



POWIN SUPPORTS MICROGRID POWERING AUTOMOTIVE MANUFACTURING PLANT IN MEXICO

The largest battery in Mexico brought online in less than 5 months

High Energy Prices and Unreliable Grid

An international automotive company operates a state-of-the-art manufacturing plant near Monterrey, Mexico. Opened in September 2016, the plant at full capacity can manufacture up to 400,000 small cars annually for the North America and Latin America markets. While the location has many ideal qualities, one major concern in planning the factory was the high cost for electric power.

For assembly plants, this is an enormous issue; Such plants require on average 95.1 kWh of electric power per square foot every year, and downtime reduces the plant's real capacity and return.

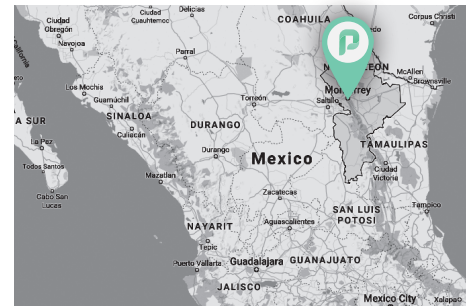
As a solution, the facility opted to bypass the local grid entirely and draw all its power instead from a microgrid that uses seven 18 MW Wärtsilä natural gas generators. However, if a generator fails or there is a spike in load, power quality is impacted which effects the plant's productivity. What was needed was a source of resilient, instantly available power, which is supplied today by Powin Energy's systems.

Largest Lithium Battery in Mexico

Working with Mitsubishi Electric Power Products, Inc. (MEPPI), ESI Inc of Tennessee, Asset Engineering, and San Francisco-based Plus Power, Powin Energy supplied a 12 MW / 12 MWh energy storage system to support the primary gas generation facility. The microgrid, which can generate up to 131 megawatts of capacity, provides the plant with its own self-contained power source, that allows the factory to exist "off the grid."

The microgrid provides frequency response, voltage regulation, and fast spinning reserve to keep the system up and running when there is a generator failure or load spike. In performance tests, the Powin system responded in less than one-tenth of a second (100 milliseconds) and stabilized the frequency in less than half a second (500 milliseconds).

The Monterrey Mexico Microgrid project uses Powin Stack 140 lithium iron phosphate (LFP) batteries paired with SMA 2.475 MW inverters. Powin's LFP batteries offer longer-term chemical and thermal stability than competing battery technologies, along with lower environmental risks. The use of LFP technology also offers customers significant pricing and availability advantages in the current marketplace for key battery materials.



MEXICO MICROGRID

Technology	Lithium ion battery energy storage
Capacity	12 MW / 12 MWh
Voltage	13.8 kV Interconnection Voltage
Location	Nuevo Leon, Monterrey, Mexico
Status	Operational since October 2018
Customer	Automotive manufacturing plant
Partners	Mitsubishi Electric Power Products, Inc. (MEPPI) ESI Inc of Tennessee & Plus Power
System Usage	Frequency response Voltage regulation Fast spinning reserve
Key Fact	Powin's system can respond in less than 100 milliseconds and stabilize the frequency in less than 500 milliseconds



“This project is a great example of the important role batteries can play in microgrids. By adding a 12 MWh battery to the natural gas generators, we're bringing 24/7 reliability to what is already an efficient and flexible power source.”

– GEOFFREY BROWN, POWIN ENERGY PRESIDENT

Vertical Integration

“This project was all about speed. Because of Powin’s vertical integration across the supply chain, efficient project management, and use of LFP batteries, we were able to develop, install and go commercial in just over four months,” said Brandon Keefe at Plus Power, an independent developer of large-scale battery energy storage projects. “Powin’s storage system ensures consistent power quality and reliability that wouldn’t be available from the gas engines alone, or from the local grid.”

