

# Charging the Future | Panel Solar's EV Pivot

## Case Study



UNA EMPRESA DEL GRUPO  **SERVITRONICA**



SECRETARÍA DE INNOVACIÓN Y DESARROLLO ECONÓMICO



WILLIAM DAVIDSON INSTITUTE AT THE UNIVERSITY OF MICHIGAN

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## Company context

**About the company** Panel Solar, located in Ciudad Juárez, offers installation of solar panels and EV chargers in residential, commercial, and industrial settings. It is a spin-off of Servitronica, a company that offers engineering and design services to maquiladoras in the city. Servitronica provided the initial investment for Panel Solar. Both companies operate out of the same offices and with much of the same staff.

**Founded** 2017

**Employees** ~40, all in Ciudad Juárez

**Clients** 500+ for solar systems and 50+ for EV chargers

## Role in Chihuahua industry

Panel Solar engaged in the EV value chain from the clean energy and electrical engineering space rather than through experience in the automotive industry. While its core business is installing solar panels in the state of Chihuahua, in 2019 the company noticed an opportunity to apply its expertise in a new area with existing clients who were becoming early adopters of EVs. Adoption of EVs is currently nascent in the state, but growing – especially in Ciudad Juárez, a border city with the US. There were 193 fully-electric or plug-in hybrid vehicles sold in the state in 2023 (representing <1% of all vehicles sold, according to the National Institute of Statistics and Geography). Panel Solar was one of the first movers into both solar panel and EV charger installation in the state; competition is now heating up, with approximately five other companies in Ciudad Juárez offering the same services as demand continues to grow. Panel Solar is continually evaluating new business opportunities to respond to changing dynamics in the state and region, and the strategy described below is one spurred by the EV transition.

# Key Strategy for the EV Transition

## 1. Leveraging new opportunities at the nexus of clean energy and mobility

**What** Installing solar panels at homes, businesses, and industrial sites requires specialized electrical and mechanical engineering expertise and an understanding of the requirements of the local electrical grid. Installing EV chargers utilizes much of the same expertise, so this has become a natural extension of Panel Solar's services to its existing customers and new customers who are interested in going electric with their vehicles. Panel Solar installs level 2 chargers, which are AC (alternating current) chargers that can be installed relatively easily in homes and public spaces like parking lots using existing electrical infrastructure. Level 2 chargers provide a slow charge (typically taking 4-8 hours for a full charge) compared to level 3 chargers, which are also known as fast chargers (typically taking 15-60 minutes for a full charge). Level 3 chargers are DC (direct current) chargers and require different voltage and other specifications, which are often only available in commercial or industrial systems.

Panel Solar has so far primarily installed level 2 chargers in residential settings, but is bundling its solar installation service with EV charger installation for industrial customers – including those it works with through Servitronica – and sees growth opportunity in this area in the future. In the short term, Panel Solar aims to expand into level 3 charger installation, and in the longer term, the company wants to explore installing battery energy storage systems as grid back-up for industrial customers.

# Key Strategy for the EV Transition

## 1. Leveraging new opportunities in the clean energy and mobility nexus

**How** While Panel Solar staff completed formal training programs and received certifications to install panels from solar panel equipment suppliers, such training opportunities are not available locally for level 2 chargers; instead the company's staff has engaged in self-directed learning through videos and manuals. In the near term, expanding into the installation of level 3 chargers will require upskilling and acquiring additional certifications, and Panel Solar envisions partnering with a company with specialized expertise in this area to facilitate the scale-up of such a service.

In addition to training, Panel Solar has to engage in robust customer education efforts related to EV charger installation – so customers can understand the implications of adding more power demand to their home or business electrical system, how their electricity bill will change, what happens in the case of blackouts, and more. In some cases, Panel Solar has had to do more complex upgrades of electrical systems to make the chargers function well with the local grid. Reliability challenges in the local grid have also led the company to plan a longer term play in battery energy storage systems, which have enormous potential to maximize self-sufficiency and also contribute to system-wide grid stability.

**When** Panel Solar has been installing level 2 chargers for five years and aims to start installing fast chargers in 2025, thereby helping advance the EV transition.

# Pivot Enablers

## Internal



### Customer network

Existing solar panel customers have formed the initial customer base for EV chargers as well – at residential, commercial, and industrial locations.



### Location

The company's location in Ciudad Juárez has enabled it to tap into the cross-border population that tends to be earlier adopters of both solar energy and EVs given incentives and other dynamics in the US.



### Workforce

Panel Solar has a highly skilled workforce with a relatively long tenure with the company. The company is able to assign and re-assign the same staff members to different products and services as demand fluctuates across its different business lines.

## External



### Policy framework

Regulation to promote professionalization in the emerging clean energy and e-mobility space will benefit companies and consumers alike by ensuring companies have proper certifications and high quality and safety standards. Regulation related to who can install solar panels and EV chargers in the state is currently limited, especially for residential sites.



### Infrastructure

A stable electrical grid with capacity to handle increasing demands brought about by electrification is crucial infrastructure to enable EV adoption. New technologies such as bidirectional charging ability and affordable back-up storage systems to fill gaps in grid capacity will also be important levers as the market continues to mature.

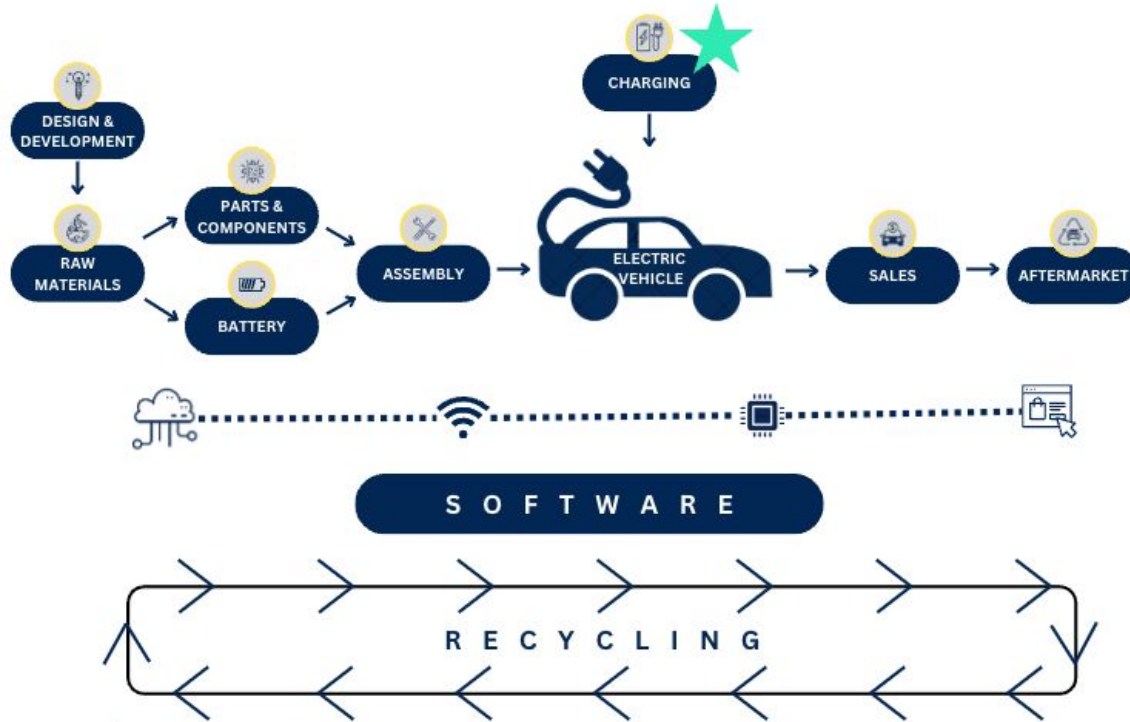


### Workforce

An available and experienced workforce in the energy sector is important. Having relevant training programs and certifications in new areas – through local academic programs and company training programs – will ensure the workforce is prepared.

# Strategies in the EV Value Chain

Where Panel Solar participates in the EV value chain



 New opportunities for Panel Solar in the value chain

# Key Tips and Initial Lessons Learned

## 1. Leverage existing assets when moving into a new area

Panel Solar has been able to upskill current staff, tap into its solar panel and engineering business customer bases, bundle new services with existing services, and use revenue from established business lines to expand into installing EV chargers. All of this helps to reduce the need for external investment and also manage risk, especially as local demand for EV chargers is currently too small to sustain an entirely independent business.

## 2. Establish first mover advantage

As the first company to install EV chargers in the state of Chihuahua, Panel Solar is making a name for itself in this space. They have a reputation for specialized expertise and quality work, which is helpful as new entrants try to compete with lower prices.

## 3. Plan ahead for longer term opportunities

Though Chihuahua is still in the early part of the EV adoption curve and Panel Solar is easily able to meet current demand for level 2 chargers, the company is planning ahead for related, longer term opportunities where they expect growth to occur, namely level 3 chargers and battery storage solutions. Laying the groundwork – by identifying necessary training, potential partners, potential technology solutions, and more – will enable Panel Solar to be an early mover in future areas as well.

# About this Case Study

The automotive industry is undergoing a global transformation related to electrification, shifting to producing more electric vehicles (EVs). Many companies are looking to take advantage of opportunities along the EV value chain. This case study highlights one such company in Chihuahua, Mexico. The case study was developed by the [William Davidson Institute at the University of Michigan](#) as part of the [Chihuahua Charging Forward](#) project, supported by the [Secretaría de Innovación y Desarrollo Económico \(SIDE\)](#), [Frente Norte](#), and [Instituto de Innovación y Competitividad \(I2C\)](#) in Chihuahua.

For more information, reach out to the [WDI energy & mobility team](#).



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