



**Asia-Pacific  
Economic Cooperation**

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Agenda Item: 4.1

## **APEC Advanced Vehicles Regulations and Standards Status Report: Electric Vehicle Battery Reuse Technical Assistance**

Purpose: Information  
Submitted by: United States



**38th Automotive Dialogue  
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Asia-Pacific  
Economic Cooperation

# APEC Advanced Vehicles Regulations and Standards Status Report: EV Battery Reuse Technical Assistance

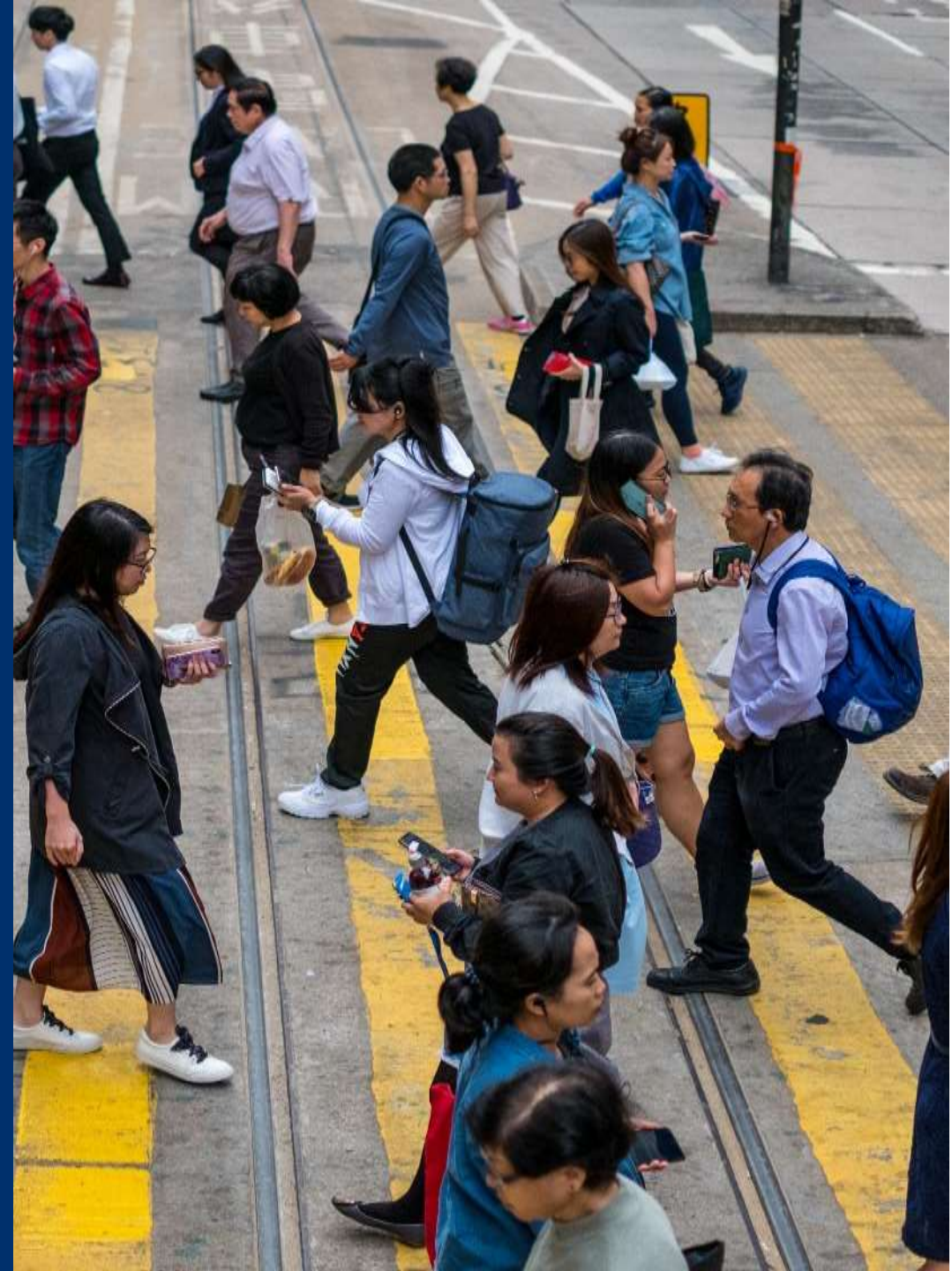
Adam Borison, Senior Technical Advisor

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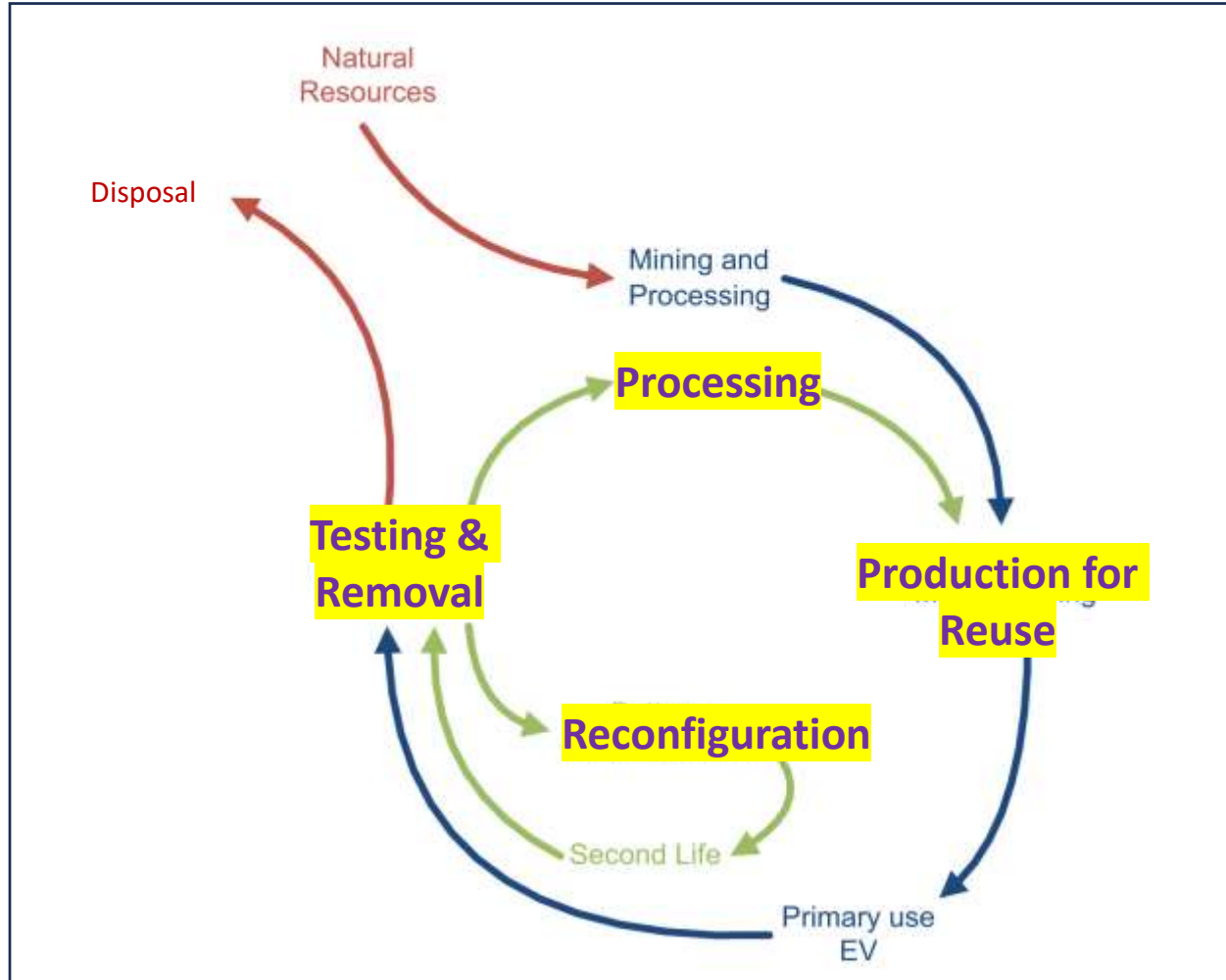
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## What is EV battery reuse?

- Repurposing – reusing EV battery in second battery application
- Recycling – reusing EV battery materials in second battery or non-battery application
- Disposal – discarding EV battery or battery materials

# How does reuse change the EV battery lifecycle?



Adapted from: Martinez-Laserna, Egoitz, et al. "Battery second life: Hype, hope or reality? A critical review of the state of the art." *Renewable and Sustainable Energy Reviews* 93 (2018): 701-718.

# Reuse has a wide range of significant benefits

- Environment
  - The EV battery supply chain has considerable ecosystem impacts. Repurposing and recycling greatly reduce these impacts. For example, GHG emissions from producing a recycled EV battery are estimated to be 30% lower than a new EV battery.
- Social
  - EV battery repurposing and recycling reduce the human impact of the mining, processing and transporting required for new batteries. For example, cobalt mining is reported to have significant health impacts. On the positive side, reuse also creates local jobs.
- Economic
  - EV battery repurposing and recycling can be an important contributor to economic growth; this is particularly relevant to economies without access to EV battery raw materials. EV battery recycling is projected to be a \$100 billion a year global business within 20 years.
- Geopolitical
  - EV battery repurposing and recycling can greatly reduce dependence on imports of new EV batteries or new EV battery components and materials. This increases resilience and security.

## Technical Assistance Topics

- What are appropriate pyrometallurgical, hydrometallurgical and direct recycling technologies?
- How do we identify suitable reuse (second life) applications, and manage their risk?
- What are best practices in battery labeling?
- What are best practices in battery swapping?

Let us (Andy) know if you'd like to participate.



## For more information or questions, please contact:

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