



Solar Atlas Berlin

LiDAR Solar Analyses

Summary

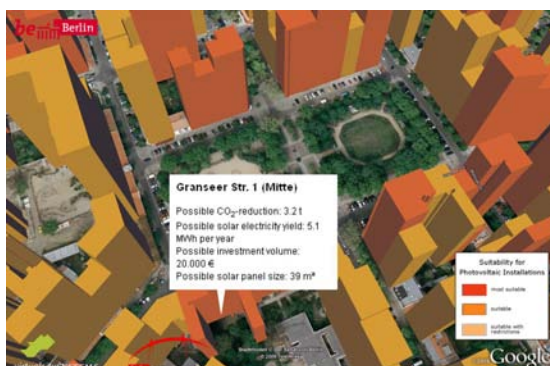
The Berlin Business Location Center wanted to expand the content of the existing 3D city model by including information regarding renewable energy, namely solar. A pilot project was created to investigate how best to provide information to the general public as well as to encourage investment amongst private citizens and industry in solar panel installations.

The University of Applied Sciences of Osnabrück performed the solar potential analysis using their in-house developed SUN-AREA method and virtualcitySYSTEMS integrated the data into the 3D city model of Berlin and a 2D Web GIS.

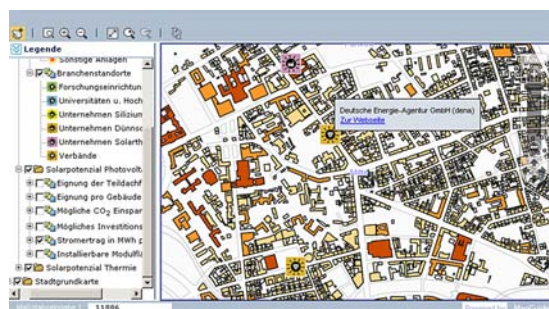
The implementation of the Berlin Solar Atlas project had three main objectives:

- Display the location of existing solar installations in the city (photovoltaic, thermal and energy concepts)
- Visualise the locations of the solar industry in Berlin as points-of-interest
- Provide more detailed information (by mouse-over) about rooftops suitable for solar panel installation.

Two pilot areas were chosen that were representative of the various roof structures found in the city. Both city neighbourhoods comprise a total aggregate area of 19 square kilometres.



images courtesy of:



Project Implementation

Using airborne LiDAR (four points per metre square), the SUN-AREA team analysed two test areas including rooftops (slope, area and azimuth), shading from vegetation and neighbouring buildings as well as statistics of the total yearly radiation from the German weather service (20-year average). For each PV and thermal location that received a positive evaluation, a more accurate calculation was made of the power generation potential (MWh/year), estimated yearly CO2 savings (t/year) and the estimated capital expenditure required for installation and set-up.

Using Autodesk AutoCAD MapGuide 3D, virtualcitySYSTEMS integrated the results of the solar calculation, local solar industry information and existing solar installations via databases to the online portal of the Berlin Business Location Center. An expansion of the initial pilot area is planned in 2010.

Information Links:

- www.virtualcitysystems.de
- www.3d-stadtmodell-berlin.de/3d/en/C/seite0.jsp
- www.fh-osnabrueck.de/sun-area.htm

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