

GIS tool for the energy evaluation of urban development scenarios

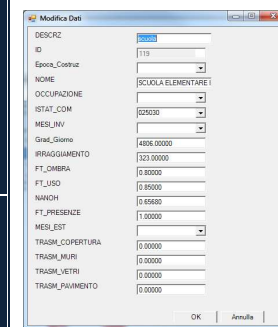
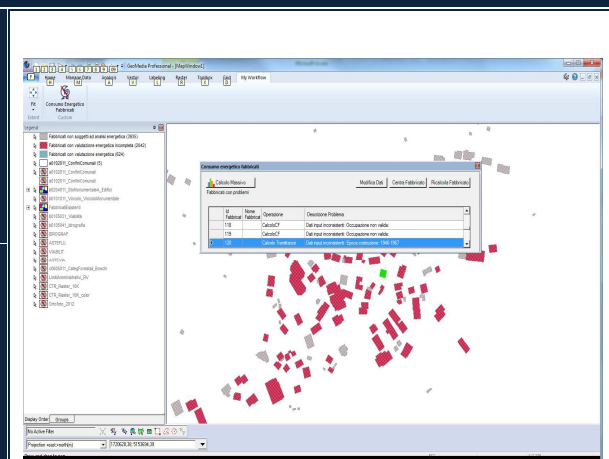
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Keywords:

- Building culture Construction
- Closed loops Governance Planning Tools
- Ecology Energy efficiency Indicators
- Mobility Technology transfer

Target group:

- Architects Builders Citizens Craftsmen
- Home Owners Planners Politicians
- Policy Makers



Results and outcomes (use cases):

The target for existing buildings to become nearly Zero Emission in most cases is very difficult to reach. By using concepts on community scale this transition can be realized more easily. The “GIS tool for the Energy Evaluation of Urban Development Scenarios” is a support tool for urban and energy planners that allows to study opportunities, how at building cluster level or community scale a transformation of the building stock into nearly Zero Emission Building nZEB can be reached. In particular the GIS tool allows to:

- Evaluate and characterize the current energy performance of the building stock at cluster and community levels;
- Elaborate future scenarios for its improvement by assessing the impact of the implementation of targeted measures at cluster and community scales to reduce energy consumptions and cut CO2 emissions (micro smart grids, community-wide renewable energy or central plant applications, etc.)
- Monitor implementation progresses of the selected measures

The GIS tool is meant as a supporting tool for the definition and monitoring of energy related objectives in Urban and Energy planning policies and programming instruments (Masterplans, municipality energy plans, SEAP, etc.). The software is based on the Intergraph-Geomedia GIS, and is made available for all the municipalities in the Veneto Region.

Description:

Starting from existing data taken from national and regional databases or made available by each Municipality, the GIS Energy Tool make possible the definition of a map of the energy consumptions of the municipal building stocks (residential, tertiary and public) and the simulation of possible future scenarios resulting from different policy choices (new building rules, technology promotion and campaigning, targeted incentives etc.). Scenarios regarding the whole territory or for a selected cluster are represented using a set of maps showing the energy performance of both of single units and at cluster/territorial level (energy demand, performance of the envelope elements and energy vectors used). By periodically comparing actual scenarios with the baseline and the targeted scenario progresses in policy implementation can be evaluated.

Relevance for inter-municipal planning: (AlpBC)

The GIS has been developed as supporting tool for the definition of Municipal and Inter-Municipal Energy Use Plans (see factsheet “Guidelines for energy evaluation of urban development scenarios”) aiming at improving the coherence and the synergies between urban and energy planning objectives in all regional territory. Currently, at least in Veneto, more and more neighboring small and medium-sized local authorities are jointly committing to the Covenant of Major initiative so to identify common energy sustainability actions of the critical size needed to access mid-sized EU financing facilities (i.e. ELENA-KfW, ELENA-CEB and H2020-PDA). Usually these small and medium municipalities have very limited competences and human resources for the definition and implementation of common urban and territorial planning measures within their sustainable energy action plans. The GIS tool can help them in the identification and monitoring of common needs and solutions.

Relevance for policy goals (in Alpine Space, Europe, and/or region)

The GIS-tool for energy evaluation of urban development scenarios supports the implementation and monitoring of energy efficiency measures by Alpine municipalities in coherence with the Veneto Region, the Alpine Space and EU energy efficiency objectives. With regard to specific EU initiatives, the use of this instrument, along with the guidelines for energy planning can help in the implementation of Covenant of Majors objectives.