



# Hydropower

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# Renewable

Hydropower is considered

renewable

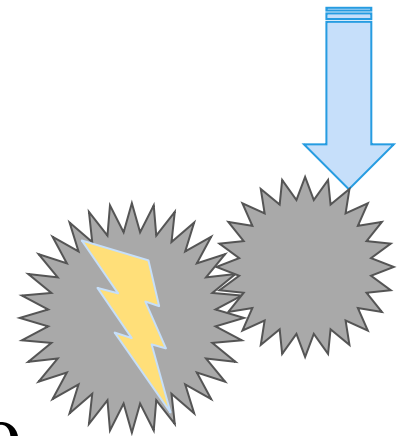
because water is considered inexhaustible

# How Hydropower is Made Useable

Moving water empowers a turbine

Turbine spins the generator

An electromagnetic field converts energy to electricity



# Expenses

## Construction

## Operation

Money needed for construction of dams and reservoirs	Costs vary from \$500/kw to over \$3500/kw
Land needed for construction and flooding	Maintenance crews
Environmental impacts	Materials to refurbish the plant if needed.

# Transmission and Transportation Needs

- Generators

- Generators are needed to transform energy from the turbines

- Power lines

- Electricity is carried through wiring from the power plant

- Vehicular transport

- Importing water is sometimes a necessity

# The Spread of Hydroelectric Power

- How widespread is the use of Hydropower?
  - Globally!
    - Specifically: Lakes, running rivers, other large bodies of water.



# Environmental Issues

## Dam reservoirs flood land

- Dams in flatter areas flood more land per watt
- These reservoirs destroy ecosystems and villages
- Tropical lands emit greenhouse gasses when flooded

## Fish threatened

- Turbines kill fish
  - Intake screens protect fish
- Dams block upstream fish travel
  - Fish ladders allow upstream travel

## Standing water

- Grows excessive algae
- Evaporates faster

## Positives

- Lakes used recreationally



[www.ucsusa.org](http://www.ucsusa.org)



# Opposition

Arguments against hydropower:

Methane and CO<sub>2</sub> released from decaying plant life

Not as damaging as coal

Dangerous for fish populations

Mitigated with ladders and screens

Habitat destroyed

Reduced with careful planning



[www.internationalrivers.org](http://www.internationalrivers.org)



# Bibliography

## Works Cited

- "Environmental Impacts of Dams." *International Rivers*. N.p., n.d. Web. 19 Oct. 2015. <  
<http://www.internationalrivers.org/environmental-impacts-of-dams>>.
- "Environmental Impacts of Hydroelectric Power." *Union of Concerned Scientists*. N.p., n.d. Web. 19 Oct. 2015.  
<  
[http://www.ucsusa.org/clean\\_energy/our-energy-choices/renewable-energy/environmental-impacts-hydroelectric-power.html#.ViRpnv0441U](http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-hydroelectric-power.html#.ViRpnv0441U)>.
- "Facts About Hydropower." *Facts About Hydropower*. N.p., n.d. Web. 06 Oct. 2015. <  
[http://www.wvic.com/Content/Facts\\_About\\_Hydropower.cfm](http://www.wvic.com/Content/Facts_About_Hydropower.cfm)>.
- "How Electricity Is Generated through Hydropower." *How Electricity Is Generated through Hydropower*. N.p., n.d. Web. 01 Oct. 2015.
- "Hydropower." *Hydropower*. N.p., n.d. Web. 01 Oct. 2015.
- "Inexhaustible Resources." *Inexhaustible Resources*. N.p., n.d. Web. 01 Oct. 2015.
- Phelan, Sarah. "Hydropower Doesn't Count as Clean Energy." *Alternet*. Earth Island Journal, 05 Oct. 2007. Web. 19 Oct. 2015. <[http://www.alternet.org/story/64445/hydropower\\_doesn't\\_count\\_as\\_clean\\_energy](http://www.alternet.org/story/64445/hydropower_doesn't_count_as_clean_energy)>.