

„EPASch“ Energy Potential Analysis of site development concepts

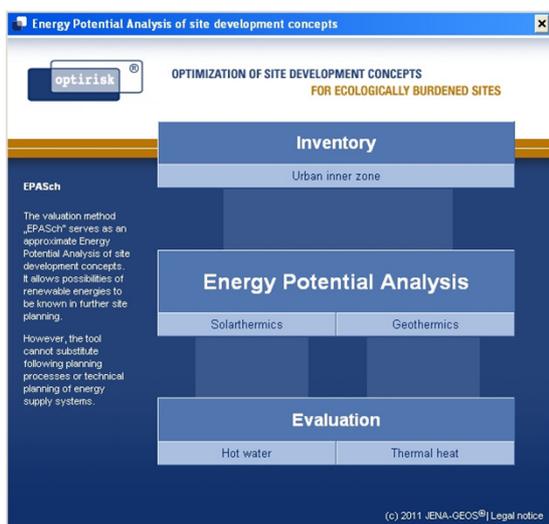
What is EPASch?

With regard to current discussions about climate change the reduction of CO₂ emissions has become an important task. Employing renewable energies an energy supply which is environmental-friendly but also independent of finite resources should be achieved. Inner-city brownfields provide a great area potential for renewable energies. In the urban inner zone the existing heat requirement needs to be covered consumer-oriented by potentials of solarthermics and near-surface geothermics. These potentials should be integrated into site development concepts as early as possible.

For that purpose „EPASch“ was developed. The software tool enables an energy potential analysis of site development concepts for brownfields in the urban inner zone in relation to the site-specific heat requirement. In addition, different optimization possibilities for an integration of solarthermics and geothermics can be visualized by means of varying scenarios. Within the 2 working steps *Inventory* and *Energy Potential Analysis* the user is required to answer questions about the on-site situation and about characteristics of the urban-planning concept with the help of fixed input screens. „EPASch“ processes and analyzes all inputted information and displays the identified energy potentials for the brownfield by a summarizing evaluation of the results.

Possible Applications

- Valuation of solar energy and near-surface geothermal potentials for site development concepts of brownfields
- Evaluation of energy potentials at existing roof-top areas and open spaces
- Access to energetic optimization variants during the planning process of site development concepts
- Cost savings due to an early integration of renewable energies into urban-planning designs and possibilities of long-term energy savings
- Image improvement of the brownfield by the use of renewable energies



The screenshot shows the 'Inventory of site developments' input screen. It contains several text boxes for user input, each with a 'Yes' or 'No' selection option. The questions include: 'The development of the site through water and sewage pipes is guaranteed.', 'The electricity requirement can be covered by an existent wiring system.', 'An electric outlet to local or district heat by conventional energy sources (e.g. coal, natural gas, etc.) exists.', 'The conditions of buildings, roof pitch and also roof alignment and its approximate area size are known.', 'The building stock has a low energy use (ca. 120kWh/(m2a) for heating and warming of process water) through building-energy-standards (such as enough insulated roofs, outer walls, windows, basement ceilings and pipelines of hot water).', 'Energy requirement of building stock have to be preserved in a range from 250-400kWh/(m2a) for heating and warming of process water. The quality of buildings has to be graded as deficient from the energetic view (half-timbered and post-war buildings).', 'Detailed surveys about soil quality are available. There aren't any known contaminations on the whole site.', and 'The status of site contamination was documented and evaluated through the detailed...'. A 'Finished' button is located at the bottom right.