

Hydropower

*Clean Air, Renewable Energy
The Power of Water*

Hydropower Reservoirs, A **Rich Part** of Our Landscape



Lakes and Reservoirs Reservoirs are lakes that are created when a dam is built across a river and water is stored behind the dam on what used to be dry land. Many hydropower projects use dams to regulate the flow of water, and to raise the water level, because the amount of electricity produced depends not only on the quantity of water but also on the height from which the water falls.

But not all dams are hydropower dams and not all hydropower projects include reservoirs. Run-of-river plants, for example, produce power by partially diverting rivers through a turbine set in the river or off to the side. The amount of electricity they produce depends on the fluctuations of river flow, while hydropower projects with reservoirs can store water to generate electricity for future use. This storage capacity means that hydropower can support intermittent renewable sources of electricity such as wind and solar power.

Reservoirs do modify natural habitats; however, ecosystems have the ability to adapt to these changes. Reservoirs soon become resting and feeding points for migratory birds and waterfowl. They can also support a significant fish population. In fact, reservoirs can become as much a part of the eco-system as the neighbouring lakes.

Today, hydropower projects are developed in collaboration with local communities to identify ways to protect the local environment and to minimize any negative impacts that might arise from changes in habitat. Local communities are involved in projects from their beginnings, including the selection of relocation sites, and they are financial partners in many new projects.

Greenhouse Gases When vegetation falls or washes into a body of water, it will decompose, and in doing so will release gases. Thus the decomposition of vegetation from the ecosystem in which a reservoir is located releases greenhouse gases. Does this mean that reservoirs contribute to global warming? Of the many studies that have been conducted on emissions from hydro reservoirs, those that focus on reservoirs located in northern regions such as Canada have clearly shown that greenhouse gas emissions are minimal and that they diminish over the years.

Did you know that greenhouse gas emissions from hydropower projects in Canada are about 60 times less than those from coal-fired power plants and 18-30 times less than natural gas power plants—and that they emit no pollutants causing acid rain or smog?

Power, Safety and Fun Reservoirs hold water in reserve not only for producing clean renewable energy all year round but for other practical and recreational uses. They help manage seasonal floods, and provide a steady source of water for drinking and irrigation. Their recreational uses include fishing and boating, as well as snowmobiling in winter when reservoirs are frozen. In all, reservoirs have much to offer.