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WARSAW'S CURRENT AND UPCOMING PROJECTS RELATED TO BUILDING EFFICIENCY AND DISTRICT ENERGY

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SE4ALL Webinar

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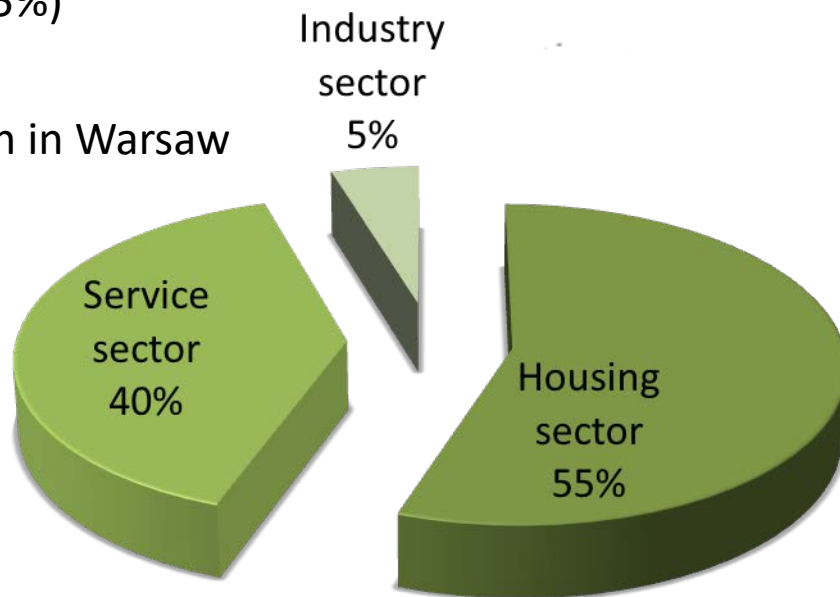
Activities in the Warsaw's SEAP (Sustainable Energy Action Plan): energy and housing



Average annual consumption of heat in Warsaw: ~13 TWh
including housing sector: ~ 8.5 TWh (65%)

Potential of reducing heat consumption in Warsaw
by thermal retrofits:

- housing sector ~ 2.09 TWh,
- service sector ~ 1.5 TWh,
- industry sector ~ 0.18 TWh,
- Warsaw **overall** ~ 3.77 TWh.



Development of smart grids and smart metering



Smart consumers



SEAP activities: energy and housing

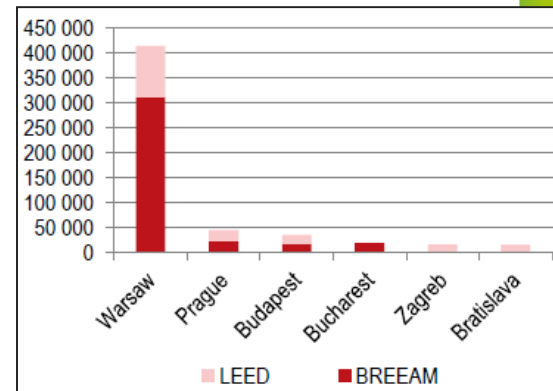
Complex retrofitting of public buildings in the City of Warsaw, including educational buildings and social housing sector, planned financial expenditures in 2011-2020 - **230 mln €**

SEAP assumes construction of:

- 0,5 mln m² of passive buildings,
- 1 mln m² of low-energy buildings,
- 2 mln m² of energy-efficient buildings.

Green buildings under construction

According to Jones Lang LaSalle (March 2012) of all CEE capital cities, Warsaw has the largest volume (over 400 000 sqm) of office buildings that have applied for **Green Building Certification**





Investments in Warsaw district heating

Investments	2015	2016	2017	2018
Modernization and construction of network	25 km	29 km	28 km	27 km
Modernization of substations	511 substations	1300 substations	1300 substations	1300 substations
	1 308 pieces of equipment			
Modernization of group substations	24	21	100 until 2020	
Construction of 2 pumping stations	beginning	completion	x	x
New customers connected	115 MW	115 MW	115 MW	115 MW
Modules of hot water (DHW)	5 MW	5 MW	5 MW	5 MW
	167	180	180	180
BES - Building Energy Services	Services for consumers			
Intelligent Heating Network Project	79 chambers, 3 pumping stations, 1850 substations, Renewable Energy Sources, water loss detection system network			x
Automatic meter reading	12 695 substations			
Ownership regulations	0,35 mln €	0,5 mln €	0,5 mln €	0,5 mln €
Expenditures	47 mln €	36,3 mln €	37.5 mln €	35 mln €



Project of Low-Carbon Area



Low-Carbon Area (in preparation) - following such world-leading projects as Stockholm's Hammarby district, we plan to create city area, which will feature solutions on behalf of energy efficiency, natural environment and low GHG emissions, both in the field of city planning, energy networks, buildings construction, transport, waste management, and water and wastewater management – with utilization of various sources of EU co-financing, PPP and other sources (like possibly funds from selling Polish emission rights).

- Among the currently analyzed locations the most probable is Targówek Przemysłowy (Industrial Targówek – part of the Targówek district), where the major RES source will be available in form of the expanded ZUSOK waste incineration plant.
- We wanted 3 project applications submitted last year with participation of Warsaw in Horizon 2020 to assist us in this task . One of them obtained financing – URBAN LEARNING. We remain interested in cooperation with foreign cities as to larger projects conducted within smart cities theme – as well as in cooperation with foreign companies as to implementation of related projects.



Project of Low-Carbon Area



Neighbourhood of Kawęczyn Heat Plant

Areas considered
for the project



New EU projects related to energy in buildings



URBAN LEARNING (Horizon 2020, energy efficiency) concerns integrative energy planning of urban areas. Improving the governance processes is expected to have significant energy impacts on homes and workplaces to be built and refurbished for over 3 million people in the participating cities in the next 20 years: more than 1700 GWh/a of energy savings and over 2000 GWh/a renewable energy produced.

- **STEP BY STEP** (H2020, energy efficiency) – its goal is to maximize the share of households that adopt energy saving behaviour at home. It will target 9000 households in 4 countries, including 3000 in Warsaw.
- **HIT2GAP** (H2020, energy-efficient buildings) will develop a new generation of building monitoring and control tools based on advanced data treatment techniques allowing new approaches to assess building energy performance data, getting a better understanding of building's behaviour and a better performance.
- Among other projects, which already obtained financing, we are supporting Mostostal Warszawa's **CREATE** project (H2020, energy-efficient buildings). It concerns integrated solutions of thermal energy storage for building applications.

In 2015 we joined the **SHARING CITIES** project consortium (H2020, SCC1 – smart cities). If this consortium succeeds we will learn how to implement low-carbon areas and smart cities solutions directly from the cities already doing that – London, Milan and Lisbon. If not, we will join another SCC1 consortium next year.

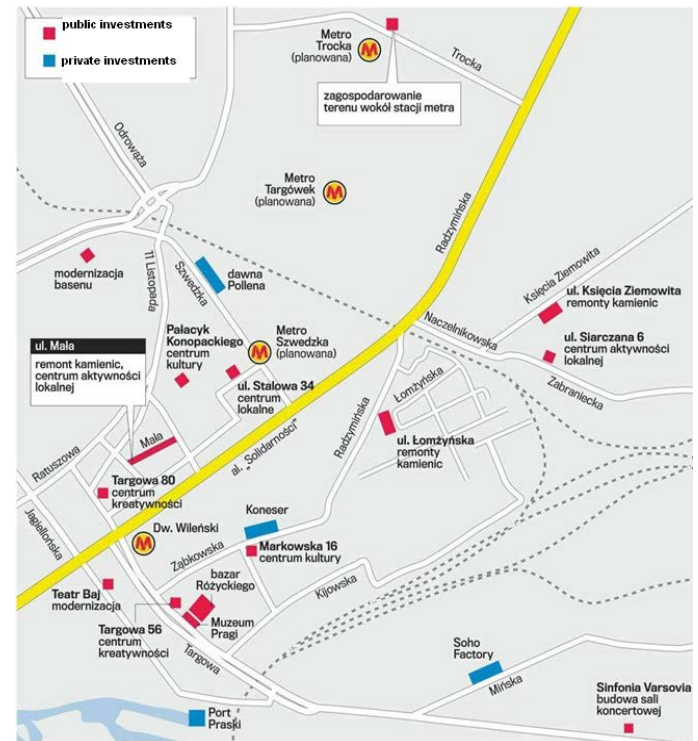




Second phase of revitalization programme in years 2015-2022

250 million euro for Praga districts of Warsaw

- Housing policy is the largest part of the Programme.
- Construction of new blocks of flats and renovation (including thermal retrofits) of old ones with total investments equal to € 130 million.
- 5000 flats will be connected to district heating.
- Level of investment in this project - € 17 million.
- The historical area of Praga (located, unlike the rest of the City, on the right bank of the Vistula River) is divided into 3 districts: Praga Północ, Praga Południe and Targówek.
- The state of housing and energy solutions in the area requires huge improvements.





Public-Private Partnership

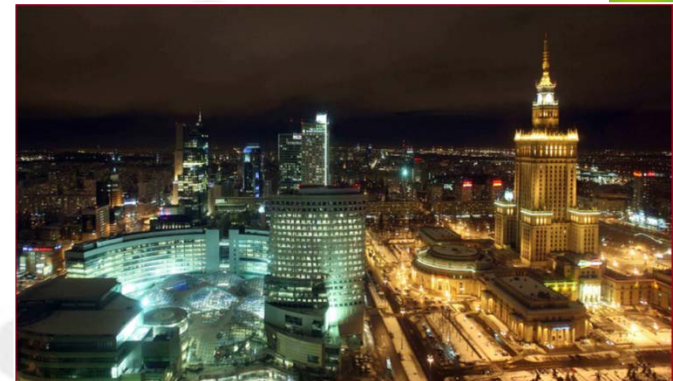


- Public-private partnership may be a good solution to provide financing for projects, that generate substantial energy and cost savings. Warsaw plans to utilize PPP at a much larger scale than before. Currently we are using PPP for financing the following building projects: on **retrofit of school buildings** and on **construction of Mokotów District Hall Building**.
- We identified up to **30 school buildings** that need retrofit covering also electric installation and lights replacement, water supply improvement and energy management system with sensors. Certain level of savings should be guaranteed by the private partner (Energy Performance Contracting). In the next months we will be completing energy audits of the buildings.
- Energy efficiency and RES will be taken into consideration in the PPP project of **construction and operation of the Mokotów District Hall Building**. The building will be designed, built, financed and operated by a private partner, so the energy cost will consist a large part of the maintenance bill over the contract period, which may exceed 20 years in this case. The contract with the consultant which will assist with preparing the construction tender was signed on 25th September, 2014.



Public-Private Partnership

- Another related PPP project being initiated now concerns construction of **underground parking lots** in Warsaw.
- Up to 6 such parking lots will be constructed, for up to 100 mln €.
- Currently discussions with 5 companies interested in the process (the contract will include both design, construction and maintenance of parking lots).
- The next project, which is to be launched soon, includes construction of around 25 new low-emission **kindergarten buildings** in place of the existing old facilities.
- All new objects/buildings constructed in PPP will conform to strict energy efficiency requirements.





Energy management in public buildings

Demand Side Management for energy efficiency improvement

From 2009 Infrastructure Department carries on the **monitoring of electricity, heat and gas consumption and expenditures** in educational units of the City of Warsaw.

1191 educational units (760 locations) with 922 electricity meters, 520 heat meters and 583 gas meters are included in the programme.

As a result of activities carried out under the programme the following have been achieved:

- Reduction of expenditures for ordered capacity;
- Reduction of electricity and heat consumption, resulting in CO₂ emissions reduction.

Savings potential:

- Electricity – € 1,3 mln,
- Heat – € 1,9 mln.



The **next step** will be facilitating **smart metering** in the Warsaw municipal buildings.



Warsaw approach for next years



- Increasing number of projects in public-private partnership and/or in Energy Performance Contracting (until recently extremely rare in Poland).
- Utilization of schemes available in the new EU financial perspective: operational programmes, dedicated funding for smart cities (Horizon 2020), regional funding schemes.
- Utilization of new financial schemes of the Polish environmental fund NFOŚiGW (including those using funds from selling Polish emission rights).
- Using different forms of financial montage to implement an ambitious project of Low-Carbon Area.
- Improving energy performance of school and other municipal buildings and using resulting cost savings for other energy-related investments (cost savings to be obtained also thanks to joint purchases of electricity by different units and departments of the City of Warsaw and our municipal companies).



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Thank you!

