SUSTAINABILITY

Building a green port

OUR SHARED RESPONSIBILITY

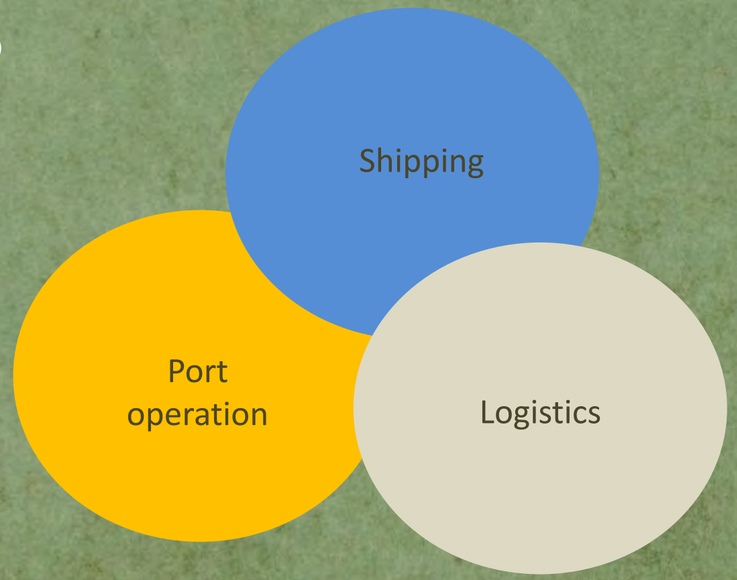
Mr. Nguyen Dinh Thang
Director, Business Division
Port of Hai Phong Joint Stock Company, Viet Nam

Content

1. About us

VIETNAM MARITIME CORPORATION (VIMC)

Since 1995



28 years of history

Strategic role in Vietnam economy

No. 1 in scale in maritime industry

VIMC
Vietnam Maritime Corporation

VIMC seaport network

Operating **16** **key seaports,** located in dynamic economical zones with direct connection to domestic, regional and international transportation network.

North Vietnam

- **Port of Hai Phong**
- Transvina
- Vinalines Dinh Vu
- CICT

Central Vietnam

- Nghe Tinh
- Da Nang
- Cam Ranh
- Quy Nhon

South Vietnam

- Sai Gon Port
- SP-PSA
- CMIT
- SSIT
- Can Tho
- Hau Giang
- Nam Can

Port of Haiphong

The largest seaport in the North of Vietnam with nearly **150** years of history

Established by the French

1874

Chua Ve Terminal

1990

Tan Vu Terminal

2008

1929

Hoang Dieu Terminal

2002

Dinh Vu Terminal (Port of Hai Phong holds 51% of the shares)

2024

Lach Huyen

Our terminal network

CAM RIVER AREA

- Channel depth: - 6.4m
- Vessel size: 40,000 DWT

CHUA VE AREA

- Channel depth: - 6.9m
- Vessel size: 20,000 DWT

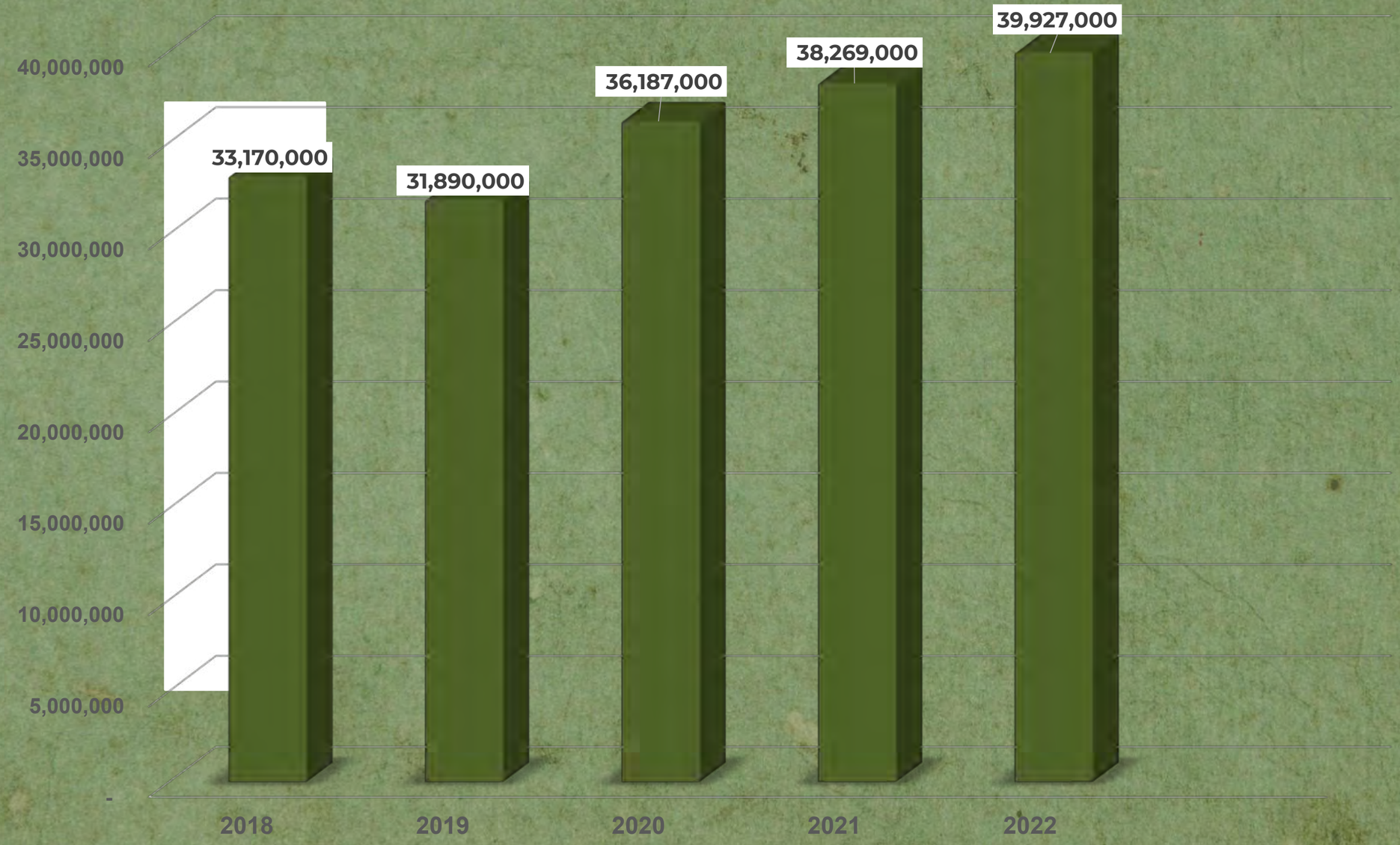
DINH VU AREA

- Channel depth: - 7m
- Vessel size: 40,000 DWT

LACH HUYEN AREA

- Channel depth: - 14m
- Vessel size: 100,000 DWT

Cargo throughput via our terminals



Container traffic via our terminals (in TEUs)

Hai Phong International Gateway Port

750 m	Quay length
2	Main berths
1	Barge berth
160,000 DWT	Max vessel size
1.1 ml	TEUs/year

Project timeline

Dec 2022

Sign the power system design contract

2H 2023

Sign equipment contract

4H 2023

Sign the IT supply contract

4Q 2024

Put Berth No.3 into operation

2025

Put Berth No.4 into operation & Complete the whole project

PORT LAYOUT

TOTAL AREA: 55.6ha
+ Land area: 47ha
+ Water surface area: 8.6ha

- Appropriate quay elevation taking into account sea level rise;
- Design the construction of the office area, landscape taking into account environmental factors, making use of clean energy.
- Ensure appropriate location and adequate areas for vehicles during container pick-up and drop-off to minimize congestion and pollution on port area, residential areas, and logistics areas behind the port.

June 2023

Berth for barges

Current transportation modal split:

- Railway: 1-3%
- Barging: 13-15%
- Road: 80-85%

Project includes Barge berth for vessels of up to 160 TEUs (~3,000DWT) with a total length of 250m, aimed at:

- Reduced transportation costs, transit time and emissions compared to road transport
- Reduce the number of cars transported to the port
- Promote transshipment service by barge, avoid traffic congestion at the port area
- Reduce shipping costs, shipping time
- In line with closing time policy applied at berths No.3 and 4 Lach Huyen

2. Legal basis of implementation

01

Instruction of **the Prime Minister** at the Official Dispatch No. 7220/VPCP-CN dated July 30, 2018 on studying and developing seaport model aimed at green environmentally friendly ports

02

Decision No. 2207/QD-BGTVT dated October 29, 2020 by the **Minister of Transport** to approve the Scheme of developing green ports in Vietnam

03

Decision No. 710/QD-CHHVN dated June 2, 2021 by the **Director of Vietnam Maritime Administration** to issue the Master Plan to carry out Scheme of developing green ports in Vietnam

04

Decision No. 1323/QD-TTg dated October 9, 2019 by the Prime Minister approving the investment policy of the investment project of container berth No. 3 and No. 4 of Hai Phong Port in Hai Phong International Gateway Port

3. Green port criteria

Technical Regulation on Vietnam Greenport Criteria TCCS 02:2022/CHHVN at Decision No. 1909/QĐ-CHHVN dated December 29th 2022) specifies 6 main groups of criteria (focusing mainly on general ports and container ports)

01

Green port awareness (maximum score is 5 points)

02

Resource usage (maximum score is 15 points)

03

Environmental quality management (maximum score is 50 points)

04

Energy use (maximum score 15 points)

05

Energy use (maximum score 15 points)

06

Energy use (maximum score 15 points)

Each key Criterion will consist of specific Criteria defined by several reference standards.

Each Criterion has a ratio. The final score of each assessment will be calculated based on the scores of all indicators and their respective ratio.

Green ports' Benefits

- Energy-saving, emission reduction
- Renewable energy and industrial equipment
- Environmental quality management solutions
- Information technology applications

4. Opportunities & Challenges

4.1 Opportunities

Vietnam is a promising market for ocean industry with a seaport system of 286 terminals and coastline length of over 3260 km

From 2014 to 2022, Vietnam's total exports and imports have nearly doubled from $298.2 billion to $730.28 billion, with average annual growth rate of 10.9%.

Strong support from the government to encourage investment in green port development

In compliance with Vietnam's COP26 commitment and IMO's regulation

4.2 Challenges

1

Huge investment needed at first stage

2

More cyber risks while accelerating IT solutions

3

Readiness of human

5. Green port solutions

1) Equipment technology
2) Information Technology solution
3) Management
4) Other solutions

Equipment technology

1. Diesel powered equipment

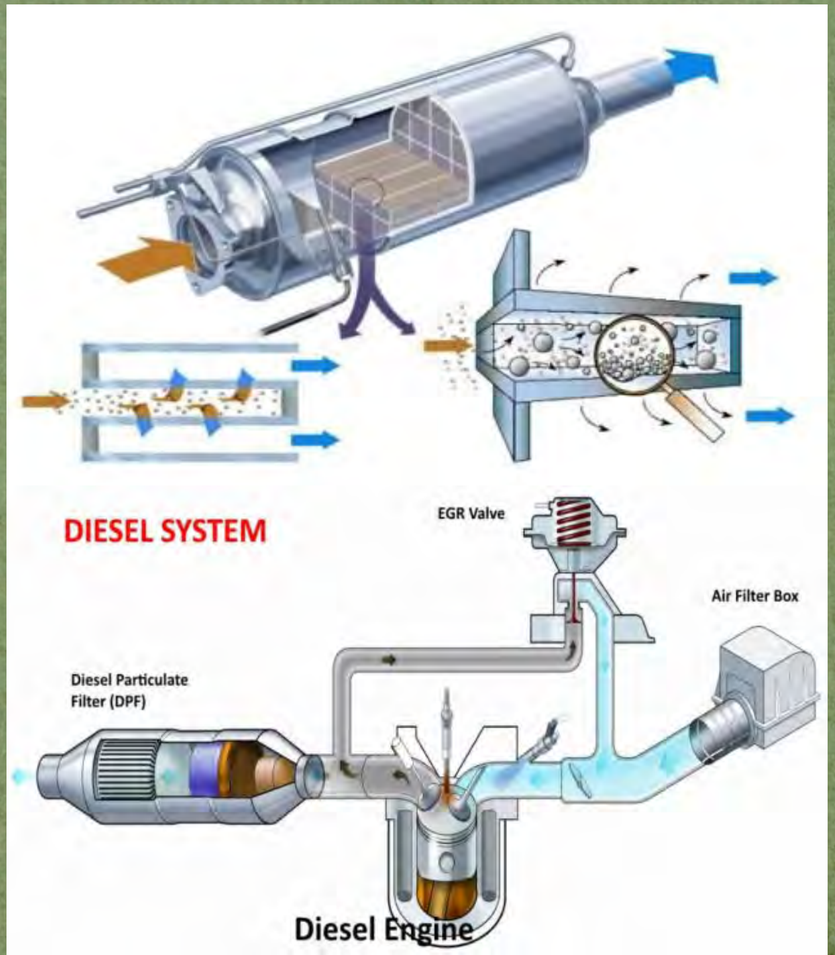
Current situation at existing terminals

- Wastes released into the environment:
+ CO2: product of complete oxidation of fuel
+ CO: comes from incomplete oxidation of fuel
+ Solid particles, products of complex formation processes.
+ Volatile organic compounds (COVs), are organic chemical compounds with a vapor pressure high enough that under normal conditions can evaporate in high quantity into the air.
+ SO2 forms from sulfur available in the fuel.
+ Metals, found in oils and fuels.
+ Noise pollution

Equipment technology

1. Diesel powered equipment

SOLUTION
- All new model diesel cars are equipped with DPF - Diesel particulate filter. The function of the DPF is to filter and remove harmful particles from the exhaust gas. According to automotive experts, a good DPF particulate filter is one that is capable of filtering 80% of particles. - Study using clean, environmentally friendly fuels.

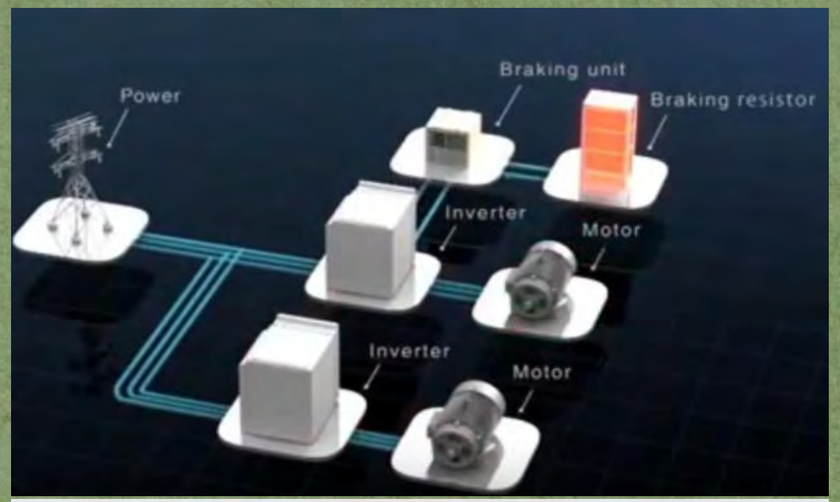


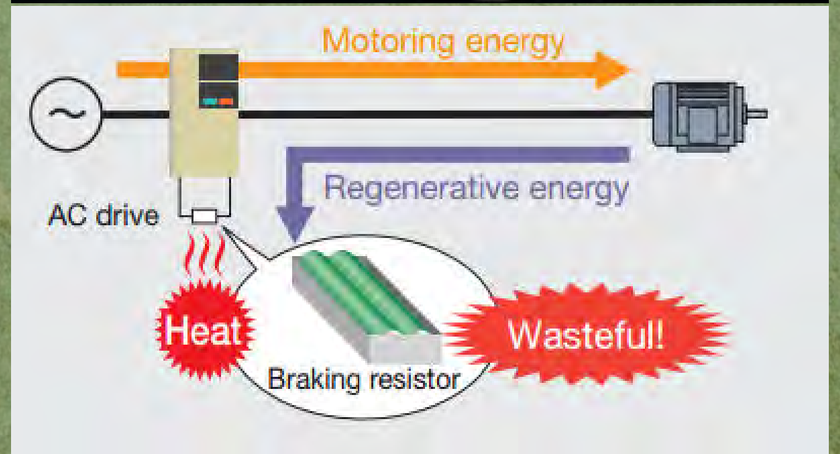
Equipment technology

2. Electricity powered equipment

Current situation at existing terminals

- For outdated systems, the energy generated during the braking of the electric motor (when lowering the cargo, reducing the rotational speed, etc.) is dissipated on the cabinets. Resistors generate heat, do not save electricity

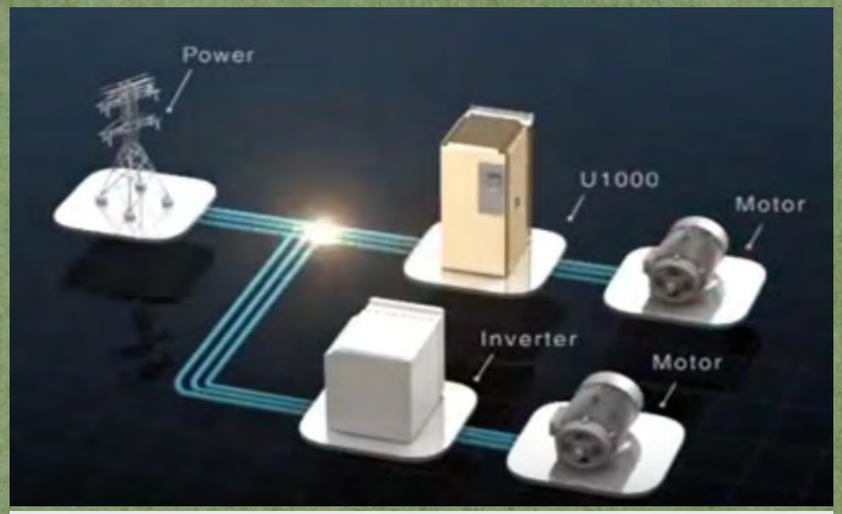


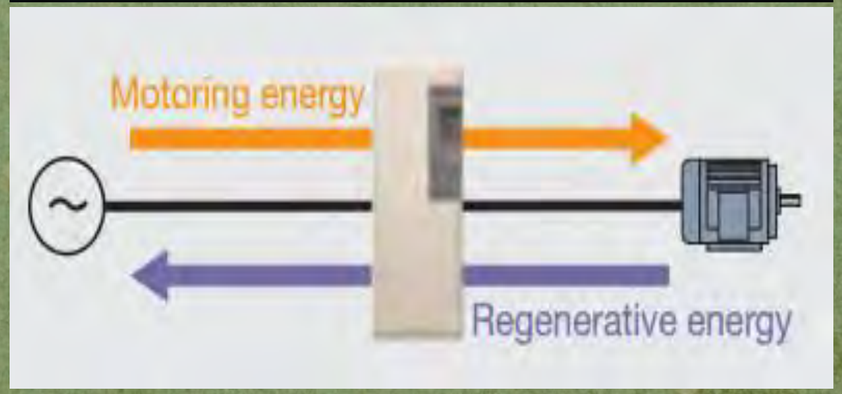


Equipment technology

2. Electricity powered equipment

SOLUTION
Invest in new technology to use inverters in the control system to optimize handling operations and improve productivity.
Applying advanced technology using regenerative braking technology capable of regenerating energy to reduce cost of electricity consumption





Equipment technology

3. Diesel powered RTGs

Current situation at existing terminals	SOLUTION Electricity powered RTGs
	

Equipment technology

4. Electricity lighting system

Current situation at existing terminals

Using incandescent light bulbs is a type of light bulb with yellow light, which consumes a lot of energy.

SOLUTION

Using LED lighting system to save electricity; reduce heat generation (saving about 80% power consumption)

Equipment technology

5. Shore power supply

Current situation at existing terminals

Using generator machine

SOLUTION

Coordinating with shipping lines to install machines to supply electricity to ships during operation at the port to minimize emissions of ship lights.

Equipment technology

6. Electricity powered forklifts

Current situation at existing terminals Using diesel forklifts	SOLUTION Using electric forklifts
	

Equipment technology

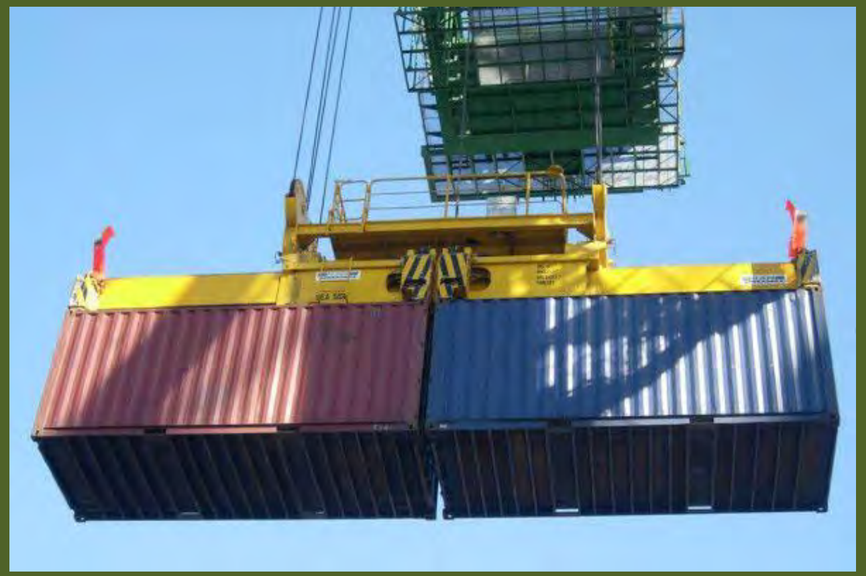
7. Spreaders

Current situation at existing terminals

Using single spreaders 20'/40'/45'

SOLUTION

Using twinlift spreaders



Equipment technology

8. Solar power

Current situation at existing terminals

Use main power for the office building. In case of power failure, we will switch to a backup diesel generator

SOLUTION

Using solar power combined with power grid

Equipment technology

9. Electric car & bus to transport employees from the city centre to the terminal

Current situation at existing terminals	SOLUTION
Using 4-16 seater cars using gasoline/diesel fuel	Using 8-12-seat electric cars, reducing environmental and noise pollution
	

Equipment technology

10. Road vehicles

Current situation at existing terminals

Driver apps to automated gate pass

SOLUTION

Automated gate solutions & radio frequency identification (RFID) technologies, which enable the terminal to track trucks in real time

Information Technology solution

TT	Solution	Tan Vu Terminal	Berth No. 3, 4 of Hai Phong International Gateway Port
1	Terminal Operating System (TOS)	✓	✓
2	ePort application	✓	✓
3	Management Information System (MIS)	✓	
4	Document management and work management software (Cloud office)	✓	✓
5	Port website	✓	✓
6	Online reporting software for operation	✓	✓
7	HR management software (MIS G3)	✓	✓
8	Accounting and finance management software	✓	✓
9	Material management software, equipment maintenance software	✓	✓

Information Technology solution

TT	Solution	Tan Vu Terminal	Berth No. 3, 4 of Hai Phong International Gateway Port
1	Smart port solutions applied at quayside		
1.1	Automatically taking pictures, identifying empty container conditions in combination with cameras located on the top of cranes at quayside using AI technology to classify empty container conditions	✓	✓
1.2	Installing wifi systems and cameras on the top of cranes	✓	✓
2	Smart port solutions applied at the yard		
2.1	Automatic positioning and navigation system – D.GPS installed on RTGs/Reach Stackers	✓	✓
2.2	Journey monitoring for internal transport vehicles (Track/Reach Stacker)		✓
2.3	Camera solution integrated with artificial intelligence (AI) for monitoring goods, vehicles and any unsafety signs; preventing fire, collision; and congestion warning in the port		✓

Information Technology solution

TT	Solution	Tan Vu Terminal	Berth No. 3, 4 of Hai Phong International Gateway Port
3	Smart port solutions applied at the gate area		
3.1	Automatic gate solutions for managing people, vehicles and cargo	✓	✓
4	Solutions applied in the administration office		
4.1	Automated queuing system	✓	✓
4.2	Service quality rating system	✓	✓
4.3	Face recognition camera solution		✓
4.4	Automated EIO (Equipment Interchange Order) making machine system for customers		✓
4.5	Solutions for building Data Warehouse and Business Intelligence reports		✓
5	Solutions to build Smart Port Apps		

MÔ HÌNH ỨNG DỤNG CÔNG NGHỆ THÔNG TIN
INFORMATION TECHNOLOGY SYSTEM

TRADELENS

(EDI, EDO, EBK)

(VASSCM, e-Invoice)

Hãng tàu/Đại lý
(Shipping Line/ Agent)

Cơ quan hải quan, thuế
(Customs, Tax Authorities)

Trung tâm dữ liệu
(Data Center)

Trung tâm điều hành
(Operation Center)

Trung tâm dịch vụ khách hàng
(Customer Service Center)

Khách hàng
(Customers)

ePort

Dịch vụ cảng điện tử
(Eport)

Checking point

Khai thác tại khu vực cầu tàu
(Operation at quayside)

Khai thác tại khu vực bãi container
(Operation at container yard)

Giao nhận cổng tự động
(Automated Gate Pass – Smart Gate)

Khu vực Logistics: đóng rút, vệ sinh, sửa chữa
(Logistics Area: Stuffing/Un-stuffing, Cleaning, M&R)

EPORT

Shipping lines/Agent/ Custom

D/O

ePort CONNECT

ONLINE PAYMENT

Customer

Procedures

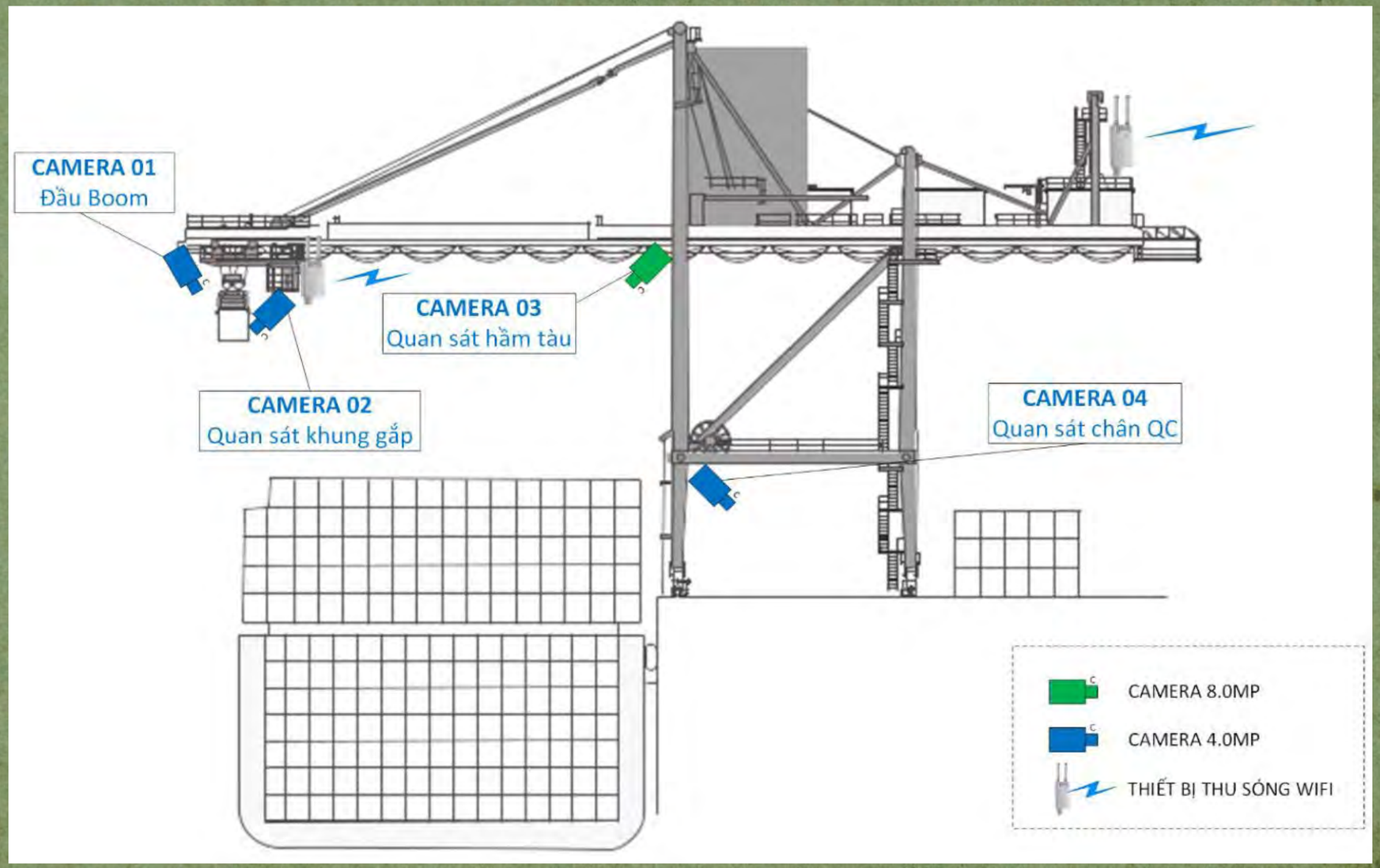
Service registration form

AUTOMATIC CHECKPOINT

AUTOMATIC CHECKING IMPORT CONTAINER CONDITIONS

Customer

SMART GATE SYSTEM



REAL TIME ACTIVITIES

Quality monitoring of surface water, wastewater and air

Collection of waste generated from vehicles in the water area

Current situation at Tan Vu Terminal

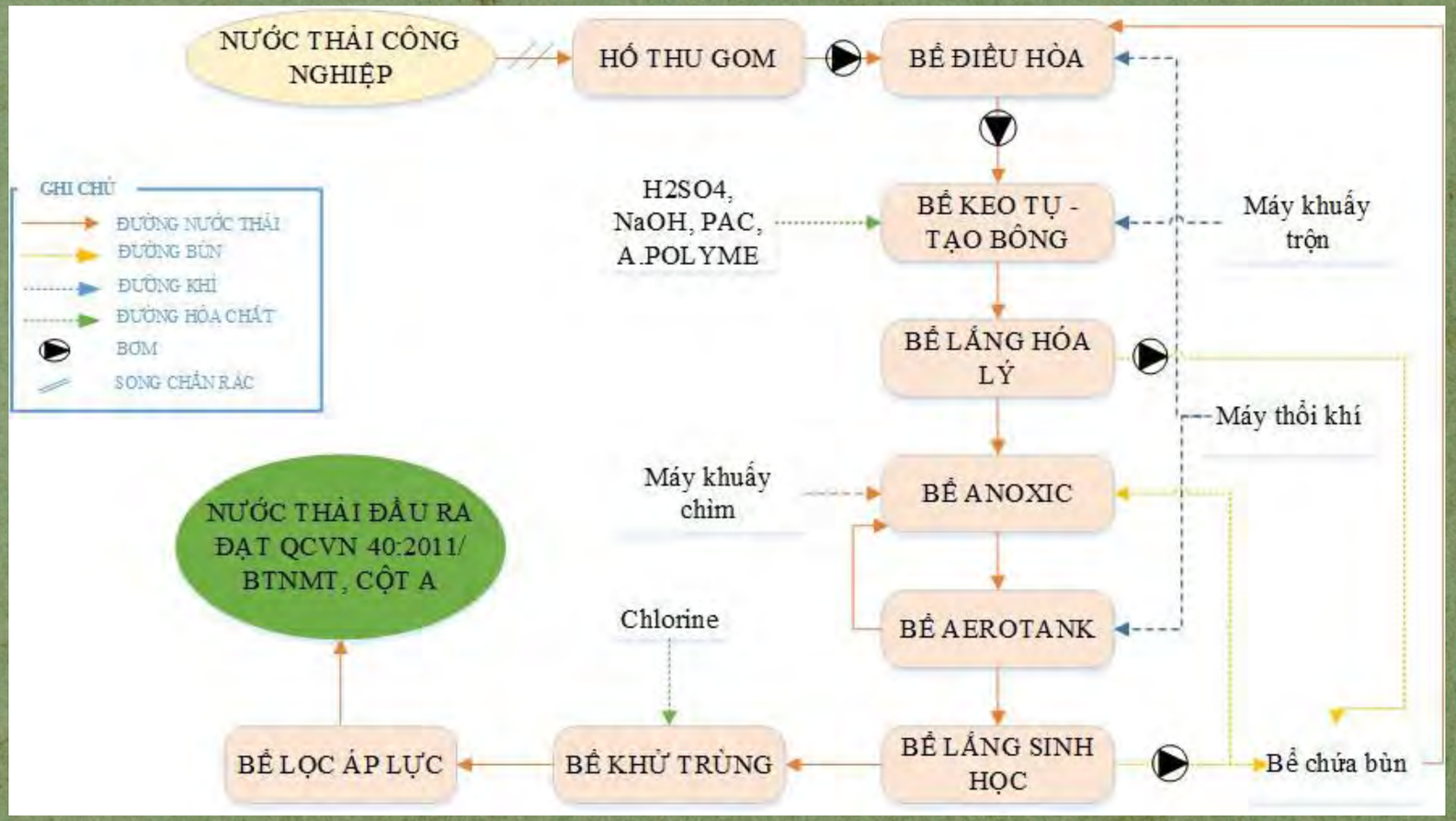
Already built a wastewater treatment system for container washing wastewater, truck washing wastewater and domestic wastewater

Lach Huyen terminal

To build a centralized wastewater treatment system to treat all generated waste sources

Centralized wastewater treatment process

The centralized wastewater treatment system includes domestic wastewater, truck wash wastewater, container washing wastewater and filter press for sludge treatment



Current situation at Tan Vu Terminal

Prepare an oil spill response plan and conduct annual drills

Lach Huyen terminal

Invest in equipment: oil fence boom, oil suction machines, oil absorbent materials... for on site response

Current situation at Tan Vu port

Planting trees in office areas, yard...

Lach Huyen terminal

Increase tree cover in the office, warehouses, CFS,...

Some other solutions

Raise the awareness of employees in environmental protection and application of Green Port in operation

Applying new technologies, streamlining production

Focusing on training, improving professional skills and information technology for employees to quickly process work and reduce working time.

Support schools for intern training to disseminate a new stream of ideas to the younger generation to change the way of thinking in business activities in line with minimizing impact on the environment

Work with the government to set up rules on refusing port entry for any vehicles which are not road worthy

THANK YOU

PORT OF HAI PHONG

Tel: +84-225-3859689/ 3836109
Fax: +84-225-3551337
Email:
thangnd@haiphongport.com.vn
Website: haiphongport.com.vn