Technology Scouting & Market Foresighting – Energy Storage

Case Study

FutureBridge

Client	A leading electric utility service provider
Industry	Energy and utility
Products	ESS batteries

Context

- The client wanted to understand the most recent developments in energy storage battery technologies with respect to their chemistries, market growth, key players, funding & investments, and technology roadmap.
- The client also wanted to gain insights regarding the recycling market for Li-ion batteries in 2030.

Key Business Questions

- Which are the new and ongoing technological developments pertaining to Li-ion, solid-state, sodium-ion, organic flow, magnesium-ion, and liquid metal (molten) battery?
- What will be the size of the addressable recycling market for Li-ion utility scale battery by 2030 (volume & value) in the US?

Engagement Scope

1 Technology Scouting

- Identified new and ongoing technological developments with respect to improvements in battery lifetime, voltage, capacities, life cycle, energy density, C-factors, etc.
- Identified technology evolution trend over the last 10 years with segregation of patentees/scientific contributors (that include corporate houses, academic institutes, R&D organizations, and individual inventors)
- Performed competitive analysis of technologies with respect to technical and economic parameters
- Identified key R&D developers and sponsor co-investors

2 Market Assessment

- Identified the current and future market potential of Li-ion battery recycling (volume & value)
- Identified costs associated with recycling
- Identified net recycling value of metals (Li, Co, etc.)
- Analyzed competitive positioning of stakeholders (recyclers) within the value chain
- Identified unmet needs and key growth drivers – policy push, technology push, and investments made by private and government players
- Identified health and safety risks associated with Li-ion recycling and analyze ways to mitigate these risks

3 Key Findings and Conclusions

- Provided information regarding the overall market for ESS batteries and evolution of battery technologies over a period of time
- Highlighted the most attractive chemistries and emerging battery technologies
- Provided R&D funding & investment ecosystem
- Provided the market outlook for ESS Li-ion recycling in the US by 2030, coupled with costs associated with recycling
- Highlighted drivers, enablers, and alternatives to batteries deployment in grid-scale energy storage application

Research Methodology

Secondary Research

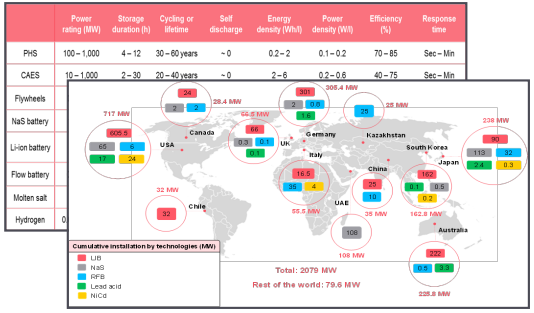
- Conducted desk research to understand the overall market for energy storage technologies and Li-ion battery recycling in the US
- Referred to paid databases and identified patents/scientific literature regarding battery technologies

Benefits to Client

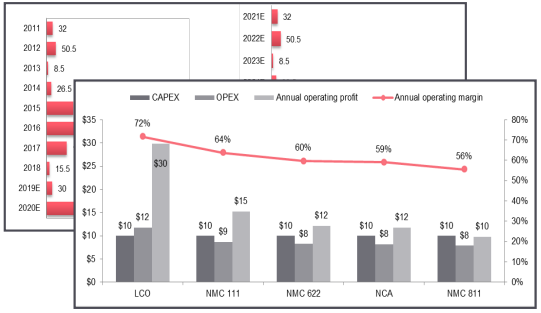
- The study highlighted market opportunities with respect to Li-ion battery recycling in the US by 2030.
- It also provided insights on the competitive assessment of various battery types that helped the client understand the most attractive chemistries and emerging battery technologies.

Sample Analysis

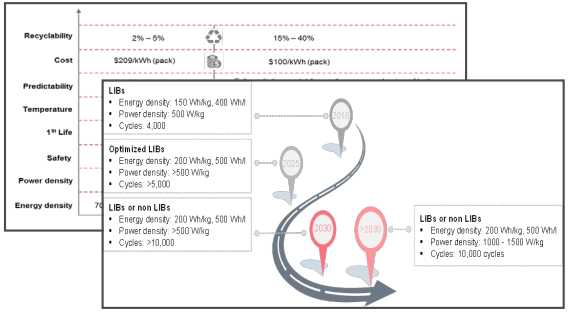
1 Technology Scouting



2 Market Assessment



3 Key Findings and Conclusions



Thank you

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