

## Unit 12: The Lure of Lithium

**Narrator:** Over the course of human history, fuel for industry has come in many forms.

But one of the major drivers of development in the current technological age is a highly volatile element that makes up only 0.002 percent of the Earth's crust.

Such a rare commodity has become the bedrock of industry, and may be the key to the future of civilization.

Lithium, a soft, silver-grey metal, is the third lightest element in the universe.

Originally discovered in 1817, in a piece of volcanic stone, lithium was named after the Greek word for stone—lithos.

Ever since its discovery, lithium has been found to be incredibly versatile, including strengthening glass and refining metal alloys.

But probably the most popular use of lithium is in lithium batteries.

Holding a charge for longer than traditional batteries, lithium batteries are often used to power devices as small as smartphones and laptops and as large as electric vehicles. The versatility of lithium has helped catapult many technological developments, largely due to the metal's unique chemical properties.

Lithium is classified as an alkali metal.

When combined with water, the metal forms alkalis, or chemicals that stabilize acidic solutions. Additionally, lithium is heat-resistant—having extraordinarily high melting and boiling points—causing it to be capable of storing large amounts of energy.

Lithium is also highly reactive in that it readily loses one of its electrons to form new bonds, thereby creating a positive charge.

Altogether, these properties allow the metal to serve as the receiving point of negatively charged particles, helping create a powerful electrical current in lithium batteries.

But because of lithium's reactivity, it does not naturally occur in its pure, elemental metal form.

It's often found as a component of chemical compounds and sourced from hard-rock minerals, seawater, or saltwater reservoirs called brines. Within the past few decades, the presence of lithium in South American countries has drawn the attention of federal and commercial entities from around the world, hoping to extract one of the most sought-after natural resources on the planet.

By extracting a natural resource as valuable as lithium, these entities may fuel and help shape the future of technology and industry.