

## Press Release

March 2011

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## Solar energy meets logistics

### Light-weight photovoltaic solutions for low-load bearing roofs

Photovoltaics (PV) on distribution and logistics centers offer a number of advantages for businesses. Benefits range from a high return-on-investment, the reduction of the company's carbon footprint, the creation of an environment-friendly image, to a secure position in a world of growing demand for "green" logistics and supply chains.

Logistics and distribution centers often feature low-sloped and low-load bearing roofs, a large area of unused space which could contribute to emission savings if made available for PV systems.

As a turnkey EPC-contractor, Solar Integrated has developed an approach based on lightweight PV-technology powered by *UNI-SOLAR*® that meets the clean energy production requirements for sustainable building design regardless of load bearing capacity, roof inclination or contour.

### Follow the lead

Logistics companies across Europe have installed customized PV solutions, advantageous for both businesses and the environment. Regardless of size, inclination, roof orientation and load bearing capacity- an ideal PV solution can be found to meet every customer's specific needs.

Blue chip brands like ProLogis, the French Postal Service, the German Port Authority of Mannheim, and SCNF railways already profit from building integrated solar installations on their premises.

Following other installations in Europe – 680 kWp in France and 210 kWp in Spain as well as 3.5 MWp in the U.S. ProLogis decided again to entrust Solar Integrated with the realization of systems based on *UNI-SOLAR*'s PV-technology at eight sites of its facilities near Barcelona and Madrid totaling 4.8 MWp, which were finalized in 2010.



ProLogis, Moissy-Cramayel, France,  
445 kWp



ProLogis / Portland Electric , Portland, Oregon, USA,  
3.5 MWp

The decision for further installations on the warehouses of the Port of Mannheim of 250 kWp on the building blocks I and II were taken after the initial 120 kWp system installed on block III in December 2007 proved to be a true success. Together the three blocks are generating up to 340 MWh of electricity, while preventing more than 270 tons of CO<sub>2</sub> emissions annually.



Port Authority Mannheim, Block I, II and III, Germany  
370 kWp

On the new distribution center of the French postal service “La Poste” in Montpellier, a 700 kWp PV-system was installed on 14 105 square meters of the total 22 800 square meter roof area, producing more than 800 MWh of clean electricity per year. The installation was realized by utilizing Solar Integrated’s PowerMembrane - a combination of a high-end roofing membrane with integrated UNI-SOLAR® PV-laminates installed as a single layer system. As such the PV-system takes over the roofing function leading to the application of the more favorable French BIPV feed-in tariff.



La Poste, Montpellier, France, 700 kWp

## Benefits of clean energy generation

Through the installation of a PV-system, logistics companies achieve more than a reduction of their carbon footprint.

PV-installations openly display the company's environmental corporate responsibility and sustainable thinking and can therefore be beneficial for their corporate image. In turn, this can lead to increased customer loyalty and competitive advantages.

PV installations increase the building's value and attractiveness for investors, while securing stable, long-term revenues - be it through government funding, the reduction of power costs or roof rent of otherwise unused space. In the future, the clean energy generated could charge an electric vehicle fleet.

Many countries worldwide actively promote photovoltaic installations through government incentive programs like feed-in-tariffs (FIT). FITs make the generation of solar energy economically profitable by paying more per kWh produced and fed into the public electricity grid than for kWh bought directly from the utility. For an installed system, the FIT is fixed for a longer period of time and therefore enables long-term planning and financial investment security. Other promotional schemes include tax incentives as used in the United States, government grants and the encouragement of self-consumption of solar energy from production - a particularly interesting alternative in Germany and Italy. These countries offer so-called net-metering, which has two benefits. On the one hand the electricity bill is reduced by the amount of consumed, while on the other hand additional incentive rates are provided for the kWh produced and consumed onsite.

## One goal, two approaches

Owners of logistics centers can either operate a solar roof themselves and benefit from the generated energy directly, or rent the roof to a PV investor, who then owns and operates the PV system installed offering the owner stable rental incomes and minimized risks.



Spedition Jäger, Fulda, Germany, 190 kWp

## Low weight, highly ecological

Lightweight solar energy systems can be integrated into large roofs with limited additional load-bearing capacities, increasing the area and number of buildings available to clean energy generation. The minimal weight is made possible by the combination of flexible PV modules with traditional roofing materials or light substructures for tilted installations. Particularly the lack of heavy glass and metal add to the product's lightness.

## **Idle roof space turned into profitable energy generating assets**

*UNI-SOLAR*<sup>®</sup> multi-junction technology ensures high energy yields. Multi-junction means the thin-film layer consists of several specific semiconductor layers. Every layer collects the light in a specific range of the light spectrum. This maximizes the light absorption even when it is overcast and allows the PV cells to collect light over a longer time period throughout the day. Furthermore, PV-cells are less sensitive to orientation and tilt angle, allowing an almost horizontal installation to the roof. As amorphous silicon cells have a very low temperature coefficient, they are less affected by rising module temperatures and do not need ventilation or cooling, making them ideally suited for building integration.

## **High durability for less maintenance**

Durable materials guarantee long-term availability, low maintenance and minimized related downtimes of the PV system, even when exposed to severe conditions. With a performance guarantee of 25 years, all material related to the roof construction should have a similar minimum lifetime.

## **Easy installation & building integration**

Easy to install means no specific tools are required for installation. The focus lies on non-penetrating solutions, which leave the water tightening function of the roof intact and maintain the original roofing warranty.

By integrating the solar system into the building, it becomes part of the roof and melds into the appearance of the building, underlining its architectural design.

### **About Solar Integrated**

Solar Integrated is a renowned pioneer and leader in commercial, industrial and institutional solar applications. As a global solar solutions provider, Solar Integrated combines various technologies to develop the best PV system for every customer's specific needs for utmost reliability, productivity, financial performance and environmental benefits.

Founded in 2002 as a spin-off of Southern California Roofing, Solar Integrated is the roofing expert and draws on more than 80 years of experience in construction and project management. Combined with our incomparable team of experienced engineers, designers and service technicians, Solar Integrated provides proven quality and dependable long-term performance.

Today, Solar Integrated is part of Energy Conversion Devices Inc. (ECD – NASDAQ: ENER) to which also United Solar belongs- the world leader in the manufacture of lightweight, flexible solar modules and the second largest thin-film supplier in the world. Being part of ECD secures access to financial and technological resources, which allow us to further develop Solar Integrated's business activities and strengthens our market position as a turnkey EPC contractor of MW-size photovoltaic installations.

Our blue chip customer base includes Aldi, Carrefour, Coca-Cola Enterprises, Colruyt, FM Logistics, Honeywell, IKEA, La Poste, Lidl, Metro, Picard, ProLogis, San Diego Unified School District, Tesco, Toyota, Unibail-Rodamco, UPC Solar, U.S. Air Force, Westfield and many more.

### **About United Solar**

United Solar is part of Energy Conversion Devices Inc. (ECD – NASDAQ: ENER) and is the leader in building integrated and commercial rooftop photovoltaics, one of the fastest growing segments of the solar power industry. The company manufactures and sells thin-film solar laminates that convert sunlight to energy using proprietary technology. Our *UNI-SOLAR*<sup>®</sup> brand products are unique because of their flexibility, light weight, ease of installation, durability, and real-world efficiency. Solar roofing systems using *UNI-SOLAR*<sup>®</sup> brand products are generating clean energy in more than 19 countries around the globe.

ECD also pioneers other alternative technologies, including a new type of nonvolatile digital memory technology that is significantly faster, less expensive, and ideal for use in a variety of applications including cell phones, digital cameras and personal computers. For more information, please visit [www.uni-solar.com](http://www.uni-solar.com).

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