

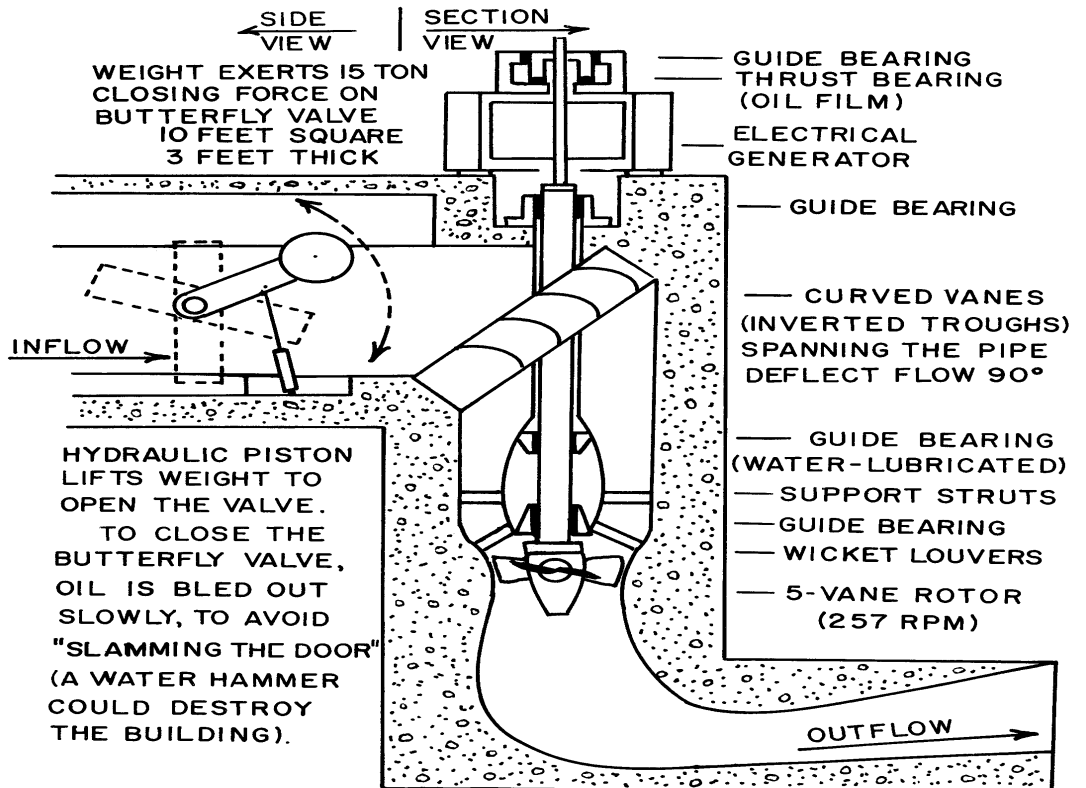
WEST PENN TRAIL at HYDRO-ELECTRIC POWER STATION

The two turbines in this power house are driven by a waterfall 50 feet high. The water level in the river below the dam is at 850 feet above sea level; the water level in the lake behind the dam is maintained at 900 feet elevation.

Water from the lake flows through a steel tunnel 20 feet in diameter. Under the parking lot the tunnel divides into two steel pipes, each 10 feet in diameter.

Usually, the entire flow of the river passes through the power station; the gates at the dam are opened only for flood-control purposes or when the river flow becomes greater than the carrying capacity of the turbines, 1630 cubic feet per second each, or 3260 cfs total throughput.

Flow through each turbine is controlled by a wicket gate, resembling a circular Venetian blind consisting of overlapping wing-shaped "slats", mounted radially just above the turbine blades; those "slats" change pitch automatically.



When wicket louvers are angled (like a Venetian blind being opened) to allow more water to fall through, the turbine blades rotate so that they, too, are more vertical, thus to open more passages for water flow by presenting less blade surface to be pushed aside by the falling water. Water exits the turbines by flowing up a ramp to river level.

The output from each turbine-generator is 7.5 million watts (at 4160 volts), fed into the East Coast power grid.