



LOW-COST, MODULAR HYDROPOWER ENERGY RECOVERY

Use Pumps As Turbines (PAT) to generate
low-cost electricity from existing water
infrastructure



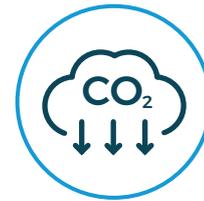
OUR CORE PROPOSITION



**Generating
green electricity**



**Reducing
operating costs**



**Enabling
carbon reduction**

How?

Easy Hydro specialises in the design and supply of modular water turbines up to 1 MW of nominal power.

Our machines are built using components of standard water pumps, before being tested in the factory and shipped to our customers. The technology is sometimes referred to as Pumps As Turbines (PAT).

With low purchase and maintenance costs, they are ideal to recover energy from water flowing inside pipes and achieve considerable energy savings.

Our turbines are comparable with fixed-geometry Francis and Kaplan turbines, and can either discharge water at atmospheric pressure or with a residual pressure at the outlet for maximum flexibility.

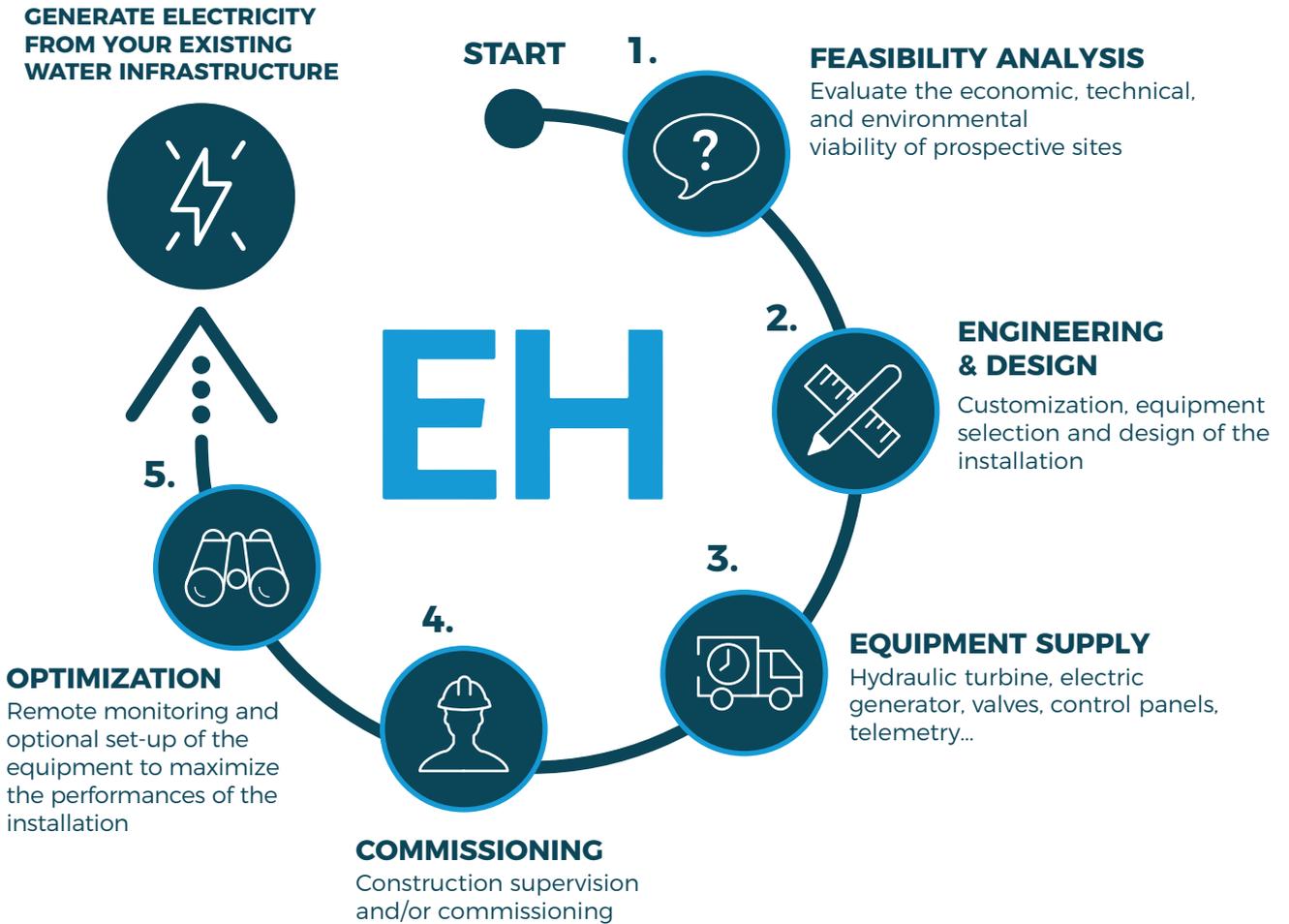


Competitive advantages

In comparison with a conventional custom-made hydropower turbine (Francis, Crossflow, Pelton...) our technology presents the following advantages:

- Quicker return on investment, typically between 1 and 5 years for the whole project
- Easy maintenance, with spare parts readily available and no need for specialized training
- Rugged machines, designed to operate in a reliable and fail-safe way
- Real time information: a complete telemetry system can be provided for real time monitoring from your laptop, mobile or any other web-enabled devices.

SERVICES



FEATURES



Green renewable energy for self-consumption or grid sale from 1 kW to 1+ MW



Negligible environmental impacts, using the existing water infrastructure



Quick return on investment and simplified maintenance



Our centrifugal and axial PATs are Made in Italy



Quick lead time (2-6 months)

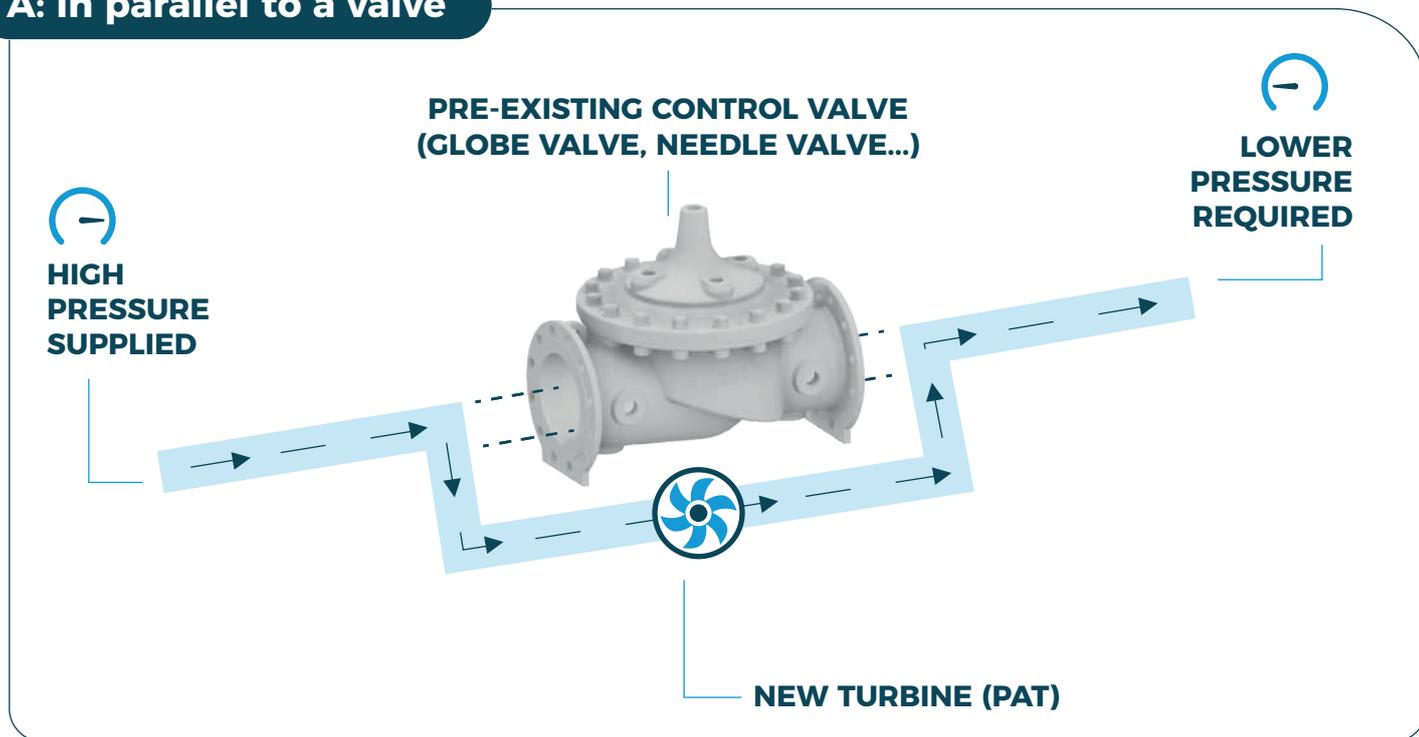


Plug-and-play turbines, easy installation and commissioning

WHERE?

Any location with water flowing in a pipe and an excess of flow and/or pressure

A: in parallel to a valve



Drinking water networks



Industrial cooling systems and evaporative towers



Water supply to deep underground mines



Pressurized irrigation systems (hydrants)



Reverse osmosis / high pressure filtration



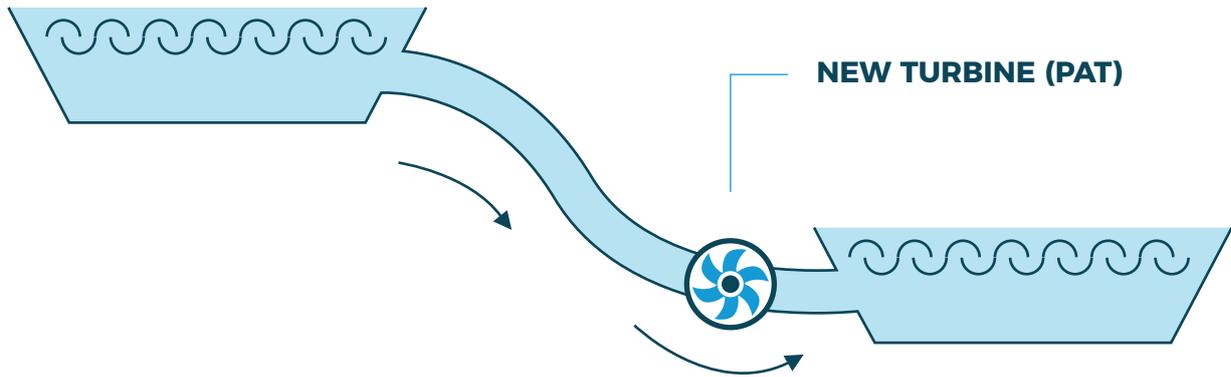
Replacing orifice plates/disc



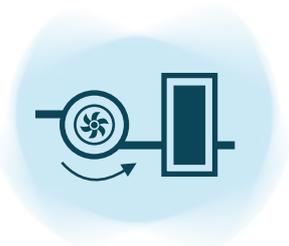
This technology allows water-intensive organizations (e.g. water, irrigation, mining companies) to exploit an untapped energy source in a cost-effective way.

Our turbines are suitable for existing pipes systems where water pressure needs to be reduced or where water flows by gravity into a reservoir or tank.

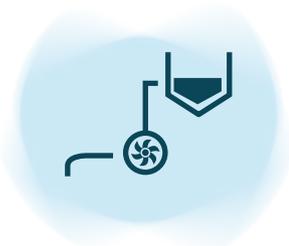
B: on a pipe discharging by gravity



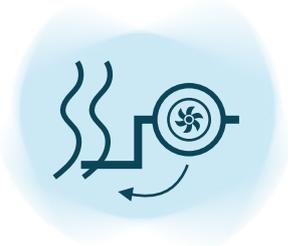
Environmental flow discharge from dams and weirs



Inlet of drinking water treatment plants



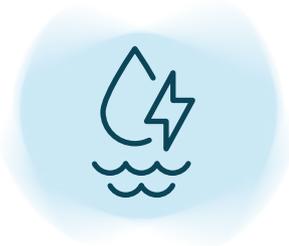
Outlet of clarifiers / thickeners



Outlet of Wastewater treatment plants (civil or industrial)



Irrigation channels and fish farms

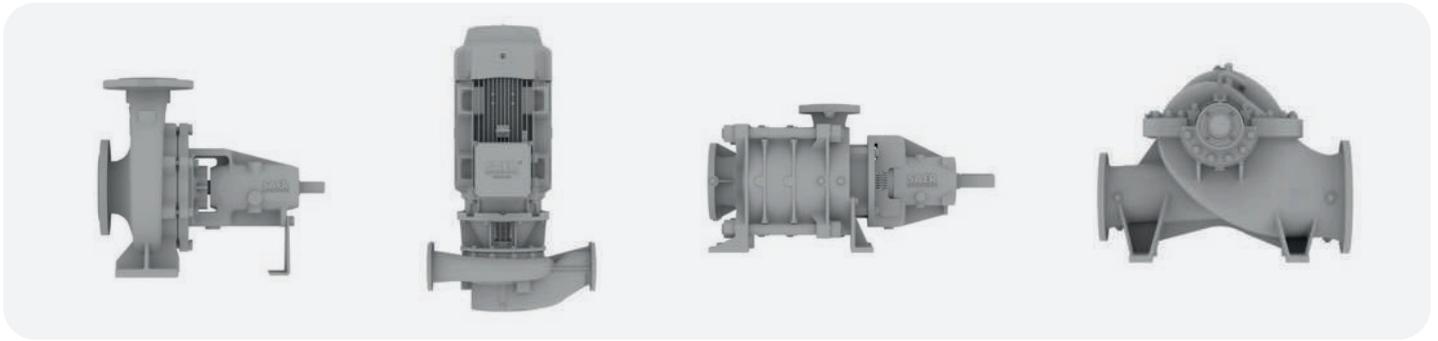


Updating of old hydropower plants



OUR RANGE OF TURBINES

Centrifugal Pumps As Turbines (PAT)



Our main product range is available:

- in different geometries: end-suction, in-line, multistage, split-case
- In a wide range of possible materials (cast iron, ductile cast iron, stainless steel AISI316, Super Duplex, bronze) and coatings
- with certification for use with drinking water (e.g. ACS, NSF-61, DM174)

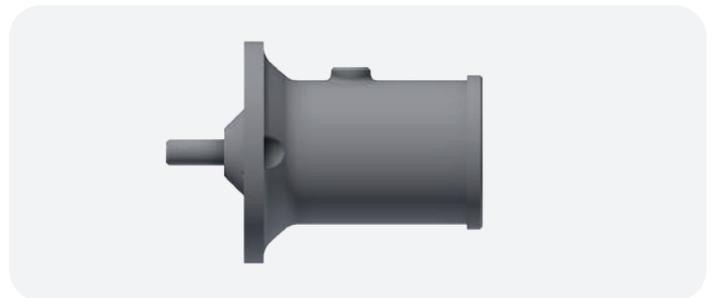
We also offer a standardized off-grid (battery charging) package up to 5 kW.

Axial Pumps As Turbines (PAT)



Axial propeller turbine, with either fixed or variable blade pitch. Available in horizontal (dry chamber), vertical or inclined configuration. Blades in stainless steel AISI316 or bronze, and several choices of materials and coatings for the body and elbow.

Volumetric Pumps As Turbines (PAT)



High-pressure piston turbine, suitable for pressures from 20 bar up to 160 bar. Available in AISI316 or Duplex stainless steel.

CASE STUDIES

Easy Hydro offers a service to analyse your site, select the optimum turbine and design a full installation & control package that will optimise your energy generation.

HYDROPOWER PLANT



With extended dry spells becoming more common, an existing Francis turbine was inoperable due to low flows for long periods.

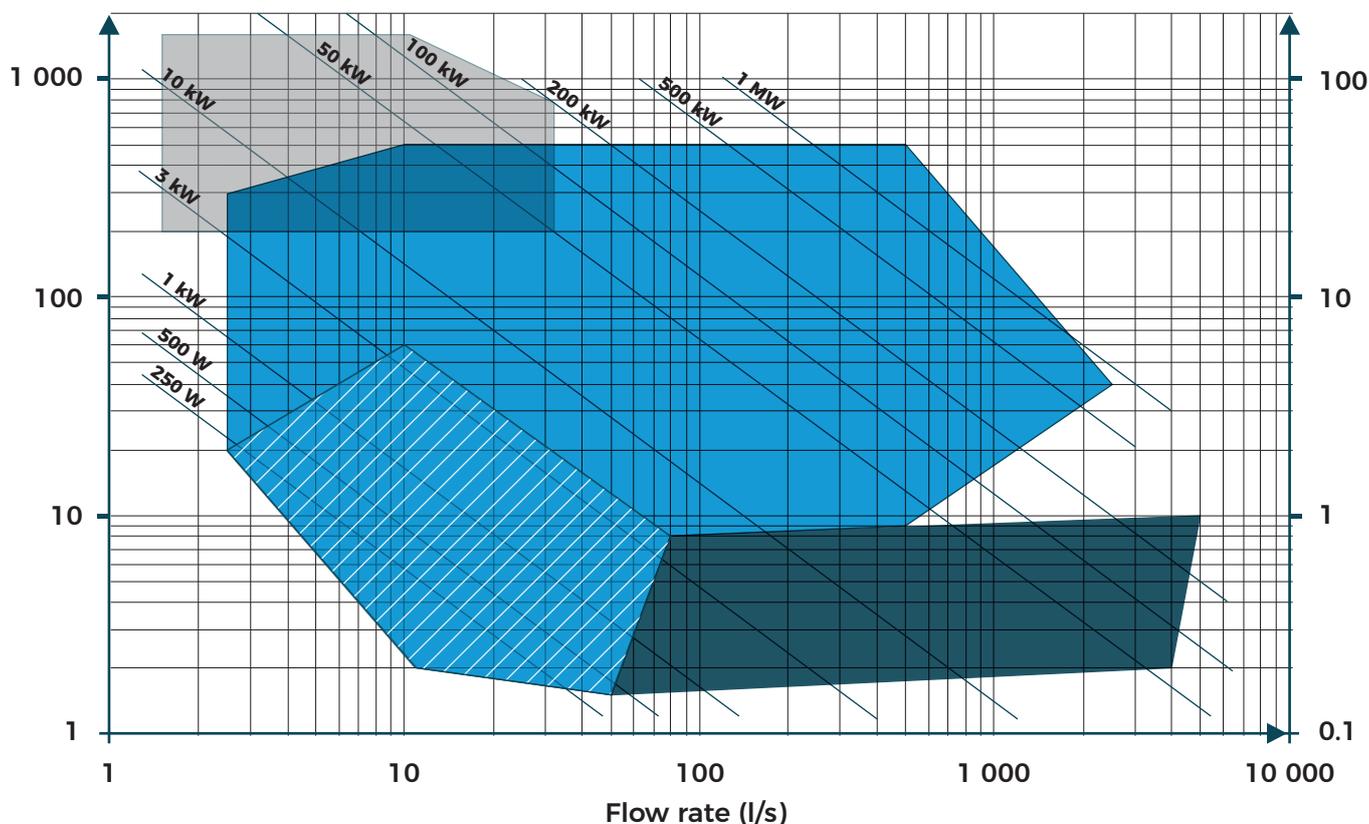
An Easy Hydro turbine, in parallel to the main unit, provides a cost-effective way to maintain some generation throughout much of these drier times.

Head: 65 m
Flow: 175 l/s
Maximum output: 76 kW
Annual generation: 500 MWh

APPLICATION CHART

Hydraulic Head (m)

Pressure (bar)



LEGEND

■ Centrifugal turbines
 Centrifugal turbines, off-grid option available
 ■ Axial turbines
 ■ Volumetric turbines

SAER
ELETTROPOMPE

Our centrifugal turbines are built and assembled by our partner SAER Elettropompe, one of the major European pump manufacturers.



UNDERGROUND ZINC MINE



The PAT has been installed in parallel to an existing pressure reducing station on a DN 150 pipeline carrying cooling water from the surface into the depths of the mine.

The turbine location is 300m underground. Instead of just dissipating the water pressure as heat and noise via the pressure reducing valves, the centrifugal multistage turbine is generating power which helps the mine operator to reduce the electricity import from the grid.

Head: 210 m

Flow: 22 l/s

Maximum output: 30 kW

Annual generation: 200 MWh

Easy Hydro



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