**ELECTRIC VEHICLES DEPEND ON MINING**

Mineral demands are expected to grow as much as 1,000% by 2050.¹ Much of this demand will come from automakers, which plan to spend $300 billion globally to produce new electric vehicles (EVs) over the next decade.² Our made-in-America EV future can also be a mined-in-America future, with U.S. mining ready to meet much of this need while providing high-paying jobs and maintaining strong environmental protections.

### EV Infrastructures
- EV chargers and their power supply require additional metals like copper, aluminum, gallium, and zinc. 1 million public charging points are installed globally. ³
- 50MM public charging points by 2029.⁴

### EV MARKET GROWTH DEPENDS ON SUPPLY CHAIN SECURITY

Despite its estimated $6.2 trillion in mineral reserves, U.S. mineral import-reliance continues to grow. In 2020, the U.S. was 100% import-reliant for 17 key minerals and more than 50% import-reliant for 29 additional minerals.¹³

We must strengthen our mineral supply chains and encourage greater domestic production to lead the EV revolution.

#### EVs require 2x the number of metals compared to internal combustion engines

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Increase</th>
<th>2020</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>250%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver</td>
<td>10X</td>
<td></td>
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</tr>
<tr>
<td>Nickel</td>
<td>10X</td>
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<tr>
<td>Cobalt</td>
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</tr>
<tr>
<td>Lithium</td>
<td>8X</td>
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</tbody>
</table>

#### EVs are smaller and more efficient than induction motors but require more minerals

- EVs can use nearly 2x the amount of silver compared to gas powered cars.⁶
- By 2040, EVs will require 3x the amount of aluminum compared to 2020.⁷
- EVs use 138 lbs of copper vs. 18-49 lbs for gas powered vehicles.⁸
- By 2030, the EV sector will require 250% more copper compared to current demands.⁹

### BATTERY MINERALS

Lithium ion batteries are at the heart of EVs.

**POWERTRAIN MOTORS**

- EV motors are smaller and more efficient than induction motors but require more minerals.⁴

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</table>

**WIRING**

- EVs contain more than a mile of copper wiring.⁵
- EVs contain more than 300 miles of wiring, including for vehicle electronics, circuit boards and infrared sensors that enable navigation, safety and other features.⁶

**EV INFRASTRUCTURE**

- EV chargers and their power supply require additional metals like copper, aluminum, gallium and zinc. 1 million public charging points are installed globally.³
- 50MM public charging points by 2029.⁴

**EV MARKET GROWTH DEPENDS ON SUPPLY CHAIN SECURITY**

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**China currently controls the production of:**

- 80% Rare Earth Elements
- 70% Graphite/Graphene
- 59% Lithium
- 58% Vanadium
- 36% Cobalt

In 2020, 107 of the 142 lithium-ion battery megafactories under construction worldwide were located in China. Just nine were planned for the United States.¹⁵

#### EVs and Minerals

- EVs require 2x the number of metals compared to internal combustion engines.

#### Sources

2. https://about.bnef.com/electric-vehicle-outlook/
6. https://www.ft.com/content/b13f316f-ed85-4c5f-b1cf-61b45814b4ee