

Semi Trailers and the Move to Renewable Energy by Boxwheel Trailer Leasing

As the transportation industry looks for ways to move to renewable, clean energy sources, the focus often is on powering trucks. However, researchers and manufacturers are increasingly looking at the energy needs—and the energy-generating potential—of semi trailers. It may be a few years before semi trailers for rent or lease have some of the capabilities that companies are experimenting with today. But the future is bright when it comes to manufacturers producing trucks and semi trailers that use less fossil fuel and more clean energy sources.

Not only are these developments good for the environment, but they also will reflect well on the transportation companies that capitalize on them. In fact, it isn't hard to imagine a point in the not-so-distant future where businesses and consumers will base their selection of transportation companies to work with or semi trailers to rent or lease in part on their use of clean energy. That's why at Boxwheel Trailer Leasing, we keep an eye on renewable energy developments that affect semi trailers.

Using Brake Energy to Power Reefer Trailers

Every type of semi trailer requires a certain amount of energy to power its systems. Refrigerated semi trailers (often shortened to reefer trailers or simply reefers) typically have the highest energy needs.

As an example of innovation in the design of semi trailers, a company called Ecolution is developing technology that uses energy from braking systems to help power reefer trailers. They call it their Module Active Response System (MARS).

As Ecolution explains on their website: "The key MARS patented innovation is the use of alternators connected to disc brakes in the trailer, sending power through a converter to a battery storage unit for on-demand energy, all within the reefer trailer. The company now has four patents pending in Germany, Japan, China, and South Korea. The invention, under research and development for five years, now goes into a prototype in the US, Europe, Latin America, and Asia. We believe our intellectual property provides us with a material sustainable competitive advantage for the next 20 years."

One of the great things about this development is that reefers often burn a significant amount of fuel as truckers wait to move their cargo into refrigerated storage at a grocery store or other delivery point. A semi trailer that has stored energy in batteries through normal braking on the way to its destination will be able to use it to keep refrigeration units running as needed without burning fuel.

Adding an "Electric Axle" to Semi Trailers

A German company called Trailer Dynamics is working on an electric drivetrain that replaces one

of a trailer's conventional, non-powered axles. The result is what they call the Newton eTrailer. Specialized sensors enable real-time control and synchronization of the electric trailer driveline with the tractor. In effect, the technology transforms a standard semi trailer into an electric plug-in hybrid.

As the company says on its website, "Together with the adaptive aerodynamics developed by Trailer Dynamics and the intelligent control strategy for the electric auxiliary drive, significant diesel and CO2 emission reductions of 20% to 40% on average become possible."

The Newton eTrailer has several components that produce these improvements—electric axle, battery system, predictive software and adaptive aerodynamics. So, it may be a while before these hybrid semi trailers are common on the roads. However, they have tremendous potential for making transportation more eco-friendly.

Electrification efforts aren't limited to trailers, of course. One industry innovator, U.S.-based Hylion, initially focused on trailers before shifting its focus to tractor powertrains. Its Hylion® Hybrid eX solution provides performance improvements and fuel savings. And this isn't a system that's planned or under development—it's currently available.

As the company explains: "Free from being dependent on sparse semi-truck charging infrastructure, Hylion provides an electric hybrid powertrain that captures energy as it drives, providing battery electric benefits for fleets to adopt today, not years from now."

Semi Trailers and Solar Energy

Truck companies are increasingly using small solar panels on top of cabs to meet some of a truck's power needs. However, clean-energy advocates have long seen the flat roof and sides of dry van trailers and reefers as surfaces that trailer manufacturers should cover in solar panels. Swedish company Scania is working on making that vision a reality. It is testing a trailer clad in over 1,500 square feet of solar panels. Scania's system sends the energy it collects to a plug-in hybrid Scania tractor.

It's too soon to say exactly how much this type of trailer might improve fuel efficiency. However, even in Sweden, with its northern latitude and limited sunlight, the company estimates that 5-10% improvements are possible. Just imagine the potential in southwestern U.S. states like Colorado and Arizona!

And, of course, the panels are absorbing energy even when no one is using a semi trailer. Consequently, the trailers might be able to put energy into the local power grid when idle. They could also be transported to the site of a severe storm or natural disaster to help generate energy to offset a power outage.

Providing Time-Tested Semi Trailer Technology—Today and Tomorrow

At Boxwheel, we provide high-quality semi trailers for rent, lease, or purchase. They come equipped with all the technology you would expect in a modern trailer.

But we're also watching the renewable energy revolution unfold. The transportation industry is on the brink of a significant transformation, and we're perfectly positioned to capitalize on new solutions for improved performance and energy efficiency—once they're ready for "prime time," that is!

We're eager to help our customers save money and make operational changes that are good for the environment and their reputation with consumers. Once everyone from researchers to truck drivers has fully vetted the innovative systems described above and many others being

developed, we'll start offering semi trailers that leverage those safe and effective systems. Contact us today to learn more about our inventory of flatbed, liftgate, reefers, and dry van semi trailers for rent or lease. Our customers find that we make leasing a semi trailer affordable, safe and easy.

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