

THE LIGHT

SPOTS

Allen Matkins  
+ **WattEV**

CASE STUDY



# Case Study



## Climate Change

Growing concern about climate change has continued to drive interest in making transportation greener by reducing emissions and dependence on oil. Although the sale of electric vehicles doubled in the first half of 2021, these vehicle sales tend to be limited to personal use. One company, WattEV, wants to take the transportation industry into the future by building the public infrastructure required for electric commercial trucking to take hold in California and by putting electric trucks on the road under their Truck as a Service (TaaS) model to make them more accessible. Study after study indicates that electric trucks are hitting cost and range targets that put them in the running to handle a rising share of U.S. freight-moving needs. Alain R'bib, Co-Chair of the Century City Real Estate Department, represents

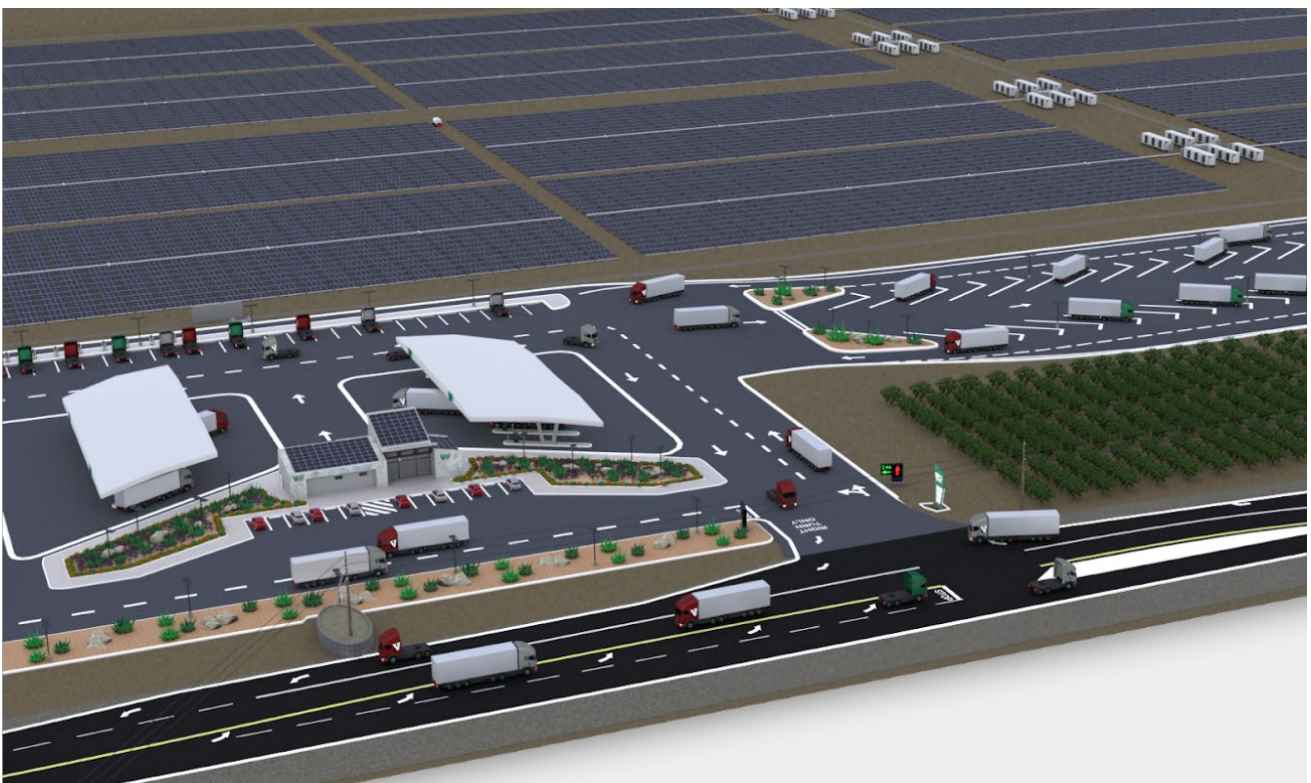
WattEV and sat down with CEO and co-founder Salim Youssefzadeh to discuss the inception of the company, where it is now, and the future of the market. In 2021, WattEV broke ground on its first location in Bakersfield, California. Installations in San Bernardino and Gardena will soon follow through 2022. The company created a triangle of roughly 250-mile routes. Its fleet of 50 second-generation Volvo VNR Electric trucks can cover one leg on a single electric charge. "That allows us to show that it's viable beyond just the short-haul freight and that you can go beyond just traveling the port and the locations around it," Youssefzadeh said. "We're already looking at creating a zero-emissions corridor that goes all the way from Long Beach in Southern California to Northern California."

# Q&A

## What Inspired the Creation of WattEV?

I've always been interested in renewable energy. Two years ago, I came across an article on hydrogen that prompted me to research hydrogen production. There has been a push for hydrogen-powered vehicles over electric vehicles for years because it offers three key benefits: faster fueling time, weight reduction, and greater range. After a detailed cost analysis, we discovered that green hydrogen could not be a long-term solution under present market conditions because it costs too much to produce, store, and transport.

That's when we turned our attention to electric vehicles and realized that as the technology develops, the charge time, range, and battery density all improve as well. That's when we realized we wanted to become the dominate player in the infrastructure. As we began exploring the sector more we realized there are many other areas in this industry that can also be improved which led to the development of our Truck as a Service (TaaS) concept and our efforts in charging equipment.



## What Type of Infrastructure Are You Building?

There are several factors that go into selecting sites for truck charging. Some of these include being on major trucking corridors, parcels of land large enough for solar generation, being close to potential customers, and within a radius that fits the 250-mile range limitation of current generation electric trucks. The initial 3 sites set to be operational in Q4 2022 are within a 165-mile radius and all satisfy one or more of the conditions and are perfect for the middle mile sector in the trucking industry.

Our Bakersfield facility is one of our flagship sites capable of charging 200 electric class 8 trucks a day once fully built out. The first phase will include 5MW of solar, 5MWh of battery storage and 3.2MW from utility and will be operational Q4 2022. This site is on a major trucking corridor and close to many large shippers including Amazon, Walmart, Target, Ross, and the local farming community in Bakersfield.

WattEV anticipates nearly 50% of its energy to come from renewable resources, but obviously some properties may not be large enough to allow for solar deployment and will depend more on the utilities. The San Bernardino and Gardena site will get 8MW and 4MW respectively from Southern California Edison and will satisfy a portion of the transport coming off container ships and going to the major distribution centers located in Inland Empire.

WattEV has a large pipeline of additional sites traveling up to Sacramento and East to Arizona and Las Vegas. These sites will expand the network and allow for California's first zero emissions corridors. Every site is built with the future in mind and all sites will eventually have MCS charge dispensers installed which reduces charge time from around three hours down to 30 minutes.

WattEV and the Port of Long Beach recently announced plans to build a charging plaza for heavy-duty electric trucks inside the port complex. The charging facility will serve WattEV's fleet of electric trucks as well other carriers committed to electrifying trucking operations to and from the combined ports of Long Beach and Los Angeles, which receive some 40 percent of the nation's imported goods. Combined, the ports have 20,000 trucks in their registries using combustion engines, more than 25 percent of which are older than 10 years. Both ports have been setting clean air goals for nearly two decades.

## How Do You Choose the Corridors for Trucking Use?

We began by looking along the I-5 corridor where we could find inexpensive land to build a solar field that would allow us to produce our own energy. The problem is that the I-5 is mostly used for long-distance transportation, which is beyond the range of electric vehicles at the moment. So we instead decided to concentrate on local transporters and searched for space closer to the roads they travel.

After discussions with industry leaders, we shifted our focus to Bakersfield and found 150 acres along Highway 65. This put us on the route used by major shippers and gave us access to more potential customers, including Amazon, Walmart, and the local farming community who transport goods from their distribution centers to the ports. One site is not enough though to make electric transport a reality and that led us to searching for additional sites in the inland empire and near the ports that allowed us to create a triangle capable of satisfying a large portion of freight moved within the middle mile.

### **You're Not Only Building Infrastructure. You're Also Implementing Trucks as a Service. Tell Us More About This Concept.**

During the build out of our infrastructure, we quickly realized that we could not depend on the demand to pick up naturally for our charging network. We then started looking into the vehicles and realized there are a number of constraints that prevent many owner operators and carriers from electrifying their fleet. For starters, current electric class 8 trucks are nearly four times more expensive than a new diesel truck. Couple this with limited range, weight constraints, insurance, reliability, and infrastructure and you can quickly see why people aren't rushing to local dealers to buy these trucks. We saw this as an opportunity to prime the market and make Electric Trucking more accessible all at a cost nearly at par with diesel.

The way we go about doing this is by working closely with many of the shippers to identify routes that are within the charging depots that we have and within the 250 miles range constraint of today's trucks. We then take those routes and put them on our brokerage platform which sends out a notification to the drivers, carriers, and owner operators that are registered on our platform. Once a driver accepts the trip, they are given details in terms of where to pick up the truck, loads, destination and so forth. After delivering the tour, if the truck is out of charge, the app guides the driver to a nearby depot to swap with a fully charged truck to pick up another load and complete another tour in the direction of their starting location.

Trucks are no longer tied to a single operator and are now in a shared pool of assets which essentially becomes a scheduling and optimization problem that allows WattEV to maximize the usage of the vehicles and bring the Total Cost of Ownership (TCO) down to diesel values. The TaaS platform has the added benefit of branding shippers and carriers as sustainable companies now that they are moving freight using zero emission trucks. As the technology of the vehicles evolve and the charge times are reduces, we can expand the radius and move from middle mile to long haul transport.

More details can be found [here](#)

### **What Have Been the Most Significant Business and Development Challenges You've Faced?**

One of the biggest challenges we've faced is finding land to use for the solar fields. We have to navigate issues like oil leases and CEQA regulations. After acquiring the land, we had to figure out what type of charging equipment to use. We wanted to make the most of the space, and after a cost analysis, chose tilted solar panels instead of single-axis tracking panels. The tilted panels take up more space, but they allowed us to increase our peak capacity from 25 megawatts to 40 megawatts. Charge dispensers also have room for optimization and we have started efforts to creating a future product line that allows for both CCS and MCS charging through a complex switching matrix that ultimately brings down the cost of the equipment and increases the efficiency and deployment time.

Many industries are also affected by supply chain constraints and this has also had an impact on truck manufacturers and the development of MCS trucks. MCS capability is a key factor in scaling our model beyond the middle mile and increasing utilization of our charging network and the trucks.

### **Have You Been Able to Purchase Trucks?**

We have placed an order for 50 Phase 2 Volvo trucks with a range of around 250 miles and deliveries starting Q4 2022. We have also placed a reservation for 50 Tesla semis with a range close to 300 miles and megawatt charging capability for faster charging but with an unknown delivery time. Our initial batch of 50 Volvo trucks will be used to validate the model and grow our customer base until trucks with MCS capability become available.

### **What's the Current State of the Market?**

We're really the first to enter this space. There are some groups trying to build an infrastructure solution and some companies that can offer charging as a service. However, they are limited to working with shippers who want those services. We want to create a network of public stations, starting in California and then stretching across the country. As the range of the trucks increases, we can transition from the middle mile to the long mile.

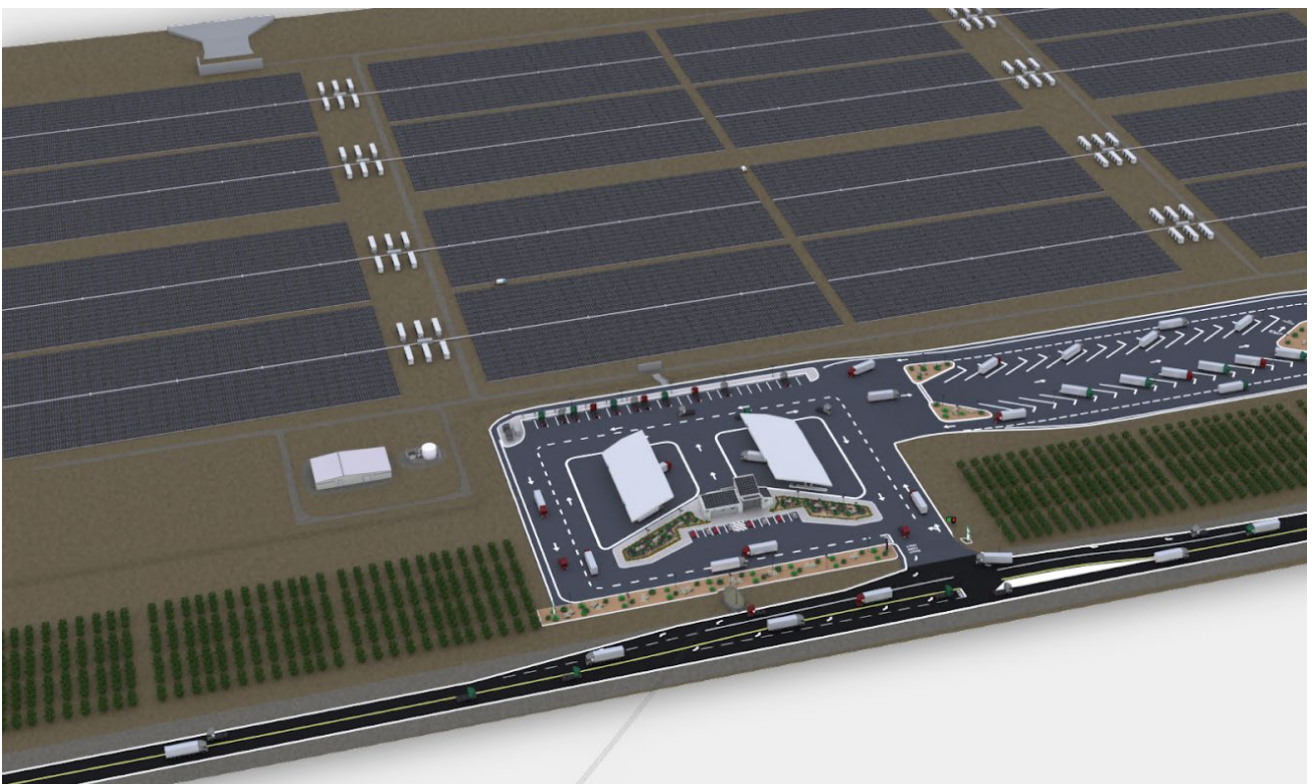
### Who Is Your Competition?

The major shippers all have sustainability goals and are currently evaluating their options. California and many other states have mandates in place to force both shippers and carriers to move to zero emissions. Our pitch to the shippers is that they can offload their freight to WattEV to start branding themselves as a sustainable company while meeting all the mandates and regulations put in affect by the state and without any upfront costs. Through our TaaS platform, carriers and owner operators now have access to zero emission trucks all at a cost nearly at par with diesel without any unknowns.

### It's Easy to See the Benefit of This Infrastructure for Industrial Property Owners, Developers, and Shippers. What Other Industries Will Benefit From This?

We think that everyone benefits from this eventually. Our pitch is geared toward the shippers, and our customers are the carriers and owner operators. Ultimately, we don't want to own the trucks. We want to partner with a leasing company that will lease the trucks to us. Right now, we're using the trucks to test the Trucks as a Service model and build our customer base.

One of the challenges we're facing right now is that we don't have trucks with megawatt charging. The technology has to change, and battery manufacturers have to meet the demand for these batteries. That's why we're taking the initiative to show that it can work.





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