



infor

CASE STUDY

Maxeon increases solar PV output by approximately 40% with Infor MES

Maxeon is a global leader in solar innovation and sustainability. With more than 30 years of experience, Maxeon delivers highly efficient and reliable solar technology for residential, commercial, and power plant customers. Maxeon is headquartered in Silicon Valley and has dedicated, customer-focused employees around the globe. Besides the Ensanada plant in Mexico, Maxeon leverages the benefits of Infor MES at four other assembly plants.

maxeon

Industry

Industrial manufacturing

Infor product

Infor MES

Website

maxeon.com

“ Infor MES empowers the machines with intelligence so they know what they have to do.”

MANOJ KUMAR GONA
Director - Enterprise Applications

Executive summary

Maxon is a leading and innovative supplier of solar PV modules. In 2016, it provided the technology that powered Solar Impulse 2, the zero-fuel airplane, on its record-breaking fly around the world. To respond to the challenges brought about by an explosive market demand and falling solar panel prices, the company has turned to automation and smart manufacturing. The opportunity for change came with the building of a new factory in Ensenada, Mexico. The manufacturing system combining smart equipment, improved processes, high degree of plant automation and MES software delivered on traceability and compliance requirements as well as on efficiencies. Capacity per line doubled and overall cost/watt reduced by approximately 6%.

Aggressive growth comes with its own challenges

In the last 10 years, Maxon has hugely benefitted from the increasing popularity of renewable energy sources that are outpacing conventional energy sources. Around the world, individual homeowners and big corporations are turning to solar power. But explosive growth comes with its own challenges.

With the cost of PV modules continuously falling, it is a tall order to stay competitive, compliant and innovative at the same time. In recent years, Maxon implemented cost reduction plans, such as setting up plants in low-cost locations. However, with operations still largely manual and competition continuing to intensify, the company found these measures insufficient.

Maxon had already seen the benefits of using MES software to meet its traceability and compliance requirements. As it was planning for a new assembly plant in Mexico, the management decided it was now time to leverage the new opportunities offered by the combination of high degree of plant automation and MES software.

Maxon Ensenada: Automation + MES = Smart Manufacturing

Maxon set up a cross-functional team and embarked in the process of redesigning its manufacturing system to take full advantage of automation, with a goal to deliver ROI within 12-18 months. MES software would play a central part in making plant operations smarter.

Business challenges

- Remain competitive in the evolving solar PV market
- Support traceability demands for its products, which include a 25-year warranty
- Enable innovation without reducing efficiency
- Comply with sophisticated compliance requirements

Setting out the business objectives

The general objective was for the future factory to produce about 3,000 high quality modules, i.e., 1 megawatt per day, at full capacity. How would the company ensure it would achieve this however? From the onset, it quantified targets in terms of throughput, capacity per line, reduction in direct labor and cost/watt. The design of the solution would need to deliver on these goals.

Choosing a partner to deliver the MES software application

The MES software application would need to serve as the brain of the smart manufacturing operations. It would need to integrate seamlessly with existing tools, and while offering scalability at minimum investment so that new lines could be added easily—and at low cost.

"The MES system needed to fit into the overall design, be able to support quick fire implementation, be within budget and easy to learn. We chose Infor® MES, which we already used in other plants, as it met these requirements well," says Manoj Kumar Gona, Director - Enterprise Applications in charge of key initiatives across the plants.

Infor MES

To achieve the degree of automation desired, the MES had to be embedded deep in process. This has been enabled through a constant dialogue between the MES and the machines, via automated scanners and sensors fitted where necessary on the equipment.

Benefits of automation and MES

With smart manufacturing, improved processes, and smart equipment, Maxeon could reduce direct labor by about 40% from what it was in a manual operations setting and throughput time by about 40%. “Automation is often associated with job losses. But at Ensanada, thanks to a robust training programme, there was practically no job loss as workers were re-employed to new lines,” comments Gona.

These improvements resulted in a reduction of the cost/watt by 6%, thereby directly improving the bottom line. In addition, they brought multiple benefits that help Maxeon run smarter, more efficient operations.

- Reduced risks of warranty claims
- Improved compliance through better traceability
- Reduction of human error through automation
- Increased agility for new production introduction (NPI)

Business results

6%

cost savings in watts/hour

40%

potential reduction in direct labor

40%

potential reduction in throughput time

24/7

support offered to Maxeon time

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