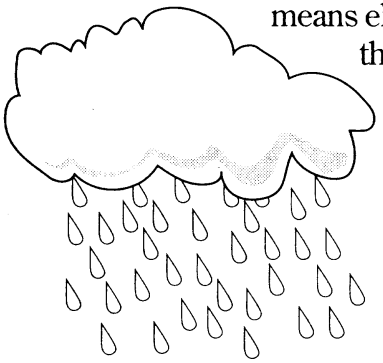
Hydro Power:

How Electricity gets from the River to Your House

When you flip on a light switch in your home, electricity makes the light turn on. It makes the wires in the bulb glow bright enough to give off light. But, where does the electricity come from? How does it get to the switch? In the Northwest much of the electricity comes from the rivers that have hydroelectric dams on them.

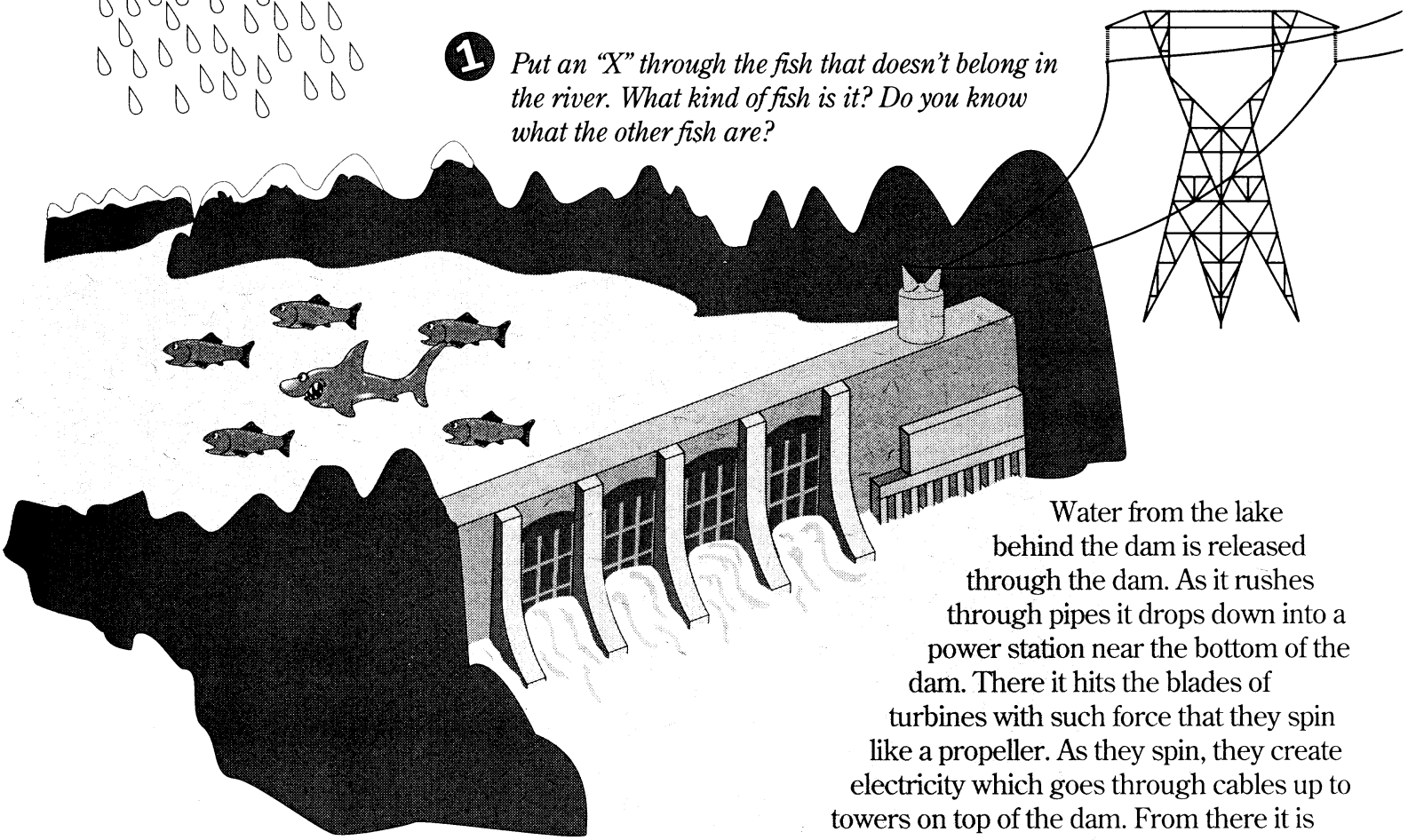
"Hydro" comes from the Greek word for water. Hydroelectric means electricity made by water. Most of the water used to make electricity is from rivers.



Rain fills the rivers. In the spring the winter snows melt and make the rivers swell almost to bursting.

Hydro power comes from dams that are built on rivers. A dam holds back river water so a large reservoir forms. The dam also holds back fish who have to swim up and down the river in order to live, but people help the fish. They give them a free ride on water around the dam. That way they can swim out to sea, return and live a healthy, normal life.

1 *Put an "X" through the fish that doesn't belong in the river. What kind of fish is it? Do you know what the other fish are?*



Water from the lake behind the dam is released through the dam. As it rushes through pipes it drops down into a power station near the bottom of the dam. There it hits the blades of turbines with such force that they spin like a propeller. As they spin, they create electricity which goes through cables up to towers on top of the dam. From there it is sent out on power lines for use.

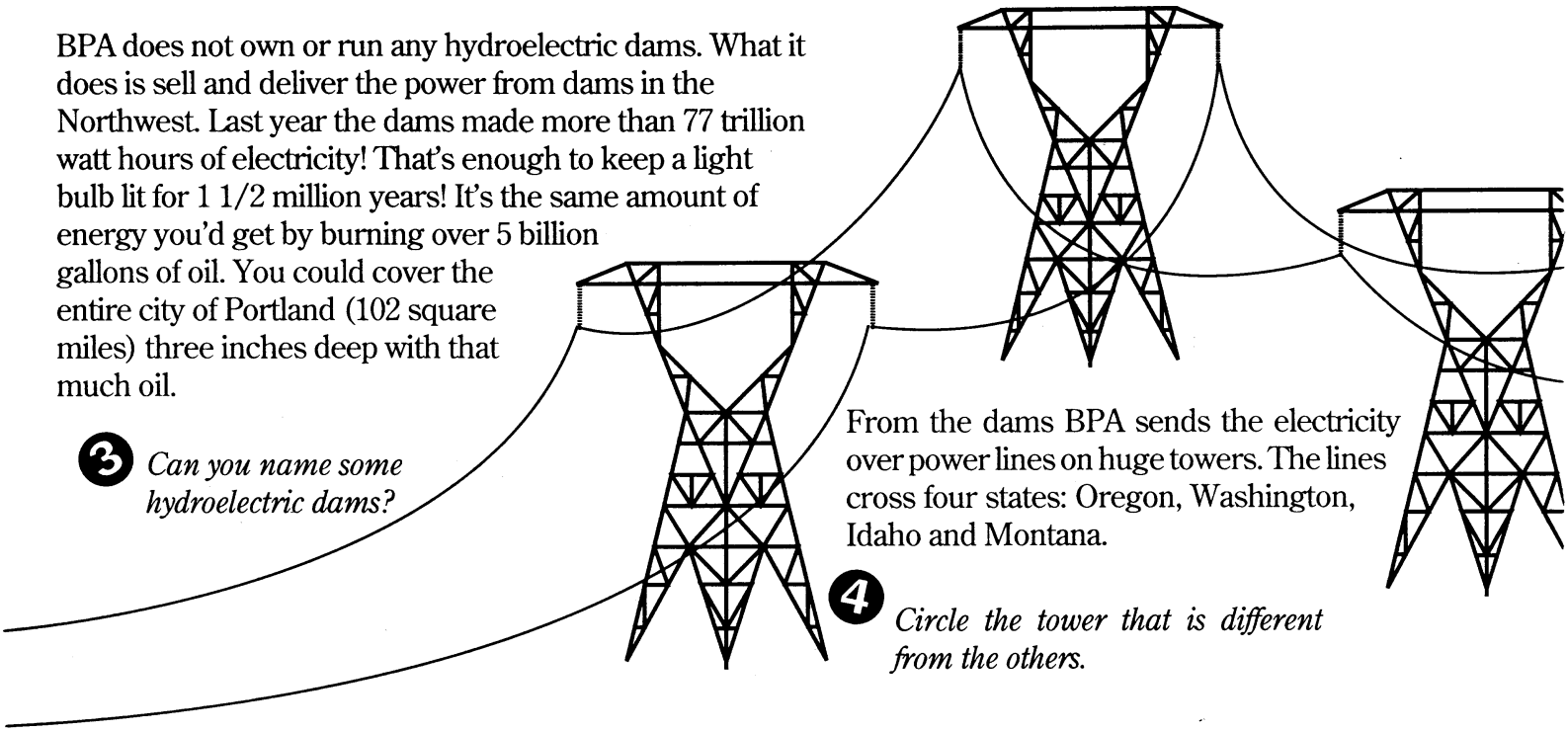
2 *What animal makes a natural dam? Can you draw one?*

From the dam . . .

BONNEVILLE POWER ADMINISTRATION

BPA does not own or run any hydroelectric dams. What it does is sell and deliver the power from dams in the Northwest. Last year the dams made more than 77 trillion watt hours of electricity! That's enough to keep a light bulb lit for 1 1/2 million years! It's the same amount of energy you'd get by burning over 5 billion gallons of oil. You could cover the entire city of Portland (102 square miles) three inches deep with that much oil.

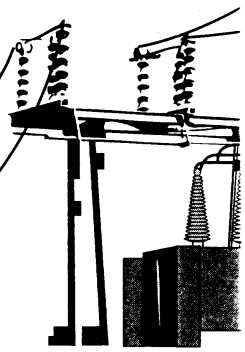
3 *Can you name some hydroelectric dams?*



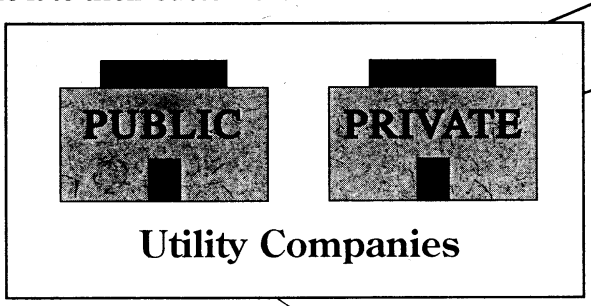
From the dams BPA sends the electricity over power lines on huge towers. The lines cross four states: Oregon, Washington, Idaho and Montana.

4 *Circle the tower that is different from the others.*

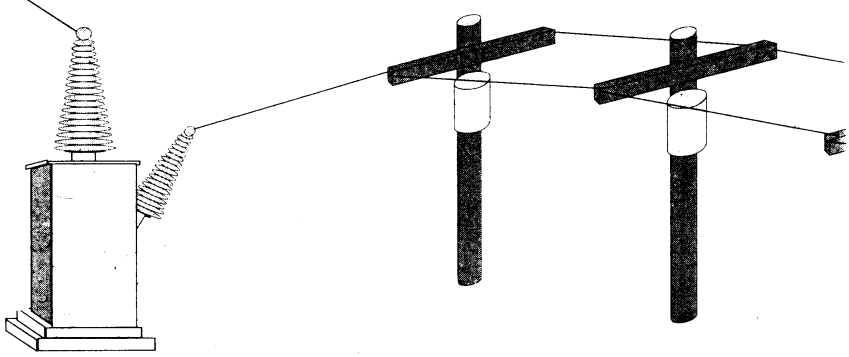
through BPA and utilities . . .



Most of BPA's electricity is sold and sent to utility companies. Then they provide it to their customers. BPA sells to two kinds of utility companies — public and private. The public ones are owned and run by the people they serve. Private utility owners invest their money in the company, but do not run it.



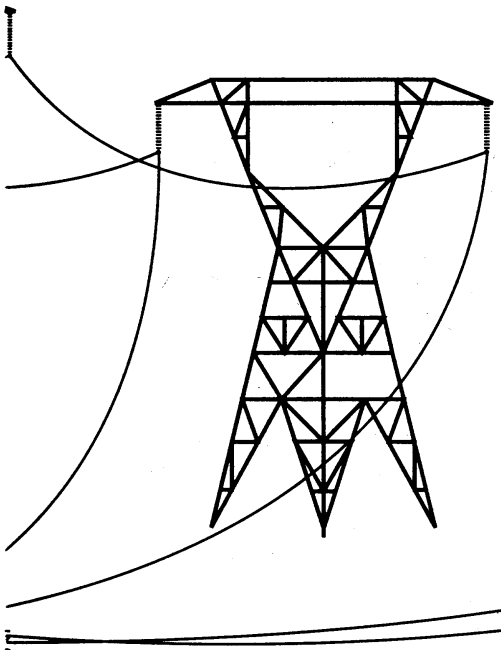
7 *Can you name your electric utility company?*



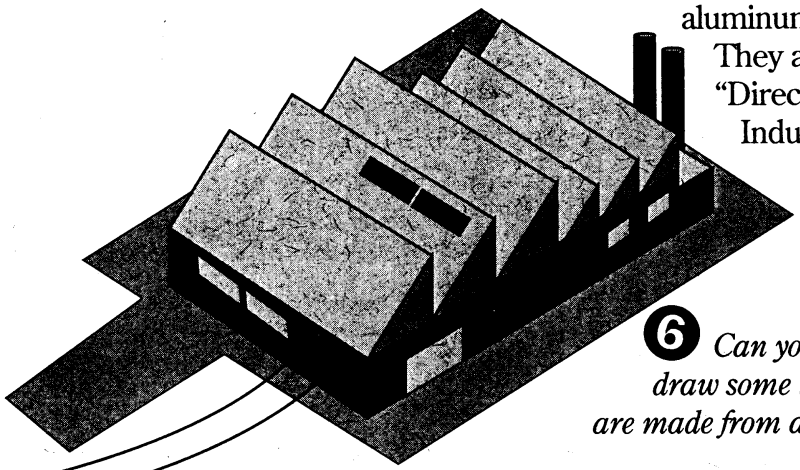
The power coming from the substation is too strong for the wires in homes and other buildings, so it stops at a transformer. The transformer changes it to a lower voltage.

TRANSFORMER

to industry . . .

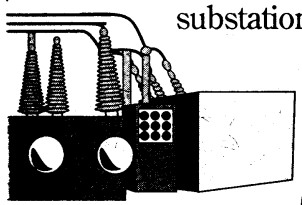


Some of the electricity goes straight to very large industries, such as aluminum plants. They are called "Direct Service Industries."



6 *Can you name and draw some things that are made from aluminum?*

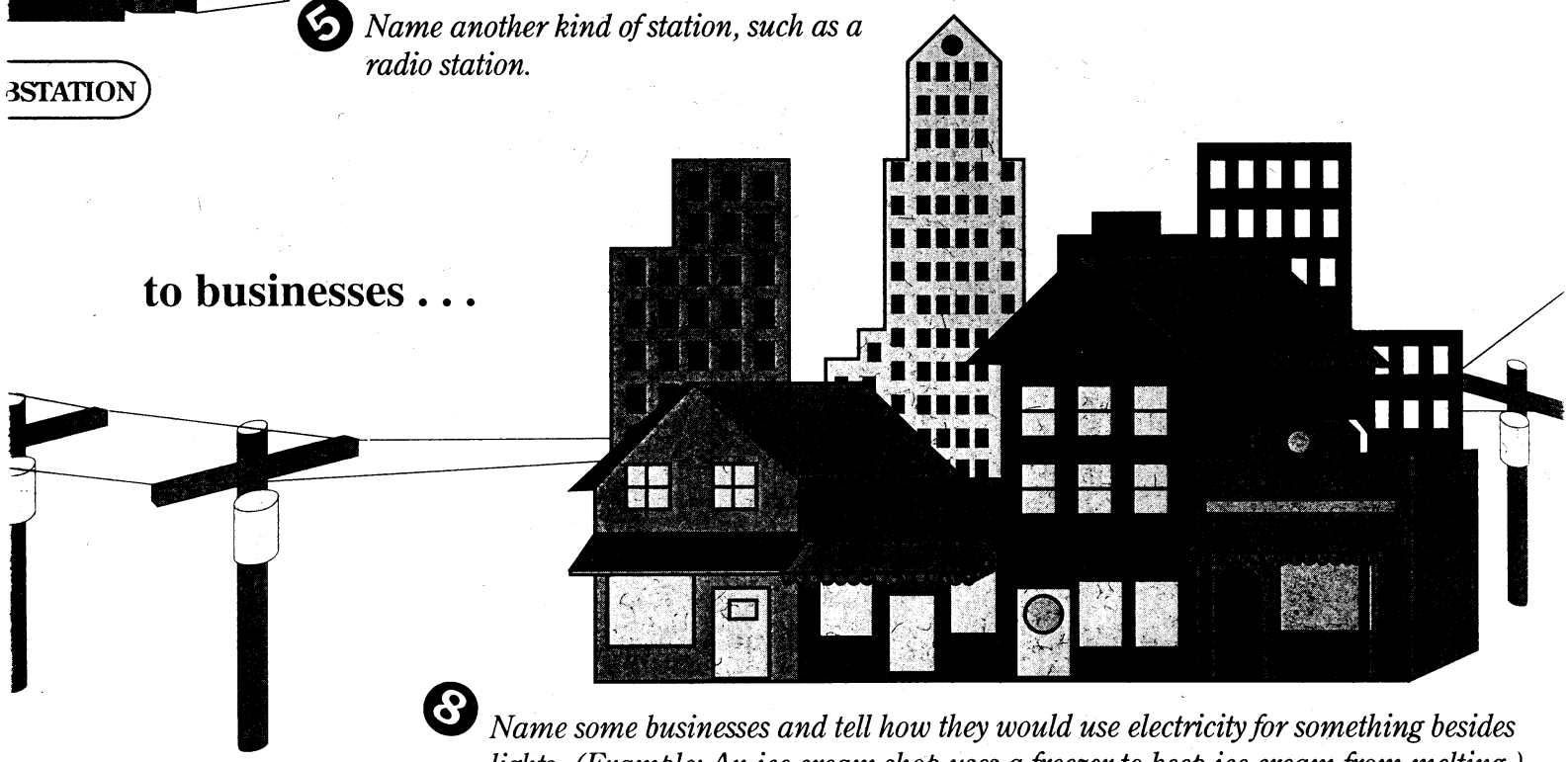
BPA moves the electricity to a power station called a substation. There, utilities and industries take the electricty. They send the power from BPA substations over their own lines to businesses, farms, homes and other customers.



5 *Name another kind of station, such as a radio station.*

BSTATION

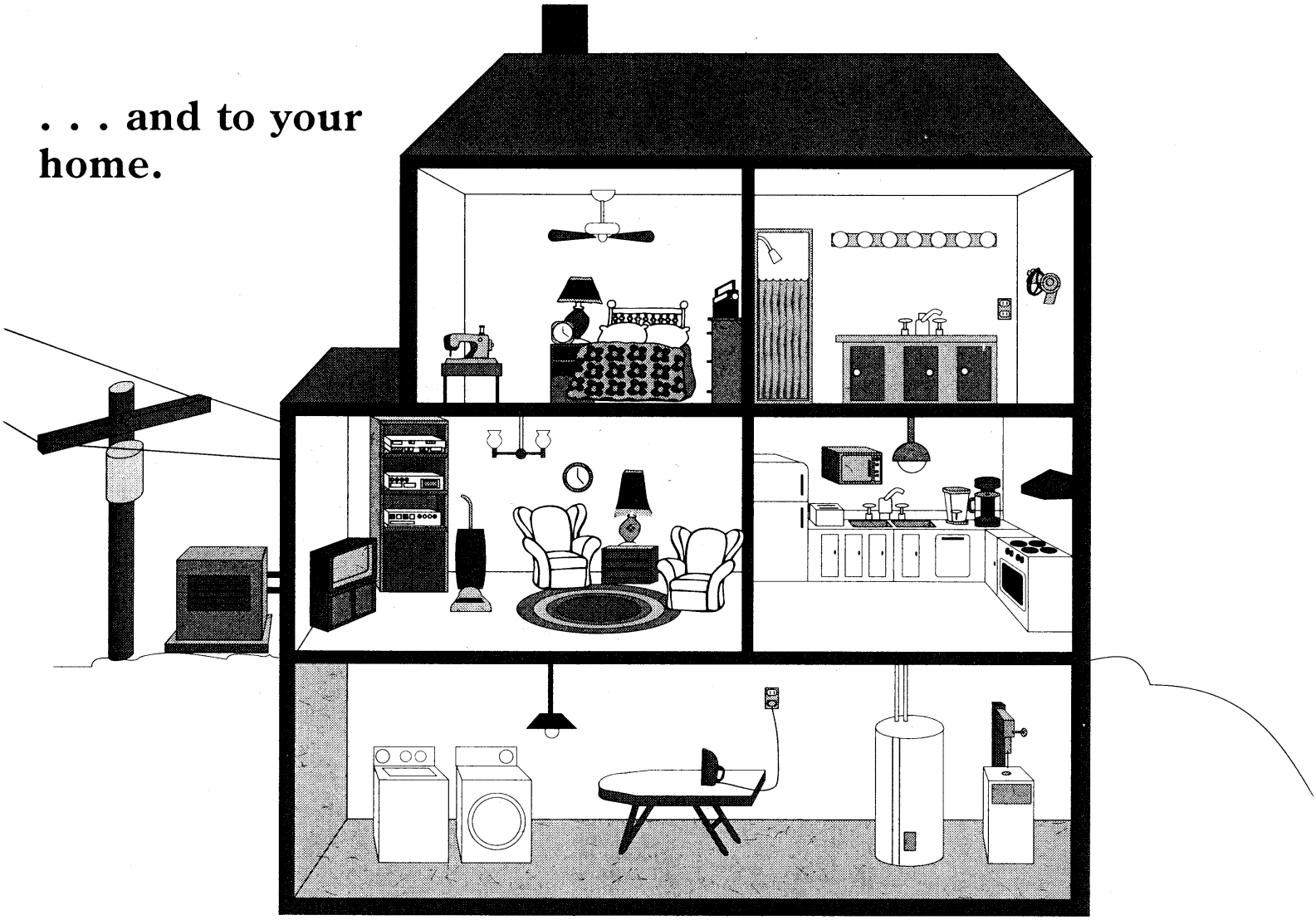
to businesses . . .



8 *Name some businesses and tell how they would use electricity for something besides lights. (Example: An ice cream shop uses a freezer to keep ice cream from melting.)*

9 *Where do you see electricity when you are in the city?*

. . . and to your home.



The electricity is sent through large wires or cables. Sometimes the wires are strung on wooden poles. Sometimes they are under the ground. When a wire or cable gets to your house, it is joined to smaller wires. These wires run between the floors, ceilings and walls of your house. They connect to electric outlets and switches.

Like the river it began with, the electricity flows through the lines and turns on whatever you wish with the flip of a switch.

10 *Circle each item that uses electricity in this house. There are 31.*

If you want to learn more about the Northwest's power system call BPA's Public Involvement Office at (503) 230-3478 in Portland, or toll free 1-800-622-4519 nationwide. For additional copies of this brochure call BPA's Document Request Line 1-800-622-4520 (recorded message).

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