

Combustion Turbine

Cost: \$90 Million

Environmental Impacts

Combustion turbines typically burn natural gas, although they can also burn fuel oil or diesel if necessary. Natural gas burns much more cleanly than coal, producing substantially less air pollution. Combustion turbines do produce substantial amounts of nitrogen dioxide which contribute to acid rain, and carbon dioxide which contribute to global warming.

Coal Plant

Cost: \$200 Million

Environmental Impacts

Burning coal produces several kinds of air pollution. Sulfur & nitrogen oxides are thought to contribute to acid rain which may kill forests & fish. Burning coal also releases carbon dioxide which contributes to heating the earth. This is called global warming & could possibly cause droughts & starvation around the planet. The ash left over from burning coal is a toxic material that must be disposed of carefully.

Wind Power

Cost: \$50 Million

Environmental Impacts

A major environmental impact of wind turbines is visual. Some problems with television reception arise nearby. Areas suitable for siting large numbers of wind turbines may be far from load centers, making it necessary to build new transmission lines. Wind turbines do harm resident bird populations.

Energy Conservation

Cost: \$20 Million

Environmental Impacts

Energy conservation has overall positive environmental impacts. Conservation reduces the need for other resources which do have negative environmental impacts. It reduces the need for transmission lines as well.

Solar Station

Cost: \$200 Million

Environmental Impacts

The environmental impacts associated with solar power plants are relatively minor compared to coal, nuclear, & combustion turbines. Some solar plants do burn small amounts of natural gas. Solar plants that drive steam turbines are dependent on a good supply of water. Photovoltaics rely on highly toxic materials in the manufacturing process, but these can be controlled fairly well. Solar stations may impact desert ecology.

Cogeneration Project

Cost: \$30 Million

Environmental Impacts

Cogeneration makes electricity at factories that can use waste heat, or factories that produce wastes which can be burned to make electricity. Cogeneration plants usually burn natural gas or waste materials (such as wood chips). They are often cleaner than coal plants and combustion turbines, but produce some air pollution. Sometimes there can be pollution problems if city garbage or toxic waste materials are used for fuel.

Geothermal Plant

Cost: \$120 Million

Environmental Impacts

Geothermal plants have relatively few adverse environmental impacts. However, many potential geothermal sites are in scenic areas. The impacts of any industrial site in a natural area must be considered - for example, access roads and transmission lines are required along with a water supply. Waste water may be a problem for some types of geothermal plants, but this can often be put back into the ground at the same depth it came from.

Nuclear Plant

Cost: \$450 Million

Environmental Impacts

Radioactive wastes need to be stored because there is not yet a permanent disposal facility for highly radioactive wastes. There is potential for catastrophic accidents such as Three Mile Island in Pennsylvania and Chernobyl in the Soviet Union. Small amounts of radioactive materials are emitted in routine operations. Additional radioactive material is produced when mining for uranium. Nuclear plants need large amounts of water for cooling.

Hydro Power

Can't Be Purchased Because There Will Probably Be No More Dams Built

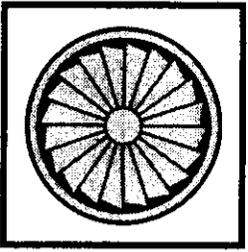
Environmental Impacts

Dams flood upstream areas with their reservoirs which affects wildlife habitat and farming. Water temperatures rise in the reservoirs which changes the environment. Fish migrating in the river have difficulty getting past dams. Dams can reduce streamflow, which can concentrate pollutants. Dams usually provide protection against flooding downstream.

Power Board Game Resource Cards

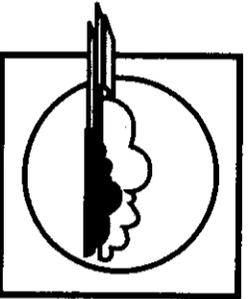
Cut out cards between boxes for use with game board

Turbine



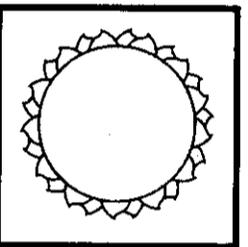
300 Megawatts

Wind



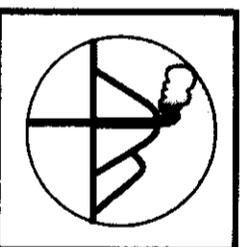
100 Megawatts

Solar



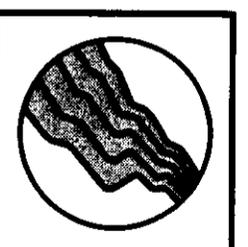
200 Megawatts

Geothermal



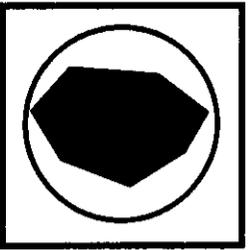
200 Megawatts

Hydro



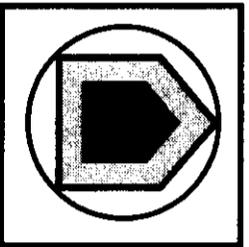
Not Available

Coal



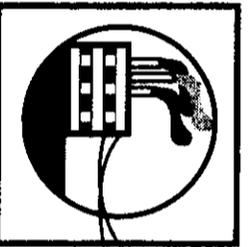
500 Megawatts

Conservation



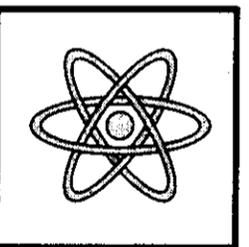
200 Megawatts

Cogeneration



100 Megawatts

Nuclear



800 Megawatts