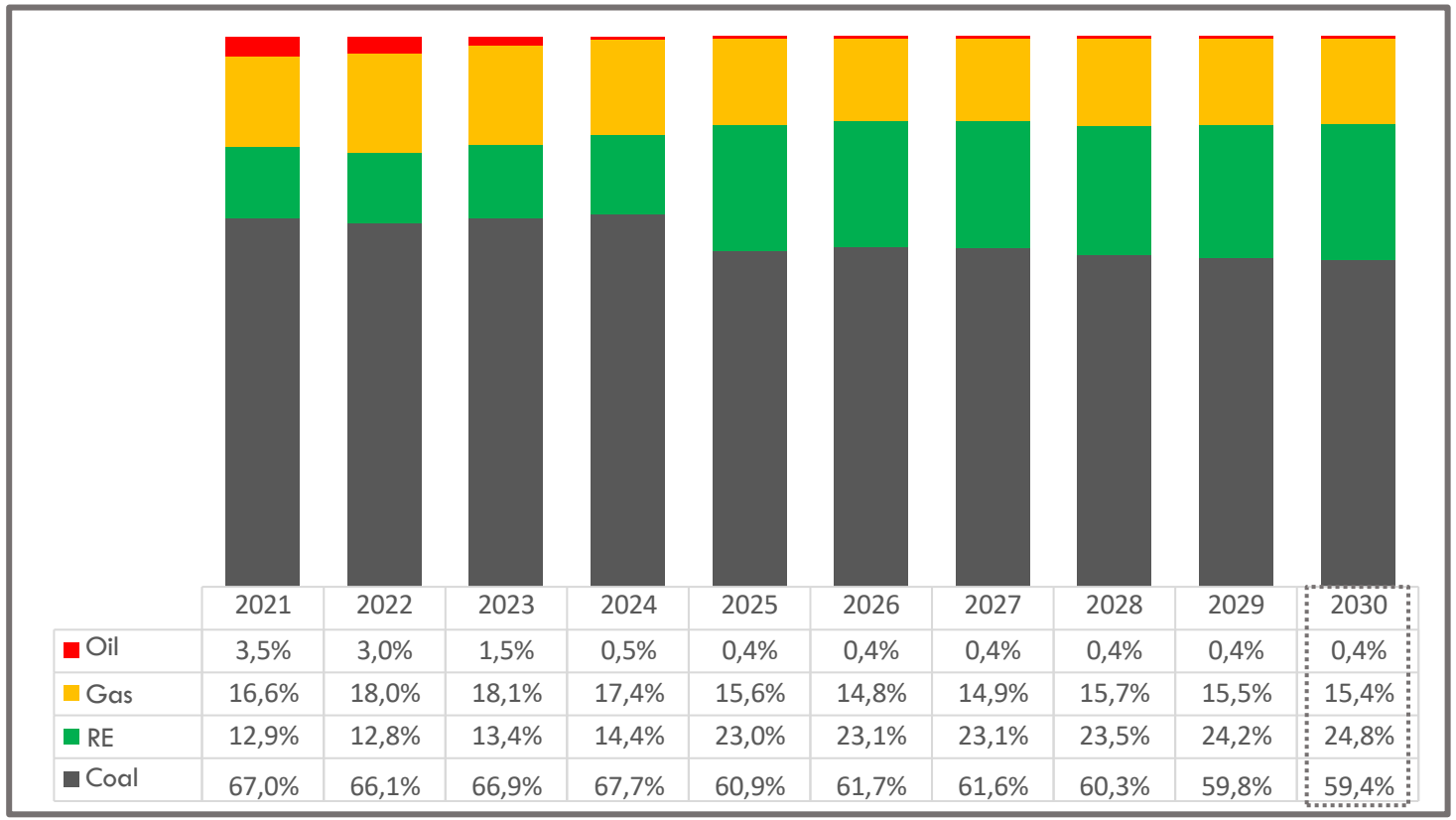
Potensi dan Kesiapan Industri Baterai Domestik Dalam Mendukung Transisi Energi di Indonesia

27 Juni 2023

Higher Renewable Portion in Power Generation Mix Will Boost the Demand for Battery Energy Storage System

Power Generation Mix in RUPTL 2021 - 2030



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Oil	3,5%	3,0%	1,5%	0,5%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%
Gas	16,6%	18,0%	18,1%	17,4%	15,6%	14,8%	14,9%	15,7%	15,5%	15,4%
RE	12,9%	12,8%	13,4%	14,4%	23,0%	23,1%	23,1%	23,5%	24,2%	24,8%
Coal	67,0%	66,1%	66,9%	67,7%	60,9%	61,7%	61,6%	60,3%	59,8%	59,4%

- By the end of 2030, Renewable Energy portion is forecasted almost 25%
- The increasing Renewable Energy portion will drive the demand of Battery Energy Storage System (BESS)

Benefit of BESS in the Future Electric Grid:

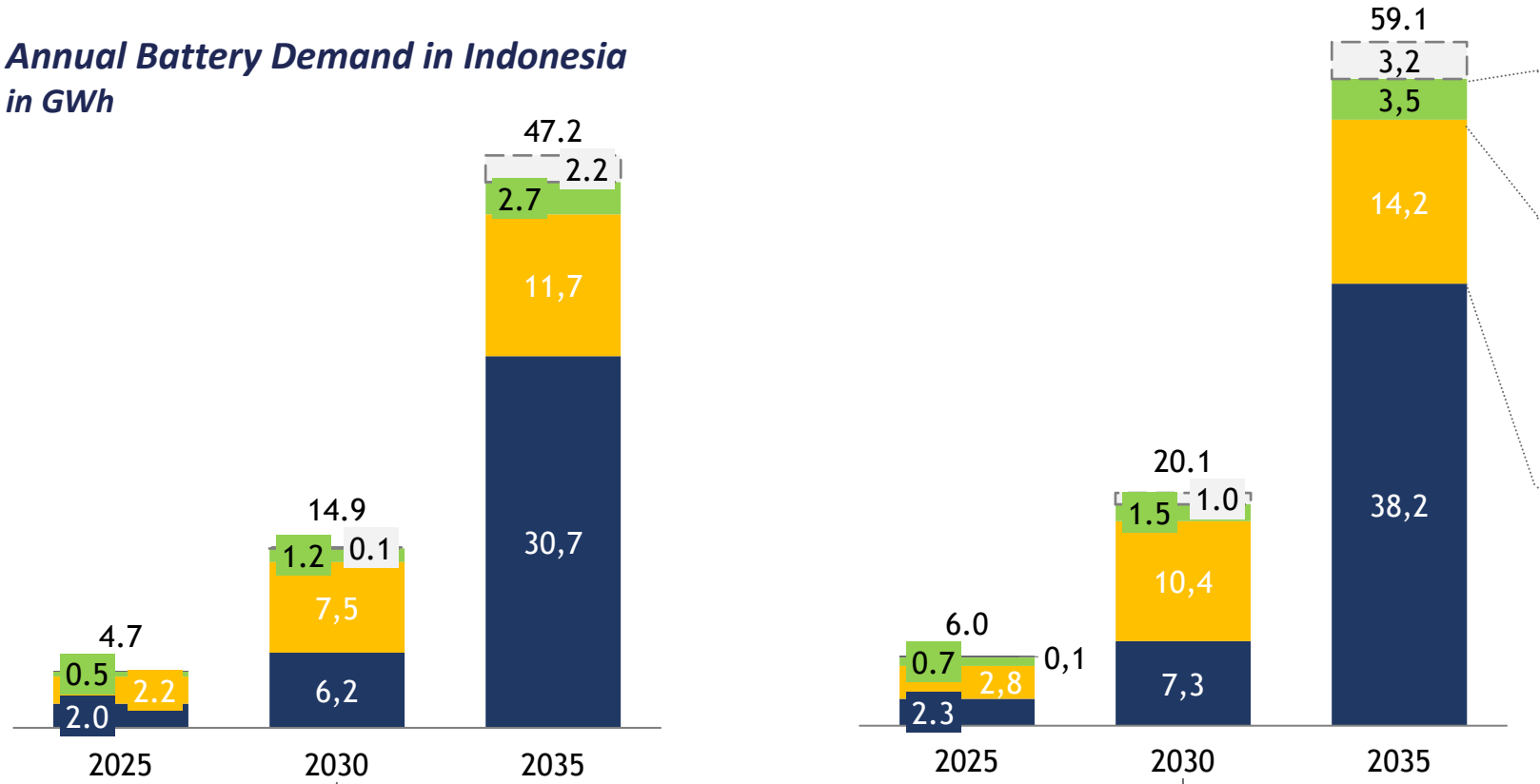
- ✓ Enabling smooth renewable energy integration to grid
- ✓ Flexible and scalable
- ✓ Improving grid reliability and resilience

Indonesia Battery Demand Projection

Base case

Optimistic case

Annual Battery Demand in Indonesia
in GWh



2W grows faster than 4W in the early phase of transition to EV due to TCO factor

Source: IHS Markit, BCG Analysis for IBC

SEA EV demand
Indonesia expected to be top 2 supplier for imported EV in South East Asia (Market share of 35%)

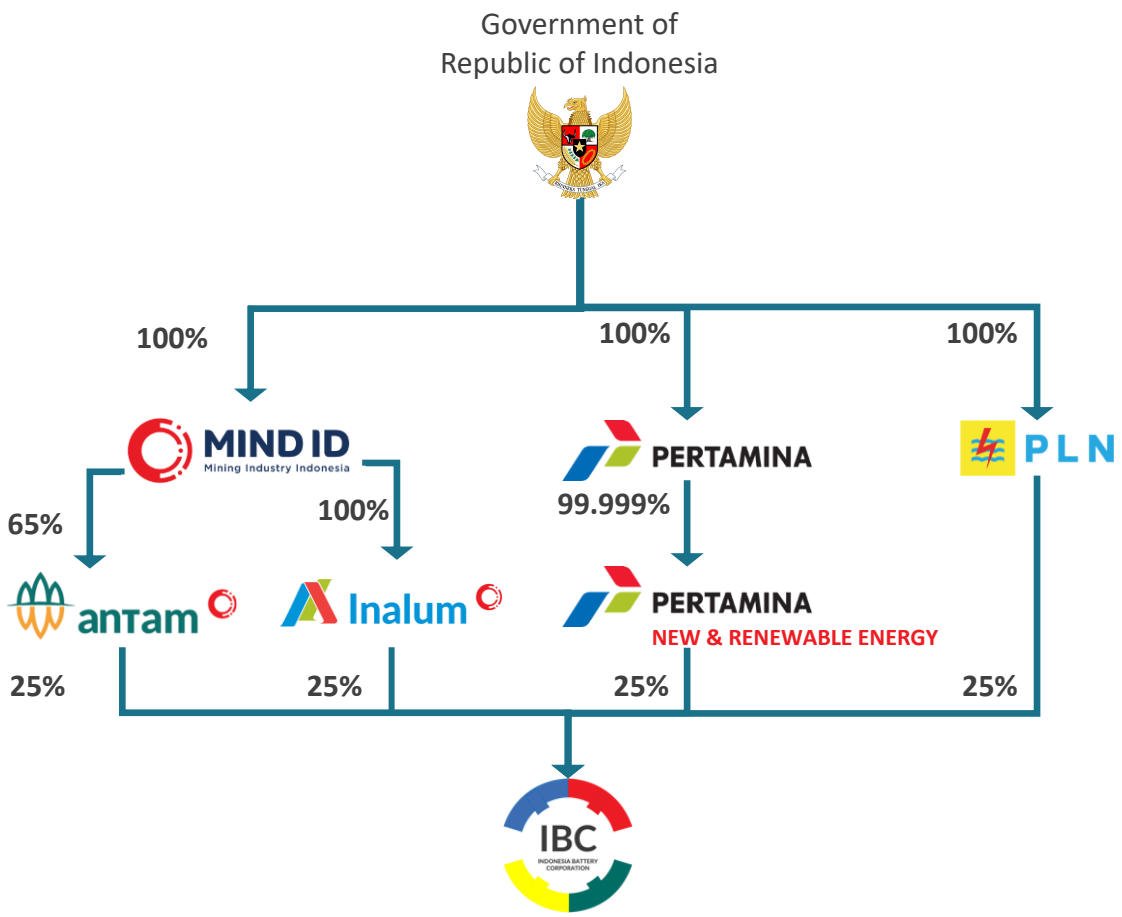
ESS (Energy Storage System)
Application: renewable Co-location, grid balancing & peak shaving

2W EV (Electric Motor Cycle)
Est. 3.2 – 3.8 Mn EMC sold in 2035, equivalent to penetration rate of 40-50%.
Ride-hailing and logistic markets projected to drive 2W-EV growth.

4W EV & eLCV
Est. 0.3 - 0.4 Mn EV cars sold in 2035, equivalent to penetration rate of 14-20% (assuming incentives in place and aggressive infrastructure construction growth)

Indonesia Battery Corporation (IBC)

Shareholders of IBC



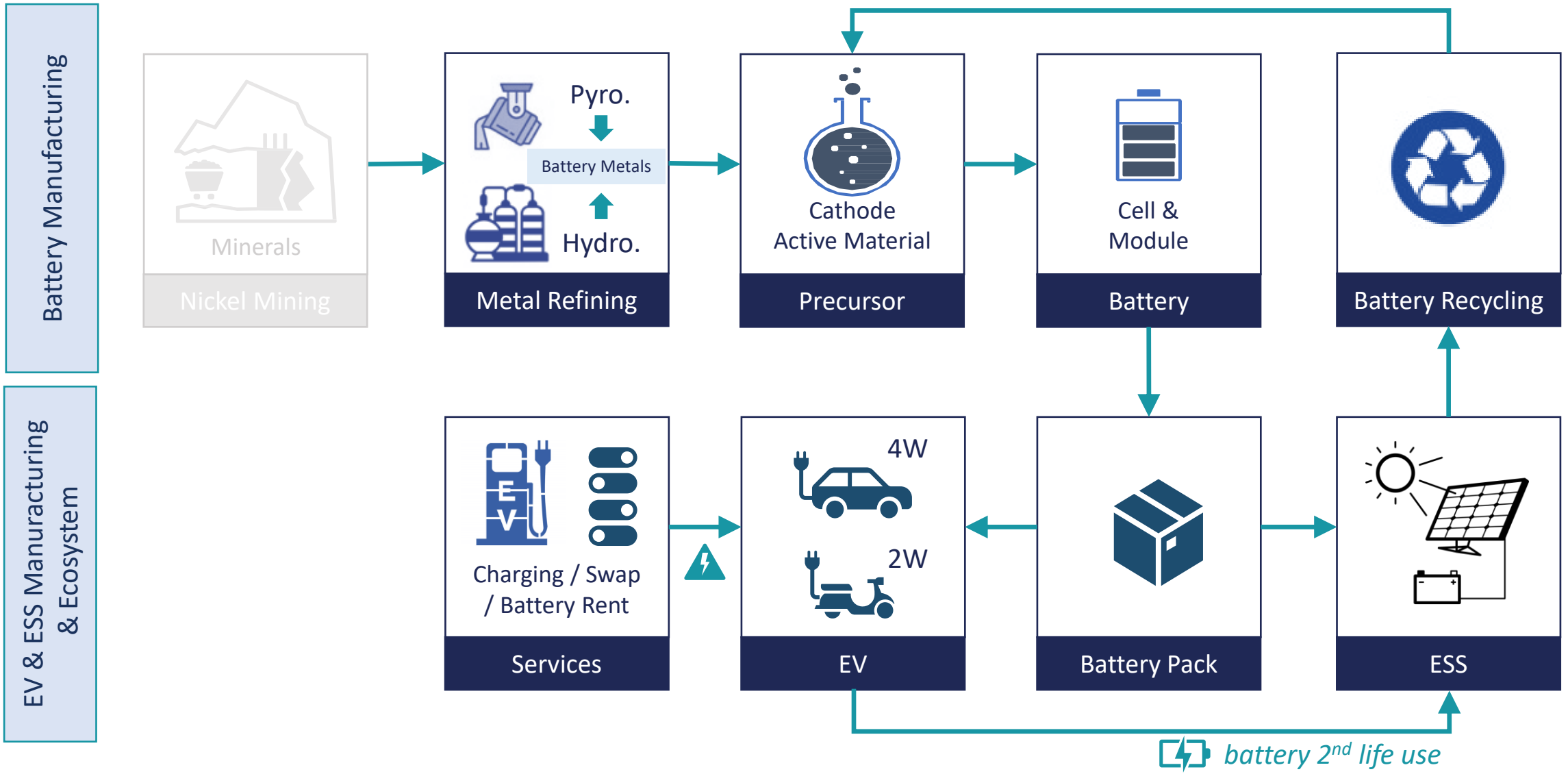
VISION

World Class Company in EV & Battery Ecosystem

MISSION

1. Maximizing the potential of Indonesia's resources by establishing a synergized EV battery ecosystem end-to-end from upstream to downstream
2. Proactively shape Indonesia's EV battery market and ecosystem
3. Continuously build capabilities and strengthen our competitiveness in order to become a world class company
4. To support Indonesia as a production base / hub for battery production and EV in ASEAN
5. Collaborating with global partners in the development of the EV and battery ecosystem

IBC Mission to Develop end-to-end EV, Battery & ESS Ecosystem



Strategic Partnership to Develop EV, Battery & ESS Ecosystem

"Battery Value Chain"

Mining → Smelting → Precursor & Cathode → Battery Cell → Recycling


Framework agreement with CATL and LG Consortium on 14th April 2022

Future Cell Supply

Used battery for Recycle

"EV & ESS Value Chain"

EV2W (Pack & BSS)

Development of Batt Pack and BSS



1st Prototype | 2nd Prototype | IBC BSS

Partnership with Battery Pack & BSS Manufacturer

EV2W (OEM)

Strategic Acquisition of EV2W "GESITS"

EV2W (Swapping Station)

- **2022 → Pilot Project BSS with Pertamina & Gojek**

- **2023 → Initiating Battery Assets Management Services**

Energy Storage System

- **MoU ESS development IBC & PLN**

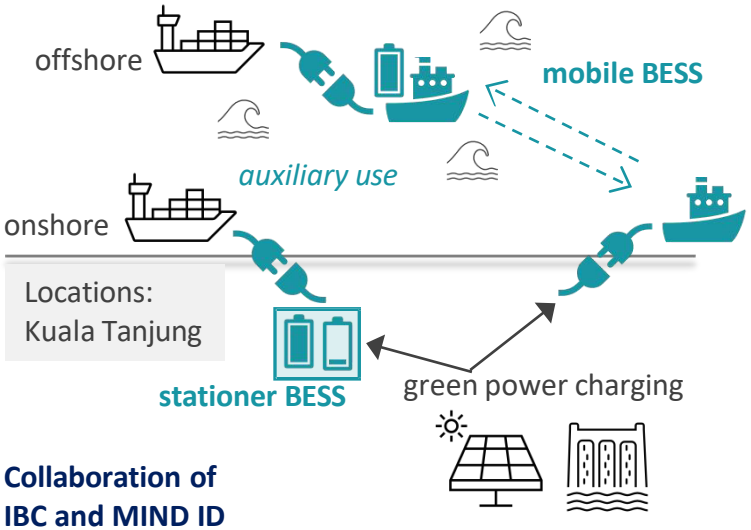
- Partnership with Battery Manufacturer & ESS OEM
- On progress ESS for Green Port
- On progress ESS deployment for de-dieselization with PLN Group

IBC Pilot Project Initiatives in Energy Storage System

Proof of Concept BESS Solution

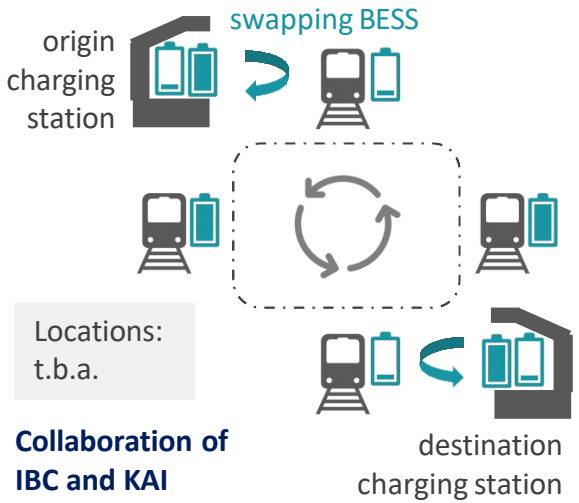
- Battery Capacity : 1290 Kwh
- Dimension : 6,06 m x 2,44 m x 2,89 m (20 ft HC container)
- Weight : 18000 kg

Shore-to-ship power via BESS 8 MWh



Collaboration of IBC and MIND ID

Diesel-to-electric train conversion 2 MWh

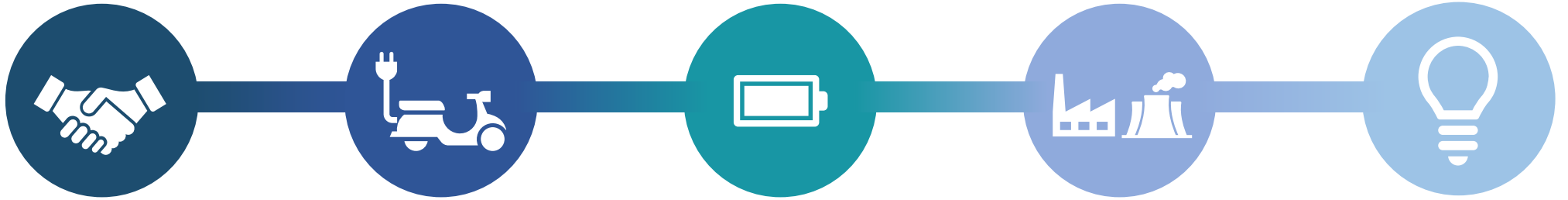


Collaboration of IBC and KAI

Challenges

	Action Plans
Manufacturing Capability	• Partnership with reputable partners that can bring manufacturing capability • Financing support from shareholder and financial institutions
Supply Chain	• Integrated with mining for critical cathode material • Utilizing partner's existing supply chain network • Exploring own supply chain capability
Technology	• Partnership with reputable partners that can bring technology • Exploring technology acquisition (M&A) • Exploring R&D with universities & research institutions
Regulatory Framework	• Work closely with regulator to push for supportive regulatory framework
Grid Integration & Storage Safety	• Work closely with PLN to ensure grid integration • Learning and adopting suitable safety standards from partners and other sources for Indonesia condition

IBC Roadmap



2022 – 2023	2023	2024 – 2025	2025 – 2026	2026 – 2030
JVs establishment	✓ 2W-EV OEM	✓ Battery Cell ✓ Cell-to-Pack ✓ ESS Integrator ✓ ESS OEM ✓ EV infrastructure	✓ Nickel Pyro Plants ✓ Nickel Hydro Plants ✓ Precursor-Cathode ✓ Battery Recycling	✓ 4W-EV OEM ✓ Proprietary battery technology

Terima Kasih