



German Innovation Reaches for the Sun

alwitra GmbH Completes Largest Solyndra Installation in Germany, 2nd Largest in the World



SHIFTING GEARS INTO THE FUTURE

Parts Europe is all about moving fast—into the future that is.

The company recently made a record-breaking commitment to sustainability by investing in a rooftop solar power system that combines the innovations of two energy partners—Solyndra and alwitra—and creates a new standard for solar efficiency.

Parts Europe, a subsidiary of U.S.-based LeMans Corporation, is an acclaimed wholesale distributor of motorcycle parts and accessories and one of its warehouses has long been the pride of Konz, Germany, a small town of 17,000 residents. Today, that

facility is getting attention not just for the unique products and services inside but also for what's happening on the roof.

Europe initially engaged alwitra in 2008 for the Evalon® flat roofing solution on one large area of the building, measuring 16,340 square meters. Two years later, based on the outstanding quality of the product, Parts Europe trusted the vendor to provide the best solar solutions to suit its needs.

Because of the project's huge scale, using lightweight materials was essential. For this reason, alwitra recommended using a combination of alwitra's advanced reflective

OVERVIEW

SOLUTION AT A GLANCE

- 5,424 Solyndra panels installed
- Installed over 10,700 square meters
- 13,000 square meters of Evalon membrane
- 33,800 meters of cable generating 1.023 MWp power

SOLYNDRA PARTNERS

- alwitra GmbH (www.alwitra.de)

BUSINESS VALUE SUMMARY

- 1.023 Megawatts annual yield, enough to power 250 homes year per year.
- 20% increase in energy output with panels plus white roofing membrane vs. solar panels alone
- Project completed in less than 6 weeks
- Roof reinforcement costs avoided
- Predictable energy expenses

“Using Solyndra with our well-proven white Evalon waterproofing membrane allows us to offer the building owner the best combination of roof sealing solution and a solar system that actually gets more power as a result of the reflective qualities of the roof.”

— Joachim Gussner, President of alwitra

waterproofing membrane, Evalon®, and Solyndra’s® system of solar cylinders. Photovoltaics (PV) is a method of generating electrical power by converting solar radiation into direct current electricity using semiconductors that exhibit the photovoltaic effect.

Parts Europe chose to implement this solution for a number of reasons. First, each product used in the installation offers significant advantages in terms of time and maximum energy output, but just as important – weight. Second, Solyndra’s cylindrical panels, being more compact than crystalline flat panels, were able to cover more roof area – 80 percent of the total space could be occupied. In the end, almost 11,000 square meters of the roof was covered with more than 5,400 panels, making it Solyndra’s largest system installation in Germany and second largest in the world.

Keeping the installation as lightweight as possible becomes mission critical for large buildings because commercial rooftops are not typically designed to be weight-bearing platforms. This becomes an obstacle when considering solar panel installations because the common flat solar panels are heavy

units that often require even heavier ballasts and mounting hardware. Solyndra’s proprietary thin-film photovoltaic systems are cylindrical, light weight and non-penetrating. The panels are designed to enable the wind to move through them, and need no ballast in winds up to 208 kilometers per hour (130 mph). They require simple, lightweight mounting hardware, and their installed weight be as much as 50 percent lighter than traditional flat panels.

WINNING THE RACE ON SUSTAINABILITY

Solar panel roofs are certainly not uncommon in this European country. For nearly two decades, Germany has been a pioneer in the widespread adoption of renewable energy sources. Motivated by social concerns including security, health, climate change, and rising energy prices, Germany is determined to invest in renewable and sustainable energy sources.

Despite the frequent clouds and lack of sunlight in Germany, the country is at the cutting edge of solar technology in particular. As of 2009, 15 of the 50 largest solar power plants in the world were located in Germany, and the country continues to invest in new solar technology.¹ The German government

proactively and earnestly supports the transformation to solar energy through their policy known as a feed-in tariff. The feed-in tariff guarantees a higher-than-market price for electricity generated by solar PV which is fixed for 20 years beyond the installation date, providing investment certainty for firms as well as individuals.

Today, solar power meets about 1.1 percent of Germany’s electricity demand; a share that some market analysts expect could reach 25 percent by 2050.

THE PERFECT PV SOLUTION

With cost, time, and weight in mind, Parts Europe needed to find a solution that would meet all its needs. In a country so dedicated to solar energy however, this would not be difficult. But it would take the winning combination of two reputable providers to bring it to fruition successfully.

Solyndra’s innovative cylindrical system was specially developed to optimize PV performance on roofs with a flat or low angle (such as commercial buildings) and on highly reflective surfaces. The patented Solyndra solar modules are manufactured incorporating copper indium gallium diselenide (CIGS)

thin-film technology and consist of tubes that catch solar radiation across their entire surface. This unique design enables the cost-effective capture of sunlight across a 360-degree photovoltaic surface capable of converting direct, diffuse, and reflected sunlight into electricity.

The tubular design of a Solyndra module is “self-tracking”. Collecting light around a 360-degree surface allows it to capture more light early and late in the day. This consistent power generation during the day allows the use of a smaller inverter, which reduces costs, and raises the overall energy yield over time.

This system has two key advantages:

- The diurnal cycle of the sun is optimally exploited, like in a tracking PV system.
- Radiation reflected back from the surface of the roof is additionally converted into electrical power.

Playing an integral part of the project’s success is the use of alwitra’s Evalon roofing membrane, a tried-and-tested white waterproofing membrane with optimal reflection values. Covering 13,000 square meters of roof, the Evalon membrane reflects more than 90% of incident solar radiation from the roof surface, and has been shown to increase yield from Solyndra modules by up to 20%.²

In addition, the membrane system

with Solyndra PV panels ensures fast and systematic installation, eliminates roof penetration with far less weight than ballasted solar systems, and optimizes utilization of energy. It provides maximum freedom of design for new build and refurbishing projects and is extraordinarily durable and economical.

A RECORD-BREAKING PACE

As with any large-scale project, completing it in the most time-efficient manner is crucial. Here again, the Evalon waterproofing membrane and Solyndra’s PV panels guaranteed minimal disruption to warehouse operations and a quick timeframe for completion.

“That’s why the fast installation time and zero down time associated with Solyndra’s PV panels—about half the amount of time as flat PV panels would take—was an attractive selling point in the decision making process,” according to Clemens Jargon, Solyndra’s President of EMEA and managing director, Solyndra GmbH. “Solyndra panels are installed more quickly because they are lightweight and have a simple mounting mechanism that requires no drilling.”

Also working to Parts Europe’s advantage was the fact that Evalon membranes are homogenous in shape, ensuring the pieces fit

together easily. In addition, they are flexible enough to meet the contours of the covered surface. The standard length for each sheet is 25 meters, with a width of up to two meters, providing wide and adaptable coverage for a variety of roof shapes. These qualities virtually guaranteed that the Parts Europe factory roof could be covered without having to alter any of the materials.

“Alwitra’s extensive knowledge of roof sealing and Solyndra’s PV systems allowed them to complete the entire project in less than 6 weeks,” notes Jargon.

THE POWER OF PARTNERSHIP

“The whole is greater than the sum of its parts” and that nicely characterizes the Parts Europe project. By leveraging the experience, expertise and superior technology of Solyndra and alwitra, the company realized results beyond expectations: the project yields 1.023 megawatts of electricity, enough to power 250 homes annually. Output was increased by 20 percent thanks to the cumulative effect of the Solyndra’s solar cylinders and alwitra’s waterproofing membrane.

“The location and size of Parts Europe’s warehouse is absolutely predestined for the use of solar power generation, says Joachim Gussner, President of alwitra.

“The unique design of Solyndra’s

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— Clemens Jargon, Solyndra’s President of EMEA and managing director, Solyndra GmbH

cylindrical, non-penetrating and very light panels made them the best solution for this large project. Using Solyndra with our Evalon waterproofing membrane allowed us to offer the building owner the best combination of roof sealing solution and a solar system that actually gets more power as a result of the reflective qualities of the roof.”

On its continuing journey to clean energy sustainability, Parts Europe

is now on the fast track to reduced operating costs and increased profits—all while leaving a gentler carbon footprint in its wake.

1. <http://www.pvresources.com/en/top50pv.php>
2. alwitra.de (alwitra.de/index.php?id=solyndra&L=1)

To learn more, visit www.solyndra.com

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