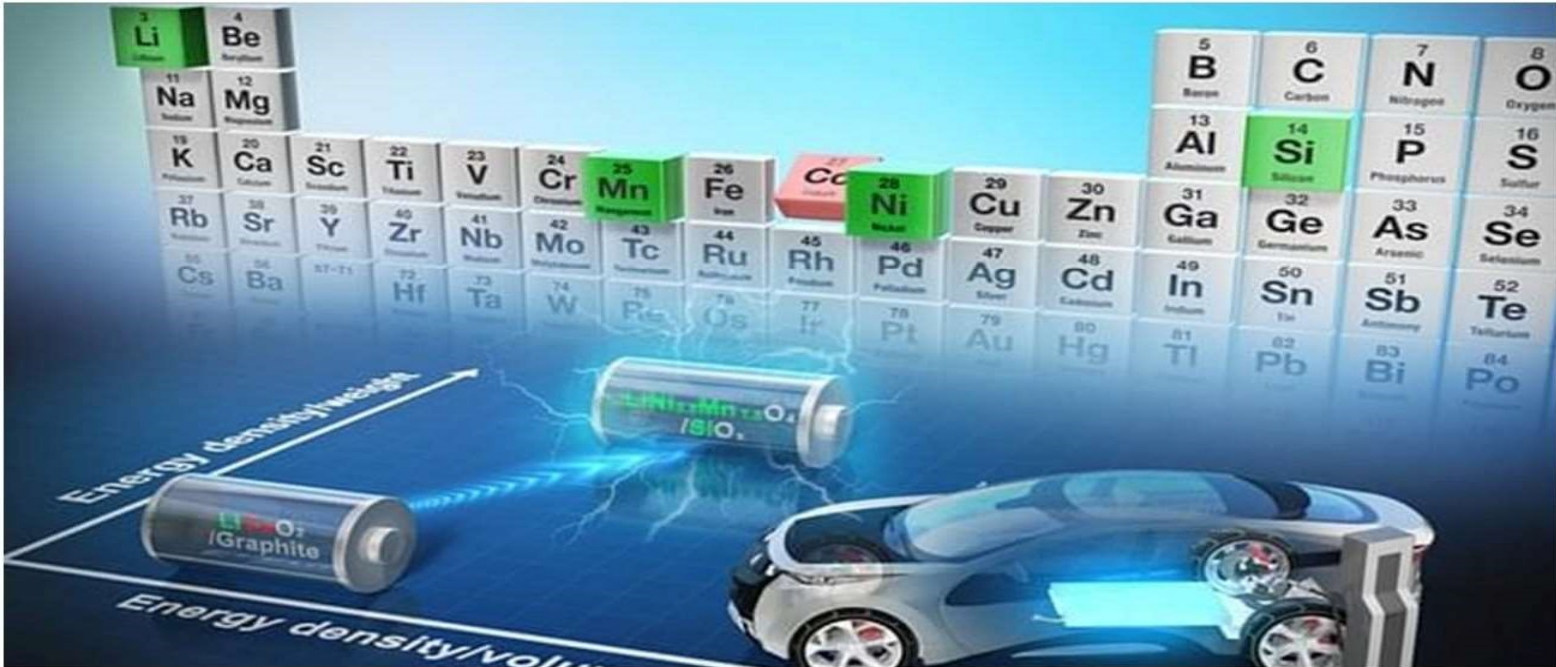




LITHIUM IS THE “NEW OIL”

STOCK BENEFICIARY



Our Top Picks

Exide Industries Ltd Target : ₹680

Amara Raja Batteries Target: ₹2075

PCBL Target : ₹325

Himadri Chemical Target : ₹490

Neogen Chemicals Target : ₹ 1980

HBL Power Systems Target : ₹ 640

Key Summary

1. Market Overview-Growth and Future Prospects of India's Lithium-Ion Battery Industry.

2. The Transformation of India's Lithium-Ion Battery Manufacturing Industry.

3. Investment Opportunities and Cost Competitiveness in India's Battery Manufacturing Sector.

4. Economic Drivers of the Indian LITHIUM-ION BATTERY (LIB) MANUFACTURING INDUSTRY & Govt Support.

5. Global Battery Energy Storage Systems (BESS) Market Insights.

6. Global Battery Energy Storage Systems (BESS) Market Insights.

7. Lithium-Ion Battery Types and Their Industrial Applications.

Market Overview-Growth and Future Prospects of India's Lithium-Ion Battery Industry.

The lithium-ion battery business in India is expected to experience exponential growth over the next five years (2022 onwards), with the recycling market for these batteries estimated to reach nearly 22-23 GWh by 2030. The lithium-ion battery industry in India is predicted to grow from 2.9 gigawatt hours (GWh) in 2018 to about 132 GWh by 2030, at a compound annual growth rate (CAGR) of 35.5%.

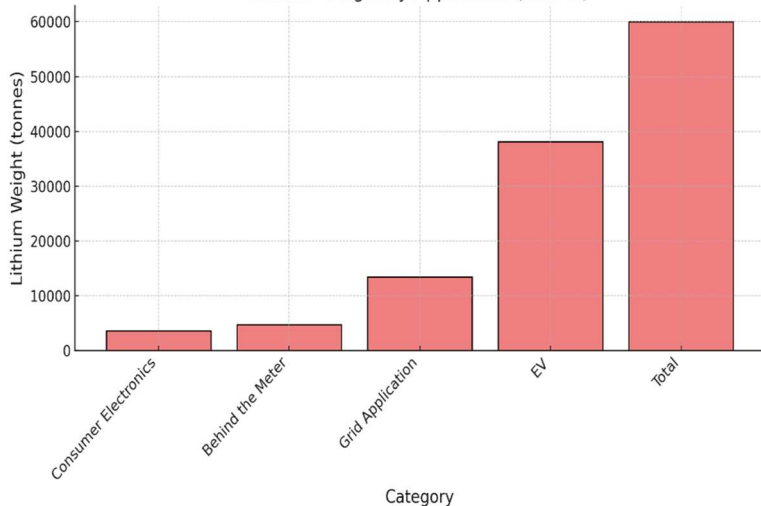
Energy storage technologies are predicted to play a major role in the decarbonization of India's electricity and transport sectors, which accounted for 49% of the country's total greenhouse gas emissions (CO2 equivalent) in 2016. Among the various available energy storage technologies, lithium-ion batteries are anticipated to dominate the market throughout the upcoming decade (2021 onwards). Peak electricity demand is projected to rise to 334 gigawatts (GW) by fiscal year 2030, with a total electricity generation need of 2,229 billion units (BU). Thus, decarbonizing the electricity and transport industries is crucial to combating climate change. At the COP 26 UN Climate Change Conference, India unveiled ambitious national goals for 2030, including increasing its non-fossil energy capacity to 500 GW, obtaining 50% of its electricity needs from renewable sources, limiting projected carbon emissions by one billion tonnes, and lowering the carbon intensity of its economy by less than 45%.

The cumulative demand for energy storage in India is projected to reach 903 GWh by 2030, distributed across several technologies such as lithium-ion batteries, redox flow batteries, and solid-state batteries. The lithium-ion battery market in India is expected to grow at a CAGR of 50%, from 20 GWh in 2022 to 220 GWh by 2030. Indian enterprises are currently focusing on battery cell manufacturing. However, as more cell manufacturing units are established in India, the upstream process is likely to become the next priority area, which includes the manufacture of graphite anode and cathode active materials, as well as electrolyte, separator, and current collector manufacturing. These batteries are used in mobile phones, laptop computers, and other similar devices, with their shape and size varying depending on the application.

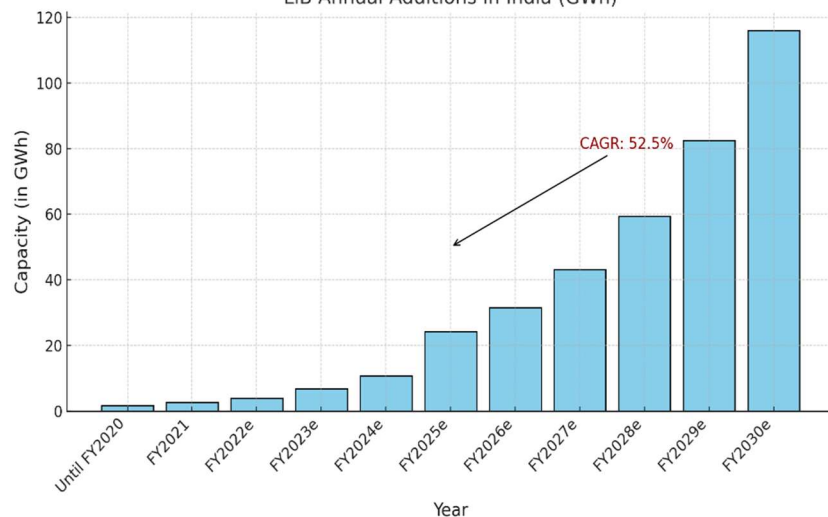
Advanced chemistry cell (ACC) batteries are considered the foundation of future low-carbon transportation and energy systems. With support from government initiatives on both the supply and demand sides, India's domestic ACC battery manufacturing industry is experiencing significant growth. Critical minerals supply chains, including lithium, cobalt, nickel, and spherical graphite refining for active materials, are essential for achieving local value addition in the fabrication of ACC battery electrodes. The discovery of the country's first lithium reserve in Jammu and Kashmir, along with another significant reserve in Degana, Rajasthan, presents a major opportunity for local lithium production. According to the Geological Survey of India (GSI) and mining officials, the lithium deposits in these reserves are large enough to supply nearly 80% of India's overall demand.

India can minimize its dependency on imports and help increase resilience in global supply chains by localizing the mining and refining value chain of essential minerals. The country has joined the US-led Mineral Security Partnership (MSP) to help strengthen critical mineral supply chains. This collaboration aims to accelerate the establishment of diverse and sustainable critical mineral supply chains. Additionally, government-to-government (G2G) discussions for cooperative exploration and mining are progressing with friendly nations. The Indian government has established KABIL to secure a steady supply of crucial and strategic minerals through G2G negotiations and the acquisition of mining assets abroad.

Lithium Weight by Application (tonnes)



LiB Annual Additions in India (GWh)



Source : IBEF

Global Battery Energy Storage Systems (BESS) Market Insights

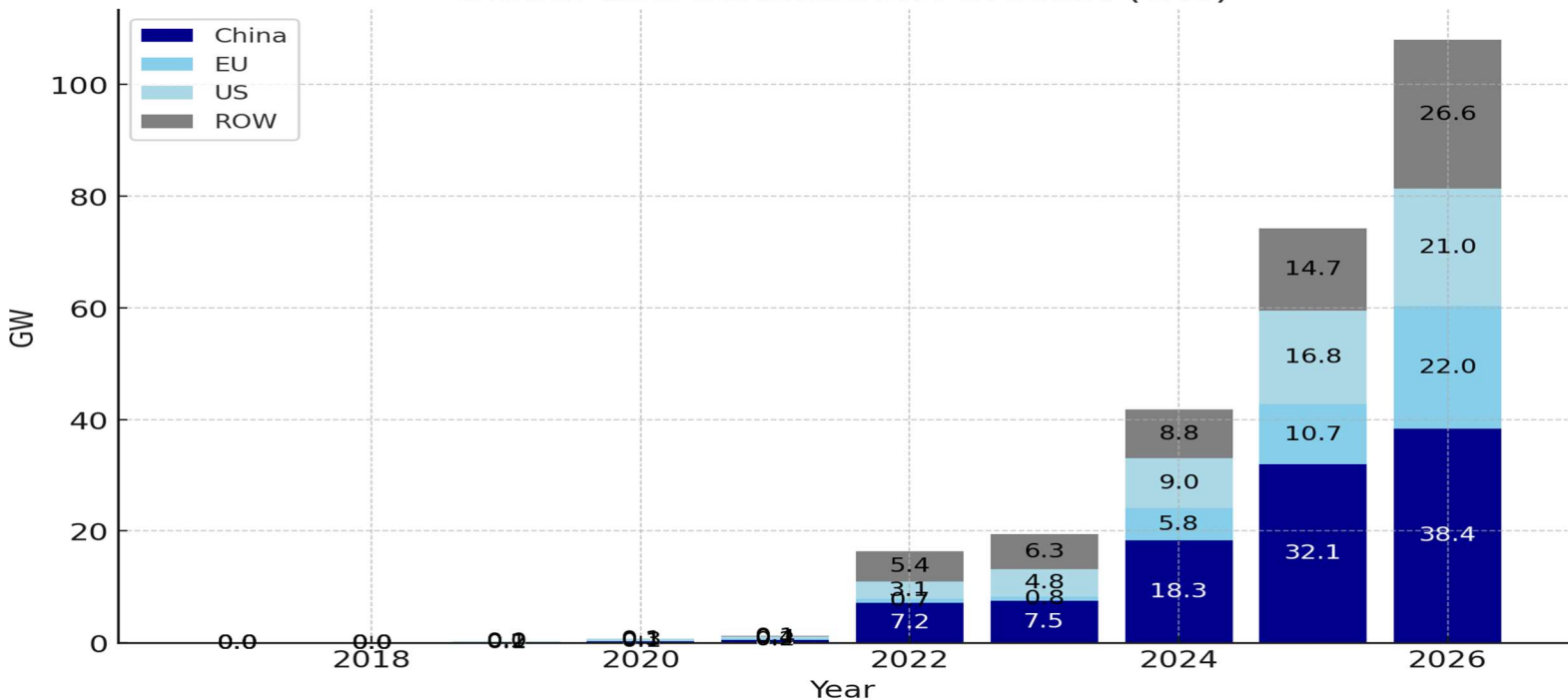
According to Jefferies, global installations of Battery Energy Storage Systems (BESS) are projected to grow at a compound annual growth rate (CAGR) of 29% from 2023 to 2030, reaching 590 gigawatt-hours (GWh) by 2030. The increasing demand for load-shifting due to higher penetration of intermittent renewable energy sources, coupled with declining costs of lithium carbonate and batteries, is enhancing the economic viability of BESS applications.

As of the end of 2023, the cumulative installed capacity of Energy Storage Systems (ESS) globally and in China increased by 21.9% and 45% year-over-year (YoY) respectively, totaling 289.2 gigawatts (GW) globally and 86.5 GW in China. New installations of ESS also saw substantial growth, rising by 100% globally and more than 150% in China to 91.3 GW and 34.5 GW respectively. Within China's new ESS installations, lithium-ion batteries accounted for 97.3%, marking a 3.3 percentage point increase YoY. The drop in battery prices has been a key driver behind the robust growth in BESS installations, with average bid award prices for ESS and Engineering, Procurement, and Construction (EPC) services decreasing by 28% and 21% YoY to RMB1.12/Wh and RMB1.54/Wh respectively. Additionally, the price of battery-grade lithium carbonate fell by 53% YoY to RMB226.5k/ton in 2023, reaching below RMB100k/ton by the end of the year from a peak of approximately RMB600k/ton in 2022.

In the United States, BESS is playing a pivotal role in grid stability, notably in California. However, in China, the utilization rate (UTR) of ESS remains low at the generation end, due to minimal peak-valley tariff differences. With the promotion of market-based power trading, improvements in UTR and ESS economics are anticipated. Conversely, the Internal Rate of Return (IRR) for Commercial and Industrial (C&I) ESS projects using a 2-cycle model can exceed 6.5%, driven by peak-valley tariff differences exceeding RMB0.7/kWh. Notably, numerous ESS projects have been deployed in AI-related data centers in China to enhance power efficiency.

Jefferies identifies two primary opportunities across the BESS value chain. First, cooling technologies, which constitute around 4% of total system costs, are critical for battery longevity, safety, and profitability. The Total Addressable Market (TAM) for ESS cooling is expected to grow at a CAGR of 32% from 2023 to 2030, driven by increased BESS installations and the rising adoption of liquid cooling technologies (43% CAGR over the same period). Envicool, holding approximately 30% market share in global BESS cooling solutions and specializing in liquid cooling, is highlighted as a preferred investment in this segment. Second, ESS batteries, which represent approximately 60% of system costs, are the core component of BESS. Jefferies forecasts a 29% volume CAGR and a 21% TAM CAGR for ESS batteries from 2023 to 2030. CATL, a dominant player in Lithium Iron Phosphate (LFP) batteries known for its cost efficiency, quality, consistency, and technological leadership, is recommended as a preferred investment in this space.

Global ESS Installation Forecast (GW)



Source: BNEF

The Transformation of India's Lithium-Ion Battery Manufacturing Industry

The Indian lithium-ion battery (LIB) manufacturing industry is undergoing a metamorphosis, driven by the relentless surge of electric vehicles (EVs) and the government's unwavering commitment to clean energy. This report delves into the intricate details of this burgeoning industry, exploring its growth trajectory, key players, government initiatives, challenges, and future prospects.

Market Dynamics: A High-Voltage Future

India's LIB industry boasts a projected growth trajectory that would make even the most seasoned investor envious. From a modest 2.9 gigawatt hour (GWh) in 2018, the industry is expected to reach a staggering 132 GWh by 2030, translating to a phenomenal CAGR of 35.5% [IBEF]. This exponential growth can be attributed to two primary factors:

1.The EV Revolution: Electric vehicles are no longer a futuristic fantasy; they are rapidly becoming a mainstream reality in India. As government policies incentivize EV adoption and consumer preferences shift towards eco-friendly mobility solutions, the demand for LIBs, the heart of EVs, is skyrocketing.

2.Energy Storage Solutions: Beyond EVs, LIBs are finding increasing application in energy storage systems for renewable energy integration and grid stability. With India aiming for an ambitious clean energy future, the demand for efficient and reliable energy storage solutions is propelling the LIB market forward.

Key Players: A Collaborative Arena

The Indian LIB manufacturing landscape is not a solitary show. Established players with a rich legacy in battery technology are joining forces with innovative startups to create a dynamic ecosystem. Let's meet some of the prominent names:

Established Giants: Leading the charge are household names like Exide Industries and Amara Raja Batteries. These companies leverage their experience in traditional battery technology and are strategically investing in LIB production facilities.

Automotive Powerhouses: Recognizing the electrifying future of mobility, automotive giants like Tata AutoComp Systems and Mahindra & Mahindra are actively involved in LIB manufacturing. Their expertise in vehicle engineering allows them to develop LIBs specifically tailored for EV applications.

Emerging Stars: The Indian startup scene is brimming with innovative LIB manufacturers like Battrix and Servotech Power Systems. These companies bring agility and cutting-edge technology to the table, fostering a spirit of healthy competition and technological advancement.

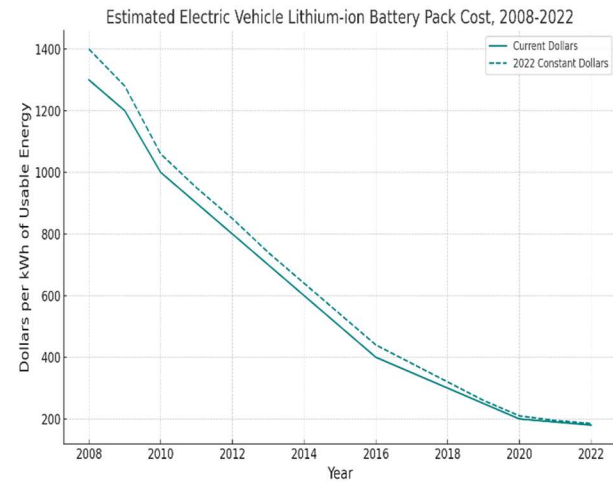
Strategic Alliances: A Symphony of Expertise

The Indian LIB industry thrives on collaboration. Recognizing the need for enhanced technological prowess, domestic manufacturers are forging strategic alliances with international firms. These partnerships offer:

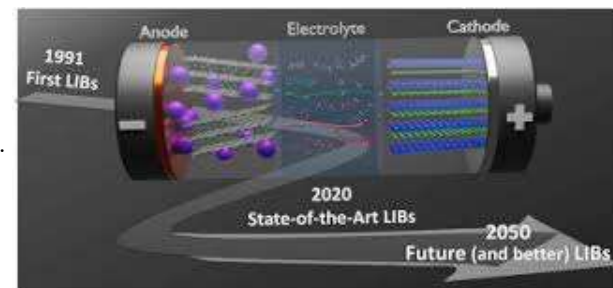
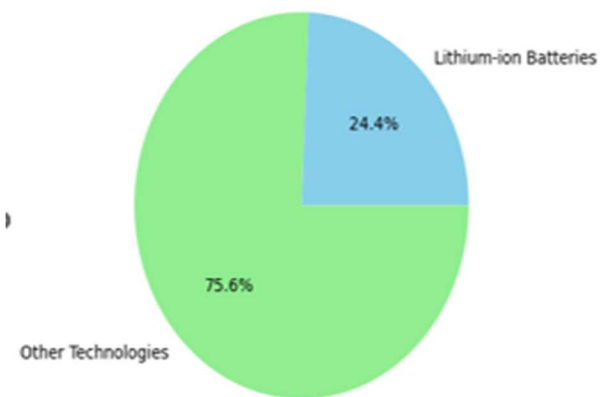
Knowledge Transfer: International companies with established LIB expertise can share their knowledge and technology with Indian manufacturers, accelerating domestic capabilities.

Market Access: Collaborations can provide Indian companies with access to global markets, allowing them to leverage their cost-competitive edge on a larger scale.

Joint Research & Development (R&D): Partnerships can foster joint R&D initiatives, leading to breakthroughs in next-generation LIB technologies.



Cumulative Demand for Energy Storage in India by 2030



Investment Opportunities and Cost Competitiveness in India's Battery Manufacturing Sector

Manufacturing Costs:

States in India are actively promoting battery manufacturing through incentives aimed at developing a comprehensive ecosystem for the sector. Some states have included specific incentives for EV battery manufacturing/assembly in their EV policies. The market for battery pack assembly in India is attracting significant investment due to factors such as low initial setup costs, which can be as low as Rs100 million (US\$1.3 million), and the predominance of manual and semi-automated assembly lines. These factors contribute to a favorable investment environment, supported by government policies and incentives.

India is noted for its competitive manufacturing costs, particularly for NMC pouch cells, as highlighted by Bloomberg New Energy Finance (BNEF). The implementation of subsidies under the PLI ACC scheme is expected to further reduce costs, potentially bringing down Lithium-Ion Battery (LiB) manufacturing costs to US\$65/kWh. This cost competitiveness is driven by factors such as lower land, labor, and utility costs compared to other regions, positioning India as a viable alternative to China in the global battery manufacturing landscape.

There are no significant entry barriers for battery pack manufacturers in India. Alongside government policy measures and incentives, several factors are driving a substantial influx of investments.

The initial investment to establish a battery pack manual assembly is as low as Rs100 million (US\$1.3 million), attracting many new market entrants. Most battery pack assembly in India is performed on manual and semi-automated assembly lines, with Ola Electric's automated line being an exception. This approach does not require the capabilities and investments associated with Industry 4.0.

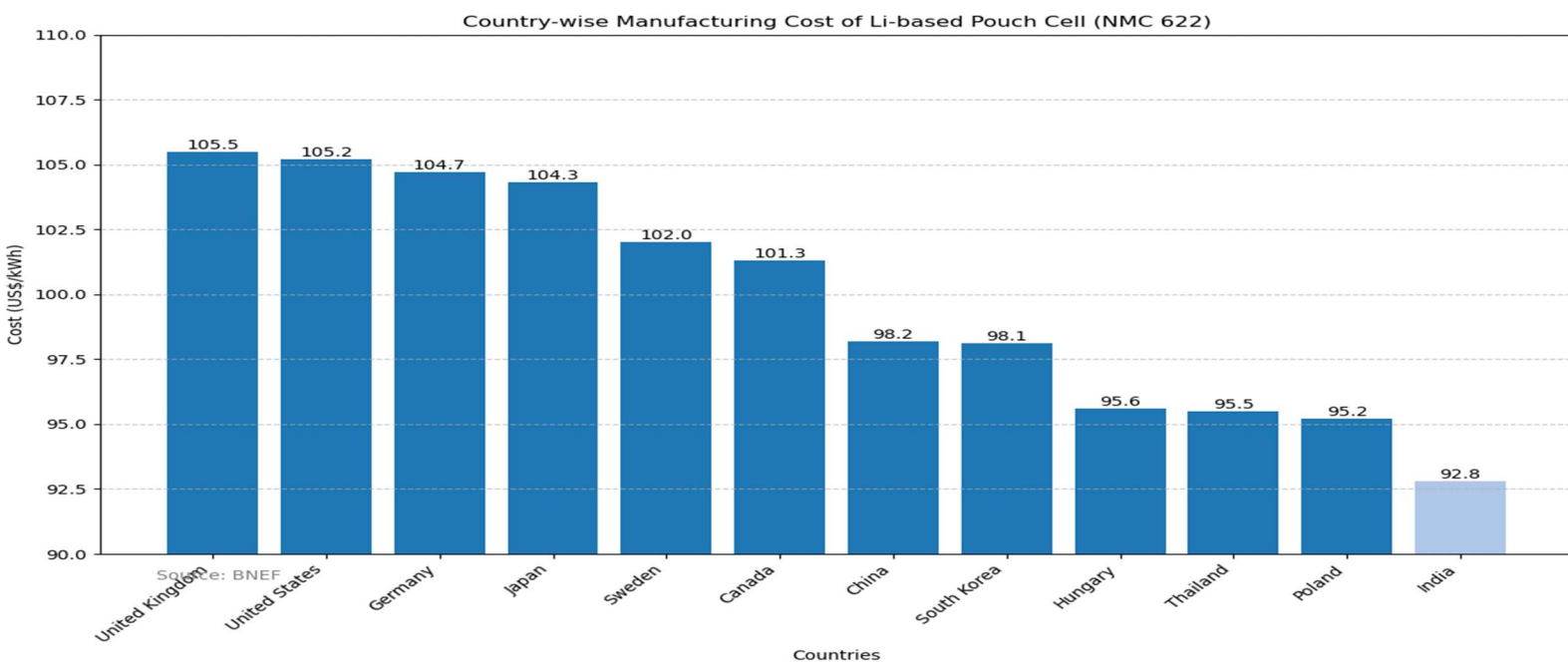
While the Battery Management Systems (BMS) in battery packs must be of good quality, there are currently no governing standards in India. Once manufacturers obtain cells and PCB designs from reliable sources, assembling the cells into modules, packs, and building the BMS is straightforward.

These advantages are attracting many players without prior experience in battery manufacturing, including small solar stationary providers and electric two-wheeler (E2W) manufacturers.

According to BNEF analysis, battery prices are expected to rise for the first time to US\$135/kWh in 2022 due to higher raw material and component costs. Chinese LFP producers have already increased prices by 10-20%, aligning with these projections.

The analysis also suggests that higher prices in 2022 and 2023 could delay battery prices reaching US\$100/kWh by two years, until 2024. The US\$100/kWh mark is considered the tipping point at which electric vehicles (EVs) are expected to become cost-competitive with internal combustion engine (ICE) vehicles. While this price increase could reduce automaker margins on EVs, it is unlikely to derail the EV industry.

Currently, India imports all the raw materials for cell manufacturing. It is anticipated that over the next four to five years, approximately 55% of these raw materials will still need to be sourced from other countries, primarily China. However, India can leverage its significant cost advantages in terms of cheap labor and power until it becomes self-sufficient in raw materials.



Economic Drivers of the Indian LITHIUM-ION BATTERY (LIB) MANUFACTURING INDUSTRY & GOVT SUPPORT.

Government Intervention: A Catalyst for Growth:

Production Linked Incentive (PLI) Scheme: This scheme offers financial incentives to companies establishing large-scale domestic LIB manufacturing plants. This not only boosts domestic production but also reduces dependence on imports, creating a more secure supply chain. The PLI scheme specifically focuses on the production of Advanced Chemistry Cell (ACC) batteries, which offer superior performance compared to traditional LIBs.

FAME-II Scheme: The Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) initiative was introduced in 2015. The Ministry of Heavy Industries has been implementing the FAME India Scheme Phase-II for a five-year period starting April 1, 2019, with a total budgetary support of Rs. 10,000 crore (US\$ 1.20 billion). This phase focuses on boosting the electrification of public and shared transport, with the goal of supporting 7,090 eBuses, 500,000 e-3 Wheelers, 55,000 e-4 Wheeler Passenger Cars, and 1,000,000 e-2 Wheelers through demand incentives. The budget includes funds for the construction of charging stations and up-front incentives to lower the cost of purchasing vehicles.

Union Budget 2023: The budget includes several measures to support the lithium-ion battery and electric vehicle (EV) industries:

1. Basic customs duty exemption on the importation of machinery used in the manufacture of lithium-ion batteries for EVs, as well as vehicle parts and subsystems.
2. Reduction of customs duty on lithium-ion batteries from 21% to 13%.
3. Extension of concessional basic customs taxes for electric vehicles and hybrid batteries.
4. Allocation of additional funding to support the recycling of old vehicles.
5. Emphasis on promoting the production of green hydrogen and biogas.

Advanced Chemistry Cell (ACC) Battery Mission: Recognizing the need for cutting-edge technologies, the government has launched the ACC mission. This mission aims to promote research and development in next-generation LIB technologies with superior performance and range. This includes technologies like Lithium Nickel Manganese Cobalt Oxide (NMC), Lithium Nickel Cobalt Aluminum Oxide (NCA), and Lithium Iron Phosphate (LFP), each with its own advantages in terms of energy density, power output, and lifespan. By supporting R&D in these areas, the government is helping Indian companies build a moat of technological expertise, allowing them to compete effectively in the global market.

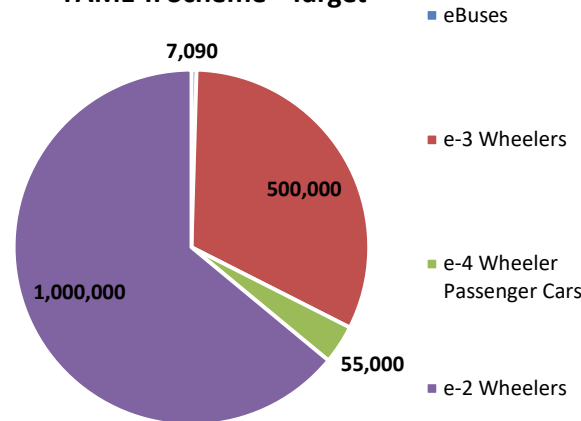
Securing Raw Material Supply: The government is strategically exploring domestic resources for lithium and other critical raw materials like cobalt, nickel, and graphite. Additionally, it is forging partnerships with countries rich in these resources to ensure a stable supply chain. This reduces dependence on volatilities in the global market and protects Indian manufacturers from potential supply disruptions.

Battery Swapping Policy (Draft)

NITI Aayog designed the draft of the battery swapping policy to improve the efficient and effective use of resources (public funds, land, and raw materials for advanced cell batteries) for customer-centric services. EVs with swappable batteries are eligible for the same incentives as electric vehicles with fixed batteries. The proposed legislation specifies that the size of the incentive would be determined by the kWh rating of the battery and compatible EV.

100% FDI: The Indian government has incentivized new global entrants by allowing 100 percent foreign direct investment (FDI). Simultaneously, there are no entry barriers for domestic players interested in the battery pack/BMS segment.

FAME-II Scheme - Target



Road Ahead

Technological Advancements: Continuous research and development will lead to the development of next-generation LIB technologies with higher energy density, faster charging times, and improved safety features. This includes advancements in solid-state LIBs, which offer significant advantages in terms of safety and energy density compared to traditional Lithium-ion technologies.

Focus on Sustainability: As environmental consciousness grows, the focus on sustainable LIB manufacturing practices will intensify. This includes developing recycling processes for spent LIBs, using ethically sourced raw materials, and minimizing the environmental footprint of production processes. Companies that prioritize sustainability can build a strong brand image and attract environmentally conscious customers.

Global Ambition: Indian LIB manufacturers are not content with catering solely to the domestic market. With increasing production capacity and technological advancements, they are poised to become significant players in the global LIB market. This will involve expanding their export footprint, establishing overseas manufacturing facilities, and collaborating with international companies.

Despite the promising outlook, the Indian LIB industry faces certain hurdles that need to be addressed:

Import Dependence: India currently relies heavily on imports for critical raw materials like lithium and cobalt. This dependence exposes the industry to price fluctuations and potential supply chain disruptions.

Recycling Infrastructure: The lack of a robust infrastructure for recycling spent LIBs poses a significant environmental challenge. Developing efficient and eco-friendly recycling processes is crucial for long-term sustainability.

High Investment Costs: Setting up LIB manufacturing plants requires substantial upfront investment in terms of equipment and technology. This can be a deterrent for smaller players and hinder the creation of a truly diversified industry.

India faces a limited supply of key raw materials, including lithium, nickel, cobalt, and manganese, which are essential for synthesizing active cathode materials for lithium-ion batteries. By 2030, India's LIB cell manufacturing industry will require substantial amounts of these materials:

- A. 193 thousand tonnes of cathode active material
- B. 98 thousand tonnes of anode active material
- C. 91 thousand tonnes of aluminium
- D. 41 thousand tonnes of copper
- E. 8 thousand tonnes of LiPF₆ electrolyte material

With almost non-existent infrastructure throughout the supply chain and minimal deployment expertise, India must establish greater control over the lithium-ion battery supply chain. Energy storage systems are expected to play a major role in global decarbonization, leading to exponential growth in demand. India should strive to become a manufacturing powerhouse to meet domestic demand through local production. The availability of minerals at reasonable rates will be crucial for global competitiveness. India's foreign policy must adapt to changing trends and prioritize strategic initiatives in key regions. Concentrated efforts on R&D, process optimization, and recycling can help reduce the need to import cell components from other nations. Academia must develop courses and curricula to meet the expanding employment demands in this sector.



Lithium-Ion Battery Types and Their Industrial Applications

Lithium-ion batteries are electrochemical energy storage systems where lithium ions act as charge carriers between electrodes. The specific chemistry used for an application depends on several parameters, including cost, energy density, cycle life, and the required charging rate. Lithium-ion batteries can be classified into the following categories based on battery chemistry (Active Materials):

Lithium Cobalt Oxide (LCO) (LiCoO₂): This type has a layered structure for ion mobility with a graphite carbon anode and a cobalt oxide cathode. The high specific energy of Li-cobalt batteries makes them suitable for consumer electronics such as digital cameras, mobile phones, and laptops.

Lithium Manganese Oxide (LMO) (LiMn₂O₄): These batteries create a three-dimensional spinel structure to increase safety and stability while lowering internal resistance and improving current handling and ion flow. Newer Li-manganese designs have successfully enhanced battery longevity, safety, and specific power. They are applicable for medical devices, portable power tools, hybrid and electric vehicles, and powertrains.

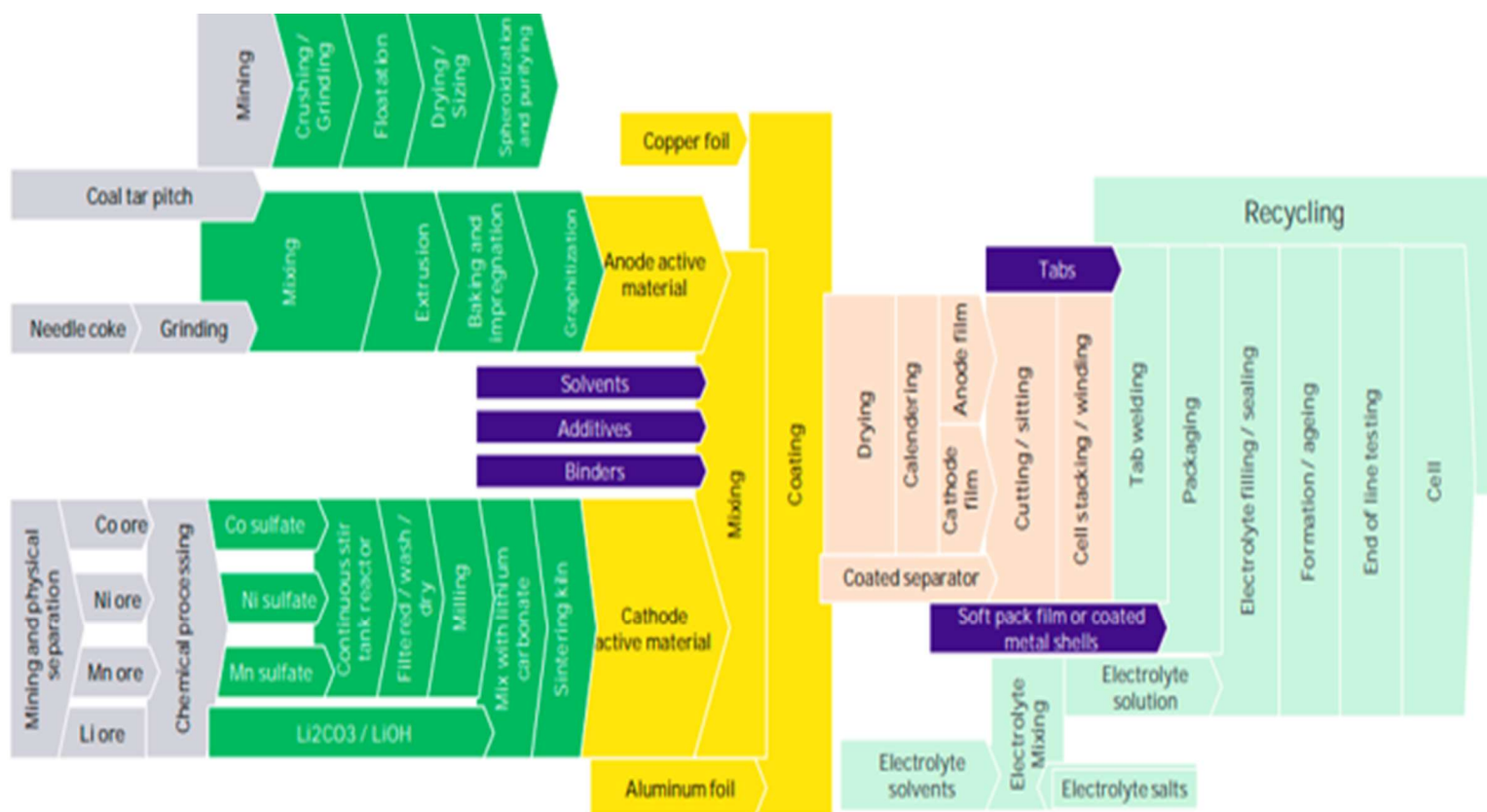
Lithium Nickel Manganese Cobalt Oxide (NMC) (LiNiMnCoO₂): NMC batteries feature one of the most successful nickel-manganese-cobalt cathode combinations. They can function as either energy cells or power cells and are mainly used in e-bikes, EVs, medical devices, and industrial applications.

Lithium Iron Phosphate (LFP) (LiFePO₄): Rechargeable lithium batteries using phosphate as a cathode material were developed in 1996. These batteries perform effectively in a sequence of four cells, generating a voltage similar to a series of six lead-acid cells. LFP batteries are mainly used in stationary applications with high endurance.

Lithium Nickel Cobalt Aluminium Oxide (LiNiCoAlO₂): NCA batteries are widely used in EV powertrains due to their high specific energy, excellent specific power, and reasonably long lifespan. They are applicable for EVs, electric powertrains, medical devices, and industrial applications.

Lithium Titanate (LTO) (Li₂TiO₃): Lithium-titanate batteries are among the best-performing and safest Li-ion batteries. They exhibit zero strain and do not generate an SEI (Solid Electrolyte Interface) layer or lithium plating when charging at low temperatures and during fast charging, unlike normal cobalt-blended Li-ion batteries. LTO batteries are used in aerospace and military equipment, EVs, electric powertrains, solar-powered street lighting, telecommunications systems, and UPS systems.

The Lithium-Ion Cell Manufacturing Process





Companies	CMP(₹)	Target Price (₹)	Return (%)	Market Cap (₹ in Cr.)	P/E	ROE(%)
Exide Industries Ltd.	571.00	680.00	19.09%	48,548.00	55.84	7.30%
Amara Raja Batteries Ltd.	1,694.00	2,075.00	22.49%	30,856.00	33.35	13.38%
PCBL Ltd.	256.00	325.00	26.95%	10,001.00	20.79	16.26%
Himadri Chemical Ltd.	397.00	490.00	23.43%	19,519.00	48.14	13.78%
Neogen Chemicals Ltd.	1,612.00	1,980.00	22.83%	4,450.00	124.83	5.75%
HBL Power Systems Ltd.	499.00	640.00	28.26%	13,928.00	49.40	21.88%



Exide Industries Ltd.
Target : ₹680

Exide Industries Ltd, an Indian manufacturer of batteries sold under the Exide brand, serves as both an original equipment and aftermarket parts supplier for automotive companies in India, including Mitsubishi, Hyundai, Honda, Toyota, Fiat, Renault, GM, Mahindra, Tata, Bajaj, Suzuki, and Hero. In addition to the automotive sector, Exide Industries supplies batteries to the power, telecommunications, infrastructure, computer, railways, mining, and defense sectors. The company operates in the segments of storage batteries and allied products, as well as other categories. Nearly all of Exide Industries' revenue is generated within India.

1.Exide Industries has made an additional investment of Rs 75 crore in Exide Energy Solutions (EESL), its wholly owned subsidiary, by subscribing to equity shares on a rights basis. With this latest investment, the total investment by the company in EESL has reached Rs 2,452.24 crore. This acquisition does not alter Exide Industries' shareholding percentage in EESL.

2.The collaboration between Hyundai Motor Company, Kia Corporation, and Exide Energy Solutions Ltd marks a significant advancement in India's electric vehicle sector, enhancing Exide Industries' market presence and underscoring its crucial role in meeting the growing demand for EV components. This partnership, formalized through a Memorandum of Understanding (MOU), represents the initial step in Hyundai and Kia's strategy to expand their battery development, production, supply, and partnerships exclusively for the Indian market, according to Hyundai Motor Group.

Risk: Exide remains indirectly exposed to climate-transition risks due to its automotive OEM customers manufacturing products used across various fuel powertrains.

Particulars	2022	2023	2024
Revenue	12,789	15,078	16,770
Operating Profit	1,402	1,593	1,817
Operating Margin (%)	10.96%	10.57%	10.83%
PAT	4,357	823	883
PAT Margin(%)	34.1%	5.5%	5.3%
ROE (%)	48.91%	7.58%	7.30%
ROCE (%)	5.84%	10.61%	10.59%



Amara Raja Batteries Ltd.
Target : ₹2075

Amara Raja Batteries Limited (ARBL), the flagship company of the Amara Raja Group, is a technology leader and one of the largest manufacturers of lead-acid batteries for industrial and automotive applications in India. The company boasts prestigious OEM clients and exports its batteries to over 50 countries worldwide. Domestically, Amara Raja is the preferred supplier for major telecom service providers, telecom equipment manufacturers, the UPS sector (OEM & Replacement), Indian Railways, and industries such as Power, Oil & Gas. Recently, ARBL terminated its shareholders agreement with Johnson Controls.

1. Amara Raja Energy & Mobility Ltd (ARE&M) announced that its subsidiary, Amara Raja Advanced Cell Technologies Pvt Ltd (ARACT), signed a technical licensing agreement with Gotion High-Tech Co. Ltd's subsidiary, GIB (Gotion-InoBat Batteries) EnergyX Slovakia. This agreement will enable the company to manufacture LFP cells in both cylindrical and prismatic form factors.

2.India's leading battery manufacturer has invested €20 million to acquire an additional 4.5% stake in InoBat AS, increasing its total holding in the Norwegian firm to 9.32%, including a prior investment of €10 million, according to an exchange filing. InoBat AS focuses on R&D and produces batteries for custom electric vehicle designs, meeting the specific needs of global OEMs in vehicles, motorcycles, and aerospace.

3.The project risk from entering the lithium iron cell and battery pack business is not expected to be significant. Steady demand for the new capacity at ARACT is anticipated from larger OEMs as part of their green energy strategies, despite challenges such as inadequate charging infrastructure, reliance on imported components, and high EV prices.

Risk: ESG Factor-In April 2021, the Andhra Pradesh Pollution Control Board (APPCB) ordered the closure of Amara Raja Energy & Mobility Ltd's lead-acid battery plants in Tirupati and Chittoor for alleged environmental violations. The Andhra Pradesh High Court has since addressed these issues over the past two years.

Particulars	2022	2023	2024
Revenue	8,696	10,386	11,260
Operating Profit	1,030	1,371	1,621
Operating Margin (%)	11.84%	13.20%	14.40%
PAT	511	694	906
PAT Margin(%)	5.88%	6.68%	8.05%
ROE (%)	11.2%	13.1%	13.38%
ROCE (%)	14.53%	18.04%	17.33%


PCBL Ltd.
Target : ₹325

PCBL Ltd, based in India, specializes in carbon black manufacturing. It operates through two segments: Carbon Black and Power. The company's main revenue comes from its carbon black production units located in Durgapur, Kochi, Palej, Mundra, and Chennai (Greenfield Project). PCBL offers products like Rubber Black and Specialty Black, primarily generating revenue from operations in India.

1. Carbon black manufacturer PCBL has commissioned a 12-megawatt power plant through its wholly owned subsidiary PCBL (TN) in Tamil Nadu, India, according to a Monday filing to the Indian stock exchanges. This expansion increases the total cogeneration power capacity of the company and its subsidiary to 122 MW.

2. For the March quarter, the consolidated net profit was 1.11 billion rupees, compared to 1.02 billion rupees in the same period the previous year. The consolidated revenue from operations for the March quarter was 19.29 billion rupees, up from 13.74 billion rupees.

3. Carbon black manufacturer PCBL has incorporated a wholly-owned subsidiary named Advaya Chemical Industries with an initial paid up share capital of 50 million Indian rupees.

4. Carbon black company PCBL has signed an agreement with Australian innovation firm Kinaltek to form a new joint venture, according to a Wednesday filing. The joint venture will own intellectual properties for nano-silicon-based products used in battery applications and will build manufacturing facilities for these products. PCBL will initially invest \$16 million into the new company and will infuse up to an additional \$28 million in stages. PCBL will own 51% of the joint venture, while Kinaltek will hold the remaining 49%, as stated in the disclosure.

5. PCBL announced on that it has entered into a term sheet to form a joint venture company with Australia's Kinaltek Pty, with PCBL holding a 51% stake in the venture. The joint venture will own the intellectual properties for nano-silicon-based products used in battery applications and will establish manufacturing facilities for these products.

Risk: The primary raw material, carbon black feedstock (CBFS), derived from crude oil and predominantly imported, exposes PCBL to fluctuations in crude oil prices. Despite this, the company has effectively mitigated the impact by leveraging the industry's pricing mechanisms, allowing it to largely offset fluctuations in CBFS prices.

Particulars	2022	2023	2024
Revenue	4,446	5,774	6,420
Operating Profit	653	731	1,037
Operating Margin (%)	14.69%	12.66%	16.15%
PAT	426	442	491
PAT Margin(%)	9.6%	7.7%	7.6%
ROE (%)	16.4%	15.74%	16.26%
ROCE (%)	17.6%	19.00%	14.37%

Source : Fin2Research, NSE, BSE


Himadri Chemical Ltd.
Target : ₹490

Himadri Speciality Chemical Ltd, an Indian manufacturer of Coal Tar Pitch, supplies industries like aluminium and graphite. It operates in two segments: Carbon Materials and Chemicals, serving aluminium, graphite electrodes, lithium-ion batteries, and more; and Power, generating electricity from windmills for state grids. Most revenue is from Carbon Materials and Chemicals. The company operates globally, with presence in India and abroad.

1. The board of Himadri Speciality Chemical Limited has approved the acquisition of a 40% stake in Invati Creations Private Limited for Rs 45.16 crore. Invati, founded by alumni from IIM Calcutta and IIT Kharagpur, specializes in engineering lithium-ion electrode materials aimed at enhancing energy storage efficiency, increasing energy density, and prolonging battery life, as stated in the announcement.

2. Himadri Speciality Chemicals has announced a brownfield expansion of a new specialty carbon black line, increasing its capacity to 130,000 tonnes per annum. The expansion project, estimated at Rs 220 crore, is slated for completion within 18 months. Himadri Speciality Chemicals is recognized as a global specialty chemical conglomerate with a strong emphasis on research and development, innovation, and sustainability.

3. Himadri Speciality Chemicals has announced plans to invest ₹4,800 crore over the next 5–6 years to establish a plant producing 2 lakh tonnes of lithium iron phosphate (LFP), a crucial material for manufacturing lithium-ion batteries used in electric vehicles. This initiative marks India's first such plant. In the initial phase, an investment of ₹1,125 crore will go towards setting up a 40,000 tonne per annum facility in Odisha. The project is expected to be completed within 27–36 months. The undertaking will be overseen by Himadri Future Material Technology, a wholly-owned step-down subsidiary of Himadri Speciality Chemicals.

4. At full capacity, Himadri Speciality Chemicals expects the investment to generate revenue exceeding ₹4,000 crore. The company has secured raw material supplies of lithium carbonate from Australia, South America, and Africa and is confident in meeting demand despite its growth.

Risk: HSCL faces significant exposure to cyclical industries like aluminium and graphite electrodes, which affect over 50% of its sales. This cyclicity impacts cash flows, but the reliance on CTP moderates some risks. As a net importer, HSCL's financials are also influenced by forex fluctuations, recording a forex gain of INR 90.4 million in 9MFY24, contrasting with losses in previous years.

Particulars	2022	2023	2024
Revenue	2,791	4,172	4,185
Operating Profit	156	399	645
Operating Margin (%)	5.59%	9.56%	15.41%
PAT	39	216	411
PAT Margin(%)	1.4%	5.2%	9.8%
ROE (%)	3.60%	9.37%	13.78%
ROCE (%)	5.79%	15.54%	20.01%



NeoGen Chemical Limited

Target : ₹1980

Neogen Chemicals Ltd manufactures specialty chemicals used in the Pharmaceutical, Engineering, and Agro-Chemical industries. The company produces bromine-based and lithium-based specialty chemicals, including Organobromine compounds, Chloro compounds, Inorganic bromine compounds, Lithium Salts, among others. Its revenue is primarily generated from operations in India, with additional income from exports to various countries worldwide.

1. Neogen Chemicals has announced plans to raise Rs 253 crore through the issuance of preferential shares to investors for business expansion. The company's Board of Directors has approved the allotment of 14,42,358 equity shares with a face value of Rs 10 each, priced at Rs 1754.07 per share, totaling up to Rs 252.99 crore on a preferential basis.

2. The fast-growing specialty chemical company is poised for significant expansion in the coming years as it positions itself as the pioneer in India's EV battery chemicals sector. The company's early entry and strong credibility in this space are underscored by its technology partnership with MUIS (Japan). It forecasts revenues of ₹9.0–10.5 billion from its core business by FY2026, with an additional ₹25–29.5 billion expected from the battery chemicals segment by FY2028–29.

3. Neogen Ionics Limited, a wholly owned subsidiary of Neogen Chemicals Limited, has announced the completion of land acquisition for approximately 65 acres in Pakhajan, Dahej PCPIR, Gujarat. This acquisition is a key step in their future expansion strategy and the establishment of a greenfield project. The plant, dedicated to battery materials and future business opportunities, will manufacture 30,000 MT of electrolytes and 4,000 MT of electrolyte salts and additives in the first phase.

4. Neogen Chemicals reported a net profit of Rs. 16.93 crores for the period ending March 31, 2024, up from Rs. 1.06 crores for the period ending December 31, 2023. The company's total income for the period ending March 31, 2024, was Rs. 201.86 crores, compared to Rs. 166.02 crores for the period ending December 31, 2023.

Risk: Neogen Chemicals Ltd (NCL) primarily imports its raw materials, exposing the company to foreign currency fluctuations. However, approximately 40-50% of its revenue comes from exports, which serves as a natural hedge to some extent. The company's operating profitability is also influenced by the volatility in key raw material prices. Despite this, due to the value-added nature of its products, NCL has been able to partially pass on input cost fluctuations, thereby mitigating some of the associated risks.

Particulars	2022	2023	2024
Revenue	487	686	691
Operating Profit	87	112	110
Operating Margin (%)	17.86%	16.33%	15.92%
PAT	45	50	36
PAT Margin(%)	9.2%	7.3%	5.2%
ROE (%)	10.17%	10.36%	5.75%
ROCE (%)	13.11%	15.53%	11.21%

Source : Fin2Research, NSE, BSE



HBL Power Systems Ltd.

Target : ₹640

HBL Power Systems, headquartered in Hyderabad, India, is renowned for its production of batteries and power systems. The company originated in 1999 following the merger of SAB Nife Power Systems Ltd, established in 1986, and Hyderabad Batteries Limited (HBL), founded in 1977. Through indigenous initiatives, HBL Power Systems addresses and bridges technical gaps within India. The company operates manufacturing facilities across Telangana and Andhra Pradesh.

1. HBL Power Systems primarily operates in three key segments: Industrial batteries, Defence & Aviation, and Electronics. Among these, Industrial batteries contribute 69% of the company's revenue, followed by Defence & Aviation at 17%, and Electronics at 11%.

2. In response to the increasing demand for electric vehicles (EVs) and advanced battery technology, HBL is investing in a new facility to manufacture Lithium-ion cells and electric drive trains (EDT). The company is actively integrating Lithium-ion batteries into its product lineup and plans to expand its manufacturing capabilities accordingly.

3. The board of HBL Power Systems has allocated a total of Rs. 175 crores for capital expenditure in FY25. Of this amount, Rs. 60 crores has been earmarked specifically for the construction of the Lithium-ion production plant.

4. In the quarter ending March 2024, HBL Power Systems showed strong financial performance with significant year-on-year growth across key metrics. Net sales increased by 51.53% to Rs. 610.09 crore compared to Rs. 402.61 crore in March 2023, while quarterly net profit surged by 134.03% to Rs. 81.45 crore from Rs. 34.80 crore. EBITDA also saw substantial growth, rising by 176.91% to Rs. 138.04 crore from Rs. 49.85 crore. The company's earnings per share (EPS) improved to Rs. 2.90 in March 2024 from Rs. 1.26 in March 2023, reflecting robust performance and positive momentum in its operations.

Risk: In the battery production industry, lead, known for its high toxicity and environmental impact, serves as a crucial raw material. Enterprises in this sector must comply with rigorous pollution control regulations. As environmental laws tighten and advocacy for ecological sustainability grows, businesses operating here face inherent risks related to environmental concerns. Despite these challenges, HBL, with its extensive industry experience, has consistently upheld compliance with all necessary standards.

Particulars	2022	2023	2024
Revenue	1,236	1,369	2,233
Operating Profit	139	151	423
Operating Margin (%)	11.25%	11.03%	18.94%
PAT	94	98	280
PAT Margin(%)	7.6%	7.2%	12.5%
ROE (%)	10.3%	9.99%	21.88%
ROCE (%)	12.4%	12.99%	32.06%



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