

## **FACTS YOU SHOULD KNOW ABOUT HYDROPOWER**

Hydropower is an emissions-free and renewable energy source which serves the nation's environmental and energy policy objectives. Hydropower converts kinetic energy from falling water into electricity without consuming more water than is produced by nature.

Since 1880, when 16 brush-arc lamps were powered using a water turbine at the Wolverine Chair Factory in Grand Rapids, MI, hydropower has played a vital role in the U.S. energy mix. Here are some facts about hydropower:

### **HYDROPOWER — A KEY SOURCE OF ENERGY**

- Currently, hydropower ranges between 10 and 12 percent of U.S. electrical generation.
- The United States is one of the largest producers of hydropower in the world, second only to Canada.
- Domestically, hydropower is capable of generating more than 90,000 megawatts of electricity per year. That's enough to provide electricity to 33.2 million consumers nationwide, or all the homes in California, Florida, New York, Pennsylvania, Ohio and North Carolina combined.
- In the Pacific Northwest, hydropower generates up to 70 percent of that region's electricity.
- Throughout the world, about one-fifth of electricity is generated from hydropower.

### **HYDROPOWER — A SOUND ENVIRONMENTAL CHOICE**

- Hydropower is nation's leading renewable energy source. It accounts for 81 percent of the nation's total renewable electricity generation.
- Like wind, solar, geothermal and biomass, hydropower does not deplete its fuel source in the production of electricity – hence, it is completely renewable. Powered by the sun, the hydrologic cycle re-charges rivers and is essentially infinite. Hydropower converts falling water into electricity without using more water than is produced by nature.
- In 1998, hydropower made it possible to avoid burning 143 million tons of coal, 20 million barrels of oil, and 471 billion cubic feet of gas. As a result, 340 million tons of carbon dioxide was kept from being emitted into the air.
- Of the 75,187 existing dams in the U.S., less than 3 percent are used to generate electricity.
- There is an additional 21,000 megawatts of hydroelectric capacity at sites with an already existing dam. In all, there is nearly 30,000 megawatts of potential hydropower capacity at

5,677 sites that have been screened by the Department of Energy for environmental, legal and institutional constraints.

- Of the 765 hydro projects licensed by the federal government during the 1980's, 91 percent did not involve the construction of a new dam.
- Dams can enhance wetlands and support healthy fisheries. Wildlife preserves can be created around reservoirs which, in some cases, provide stable habitats for endangered or threatened species.
- There were a total of 81 million recreation user days provided at FERC licensed hydropower projects in 1990. Boating, skiing, camping, picnic areas and boat launch facilities are all supported by hydropower.

#### **HYDROPOWER — EFFICIENT AND INEXPENSIVE**

- Today's hydropower turbines are capable of converting 90 percent of available energy into electricity—that is more efficient than any other form of generation. Even the best fossil fuel power plant is only about 50 percent efficient.
- Hydroelectricity is one of the lowest cost forms of energy for the American electricity consumer. In 1996, hydropower ranged from less than one cent to just over two cents per kilowatt-hour to generate.
- The efficiency of hydropower, while impressive, can be further improved simply by refurbishing existing equipment. Increasing the efficiency of hydropower machinery in the existing system by only one percent would increase the United States' annual generation of electricity by about 3.3 billion kilowatt-hours, supplying more than 300,000 households.

#### **HYDROPOWER — RELIABLE AND SECURE**

- Hydropower's operational flexibility – its unique ability change output quickly – is highly valued in maintaining the stability of the electric grid.
- Water from rivers is a purely domestic resource that is not subject to disruptions from foreign suppliers or transportation issues.