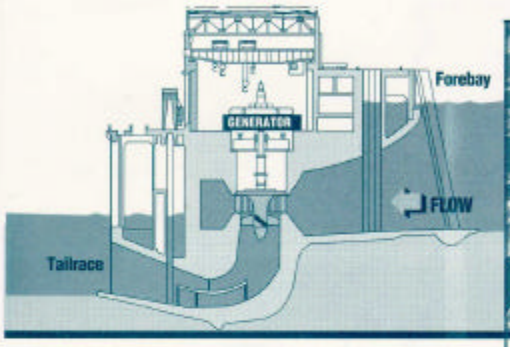
US Army Corps of Engineers®
Portland District

Comparing The Big Dams



	Bonneville	Hoover Dam	Grand Coulee
Operating Agency:	US Army Corps	Bureau of Reclamation	Bureau of Reclamation
Location:	Oregon/Washington	Arizona/Nevada	Washington
Year Placed in Service:	1938	1936	1941
Primary Function:	Fish & Wildlife Hydropower Navigation Recreation Irrigation	Flood Control Regulate River Water Storage & Delivery Hydropower	Fish & Wildlife Flood Control Hydropower Recreation
Head: *(average distance water falls)*	18.3 m *(60 ft)*	164.6 m *(540 ft)*	100.6 m *(330 ft)*
Height of Lake Above Sea Level: *(mean sea level)*	23.2 m *(76 ft)*	372.3 m *(1,221.4 ft)*	393.2 m *(1,290 ft)*
Length of Dam:	1,055.5 m *(3,463 ft)* 3 Structures	379.2 m *(1,244 ft)* U-Shaped Structure	1,592.0 m *(5,223 ft)* Includes Spillway
Concrete Content:	1,485,800 cubic meters *(1,955,000 cubic yards)*	3,230,000 cubic meters *(4,250,000 cubic yards)*	9,101,000 cubic meters *(11,975,000 cubic yards)*
Number of Power Plants:	2	2	3 *(One pump generating plant)*
Types of Turbines:	Kaplan	Francis	Francis
Number of Generators: *(by power production rating)*	8 (66,500 kw each) 8 (54,000 kw each) 1 (51,000 kw each) *1 (43,500 kw each) 2 (13,500 kw each) 1 (43,500 kw each)	13 (130,000 kw each) 2 (127,000 kw each) 1 (68,500 kw each) 1 (61,500 kw each) 2 (2,500 kw each)	3 (700,000 kw each) 3 (600,000 kw each) 18 (125,000 kw each) *4 (53,000 kw each) *2 (50,000 kw each) 3 (10,000 kw each)
Total Generators:	21	19	33
Total Generating Capacity:	1,087.7 mw	2,080 mw	6,492 mw

Columbia River Power Complex

Project	Bonneville	The Dalles	John Day	McNary	Priest Rapids	Wanaupm	Rock Island	Rocky Reach	Wells	Chief Joseph	Grand Coulee
Operating Agency	US Army Corps	US Army Corps	US Army Corps	US Army Corps	Grant County PUD	Grant County PUD	Chelan County PUD	Chelan County PUD	Douglas County PUD	US Army Corps	Bureau of Reclamation
Year in Service	1938	1957	1968	1953	1959	1963	1933	1961	1967	1955	1941
Number of Units	21	22	16	14	10	10	18	11	10	27	33
Generator Capacity: (megawatts)											
Present	1,087.7	1,807.0	2,160.0	980.0	778.5	950.0	622.5	1,213.2	774.3	2,700.0	6,492.0
Potential	1,087.7	1,807	2,700	2,130	1.262	1,330	622.5	1,213.2	774.3	2,700	10,309
Average Yearly Power Produced: (gigawatt hours)	4,827	8,961	11,335	7,770	5,484	5,659	2,882	6,579	4,520	11,887	22,014
Head through Powerhouse	18.2 m *(60 ft)*	24.1 m *(81 ft)*	32.0 m *(195 ft)*	21.6 m *(71 ft)*	25.6 m *(84 ft)*	25.1 m *(82.5 ft)*	12.5 m *(41 ft)*	27.7 m *(91 ft)*	21.0 m *(69 ft)*	53.6 m *(176 ft)*	100.6 m *(330 ft)*
Average Waterflow: (cubic feet per sec)	184,900	179,500	174,000	171,600	120,200	120,000	120,000	116,400	114,200	109,800	109,500
Normal Reservoir Elevation	23.3 m 76.5 msl	48.7 m *160 msl*	81.6 m *286 msl*	103.6 m *340 msl*	148.7 m *488 msl*	174.1 m *571.5 msl*	186.8 m *613 msl*	215.4 m *707 msl*	237.4 m *779 msl*	291.3 m *956 msl*	339.2 m *1290 msl*
Distance from Pacific Ocean	234.1 km *RM 145.5*	308.1 km *RM 191.5*	346.9 km *RM 215.8*	469.8 km *RM 292*	638.9 km *RM 397.1*	669.0 km *RM 415.8*	729.5 km *RM 453.4*	761.1 km *RM 473.0*	828.8 km *RM 515.1*	875.5 km *RM 541.1*	959.9 km *RM 596.6*

Totals: Total Number of Units = 192

Power Production Capacity
Present = 19,565.2 mw
Potential = 25,935.7 mw

Yearly Power Produced
Average = 91,918,000 mw
Firm Year = 73,828,000 mw

msl = mean sea level
Head = the distance water falls

Megawatts (mw) = million watts
Gigawatts (gw) = billion watts