HYDRO POWER
THE FUTURE'S ENVIRONMENTALLY SAFE ENERGY

By Andrew J. Sasso, Shift Supervisor

Wastewater plants, Water plants, and Utility plants all face a common problem, the ever rising energy costs derived from fuels and outside electric costs. The solution could be as simple as water powered turbines placed in water chambers and outfall lines.

Hydro turbines are placed in any water source that has an intake and discharge. Some of the benefits of turbine power are as follows:

1.) Environmentally safe- no emissions.
2.) No cost to run, as long as the water flow is a constant.
3.) No worries of rising fuel costs.
4.) Can be placed on line quickly to meet rapid increases in electric demand and emergency energy needs.

Hydro power is the leading source of renewable energy. It provides more than 97% of all electricity generated by renewable sources. Other energy sources are solar, geothermal, wind and biomass which produce less then 3% of renewable electricity production.

What is hydro energy?

Hydro energy is electricity made by using water. The water is used to spin turbines inside a generator, water sources such as an influent chamber, or outfall lines in your plant.

The easiest way to harness the electric energy is to connect a hydro turbine to your existing power grid by the use of an induction generator (Figure #1). This generator automatically synchronizes to your existing utility grid, both phase and voltage. It will feed all generated power back to the grid.

Hydro power from turbines converts kinetic energy from the water source into electricity. Hydro powered turbines offset the cost of running your treatment plants.

Lester Allan Pelton invented a free-jet water turbine called the Pelton Wheel or Pelton Turbine (Figure #2). It was a water wheel placed in fast running water. The wheel used cups rather then flat panels to turn the wheel to create energy. This led to new inventions like the Turgo Impulse Wheel, The Tyson Turbine, and the Banki Turbine. Today we have such turbines like the Bulk Flow Turbine, and The Multiple Kaplan turbine (Figure #3).

Hydro power converts the energy of flowing water into electricity. The amount of electricity made is determined by the volume of water and the amount of "head". The more flow and higher head, the more electricity produced.

Hydro power is a clean way of meeting the future's energy demands. Running your plant in the "Green" will insure an environmentally sound water treatment plant.

Figure #1

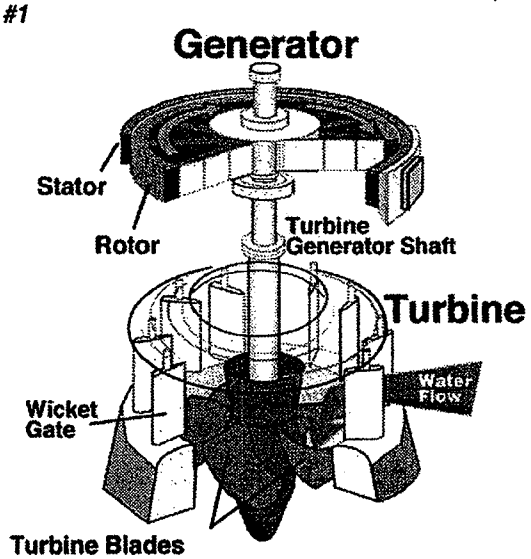


Figure #2

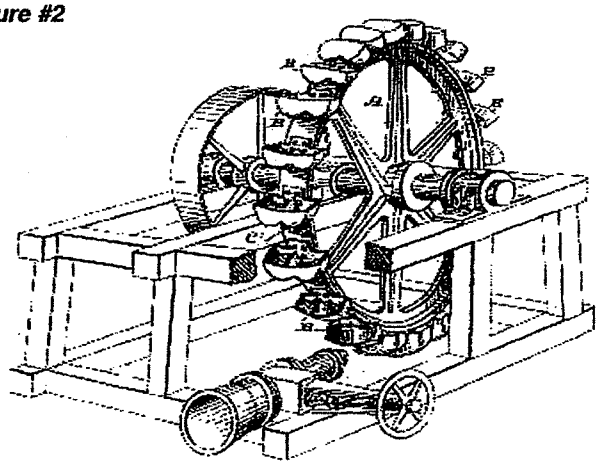
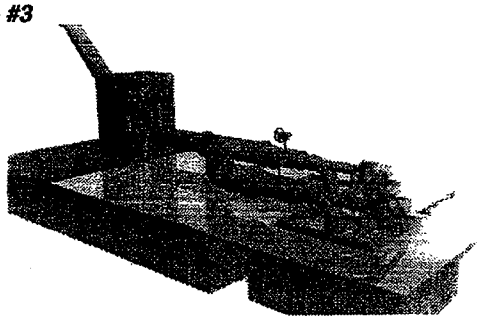
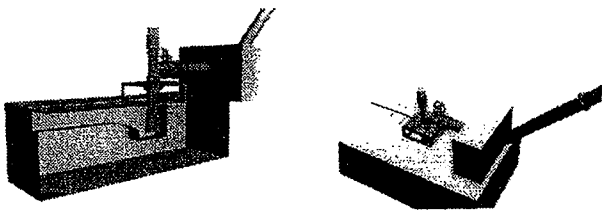


Figure #3



Multiple Kaplan turbines for variable flow conditions



example of Kaplan turbine installations

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