LITHIUM-ION BATTERY PRODUCTION

INVESTMENT PROPOSITION

General Information

Sector: Mining and Adjacent Sectors
Sub-Sector: Lithium Battery Production Plant

1. Abstract

Namibia strategically positions itself to move up the critical minerals value chain by developing a lithium-ion battery assembly plant. This transformative initiative supports the country's broader industrialisation and mineral beneficiation strategy, prioritising domestic value addition over exporting raw resources.

The project aims to establish a modular battery assembly plant capable of producing scalable 48V lithium-ion battery packs for telecoms, solar, commercial, and off-grid applications. It also lays the foundation for long-term downstream growth in battery-grade lithium refining, REE processing, EV component manufacturing, and circular economy solutions such as battery recycling and reuse.

Namibia offers a compelling investment environment underpinned by its rich resource base, political stability, and commitment to sustainable economic development. While historically recognised for its uranium, diamonds, copper, and gold, Namibia is now emerging as a key source of critical minerals like lithium and REEs, vital for the global green energy transition.

With a strategic coastal location, modern logistics infrastructure—including the Port of Walvis Bay—and a pro-investment regulatory framework, Namibia is well-placed to attract upstream and downstream investments in clean technology and manufacturing. Trade agreements with the European Union (EU), the Southern African Development Community (SADC), and the African Continental Free Trade Area (AfCFTA) enhance export potential to global markets.

Key investment advantages include:

- Government-backed incentives for local manufacturing and beneficiation.
- Logistics and export efficiency via Namibia's deep-sea port and road networks.
- Alignment with global ESG standards and Namibia's green industrialisation policies.
- Stable governance, legal certainty, and protection for foreign investors.
- Future access to high-grade, underexplored lithium and REE resources.

Namibia's battery and critical minerals strategy represents a timely and high-impact investment opportunity. It offers investors the chance to secure strong returns while supporting sustainable industrialisation and helping shape Africa's role in the global clean energy economy.

2. Value Proposition

Establishing lithium-ion battery assembly facilities in Namibia presents a compelling value proposition grounded in the country's abundant lithium resources, investor-friendly policies, and strategic access to fast-growing energy markets across Africa and beyond. As global demand for energy storage systems accelerates—driven by the rise of electric mobility, off-grid electrification, and renewable energy integration—Namibia offers a specialist first-mover opportunity to localise high-value battery manufacturing within Southern Africa.

The project proposes a modular assembly facility focused on 48V lithium-ion battery packs tailored for telecom, solar, off-grid, commercial, and industrial applications. By focusing on pack assembly rather than full-cell manufacturing, the facility enables rapid market entry with lower capital expenditure while allowing scalability into grid storage and mobility applications.

Backed by special economic zone (SEZ) incentives, streamlined permitting, and Namibia's robust logistics infrastructure—anchored by the Port of Walvis Bay—the facility is well-positioned to serve regional and international markets. The initiative fully aligns with Namibia's Mineral Beneficiation Strategy, Green Industrialization Agenda, and broader economic diversification objectives.

Local battery assembly will generate significant economic value, including:

- Import substitution in the SADC region, where over 85% of batteries are currently imported.
- Job creation, with over 1,000 direct and indirect employment opportunities.
- Industrial development through supply chain integration, local SME participation, and training in electronics and battery systems.

The project will also catalyse skills development and enable technology transfer through partnerships with global battery OEMs and regional institutions. Inclusive workforce strategies will prioritise youth employment, gender equity, and long-term upskilling.

From an environmental and ESG perspective, the facilities will be partially powered by renewable energy, support solar and clean power adoption across underserved regions, and include a roadmap for battery recycling and circular economy solutions. Namibia's strong regulatory commitment to environmental stewardship further enhances investor confidence.

By anchoring lithium-ion battery production within Africa, this project reduces regional dependence on imported technologies and positions Namibia as a clean energy manufacturing hub a strategic contributor to global efforts to build resilient, diversified, and sustainable energy storage value chains.

For investors, the Namibia battery assembly facilities offer a rare opportunity to combine strong financial returns with high-impact contributions to industrialisation, energy access, and the green transition in emerging markets.

3. Market Analysis

Establishing a lithium-ion battery assembly facility in Namibia directly addresses a critical gap in the regional and continental clean energy value chain. Despite Namibia's known lithium reserves and strategic geographic position, the country currently lacks local battery pack manufacturing capacity, resulting in a dependence on imports and missed opportunities for value addition. The International Energy Agency (2022) notes that over 85% of lithium-ion batteries used in Southern Africa are imported—primarily from China and South Korea highlighting the potential for regional import substitution through domestic assembly.

The global lithium battery industry is experiencing exponential growth, with demand projected to rise from USD 325 billion in 2022 to over USD 770 billion by 2040 (IEA, 2022). The clean energy transition is driving this growth, rapid adoption of electric mobility, and the expansion of decentralised energy systems such as solar mini-grids and telecom infrastructure. However, global supply chains remain highly concentrated, with China currently dominating over 70% of lithium refining and battery cell manufacturing. This concentration exposes buyers to geopolitical, logistical, and pricing risks—creating a strong incentive to diversify supply chains through "friend-shoring" and regionalised manufacturing.

Namibia's entry into midstream battery assembly provides a strategic opportunity to localise part of the battery value chain and enhance the country's role as a reliable partner in global clean technology production. By focusing on modular 48V battery packs for telecom, solar, and off-grid markets, the country can enter the sector with lower capital intensity and scale over time into grid storage and mobility applications. The project aligns with Namibia's national beneficiation and green industrialisation goals while offering commercial, social, and environmental returns for public and private stakeholders alike.

Regionally, the Southern African Development Community (SADC) is underserved in terms of battery manufacturing capacity, despite rising energy storage needs. According to the SADC Industrialisation Strategy (2023), much of the region's extracted lithium and other critical minerals are exported raw, while finished battery products are imported at high cost. South Africa currently leads in battery assembly through companies such as Freedom Won, Solar MD, and BlueNova; however, these firms operate at a relatively small scale and are not vertically integrated with upstream supply. Other key mineral-rich countries like Zimbabwe, Zambia, and the DRC remain focused on upstream mining or precursor production and have not yet established downstream assembly infrastructure.

Namibia's access to lithium-bearing pegmatites, competitive logistics via the Port of Walvis Bay, and supportive investment framework—including Special Economic Zones (SEZs) and preferential trade agreements under SACU, AfCFTA, and the EU Economic Partnership Agreement give it a first-mover advantage in establishing a regional hub for battery pack assembly.

Demand for lithium-ion battery solutions is increasing rapidly:

- Locally, Namibia's electrification programs, telecom tower expansion, solar mini-grid installations, and the NamPower Integrated Resource Plan (2023) all prioritise battery storage by 2026.
- Regionally, SADC energy storage demand is growing at over 20% CAGR, driven by unreliable grid infrastructure, expanding mobile networks, and renewable energy adoption. Countries like Angola, Zambia, Zimbabwe, and Botswana represent high-potential markets. Emerging EV pilot projects in Southern and East Africa further support future battery demand.
- Internationally, Namibia's trade agreements and logistics make it an attractive export hub. The EU's Critical Raw Materials Act and the U.S. Inflation Reduction Act incentivise supply diversification, while countries like Japan and South Korea actively seek new battery production partners beyond China.

On the supply side, Namibia hosts significant lithium resources with several active projects:

- The Uis Mine (operated by Andrada Mining) is in pilot production.
- The Rubicon-Helikon project (Lepidico Ltd) is at feasibility stage.
- Additional deposits in Karas and Kunene are under exploration or reconnaissance.

Although no commercial lithium processing or cell manufacturing currently exists in Namibia, these deposits provide the foundation for future upstream integration. Proximity to other lithium-rich nations—such as Zimbabwe (Arcadia, Bikita), the DRC (Manono), and South Africa (Blesberg)—allows for potential regional sourcing and logistics consolidation.

Namibia's competitive advantages for battery manufacturing include:

- Stable political climate and transparent regulatory framework.
- Active government support for beneficiation and industrialisation.
- Efficient cross-border logistics and access to international markets via Walvis Bay.
- Policy alignment with ESG and SDG goals, including the ban on unprocessed lithium exports (2023) to encourage local value addition.

In terms of competitors, Namibia faces:

- Regional competition from South African firms focused on domestic markets, with limited scale or upstream integration.
- Global competition from established battery giants such as CATL, LG Energy Solution, and Panasonic—none of which have direct operations in Southern Africa, presenting partnership opportunities.
- Technological substitutes like sodium-ion and solid-state batteries are emerging but are not yet cost-effective or scalable in Africa.

Namibia's battery assembly initiative fills a significant gap in Africa's clean energy manufacturing landscape and offers a platform for further value chain development—spanning from upstream lithium refining to downstream component manufacturing and recycling.

4. Business Model Considerations

(a). Cost Drivers

The main cost drive for developing and operating the proposed project will be associated with:

Cost Driver	Description
Development Costs and Capital Expenditure (CAPEX)	- Upfront investment in feasibility studies to validate and de-risk, Costs for machinery, semi-automated battery assembly lines, testing labs, warehousing, and infrastructure development within SEZs.
Operational Costs	- Includes labour, energy, QA/QC processes, machinery maintenance, and consumables used in the assembly line and battery management systems.
Environmental and Compliance Costs	- The costs of complying with Namibia's Environmental Management Act include impact assessments, waste handling, and ESG certification.
Logistics and Export Costs	- Transportation and handling costs to supply regional and international clients, including customs duties and port charges.
Technology and Innovation Investment	- Investment is required for process automation, digital BMS integration, and R&D in battery performance and safety.

(b). Revenue Streams

The revenue created by the proposed project.

Revenue Stream Driver	Description
Battery Pack Sales	- Revenue from sales of modular 48V battery packs to telecoms, solar integrators, and industrial clients.
Custom Design Services	- Revenue from developing tailored BESS (battery energy storage systems) for agriculture, mining, and public utilities.
Licensing and Partnerships	- Technology transfer deals, software integration licenses, and OEM partnerships with global battery suppliers.
Government and Public Procurement	- Secure recurring contracts through national electrification and green energy programs.
Training and Engineering Services	- Revenue from training and upskilling local engineers and technicians and offering engineering support for system integration.

5. Legal/Policy Considerations

The list and define the key enabling policies and legislations supporting the proposed project's investment.

Policy / Legislation	**Description**	**Relevance to Project**
Special Economic Zones (SEZ) Framework	Provide tax incentives, duty exemptions for components, and fast-track licensing to attract industrial and export-oriented investment/Export support schemes	- Reduces startup and operational costs for battery assembly. - Facilitates regional export of battery packs via SEZ logistics and customs benefits.
Growth at Home Strategy (2015)	Namibia's national industrial policy focused on local value addition, manufacturing, and economic diversification.	- Supports domestic battery production instead of relying on imports. - Promotes local skills development and SME integration into battery supply chains. - Emphasizes innovation and competitiveness in export-oriented sectors.
SACU & AfCFTA Trade Agreements	Facilitate tariff-free trade and regional market integration across Southern Africa (SACU) and the continent (AfCFTA).	- Enables duty-free export of lithium-ion batteries to over 25 African markets. - Supports scaling the project by leveraging regional telecom and solar demand. - Reduces cost barriers for sourcing materials and distributing battery products regionally.
SWAPO Party Manifesto Implementation Plan (SMIP)	Transform Namibia from a raw mineral exporter to a value-added industrial economy, promoting job creation and inclusive growth.	- - Aligns directly with the project's goal to move up the battery value chain. - Reinforces national beneficiation and industrialisation priorities.
Namibian Mineral Beneficiation Strategy (2021)	To maximise national value retention, provide a roadmap for in-country strategic minerals processing (lithium, graphite, and REEs).	- Directly mandates local lithium processing, aligning with the plant's purpose. - Justifies the 2023 ban on unprocessed lithium exports. - Encourages downstream investment (e.g. in lithium refining or cathode production).

6. High-Level Risk Profile

Risk Category	**Description**	**Mitigation Strategies**

Regulatory Risks	Changes in industrial, mining, or environmental policy; delays in SEZ approvals or licensing; evolving beneficiation or local content requirements.	- Maintain continuous engagement with Namibian regulatory bodies and SEZ authorities. - Ensure full compliance with national beneficiation and ESG frameworks. - Include regulatory buffers in project timelines and financial forecasts.
Market Risks	Volatile demand for lithium batteries; increased competition from regional and global manufacturers; evolving energy storage standards.	- Diversify customer base across telecom, solar, and mini-grid sectors. - Develop custom battery solutions for niche sectors (mining, agriculture). - Monitor regional demand trends and adapt product offerings proactively.
Operational Risks	High setup and O&M costs, technical skill gaps, and supply chain disruption for imported cells and BMS components.	- Invest in modular, semi-automated assembly lines to control cost. - Establish training programs with local institutions and OEMs. - Secure multiple suppliers and stock critical components.
Environmental and Social Risks	Risk of non-compliance with Namibia's Environmental Management Act; potential land disputes or limited community buy-in; ESG certification failure.	- Conduct early and transparent community consultations. - Perform comprehensive EIAs and implement circular economy practices (e.g., battery recycling roadmap). - Integrate ESG reporting and third-party audits
Financial Risks	Large upfront capital requirements; risk of cost overruns; dependency on long-term financing or concessional capital.	- Secure a blend of equity, DFI, and concessional finance. - Phase project rollout (pilot-to-scale model). - Create flexible cost models and maintain reserve liquidity.
Supply Chain and Import Dependency Risks	Dependence on imported lithium-ion cells and BMS components increases exposure to global shipping delays, input price shocks, or geopolitical supply restrictions.	- Secure multi-country supply contracts with redundancy. - Maintain strategic stock reserves of critical components. - Develop a long-term strategy to localise more inputs (e.g., casings, electronics).
Global Tariff and Trade Risks	Shifting international trade policies, tariffs on battery components or finished products, or future carbon	- Leverage Namibia's trade agreements (AfCFTA, SACU, EU EPA, AGOA) to ensure tariff-free or preferential access.

	border taxes could affect import costs or export competitiveness.	- Monitor global trade policy shifts and incorporate flexible sourcing strategies. - Explore carbon-neutral manufacturing to pre-empt future green trade standards (e.g., EU Carbon Border Adjustment Mechanism).

7. Applicable UN Sustainable Development Goals (SDG) Alignment – Lithium-Ion Battery Project

- **SDG 8 – Decent Work & Economic Growth:** Creates 500+ skilled manufacturing, logistics, and engineering jobs.
- **SDG 9—Industry, Innovation & Infrastructure: Establish** Namibia's first battery assembly plant, boosting local industrial capacity.
- **SDG 12 – Responsible Consumption & Production:** Promotes circular economy through future recycling and sustainable sourcing.
- **SDG 13 – Climate Action:** Supports clean energy adoption across Africa and integrates solar power into operations.
- **SDG 15 – Life on Land:** Aligns with Namibia's land rehabilitation and environmental protection policies.

Reference

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