CSE

WEBINARS

RE Round Table 4

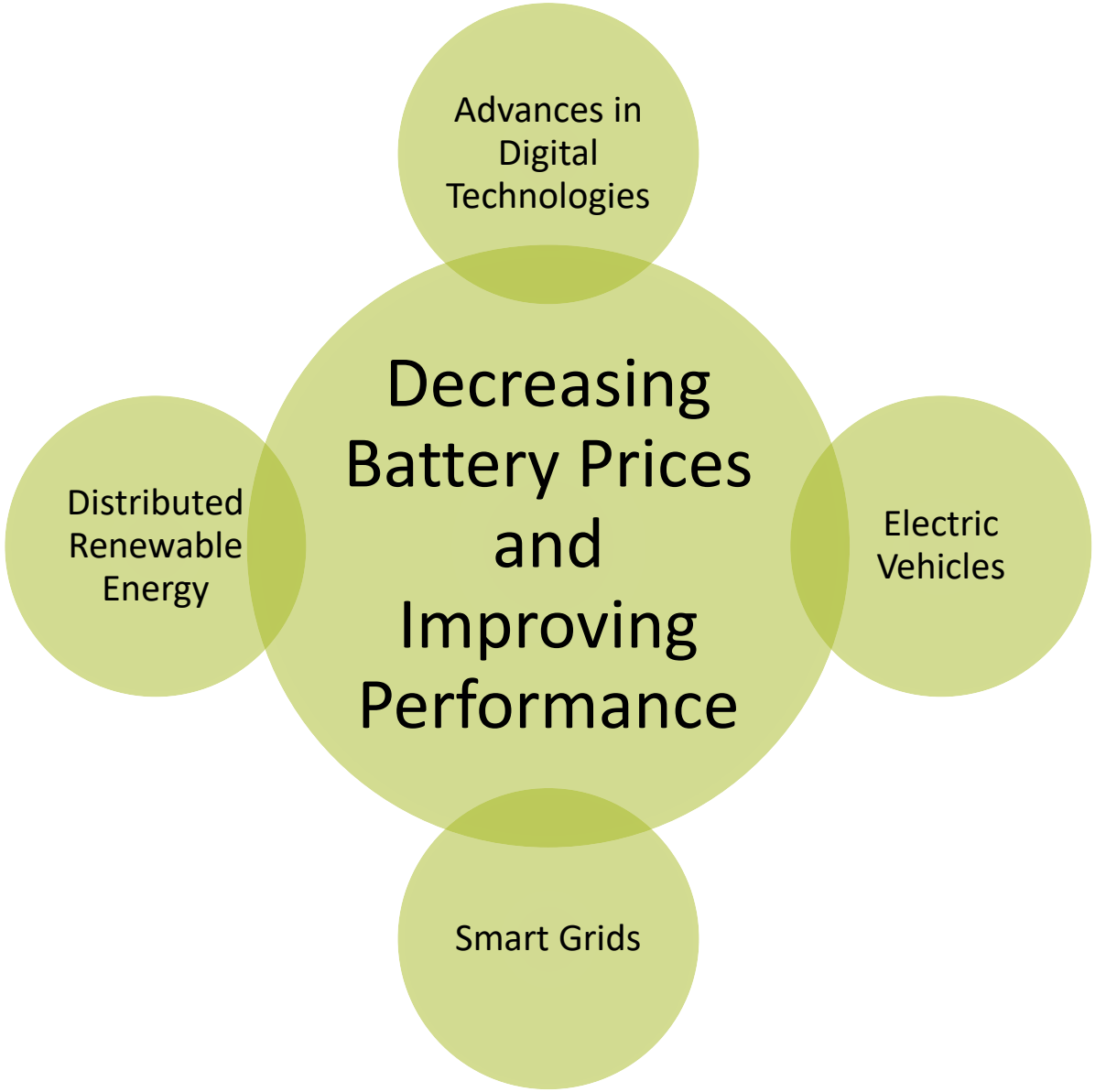
ENERGY STORAGE

Behind-the-Meter and Electric Vehicles

January 11, 2021 | 4.00 PM | Platform: Zoom

Drivers for Behind the Meter Storage

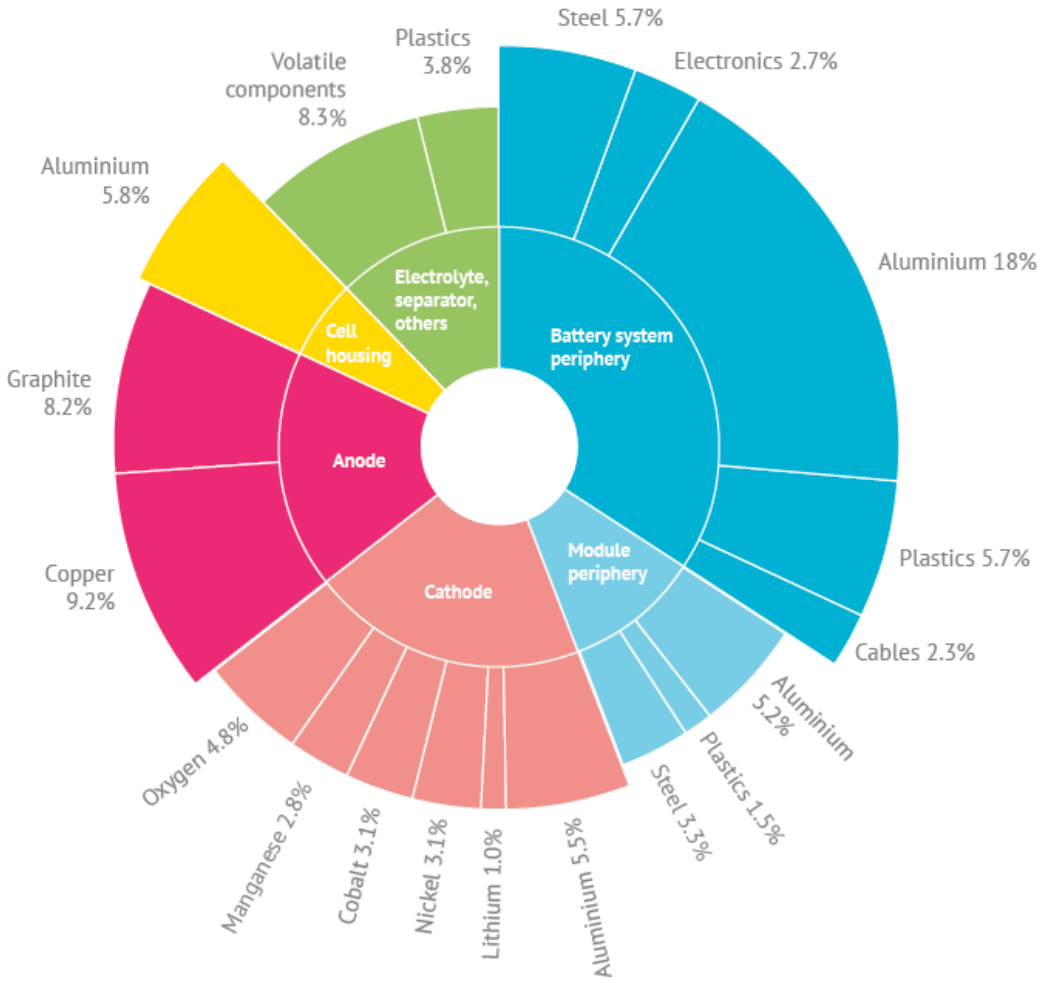
"Mutually reinforcing mechanisms"



Behind the Meter Applications

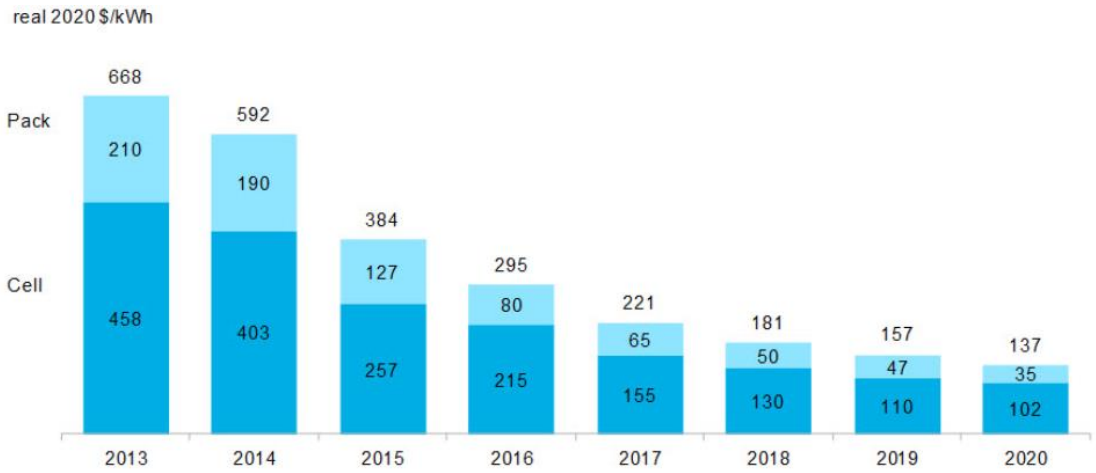
Resilience	Uninterrupted Power Supply Diesel Displacement
Demand Aggregation	Load Shifting Local Flexibility
Increasing the Value of Renewable Energy	Residential (PV + storage) C&I (PV + storage)
Electric Vehicles	Increasing Capacities BEVs and PHEVs

Generic composition of lithium-ion battery pack



Source: JMK Research, 2019

Average Li- Ion Pack and Cell price split



Source: Bloomberg NEF

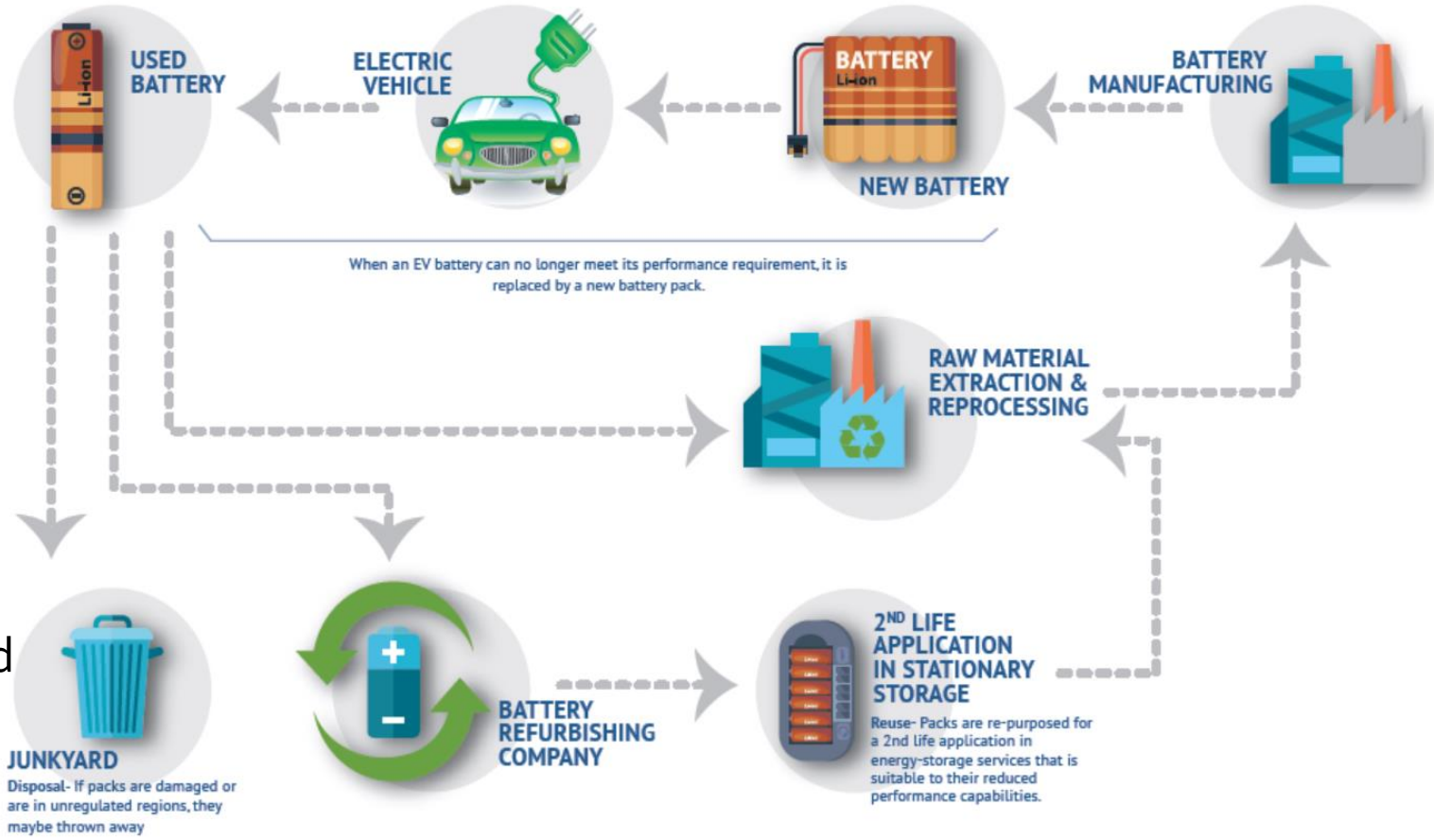
- **Alternatives to Lithium-Ion**
  - Other chemistries such as Zinc, Sodium-Sulphur
  - Liquid Metal Batteries
  - Solid State Batteries

Lithium-ion Battery Recycling

Second Life use: Once the drop-in capacity of the EV battery is below 70-80%; they could still be used in other application such as in households or energy backups

Recycle in a closed-loop process:
Recycling of lithium-ion batteries help to recover the metals- cobalt, lithium, nickel, and others
Various processes:

- **Direct Recycling** (Mechanical process)
- **Pyro-Metallurgical** (with heat and flame)
- **Hydro-Metallurgical** (with liquids and chemicals)



Source: JMK Research, 2019

Some discussions points

- Supply Security
- Including environmental costs – regulation for tracking batteries from production to disposal
- Producers' responsibilities

Thank you