

TYPICAL TURBINE GENERATOR INSTALLATION
(JOHN DAY DAM AND RESERVOIR)

Total weight of complete turbine, in pounds	2,215,000	T
Total weight of generator (with exciter and air cooler), in pounds	2,328,000	G
Weight of rotating elements, pounds	796,000	T
Maximum hydraulic thrust (normal speed), foot/pounds	2,360,000	T
*Rated net head, in horsepower	212,400	T
Weight of stator and coils, in pounds	479,000	G
**Throat diameter of runner, feet	26	T
Diameter of generator, in feet	54	G
Diameter of stator, in feet	43	G
Diameter of rotor, in feet	36.9	G
Diameter of shaft, in feet	4.3	G & T
Weight of shaft, pounds	216,000	G
Weight of heaviest element handled by powerhouse cranes, pounds	(780,000 (1,099,000	T G
Approximate water accommodation through each turbine, in cubic feet per second	20,000	
Number generating units, (initial)	16	
Number generating units, (ultimate)	20	
Initial cost per unit, Generator	\$1,494,000	G
Turbine 10 @ \$1,548,700 6 @ \$1,278,000		T
Alignment cost, per unit	\$ 21,200	

*A condition of design at which the turbine will deliver at least the rated output (horsepower).

**The throat is the area in which the turbine rotates.

"T" - Turbine
"G" - Generator

Generating capacity, each unit, in kilowatts	135,000
Generating capacity, each unit, in overload, in kilowatts	155,250
Initial generation capacity, JOHN DAY, in kilowatts	2,160,000
Initial generation capacity, in overload, in kilowatts	2,484,000
Ultimate plant capacity, normal, in kilowatts	2,700,000
Ultimate plant capacity, overload, in kilowatts	3,105,000
Revolutions per minute of rotor	90
Current generated, cycles per second	60

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Each intake furnishing water to each turbine can accommodate 20,000 cubic feet per second.

For comparison, average normal flow of the Snake River in April, at Clarkston, Washington, is 80,000 cubic feet per second, or the average normal flow of the Colorado River at Grand Canyon is 25,000 cfs.

Average annual flow at Grand Canyon on the Colorado River for a 28-year period is 17,500 cubic feet per second. Average annual flow of the Snake River at Clarkston for a 50-year period is 49,000 cfs.