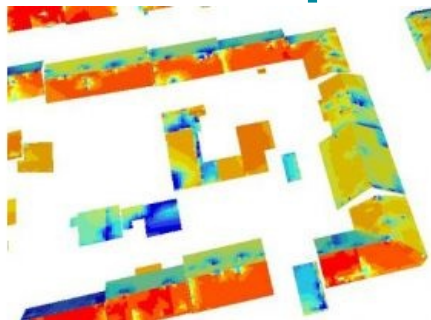


Sun-traps Up on the Roof



New software paves the way for the use of renewable energies on roof areas. Tridicon SOLAR generates a planning instrument automatically. Part of the challenge of renewables is the search for new locations where solar panels using photovoltaics technology or solar thermal power will be efficient. Municipalities, energy suppliers, investors and citizens need a planning instrument that visualises the solar potential of roof areas taking into account exposition, slope and shadowing.

The 3D roof scape of a city can be used as a basis for the calculation of solar potential. TridiconTM 3D software, which was developed by GTA, Germany, generates high-quality buildings with main roof types automatically. Suitable data sources for this are stereo aerial images or laser scan (Lidar) data. On request additional details like dormers and chimneys can also be modelled. Tridicon 3D exports 3D buildings into all common data formats (CityGML, 2D and 3D shape, KML, OBJ, VRML and others).

For the calculation of shadowing a digital surface model (DSM) is being used. A DSM can be generated from a point cloud which comes either from Lidar data or an automatic photogrammetric processing of stereo aerial photography. Roof scape and DSM are the basis for the automatic generation of a three-dimensional map showing the solar potential of roof areas.

The solar potential map shows the available annual solar energy for every roof area. For the correct calculation of these values each roof area is divided into tiles of an adjustable size of for example 0,25 m². For each of those tiles an individual shadowing profile for a whole year and occurring concrete shadowing periods during the course of the year are established. Every day of the year from sunrise to sunset with a temporal resolution of 2 minutes is taken into account. The unit kWh/m² per year expresses the solar potential of a roof area.

The solar potential map can be published on the internet making the information accessible for interested parties. The user can perform a search in a digital map using address information like street names and house numbers. Different colours show solar potential classification for the roof of a building.

GTA also offers photorealistic roof textures based on the original aerial photography as well as the capturing of all existing solar collectors.

On behalf of investors, energy suppliers or government and public administration, a high-quality 3D city model in level of detail 2 (LOD 2) as well as a solar potential map can be generated fast, cost-efficient and covering large urban areas.

GTA plans the commercial launch of the software solution Tridicon SOLAR for autumn 2011.