MICRO HYDROPOWER IN-STREAM EXPLAINED

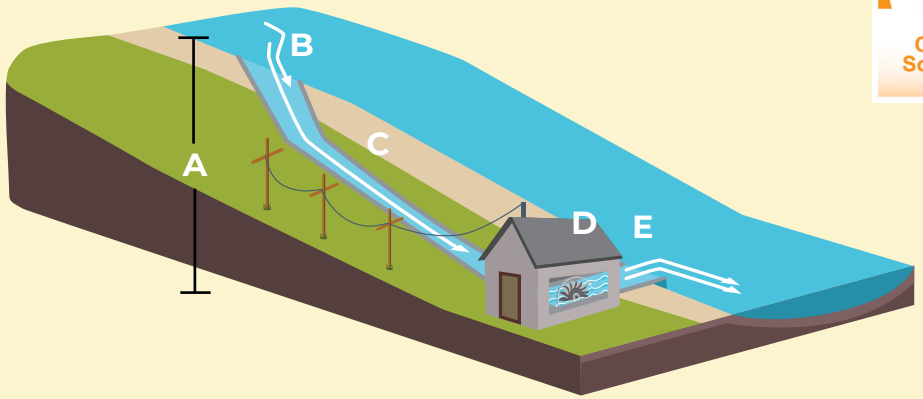
Stewardship Community Education

Community Solutions, Inc.

Hydropower technology has been around for more than 100 years. Hydropower comes from converting the energy in flowing water – using a water wheel or a turbine – into useful mechanical power. This power is then converted into electricity by an electric generator.

Hydro generation is based on well-established and proven technologies, and is conceptually simple: stream water is diverted away from a portion of the stream, energy is produced as water moves downhill and is tapped to generate electricity. The head (elevation change) and flow (the amount of water moving), determine the available energy.

Micro hydropower uses the kinetic energy of flowing water to produce 100 kilowatts (kW) or less of electricity.



A. HEAD - Total vertical drop from intake to turbine. The greatest fall over the shortest distance provides the most energy potential.

B. INTAKE - Screened to prevent debris from entering pipeline.

C. PENSTOCK - Sized for amount of flow.

D. POWERHOUSE - Houses turbine, generates power.

E. TAILRACE - Returns water to stream.

BENEFITS OF MICRO HYDROPOWER

- **EFFICIENT ENERGY**
  It only takes a small amount of flow (as little as two gallons per minute) or a drop as low as two feet to generate electricity with micro hydro.
- **RELIABLE ENERGY**
  Hydro produces a continuous supply of electrical energy, unlike solar panels which require the sun's light and wind turbines which require at the very least a strong breeze.
- **ZERO TO LITTLE IMPACT**
  Due to the small scale of micro hydropower projects (5-100 kW), there is little to no impact to the surrounding enviroment.

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▶ ZERO IMPACT

Conduit-hydro is considered zero impact as it utilizes water already designated for a primary beneficial use such as irrigation, municipal or domestic use for energy production.