

Voith Hydro

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**Hydro power generation –  
From water to wire**

# 1. Mechanical transformation

## Rotation energy

- Water flows into the turbine and turns the runner.
- The runner is mounted on a shaft.
- This shaft turns the generator on the same shaft.
- Rotation energy is generated.





*Francis turbine*

*Cross section through  
power house*

## 2. Electrical transformation

### Generator

- The generator consists of the rotor (located on the shaft) and rotates in a frame, the stator.
- On rotation of the rotor in the stator, a change in the magnetic field is created that exists between rotor and stator.
- This change generates a voltage.





*Pumped storage power plant in China,  
Guangzhou, generator hall*

*Lowering of generator*

### 3. Transformation and transmission

**Delivery to the consumers in industry and households**



- The voltage is transmitted via the transformer and passed on in power lines via high, medium, and low voltage.
- Transformation enables easier transport with thinner power lines due to the lower electricity flow.
- The lines transport this voltage to households and industries.
- Once the voltage arrives, it is converted into electricity through contacts inside the plug.



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