

Hydropower (from Ancient Greek ὕδρω, "water"), also known as water power, is the use of falling or fast-running water to produce electricity or to power machines. This is achieved by converting the gravitational potential or kinetic energy of a water source to produce power. Hydropower is a method of sustainable energy production. Hydropower is now used principally for hydroelectric power generation, and is also applied as one half of an energy storage system known as pumped-storage hydroelectricity. Hydropower is an attractive alternative to fossil fuels as it does not directly produce carbon dioxide or other atmospheric pollutants and it provides a relatively consistent source of power. Nonetheless, it has economic, sociological, and environmental downsides and requires a sufficiently energetic source of water, such as a river or elevated lake. International institutions such as the World Bank view hydropower as a low-carbon means for economic development.

Since ancient times, hydropower from watermills has been used as a renewable energy source for irrigation and the operation of mechanical devices, such as gristmills, sawmills, textile mills, trip hammers, dock cranes, domestic lifts, and ore mills. A trompe, which produces compressed air from falling water, is sometimes used to power other machinery at a distance.

In the present book, fifteen typical literatures about Hydropower Systems published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on Hydropower Systems. We hope this book can demonstrate advances in Hydropower Systems as well as give references to the researchers, students and other related people.¹

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¹ <https://en.wikipedia.org/wiki/Hydropower>