

THE **NEXT** GREAT
DISCOVERIES THAT WILL
CHANGE
THE WORLD



THE DALLES
Recovery and resolve
in an eastern river town

**A controversy burns
over LNG terminals**

**PBA Top 10 Growth Awards:
the winning strategies**

Eight homegrown discoveries that will change the world

THE TRANSFORMERS

By Abraham Hyatt

Illustrations by Jon Ferland

Perpetua Power Source Technology

Portland

WHAT THEY DO: power generation

HOW THEY'LL CHANGE THE WORLD: Batteries that run on heat and have decades-long life spans will revolutionize how electronic devices are powered.

WHERE THEY ARE TODAY: They're working with large wireless monitoring systems.

WHERE THEY'LL BE IN FIVE YEARS: making batteries for consumer products, like laptops, and medical devices

HOW LONG THEY'VE BEEN AROUND: 1½ years

The battery that Jon Hofmeister, Perpetua's 33-year-old president and founder, holds in his hand is a simple-looking thing — maybe an inch tall and as big around as a nickel, copper with a band of black around the middle.

He holds it against his arm, and simple turns to science fiction. That's enough heat to produce power, he says. "A one- to two-degree temperature change is all you need."

The basic principle behind it is as simple as the battery

looks. Inside is a 8-foot-long roll of gold-colored foil with circuitry printed on one side. When the battery is heated, atomic particles jump between two different materials in the foil, creating an electrical current, not unlike what happens with solar power.

But this needs no sun, and the foil can be molded to fit any shape or space inside a laptop, cell phone, security system, medical device — anything that uses a battery and generates even a small amount of heat. And since there are no chemicals that break down over time, as with normal batteries, Hofmeister estimates they'll last 15 years or more.

This summer Perpetua begins producing batteries for clients with vast wireless monitoring systems — such as those used on large bridges to monitor corrosion or stress — that are very difficult to get to for routine battery replacement.

Hofmeister would love to jump into the consumer electronics market this summer, too, but Perpetua isn't quite ready for that. He estimates the company needs another five years of growth before it can handle that type of volume.

