

# Solar potential analysis



Solve spatial problems  
**sustainably**



# publicSOLAR Solar potential analysis

Significance and value added

## Solar potential analysis

publicSOLAR is a method for increasing the use of solar energy and thus an essential tool for regional and global climate protection. publicSOLAR provides municipalities, energy providers, artisan trades, economists and home owners with detailed information on the solar potential for roof- and ground mounted systems, and supports the realisation of such projects. Geographic information systems (GIS) are used to automatically calculate the solar energy potential of every rooftop and every open space of a municipality, city or region, to verify the suitability for solar use and to publish as a user-friendly map for everyone to access on the Internet.

### Solar potential analysis technically involves:

- Development of a digital surface model
- Determining location factors such as roof pitch, orientation, surface size and homogeneous roof sub-areas
- Conducting a solar irradiance analysis and calculating the shade factor
- Calculating the solar potential, power output and CO<sub>2</sub> savings
- Setting up of interactive solar energy website for the presentation of results

### Solar potential analysis benefits include:

- Promoting the use of solar energy
- Contribution to climate protection and sustainability
- Basis for planning climate-related policies and measures to promote solar energy
- Planning tool for electrical grid expansion
- Planning assistance and impartial information for installers, energy consultants, banks, etc.
- Boost for local tradesmen and regional economy
- Boost to regional value added

### Understanding solar irradiation

The key component is the irradiance analysis for which a comprehensive surface model is used as a basis for accounting for the shadow cast by tall trees, houses and the topography. Also taken into account is the position of the sun during the course of the day and year, so that the irradiation and shading situation over the year is calculated precisely. The local global radiation value is used for calibration of the irradiance analysis. This enables a highly accurate recording of the expected irradiation levels in the geographic radius evaluated. The level of usable solar radiation falling on a surface or terrain is used to calculate the potential for photovoltaic and solar thermal energy use and the suitability of the area.

### Interactive information system on the Internet

A user-friendly solar roof system website with integrated cost calculator yields the results and provides an impartial and readily available information tool for homeowners. The user is able to zoom in on a house of interest by conducting a street and house number search. The potential for each roof sub-area is displayed.

### The key solution components are:

- Solar potential: Roof system analysis for photovoltaic and solar thermal utilisation
- Solar ground mounted system analysis
- Setting up of solar roof system website with cost calculator and presentation of a solar energy report
- Existing solar systems cadastre
- Publicity concept
- Recommendations on courses of action to promote the use of solar energy
- Statistical analysis

With publicSOLAR, solar potential analysis can be shown to improve the solar installation rate and enhance regional added value.

