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Sub: Investor Presentation

We are enclosing herewith Investor presentation on “*Cathode Active Materials*”

We request you to kindly take on record the same.

Thanking You,

Yours faithfully,
For Himadri Speciality Chemical Ltd

(Company Secretary &
Compliance Officer)
ACS: 29322




New Energy
Materials

Investor
Presentation

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To produce 200,000 MTPA of Lithium Iron Phosphate (LFP) Cathode Active Material, catering to 100 GWh of Li-ion Battery, in phases in 5-6 years

1st Commercial plant for LFP Cathode Active Material in India to cater to domestic and global market – a pioneering step towards *Atma-Nirbhar Bharat*

Bringing breakthrough Innovation to the Indian and Global LiB Industry

- R&D on technology for Lithium Concentrate extraction and conversion to Lithium Carbonate and Lithium Hydroxide
- Next Gen R&D involving usage of AI to enhance the performance of battery cathode materials

Sustainable Sourcing

- Long term partnership with lithium concentrate producers in discussion
- Sustainable Supply Chain Model being developed for Customers
- Power sourced for the operations will primarily be sourced through renewable sources

Details of Capex Phase 1

Target Products

LFP Cathode Active
Material

Phase 1 Capacity

40,000 MTPA at Odisha
(of planned capacity of
200,000 MTPA)

Timeline

~Operational within
27 - 36 months

Estimated Cost

~Rs 1,125 Crores

Source of Funding

Largely from internal
accruals and balance
from debt

Revenue Turnover

~4x of Capex

ROCE

Higher than current
business

Working Capital

Lower than current
Business

Clear Strategy to Deliver Enduring Value

Contributing to India's Carbon-Neutral Revolution

01



- Lithium-ion batteries for energy storage has already set in motion the new carbon-free revolution
- To participate in this value chain, India needs domestic raw material availability
- This will create enduring and sustainable production capability in India for domestic and global needs

Stakeholder's Value Enhancement

02



- Sunrise sector with very strong growth trajectory
- Continuous innovation to stay ahead of the curve
- Meet customers' strategic needs to facilitate mutual growth

Promoting Sustainability

03



- Support communities and customers in taking their sustainability mission forward
- Contribute to community and the world at large through ESG initiatives
- The energy used in the operations will primarily be renewable energy

Track record of Innovative Capabilities



R&D team spread across the globe with extensive expertise in LiB chemistry



Advanced research across value chain of LiBs - Lithium Concentrate, Refining, Precursor Materials and Battery Raw Materials & Components

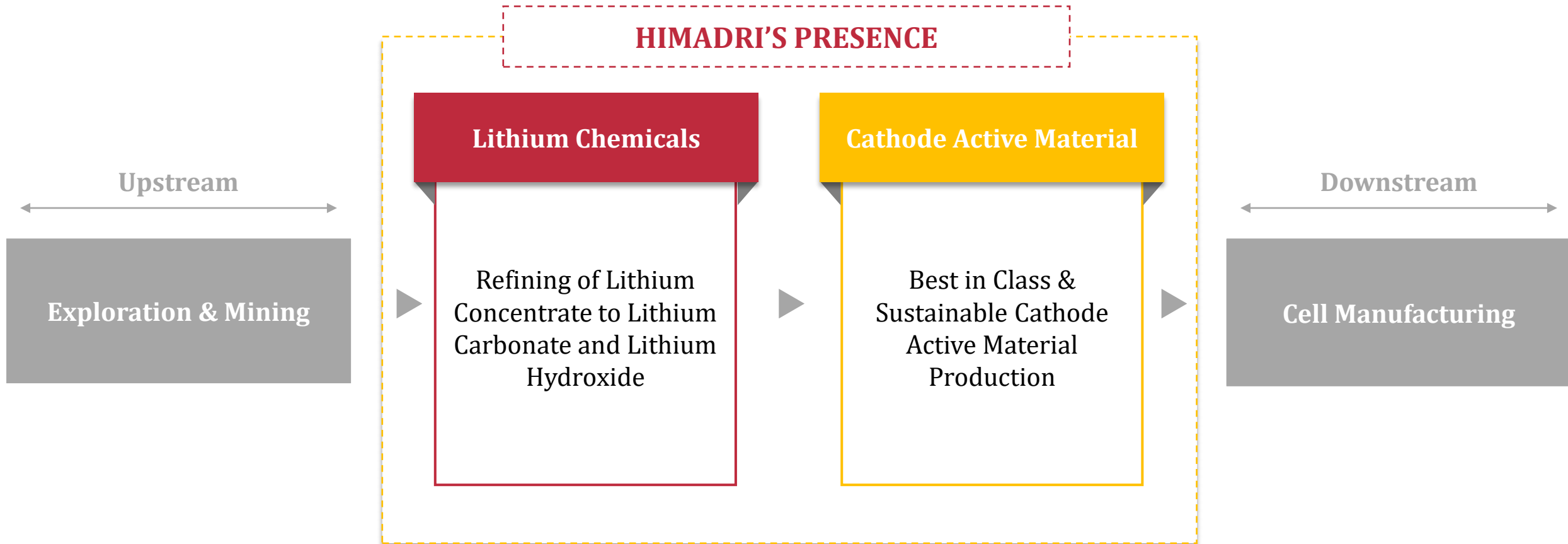


Actively developing next-generation cathode materials - LMFP and beyond

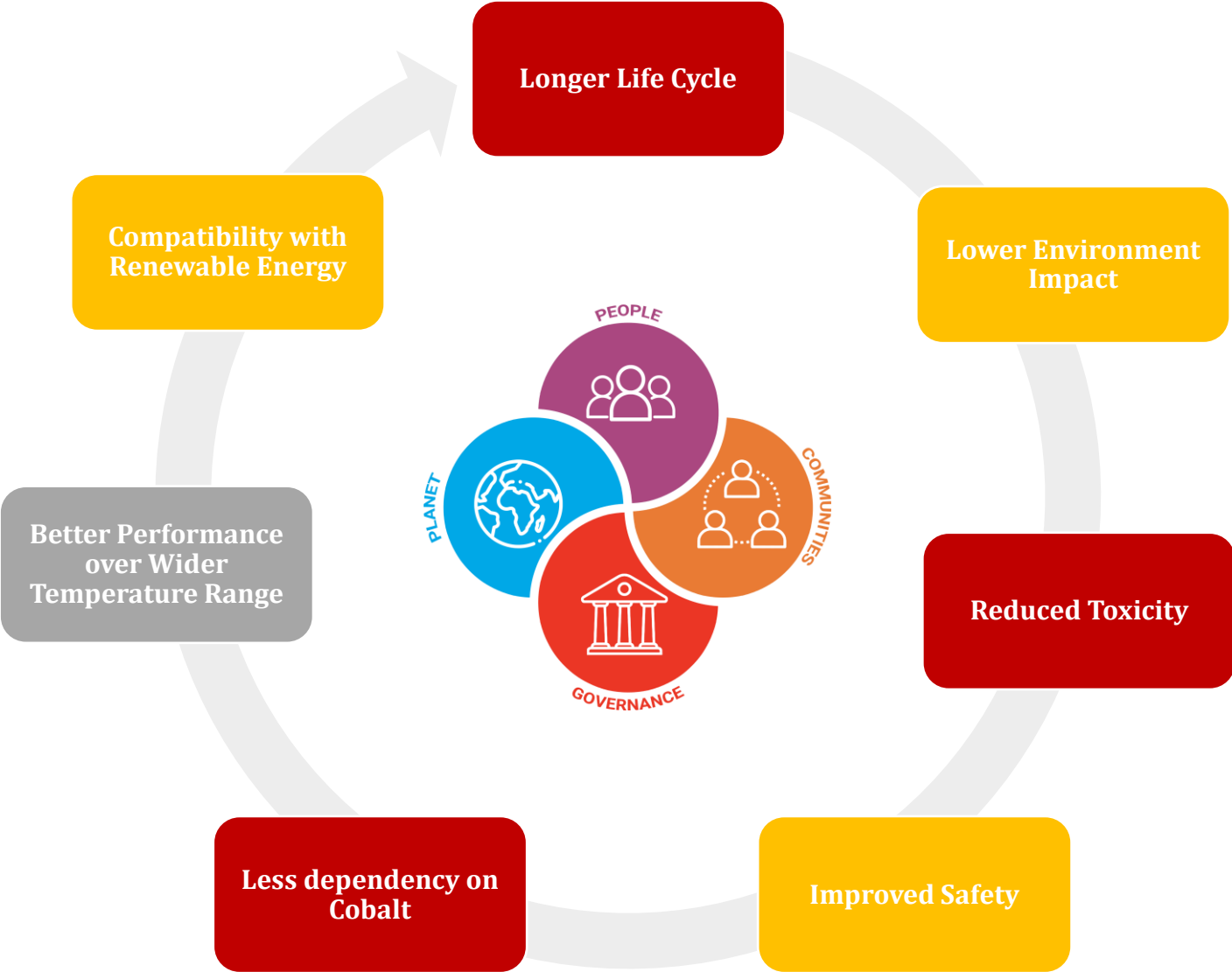


Industry experts advising R&D and Business development

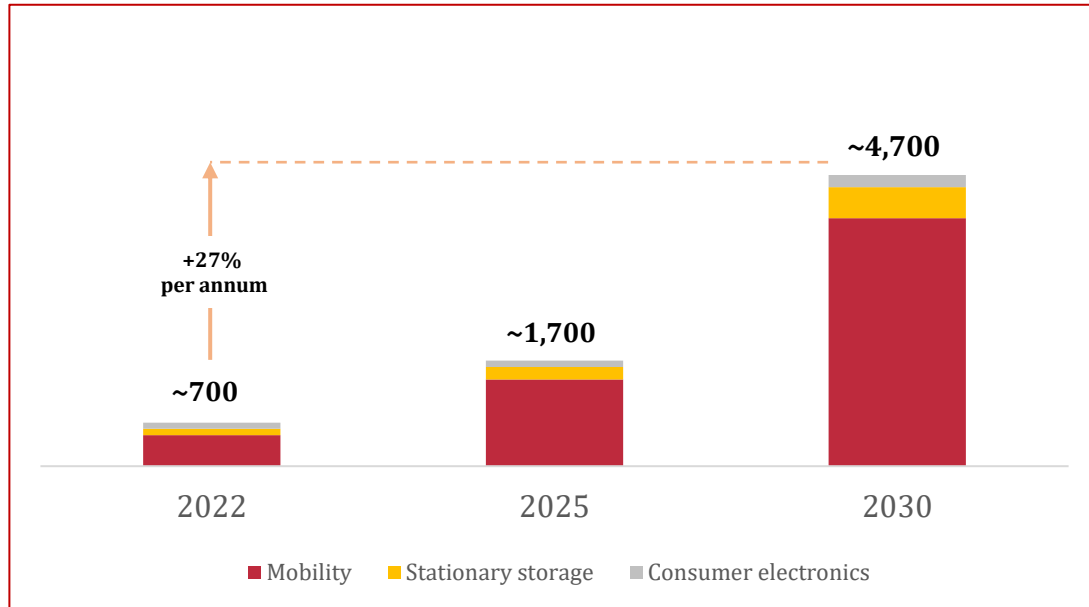
Where we play a role



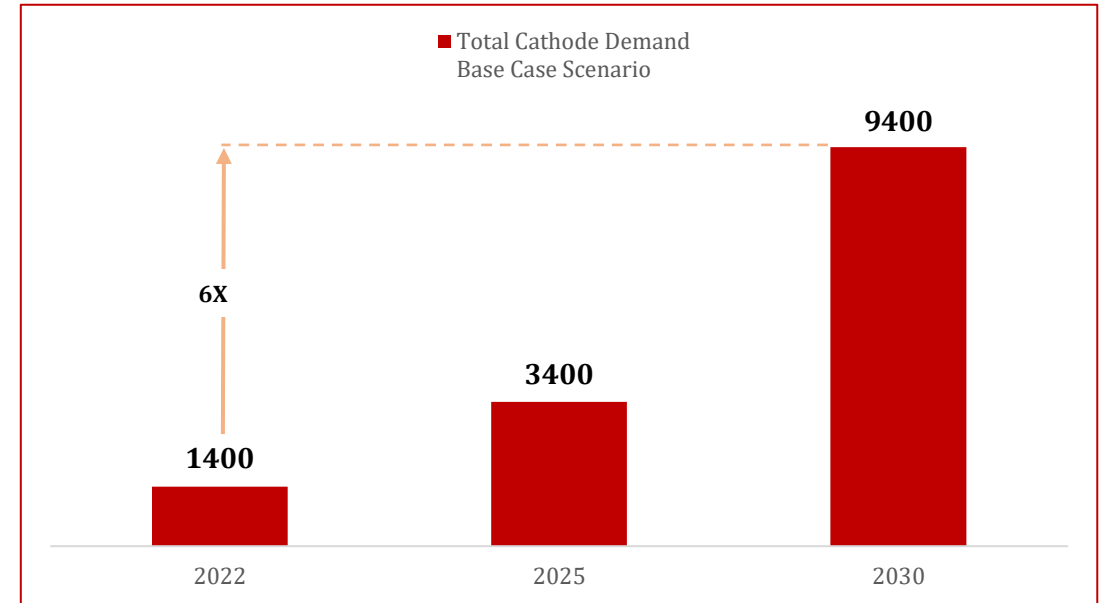
Bringing in a Sustainable Difference to the Battery Industry



Global Li-ion battery cell demand, Gwh, Base case



Global Cathode Material Demand based on Battery Demand (in KT)

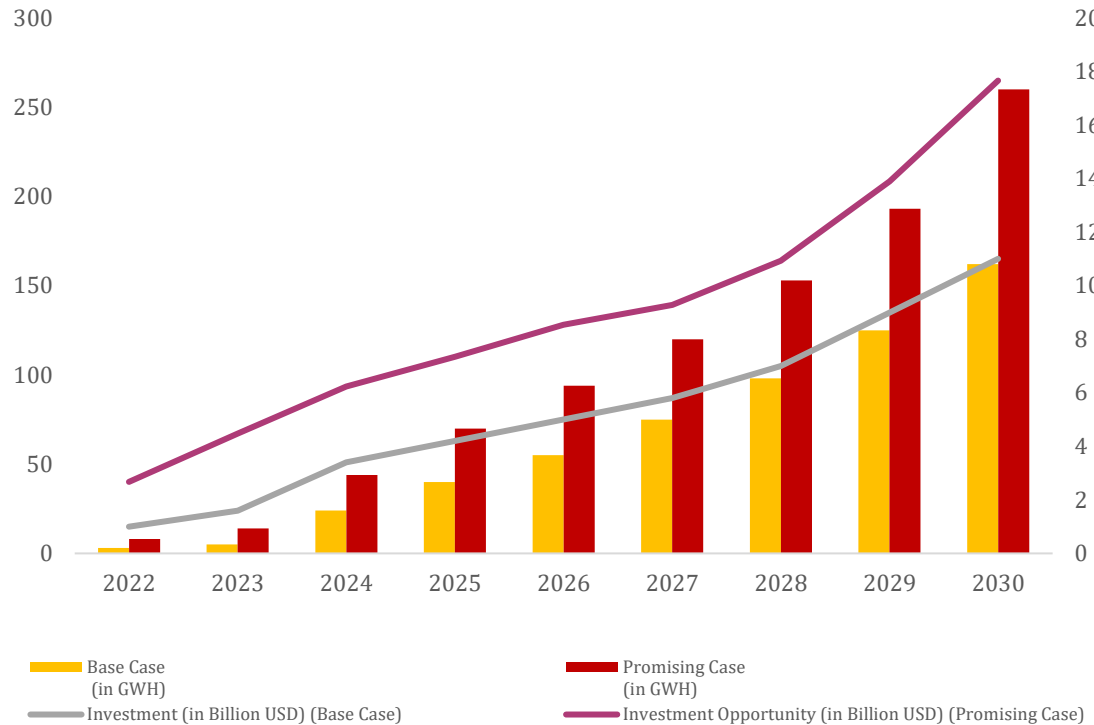


- LiB demand is expected to grow by about 27 percent annually to reach about 4700 GWh by 2030.
- Cathode Material demand will increase to 9.4 million tonnes by 2030 to meet the required global production of LiB cells.

LiB Demand in India – Potential & Initiatives



Investment potential



India would see a consolidated investment of **47.4 billion USD** from 2022 to 2030 to cater to the base case battery demand & **81 billion USD** from 2022 to 2030 in case of promising scenario across all the segments of energy storage

(Source : Niti Aayog & Internal Evaluation)

Initiatives

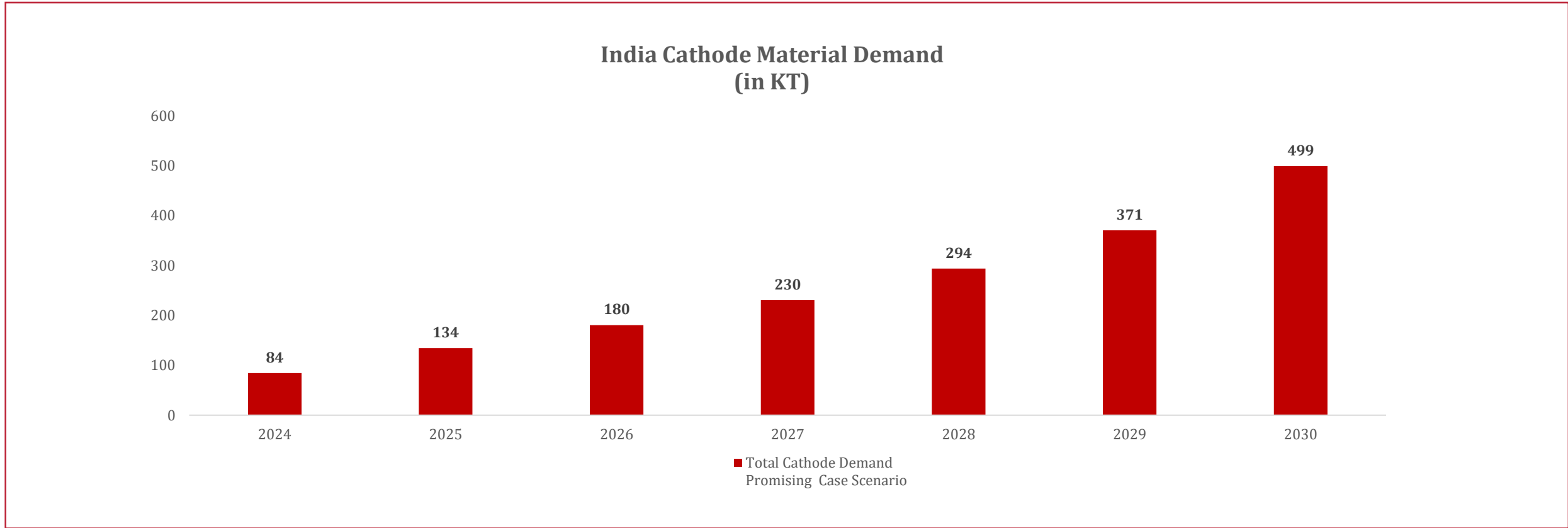
ACC-PLI scheme

- Outlay of **USD 2.2 billion** for **50 GWh** of ACC manufacturing
- Manufacturing facility to be **set-up under 2 years**; Incentive to be disbursed over a period of 5 years on sale of cells
- Atleast **25%** value addition (VA) within 2 years (at the Mother Unit Level) and **60%** within 5 years to be achieved

PLI for grid-scale batteries

- In early stages of discussion within the Ministry of Power
- Focus on **larger life cycle for grid-scale batteries** viz-a-viz ACC for EVs is a key differentiator for grid-scale batteries
- Lower storage costs shall incentivize **integration of RE** and supply of round the clock power across India

Cathode Material Demand Assessment based on Battery Demand in India



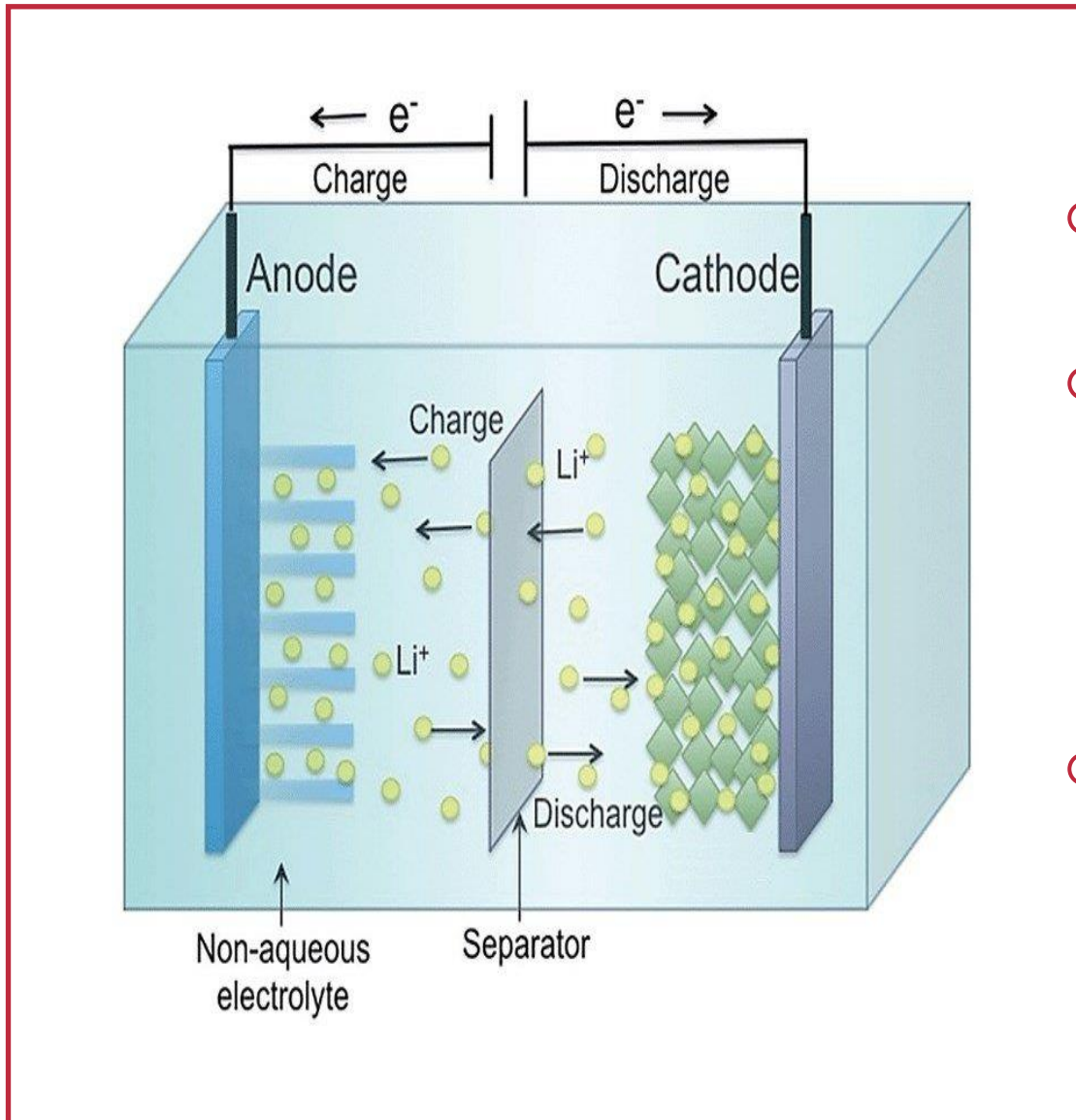
On a Promising Case, demand is expected to increase to **260 GWh by 2030 (at a CAGR of 63%)**.

50-55% of the Cell Costs constitute of Cathode Materials being used. The Predominant Cathode Materials used now is NMC & LFP

LFP is the preferred cathode chemistry in India due to its low cost & safety characteristics

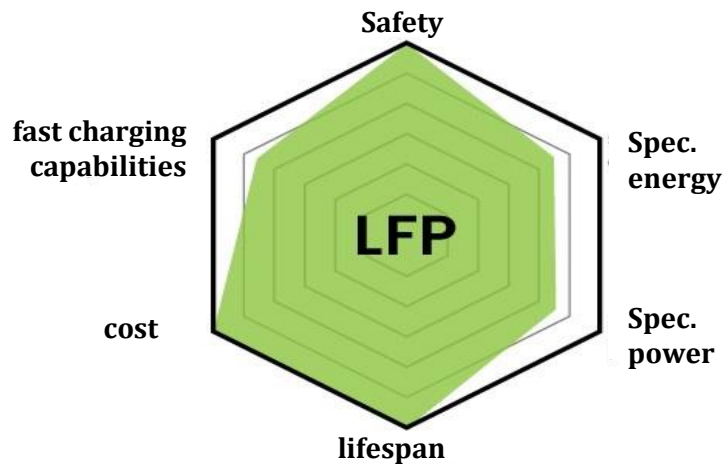
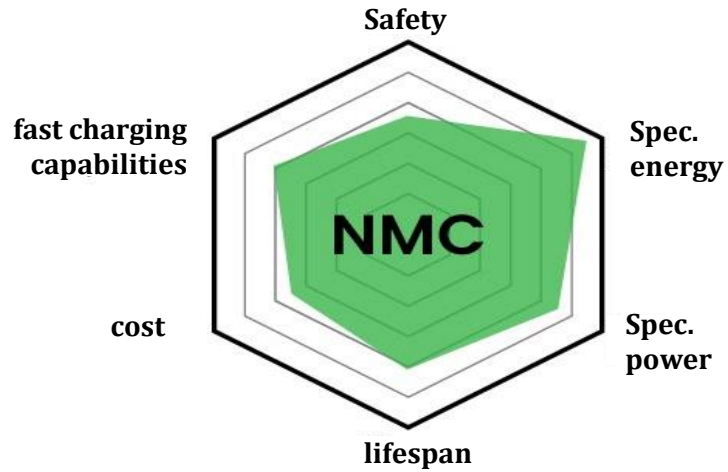
(Source : Internal Evaluation)

Cathode in a Lithium-ion Battery (LiB)



- The cathode composition gives the name to the type of LiB.
- Lithium metal oxides such as Lithium Cobalt Oxide (LCO), Nickel Cobalt Aluminium Oxide (NCA), Lithium Cobalt Phosphate (LCP), Nickel Manganese Cobalt Oxide (NMC), Lithium Manganese Oxide (LMO) & Lithium Iron Phosphate (LFP) are the different types of Cathode materials.
- These Materials have been used as cathode materials owing to their high capacity for lithium intercalation and compatible chemical and physical properties necessary for lithium-ion transport

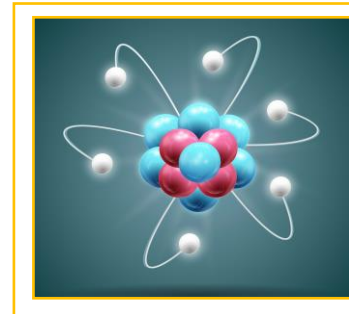
Primary Cathode Active Material Used now – NMC & LFP



Working of LFP battery



LFP batteries use lithium iron phosphate as the cathode material alongside a graphite electrode with a metallic backing as the anode.



Unlike many cathode materials, LFP has its atoms arranged in a crystalline structure forming a 3D network of lithium ions compared to the 2D slabs from nickel manganese cobalt, helping better electrical conductivity.



Phosphate in LFP is a non-toxic material compared to cobalt oxide, and LFP batteries are capable of delivering constant voltage at a higher charge cycle.

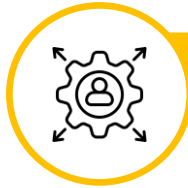
Pioneering Innovation and Sustainable Growth in Cathode Material Landscape



Large Global and Domestic Opportunity

Market Projection : Cathode Material demand to reach 9.4 million tonnes annually by 2030 for global LiB cell production

Domestic Demand : Expected growth to 311 KT (base scenario) and 499 KT (promising scenario) annually by 2030



Himadri's Capability



In-house R&D & Innovation

Continuous investment fosters innovation, keeping us at the forefront



Integrated Business Model

Optimal resource utilization, creating holistic value for stakeholders



Next-Gen Materials

Developing next-generation cathode materials, leveraging state-of-the-art lab and innovative capabilities



Project Plans and Highlights

Vision : Building the 1st Commercial plant for LFP Cathode Active Material in India, intending to produce 200,000 MTPA in phases in 5-6 years

Phase 1 Capacity : 40,000 MTPA, focusing on meeting domestic and global market demands

Phase 1 Timeline : Operational within 27-36 months

Sustainability : Emphasis on sustainable and eco-friendly products



Himadri targets to achieve Net-Zero by 2050



Committed to build Sustainable Future



Thank You

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