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Showcasing good practices of instruments and tools

This deliverable intends to show good practices in integrating energy aspects into the planning processes. Each sheet gives a quick overview of the instruments or tools used by each city member of the UL consortium: type, spatial level, key fact, condition of use etc.

April 25, 2017

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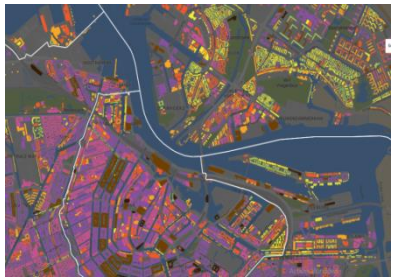
SHOWCASING GOOD PRACTICES OF INSTRUMENTS AND TOOLS (D3.3)

Type	Instrument/Tool	City
Diagnosis tool	**Energy Atlas + TRANSFORM tool**	Amsterdam /Zaanstad
	Geoportal	Zagreb
	The Assumptions for Plan of Supply with Heat, Electricity and Gas Fuels	Warsaw
Certification at urban project scale	**Label Ecoquartier / Ecodistrict Label**	Paris
Monitoring	**SRS model for monitoring**	Stockholm
Strategic urban planning document	**Sustainable urban development**	
Competition	**Public development competition**	Vienna
Contract	**Energy Saving Partnership**	Berlin
	Climate Protection Agreements	

ENERGY ATLAS + TRANSFORM TOOL

AMSTERDAM/ZAANSTAD

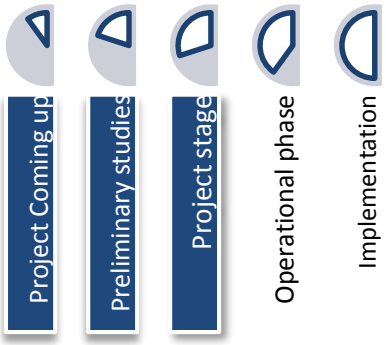
URBAN LEARNING



OUTLINE

The energy atlas started in Amsterdam and became a national project. It maps the energy consumption, network and (renewable) energy potentials to get a better understanding of the energy situation in a given context. The data is detailed and easily accessible.

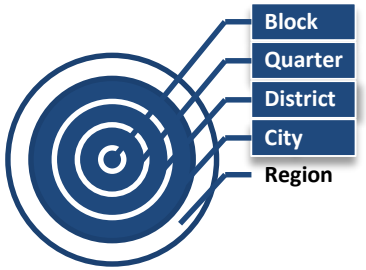
The TRANSFORM tool was developed in the TRANSFORM-project to be able to work with the available data during the energy planning and spatial development process. It's meant for decision support and informed dialogue. Tool features include setting of measures, creating scenarios and cost benefit calculations.



ENERGY INSIGHT

The energy atlas consists of about 90 maps. Half of them are about the existing situation, the other half is about the potential for more sustainable solutions. Part of the energy atlas are the current energy use, sources for sustainable energy, and relevant characteristics of the (built) environment. Most of it is open data and can be used by anyone.

The TRANSFORM-tool makes the real data easily accessible in a visual and playful model. It is interactive, users can select, calculate, formulate their own measures and scenarios and set the context in time and trends. Sixteen measures are predefined. Results of the measures are given for energy consumption, costs, emissions and renewables.



KEY FACTS

- ✓ **Data Treasure** / Energy and context
- ✓ **90 maps** / existing and potential
- ✓ **Tool to integrate data** / test and decision support
- ✓ **Upscaled to national level** / Energy atlas

CONDITIONS OF USE

- ✓ Energy atlas: open data
- ✓ Easily accessible
- ✓ For the use of the tool it is necessary to have an account
- ✓ Commercial support, if needed

No evaluation

Auto evaluation

Evaluation by external experts

READ MORE

http://maps.amsterdam.nl/energie_gaselektra

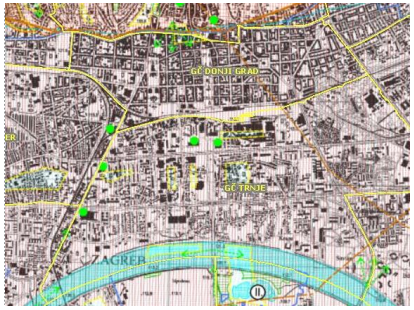
www.nationaleenergieatlas.nl

http://urbantransform.eu/decisionsupportenvironment/

GEOPORTAL

ZAGREB

URBAN LEARNING



OUTLINE

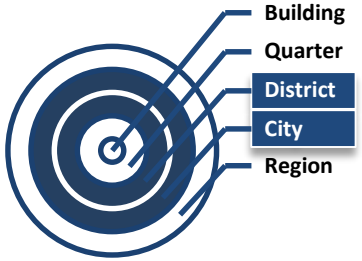
GeoPortal is an online GIS tool with complete spatial and partial socio-economic data for the whole Zagreb area. It provides access to spatial information from all planning documents.

Project Coming up | Preliminary studies | **Project stage** | Operational phase | Implementation

ENERGY

All existing and planned infrastructure systems and energy generation facilities are displayed.

The intention is to include energy consumption and supply data. In the first phase, Zagreb will implement/map existing consumption data and define procedure for future updates of relevant energy demand and supply. In this way insight on energy use will be integrated and available for the planning process.



KEY FACTS

- ✓ Hotspot for Zagreb spatial data infrastructure
- ✓ Layout of information from all planning documents
- ✓ Displays existing and planned infrastructure
- ✓ Integrates cadastral plan
- ✓ Provides fast access to information when planning projects

CONDITIONS OF USE

- ✓ Free on-line tool
- ✓ Various search and view functions Possibility to combine different layers of information for comparison

No evaluation

Auto evaluation

Evaluation by external experts

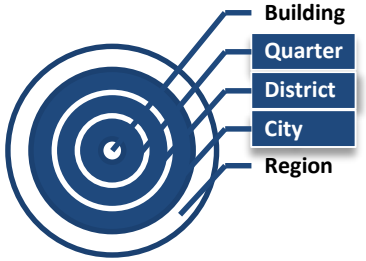
READ MORE

https://geoportal.zagreb.hr/

THE ASSUMPTIONS FOR PLAN OF SUPPLY WITH HEAT, ELECTRICITY AND GAS FUELS — WARSAW

URBAN LEARNING

Project Coming up | Preliminary studies | **Project stage** | Operational phase | Implementation



READ MORE

http://infrastruktura.um.warszawa.pl/

http://www.um.warszawa.pl/en/

OUTLINE

The Supply Plan includes assumptions for heat, electricity and gas and it is an inventory of all energy systems to help assess the status quo and to forecast demand. This document in its amended form will be a digital model of the city.

ENERGY

The database which includes assumptions for a supply plan for heat, electricity and gas will describe all energy systems in digital form and will be easily available to everyone.

KEY FACTS

Database describes both the city's current energy situation and the energy forecast, including:

- ✓ 261 balancing areas;
- ✓ Population changes;
- ✓ Energy demand;
- ✓ Balancing demand taking into account building stock changes;
- ✓ All relevant data on the level of the city, its 18 districts and balancing areas.

CONDITIONS OF USE

- ✓ Database will be available for everyone interested;
- ✓ In the mode „read- only" (changes online only by registered users);
- ✓ The data will be useful for all kinds of analyses related to energy;
- ✓ Database will be a basis for supply plans of supply with heat, electricity and gas after its comparison with development plans of energy companies active in Warsaw.

No evaluation

Auto evaluation

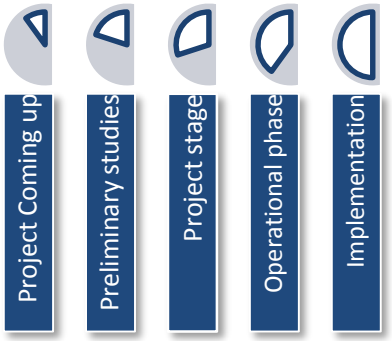
Evaluation by external experts

LABEL ECODISTRICT

PARIS - FRANCE

OUTLINE

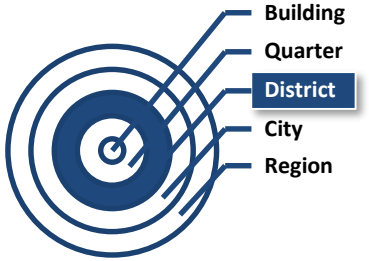
The Label Ecoquartier is a national approach carried by the state, which aims to enforce the overall state objectives in development sustainability to the scale of a development project. A national validation is necessary for granting the label. The City of Paris uses this tool to evaluate the quality of a new urban project. Three projects have been approved "eco-quartier" . It gives a good overview of the environmental performance of the project to the municipality.



ENERGY INTEGRATION

Technical profile of the approach: the label includes a commitment charter and objectives structured in 4 dimensions and 20 commitments, which allow actors to organize and a committee of experts to assess the quality of the development. The energy aspect is taken into consideration at an early stage which allows to identify the best energy solutions during all the phases of the urban project.

The renewal of Label Ecoquartier (2017). Five new priorities: Eco districts adapted to the territory's specific aspects, the label considers all the phases of an urban project (from design to daily life of inhabitants), participation of inhabitants in the design and management of their neighborhood, health, well-being and nature in the city, and finally the quality of indoor air.



KEY FACTS

- ✓ **National label** (State – Environment minister)
- ✓ **51 EcoQuartiers** (labeled districts) between 2012 and 2016
- ✓ Objective **500 EcoQuartiers** (labeled districts) in 2018
- ✓ Application for district level projects
- ✓ **4 dimensions & 20 requirements**
- ✓ **Charter** to engage municipality
- ✓ **National club** of ecodistricts
- ✓ Project visibility

CONDITIONS OF USE

- ✓ No thresholds but performance indicators
- ✓ Expert comitees for project quality evaluation
- ✓ No financial aid (in progress)
- ✓ Administrative support by state services
- ✓ International ambition (1 japanese project labeled (Morino-City))

No evaluation

Auto evaluation

Evaluation by external experts

READ MORE

http://www.logement.gouv.fr/les-ecoquartiers *(French)*

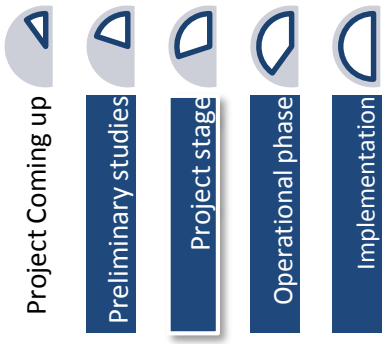
SRS MODEL FOR MONITORING

STOCKHOLM

URBAN LEARNING

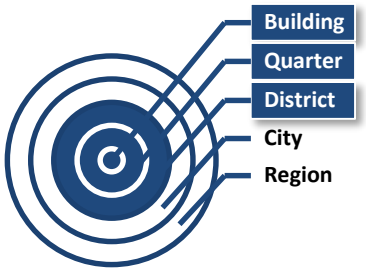
OUTLINE

The Stockholm Royal Seaport (SRS) model for monitoring (so called "the Sustainability portal") is a web based database used for performance reporting and monitoring with regard to the sustainability requirements in the development agreements in the Stockholm Royal Seaport. The main objective of the database is to enable a more systematic, structured and fair follow-up process and to provide a tool to gather and store all information related to that process in one single place. The tool also provides the opportunity to withdraw results from registered data to different kinds of reports that can either give a quick overview or more in-depth results of the performance on a number of sustainability indicators.



ENERGY

Every developer is given access to the database and fills out one digital form for each follow-up occasion, in total five forms (different stages) during the whole development and building process, from the early program document to the finished building that has been in use for two years. Each answer (with associated documents such as calculations, drawings and key performance indicators) is reviewed and assessed by an expert who concludes if the requirements are met or if supplements are needed. When all requirements are fulfilled, the form is approved and the information is registered in the database. There are also functions in the database which requires the developer to report deviations from the requirements. The system allows a good control of the developers performance. It also give continuous feedback to the development administration (responsible for the performance) which can readjust its decisions and formulate new goals, instruct to find better indicators and give direct commands to administrations and companies where goals and objectives are not fulfilled. In terms of energy and planning there are so far good experiences with this system. The SRS model for monitoring is continuously developed and in the future, different calculations might be done, e.g. CO2-calculations, to assess environmental performance for the city district but also to benchmark against other city districts. Furthermore, all calculations, drawings, key-performance indicators, that are uploaded in the model can be subject for further research in the future. The city is right now investigating to which extent the SRS model for monitoring could be used in even other development projects within the city.



KEY FACTS

- ✓ web-based IT-tool (no real-time)
- ✓ coordinated and developed by the city in close cooperation with the system owner
- ✓ 5 focus areas and 45 requirements, 9 requirements for energy
- ✓ self-declaration by developers during five different stages
- ✓ deviation system included in the system in order to predict and prevent deviations
- ✓ feedback-processes to developers and city representatives
- ✓ continuous evaluation of requirements and results by expert groups within the city
- ✓ publication of results in each stage
- ✓ Around 2000 apartments are monitored right now (2014-2016), more will follow including retail, offices, etc. In total 2030: 12.000 appartments and 35.000 working spaces

CONDITIONS OF USE

- ✓ Mandatory for developers in the SRS with a land allocation (no penalties)
- ✓ If the required information is delivered and approved by 3rd part, the information is registerered in the database
- ✓ Publication of results
- ✓ Administrative support by the city
- ✓ Reviewed and approved by external experts (3rd part) according to a national industry standard to assure comparability and fairness

No evaluation

Auto evaluation

Evaluation by external experts

READ MORE

http://vaxer.stockholm.se/royal seaport

OUTLINE

The Overall Program for Sustainable urban development (PSUD) is a steering document and the major objectives are to build a sustainable city district according to social, economical and ecological aspects.

One of the main objectives when it comes to energy is to become a fossil fuel-free city district by 2030 and have CO_2 emissions below 1.5 t/capita and year 2020 by using new environmental techniques and solutions and integrated planning and development approaches. The objectives are mainly focusing on mitigating climate impact by minimizing the use of fossil fuels and effectiveness measures for transport and energy usage for buildings and infrastructure. Other crucial objectives are to adapt to climate change by supportive green structure and managing storm water, a low usage of resources with increased (eco-cycle) and a limited impact on health and environment.

The objectives of the PSUD are broken down into different requirements which are binding for developers and the city's building of infrastructure such as streets, public places, etc. Requirements are specific for the different stages and compiled in so called action plans. The requirements in the action plans are part of the development agreements and have to be fulfilled. Measurement and monitoring are mandatory and controlled by the city at different times.

Project Comingup | Preliminary studies | Project stage | Operational phase | Implementation

ENERGY

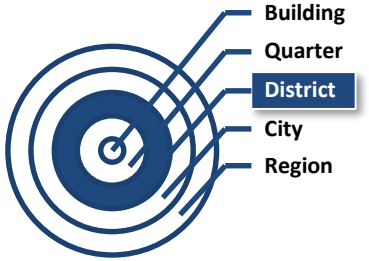
Within the Stockholm Royal Seaport the City continuously tries to set new standards for new and existing buildings' energy performance. This raised ambition will in the long run pave the way for the implementation of a level of energy use equaling energy-plus-house standards.

Since the city owns the land in the SRS it is possible to set stringent requirements on developers and ensure monitoring. The following objective are right now binding for developers (2016):

- *Energy efficient buildings close to passive house standard: less than 50 kWh/m2 (net-energy - used energy) - including hot water, heating and building electricity. (That translates into less than 55 % of the national building code standars.)*
- *Electricity used for buildings and construction needs to meet the requirements for eco-labelling. (voluntary: household and commercial electricity)*
- *Local production of renewables on buildings: either 2 kWh/m2 for electricity or 6 kWh/m2 for heating.*
- *The existing buildings will be made energy efficient in connection with major renovations which means a 50 % reduction of bought energy after refurbishing*

The PSUD is since 2010 integrated into the City's system of governance and follow-up of operations and economy, ILS.

Right now the PSUD is revised and improved and the update is expected to get decided upon by the city council by 2016/2017.



KEY FACTS

- ✓ Dynamic steering document commissioned by the city council in 2010
- ✓ Common vision between the city administrations and utilities by cross departmental collaboration
- ✓ 5 different expert groups setting requirements for developers and contractors (around 10 focus areas and 45 requirements, whereas 9 are focusing on energy)
- ✓ City as a land owner sets requirements in development agreements and tendering documents
- ✓ Continuous monitoring and feed-back is part of the contract and ensures that vision and targets are to be met
- ✓ Results are published in each stage
- ✓ Capacity building programmes for developers
- ✓ Stringent requirements are set on around 50 developers, around 3000 apartments.

CONDITIONS OF USE

- ✓ Political will
- ✓ Requirements for developers and contractors are binding and part of all land allocations/tendering documents in the SRS (no penalties)
- ✓ Expert groups are evaluating and assessing requirements against targets
- ✓ Administrative support by the development administration

No evaluation

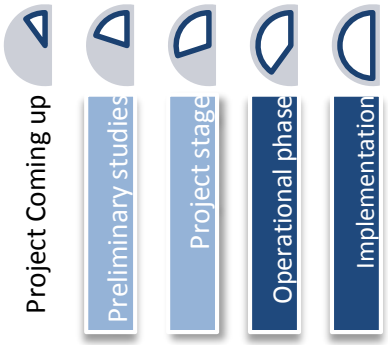
Auto evaluation

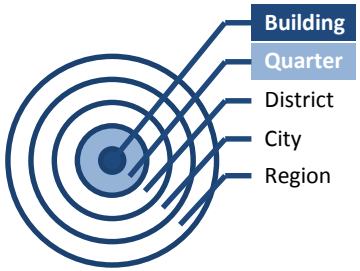
Evaluation by external experts

READ MORE

http://vaxer.stockholm.se/royal seaport

PUBLIC DEVELOPMENT COMPETITIONS — VIENNA





READ MORE

http://www.wohnfonds.wien.at/website/article/nav/103

OUTLINE

For housing projects seeking public funding, there is a thorough review process to ensure high qualities in planning. For projects larger than 500 dwellings a public developers' competition is started after the adaptation of the Land Use Plan. The tender criteria are often the result of earlier steps such as a cooperative planning procedure or an urban competition. The submitted projects are assessed according to the four-pillar-model of sustainable development (economy, ecology, social, architecture). The result is a contract between the wohnfonds_wien, the public agency in charge, and the developer who won the competition for each building lot. It is also a basis for the building permit. The implementation until building completion is checked for fulfilling the agreed qualities – with approximately monthly checks.

ENERGY

Ecology – energy is one of four pillars assessed by the jury of the competition. Projects with low energy demand as well as an efficient energy system are thus more likely to win the competition.

The basis for energy-related criteria for subsidised buildings are the act for subsidised housing (WWFSG) and the ordinance for new buildings (Neubauverordnung). They define that new buildings must have a higher standard than in the Vienna building code.

The maximum heating demand is calculated as follows: 14,67 × (1+1,82/Lc). Therefore, it depends on the compactness of the building (Lc - the characteristic length – which is the building volume divided by the surface area of the building). For instance, the maximum heating demand is 28 kWh useful energy/m²a BGF for a Lc of 2. Building costs including property costs must be below € 1800/m² BGF to receive subsidies. Heating systems based on coal and oil are excluded; gas heating has to be combined with solar energy; electricity for heating is only allowed for low energy standard.

KEY FACTS

- ✓ Quality assurance process for subsidised housing projects
- ✓ by an external body of the city (wohnfonds_wien)
- ✓ Four-pillar-model for assessment (energy is part of the pillar ecology)
- ✓ Higher support for very efficient heating systems
- ✓ Projects evaluated by an expert committee (jury)

CONDITIONS OF USE

- ✓ Maximum building costs of € 1800/m² BGF
- ✓ No coal or oil heating allowed (gas with solar energy)
- ✓ Maximum of energy demand (stricter than Building Code)
- ✓ Evaluation and check of projects to ensure criteria are fulfilled

No evaluation

Auto evaluation

Evaluation by external experts

ENERGY SAVING PARTNERSHIP

BERLIN

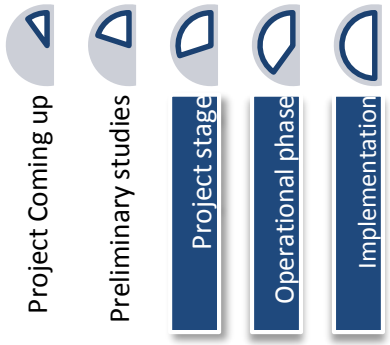
URBAN LEARNING

OUTLINE

The energy saving Partnership, developed by the Berliner Energy Agency and Berlin's Senate Department for Urban Development, is a model for efficient energy contracting.

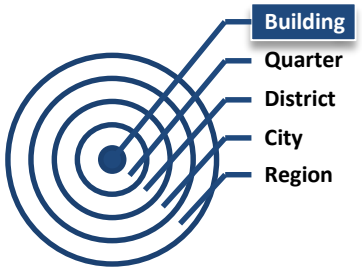
The aim is to tap into the potential for saving energy in a single or an existing pool of buildings.

A private energy service provider (ESCO) makes the necessary investment and gets re-financed through the savings in energy costs. For this, the public client combines a selection of its portfolio of buildings to form a pool.



ENERGY

In principal, it is possible to identify technical and economic energy saving potential in nearly each building. For ESC, it is key to address buildings with a long-term concept of use and an assured ownership situation for the next ten years. Buildings in line for ESC are checked regarding their building and energy data. Threshold for single buildings in ESC is an energy baseline of about 200.000 €, for several buildings (pool) it should reach 300.000 € minimum. After the buildings have been chosen, the owner of the building(s) – in cooperation with a project developer – launches a tender and chooses the best offer. Part of the contract between building owner and the private investor is a savings guarantee which becomes part of the ESC contract.



READ MORE

http://www.berliner-e-agentur.de/en/consulting-information/energy-saving-partnerships-berlin

KEY FACTS

Partner: Federal state of Berlin, district administrations

Period: Since 1996

As project manager, the Berliner Energieagentur has successfully launched and accompanied 25 energy saving partnerships with 1,300 public buildings and more than 500 properties in Berlin since 1996 alone.

CONDITIONS OF USE

In Berlin, examples include city halls, schools, day nurseries and other public buildings. The tasks of financing, planning, implementation and management of the installed measures in the pool buildings are then taken over by an ESCO, the energy savings partner, which invests in energy saving measures and manages the properties for a contractually agreed term.

No evaluation

Auto evaluation

Evaluation by external experts

CLIMATE PROTECTION AGREEMENTS

BERLIN - GERMANY

OUTLINE

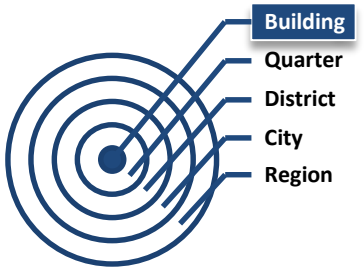
The so called "Climate Protection Agreement" is an Berlin instrument promoting energy efficiency in housing companies based on voluntary agreements. The agreement between the City of Berlin and the Association of Housing Berlin-Brandenburg has been established from 1991 and lasted through 2010. As the partnership proved to be successful it was prolonged from 2011 until 2020.

Project Coming up
Preliminary studies
Project stage
Operational phase
Implementation

ENERGY

Established individual agreements with member companies in Berlin regarding specific CO2 caps

Support to the member companies by providing information and consulting services, e.g. regarding the use of climate protection technologies, the use of renewable energies for heat supply and the introduction of an energy management system



READ MORE

http://www.stadtentwicklung.berlin.de/umwelt/klimaschutz/download/Klimaschutz-Broschuere_SenStadtUm2015.pdf
(German)

KEY FACTS

- ✓ Berlin instrument
- ✓ Association of Housing Berlin-Brandenburg includes 350 public and private housing companies (ca. 1.1 million appartments)
- ✓ Since 1991 -50% energy savings and -60% CO2 reduction

CONDITIONS OF USE

- ✓ Individually agreed C02 savings
- ✓ Information and consulting services included in the agreement
- ✓ External monitoring of achievements

No evaluation

Auto evaluation

Evaluation by external experts