

CLIENT CASE STUDY

Sustainable Sodium-Ion Battery Assembly Project in Latvia, Europe

From Investment Idea to Bankable Reality — Powered by NPCS Expertise

PROJECT SNAPSHOT

| | |
|-------------------------|--|
| Client | M/s. Sustainable Mobility Technologies |
| Location | Latvia, Europe |
| Industry | Large-Scale Energy Technology Manufacturing |
| Project | Assembly of Sodium-Ion Batteries |
| Services by NPCS | Techno-Economic Feasibility, DPR, Market Analysis, Financial Modelling, Strategic Advisory |
| Status | Client has accepted NPCS recommendations and is proceeding with implementation |

Published by

NIIR PROJECT CONSULTANCY SERVICES (NPCS)

www.niir.org • www.entrepreneurindia.co • info@niir.org • +91 9097075054

02 ABOUT NPCS

NIIR Project Consultancy Services (NPCS) is one of Asia's most trusted names in industrial consultancy, serving entrepreneurs, MSMEs, startups, and large investors worldwide. For over three decades, NPCS has been transforming business ideas into bankable, investor-grade industrial ventures.

"NPCS is part of Asia's leading industrial knowledge ecosystem with thousands of project profiles and global consulting expertise."

Core Services

- Detailed Project Reports (DPR)
- Techno-Economic Feasibility Studies
- Market Research & Demand Analysis
- Engineering & Process Advisory
- Financial Modelling & Investment Analysis
- Implementation Strategy & Roadmap

30,000+

Detailed Project Reports Published

50+

Countries Served Globally

30+

Years of Industrial Expertise

250,000+

Industrial Projects Supported

03 CLIENT OVERVIEW

M/s. Sustainable Mobility Technologies is an emerging energy-technology firm headquartered in Latvia, Europe. The company is committed to building long-term, sustainable businesses that contribute to both economic growth and environmental goals within Europe's evolving clean energy landscape.

Business Goals

- Diversify into a high-growth manufacturing segment
- Leverage Latvia's regional resource availability
- Achieve long-term profitability with moderate capital
- Align with European sustainability mandates
- Establish first-mover advantage in sodium-ion battery space

Client Requirements

- Expert sector identification aligned with capital capacity
- Rigorous market and technical feasibility analysis
- Bankable DPR for lenders and investors
- Financial projections with sensitivity analysis
- Regulatory compliance and implementation roadmap

04 PROBLEM STATEMENT & CHALLENGES

When M/s. Sustainable Mobility Technologies approached NPCS, they faced several significant strategic and operational challenges that required expert navigation:



Market Uncertainty

The sodium-ion battery sector was nascent with few proven European players. The client needed clarity on market size, timing, and demand drivers.



Technical Complexity

Assessing the right plant capacity, equipment specifications, and manufacturing process for a first-generation facility in Latvia was complex without in-house expertise.



Financial Risk

Without accurate CapEx/OpEx modelling and profitability analysis, attracting lenders and investors was impossible. Sensitivity to raw material cost volatility posed additional risks.



Supply Chain Gaps

European sodium-ion supply chains are early-stage. Understanding sourcing options for sodium salts, aluminium current collectors, and carbon anodes in the region required deep research.



Regulatory Complexity

Navigating the EU Battery Regulation, Net-Zero Industry Act, European Critical Raw Materials Act, and upcoming Battery Passport requirements (2027) required specialist regulatory knowledge.

05 OUR APPROACH & METHODOLOGY

NPCS applied its comprehensive, time-tested consultancy framework — combining rigorous quantitative analysis with deep sector knowledge — to deliver a structured, phased solution for the client.

| | |
|-----------|---|
| 01 | <p>Project Identification</p> <p>NPCS scanned emerging manufacturing segments aligned with the client's capital capacity, regional resources, and strategic ambitions. Sodium-ion battery assembly emerged as the optimal opportunity based on multi-criteria scoring of growth, viability, and fit.</p> |
| 02 | <p>Market Analysis</p> <p>Detailed assessment of global and European sodium-ion battery markets using research from Grand View Research, Mordor Intelligence, and IMARC. Key drivers, application segments, competitive landscape, and demand forecasts were analysed in depth.</p> |
| 03 | <p>Raw Material Feasibility</p> <p>NPCS verified the abundance of sodium salts across Europe (Germany, France, Spain) and Latvia's access to regional supply chains. Aluminium and carbon anode material availability were also confirmed, de-risking the supply chain.</p> |
| 04 | <p>Technical Feasibility</p> <p>Benchmarked processes against technology leaders (CATL, BYD) and European pilot projects using lignin-based anodes. Identified optimal plant capacity range of 2–5 GWh and mapped equipment requirements for electrode preparation, cell assembly, and packaging.</p> |
| 05 | <p>Financial Modelling</p> <p>Developed detailed CapEx and OpEx estimates. Built profitability scenarios incorporating production volume ramp-up, pricing trends, and demand growth. Sensitivity analyses tested viability under conservative market assumptions.</p> |
| 06 | <p>Implementation Strategy</p> <p>Provided phase-wise implementation timelines covering construction, equipment procurement, licensing, staffing, and commissioning. Identified potential European technology partners and research institution collaborations.</p> |

06 SCOPE OF SERVICES DELIVERED

Consulting Deliverables

- ✓ Sector opportunity screening & selection rationale
- ✓ Techno-Economic Feasibility Report
- ✓ Detailed Project Report (DPR) — bankable document
- ✓ Plant layout and capacity recommendations
- ✓ Machinery selection & technology benchmarking
- ✓ Financial model (CapEx, OpEx, P&L, cash flow)
- ✓ Market demand validation & growth forecasts
- ✓ Implementation roadmap with milestones

Advisory Services

- ✓ EU regulatory compliance guidance (Battery Regulation, CRMA)
- ✓ Battery Passport requirements planning (2027)
- ✓ Environmental & social impact considerations
- ✓ Raw material supply chain mapping
- ✓ European technology partner identification
- ✓ Research institution collaboration opportunities
- ✓ State aid and incentive programme guidance
- ✓ Ongoing strategic advisory support

07 PROJECT EXECUTION TIMELINE

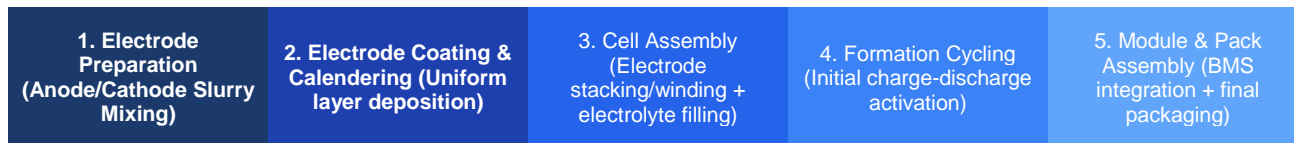
NPCS executed the engagement in four structured phases, ensuring thorough analysis and timely delivery of all consulting outputs:

| Phase 1 | Phase 2 | Phase 3 | Phase 4 |
|--|---|--|--|
| Discovery & Scoping Client onboarding, requirement mapping, sector screening, opportunity shortlisting | Research & Analysis Market research, raw material assessment, technology benchmarking, competitive analysis | Financial & Technical Modelling CapEx/OpEx estimation, financial scenario modelling, technical process design, sensitivity testing | Reporting & Advisory DPR compilation, feasibility report delivery, implementation roadmap, client presentation & Q&A |

08 TECHNICAL INSIGHTS

Manufacturing Process — Sodium-Ion Battery Assembly

NPCS mapped the complete battery assembly process, identifying key stages and equipment requirements for a 2–5 GWh annual capacity facility in Latvia:

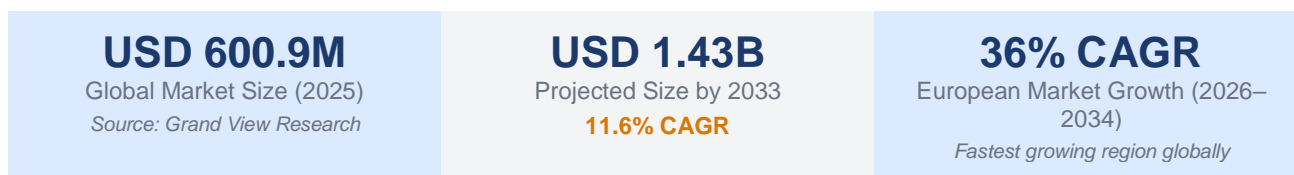


Key Technology Advantages

| | |
|---|--|
| <p>Material Advantages</p> <ul style="list-style-type: none"> • Sodium — 6th most abundant element globally • Aluminium current collectors replace costly copper • Locally sourced materials (salt deposits in Germany, France, Spain) • Lignin-based anodes from European forestry (demonstrated in pilot plants) • No cobalt or lithium — reduced critical mineral dependency | <p>Performance Specifications</p> <ul style="list-style-type: none"> • Energy density: up to 175 Wh/kg (competitive with LFP) • Temperature resilience: 90% capacity retained at -40°C • Operating range: -40°C to +70°C • Superior thermal stability vs. lithium-ion • Excellent cycle life for stationary storage applications |
|---|--|

09 FINANCIAL & MARKET ANALYSIS

Global Market Overview



European Market Outlook

Europe represents the most dynamic growth opportunity for sodium-ion batteries, driven by strong policy tailwinds and supply chain security imperatives:

- European market valued at USD 68.82 million in 2025, projected to reach USD 1.095 billion by 2034 (36% CAGR)
- Europe's dependence on imported lithium, cobalt, and graphite makes sodium-ion technology strategically attractive
- Policy support: EU Net-Zero Industry Act, European Battery Alliance, Critical Raw Materials Act
- Mandatory Battery Passports from 2027 will favour domestic producers with traceable, local supply chains
- Stationary energy storage dominates with ~71% market share; transportation growing rapidly
- CATL and BYD to commercially deploy second-generation sodium-ion batteries from 2026

Investment & Financial Projections

| Financial Parameter | Estimated Range |
|----------------------------------|-------------------------------|
| Plant Capacity (Annual) | 2 – 5 GWh |
| Raw Material Share of OpEx | 60 – 70% |
| Gross Profit Margin | 30 – 40% |
| Net Profit Margin | 12 – 18% |
| Global Market CAGR (2026–2033) | 11.6% (GVR) / 16.89% (Mordor) |
| European Market CAGR (2026–2034) | 36% |
| European Market by 2034 | USD 1.095 Billion |

10 RESULTS & OUTCOMES

Following NPCS's comprehensive assessment, M/s. Sustainable Mobility Technologies made a confident, informed decision to proceed with the sodium-ion battery assembly project. The consulting engagement delivered measurable impact across all dimensions:

Business Impact

- ✓ Investment decision made with full confidence backed by data
- ✓ Bankable DPR ready for lender and investor presentation
- ✓ First-mover positioning in Europe's sodium-ion sector
- ✓ Detailed engineering design and procurement initiated
- ✓ Permits and incentive discussions begun with Latvian authorities

Risk Reduction

- ✓ Supply chain risk mitigated via local sodium sourcing
- ✓ Financial risk minimised through sensitivity-tested projections
- ✓ Regulatory risk reduced via EU compliance mapping
- ✓ Technology risk addressed by benchmarking against CATL/BYD
- ✓ Market risk de-risked via multi-source demand validation

11 CLIENT TESTIMONIAL

“NPCS provided us with a comprehensive, data-driven assessment that clarified both the opportunities and risks of entering the sodium-ion battery industry. Their detailed project report covered everything—from raw material sourcing and market demand to financial projections and policy compliance—enabling us to make an informed investment decision. We are confident that with NPCS’s guidance we are entering a promising sector with strong long-term potential.”

— Management, M/s. Sustainable Mobility Technologies, Latvia

12 WHY CHOOSE NPCS

□ Proven Industrial Expertise

30+ years and 30,000+ project reports across hundreds of sectors. Our deep domain knowledge spans chemicals, food processing, pharmaceuticals, advanced materials, and energy technology.

□ Data-Driven Feasibility

Every NPCS report is built on primary data, published industry research, and proprietary databases. Our financial models are stress-tested and designed to withstand lender and investor scrutiny.

□ Risk Mitigation Approach

NPCS systematically identifies and quantifies financial, market, technical, and regulatory risks. Our sensitivity analyses and scenario planning ensure investors can make decisions with confidence.

□ Global Market Understanding

Clients in 50+ countries trust NPCS for market intelligence that is accurate, current, and actionable. Our researchers track global trends, trade data, and regulatory landscapes across all major markets.

□ End-to-End Project Support

From initial opportunity identification through to DPR, financial close, and implementation advisory, NPCS supports clients at every stage of their industrial investment journey.

↘ Sector-Agnostic Expertise

Whether you are evaluating food processing, chemicals, pharmaceuticals, advanced materials, or clean energy technologies, NPCS brings the same rigour and depth to every engagement.

13 CONCLUSION

This case study demonstrates the transformative value that NPCS's rigorous consultancy approach delivers to investors and entrepreneurs navigating emerging industrial opportunities. By combining meticulous market research, technical process assessment, and financial modelling, NPCS identified sodium-ion battery assembly as a sustainable, profitable, and strategically aligned opportunity for M/s. Sustainable Mobility Technologies in Latvia.

The project leverages Europe's abundant sodium resources, benefits from powerful supportive policy frameworks, and positions the client to capture significant value from the continent's fastest-growing energy storage market. With NPCS's bankable DPR in hand, the client has moved from concept to implementation — a testament to the practical, actionable quality of every NPCS engagement.

As Europe accelerates its green energy transition, sodium-ion battery assembly represents exactly the kind of high-growth, resource-secure, policy-aligned opportunity that NPCS specialises in identifying — before the market catches up.

READY TO BUILD YOUR NEXT INDUSTRIAL PROJECT?

Partner with NPCS to transform your investment idea into a profitable industrial venture.

□ www.niir.org | www.entrepreneurindia.co

□ info@niir.org | □ +91 9097075054

Bankable Feasibility Studies • Detailed Project Reports • End-to-End Advisory

© 2025 NIIR Project Consultancy Services (NPCS). All rights reserved. This document is prepared exclusively for client communication and investor relations purposes.