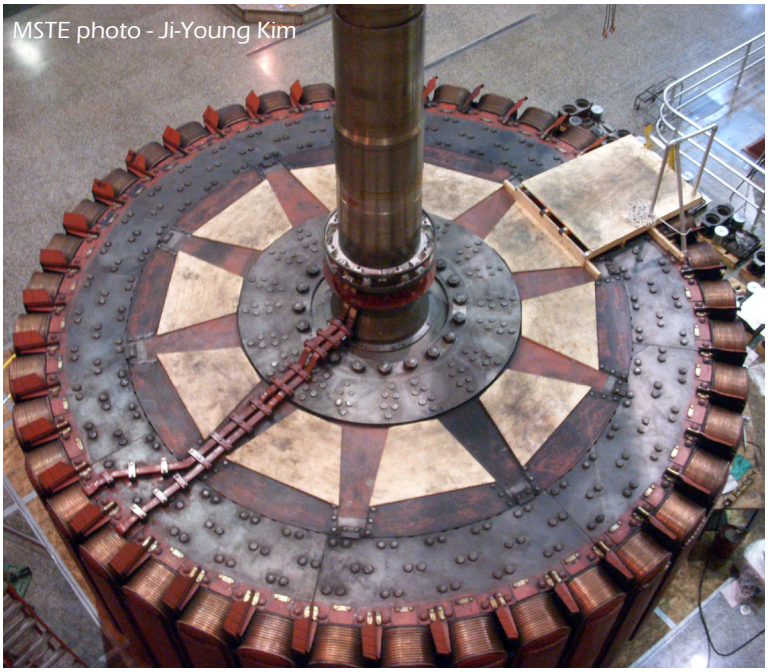
MSTE photo - Ji-Young Kim

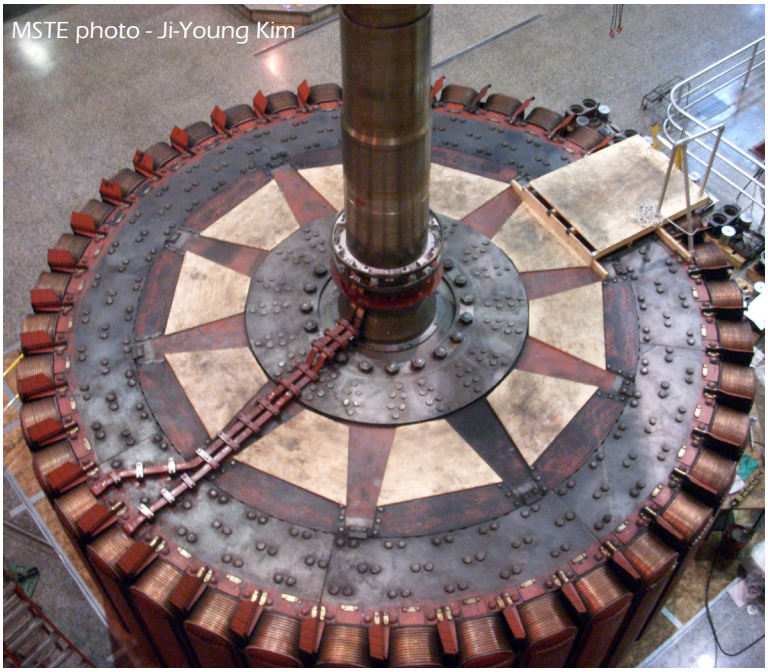
MSTE photo - Ji-Young Kim


Photo by Jason Morrison (CC BY-NC 2.0)


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MSTE photo - Beth Kirchgesner


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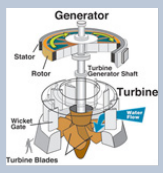
Hoover Dam Turbine

Hydroelectric Generation

Hydroelectric generators use differences in water elevations to drive turbines. At Hoover Dam, water in the Colorado River travels through four large pipes, called penstocks, to turn the turbines. There are seventeen turbines that produce enough electricity year for more than one million people.

The part of the turbine that you can see in the photo is the generator. Do you see the coils of copper windings around the circumference? The turbine blades are below the surface of the water.



Credit: U.S. Army Corp of Engineers

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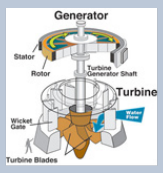


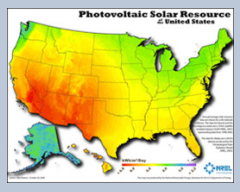
Credit: U.S. Army Corp of Engineers

Solar Panels

Photovoltaic Generation

Photovoltaic (PV) cells, or solar cells, produce electricity directly from light. Solar panels composed of many solar cells have been used in space to power satellites since 1958. This array of several solar panels are on the roof at Google's Headquarters in Mountain View, California. Google gets about 30% of its electricity from this 1.6 MW installation.

When it was installed in 2007, it was the largest corporate PV system. At the end of 2010, the largest PV power plant, a 97 MW array, was built in Ontario, Canada.



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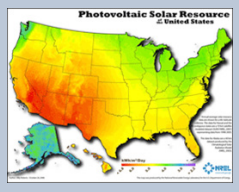

Illinois Wind Farm

Wind Generation

Wind turbines are clustered together to make wind farms capable of producing utility scale power levels. Their power output varies with wind speed and often good wind sites are far from areas that need the most power. The turbines in the photo are part of the Twin Groves I Wind Farm. There are 120 turbines in this wind farm and the capacity is 198 MW or enough to supply electricity to about 54,000 average Illinois homes.

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