

# K-W-H Energy GmbH builds eco-friendly office

Photo: K-W-H Energy GmbH



## Initial Situation

When the owners of K-W-H Energy GmbH in Dersum, Germany decided they were running out of space for their rapidly expanding solar power system business, they set out to construct a completely new and modern office space – designed from

the start to be eco-friendly and to serve as a showroom for PV systems and air source heat pump systems that are the mainstay of their business. Their mission was to create a rooftop PV system on the new office that would generate enough electricity to feed the requirements of the office space, a nearby workshop and two adjacent houses. Additionally, they wanted to produce enough electricity to sell back to the grid and generate revenue from the German FIT (feed-in tariff) regulation.

Photo: K-W-H Energy GmbH



View of the SOLIVIA transformerless inverters installed in the K-W-H Energy GmbH office space.

In Germany, PV plant owners are required to sell back the PV power they generate to the grid operator at a rate determined by the German Renewable Energy Act (in German: Erneuerbare-Energien-Gesetz, EEG). Electricity consumed by the PV plant owner is provided from the system at a rate that is calculated as the established retail rate minus the corresponding FIT. (i.e. when the retail rate is €0.25 per kWh and FIT is €0.13 per kWh, then consumed electricity would cost €0.12 per kWh). Substantial electricity cost savings would be possible for K-W-H Energy and also the opportunity to earn FIT income when the PV system generated plentiful power.

## General Information

Installation Location	Dersum, Germany
Installed PV Power	99 kWp
Installation Company	<b>K-W-H Energy GmbH</b>
Date of commissioning	March 13, 2013
Modules	396 Topsola TSM96-125M-B 250W monocrystalline full black solar modules
Solar Inverters	4 SOLIVIA 20 EUG4TLs and 1 SOLIVIA 15 EUG4TL (transformerless inverters)



Location of K-W-H Energy GmbH office in Dersum, Germany in Lower Saxony (Niedersachsen).

### Project Realisation

The construction of the new 6,000 sq. meter eco-friendly office building began in March 2012. Besides a new 99 kWp rooftop PV system, the design called for many eco-friendly features; low-energy air source heat pump to heat the entire space, LED lighting systems, and IR-presence (infrared) sensors. The eco-friendly building was carefully and intelligently laid out to ensure energy savings in all aspects of its design.

From the beginning, a key design objective for the PV system was to maximize PV power generation. With this in mind, a single sloped roof design was implemented, with the solar array facing due south and a roof slope of 25 degrees, allowing optimized PV power yield. Delta inverters also played a part in securing higher energy yields. The Delta TL-series three-phase transformerless inverters were selected by K-W-H Energy for their system due to their high-efficiency and high-reliability which ensured top yields. K-W-H Energy, in business since 2009, had installed Delta inverters for several years without any customer complaints and found the quality to be exceptional. In fact, K-W-H Energy, was so impressed with the inverter quality that they made Delta the main supplier of inverters for their solar installation business.

The new office building was completed in March 2013. The 99 kWp PV system was installed in just 4 days and also commissioned within this month. Helping contribute to this swift installation time were the Delta inverters, 4 Delta 20 TLs and 1 Delta 15 TL. Indeed, one of the owners of K-W-H Energy, Christian Kossen, stated that, "The installation of the Delta inverters was very simple and straightforward." He added, "The Delta sales are always a pleasure to work with – easily reached and informative." As well, he mentioned the Delta support department and their quick response to technical questions, which also made his installation go smoothly.

Email: [sales.europe@solar-inverter.com](mailto:sales.europe@solar-inverter.com)

Tel: +49 7641 455 547

[www.solar-inverter.com](http://www.solar-inverter.com)

### Conclusion

K-W-H Energy proudly occupies their new eco-friendly office building that offers them many advantages. Not only do they have more energy savings but also more comfortable office space for their staff and they can now offer their drop-in customers a live demo of a working PV system to help support their sales effort. The 99 kWp PV system demonstrates directly to the customer why a solar PV system is a great investment for a business or residence. Not only can you lock in energy prices at a fixed rate (in Germany set by the German Renewable Energy Act or EEG) to avoid the varying energy prices of the future, but the PV system is expected to generate a stable income after only a few years when it is paid for.

K-W-H Energy estimates that 40% of the power generated is consumed by themselves while 60% of the power generated is sold back to the grid at the established FIT (feed-in tariff) in Germany. Currently for this type of PV system the FIT is €0.1377 per kWh – Net. This PV system is expected to produce annually 88,350 kWh of electricity.

Working together on the project, K-W-H Energy and Delta had a very positive collaboration, and with this project they can show customers how Delta's wide range of inverter models – with power outputs from 2 kW to 30 kW – allow their customers the flexibility to build PV plants of all sizes and provide the capability to expand their systems in the future, as well.

### About K-W-H Energy GmbH

K-W-H Energy GmbH was founded in 2009 and is a leading supplier of PV solar systems as well as high-efficiency air heat pump systems, with sales in Germany, Netherlands, Poland and Denmark.

K-W-H Energy GmbH website:  
[www.kwh-solar.de](http://www.kwh-solar.de)

### About Delta

Delta Electronics Group is the worldwide leading manufacturer of switched-mode power supplies and an important supplier of video displays and electronic components for computers, telecommunications, networking, medical and industry applications and renewable energy. Worldwide, Delta employs 80,000 people in sales and distribution, development, and production.

Since 1999 the subsidiary Delta Energy Systems has invested in the development and global marketing of the Solar Inverter Program, which has made an important and successful contribution to Delta's focus on providing innovative, environmentally friendly and efficient energy solutions for a better future.

Delta website: [www.solar-inverter.com](http://www.solar-inverter.com)

