DELIVERING CLEAN POWER AND PERFORMANCE TO PACIFIC PORTS

PMTA - July 2024

Peter McLean (PORTXGROUP)

ABOUT US

OUR VISION

To be the leading Supplier of Low Carbon Supply Chain solutions

WHO WE ARE

PORTXGROUP IS AN EXCLUSIVE HYSTER DEALER IN THE PACIFIC ISLANDS AND SELECT ASIAN PORTS.

We are a group of companies engaged in providing a cost-effective way to access the best thinking and innovative solutions, be it standard or advanced equipment, maintenance and parts, engineering solutions or project advisory.

The company is designed to be nimble and is well placed to deliver equipment, parts, and project solutions at the most competitive prices throughout Australia, New Zealand, Asia and the Pacific Islands

WHAT WE DO

PortxGroup operates under an integrated and flexible business model focused on equipment, parts and maintenance for Ports, Container Terminals and Logistics.

DELIVERING TIER 1 PRODUCTS

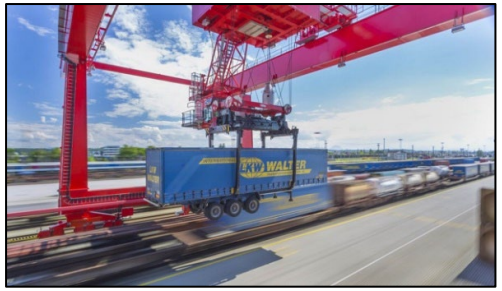
HYSTER

TERBERG TRACTORS

sfPorteq SPREADERS (SWEDEN)

MAINTENANCE & PARTS

INTERMODAL CRANES RMG & ARMG



AUTOMATED STACKING CRANES

RTG CRANES

PORTXGROUP

HYSTER

TERBERG SPECIAL VEHICLES

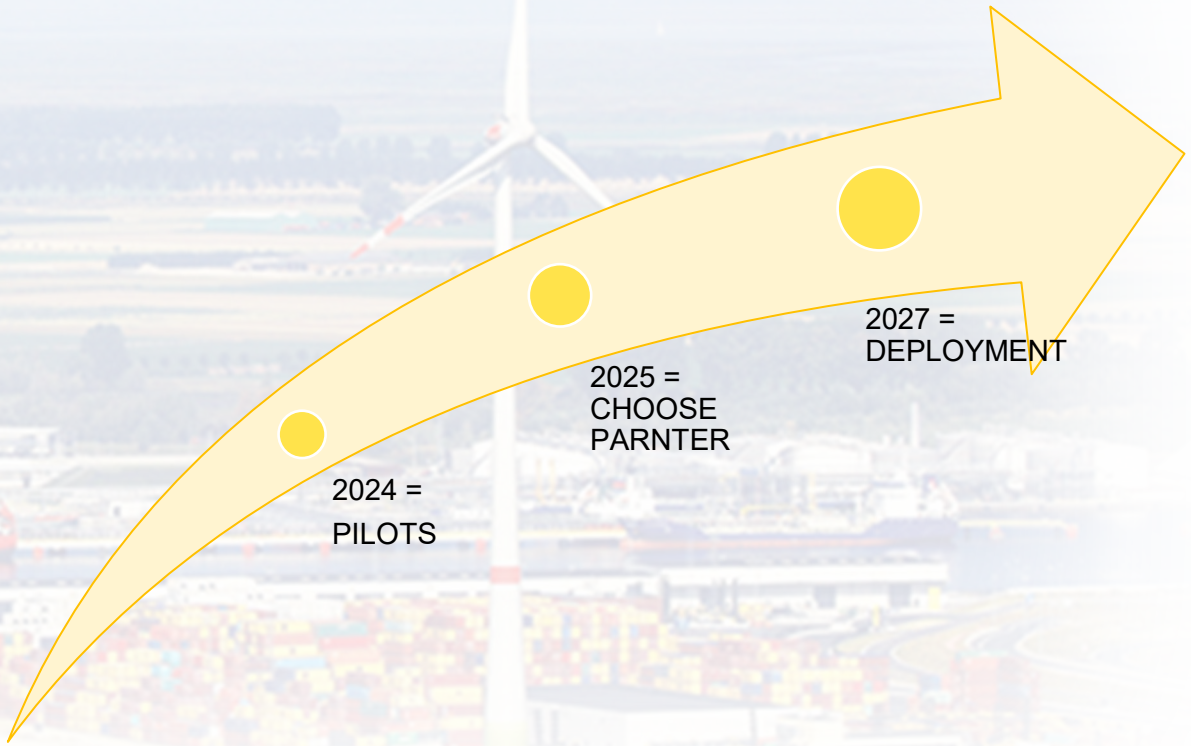
sfPORTEQ

künz

DECARBONIZATION HAS STARTED...

MAJOR GLOBAL 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



HYSTER® PORT EQUIPMENT

HELPING THE PORTS AND TERMINALS ACHIEVE THEIR ENVIRONMENTAL TARGETS

HYSTER® DEVELOPS FULL LINE ZERO EMISSION OFFERING FOR PORTS AND TERMINALS

- BATTERY ELECTRIC (LITHIUM-ION)
- FUEL CELL HYBRID (HYDROGEN – LI-ION)

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IN-FIELD EXPERIENCE

Hydrogen Fuel Cell Reachstacker

MSC Terminal Valencia

Valencia, Spain

Hydrogen Fuel Cell Toploader

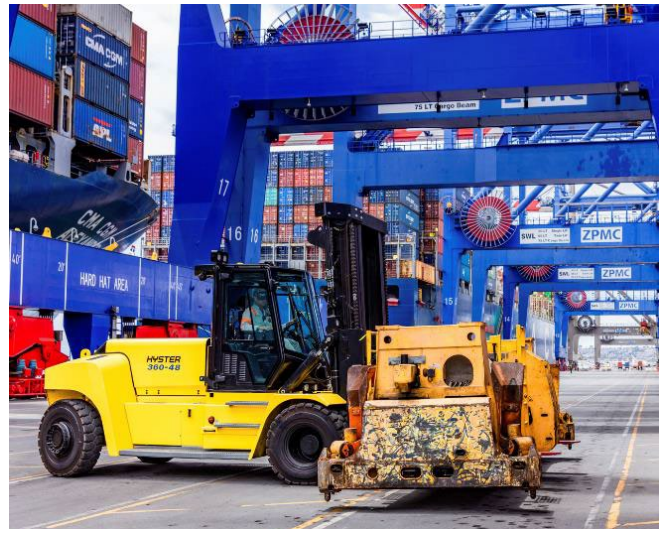
CMA CGM Fenix Marine Services

Los Angeles, USA

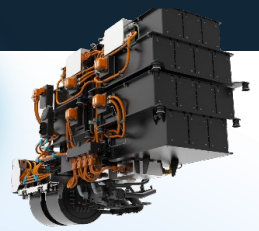
Li-Ion 10-18T Forklifts

LBCT

Long Beach, USA



LESSONS LEARNED OVER THE LAST 12 MONTHS



BATTERY ELECTRIC LESSONS:

- **Productivity and performance** are equal/better than diesel
  - Efficiency results better than expected
- **Technical maturity** Battery Electric vehicles progressing fast
  - Underlined by the terminal operators
  - Easier to adopt as solution; relatively easy to start
- **Grid Problems are real**
  - Fast electrification leads to grid problems (supply vs demand)
  - Connection to grid is not a given (industries and households)
  - Availability renewable (green) electricity limited in some places
- **Full-scale deployment** Battery Electric
  - Uncertainty if industry is able to grow with the transition
  - Will run into its limits at certain locations when deploying on wider scale
- **Charging complexity** increases relative to fleet size and charge speed

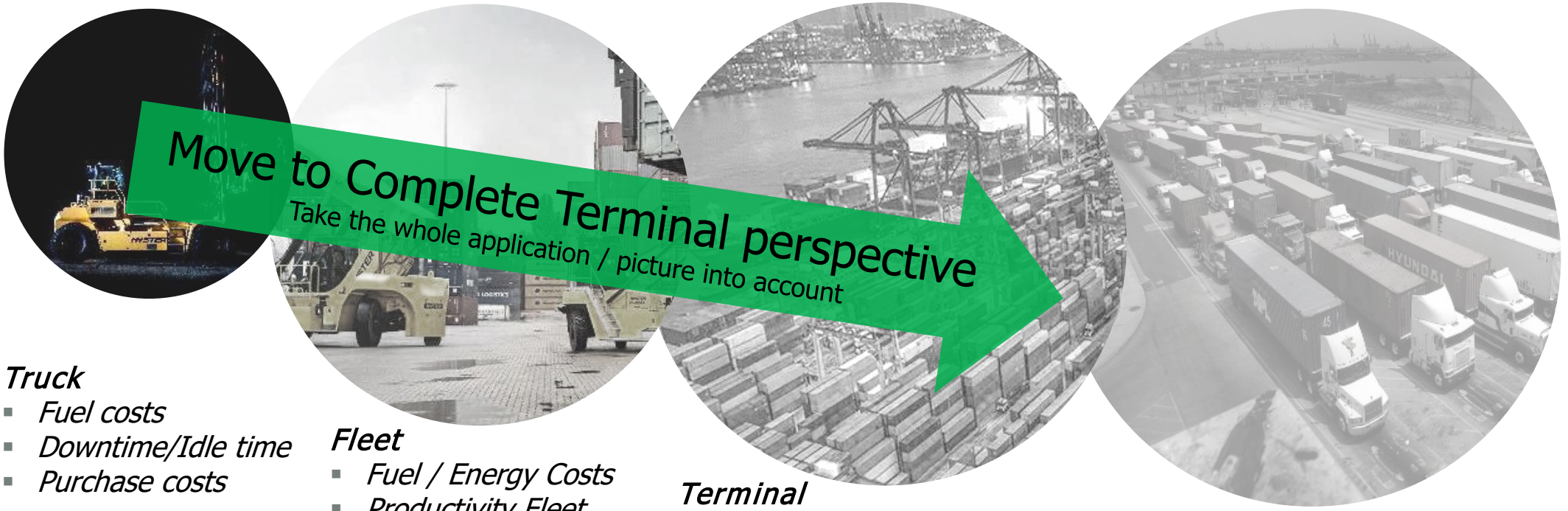
HYDROGEN LESSONS:

- **Productivity and performance** are equal/better than diesel
  - Efficiency results better than expected
- **Hydrogen production capacity projects** on the way, not there yet
  - Big projects on the way
  - Local H2 Production is key (transport cost vs total cost)
- **Hydrogen transport and infrastructure** still under development
  - Redundancy in supply chain required
  - Scale up of on-site volume is important as start up volume is challenging
- **Hydrogen** requirements: Green vs Non-Green
  - Green H2 perception vs (grey) Electricity
- **Funding** to kickstart hydrogen projects
  - Support still required to offset current high costs of H2

PORT EQUIPMENT ELECTRIFICATION
BROADER PERSPECTIVE THAN JUST THE TRUCK

ELECTRIFICATION CHALLENGES:

TRUCK | **FLEET** | **TERMINAL** | **CONNECTIONS**



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*

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TERMINAL RESPONSIBILITY?
BROADER PERSPECTIVE THAN JUST THE TRUCK

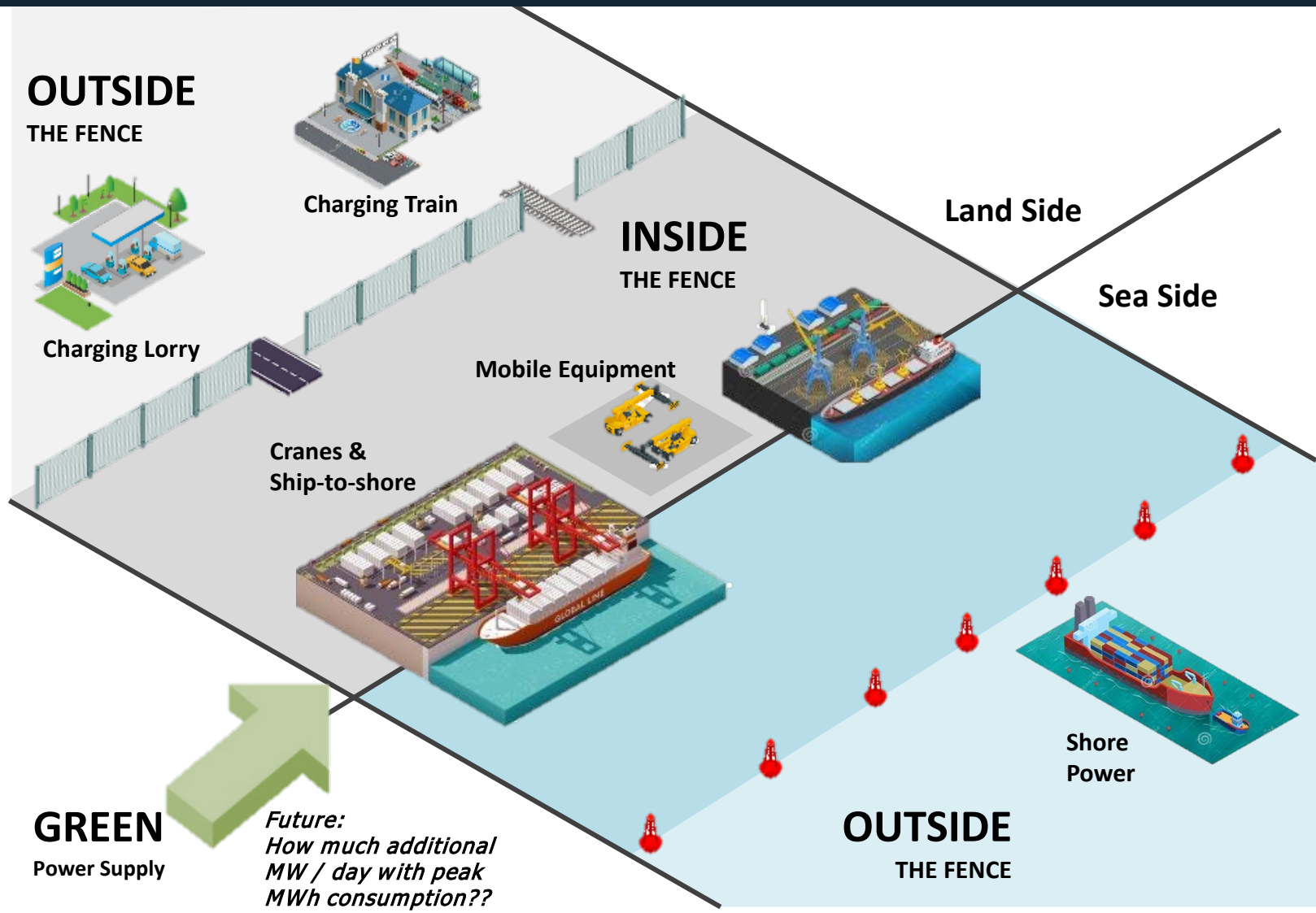
Green power supply needed for:

- **Inside the fence**

Mobile Equipment, Workshop area, offices, Lighting, etc

- **Outside the fence**

External traffic, charging station, H2 station, local industry, Shore Power, etc



OPERATIONAL IMPACT ON TECHNOLOGY CHOICE

BATTERY ELECTRIC →

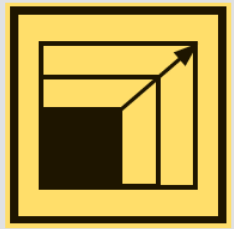
TODAY's Choice for most terminals
TOMORROW's choice for most terminals

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

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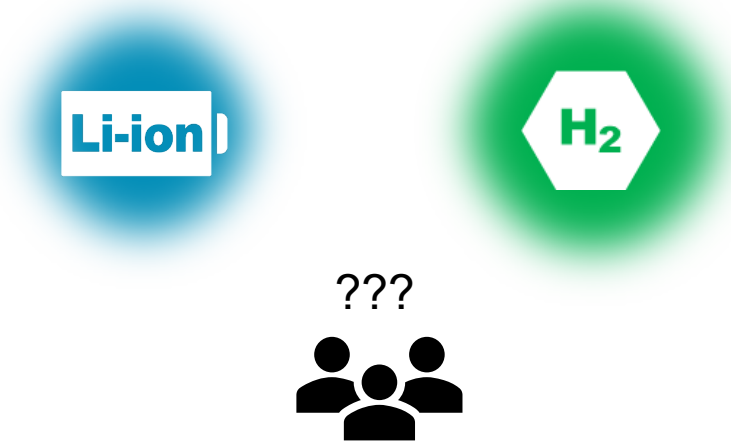
DECARBONISATION AT TERMINALS

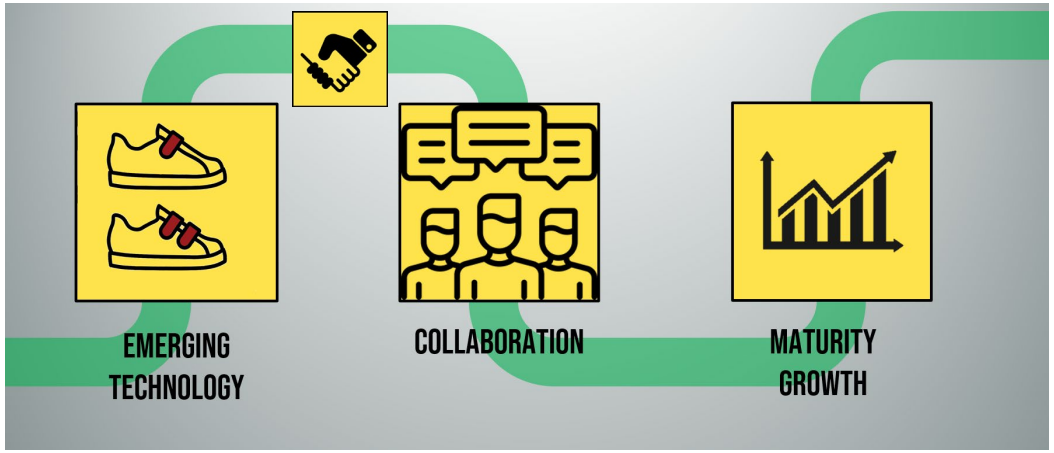
- **Strategic aspects**
  - Transparency on the transition requirements
    - Industry requires 1000's of equipment to be swapped for Electric powered equipment in the next few years
    - Share the long term decarb roadmap for planning and on-time execution by manufacturers
  - What type of solution is right for you?
    - Test technology solutions and evaluate if this is the right path
    - Full fleet vs single unit
  - Understand the local opportunities and constraints on energy availability
    - Green electricity?
    - Green Hydrogen?

- **Operational aspects**
  - Equipment run at diesel like performance
  - Operational availability vs. Electrification slowdown factor
    - More equipment required to achieve Operational uptime
  - Ground m2 requirements when electrification
    - Parking lot to be created // HRS to be deployed
    - Overnight slow charge requires a lot of parking space
  - Fast Charge solutions more difficult to integrate in existing terminals
    - Peak consumption is generating peak energy cost at different rates
  - Planning of charging vs actual plugging
    - Back to base is taking time and energy (range)

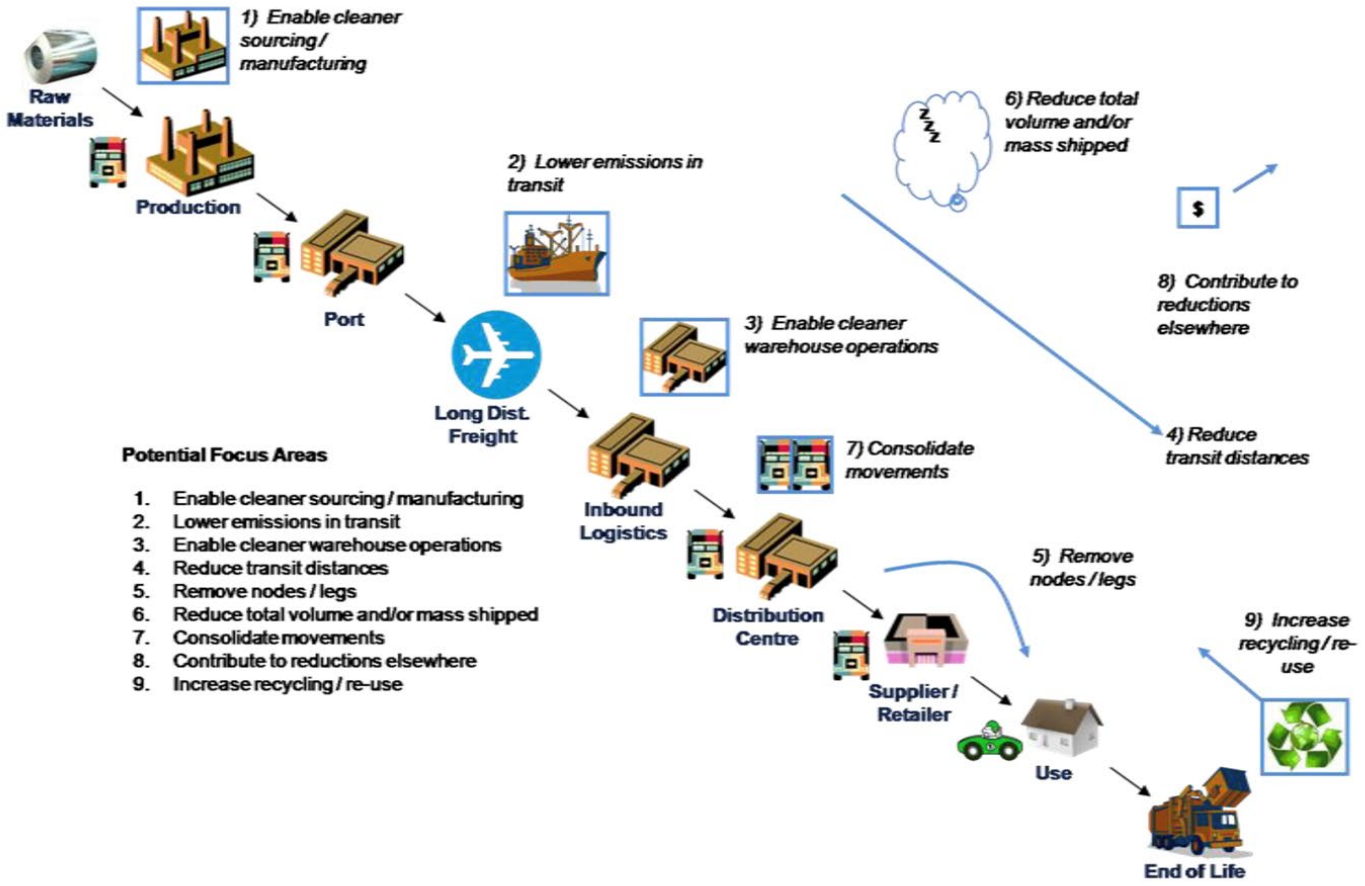
WHAT IS A SOLUTION?

- 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
  - Green Electricity vs Green Hydrogen
- To choose wisely, contact PORTXGROUP to assist you with the best solution





PORTXGROUP ENVIRONMENTAL INITIATIVES



- Working with Trace to become a carbon neutral company
- Low carbon supply chain as per the enclosed diagram
- Low carbon product range – EV TT, Hybrid Cranes, Energy efficient electric spreaders, Hydrogen Lithium mobile equipment (R & D)
- Deploy EV Service vehicles where practicable.
- Have been fully offsetting flights emissions since 2020

PORTXGROUP EXPERTISE IN DELIVERING ELECTRIC

- ☑ PORTXGROUP delivered 40 Electric machines to date
- ☑ We employ Electric Engineers who are trained in servicing and troubleshooting our electric product range
- ☑ Since PORTXGROUP was one of the first companies to deliver Electric machines in Asia-Pacific, we have accumulated a lot of knowledge and expertise which we share with our clients
- ☑ We partnered with Jet Charge to supply charging solutions to our clients that are tailored to the specific needs of their business

JETCHARGE

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QUESTIONS?

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THANK YOU!

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