



Talon

Logistics Inc.



The Shipper's Guide to Zero-Emission Drayage

A white paper from one of the first trucking companies to utilize
zero-emission vehicles in California

EXECUTIVE SUMMARY

Nearly every shipper is under pressure to reduce emissions. That pressure may be largely self-imposed because being a greener company aligns with corporate mission, branding, guidelines, etc. It may also come from regulations; the SEC will begin requiring carbon disclosure as part of financial reports and states like California plan to have similar requirements for companies of a specific size.

Regardless of the motivation, many shippers have unrealistic expectations about how trucking companies should be transitioning to zero-emission vehicles. Questionable claims from many OEMs have exacerbated the issue because these vehicles are entirely new technology. Claims about the distance a ZEV can travel are based on educated guesses rather than practical experience. This is especially true when considering road conditions, the weight of a chassis and container, and many other factors.

The rest of this paper leverages the experience Talon Logistics has accrued as it transitioned a portion of its fleet to ZEVs and a consolidated set of questions from various shipper RFPs. It aims to dispel myths, highlight opportunities, and, most importantly, show how a greener future is possible.



BACKGROUND

The State of California was very clear in its goals: It would push the port and drayage communities to become the world's cleanest import and export operations. Over the last few years, the state has rolled out aggressive timelines for when various vehicle types would need to be zero-emission at the tailpipe.

"At the tailpipe" is a critical component of the state's goal. Fuels that are carbon negative, such as biomass, are being tried across the US, but vehicles using these fuels will have emissions, eliminating them as options for drayage.

In other words, drayage vehicles must be powered via electricity or hydrogen. California has also created a transition plan. Beginning earlier this year, any truck that needed to be registered for port work would need to be a ZEV (trucks already registered are generally still allowed, but as the years go by, they will be sequentially phased out).

But as Mike Tyson once said, ***"Everyone has a plan until they get punched in the face."***

Throughout the shipper ecosystem, executives in trucking, brokerage, terminal operations, steamship lines, and BCOs have acknowledged feeling like they have been given a black eye.

Several anticipated and unexpected challenges have hindered fleet efforts to become more environmentally friendly. Many companies manufacturing Class 8 ZEVs are new, having launched in the last decade to meet the expected demand of trucking companies everywhere. While Tesla is the most famous of these companies, enterprises like Nikola and Xos have also launched heavy-duty vehicles. It can be daunting to place complete faith in a company that has never had a product on the market, especially when that product is six to eight times more expensive than a typical approach.



The drayage industry has historically been dominated by used vehicles. Drayage operators have often purchased vehicles that are no longer fit for long-distance hauling because the typical lanes a drayage operator runs are very short; there is less risk of being caught *"far from home"* when you never actually go far from home.

Because there were literally no ZEVs available just a few years ago, the model of leveraging used equipment can't work. This has had a massive impact on the ability of smaller fleets and individual owner-operators to access zero-emission vehicles. It has also created new opportunities for companies like Forum Mobility and Zeem Solutions, which offer ZEVs and charging infrastructure as part of a lease program, reducing the initial CapEx required for putting new trucks into a fleet.

THE REAL COSTS..

The CapEx outlay for new vehicles is potentially massive; EVs and Hydrogen trucks are, by default, new (instead of used). At the same time, their duty cycles are very different from those of their international combustion engine (ICE) counterparts.

For example:

- A typical drayage run is ~90 miles (180 round trip for dual transactions).
- Many Battery Electric Vehicles (BEVs) have a range of around 200 to 250 miles, meaning that after they've covered a load, they need to be charged.
- A diesel truck may make 3-4 round trips per day, which a BEV can't match when accounting for basics like driver hours of service (the time a driver waits for his or her truck to charge counts against their HOS).
- Trucking companies need two BEVs to replicate what a single ICE vehicle can do (the driver completes a run, plugs in their truck, and takes a second truck that has been charging). Trucking companies need two BEVs to replicate what a single ICE vehicle can do (the driver completes a run, plugs in their truck, and takes a second truck that has been charging).
- The BEV is eight to ten times more expensive than a used diesel truck (sixteen to twenty times more expensive when you incorporate the need for two BEVs for every ICE truck).

And there's more to the story.

There is a tremendous shortage of available charging infrastructure for Class 8 Vehicles. For reference, it's essential to understand that these vehicles can't be charged by plugging them into a typical wall outlet.

That approach may be somewhat practical for consumer vehicles; a Volkswagen ID.4, the company's electric SUV, takes more than 24 hours to charge when using a household current, so it's theoretically possible. Still, given the size of the batteries on drayage vehicles, faster charging is required. The **California Energy Commission** estimated the need for more than 150,000 new medium and heavy-duty chargers in the next six years.

Many fleets have purchased charging infrastructure (Talon is among this group) because it offers more control. However, this is also a large undertaking. It requires partnerships with local electric companies, which need to perform feasibility studies to understand the power level available at a location and whether the local grid can support the trucking company's needs.

California electricity also comes with a complication: the cost of electricity varies depending on the time of day. It can be twice as expensive to charge a truck at noon than it would be at midnight. The model referenced above, with a trucker driving one vehicle while the other charges, may be impossible to afford for some companies.

Hydrogen vehicles are more similar to the ICE incumbents. They can theoretically be refueled quickly, and they can travel further on a full tank. However, hydrogen fuel stations are scarce, and the cost of hydrogen is often 3-4 times more expensive than diesel.

When it comes to the cost of ZEVs, Facebook may have gotten things perfectly succinct: **"It's complicated."**



..and Who Should Pay Them

Transitioning the overall drayage fleet to ZEVs will be expensive. While California is the first state to push this type of initiative, it won't be the last. Similar measures are expected in Washington State, Massachusetts, and New York in the coming years.

The recurring discussion at industry conferences ranging from TPM to Shoptalk has been, ***"Who's going to pay for the transition? Should shippers accept higher bills? Should consumers expect to pay more? Can trucking companies afford the transition?"*** That's not to say things are entirely bleak.

It may seem counterintuitive, but it is possible for forward-thinking shippers to help their trucking companies transition to a greener fleet without a dramatic increase in rates.

Shippers can take three critical steps to ensure that their freight is being moved in an environmentally conscious way.



Know your overall transportation and sustainability costs.

There are dozens of ways to be more environmentally friendly. Many companies have incorporated carbon offsets to mitigate some of their emissions. However, those costs aren't always accounted for in transportation decision-making. Suppose a company has set a budget of \$50,000 per month for offsets. In that case, it may behoove the company to push those funds to a transportation budget, allowing decision-makers who oversee drayage and trucking to have more financial flexibility to pay slightly higher rates to have their goods moved via ZEV.



Learn about incentives.

Shippers can tap into dozens of programs for rebates and tax breaks when they reduce their emissions. Transportation leaders can tap into accounting teams to find ways to spend a little more on having goods moved but recoup those dollars (and more) due to their environmentally conscious approach.



Extend the length of trucking relationships.

One of the most significant shifts in freight brought about by the pandemic was a focus on shorter-term agreements. Pricing volatility meant shippers could have contract rates hundreds of dollars below the spot market in one month but hundreds of dollars above spot rates the next. Understandably, this pushed shippers to focus on shorter-term agreements, with bids being awarded to last for three month intervals instead of the traditional annual process. This creates tremendous pressure for trucking companies looking to establish a long-term lease (or purchase) program to put ZEVs into production. As a BCO decision maker, if your trucking company approaches you about a longer-term arrangement in return for access to a zero- emission fleet, take the time to consider it.

The Future is Bright Green

The transition to zero-emission vehicles will be costly for the foreseeable future, but again, incentive programs, rebates, and tax deductions can help shippers alleviate many (or all) of the increased fees. There are also programs today to help trucking companies afford new, carbon-free vehicles more easily.

More importantly, the costs we see today are only here for a while. As with all technology, it's safe to assume costs will drop over time. Adjusting for inflation, the first laptops would have cost more than \$6,000 in today's money (for a device with 64k of memory, enough to store the first few notes of a single song). Infrastructure will improve, and the grid will continue to expand to accommodate new demands.

In other words, the government subsidies and various programs in place today serve as a bridge to a greener future. The companies that act quickly will be best positioned in the future, having already incorporated zero-emission vehicles into their operations and earned consumer approval for being early adopters.

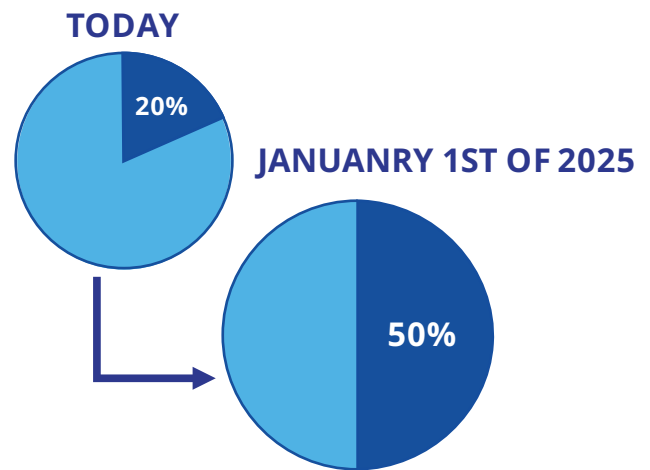
Regulations about carbon disclosure will ensure the public understands which companies took proactive steps to create a greener future.





About Talon Logistics

Talon Logistics was among the first trucking companies to deploy zero-emission vehicles in California, and perhaps the only trucking company to do so without kicking and screaming. Today, 20% of our fleet is either EV or hydrogen-powered, and we're planning to increase that to 50% by January 1st of 2025.



Emmanuel Carrillo

Our CEO, **Emmanuel Carrillo**, is a member of the Harbor Trucking Association's board of directors and regularly shares our experience in transitioning to clean trucks with the community. zero-emission vehicles are a differentiator for Talon today, but we see an opportunity to serve as the tip of the spear, helping other trucking companies complete their transition to zero-emission vehicles.

To learn more, visit our website at www.talonlogisticsinc.com

