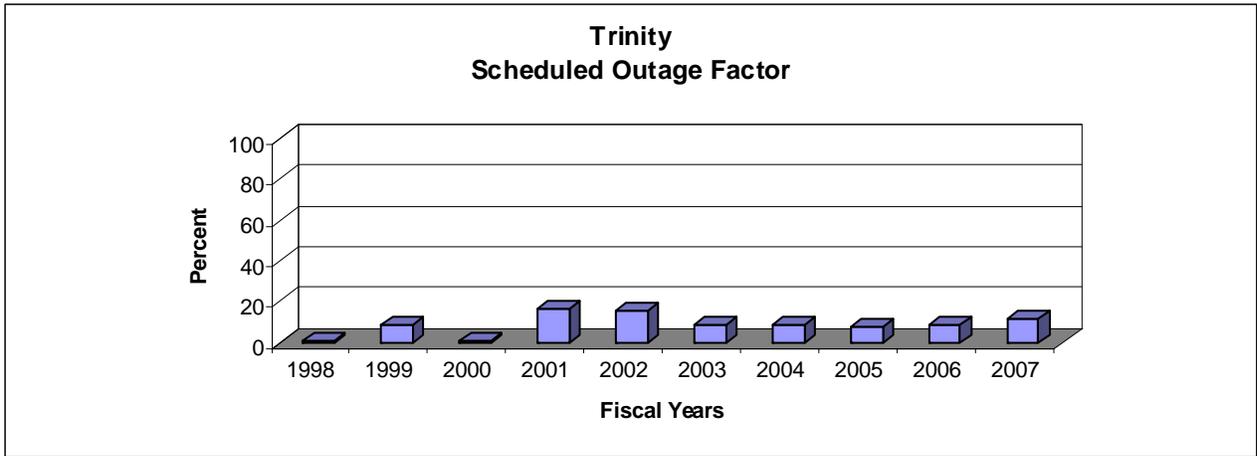
**Benchmark 5
Availability Factor**



**Benchmark 6
Forced Outage Factor**

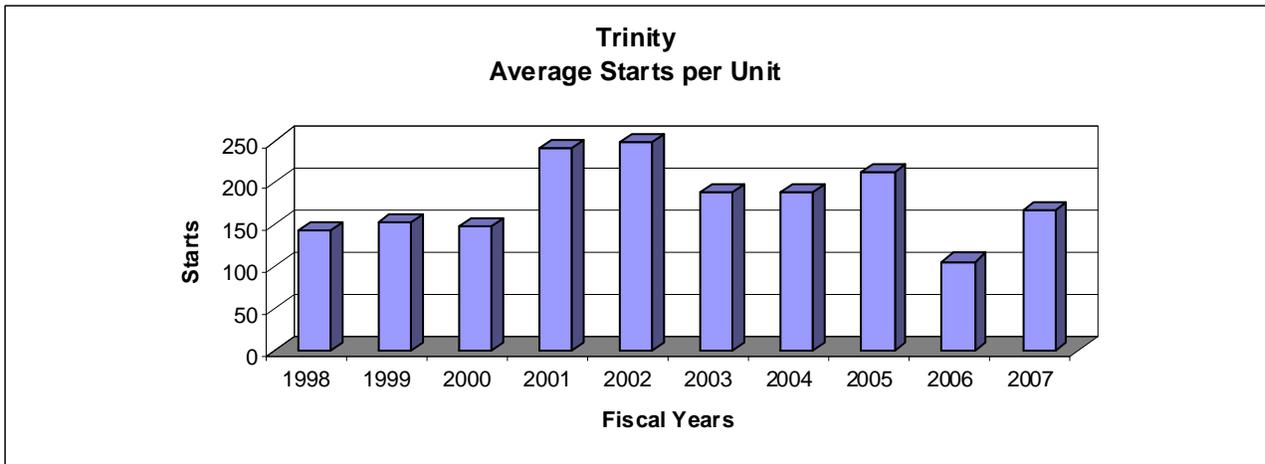


**Benchmark 7
Scheduled Outage Factor**



FY-01 – Extensive welding for cavitation repair
FY-02 – Replacement of all main unit circuit breakers

Starts



Benchmark Data Comparison					
Fiscal Year 2007	Trinity Powerplant	Reclamation Average 100-500 MW Group	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	13.7	Not Applicable	*22.45	Not Available	Not Available
Production Cost as Percentage of Wholesale Firm Rate	1.5%	Not Applicable	12.1%	Not Applicable	Not Applicable
O&M Cost \$/MWh	3.49	4.44	2.76	***63.88	1.00
O&M Costs \$/MW	8,941	10,502	7,847	***21,167	2,897
O&M Equiv Work Year per MW	0.02	0.04	0.03	Not Available	0.0
Availability Factor	86.5	83.5	82.3	**88.64	98.5
Forced Outage Factor	2.5	1.2	2.6	**2.61	0.0
Scheduled Outage Factor	11.0	15.4	15.1	**8.74	0.0

*Weighted by Net Generation

**2006 NERC Average

***Energy Information Administration Data