

Overview of hydro energy

Hydro energy, also known as hydro-power, is a form of renewable energy that harnesses the power of flowing water to generate electricity. Hydroelectric power plants generate around 16% of the world's electricity.

Types of hydroelectric power plants

- **Pumped storage:** These plants are designed to store excess energy from other power sources, such as wind or solar power, by pumping water from a lower reservoir to a higher reservoir when demand is low.
- **Run-of-river:** These plants use the natural flow of a river to generate electricity. Water is diverted from the river and channelled through turbines before being returned to the river downstream.
- **Tidal power:** These plants harness the energy of the tides by using turbines to capture the kinetic energy of moving water. Tidal power plants can be constructed in estuaries or along the coastline.
- **Conventional hydroelectric:** these are the most common type of hydroelectric power plant. They typically use the power of falling water to turn turbines and generators, producing electricity.

Pros and cons of hydro energy

Pros of hydro energy

- **Renewable:** Hydro energy is a renewable and sustainable energy source as long as there is a constant supply of water. This makes it an environmentally friendly alternative to fossil fuels.
- **Clean:** Hydro energy does not produce carbon emissions or other air pollutants, which means it has a low carbon footprint and is considered a clean energy source.

Cons of hydro energy

- **Environmental impact:** Large hydroelectric projects can have significant environmental impacts, such as the displacement of communities, loss of wildlife habitat, and changes to river ecosystems.
- **Upfront costs:** The construction of large hydroelectric dams can be expensive and require a significant upfront investment, which can be a barrier to entry for many countries and organisations.

