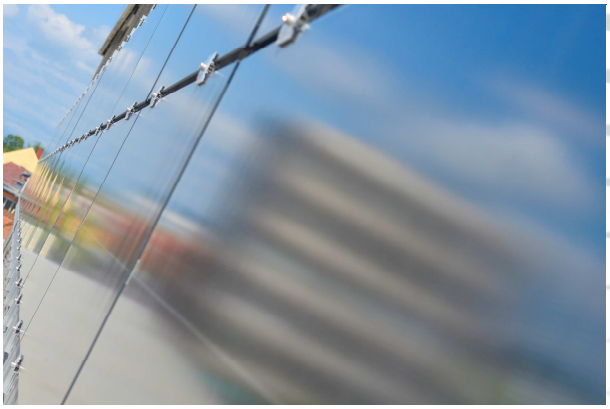
Cities on power

Boosting Green Energy in Urban Areas

Newsletter No. 5
2013

Pilot project in Klagenfurt - Domplatz PV Plant

The city of Klagenfurt, as the capital-city of Carinthia, is boosting up green energy in its urban areas. Klagenfurt already realized several PV-Plants in different official buildings of the city. The newest one is a pilot PV-Plant on the building Domplatz, which is situated in the middle of the town and can be seen by many people around this place. The pilot PV-Plant has been built on this building, to investigate the solar potential in this area, because with the renovation of the building in the near future it is also planned to increase green energy in this object.

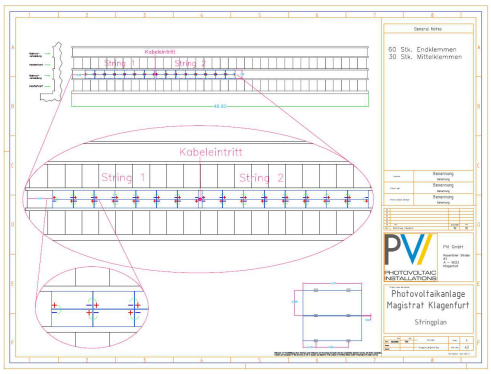


Picture of the façade-modules

Automatic blinds, powered by PV-modules

Plant description

Constructed: December 2012
Constructed by: PVI GmbH
Plant size 4.2 kWp
Annual yield: approx. 3780 kWh
PV modules:
MiaSole MS140GG-03
Number of modules: 30
Inverters: Kostal Pico 4.2
Number of inverters: 1
Plant supplier: PVI GmbH
Photovoltaic Installations
Rosentalerstrasse 87
A-9023 Klagenfurt



Scheme of the PV-Plant

The whole thin-film PV-plant was erected on part of the south-facing facade on the 3rd floor of the administration building at Domplatz 8 in December 2012. The PV system consists of 30 modules with a maximum overall output of 4.2 kW. It produces app. 4.000 kWh per yar.

The energy generated is fed into the building's power system and the majority of this is used in the building itself. At the moment, the produced energy is only a little percentage of the energy-consumption of the building, because it is only a pilot plant to investigate the potential of solar energy for this building.

The amount of energy generated is recorded and stored in the inverter. The inverter is linked to visualization software. The yields can be read off in an Internet portal by all inhabitants of the city of Klagenfurt: http://home.solarlog-web.at/2563.html. The amount of energy generated will be recorded for a whole year and will provide an excellent basis for interpolating the data for a larger PV-Plant on the renovated building in the future. The data collected in this way will then serve as the decision-making basis for the planned renovation of the facade in the future.

Measurements are running also in individual offices in order to determine the ambient conditions and comfort levels. These measurements will also allow clear comparisons between rooms with and without blinds.

Klagenfurt – City of Solar Power

The efficient use of solar resources in urban areas forms a central component for the design of a sustainable power supply within our cities of the future.

The key challenge is to implement solar power into an intelligent mix of technological options considering the available solar potentials and its manifold applications. This entails the potentials of electricity generation by photovoltaic systems on roof surfaces and facades, the available potentials for the installation of solar thermal systems providing heating energy as well as the possibilities for a passive harvest of solar irradiation for intelligent heating and daylighting applications. On the other hand, detailed and site-specific data about solar resources provides the necessary information base for the planning of innovative concepts that reduce summer overheating in buildings and hence minimizes the use of energy-intensive cooling technologies.

The city of Klagenfurt addresses this topic within the Cities on Power project and, in addition to the practical implementation of pilot projects, is also encouraging the implementation of a comprehensive information base on solar resources. The main focus of these actions lies on the information of the general public, the technical support of planners and solar engineers and the provision of information for decision makers that support the specific adaption of subsidies and regulatory frameworks.

The high-resolution 3D building model of the city of Klagenfurt forms the technological base for the detailed analysis of solar resources over the whole city. The aim of the analyses is to calculate the photovoltaic and solar thermal potentials for every building in the city. Additionally, a detailed information base is set-up for planners and engineers supporting the evaluation of potentials of direct heating and lighting through a passive use of solar energy. The data will be published subsequently in a web application in order to provide an easy way of access for the different target groups.

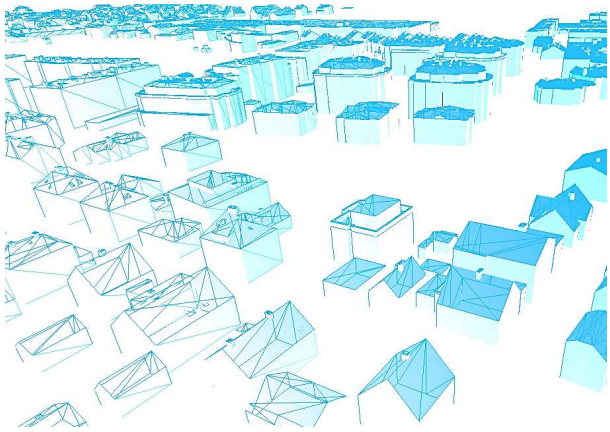


Figure 1: 3D building model Klagenfurt [source: City of Klagenfurt]

The overall strategy is to introduce a comprehensive information policy for the efficient and increased use of the local solar resources in the city of Klagenfurt. On the one hand, this will be accomplished by rising the awareness about individual opportunities amongst the general public. On the other hand, planners and experts are provided with detailed technical information for every single building, leading to a simplified and comprising planning process.

IMPRESSUM: Lead Partner: City of Warsaw, www.citiesonpower.eu fanpage: www.facebook.com/citiesonpower

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