

DATA. LESS EMISSIONS.  
REDUCED TRAFFIC.  
100% ELECTRIC.  
EAGLERAIL

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Improving Port and Intermodal Container Throughput

# Smarter, Faster & Cleaner Terminal Connectivity.

June 2025



Intermodal Takes Flight™

# Growth Poses a Three-Part Challenge to Ports Globally

**Container ships get bigger to support demand...**



Consumer and Industrial demand drives volume, while megaships overwhelm port terminals, originally designed for smaller vessels.

**...ports are land constrained...**



Ports' physical growth is constrained by dense urban development, roads, parks, and sensitive marine environments.

**...leading to truck congestion on local roads**



More trucks congest roads around terminals, reducing dray trucking efficiency further reducing port throughput.





## EagleRail's Value Proposition Improves All Port KPIs

Increases Throughput



and efficiency without expanding the terminals

Automates  
Connections



between terminals and inland/remote operations

Reduces  
Congestion



on terminals, gates, and local streets

Reduces  
Emissions



with all-electric operations

Increases  
Safety



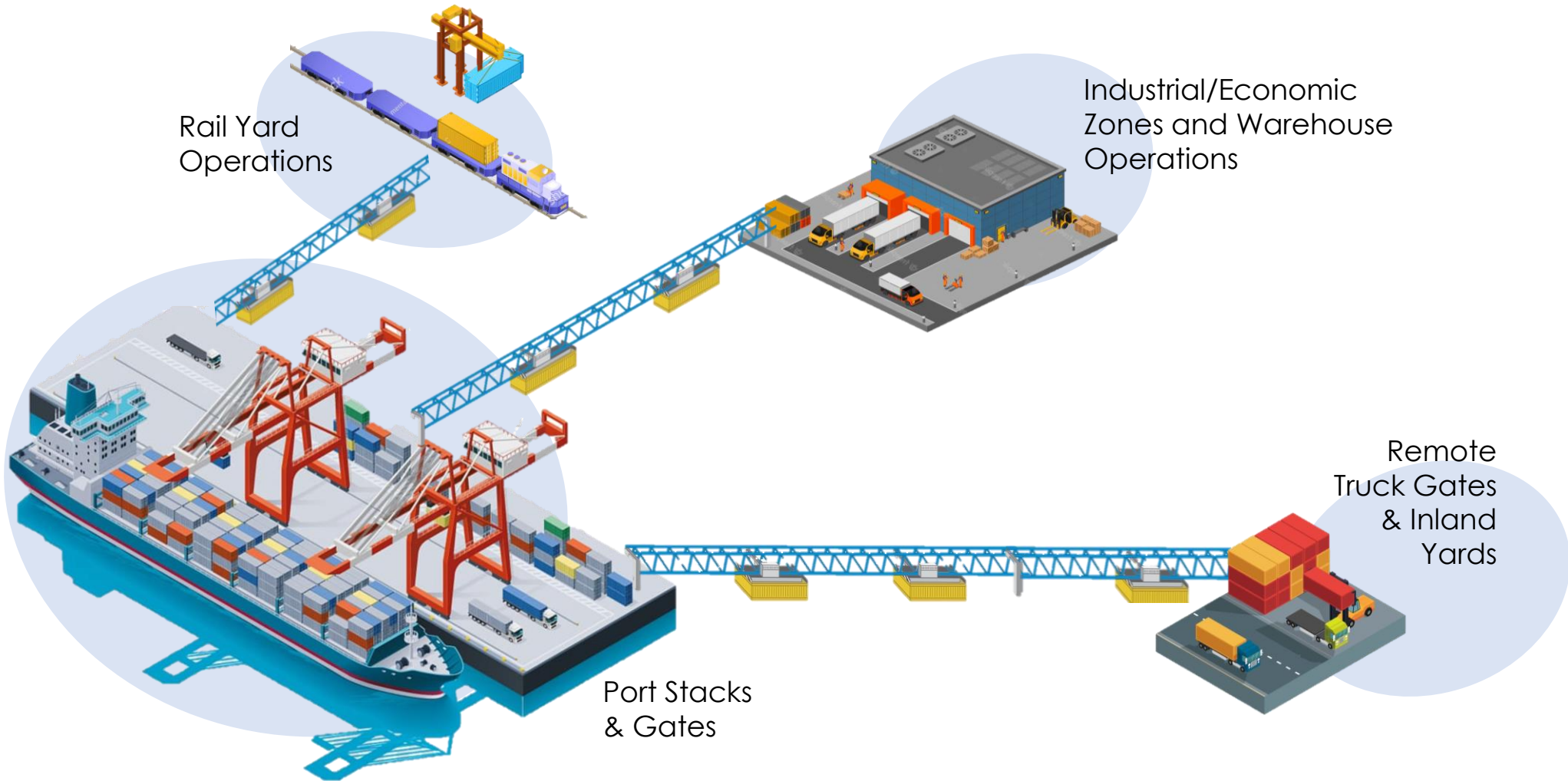
for workers, roads and communities



# “Intermodal Takes Flight” – EagleRail Electrifies and Elevates Repetitive, Short Haul Container Transfers



# Integrating Remote Operations - Connecting Freight Terminal Operations with Warehouse-like Overhead Rail Automation



# Inventors of Electrified Overhead Shuttling & Global Patent Holders



**U.S. Patents 10,358,323 and 10,507,846** protect the EagleRail carrier and overhead transport and route management system.



Also patented in the UK, EU, Brazil, India, South Africa, Hong Kong and China.



# Inventors, Global Patent Holders of Overhead Container Shuttling – Augments Trucks, Relieves Intermodal Inefficiencies

Automated Horizontal Transfer Travels Outside the Gate

- 100% electric light-rail
- Up-and-over topo challenges

Connecting Ports and Intermodal and Rail Operations

- Port stacks and gates to inland operations and back
- Automated and data rich

Existing Crane and Rail Technology Repurposed

- Hardware is reimagined, reapplied port/rail technology
- Software is typical TOS based

We Sell/Lease Equipment, or Preferred, 'Shuttling-As-A-Service'

- Lease & Support Maintenance
- Or DBFOM, BOO, BOOT, etc.



# EagleRail Lifting Tables Interface with All Container Handling Equipment



Reach Stacker Load Station



Fixed Single crane Load Station



Gantry Lifters Under the Cantilevered Side of a Crane



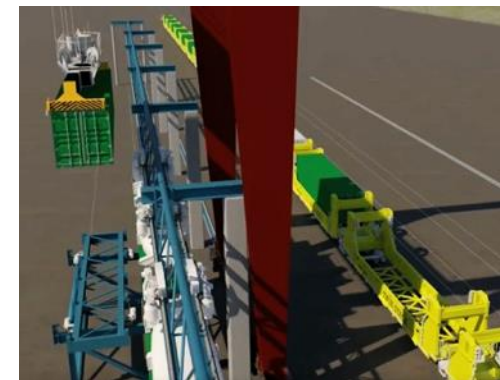
Between Main Legs of a Gantry Crane



Straddle Carriers



Hi-Bay Storage like BOXBAY



Rail Loading Cranes



Ship-to-Shore Cranes



## The 2020 Prototype: We've Improved Over this Technology



### Updated Features:

- Lighter Carrier
- Value Engineered Track and Structure
- Steel-Wheel Efficiency
- Standard Container Connections
- Battery Power Option



# Electrified System Uses 60% Less Energy with 70% Less Emissions

## Calculating Environmental Impact: Energy Efficiency and Sustainability

**ESG Rated:** 60% Less Energy Used and 70% Less Emissions Generated

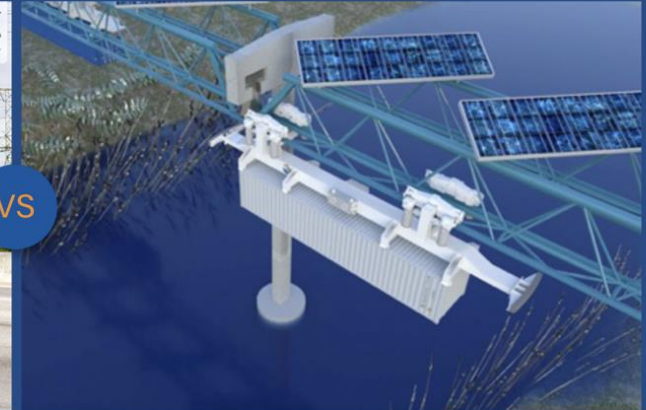
**Many port communities are in challenging environments.** Beyond GHG emissions, any reduction in truck pollutants positively impacts Quality of Life and Life Expectancy for such communities from the reduction of Asthma and breathing diseases and improved road safety

**An estimated 17,000-20,000 people die each year from exposure to transportation pollutants.** Even if freight rapidly shifts to using EV Trucks, their use does not address the increasing congestion which will continue to exacerbate the emissions from idling passenger vehicles in gridlock traffic

### EagleRail is more energy efficient with less emissions compared to diesel drayage trucks\*

Energy Need/ Emissions Impact	Energy (Joules)	CO2 (lbs) <small>From Energy Consumption &amp; Generation</small>	NOx (grams) <small>From Energy Consumption</small>	SOx (grams) <small>From Energy Consumption</small>	PM10 (grams) <small>From Energy Consumption</small>	PM2.5 (grams) <small>From Energy Consumption</small>
EagleRail	177,000,000	41.79	0.00	0.00	0.00	0.00
Truck	436,242,535	135.39	20.98	0.26	1.20	1.20
EagleRail Reduces Need/Impact By	259,242,535	93.60	20.98	0.26	1.20	1.20
EagleRail Reduces Need/Impact By	59%	69%				

\*Assumes traversed distance of 10 miles and only 30 minutes of truck idling time



VS

Shared, congested public-road based

Unused, overhead space on RR land

Dirty, old-diesel technology

Clean, all electric-power

Inefficient use of labor

Higher Tech, efficient jobs

Old road/rail routes not easily reworked

Modular system easily customizable

Supply-chain bottleneck

Breaks bottleneck, opens entire system

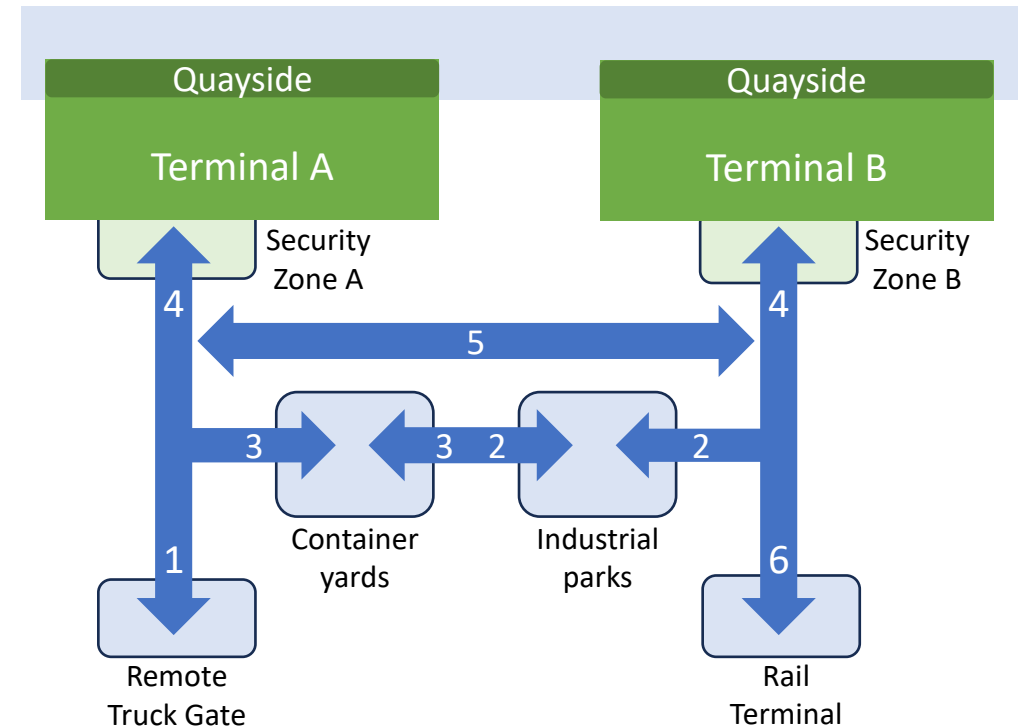


# Solving Universal Port Connections and Imperatives

## The Four Imperatives:

- Increase terminal ground-slot velocity by reducing dwell time
- Reduce touches-per box on terminal
- Decongest the terminals by keeping trucks off-dock
- Enlarge the effective port zone with integrated off-dock sites

EagleRail can connect all six (6) typical container nodes together without trucks.



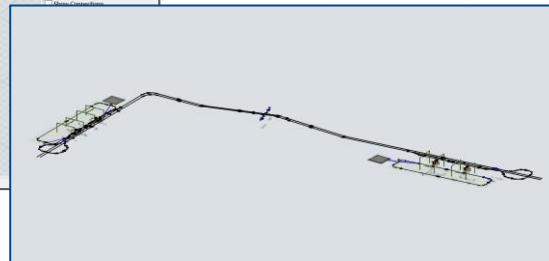
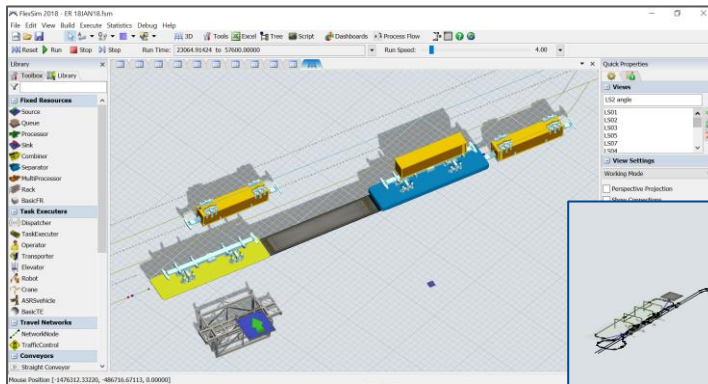
EagleRail enables all four goals, resulting 2x to 3x increased capacity.



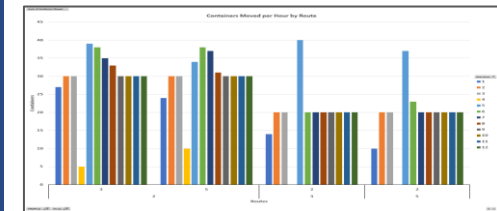
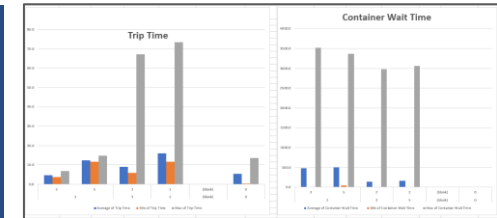
# NEXT STEPS: 'BCA' Pre-Feasibility Studies for All Potential Projects

Measuring all Potential Project's Four Imperatives and KPI Improvements Gained by Implementing an Overhead, Light-rail Container Transfer Systems.

Four Planning Steps, the Initial Two are Typically No Charge:



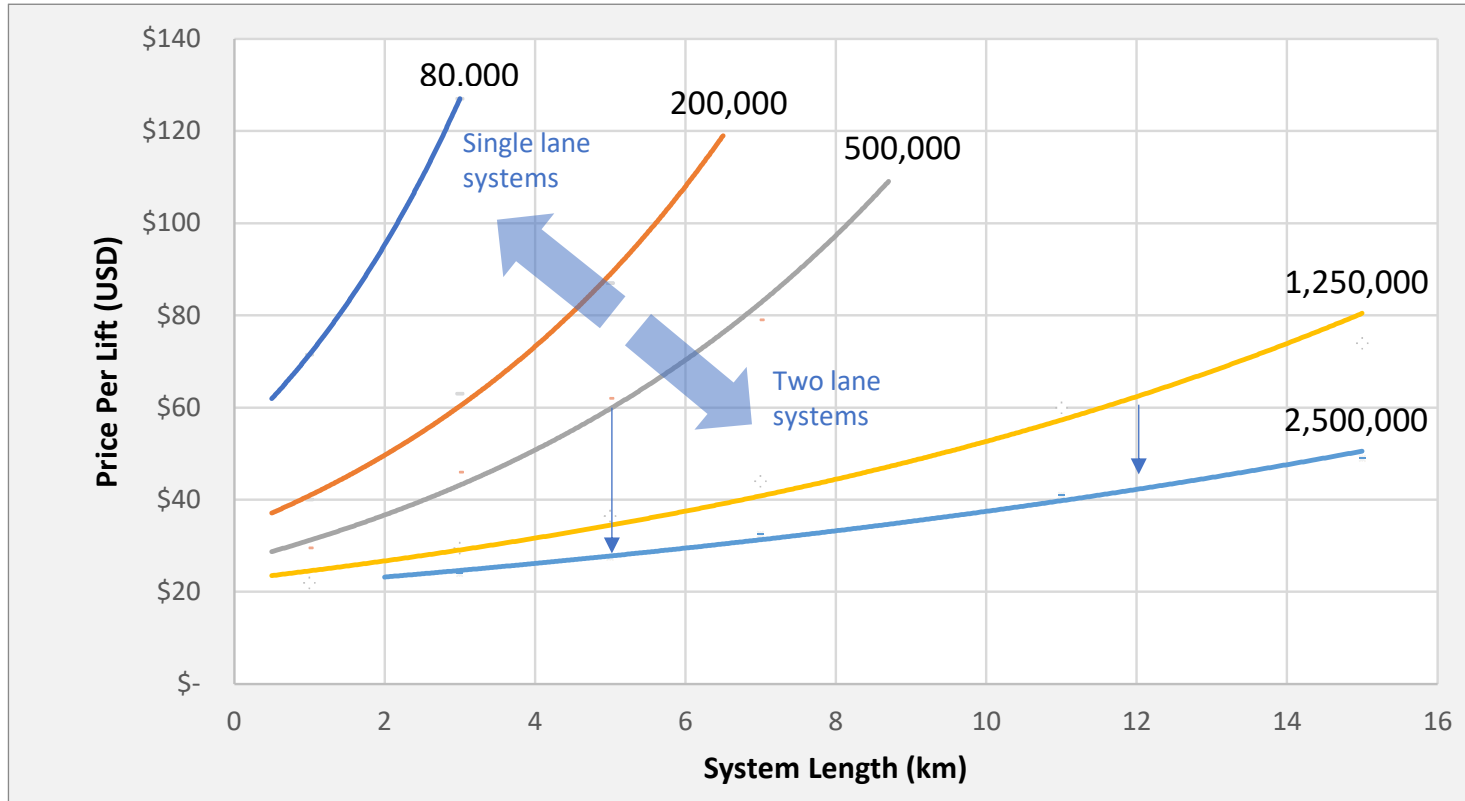
System Design Information Example	
ANNUAL TEUx	1,500,000 Per Year
ANNUAL CONTAINERS (Total of Both Directions)	1,125,000 Per Year
CONTAINERS PER DAY (Total of Both Directions)	3,089 Per 24 Hours
CONTAINERS PER HOUR (Total of Both Directions)	129 Per Hour
CYCLE TIME (ALL)	28.0 Seconds per Container
APPROX. TRAVEL DISTANCE EACH WAY	0.6 Kilometers
AVERAGE TRAVEL SPEED (EST)	12.4 KPH
APPROX. TRIP TIME - EACH WAY (EST)	3 Minutes
NUMBER OF LOAD & UNLOAD AREAS	2 Areas
LOAD / UNLOADERS	6 Load/Unload Machines
CARRIER QUANTITY	8 Carriers



# New, Single-Lane Systems Applicable to Small-to-Mid-Sized Ops

## EagleRail Price-System Length Relationship

Five Sample System Volume Curves



**Either Single or Double lane EagleRail systems can easily grow 8X in volume by adding additional lifters and carriers:**

- Single-lane systems typically become feasible around 50,000 annual moves and can expand to 400,000 annual moves
- Two-lane systems are economic starting at about 400,000 containers per year, but track capacity can handle up 3.5 million
- As volume grows, fixed cost allocation per container reduces, allowing stepped down tolling fees with higher volumes



# EagleRail's Benefit Cost Analysis Framework is Comprehensive

- Benefits accrue from operating efficiencies, delayed or avoided capital expenditures decongesting the terminal and gate, electrifying container movements, and eliminating the least efficient part of the truck dray.
- Costs are, given the turn-key infrastructure-as-a-service model, captured in tolling fees for conveying containers, which captures EagleRail system construction, operations, maintenance, and component replacement.
- Life-Cycle Cash Flow Analysis predicts both investor returns and net-present-value to each major party over 20+ years while including capital asset sustainment and replacements for perpetuity operations.

	<b>EagleRail Benefits</b>	<b>EagleRail Costs</b>
<b>Capital</b>	Delayed or avoided capital projects (e.g., port, gate, and road expansions), less container handling equipment required, fewer dray trucks required	Per-box fees includes all development and cost of capital
<b>Operations</b>	Terminal labor savings, lower terminal dwell time, faster shipment delivery, improved dray truck and asset utilization, dray labor and fuel savings	Per-box fees includes all operations, maintenance & licensing
<b>Public</b>	Decarbonization, less air pollution, less noise, better highway safety, less wear on roads, less road congestion, supports economic development	Public grants (if any)



By collaboratively setting the high and low reasonable values with stakeholders for each variable driving the benefits and costs we establish a net-present-value range that wins “buy-in” from all the decisionmakers. The NPV for each stakeholder nets the all benefits and costs for each stakeholder.



# EagleRail BCAs Consistently Show Real Value Creation

## Operations usually represent 50 to 65% of total benefits

- Port stacks and gates to inland operations and back
- Automated and data rich

## As EagleRail enables port growth without port expansion, the relative value of avoided capital expenditures grows

- Ports can delay or avoid expensive wharf, crane, and handling yard investments by increasing existing asset utilization rates through fast container evacuation and on-time deliveries with EagleRail

## EagleRail meets public objectives and increases profits

- Monetized environmental and safety benefits are important, but tend to represent less than 20% of the total project benefit

## Phased EagleRail system development increases the NPV

- Adding lifters and carriers adds capacity to track systems easily
- Building systems link-by-link aligns cap ex with demand, raising NPV

## Systems integration almost always boosts EagleRail's value

- Integration with gantry cranes reduces 'touches' per box, a huge driver of operational value
- In-line x-ray scanning reduces both handling and terminal dwell time



**Terminal Decongestion** and the resulting efficiency and growth potential is, according to port terminal managers, potentially EagleRail's greatest indirect benefit to port operators and customers



# EXAMPLE – Connecting a Port and Storage Yard & New Gate

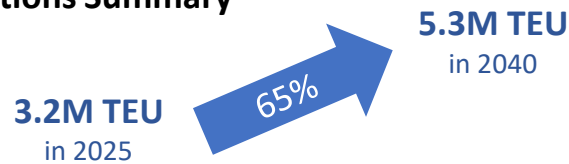
## BCA Summary – Los Angeles, California

EagleRail would provide an automated link between a port and a 32-hectare site over a four-lane highway and railroad loop track to create a remote gate and storage.

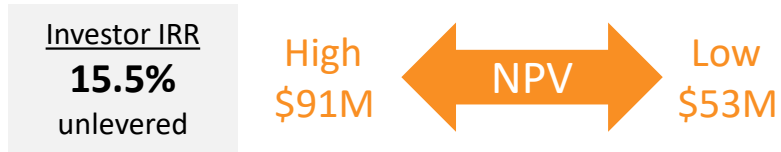
### Project Summary

- Project Cost: 67.7 million USD (all private funding)
- System Length: 580m dual track and automated cranes
- Counterparty: Global top-five terminal operator

### Operations Summary



### Project Value



**BCA Highlight:** EagleRail avoids a proposed bridge ramp, saving 4 acres of an operating terminal that presently provides backland support for 84,000 TEU per year.



EagleRail proved to be the highest value alternative for connecting a large port terminal to a new container staging yard and a second gate when the terminal adds new cranes and ship berths as part of plans to increase capacity by 2 million TEU per year.



# EXAMPLE – Connecting an Inland Dry Port and Trucking Terminal

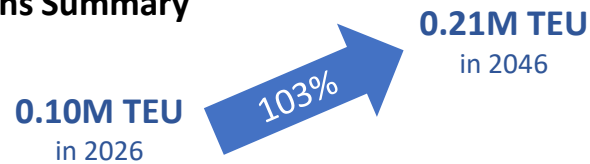
## BCA Summary – Memphis, Tennessee

EagleRail would connect an inland rail terminal to a truck terminal where local road and gate congestion has reduced dray efficiency to less than 4 turns-per-day

### Project Summary

- Project Cost: 48.1 million USD (all private funding)
- System Length: 1700m single track with center bypass
- Counterparty: N America top-three drayage truck firm

### Operations Summary



### Project Value



**BCA Highlight:** EagleRail allows redeployment of 64 trucks and drivers from terminal shuttling to direct customer service, a net commercial value of \$830 per day per truck.

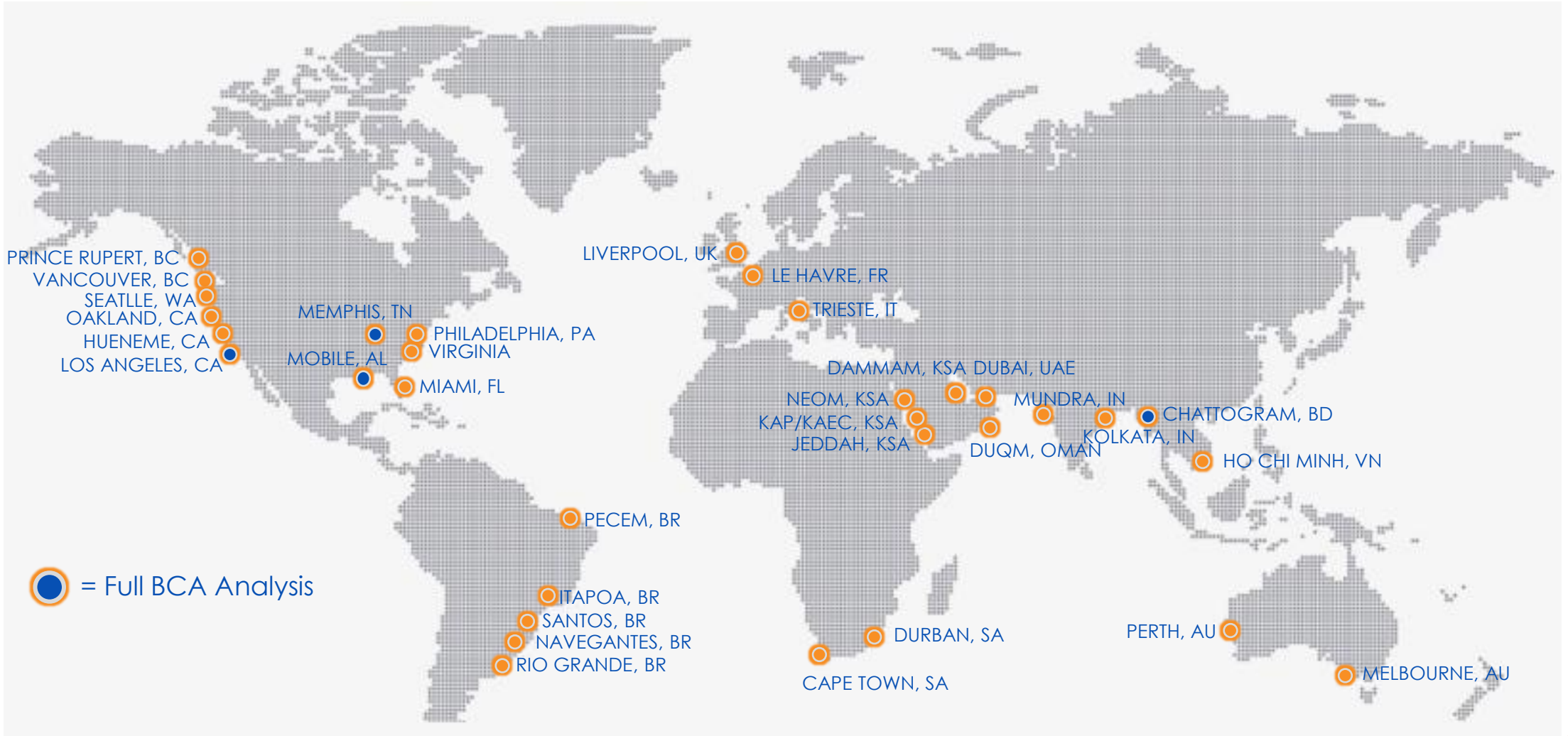


EagleRail proved significant value over truck drayage and supports growth in a driver-constrained market with automated connection between an inland rail terminal and a large trucking terminal and container staging yard that provides logistics support to regional manufacturers and distribution centers.



# Global Solution Works in Every Global Sea Port and Dry Port

EagleRail has consulted in 20 countries and 90+ ports. These are activities in the past 36-months for Concept and Feasibility Studies.



## Expert Opinion – Overhead Horizontal Container Conveyance



Lars Jensen, International Port Consultant, CEO Vespucci Maritime

"EagleRail is addressing one of the core issues that's only going to grow exponentially in the years ahead in container shipping.

Container shipping volumes will continue to grow.

One of the key bottlenecks will be ports and terminals, not so much on the key side with the vessels, but on the link into the inland side.

It becomes critical to be able to move a large number of containers in and out of crowded port facilities in crowded traffic.

**With that, an electrified, overhead rail solution that can move this bottleneck away from congested port areas and into hinterland operations makes all the sense in the world."**



# Saudi Arabia as GCC Partner



# Ibrahim al Saeed – EagleRail Special Advisor on Saudi Arabia



**Former General Manager & Director:  
Transportation and Logistics Sector  
Ministry of Investment Saudi Arabia (MISA)**

Saudi Arabia Marine, Energy, Power &  
Infrastructure Management Experience

Government Relations Expertise; KSA and USA

Masters of Engineering in Construction &  
Engineering Management - King Fahd University



# Unique & Special Bonds Between the U.S. and the Kingdom



رؤية  
VISION  
2030  
المملكة العربية السعودية  
KINGDOM OF SAUDI ARABIA

THE STRATEGIC PARTNERSHIP PROGRAM

“Working with our economic partners around the world to build new strategic partnerships for the twenty-first century, in harmony with our national Vision, so that we can be a trade hub connecting three continents and enhance our exports.”

KSA as a key Global Logistics Hub:

- Sustainable, Efficient, Digital
- Through support of emerging T&L Tech
- Grow KSA volumes from 10M TEUs to 40M TEUs (70% Red Sea focus)
- Improve Port and Rail LPI's to be in the global Top 10 in standards
- Complete and optimize connectivity to rail Landbridge to Jeddah and Red Sea
- Support and expand “micro-mobility”



EagleRail presented at U.S. Trade Mission to Saudi Arabia in 2023.



# EagleRail Technology & Services Support VISION 2030

Our business goals advance most of VISION 2030 ‘thriving economy’ objectives:

- Launch promising industrial sectors
- Attract foreign investment
- Develop human capital
- **Rehabilitate economic cities**
- **Improve trade connectivity**
- **Build regional logistics hubs**



EagleRail as a potential part of Saudi Ministry of Transportation (MoT) “**Future Mobility**” Program.



# Three Part, Integrated GCC Joint Venture Considerations

## 1. KSA Partnerships

### Commercial Partnerships

- International Maritime Industries (IMI) for structure manufacturing
- Export shipping partners (Bahri and others)
- Commercial operating partners (Jadeer, Globe, Bahri, etc.)
- Electro-Mechanical Equipment Assembly at KAEC

### Financial Partnerships

- Ministry of Investments
- Strategic Port Operating Partners
- Private Holding Co.'s and Family Offices

## 2. KSA Installations

### Port & Rail Applications

- Jeddah Port
- Red Sea Gateway Terminal
- Dammam
- Riyadh Dry Port

### Integration with Planned Cities

- King Abdullah Economic City (KAEC)
- NEOM / OXAGON



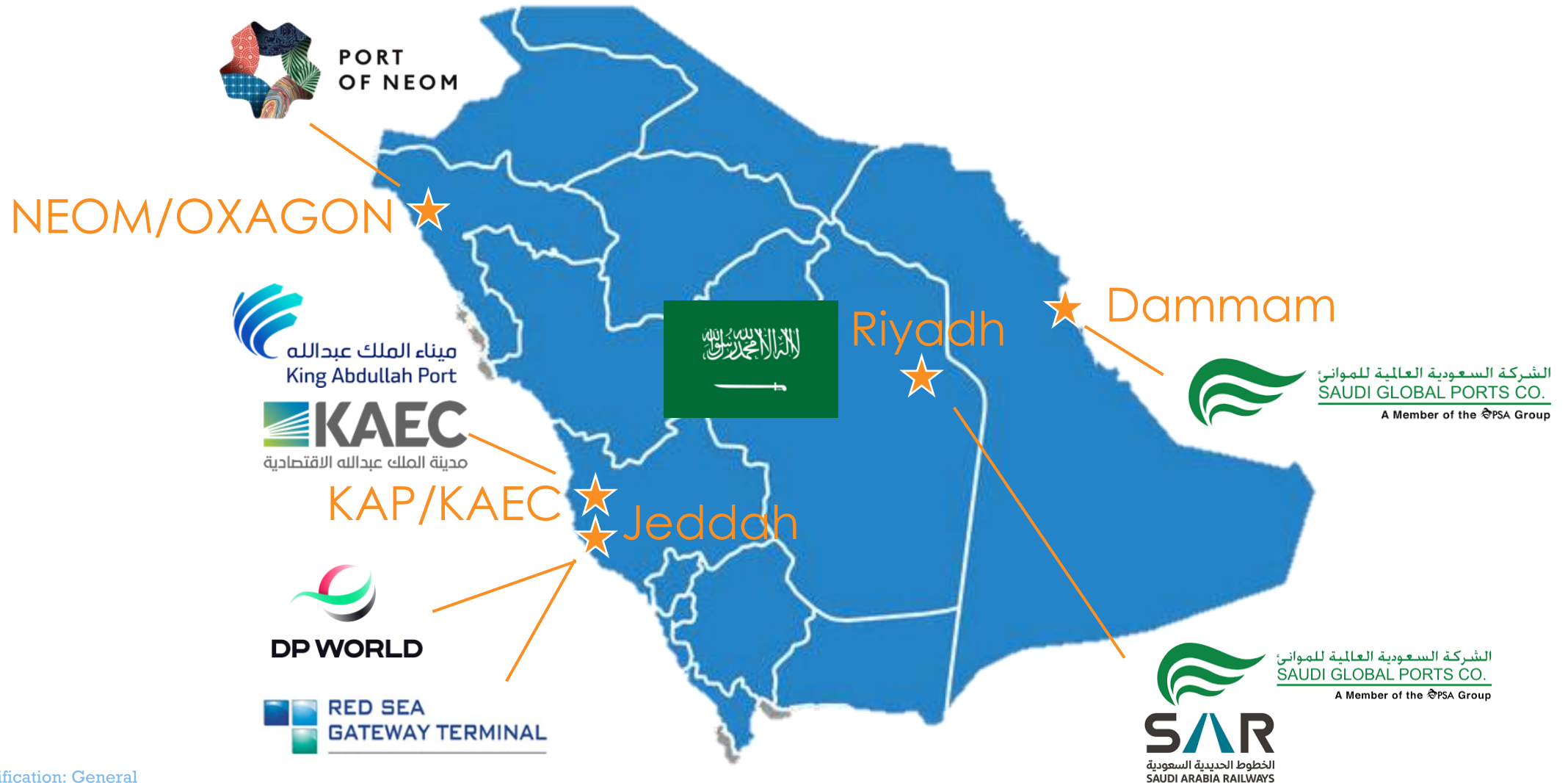
## 3. KSA Regional HQ

### EagleRail Technical Development & Showcase Site in Saudi

- Proof of Concept (POC) and Global Demonstration Site
- Global R&D, Training Facility and Tech Support
- International Sales Center
- Likely at KAEC/KAP



# Feasibility Studies for Commercial Implementation at KSA Ports

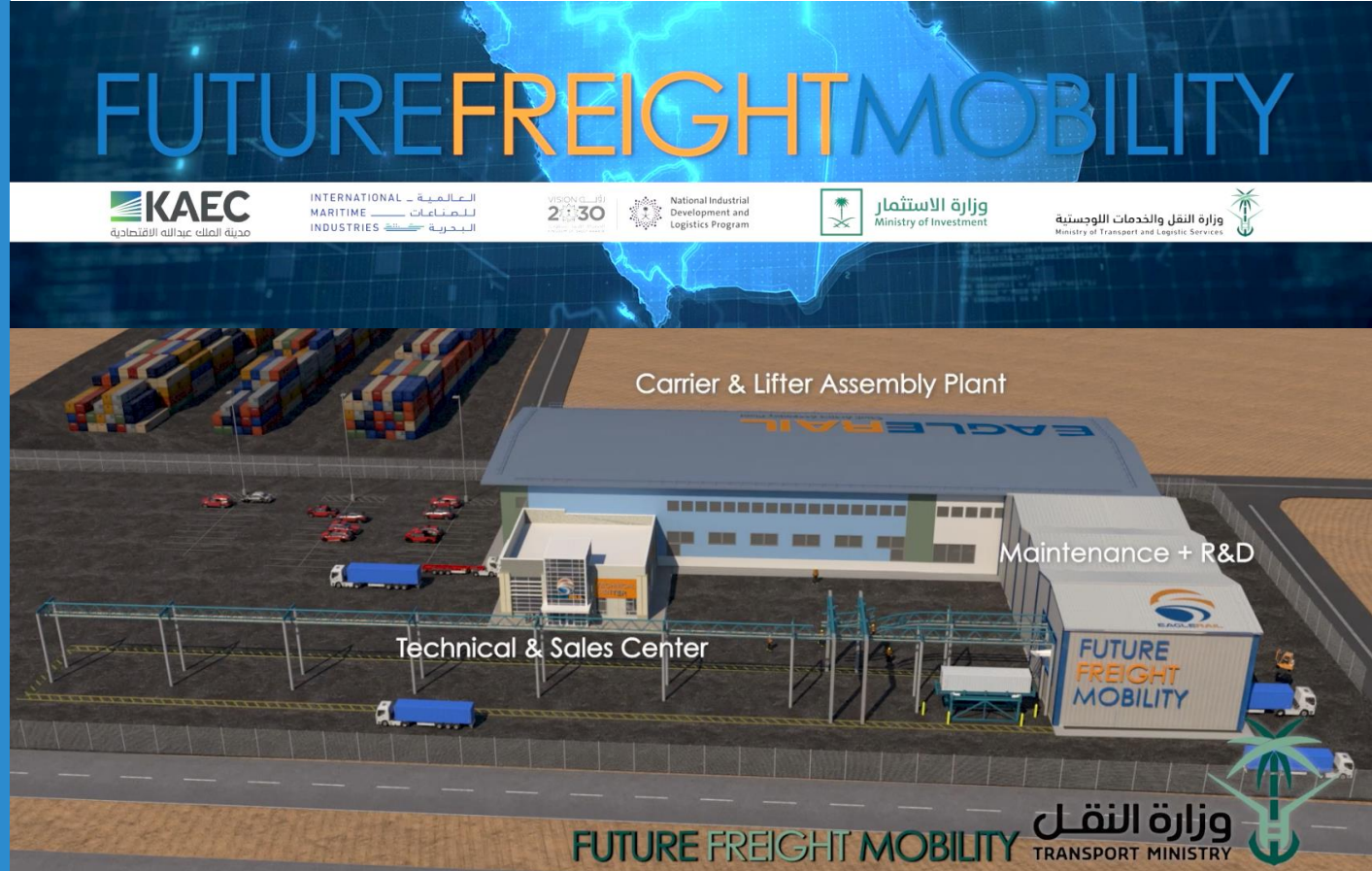


# Second Gen POC System Considered at KAEC Mobility SEZ

Proof-of-Concept is being designed for a King Abdullah Economic City placement.



POC becomes first leg of commercial system.

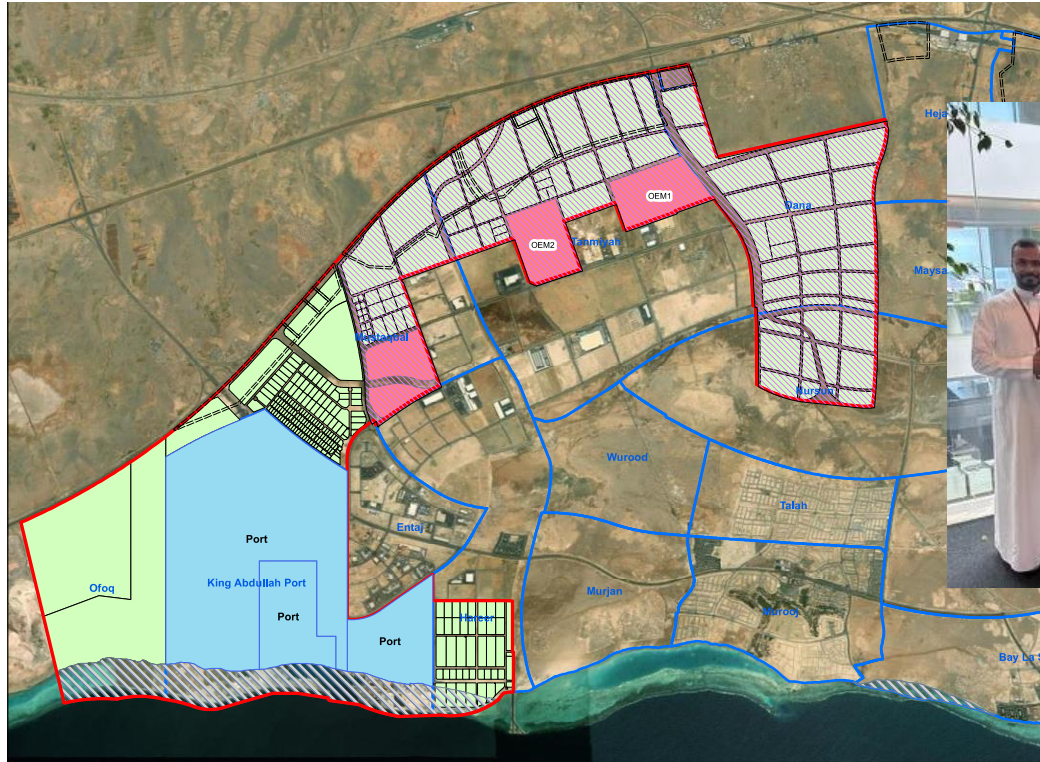


With Expansion into Global Tech, Sales and Mfg. Center.



# Signed MOU with KAEC for Connection Study, KAP to SEZ IV

EagleRail system at KAEC planned to be launch as Global POC as well as Global Showcase, Tech R&D Center and Training Center, and also commercial site connection KAEC SEZ/IV area to KAP/PDC terminals.



KAEC Industrial Valley (IV) and Special Economic Zone (SEZ) Project Coordination Teams.



**John Elliott**  
Chairman,  
ER Logix

**Cyril Piaia**  
CEO,  
KAEC

KAEC Industrial Valley (IV) and Special Economic Zone (SEZ) Master Plan highlighting port, future rail, auto and other industries.



# MOU for Global Manufacturing & Distribution of Super Structures

IMI robotic production of ER Truss & Track sections for ultra cost-effective regional and global distribution.



EagleRail track and truss structure similar to crane and oil platform legs robotically manufactured at IMI.

**INTERNATIONAL** \_ العالمية  
**MARITIME** \_ للصناعات  
**INDUSTRIES** البحرية



**Bruno Areal**  
VP Legal, IMI

**John Elliott**  
Chairman, ER Logix

**Justin Taylor**  
VP Tech Services, IMI



Thank You



Intermodal Takes Flight™