Unlock the Potential – Financial Benefits, Scalability, and Success Stories of Vanadium Electrolyte Leasing

RKP International | Min Tang

RKP – Global Leader in VFB Technology

1,600+
Employees[1]

300+
R&D Talents[1]

500+
Patents[1]

3.5 GWh+
Global Installed Capacity[1]

60%+
Global VFB Market Share[1]

ABOUT US

Rongke Power (RKP) is the global leading innovator in Vanadium flow batteries (VFBs) and a prominent provider of utility scale long duration energy storage solutions.

OUR MISSION

Accelerating global net-zero progress with advanced Vanadium flow battery (VFB) energy storage solutions.

Comments:
1) Data updated as of 08/29/2025

RKP - The Only VFB Manufacturer with a Fully Integrated Supply Chain

RKPG - World's largest VFB electrolyte development and production facilities[1]

- 4.5 GWh annual production capacity
- Only accredited VFB electrolyte laboratory
- Certified with DAKKSTÜV Rheinland DEISO 45001:2018, ISO 14001:2015, ISO 9001:2015
- 100,000 ㎡ footprint

RKPI - World's First VFB Gigafactory[1]

- 1 GW annual production capacity
- Fully automated manufacturing and warehousing
- Certified with CNAS DE ISO 45001:2018, ISO 14001:2015, ISO 9001:2015
- 265,000 ㎡ footprint

Comments:
1) Data updated as of 07/22/2025

Mega Projects Deployed

World's Largest VFB System [1]

CTG Jimsaer ESS
(200MW/1,000MWh)

World's Longest Running Utility Scale VFB Energy Storage System [1] (Since 2012)

Woniushi Wind Farm Energy Storage Station
(5MW/10MWh)

World's First 100 MW-Class VFB Energy Storage System

ConCurrent Energy Storage Station Phase I
(100MW/400MWh)

World's Largest Grid Forming VFB Energy Storage System[1]

Xinhua Ushi ESS Project
(175MW/700MWh)

World's Largest VFB Energy Storage System for Solar Integration[1]

CECEP Qapqal ESS
(75MW/300MWh)

World's Largest BTM VFB Energy Storage System[1]

Conch Zongyang Energy Storage Station
(6MW/36MWh)

Comments:
1) Data updated as of 08/29/2025

VFB Technical Facts

VFB is a mature and ready-to-deploy technology, providing safe, long-duration electricity supply.

Inherently Safe

Water-based electrolyte, no thermal runaway

Long cycle life

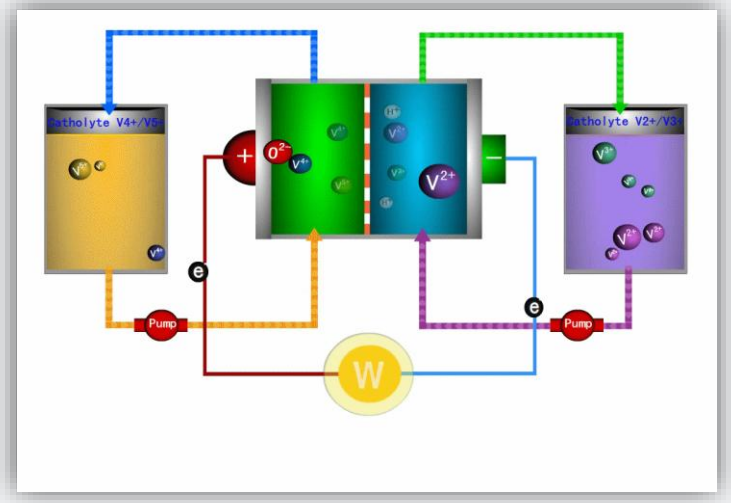
Over 20,000 charge/discharge cycles with minimal degradation

Allowing 100%DOD

Without structural damage

Flexibility

Adaptable to diverse climates and geographies, with flexible capacity and duration



Technical Principles

- The positive and negative electrolytes are circulated through pumps and flow across the stack, where ion exchange occurs to enable charging and discharging.
- Both electrolytes use the same active material, which eliminates cross-contamination and allows the electrolyte to be reused continuously throughout the system's lifetime.
- The stack functions solely as the reaction site for electrochemistry, without being consumed in the process, which fundamentally enables the ultra-long service life of vanadium flow batteries.

Technical Advantages of RKP

World's First Container-shaped VFB Module Designed for Transport with Pre-filled Electrolyte

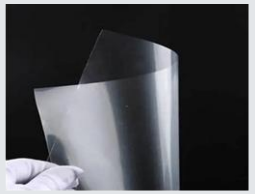
Simplified shipping and installation leads to lower cost, easier service, and less environment impact.

World's First Commercially Available Solvent Extraction Technology for Vanadium Electrolyte Production

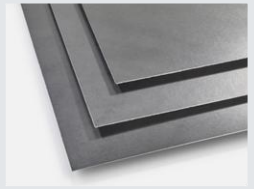
Broadening the spectrum of acceptable raw material with reduced cost and improved performance.

Enhanced Current Density Through Advances in Material Technology

Delivers 250–270 mA/cm^2 current density at ≥80% energy efficiency—a >100 mA/cm^2 advantage over commercial systems (150–170 mA/cm^2)



- **Membrane**



- **Bipolar Plate**

- **Electrode**

Superior Performance and Increased Durability from Enhanced Stack Architecture

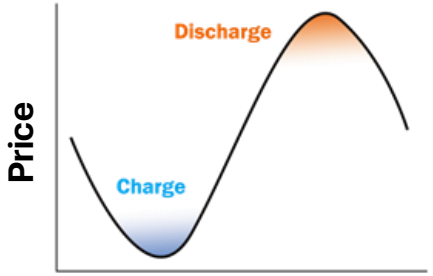
Proven Technology Deployable Today for Australia

Off-grid power supply for mining sites

Grid services such as peak shaving and frequency control

Grid forming and resilience improvement

Electricity market arbitrage



Large scale renewable integration

Load management and advanced decarbonization (industrial user)

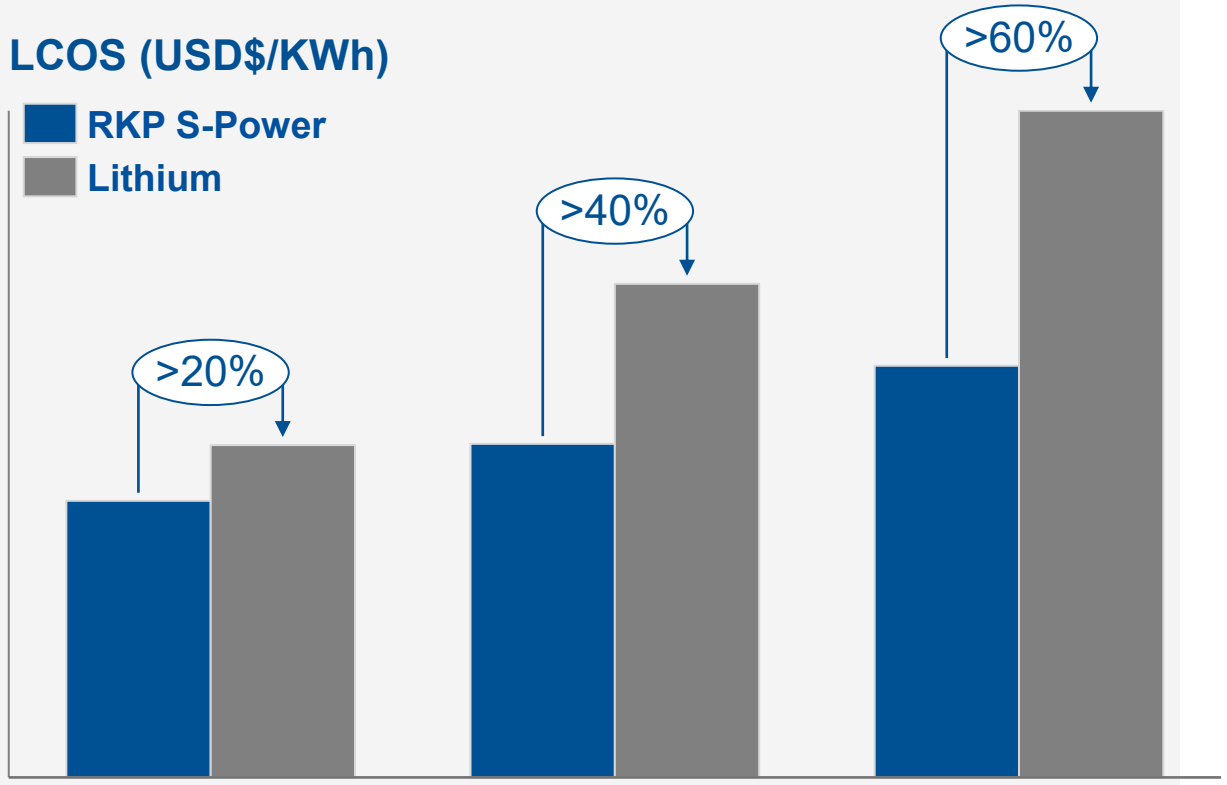
Power quality improvement and load management for AI datacenters

Stable electricity supply for water desalination

Levelized Cost of Storage Comparison

VFB demonstrates a notably lower LCOS compared to lithium in long-duration storage systems.

- Throughout a standard 25-year project lifespan, VFB starts to show lower LCOS than Lithium batteries from 4 hours duration.
- As system duration increases, the LCOS gap between VFB and Lithium batteries widens considerably.
- Reduced levelized storage costs drive economic value while supporting decarbonization and affordable power.



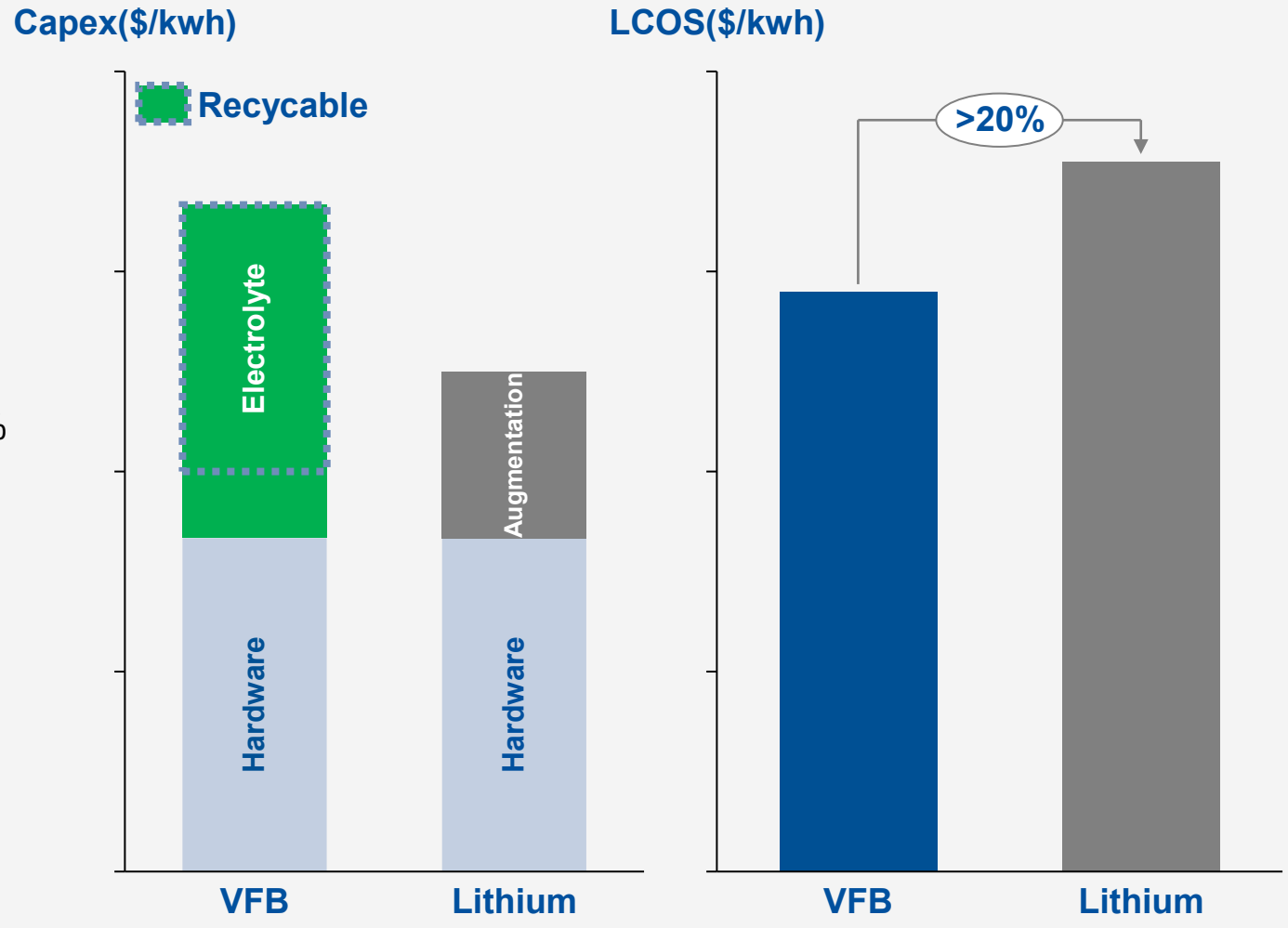
Duration	4 hr	8 hr	12 hr
LCOS Gap	over 20%	over 40%	over 60%

Note:
1.The LCOS calculation presumes that the BESS functions under typical conditions.
2.The insights from RKP S-Power are derived from an internal analysis.

Main Drivers for Lower LCOS

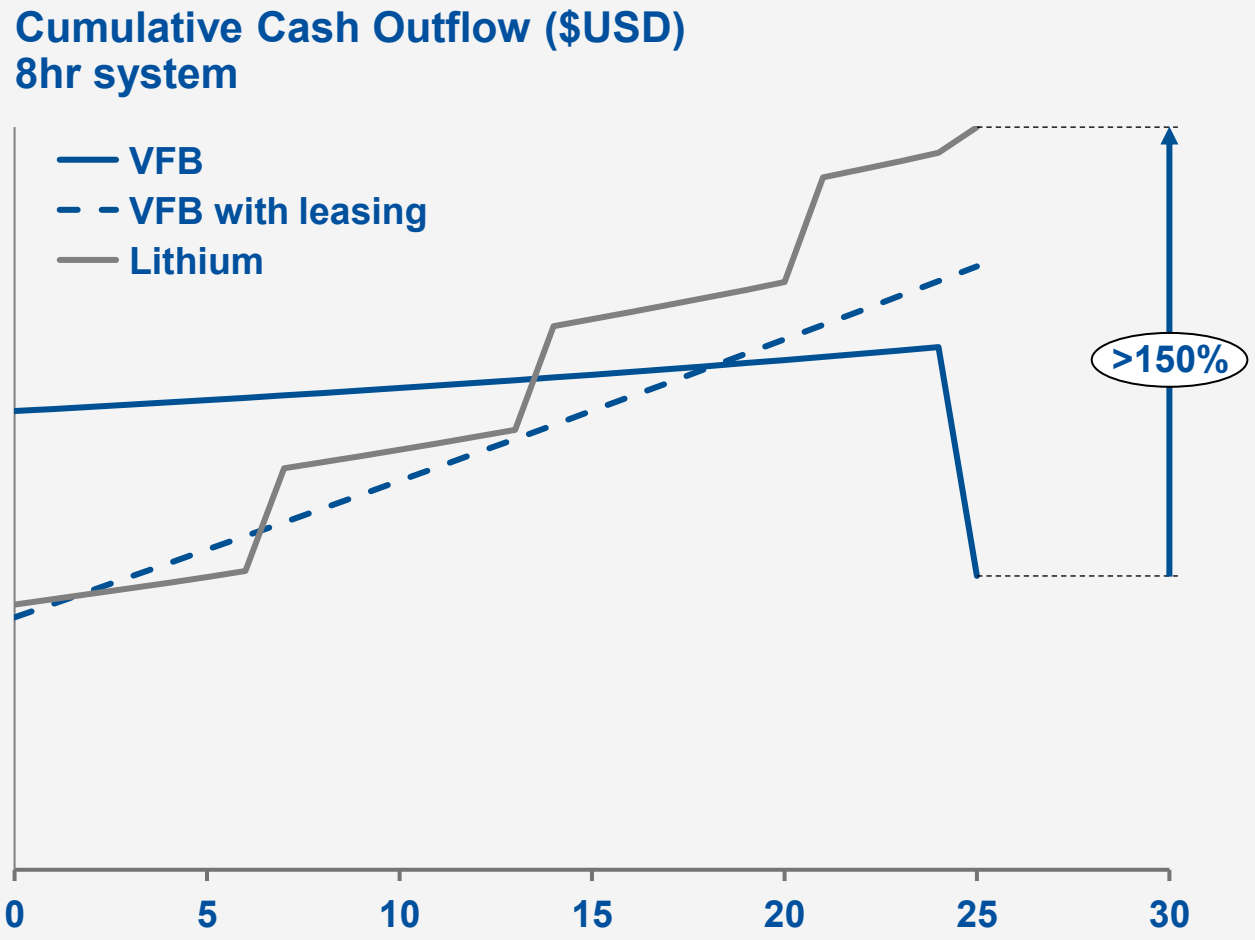
Key Notes

- **Lower O&M Costs**
  No thermal management or frequent battery replacements; simple maintenance compared to lithium systems.
- **More Electricity Delivered Over Lifetime**
  Minimal capacity degradation and nearly 100% depth of discharge, ensuring higher usable energy output over 20+ years.
- **Vanadium Value**
  Electrolyte retains intrinsic value and is fully recyclable, making it a financial asset under leasing models.



VFB has Different Lifetime Expenditure Curve with Lithium Batteries

- Higher Capex at beginning but significantly lower lifetime expenditure
- Electrolyte will be fully recycled at the end, resulting in a cash gain.
- Lithium's cumulative cash outflow exceeds VFB after year 14, driven by frequent augmentation and higher maintenance costs.
- Utilizing electrolyte leasing option can considerably reduce the upfront capital costs and improve project's financial performance



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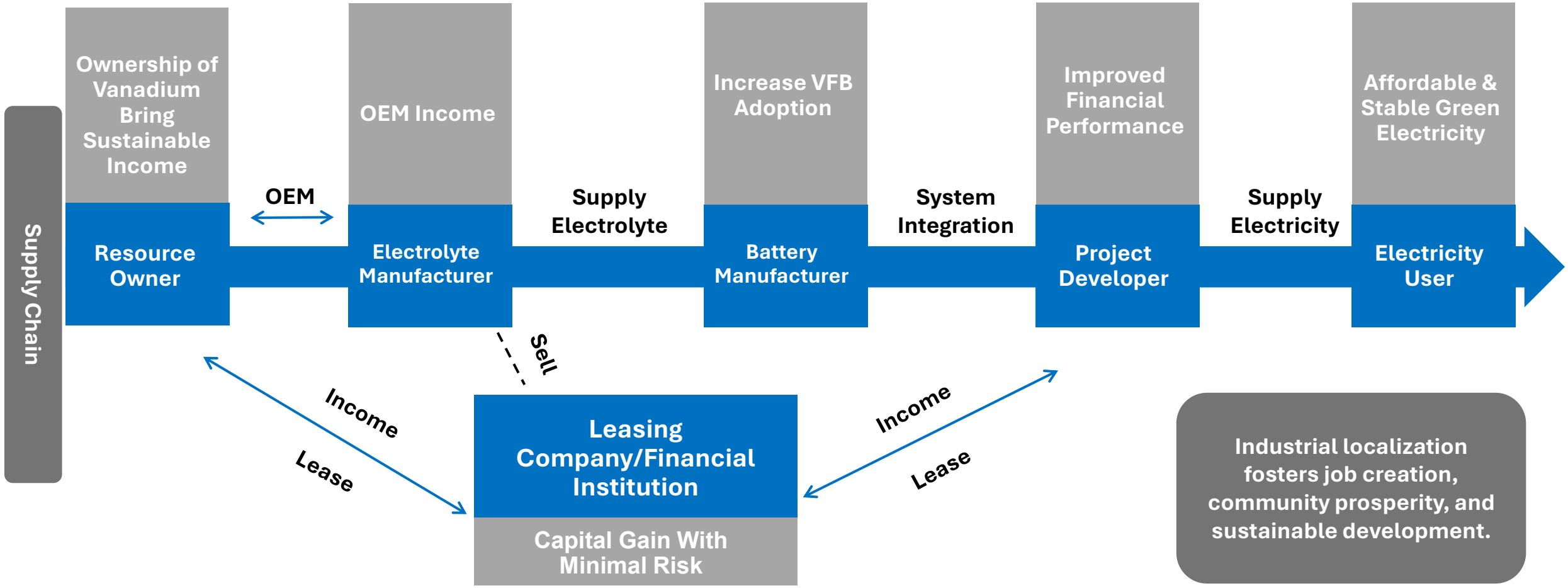
Leasing Could Be the Key to Unlock Supply Chain from Upstream

Stakeholders and Supply Chain Structure



Success Stories – World's first FTM VFB system using leased electrolyte

SPIC Panzhihua ESS
(12MW/60MWh, delivered in June 2025)

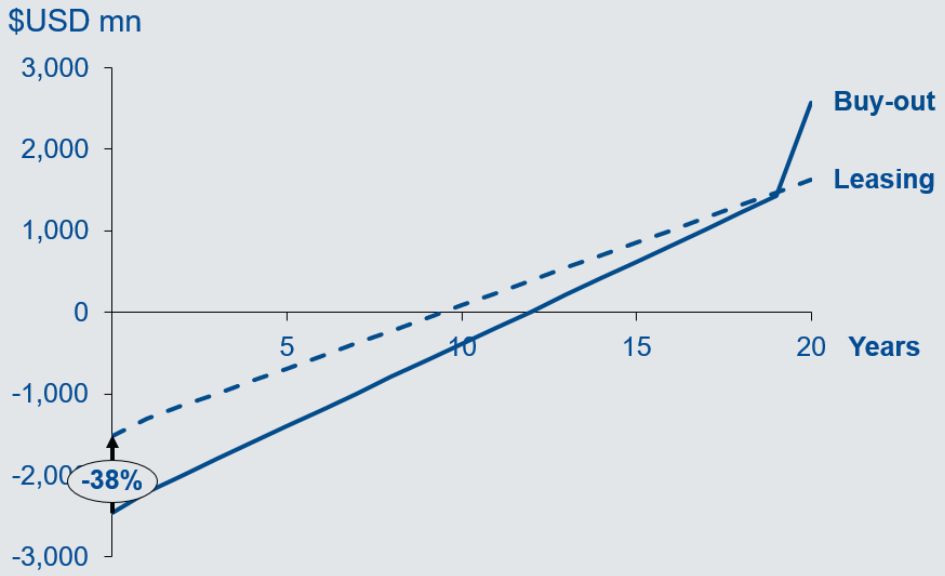
01 Highlights

- Owned by Fortune 500 power generation company
- Improved financial performance for project owner.
- Leasing company has achieved higher capital gain
- Resource owner has improved ROI by leasing

02 Benefits

- Electrolyte leasing significantly reduce the upfront capital cost and improves IRR from 8% to over 10%
- Leasing rate of 6% yields a 30% gain for the leasing company
- Resource owner achieves an ROI exceeding 16% by leasing.

03 Cash Flow



Success Stories – World's first FTM VFB system using leased electrolyte

Localization of Electrolyte Production

JV between RKP and PanSteel

The first industrial-scale vanadium electrolyte manufacturing plant using solvent extraction technology.

Key benefits:

1. Cost and Energy Savings – Directly utilizes vanadium-containing slag from steel production, reducing both energy consumption and overall costs.
2. Secure and Efficient Supply – Located adjacent to the steel mill, ensuring a stable feedstock supply while avoiding the cost and carbon emissions associated with long-distance transport.
3. Local Value Creation – Converts steel by-products into electrolyte locally, supporting regional production and creating new jobs.

Success Stories – World's first BTM VFB system using leased electrolyte

Conch Zongyang Energy Storage Station
(6MW/36MWh, delivered in Dec 2022)

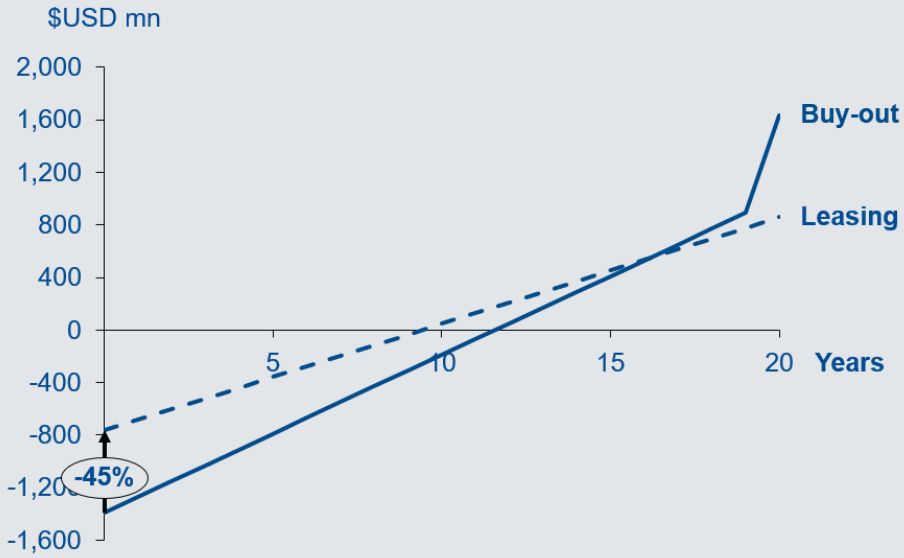
01 Highlights

- World's Largest BTM VFB Energy Storage System[1]
- Improved financial performance for project owner.
- Leasing company has achieved higher capital gain

02 Benefits

- Improve project IRR from 9% to over 11%
- Leasing rate of 6% yields a 35% gain for the leasing company

03 Cash Flow



Comments:
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Success Stories – World's first BTM VFB system using leased electrolyte

Localization of Battery Manufacturing

JV between RKP and Conch

Decarbonization as a product enable Conch to enjoy more value addition in the supply chain.

Key benefits:

- Stable Early Operations – Meeting Conch's internal demand ensures reliable plant operations in the initial stage.
- Increased Value Addition – Transitioning from end-user to supplier allows Conch to capture more value addition.
- Commercial Ready From Day 1 – With RKP's licensed technology, Conch can commercialize stable VFB products without heavy upfront R&D investment.
- Local Economic Impact – Localized battery module production supports job creation and contributes to sustainable growth of local community.

RKP

Pioneering a Sustainable Energy Future Together

Public Use