



VinEnerggo

GREEN ENERGY TO THE WORLD

We Belong To The Largest, Most Comprehensive Ecosystem In Vietnam With Proven Track Record Of Developing New Businesses Into Market Leader

VINENERGO | VINFAST ENERGY

VINENERGO, a member of Vingroup, is a pioneering enterprise in the energy sector. It plays a pivotal role in driving Vingroup's sustainable development strategy and realizing its net-zero emissions goal.

VINFAST ENERGY the energy arm of VINFAST, specializes in the development, manufacturing, and supply of high-quality, high-safety batteries and accompanying services, serving a wide range of energy storage applications.



GREEN ENERGY



Develop renewable energy projects and advanced energy storage solutions to promote the use of clean electricity

INDUSTRIALS & TECHNOLOGY



Electric Vehicles
Vietnamese EV OEM envisioned to drive the movement of the global smart electric vehicle revolution

Energy Business
The Only Fully Integrated Battery Maker with Giga-Scale in Southeast Asia



INFRASTRUCTURE



REAL ESTATE & SERVICES



SOCIAL ENTERPRISES



CULTURE

V-Film
V-Spirit
V- Culture Talents

ECOSYSTEM



We Build Our Capability With Advanced Technology - Integrated Supply Chain – Comprehensive Competencies Across All Manufacturing Aspects

01

WORLD-CLASS R&D CAPABILITY

Global experts from 14 nationalities in-house combined with **a network of peers, investees, university labs and technology partners globally** to who deliver innovation towards competitive energy solutions and products

02

DESIGN & MATERIAL ANALYSIS CAPABILITY

In-house design & analysis capability leveraging **40 state-of-the-art battery analysis and simulation systems** to support high performance and safety

03

HIGHLY AUTOMATED PRODUCTION

Digital smart factories with automated lines for battery cells, modules and packs manufacturing

04

FULLY EQUIPPED TESTING & VALIDATION CENTER

ISO-certified Testing and Validation center that can perform different types of test **from cell to pack levels** following **international standards**

05

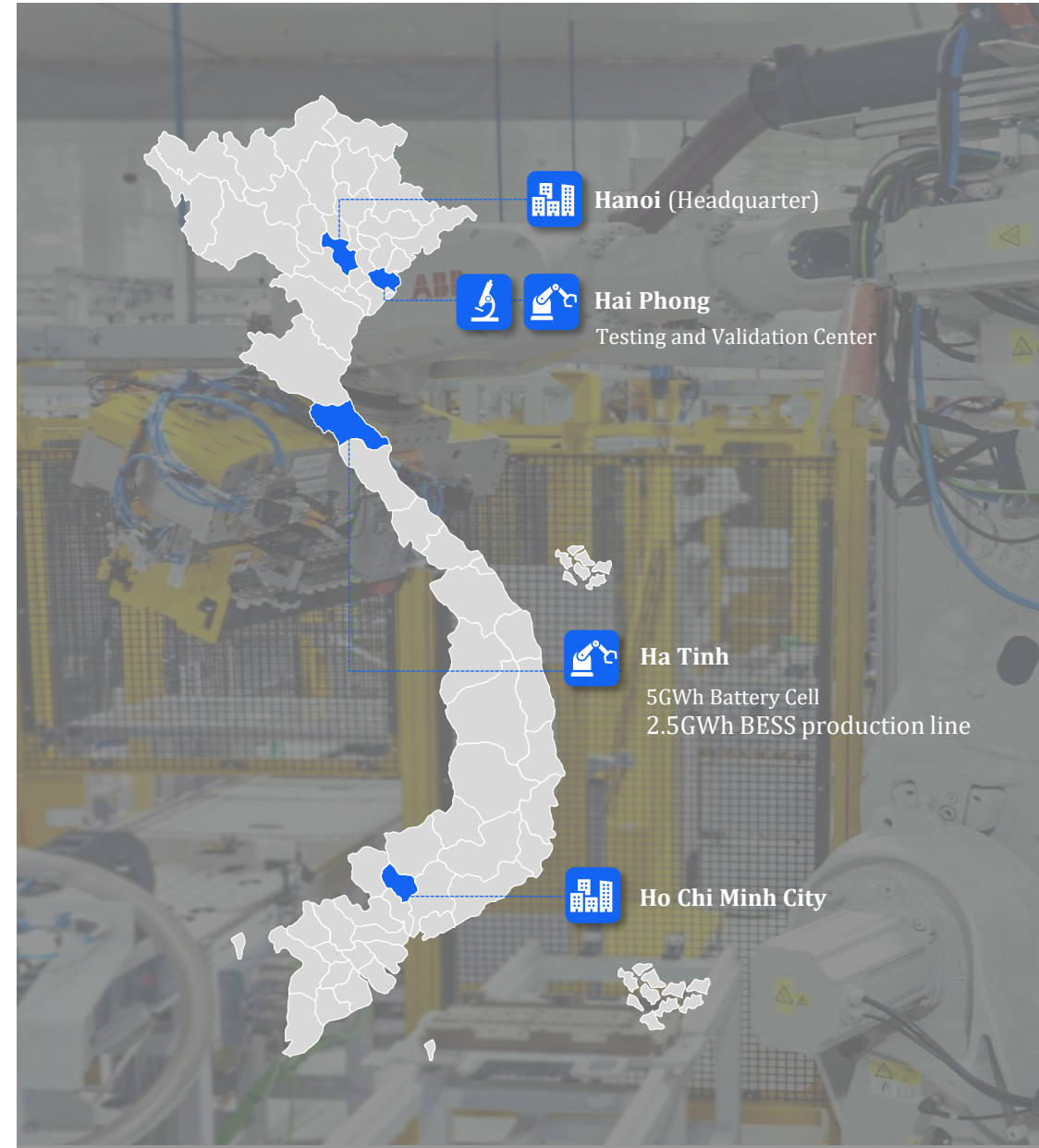
QUALITY MANGAGEMENT SYSTEM

ISO 9001 certified; 8 mega quality assurance including **Critical to Safety and Voice of Customer**

06

END-TO-END SUPPLY CHAIN AND ESG

Supply chain developed including second-life and end-of-life with **clear targets for CO2 emission reduction**



We Have The Capability To Fully Control Product Development Progress To Ensure Product Quality, Safety And Innovation

FOUNDATIONAL CELL-TO-SYSTEM CAPABILITY

Highly optimized with advanced technology & structure, ensuring both energy efficiency and operation safety

- High energy density
- Long service life
- Safe and Stable

CELL

- Less dead space, more energy efficiency
- Smart communication
- Flexibility to integrate

MODULE

- Optimal structure
- Advanced cooling

RACK

- Flexibility configuration
- Optimized energy efficiency
- Easy to integrate

EN-CLOSURE

IN-HOUSE MANAGEMENT SYSTEM

Complete, In-house System Integration For Product Development And Customization

- Cell level monitoring
- Self-diagnosis
- Advanced detection

BMS

- Efficient flow rate
- Temperature control
- Leakage control

THERMAL

- Advanced technology
- 3 layers detections
- 5 layers protections

FSS

- Centralized monitoring
- Cloud-based platform with real time communication

EMS

ADVANCED TESTING AND VALIDATION

Comprehensive Testing and Validation Abilities to Ensure the Highest Product Qualification and Safety

- Comprehensive capability of conducting numerous test from cell to rack level with ISO 17025 management standard.

COMPREHENSIVE

- BOA accreditation and fully compatible for various international standards including UN, UL, IEC, ISO, ECE and other standards.

ACCREDITED



ELECTROCHEMICAL ANALYSIS



BATTERY ABUSE TESTING



ENVIRONMENTAL ANALYSIS



TRANSPORTATION TESTING



Our Product Portfolio Is Able To Offering Multiple Applications, Addressing Critical Needs Of Various Customers

OUR ESS SOLUTIONS OFFERING..

BOX SOLUTION



5 kWh

25 kWh

TOWER SOLUTION



138 kWh

Air-cooling

261 kWh

Liquid Cooling

20FT CONTAINER SOLUTION



3,686 kWh

Liquid Cooling

5,015 kWh

Liquid Cooling

.. ADDRESS A VARIETY OF CUSTOMER NEEDS..

RESIDENTIAL OFFICE

COMMERCIAL INDUSTRIAL

GRID-SCALE LARGE SCALE COMMERCIAL / INDUSTRIAL

Address needs for integration with RTS energy, explore opportunities for optimizing electricity cost and increase efficiency

From offering simply optimizing electricity cost to more complex ancillary services, large scale renewable integration, improve power quality and characteristic

..THROUGH A VARIETY OF APPLICATIONS

Rooftop solar integration
Time-shift arbitrage
Back-up power

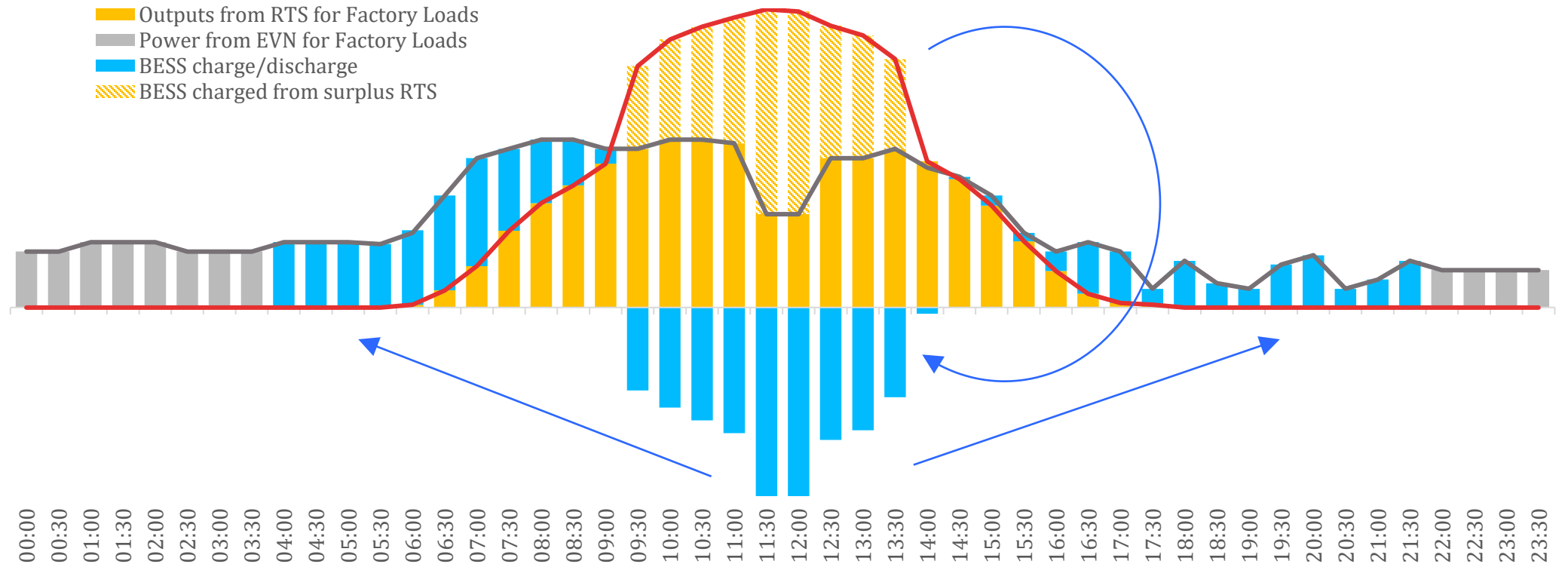
Time-shift arbitrage
Back-up power
Renewable integration

Renewable integration
Time-shift arbitrage
Back-up power

Ancillary services
T&D Deferral

BESS – Enabling Increased Use of Green Energy

APPLICATION



BESS OPERATION

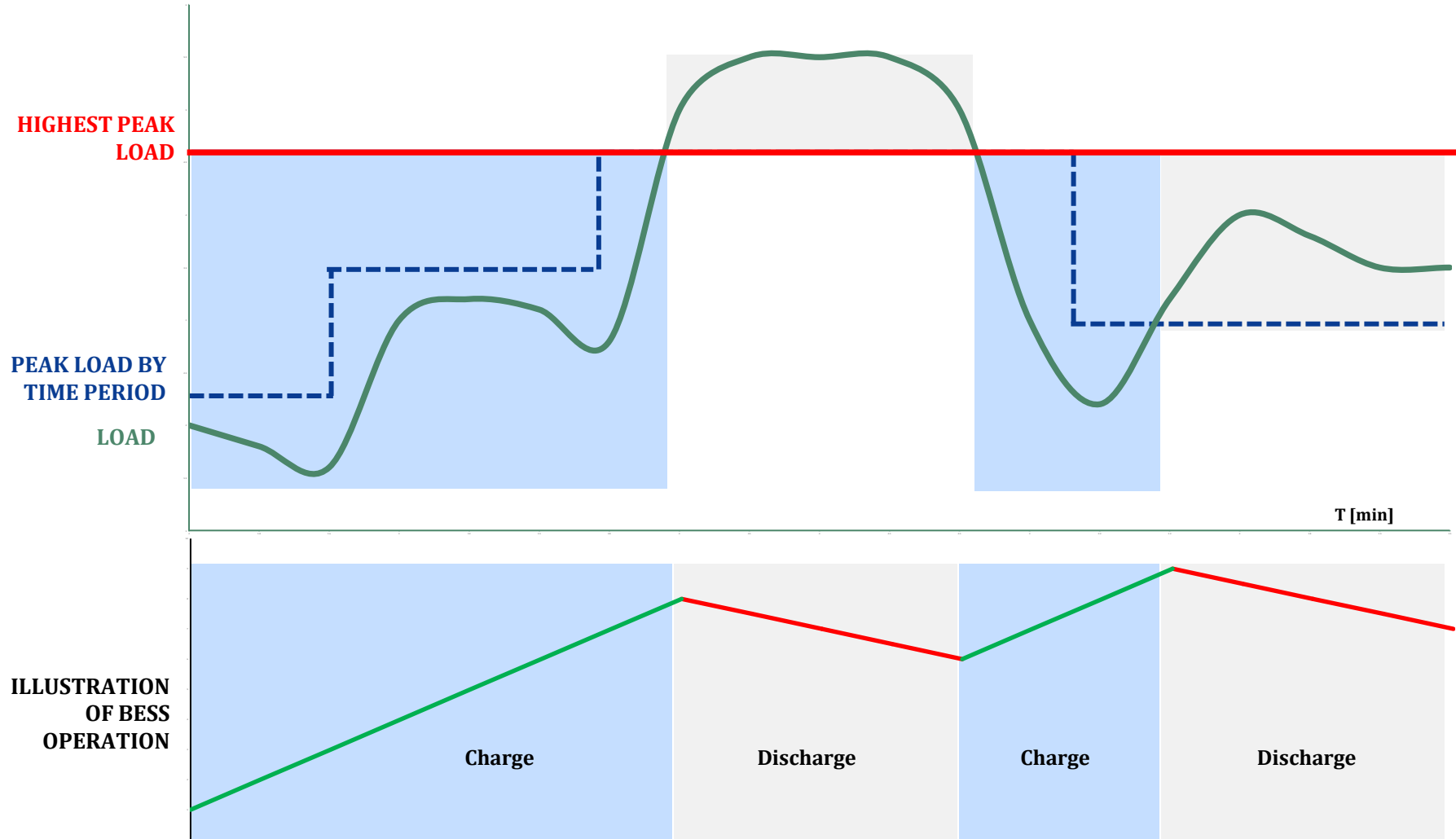
- Charging the system using surplus solar energy during the daytime,
- Then discharging to supply the load continuously until 10:00 p.m, and continuing to discharge again from 4:00 a.m. the following day

BENEFITS

- The plant uses 100% solar power from 4:00 to 22:00.
- Power used from the grid is kept at a minimum and only occurs during off-peak periods (when the electricity price is low).

BESS HELPS MITIGATE THE RISK OF SUDDEN COST WHEN CONSUMPTION EXCEEDS THE THRESHOLD

PEAK LOAD SHAVING APPLICATION



Based on a predefined threshold, the BESS will charge or discharge when power consumption falls below or exceeds this threshold.

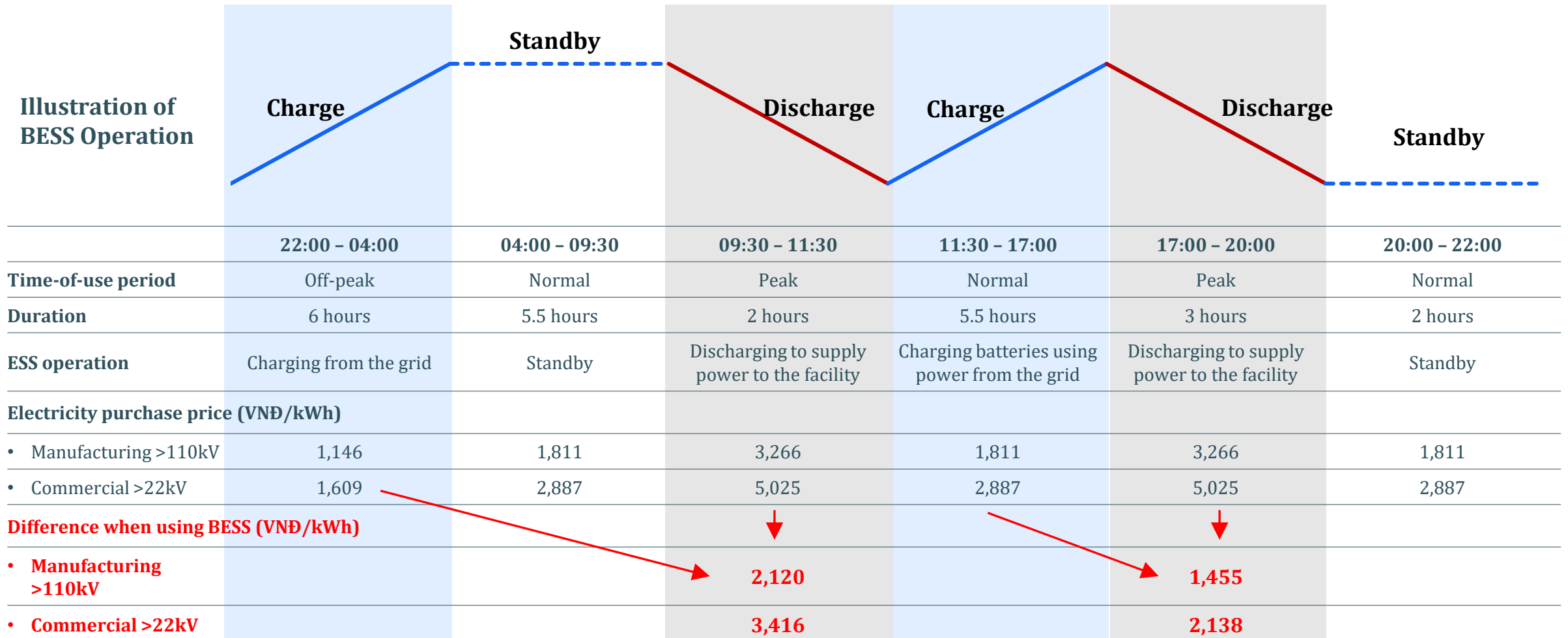
It helps reduce electricity costs for consumers by managing load according to electricity price thresholds and actual demand.

It reduces operating costs for power system operators by limiting peak capacity requirements.

It mitigates the risk of electricity costs increasing significantly when consumption exceeds the threshold, even for a very short period of time.

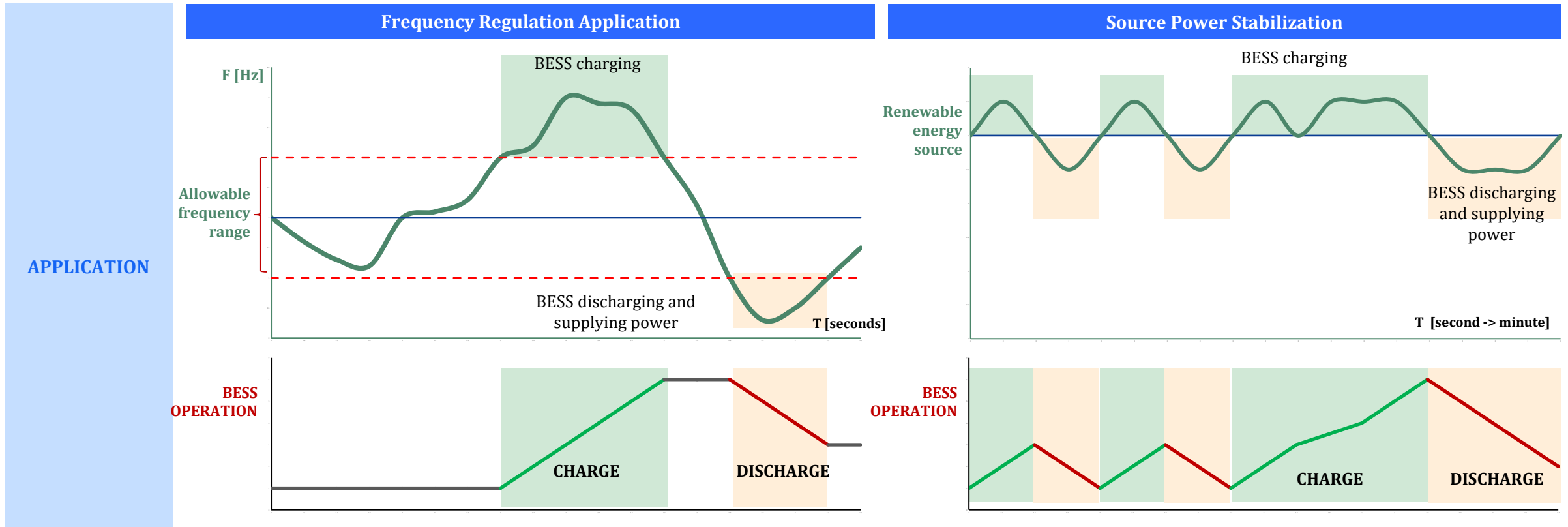
BESS HELPS OPTIMIZE COSTS BY CHARGING/DISCHARGING BASED ON TIME-OF-USE TARIFFS

- According to EVN, from Monday to Saturday each week, there are a total of 5 peak hours per day, including: 9:30–11:30 and 17:00–22:00. There are no peak hours on Sunday.
- On average, a business or manufacturing facility will have electricity consumption during peak hours accounting for around 20%–30% of its total daily electricity usage.
- The purchase price of electricity differs significantly between peak and off-peak hours (by more than 250%).



Source: Study and research from VinEnergO, EVN

BESS – APPLICATIONS IN FREQUENCY REGULATION AND SOURCE POWER STABILIZATION



BESS OPERATION

- The system charges and discharges energy to respond to **loads that are above or below the predefined optimal frequency range**
- This ensures **stability of the power transmission process with an extremely fast response time** compared with other energy-storage methods

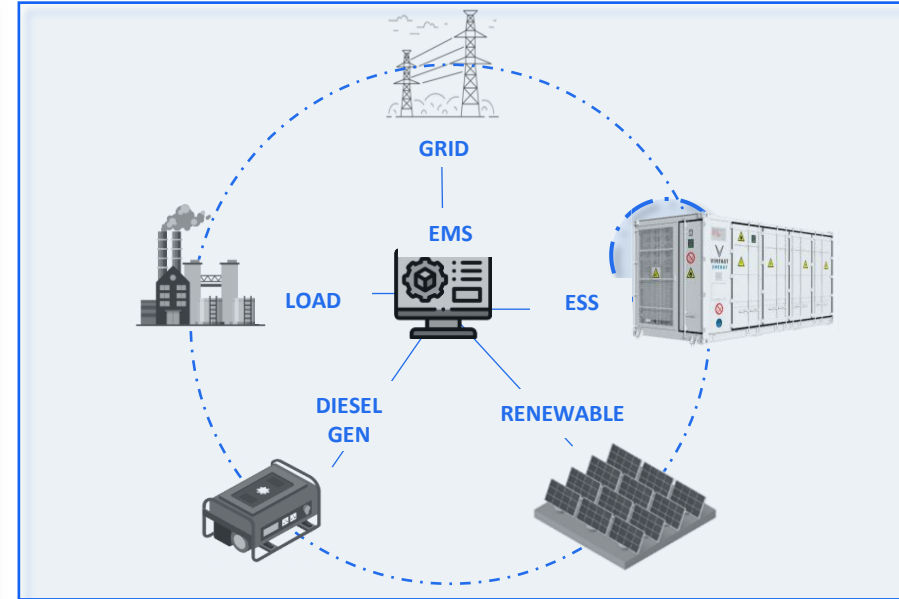
- BESS **continuously charges and discharges energy to maintain the committed output power level**
- This **improves the reliability of the power source, smooths the output power**, and limits voltage fluctuations as well as power variations

LỢI ÍCH

- Ensures the reliability and stability of the transmission system
- Optimizes major investment costs related to grid upgrades

- Stabilizes the output power of renewable sources
- Increases reliability and enhances the ability to manage energy resources

CASE STUDY: SOLAR+BESS+DG (MIGRO-GRID)



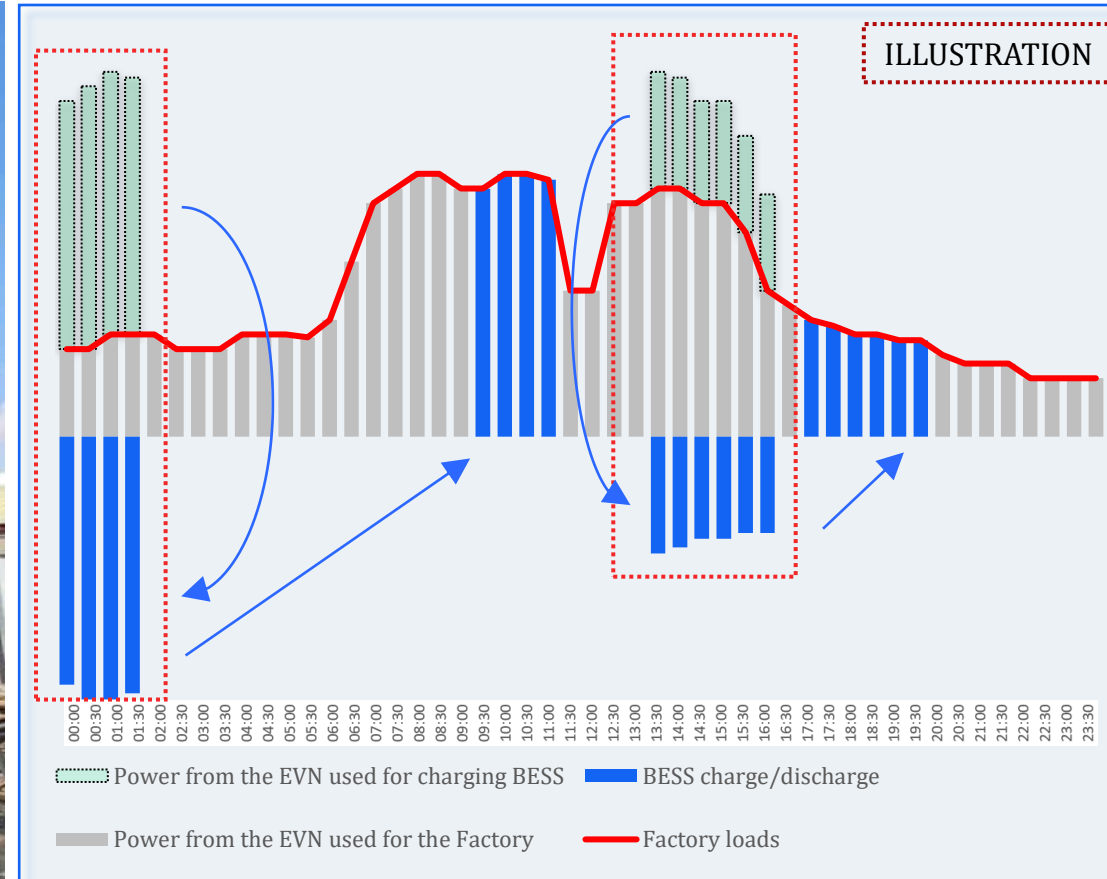
1.1 MWh

Thermal Power Plant
Thanh Hoa, Viet Nam

The first BESS project integrated with a Microgrid in Vietnam, successfully passed over 30 stringent operational scenarios before official commissioning

Industrial
Microgrid integrated with BESS

CASE STUDY: SOLAR+BESS (COMMERCIAL SITE)

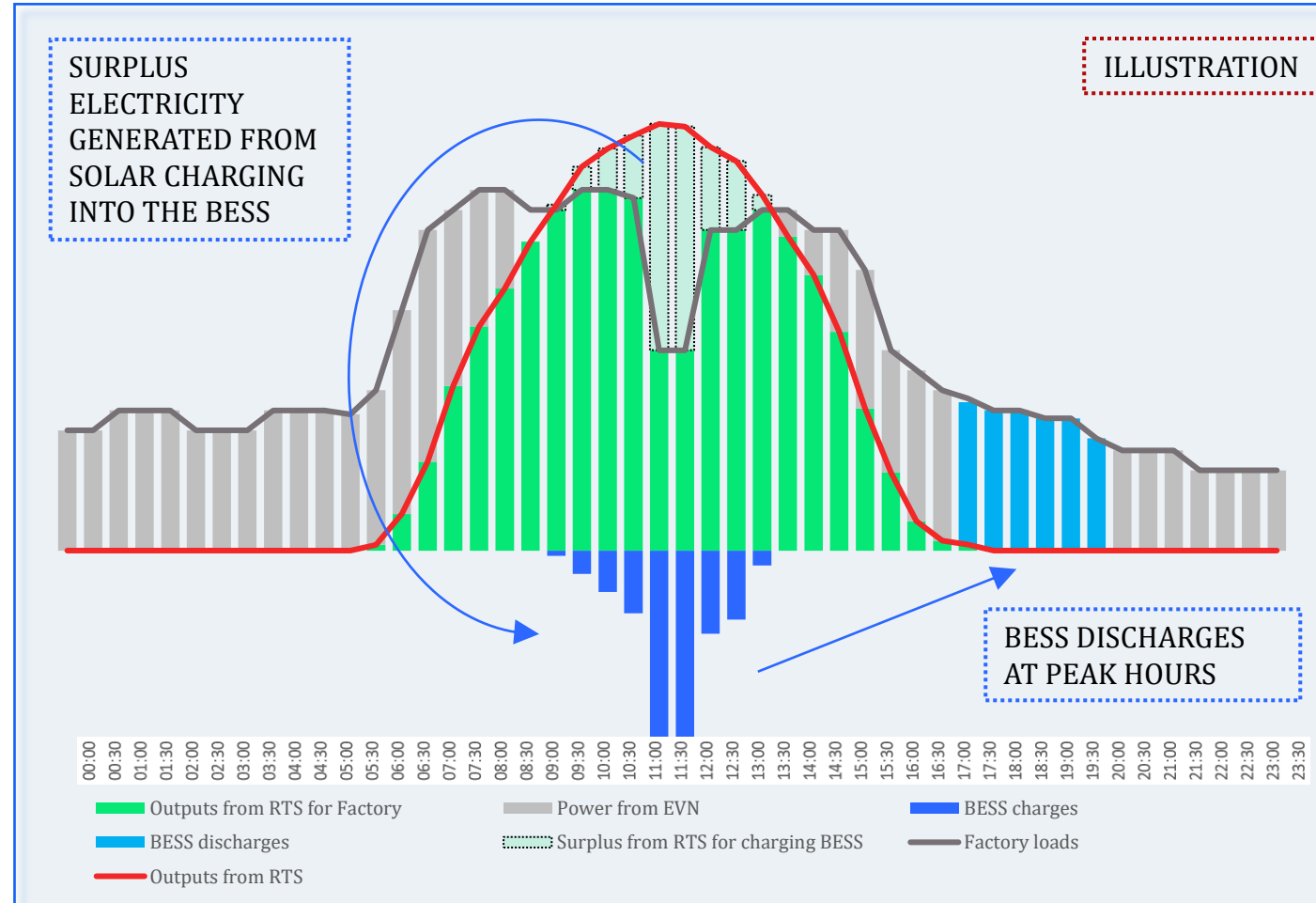


2.3 MWh

Retail Mall in Hanoi

Commercials
Optimizing electricity cost

CASE STUDY: SOLAR + BESS FOR MID- AND LARGE-SCALE FACTORIES

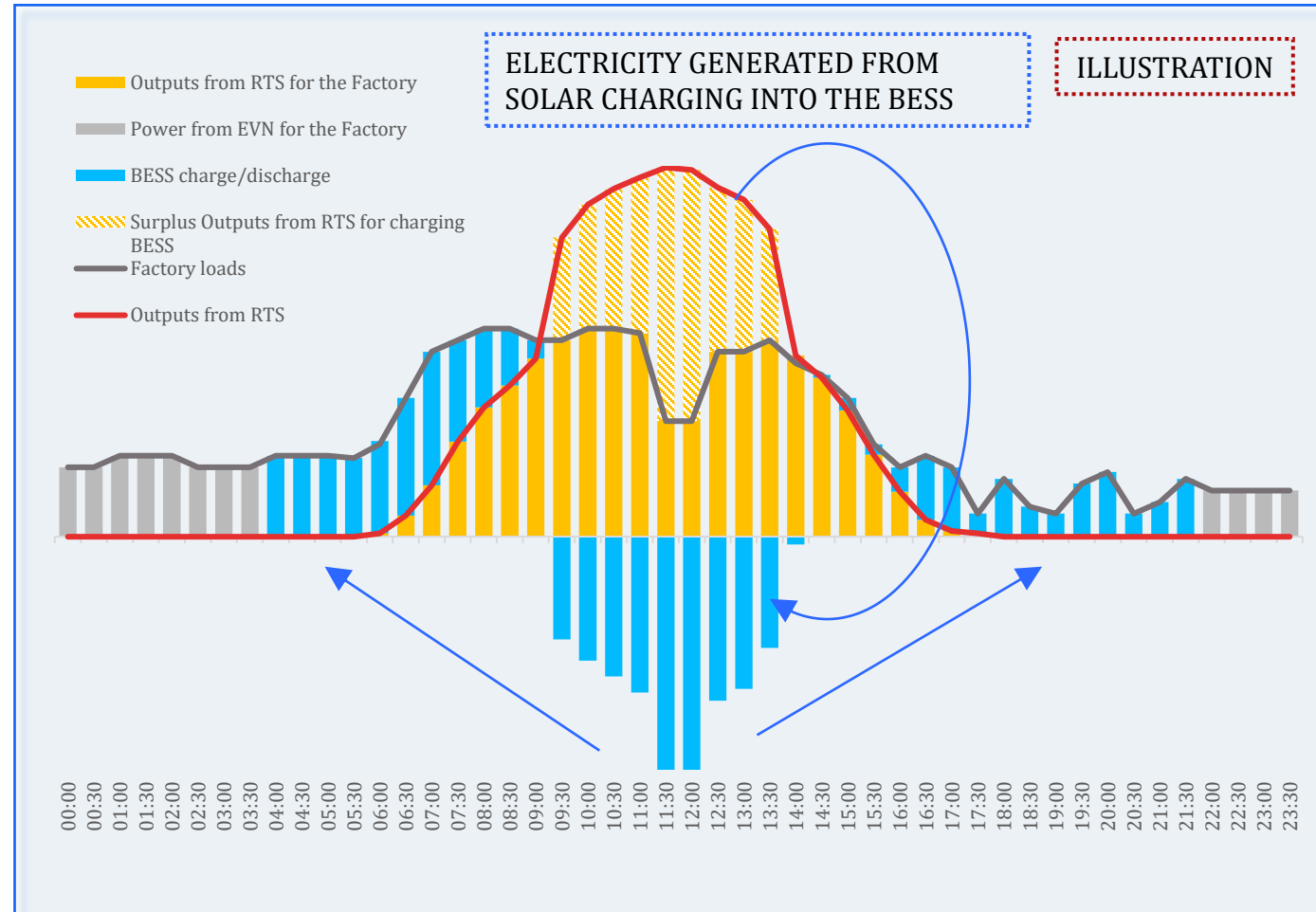


45 MWh

Cluster VinFast Factory
Ha Tinh

Industrial
Optimize electricity costs
Integrate renewable energy

CASE STUDY: SOLAR + BESS FOR INDUSTRIAL PARKS



>150 MWh

VinFast Factory
Hai Phong

Industrial
Optimize electricity costs
Integrate renewable energy

BESS – We Provide Tailor-made, Scalable, Competitive Solutions With Local Team of Aftersales Services

01

BEST-FIT PRODUCT

VinEnerg offers ESS solutions tailor-made to the needs of Client's request

02

OUTSTANDING WARRANTY SERVICES

VinEnerg's solution comes with a comprehensive warranty package, a dedicated technical team based in Vietnam, and high-quality customer service.

03

FULLY INTEGRATED & MULTI-APPLICATION

Our solution is capable of meeting a wide range of customer needs, from residential scale to grid scale, and can be integrated with various types of inverters (PCS).

04

MODULAR DESIGN FOR EXPANSION

VinEnerg delivers smart product design which can be directly shipped to site, offers ease of plug-and-play for installation as well as scalability for larger scale project

05

COMPETITIVE AND FLEXIBLE OFFERS

VinEnerg commits to deliver the best price-to-value solutions, fully supporting Client's project needs by balancing CAPEX and OPEX costs





VinEnergó

SINCERE THANK YOU

VINENERGO ENERGY JOINT STOCK COMPANY

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