



**STRONG PARTNERS.
TOUGH TRUCKS.™**

Clean power that means business

Junior van Remortele - Sales director Big Trucks, EMEA



*Transforming the way the world
moves materials from port to home*





WE'RE GLOBAL...

- 19 Facilities
- 12 Production Sites

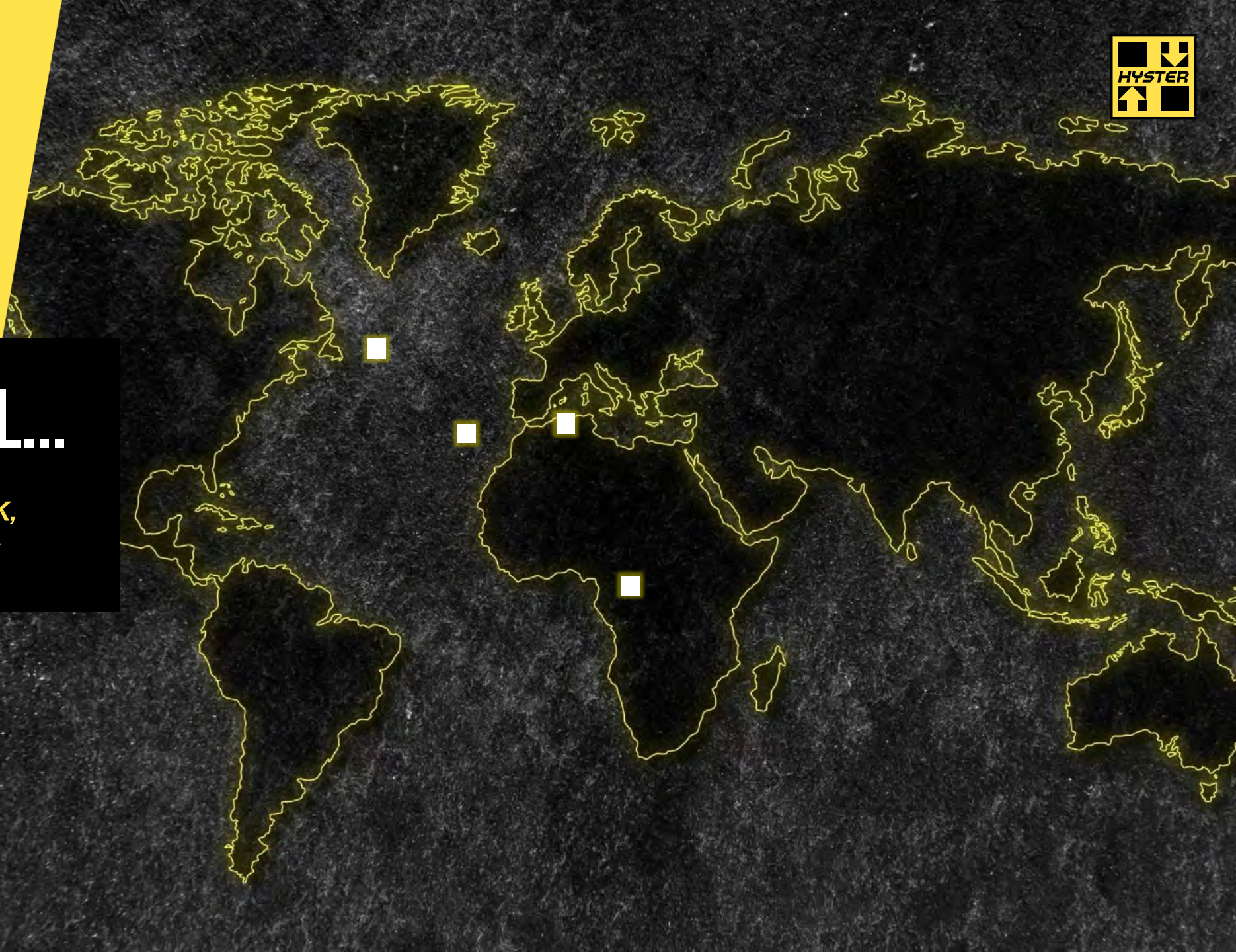


1,000,000 TRUCKS
BUILT IN THE LAST **10 YEARS**



WE'RE LOCAL...

- Manufacturing In the *UK, Netherlands, and Italy*



even more local



OUR DEALER NETWORK WORKS FOR YOU

Global strength, local support

CEMPs



1929

1929

1940

1950

1960

1970

1980

1990

2000

2010

2024

Clean Power that means business



CEMPS

Hyster's commitment to integrate clean energy technologies into our products and customer operations, aligning with the growing goals and commitments towards sustainability.

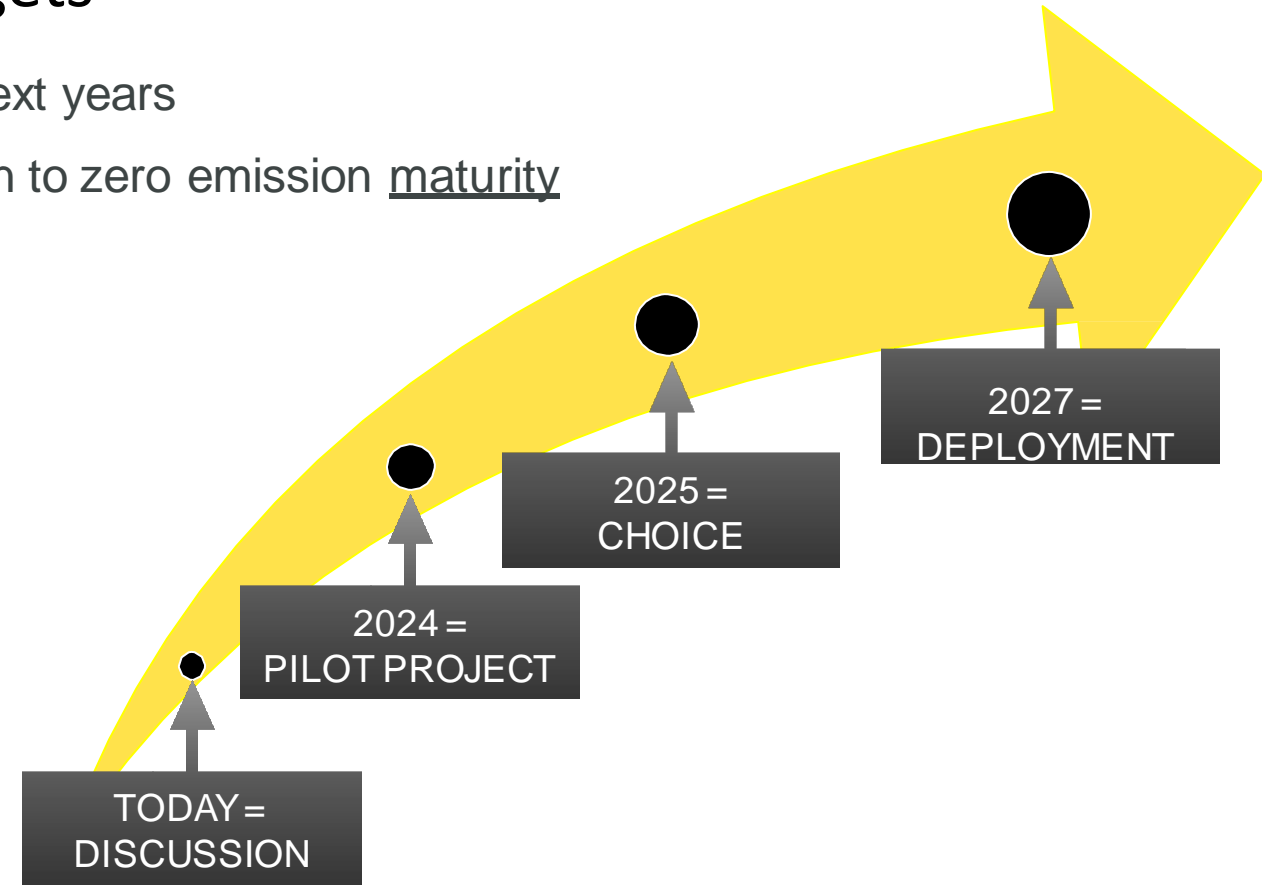
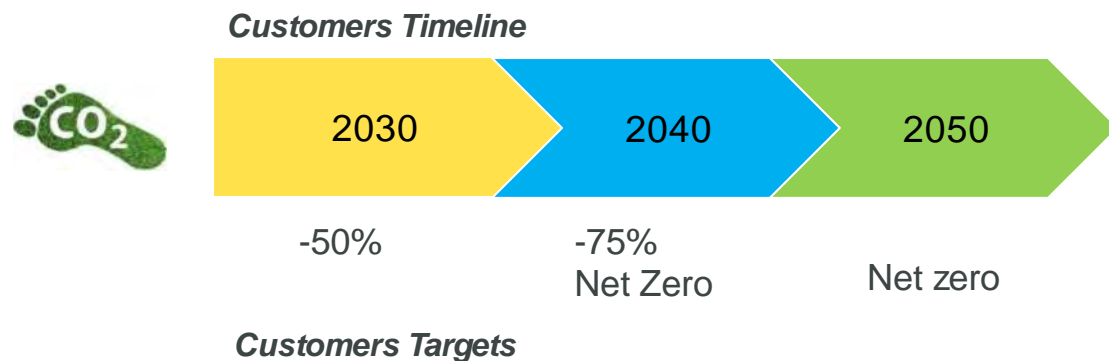
Decarbonization Journey has started...



CEMPS

Many port Operators have set their targets

- Target equals massive equipment demand over the next years
- Port Equipment manufacturers to prepare for transition to zero emission maturity and related volume
- Efforts started already today

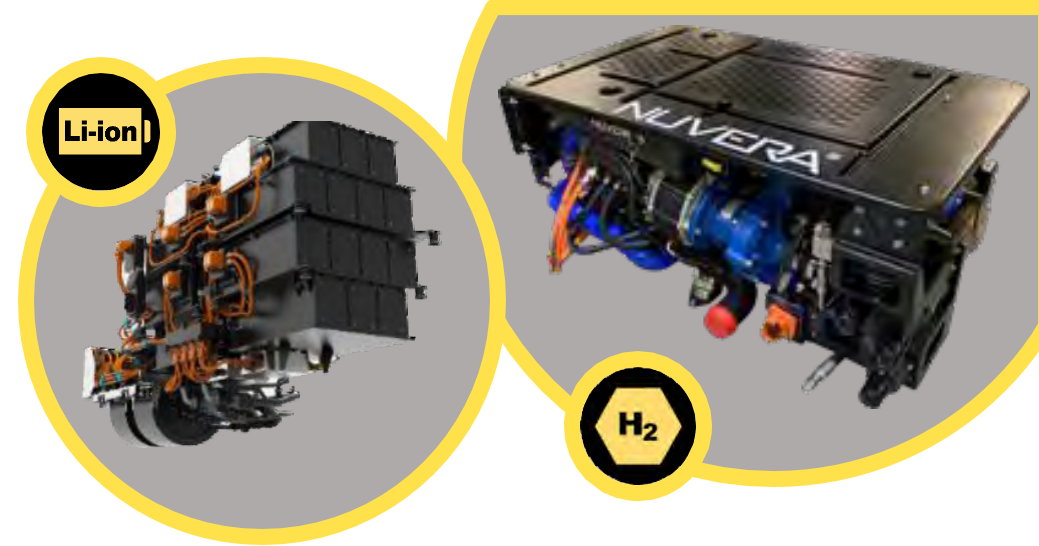


Hyster Port equipment



Hyster develops a full line zero emission offering For port applications:

- Full electric (lithium-ion)
- Fuel cell hybrid (hydrogen-Li-ION)



Operational Projects



CEMPS

Hydrogen Fuel Cell Reachstacker

MSC Terminal Valencia

Valencia, Spain



Hydrogen Fuel Cell Toploader

CMA CGM Fenix Marine
Services

Long Beach, USA



Battery Electric 10-18t Forklift

Various sites

Below: LBCT, Long
Beach, USA



2024 deployment



2024 the deployment of 2 Hydrogen fuel cell machines in Hamburg (Nuvera fuel cell)



Clean Port & Logistics

Part of Clean port & logistics cluster to accelerate maturity and integration into regular ports operations



Lessons Learned over the last 18 months



Fuel Cell Helps completing Shift

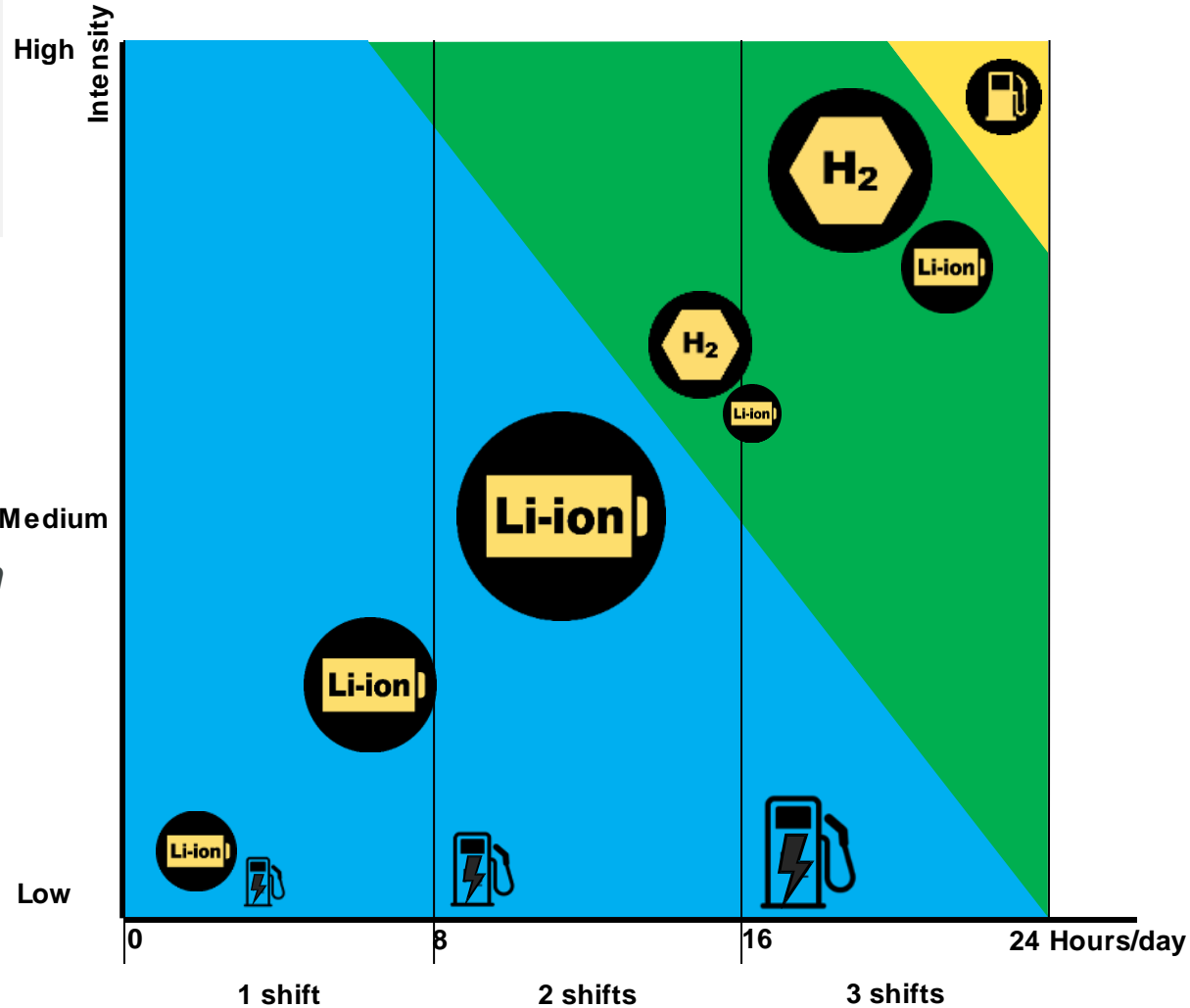
- When a continuous operation is required

Battery Powered for mild applications

- Modular setup Battery pack matches with the application
- Charger size to fit the application

Battery & Charger Size Modularity

- To determine the best fit with the application



Diesel for extreme applications

- Additional Truck when possible
- Backup for peak days
- Remote Applications

Fuel Cell Powered for tough applications

- Hydrogen and Fuel Cell power the truck
- Battery pack flattens the peaks in power demand

Battery & Fuel Cell Possible

- Battery with a large charger, since charging time is limited
- Hydrogen when preferred e.g. supply already available at the location

Broader Perspective Than just the Truck



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ELECTRIFICATION CHALLENGES:

TRUCKS



FLEET



TERMINAL



CONNECTIONS



Move to Complete Terminal perspective
Take the whole application / picture into account

Truck

- Fuel costs
- Downtime/Idle time
- Purchase costs

Fleet

- Fuel / Energy Costs
- Productivity Fleet
- Cost per move

Terminal

- Infrastructure Changes & TCO
- Productivity Terminal
- Subsidies –to help transition

Connections

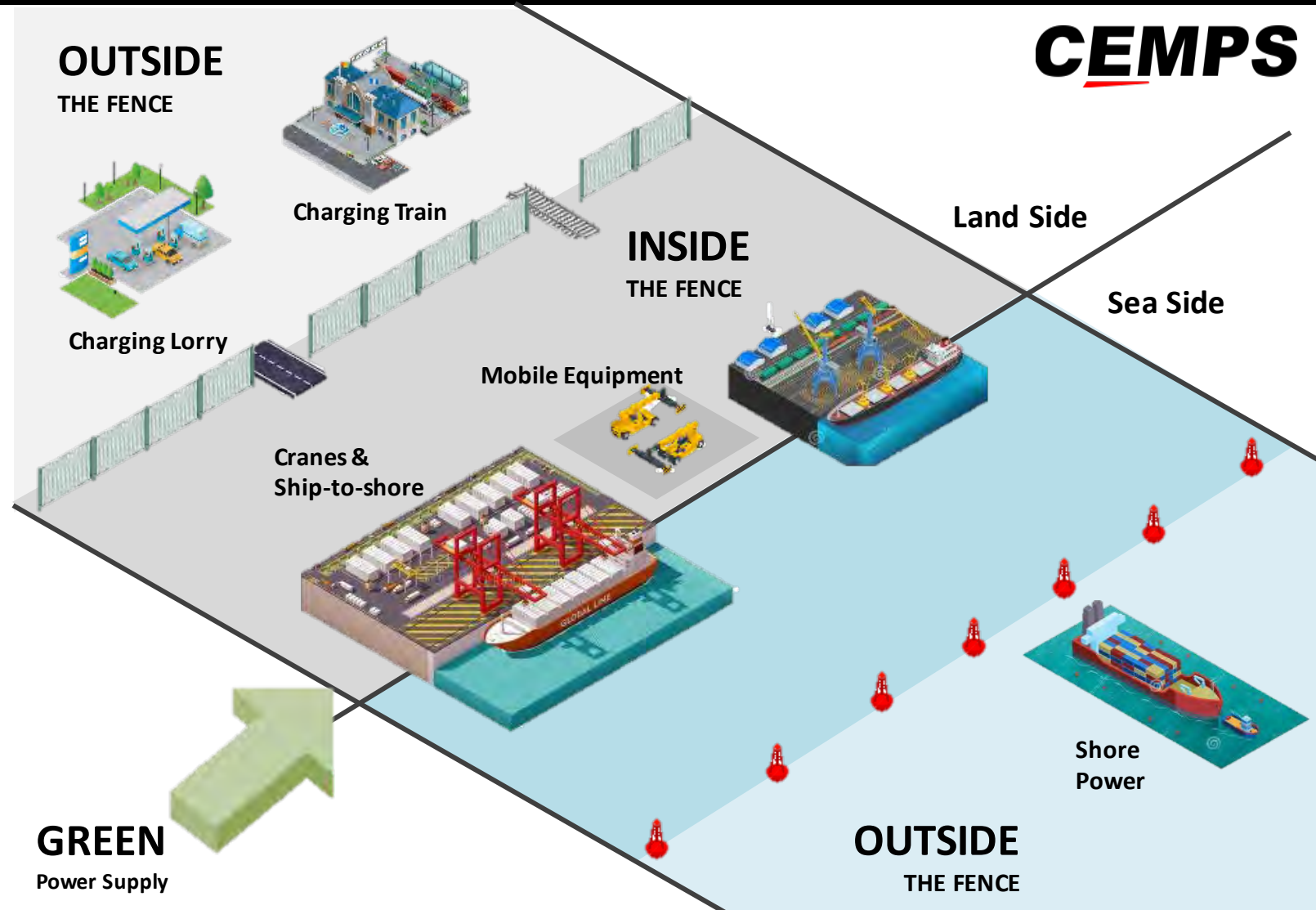
- Inside & Outside the Fence
- Truck Parking & Charging
- Ship to Shore Power

Terminal responsibility?



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- ▶ Green power supply needed for:
 - ▶ Inside the fence
(mobile) equipment, Workshop area, ship-to-shore
 - ▶ Outside the fence
Charging station, H₂ station, local industry, Shore Power



operational Impact on technology choice



Battery Electric

TODAY's choice for most terminals
TOMORROW's choice for most terminals

OPERATIONAL
CHARACTERISTICS



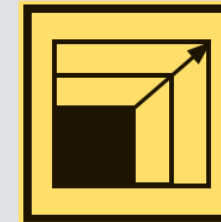
Fleet size and characteristics



Number of shifts



Utility prices, grid stability, hydrogen availability



Space requirements



Deployment maturity

- Hydrogen

TODAY's choice for selection of terminals
TOMORROW's choice for more terminals

what is your solution?



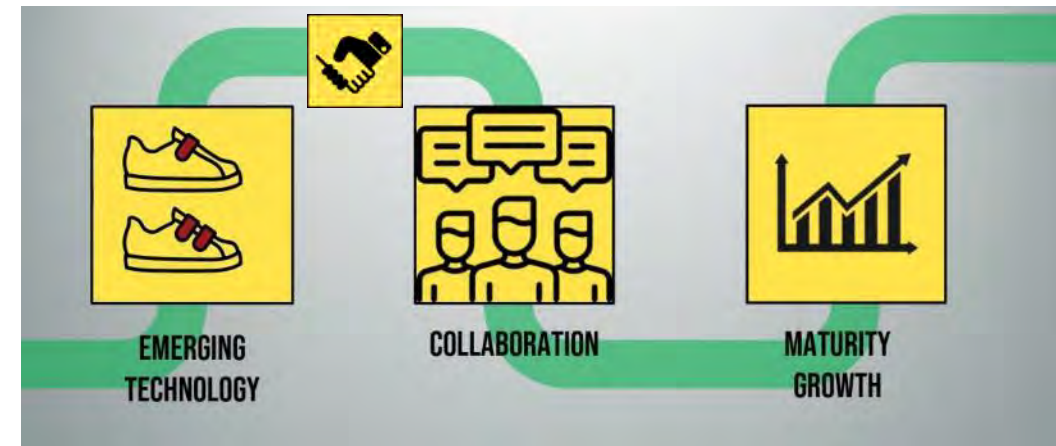
CEMPS

- There is no one-size-fits-all for the transition
- Today's solution might not be your ultimate solution
 - Current available solutions vs long term available solutions
 - One unit vs complete fleet
 - Regional aspects
- To choose wisely, Hyster facilitates joint learning programs
 - **Hyster Learner Program** enables you to learn on the technology together with us.

Li-ion

H₂

???



Thank you & Contact us



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