IESA Knowledge Paper
On
India Lead Acid Battery Market 2016 – 2020

(Stationary and Motive Applications)

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The Market Forecast

IESA estimates the overall market size for lead acid battery in India at around INR 27,000 Crore (USD 4.2 billion) in 2015-16. Out of this, the share of batteries in stationary and motive application is around INR 12,650 crore (USD 1.9 billion). Due to a number of Governmental and consumer side pull, the market for lead acid batteries in those two applications is poised for a major growth going forward and having consulted the relevant stakeholders, IESA now forecasts the market size at around INR 24,900 crore (USD 4 billion) by 2020 representing a CAGR of 13% in the next 5 year period.

Application of Lead Acid Batteries

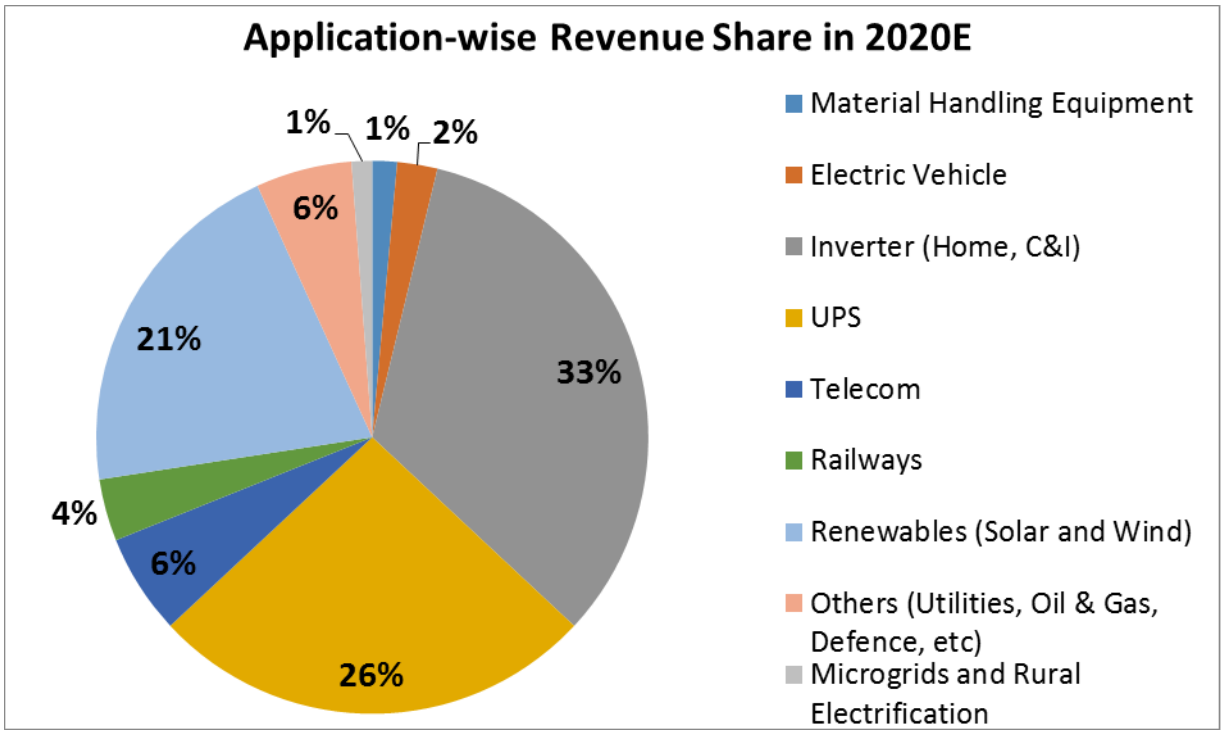
(Stationary and Motive Applications)

In current market scenario, Inverter and UPS applications take the major share of 60% of the stationary and motive battery market. In future years, home inverter segment market growth will be stagnant (7% - 8% growth) due to improved power scenario and use of common power back up in new townships and societies in urban areas. Increase of automation in Indian C&I segment with scattered location of IT offices and Data Centres in Tier 2 and Tier 3 cities makes mandatory use of UPS in India. It leads to a healthy growth (10%-15%) in the segment.

Key applications that will boost the market is application of storage in renewable integration, especially solar PV and wind (CAGR > 50%). With Government of India's ambitious target of 100 GW solar, there is a huge opportunity for battery storage. To solve the issue of solar ramping and intermittent nature of solar (both rooftop and large plants), storage is the key enabler to provide reliable power. Similarly, in wind, issues such intermittency and curtailment have necessitated the application of batteries. To IESA's knowledge, all wind power generators are looking for 1 Hour to 2 Hours storage due to evacuation problem and also for the 15 minute scheduling that has been laid out as a rule for grid discipline.

With Governments National electric Mobility Mission and incentive for electric vehicles (EV) and promotion of e-rickshaw already making this market very attractive. In future this segment will be one of the highest growing sector for high energy density / high specific energy lead acid battery with an estimated 40% growth between 2016 and 2020. Apart from the more conventional 2 wheeler and 4-wheeler segments, the adaptability of NEVs in private segment like hotels, resorts, golf course large SEZS and government premises like Airport, railways offer significant potential for growth.

Telecom is one of the most promising segment for battery use, but the adaptation of newer technologies like Li-Ion or Flow battery is giving tough competition to use of Lead acid battery for telecom towers.



With the increase in railway network and ambitious target of metro trains with introduction of bullet train may lead this segment as one of the attractive segment for lead acid battery manufacturers (with growth prospect of 4%).

With the formation of the National Smart Grid Mission (NSGM) and few smart grid pilot projects, it is evident that India is adopting smart utilities for reliable and quality power. So there is a huge opportunity for battery installation in this segment for applications like ancillary services, load balancing and grid storage and IESA estimates a growth rate of 23% in these segments.

Consolidation of the Sector

Unorganised market takes a market share of 30-40% of the market and leaving the rest for the organised market. IESA has observed that local manufacturers in the unorganised market provide a 20-30% cheaper option than branded products with similar configuration. However, going forward, IESA expects the organised market getting consolidated through acquisition of small players by larger ones. In addition, unorganized players are more likely to wind down due to stringent rules on recycling and manufacturing process. The organized sector is currently dominated by few major/top players, which includes EXIDE, AMARA RAJA, few growing companies LUMINOUS, HBL, Enersys and other emerging/upcoming companies includes Eastman, ARISE, Base Corporation and Rocket Batteries etc. Newer application and more demanding performance requirement (long duration, higher DoD, higher

cycle life) encourage many new technology players to enter the Indian battery market. It will create healthy competition in R&D and will open the market for advanced lead acid batteries.

IESA recently released a full report on Indian Lead Acid market for stationary and motive applications. This report is for purchase, contact IESA Team for more details.

The **India Energy Storage Alliance (IESA)** was launched in 2012 by **Customized Energy Solutions** to promote energy storage & micro grid technologies and their applications in India. IESA's vision to make India a global leader in energy storage & microgrid technology adoption and hub for manufacturing of these emerging technologies by 2020. IESA's mission is to make energy sector in India more competitive and efficient by creating awareness among various stakeholders in the industry and by promoting information exchange with the end users. IESA also provides insights to technology developers, original equipment manufacturers, policymakers, renewable players and system integrators on the policy landscape and business opportunities in India through frequent interaction with all key stakeholders. Please find more information on IESA at http://www.indiaesa.info/

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