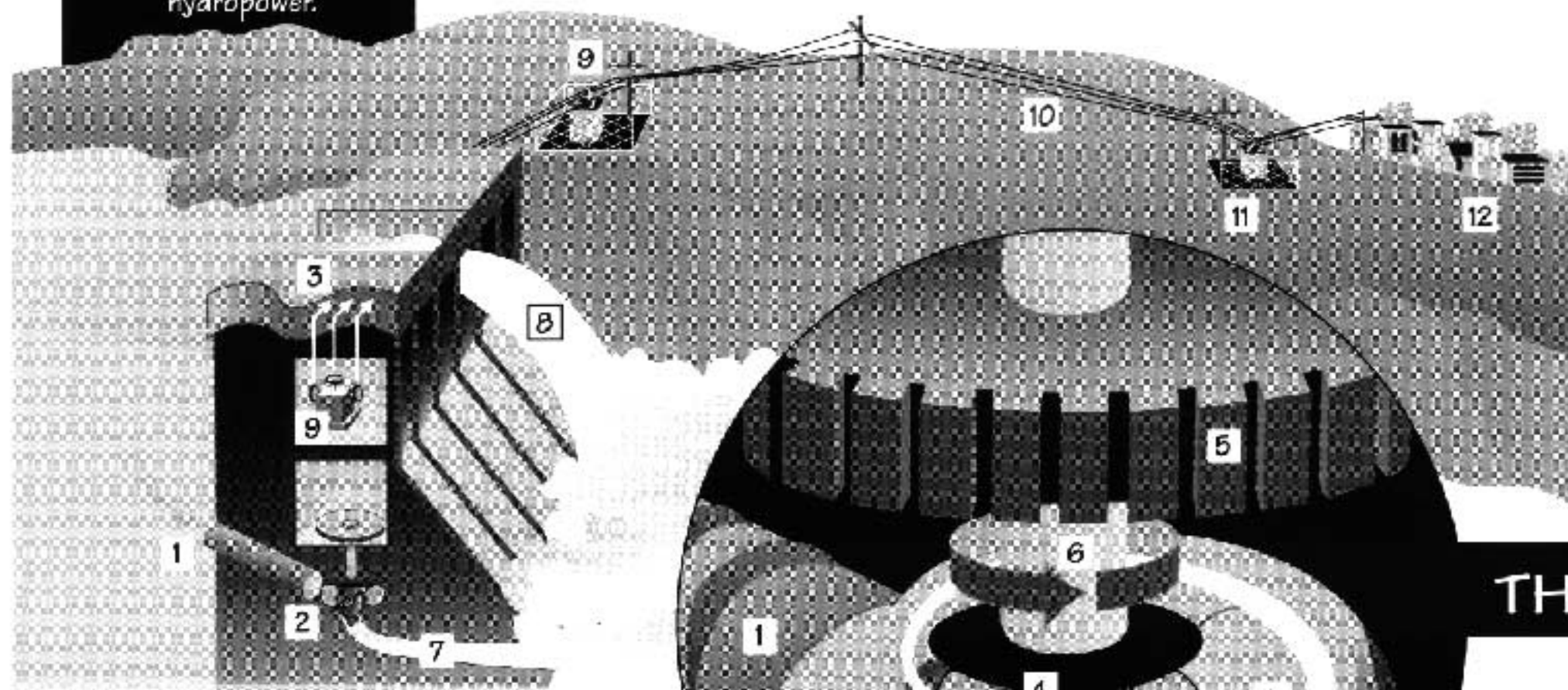


HYDROPOWER

Approximately
60-80% of the
Northwest's
electric energy is
supplied by
hydropower.

HYDROPOWER —

What is it?



The creation of hydroelectricity begins at the dam, where the power plant converts the force of water into electricity. Water from a lake or river flows into a large pipe called a **penstock** 1 located in the upstream side of the dam structure. The water then flows into the **turbines** 2 inside the **powerhouse** 3. The turbine shaft is turned by the force of water pushing against the **turbine blades** 4. **Generators** 5 connected to the turbine's **shaft** 6 rotate as the turbines move, producing electricity. The same amount of water that entered the hydro project returns to the river 7 unchanged. Water not used for energy production is released over the **spillway** 8. **Transformers** 9 convert the electricity generated to higher voltage levels for transmission over **powerlines** 10. Transmission lines carry the electricity to the **substations** 11 and on to the **distribution system** 12 where the voltage is reduced to levels for your use.

THE HYDROLOGIC CYCLE NATURALLY RENEWABLE ENERGY

- Snowfall creates snowpack in the mountains.
- Rain and runoff from the snowpack fills rivers and streams.
- Electricity is generated at hydroelectric projects by using the force of water.
- Water passes through the turbines and returns to the river unpolluted and unchanged.
- The sun draws moisture from the ocean, forming clouds.
- The cycle begins again...



THE BENEFITS OF HYDRO:

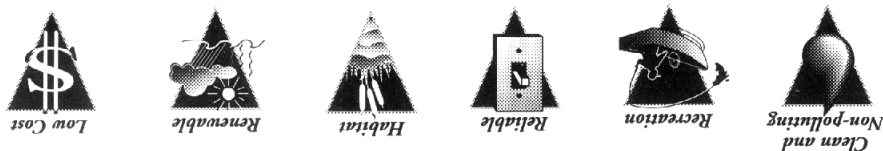
- Hydropower takes an unpredictable resource — rainfall and snowpack — and turns it into a reliable energy source.
- Hydropower is a clean and renewable energy source.
- Hydropower is the major source of the Northwest's low-cost electric energy supply.
- Hydropower projects provide recreation, irrigation, flood control, transportation and fish and wildlife habitat.



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For more information contact the Bonneville Power Administration
Public Information Center at 1-800-282-3713

Benefits of Hydro



Dam
Water from the **reservoir** (1) behind the **dam** (2) flows through the **penstock** (5) to a **turbine** (4) that turns a **generator** (5) to create electricity. Water then returns to the river (6) unchanged to continue its journey. From here, the electricity is sent to the transformer to begin the journey to your home. (7) Fish ladders help adults return upriver to spawn. Be a Partner in Safety: Pay attention to all warning signs around **electricity**.

Upstream Face

Place **Dam** Here

Downstream Face / Spillway

Place **Step Up Transformer** Here

Place **Transmission Tower** Here

Step Up Transformer

A Step Up Transformer increases the voltage of the electricity so it can make the journey from the dam to your city. Substations reduce the voltage to make it usable



Transmission Towers

Transmission towers carry the transmission lines that carry the electricity to your city.

