

Application of Small Hydro and Low-Head Hydro Power Technologies in Switzerland

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Hydropower is one of the oldest renewable energy sources in the world. The production uses the natural flow of water in electricity generation. Switzerland is known for its topography and high amount of rainfall, which are conducive conditions for developing hydropower.

This Bachelor thesis aim is to investigate the potential for applications of small and low-head power resources for hydroelectric generation in Switzerland. This thesis present multiple possible solutions for small hydro power applications, by analysing different turbine technologies and sites for installation. An economic analysis was also conducted to indicate the cost-effectiveness of the technology. The results indicate the availability of large untapped potential that is available for exploitation. However, many economic challenges face small hydro power generation.

Results indicate that among the most promising small hydro turbine are:

- The vortex turbine
- Hydrokinetic turbines
- Archimedean screw turbines

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