Innovative Li-ion Battery Recycling with Full Value Chain Integration

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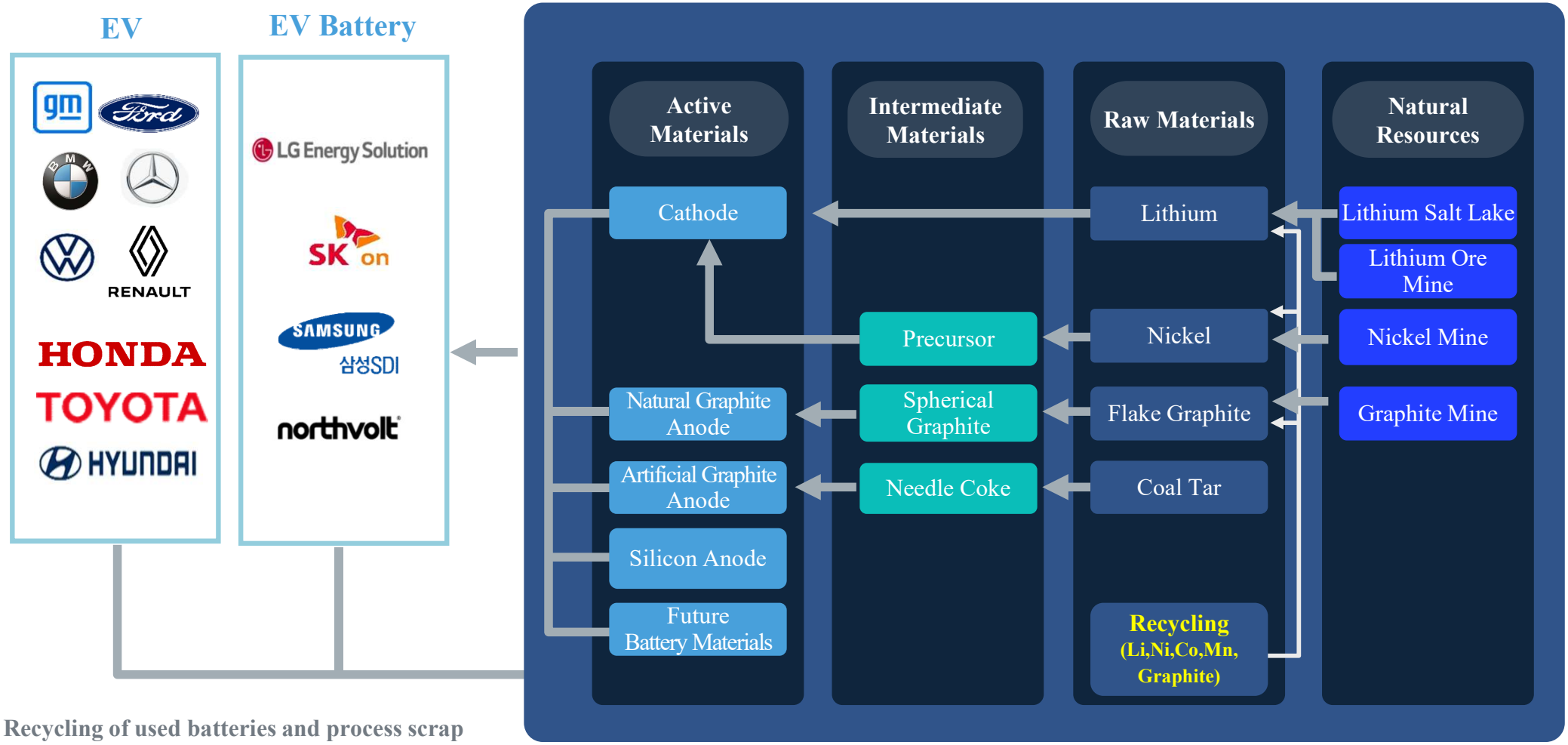
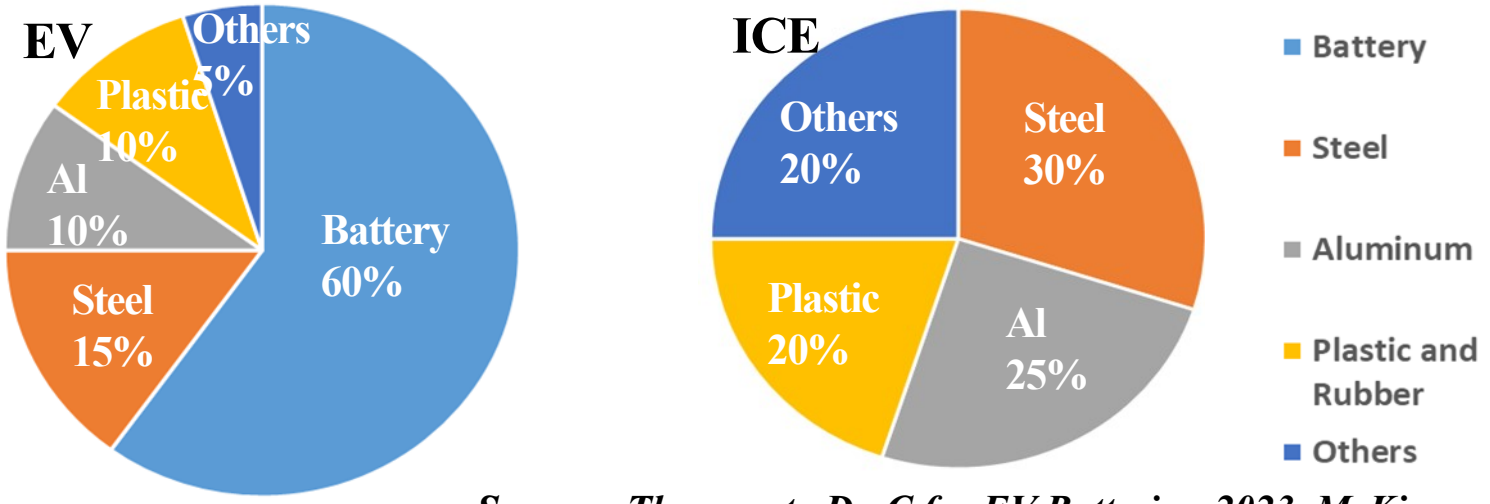
1. POSCO Group's LiB Materials Business

POSCO Group operates full value chain of LiB business from natural resources to active materials

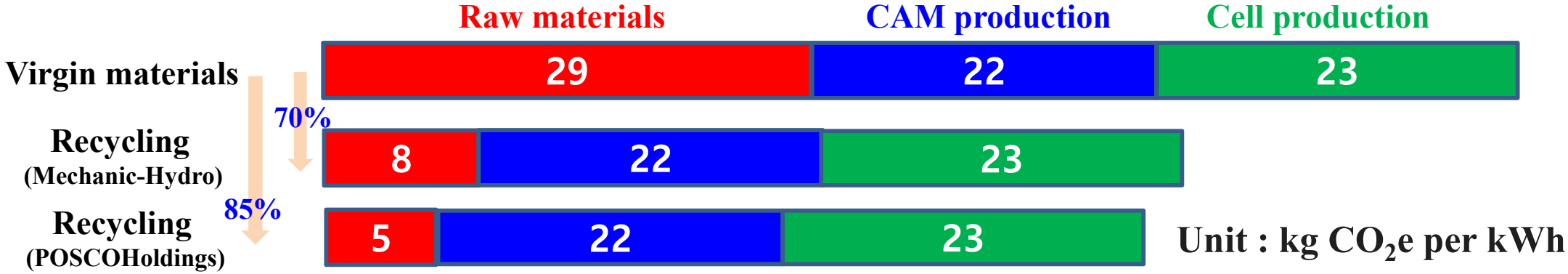


2. Contribution of Recycling on the carbon foot-print

Sustainability of EV Industry depends on the battery recycling tech.



Source : The race to De-C for EV Batteries, 2023, McKinsey & Company



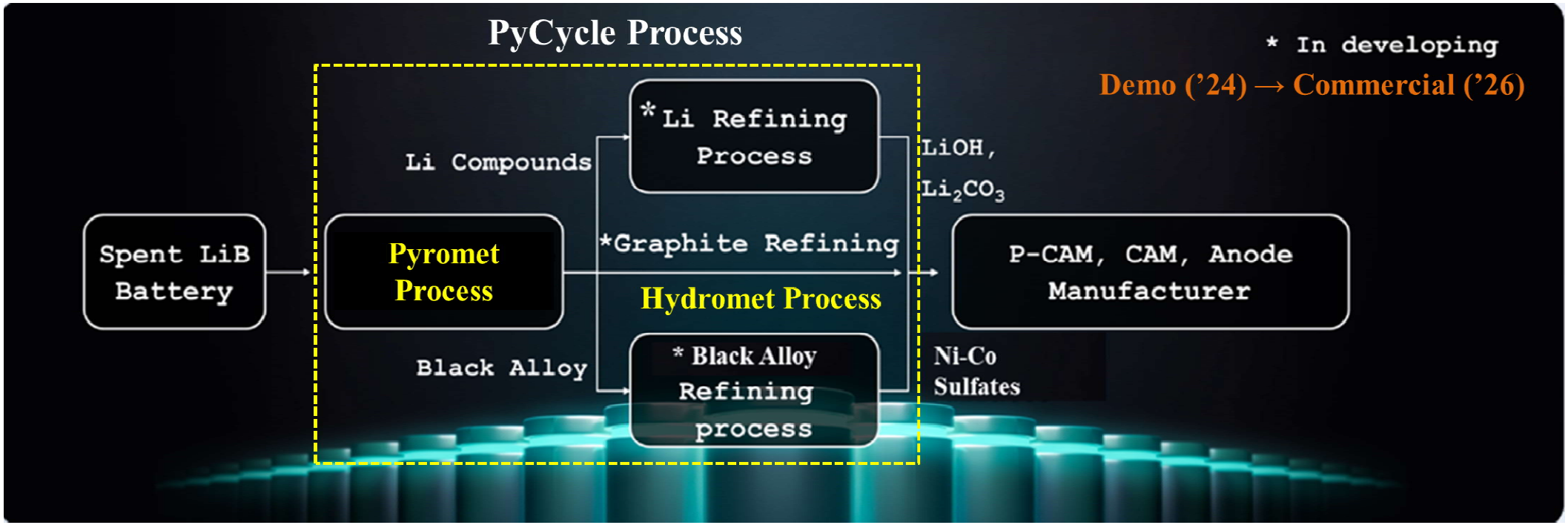
Source : Battery recycling takes the driver's seat, 2023, McKinsey & Company

- About 40 to 60% of the global CO_2 emissions from EV production come from the manufacturing of batteries.
- About 40% of the CO_2 emissions related to battery production come from the production of raw materials (Virgin Materials) (29 kg CO_2e per kWh)
- Battery recycling could reduce CO_2 emissions about 70 to 85% compared to virgin materials production (29 → 5 ~ 8 kg CO_2e per kWh)

3. Vision and Plan of PyCycle Process

Greenomics Recycling Process for EoL and Process scrap

3N* Tech : No CO_2 + No Slag + No Li loss



- 50 years know-how of POSCO in the pyro-metallugy process bring new concept for the recycling process
- The technical concepts : Minimization of CO_2 emission, Li loss and Slag formation
- The Demo plant (4000 EV/year) of the newly designed Eco-friendly recycling process was completed in 2Q, 2024.
- The Pilot plant (1500EV/year) of hydromet process was established in 2Q, 2024.
- More than 100 patents and know-how applied. Additional applications are in the progress