

How Maersk is Enabling Electric Drayage to and From Shanghai Port

An EDA Case Study in Shanghai

Every day, thousands of containers shuttle between Shanghai Port and factories across the Yangtze River Delta. Decarbonizing these transport flows represents a significant challenge, but also a major opportunity. As a founding member of the Electrifying Drayage Alliance (EDA), A.P. Moller – Maersk is leading the change. The approach was unconventional: rather than directly investing in trucks or charging infrastructure for the low emission corridors, Maersk focused on what a logistics provider does best, prioritizing suitable freight for electrification and helping create visible demand for their subcontracted low-emission transport fleet.

Working with fleet partners and charging operators across a 200–250 km hinterland covering Shanghai, Suzhou, Wuxi, Changzhou, Jiaxing, and Huzhou, Maersk acts as an ecosystem integrator by aggregating their own freight demand, building electric heavy-duty truck capability enabling their subcontractors to run 20+ EVs, and coordinating 6 charging points along the low emission corridors. Maersk created an opportunity for all stakeholders involved. Within its first year, the electric trucks completed 6-8% of transport moves within the pilot corridors, with 100% renewable electricity matching secured through National Green Electricity Certificates (GEC).

“At first, 30% battery meant it was time to start worrying about where to charge next. Today, on these low-emission corridors, even at 10%, I'm not concerned. I know the route, I know the charging options, and I can keep operating with confidence.”

— An electric heavy-duty truck driver from Shanghai SY Logistic, operating on low-emission corridors

Partnership at a glance

Maersk	Fleet partners	Charging operators
Aggregates freight demand and coordinates the ecosystem	Run electric heavy-duty trucks (400–600 kWh) on low emission corridors	Build 300–400 kW DC hubs where charging demand is visible

A model built on collaboration, not assets

Drayage electrification has long faced a chicken-and-egg challenge: fleets are hesitant to invest in electric trucks without dependable charging access and demand, while charging providers look for visible demand before expanding infrastructure. Maersk's pilot started from a simple premise: progress begins with demand, where the operational service quality could

be met, freight was preferentially matched with electric trucks. By prioritizing freight suitable for electrification, sharing operational experience, and bringing ecosystem partners together, the pilot helped build confidence, improve demand visibility, and support the development of a more enabling environment for electric trucking.

The pilot focuses on standard import/export container moves with a fixed “empty-out, heavy-back” rhythm: an electric tractor collects an empty container from Yangshan or Waigaoqiao port, delivers it to a factory or warehouse for loading, and returns the laden container to port.

Confidence is a network effect

The most unexpected success factor was the drivers. Early range anxiety, a given in most electrification pilots, faded within months. Not because batteries changed, but because drivers gained familiarity with routes, charging options, and daily operations. Route repetition helped drivers understand the most reliable charging points on route, and confidence compounds with every cycle. The lesson learned by fleet planners is that electrification readiness depends as much on network density and route stability as on vehicle range.

Charging without owning a charger

In these low emission corridors, Maersk owns no charging assets. Instead, it coordinates a demand-pull infrastructure model. By aggregating charging demand from multiple subcontracted fleet partners, the pilot helps create a more stable and predictable utilization profile for charging operators, enabling them to optimize infrastructure usage while strengthening the business case for future investment and expansion. The result is a multi-win structure in which trucking carriers get reliable charging and good service at competitive rates, charging operators secure stable utilization, and Maersk accelerates low-emission transport across its network.

Priority hubs at Lingang and Waigaoqiao help ensure access to pre-departure charging when needed, while third-party charging operators deploy 300–400 kW dual-gun DC chargers across the low emission corridors. Most charging takes place overnight during off-peak hours, allowing trucks to start the day with a full battery. During daytime operations, additional 1 to 1.5-hour charging sessions can be arranged as needed to support operational requirements.

What the Pilot Delivered

- 20+ electric heavy-duty trucks capacity developed
- 6 charging locations were identified and available for corridor operations
- 6–8% EV transport penetration with 100% GEC matching

Switching from diesel to electric eliminates tailpipe emissions, but grid carbon intensity varies. The GEC mechanism helps align the environmental claim with the operational transition, a critical distinction for Scope 3 reporting and customer-facing sustainability communication.

What We Learned

Cargo owners can help unlock adoption. When freight suitable for electrification is prioritized and demand becomes more visible, truck partners gain greater confidence to expand EV capacity while supporting the development of charging infrastructure. At this stage, coordination, more than technology, is often the key challenge.

Driver confidence is built through operational experience. Range anxiety is reduced not only by battery size, but also by familiarity with routes, charging options, and daily operations.

Environmental integrity requires credible methodologies. Measuring and attributing emissions reductions from electric trucking requires transparent and credible methodologies. Approaches such as GEC matching are being explored to help improve the consistency and credibility of emissions accounting.

Electrification is ecosystem reconstruction. Moving from diesel to electric drayage is not a vehicle swap. Demand planning, driver training, charging business models, and renewable energy markets must all evolve together, and someone must conduct. Technology continues to advance, but coordination remains one of the key challenges to scaling adoption.

Beyond the Pilot

The pilot's clearest lesson is that electrification advances fastest when stakeholders move together. By improving demand visibility, sharing operational experience, and supporting ecosystem collaboration, barriers to adoption can be reduced and confidence can grow. Electrification is not simply a vehicle transition, but an ecosystem transition. The next step is to expand the model across more corridors, more fleet partners, and more charging locations, while continuing to test, refine, and scale practical pathways for low-emission drayage in everyday operations.