

World's largest façade installed with organic photovoltaics in the port of Duisburg

Working together for an energy transition with solar films - Made in Germany

Duisburg, Germany 04 October 2018 - Approximately 185 m² of Heliatek's organic photovoltaic films were installed on the façade of a warehouse of the Duisburger Hafen AG in August. It is a sub-project within the cooperation agreement „Drehkreuz Energiewende“, which was established between the Duisburger Hafen AG and the energy company innogy in 2016. The trial installation has 192 3m long HeliaSol[®] film panels, making it the largest facade installation to date with organic photovoltaics (OPV).

HeliaSol[®] is an extremely lightweight, very thin and flexible solar film that is produced in an energy-efficient roll-to-roll process in Germany. Equipped with a self-adhesive backing, the film can be applied directly to a variety of surfaces without further assembly efforts, and without affecting the



Organic photovoltaic facade - port of Duisburg, © duisport

structure underneath. With the project in Duisburg, the solar films were glued directly onto the metal facade of the warehouse. Ventilation or cooling is not necessary as the films do not lose power or efficiency at high temperatures, unlike crystalline solar technology.

The solar films cover an area of approximately 185 m², and generate about as much energy as a 5-person household would consume annually. Due to the efficient use of materials and manufacturing process, the solar films produce 80 times more energy over their lifecycle than is needed to produce them. When compared to the CO₂ emissions of various other types of energy production, Heliatek's solar films clearly provide the lowest CO₂ footprint, with 20g CO₂ per kWh.

Working together to make the energy transition

The construction of the solar facade is one of four areas of cooperation and a large number of measures implemented between innogy and duisport for a successful sustainability strategy. Duisburger Hafen AG is the operator of the world's largest inland port and intends to position itself as a major hub for the energy transition. That's why a strategic partnership with innogy was established in 2016, with the goal to jointly test new methods of energy conservation, and using renewable energy for major industries and in logistics.

Alexander Garbar, Project Manager Corporate Development Duisburger Hafen AG, states: *"With completion on this, we have achieved yet another sub-project. Heliatek's photovoltaic solution is really fascinating, and we are pleased to have brought a German manufacturer on board. We are curious what the outcomes will be in the coming months. "*

After the biogas plant in Bergheim-Paffendorf, and the façade installation at the Lechwerke in Augsburg, a third mutual project between Heliatek and investor innogy has commenced. With the inauguration of a new production facility in 2020, Heliatek is committed to actively shaping the future of a decentralized and decarbonized future. Following a successful test run on the Duisburg port site alone offers potential to use up to 10 million m² of façade and roof space for the production of solar energy. Since 2016, innogy SE has worked in cooperation with Heliatek GmbH, and has actively supported the preparation of Heliatek's market entry since then.

Martin Neweling, Project Manager Group Strategy innogy SE, states: *"We are pleased to have created another eco-friendly solar façade with Heliatek in Germany. The building exterior of duisport received a second skin, one that generates energy. With each new project, we gain experience in installation, and also in terms of handling. The current short installation time of just a few minutes per film is impressive. "*

Leading to sustainability

With the Federal Government's goals of achieving a virtually climate-neutral standard of buildings by 2050, the premises for this industry are set in Germany. Buildings cause about one third of all CO₂ emissions and total energy consumption in Germany. One method of energy reduction for buildings, for example, lies in energy-oriented building renovations. This allows

for a significant impact on the reduction of CO₂ emissions. Heliatek organic solar films, and especially the ready-to-use solar film HeliaSol[®], provide an efficient and highly effective solution.

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About Duisburger Hafen AG

Duisburger Hafen AG owns and manages the Port of Duisburg, the world's largest inland port. For this port and logistics location, the duisport Group offers full service packages in the area of infra- and superstructure, including relocation management. In addition, the subsidiaries also provide logistics services, such as the development and optimization of transport and logistics chains, rail freight services, building management and packaging logistics.

About Innogy SE

innogy SE is a leading German energy company, with revenue of around €43 billion (2017), more than 42,000 employees and activities in 15 countries across Europe. With its three business segments Renewables, Grid & Infrastructure and Retail, innogy addresses the requirements of a modern, decarbonised, decentralised and digital energy world. Its activities focus on its about 22 million customers, and on offering them innovative and sustainable products and services which enable them to use energy more efficiently and improve their quality of life. The key markets are Germany, the United Kingdom, the Netherlands and Belgium, as well as several countries in Central Eastern and South Eastern Europe, especially the Czech Republic, Hungary and Poland. In renewable power generation, the company is also active in other regions, e.g. Spain, Italy and the USA, with a total capacity of 3.9 gigawatts. As a leader of innovation in future-oriented fields like eMobility, we are represented in the international hot-spots of the technology industry such as Silicon Valley, Tel Aviv and Berlin. We combine the extensive expertise of our energy technicians and engineers with digital technology partners, from start-ups to major corporates.

More information at www.innogy.com

About Heliatek

As a technology leader in organic electronics, Heliatek develops, produces and distributes large-area organic PV solar films. Their business model is the supply of tailor-made solar film HeliaFilm[®] to construction area partners and the building materials industry, for integration in façade or roof system elements. The stand-alone version HeliaSol[®] targets the renovation market, and can be easily applied to existing building exteriors. Heliatek currently employs a total of 130 people at the Dresden and Ulm locations.

The Free State of Saxony, the Federal Republic of Germany, and the European Union, funded research and development, as well as the installation of the produced technology.

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