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Berlin presents Solar Atlas **500,000 ROOFS FULL OF ENERGY**

How much solar energy can my house harness? By how much could I cut my CO₂ output and energy expenditure? And how much would it cost to install a solar array on my roof? These questions can now be answered by the Berlin Solar Atlas, which was presented to a wider audience for the first time today by Ingeborg Junge-Reyer, Berlin's Senator for Urban Development, at the EXPO REAL, a real estate trade fair held in Munich. The pilot project was created by Berlin Partner GmbH, the city's business-promotion and location-marketing company. The Solar Atlas, which currently spans 19 square kilometers of Berlin (specifically the area around Friedrichstrasse in Mitte and a residential district in Lichterfelde), is to be expanded to include all of Berlin in the near future.

The Solar Atlas functions as follows: It takes just a few mouse clicks on the online three-dimensional model of the city to find out both whether a particular roof is suitable for the installation of solar panels and how much solar power they are capable of generating. Buildings are no longer represented in their actual height, but rather assigned a height relative to their solar potential. Unassuming flat buildings may therefore appear as "energy skyscrapers." In addition, the program calculates how much CO₂ output could theoretically be prevented. It also informs the user what to expect in terms of the cost of investment in solar energy-gathering equipment. All the data is available online and also in two dimensions in the Business Location Center Berlin Business Atlas.

"Berlin's aim of becoming a green metropolis means more than simply improving the energy-efficiency of our schools and sports venues as quickly and smoothly as possible with the aid of the Economic Stimulus Package II," says Urban Planning Senator Ingeborg Junge-Reyer. "It's more than working closely together with housing associations to promote the construction of low-energy residential housing. Berlin is famous for repeatedly going down new avenues. The Solar Atlas is entering such unknown territory. Aside from providing information about potential savings for individual houses, this tool will increase awareness of the climate-control measures

everyone can take at home. Many home-owners may be wary about hiring a surveyor to assess energy matters or think it won't save them a lot of money. The Solar Atlas now offers them an opportunity to find out with relatively little effort and in a non-binging manner precisely what effect photovoltaic arrays on their own roof would have. By addressing the curiosity of home-owners, it facilitates the difficult step of addressing the issue for the first time. Anyone who decides to increase their energy-efficiency is in the right place in Berlin. Green technology is at home in the German capital. Many of the world's leading companies in this sector are based here, for instance at the Adlershof Science and Technology Park.

The Solar Atlas can therefore form an effective bridge between private investment in climate-control and new technologies in the capital."

In the second stage of the project, due for completion in the spring of 2010, the Solar Atlas is to be extended to span all of Berlin - that is, some 500,000 roofs. Harald Wolf, Berlin's Senator for Economics, has already promised support for this subsequent phase: "The 'Green Economy' is a key factor for growth and innovation in Berlin," he noted. "Plus, resource efficiency plays a very important role in terms our competitiveness. Our goal is to use the potential of 'Green Technology' to strengthen and expand Berlin's role as a leading location for solar energy. For the first time, our comprehensive 3D city model makes it possible to visualize areas that hold potential in terms of solar use. In addition, the Business Atlas offers a targeted, 2D and map-based visualization. The pilot project, which grew out of a close collaboration between the Senate Department for Economics and Berlin Partner, will be extended to include all of Berlin in the coming year. This will allow us to give both public and private investors and decision-makers strategic information on the opportunities provided by solar and photovoltaic arrays. In other words, Berlin will continue to invest in renewable energies in the future. The 3D model has received support from the European Regional Fund as well as from the economic administration, and this support will continue as the solar project expands to cover all of Berlin in 2010."

The Solar Atlas uses the existing three-dimensional city model of the state of Berlin, which is based on the cadastral plans. As part of the project, nearly all Berlin's roofs were surveyed by laser and photographed from the air. This had a useful side-effect for the Solar Atlas: Roof inclinations, orientation, and shadiness could be calculated with great precision. For example, the nearly one kilometer-long shadow of the Television Tower could be taken into account in calculations for the area along and around Friedrichstrasse.

Other data were also processed, including solar radiation and the average efficiency and price of solar cells. This was then used to calculate the solar potential of 14,300 roofs. As a result we now know they could theoretically generate almost 100 gigawatt-hours of solar power. That's about one percent of the electricity consumed by the entire city. According to initial estimates, the roofs of Berlin as a whole could produce two-thirds of the electricity required by the city's private households.

However, the Solar Atlas cannot provide any information about whether individual roofs can indeed support solar arrays. Information about which buildings are listed will, by contrast, be added to the Solar Atlas in future.

Berlin Partner Managing Director René Gurka noted, "Berlin's roofs are full of energy. Solar power will in future increasingly be generated on urban buildings rather than in large solar parks in the open countryside. Our Solar Atlas brings supply and demand together. If it can help increase the number of buildings made more energy-efficient and the installation of solar arrays, this will benefit not only the environment but also the Berlin economy. Home-owners can generate extra revenue, tenants can lower their electricity bills, and Berlin's solar power companies, suppliers, and construction firms can sell more of their products and services. That is why, with the support of the Senate Economics Department, we shall be expanding the Solar Atlas to cover all of Berlin."

Michael Geißler, the managing director of Berliner Energieagentur GmbH, says, "It's clear to see that Berlin doesn't just talk about environmental protection and climate control, but takes concrete action and is open to new, innovative ideas. I hope the new Solar Atlas will encourage even more home-owners to consider powering their houses with the aid of renewable energy. Berlin still has a huge potential in terms of photovoltaics, solar thermal energy, geothermal energy, and most importantly decentralized combined heat and power using CHP plants. Numerous projects conducted by the Berliner Energieagentur throughout the city prove that such investment is not only good for climate control but also makes economic sense."

The Solar Atlas was developed by Berlin Partner in association with the Berlin Senate, Osnabrück University of Applied Science, and Dresden-based VirtualcitySystems. It is integrated into the 3D city model developed by Berlin Partner to provide additional information. The Solar Atlas is based on the SUN-AREA research project conducted at the Osnabrück University of Applied Science.

To experience the Solar Atlas on Google Earth, please download the relevant file from the following address:

www.3d-stadtmodell-berlin.de/solar3D

This also provides installation tips and the latest version of Google Earth.

The Business Atlas in the Business Location Center Berlin (2D representation):

www.businesslocationcenter.de/solar2D