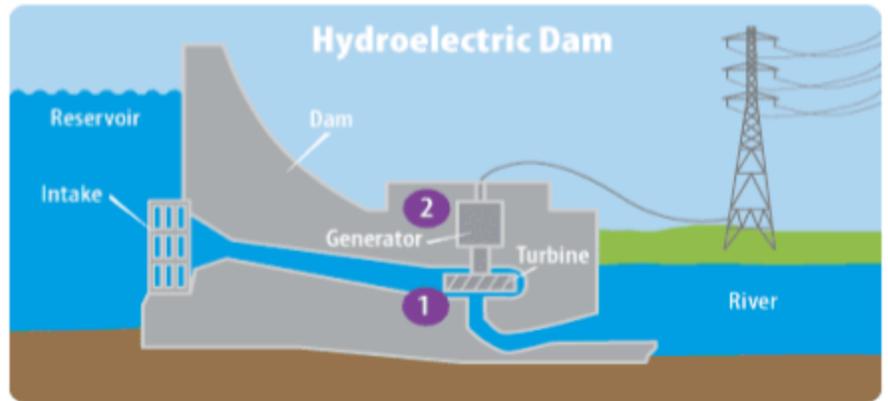


The Issues of Large Scale Hydropower

Large scale hydropower is the creation of electricity through the damming and then gradual release of water. The classification of large scale simply relates to size of the plant, as large scale plants must be able to have an energy capacity of over 30 MW. Because of their size, large scale hydropower plants have much broader impacts than small scale hydropower plants on the overall environment.

How Large Scale Hydropower Works



Issues with Large Scale Hydropower



1. **Methane:** When hydropower plants are created they flood large amounts of organic materials, and when that occurs, natural processes transform those materials into methane, a powerful greenhouse gas. Life-cycle emissions of some large scale hydropower plants can be over 0.5 pounds CO₂/kwh. Natural gas for comparison has life cycle emissions averaging between 0.6 and 2 pounds CO₂/kwh.
2. **Habitat:** The creation of hydropower comes with the necessary destruction of large ecosystems. Damming rivers permanently disrupts the balance of ecosystems, displacing people and animals by destroying the environment they had depended on for thousands of years. Hydro-quebec, a New England supplier, resettled of thousands of First Nation communities and devastated their traditional fishing and hunting grounds.

3. **Coastal Erosion:** Rivers and streams typically carry sediments downstream, ultimately depositing them on ocean and lake shores. Dams and reservoirs built along rivers are an interruption to this flow, trapping huge amounts of river sediment--in the case of larger dams, up to 100% of it. Subsequently, the sediment is unable to be deposited along riverbeds and shorelines, leading to massive amounts of coastal erosion. For instance on the Sagar islands, a dam led to coastal erosion occurring seven times quicker than it did before the dam was built.

4. **Animals:** Fish can get drawn into turbines, have increased predation due to the altered habitats, and have been shown to suffer from stress and get injuries passing through hydroelectric dams. Also, reservoirs cultivate excess algae and weeds, crowding

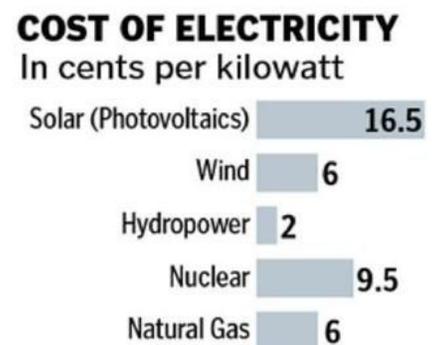


out other species. Reservoirs also are lower in dissolved oxygen, which can lead to some parts of the water being unlivable. The impact on animals has been demonstrated in Maine, as ever since the removal of the Great Works Dam in 2012 and the Veazie Dam in 2013 the number of salmon and other fish tripled from the previous year with the dam. This also was a 45 fold increase from the 2012 numbers.

5. **Cost:** A recent study performed by The Analysis Group last year showed Massachusetts electric rates would rise \$777 million annually under long-term contracts for Canadian hydroelectric power. New hydropower plants can also cost as much as 450 million dollars for installation, most of which would be paid by taxpayers.

Where does hydropower impact New England:

1. New England has nearly 50% of its renewables coming from hydropower sources.
2. Hydropower is substantially cheaper than other forms of renewable energy once it is installed, which stunts the growth of building new solar and wind.
3. Connecticut earlier this month adopted a new law that allows utilities to count electricity purchased from large-scale hydropower projects toward meeting the state’s aggressive clean energy goals.
4. Massachusetts also passed a law requiring 1,200 megawatts to come from hydropower or other renewable resources.



SOURCE: National Hydropower Association GLOBE STAFF