Energia idroelettrica

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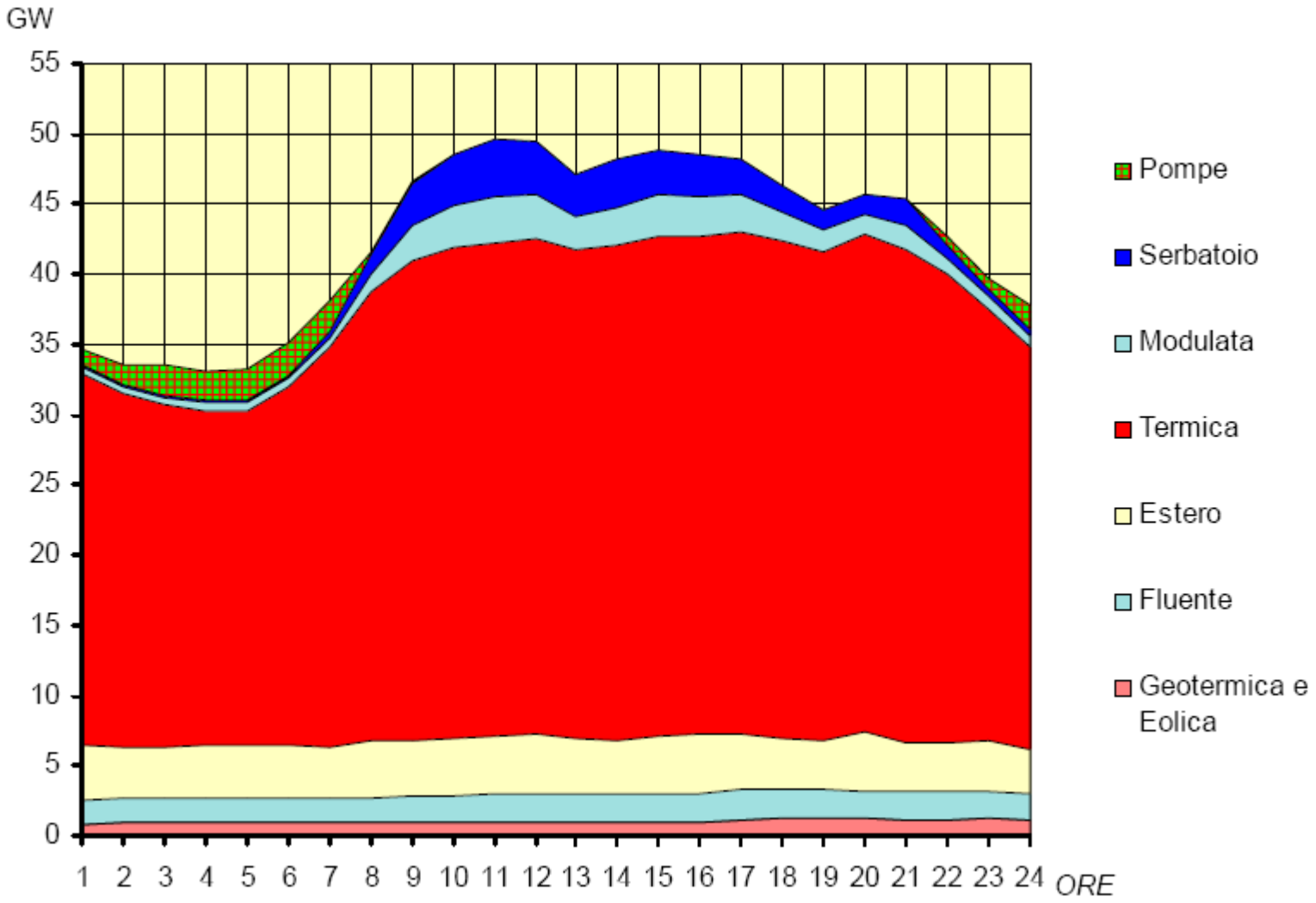


Energia idroelettrica

Potenza disponibile

Potenza (W)

Portata volumetrica (m^3/s)

Accelerazione di gravità (m^2/s)

$$P = \eta \rho Q g h$$

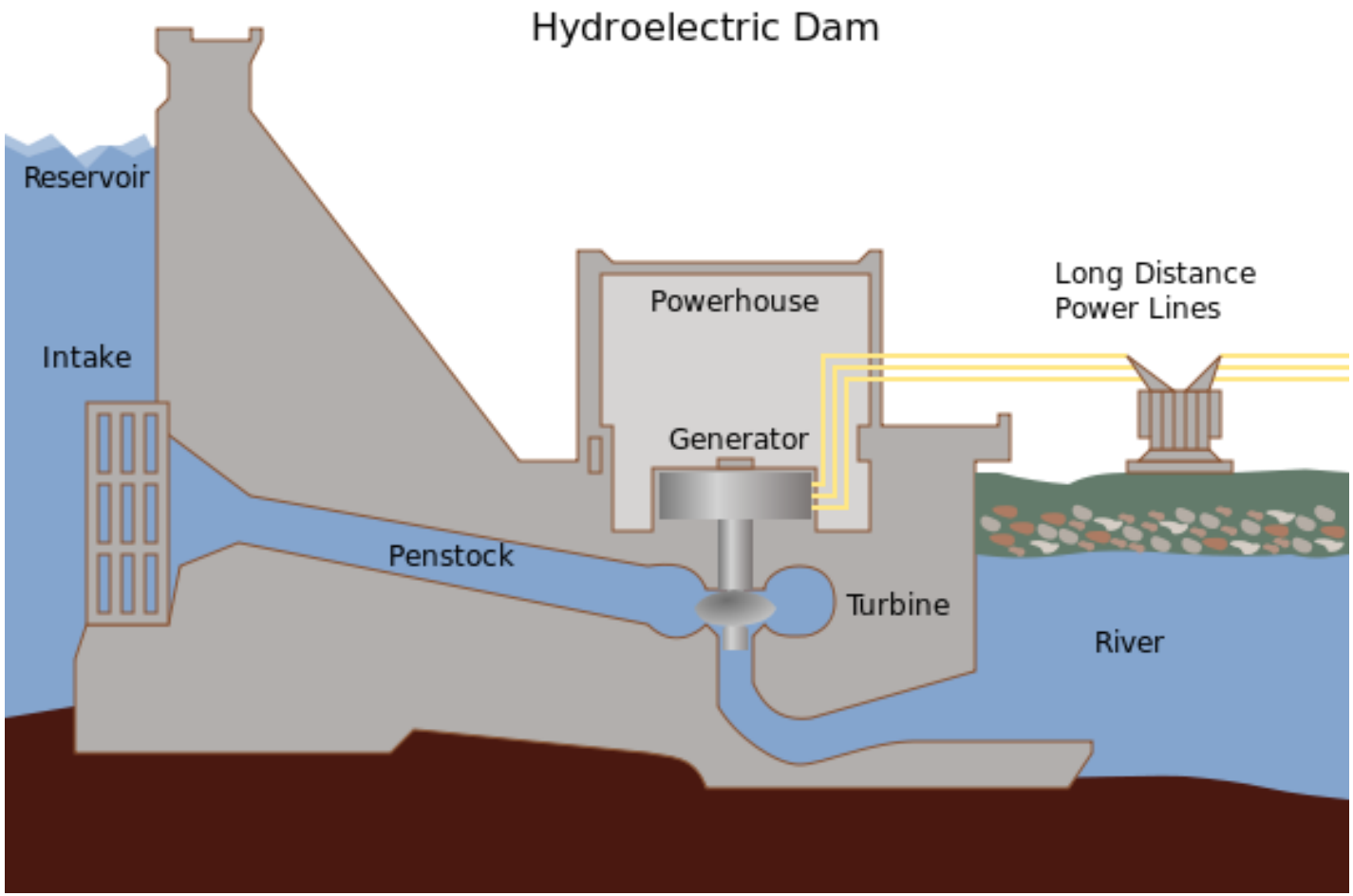
Efficienza della turbina (–)

Densità (kg/m^3)

Altezza del salto (m)

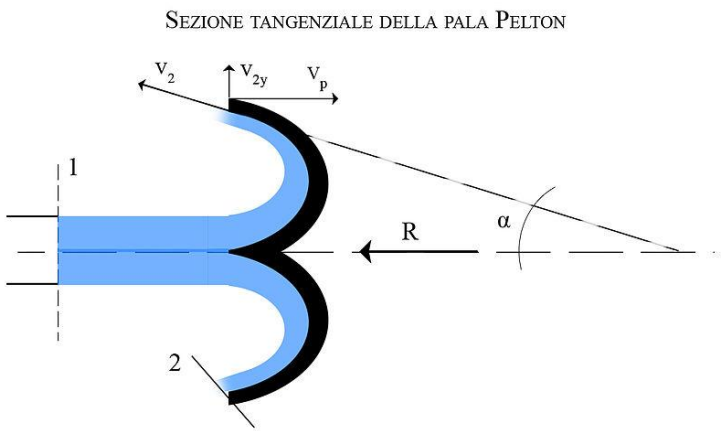
Energia idroelettrica

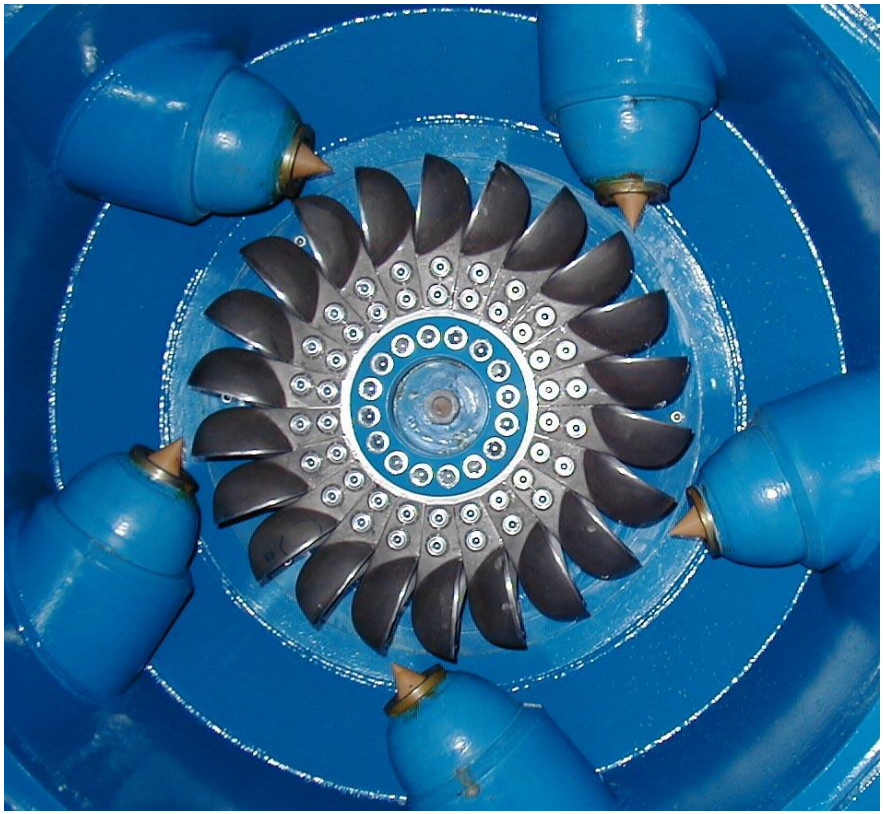
Schema d'impianto



Energia idroelettrica

Turbine idrauliche - Pelton



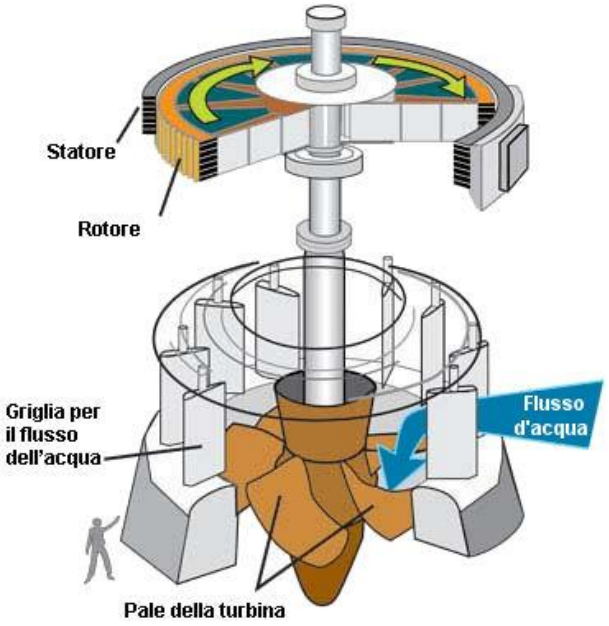


Energia idroelettrica

Turbine idrauliche

Francis

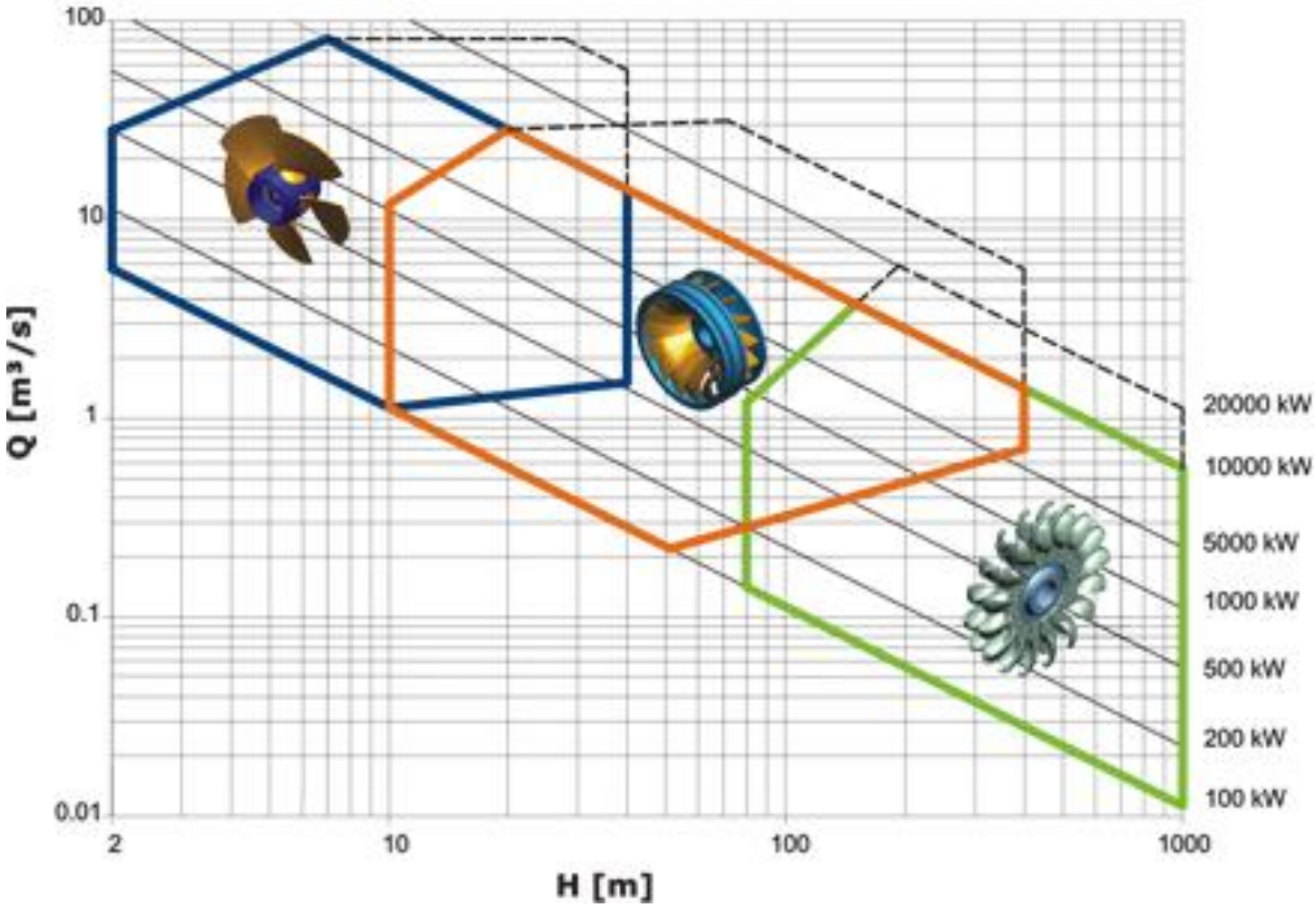
Francis



Kaplan

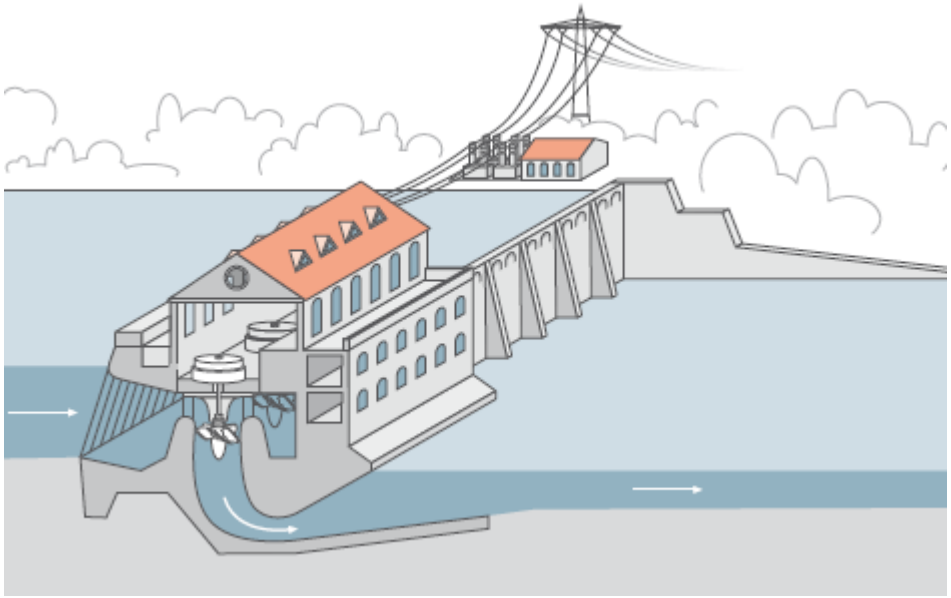
Energia idroelettrica

Turbine idrauliche



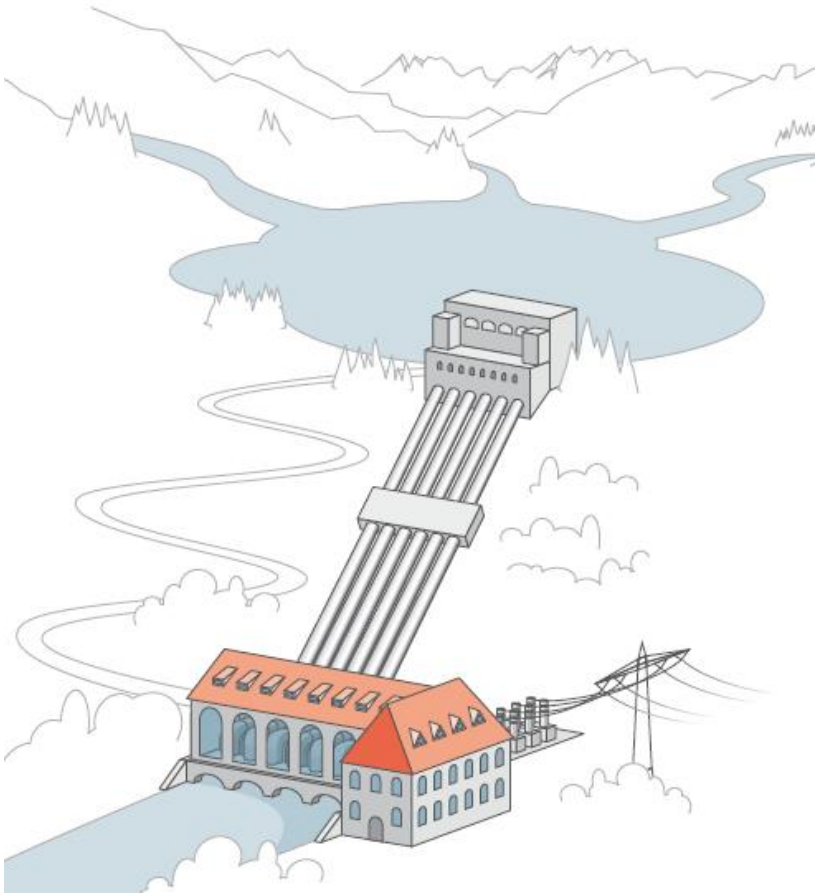
Energia idroelettrica – Centrali

Ad acqua fluente

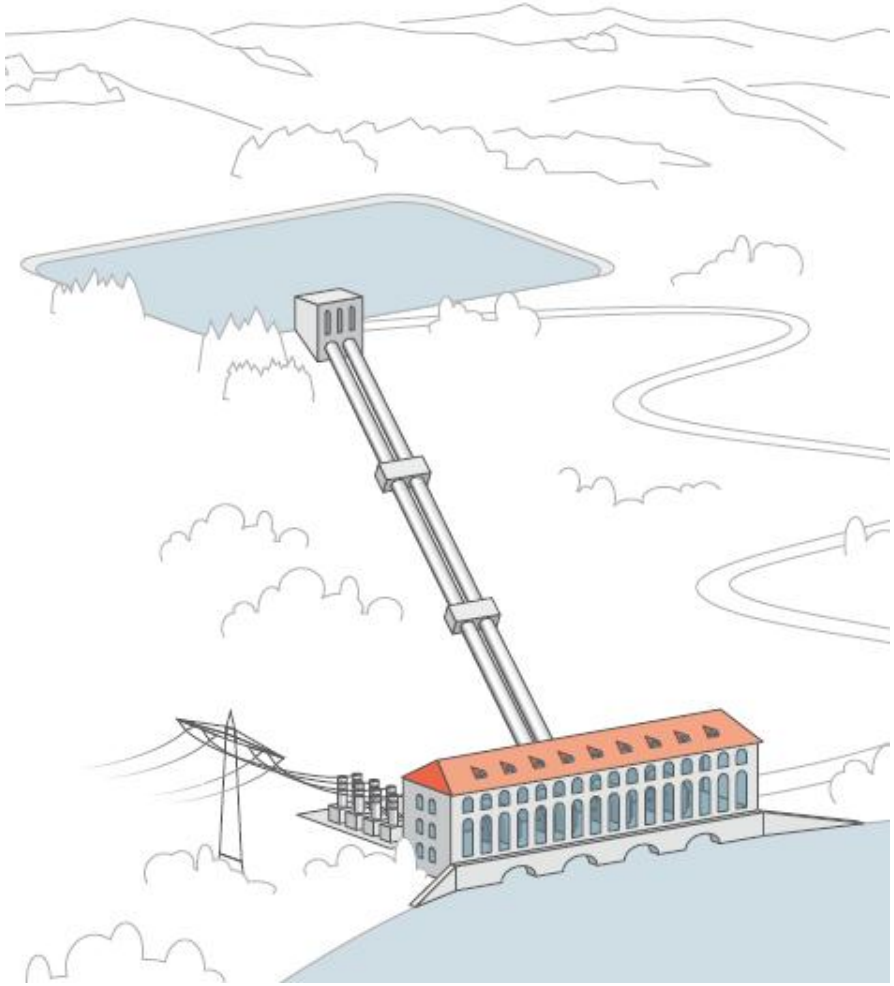


Energia idroelettrica

A bacino



A serbatoio o ad accumulo



Small Hydro

Small, Mini, Micro etc.

- **SMALL HYDRO**: da 1 a 10 MW
- **MINI HYDRO**: da 100 kW a 1 MW
- **MICRO HYDRO**: < 100kW

H: 75 m
Units: 1 x 1.4 MVA
Cross-Flow Turbine
Potenza: 1 MW
Energia: 5 GWh/yr

Small Hydro – Micro etc.

- Minore impatto delle opere di presa
- Utilizzo di molti più corpi d'acqua che con l'idroelettrico tradizionale (potenziale penetrazione molto forte)
- Sviluppo tecnologico

Small Hydro – Micro etc.

(Vietnam)

Small Hydro – Micro etc. etc. etc.