OurEnergyPolicy.org

529 14th Street, NW Washington, D.C. 20045 info@ourenergypolicy.org

Recycling & Innovation

Summary of Comments - October 23, 2024

On October 23, 2024, OurEnergyPolicy hosted a discussion on developments in recycling and innovation in critical minerals. Find the recording here.

SPEAKERS

Peter Stahley
Senior Vice President
Cassidy & Associates

Meg Slattery
Staff Scientist
Earthjustice

Adele Rouleau
Critical Minerals Lead
SFA (Oxford)

Riyaz Dattu
Canada Legal Practice Lead
ArentFox Schiff

Summary of Key Points

- Innovations in battery chemistries have the potential to reduce the intensity of environmental and cultural degradation from mining.
- Recycling critical materials contributes to supply chain diversification and security.
- Reducing our need for critical minerals will be just as, if not more, important as recycling them.
- Closed loop recycling makes better use of valuable resources than open loop recycling.
- Disruptive innovations will have a net positive impact.

OurEnergyPolicy.org

529 14th Street, NW Washington, D.C. 20045 info@ourenergypolicy.org

Recycling & Innovation

Summary of Comments - October 2024

Innovations in Battery Chemistries

- Battery chemistries made with lower value materials have lower environmental footprints and are less energy intensive to mine and refine.
- Evolutions in battery chemistry increase the importance of repurposing batteries for stationary storage if the economic value of recycling is not high enough.
- In the event of disruptive innovations in battery chemistry, Extended Producer Responsibility for battery collection and recycling will be needed.

Recycling Critical Minerals and Battery Reuse

- Mining will likely be needed for the foreseeable future to meet demand, but recycling and material efficiency will still play a key role in improving selective buying power and reducing the environmental pressures of mining.
- Retired batteries under warranty are still under the control of the Original Equipment Manufacturer (OEM), and they are often returned to a dealership for processing.
  - Out-of-warranty batteries have less predictable pathways.
- The European Union (EU) Critical Raw Materials Act (CRMA) sets a nonbinding target of recycling 25% of all critical raw materials used in the EU.
- Each mineral has a different economic value. Therefore, they have different economic incentives for recovery through recycling.
- **Closed loop recycling** of materials recovers them for reuse in the same products they were used in.
- **Open loop recycling** can lead to valuable materials being used in less valuable ways, such as as slag for cement.
- EV battery refurbishment and reuse in projects such as stationary energy storage is more efficient than recycling.
  - Battery reuse and refurbishment reduces overall demand for critical minerals, improves affordability of EVs and stationary storage, and makes those products more accessible.

Material Efficiency and Use Reduction

- The first principal of the waste hierarchy is to reduce.
- Reducing overall mined materials provides strategic abilities to choose where nations and manufacturers source their critical minerals.
- Efficiency innovations can play a key role in managing critical mineral demand.