THE JOURNEY OF A BATTERY MINERAL

IT CAN TAKE ANYWHERE FROM SEVEN TO 20+ YEARS TO BRING NEW MINERALS TO MARKET


Minerals are essential building blocks of our economy, providing the foundation for infrastructure, technology, manufacturing, electric vehicles (EV) and future energy technologies. Unlike other extractive industries, the process to get minerals from the ground can take decades and more than $2 billion in upfront investment before an investor sees a single dollar in profit.

The development stage usually takes 1-2 years to complete a scoping study to determine the size and scale of the development. After minerals are processed, they're in a saleable form and can be used in a myriad of products. One of the longest processes for new mine permits is the National Environmental Policy Act (NEPA) permitting process. It can take anywhere from seven to 20+ years to bring new minerals to market.

1. **MINERAL EXPLORATION AND PROSPECTING**
   - **Locating a mining claim:** a few million dollars
   - **Geologic test and define mineral targets:** in addition to the $100,000 needed to stake a claim
   - **Cost anywhere from $500,000 to $2 billion in capital investment**

2. **MINERAL DEVELOPMENT, DESIGN AND PERMITTING**
   - **Two initial permits:** State/Federal, possibly a municipal
   - **$500 million to $2 billion in capital investment**
   - **Pre-development planning includes:**
     - **Data collection and analysis:** in addition to the $100,000 needed to stake a claim
     - **Environmental baseline assessment:** in addition to the $100,000 needed to stake a claim
     - **Final EIS scoping decision:** in addition to the $100,000 needed to stake a claim

3. **MINERAL EXTRACTION**
   - **Two initial permits:** State/Federal, possibly a municipal
   - **Pre-development planning includes:**
     - **Data collection and analysis:** in addition to the $100,000 needed to stake a claim
     - **Environmental baseline assessment:** in addition to the $100,000 needed to stake a claim
     - **Final EIS scoping decision:** in addition to the $100,000 needed to stake a claim

4. **MINERAL PROCESSING**
   - **Total time required:** typically three years
   - **Equipment:** screens, grinders, conveyors
   - **Total processing:** typically three years

5. **INTEGRATION IN ADVANCED ENERGY TECHNOLOGY**
   - **Typically the last opportunity for profit**
   - **Cost:** typically three years
   - **Equipment:** batteries, tires, automotive, solar panels, windmills, and medical devices

Sources

MineralsMakeLife.org

Find out more about the benefits of domestic minerals mining at MineralsMakeLife.org.

**THE TIME AND COST OF BRINGING MINERALS TO MARKET**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost (Million $)</th>
<th>Time (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral prospecting</td>
<td>10</td>
<td>1-2</td>
</tr>
<tr>
<td>Mineral development</td>
<td>500-2,000</td>
<td>5-18</td>
</tr>
<tr>
<td>Mineral extraction</td>
<td>500-2,000</td>
<td>7-20</td>
</tr>
<tr>
<td>Mineral processing</td>
<td>500-2,000</td>
<td>3-5</td>
</tr>
<tr>
<td>Integration in advanced energy technology</td>
<td>500-2,000</td>
<td>3-5</td>
</tr>
</tbody>
</table>