



Hydropower Reading Comprehension

Water on Earth is constantly moving: rain pouring, rivers flowing, glaciers melting. All this movement provides some **huge opportunities to harvest energy**. But, how can we turn this movement into energy? Well, hydroelectric power (HEP) with dams uses the energy of rivers to **make electricity**.

In this activity, students should read the text about hydropower and then answer the comprehension questions. Each student will need a copy of the handout.

Answer key

1. What percentage of total global renewable electricity comes from HEP?

60%

2. What are the four main benefits of HEP? Why are they important?

1. Generally releases fewer greenhouse gases than fossil fuels.
2. HEP is cheap.
3. HEP is renewable (as long as the rivers keep flowing).
4. HEP provides a great opportunity to store solar and wind energy when the sun isn't shining or the wind isn't blowing.

3. What gas is primarily released by HEP? How does this happen?

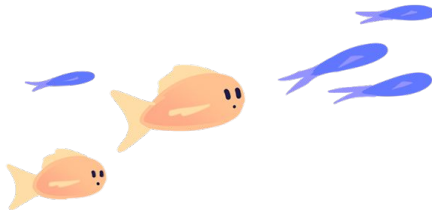
When we flood land, the microbes in the water slowly break down the flooded plants, releasing **methane**. Organic matter also flows down rivers and gets trapped at the bottom of dams, steadily releasing methane throughout the dam's life. Lastly, the flooding and re-flooding from reservoirs mean plants on the shore grow and die repeatedly, increasing methane emissions further.

4. How can we avoid releasing greenhouse gases from HEP?

We can avoid flooding land that is rich in organic matter, like forests.

5. What are two ways in which humans help fish migrate across dams?

Humans can build fish ladders that help fish swim up and over a dam. This does not always work however and humans sometimes resort to putting fish in trucks to transport them to the other side of the dam.





6. Will tidal energy be the next big renewable energy source? Why or why not?

It will not be the next big renewable energy source. Tidal energy is yet to be realistically affordable and only really works well in places with very strong tides. It could also work in rough seas, but that increases the chances of the equipment being damaged.

We welcome feedback and would be delighted to hear your thoughts on this activity. Feel free to send an email to schools@climatescience.org and we'll be sure to get back to you soon :)

Dams capture the kinetic energy of the flowing river and store it as gravitational potential energy, as water builds up behind them in a reservoir.

