



Warsaw Energy

Use Sensibly!



WARSAW'S HISTORY OF IMPLEMENTING ENERGY SYSTEMS, BUILDINGS EFFICIENCY AND RELATED PROJECTS

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SE4ALL Webinar

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The City of Warsaw

Main features of the Capital City of Poland:

- administrative area: 517 km²
- inhabitants within this area: 1.7 million
- inhabitants within agglomeration: 3.3 million
- density of population: 3300 per km²
- registered enterprises: 360 000
- registered vehicles: 1.2 million
- budget expenditure for 2015: € 3.4 billion (USD 3.9 billion)
- unemployment: 4.5%
- 78 universities and colleges
- 270 thousand students





Sustainable Energy Action Plan



Covenant Of Mayors initiative

- Warsaw joined in 2009
- Key document: *Sustainable Energy Action Plan for Warsaw in the perspective of 2020 (SEAP)*, adopted in 2011

SEAP target – improvement of energy efficiency and reduction of GHG emissions - calculated as:

- 80% of CO₂ emission in 2020 comparing to the base year,
- 80% of energy consumption in 2020 comparing to the base year,
- at least 20% of energy will be produced from RES,
- information and promotion actions regarding energy management/conservation will be implemented.



SEAP target for 2020 compared to the base year 2007

Year	Energy consumption [MWh/year]	CO ₂ emission [MgCO ₂ /year]
2007	28 394 431	12 952 984
2020	22 715 545	10 362 387





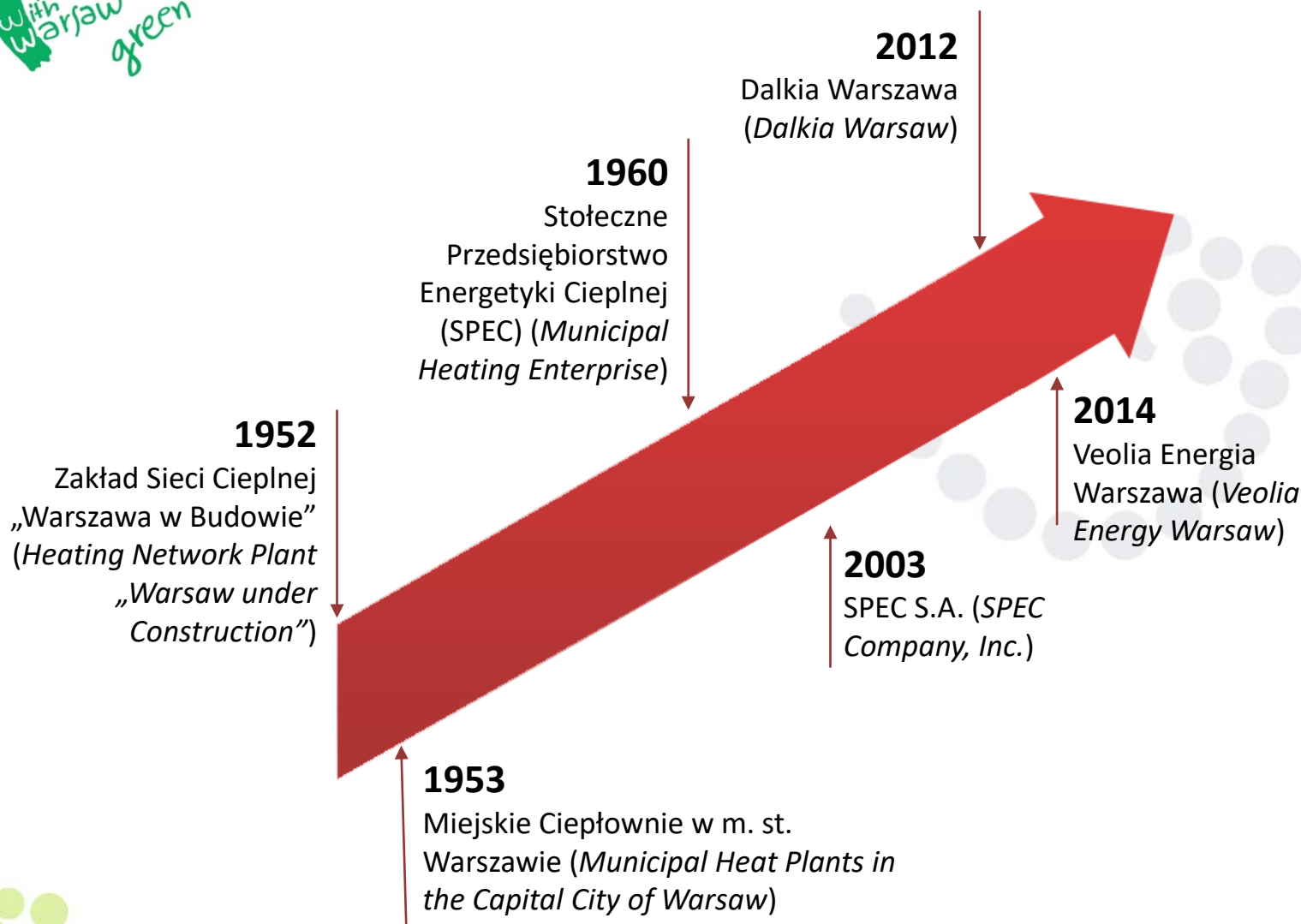
SEAP– main activities on reduction of energy consumption



No.	Tasks	Planned energy savings in 2020	Reduction of CO ₂	Investment s
		[MWh/a]	[t/a]	[million €]
1	Complex buildings retrofit in housing sector	1 399 200	415 562	1020
2	Complex buildings retrofit in service sector	1 150 783	341 782	612
3	Complex buildings retrofit in public sector	359 718	106 836	191
4	Modernization of heating system (e.g. replacement of local heat sources with more efficient heat sources)	105 000	31 185	87
5	Retrofit of industrial buildings	185 820	55 189	49
6	Modernization of indoor lighting	85 228	83 693	9
7	Modernization of street and outdoor lighting	55 000	54 010	25
8	Replacement of old home electronic equipment	16 667	16 367	57
9	Replacement of old IT equipment	22 727	22 318	38



History of district heating in Warsaw





Privatization of SPEC

- Changes in ownership structure
- Strategic Committee with smooth cooperation between the City and the private owners
- Benefits for citizens
- Guaranteed investments secured by contract of sale of SPEC



The largest district heating network in EU, next to Berlin



1 720 km of network

15 000 substations

18 600 buildings

22 000 meters

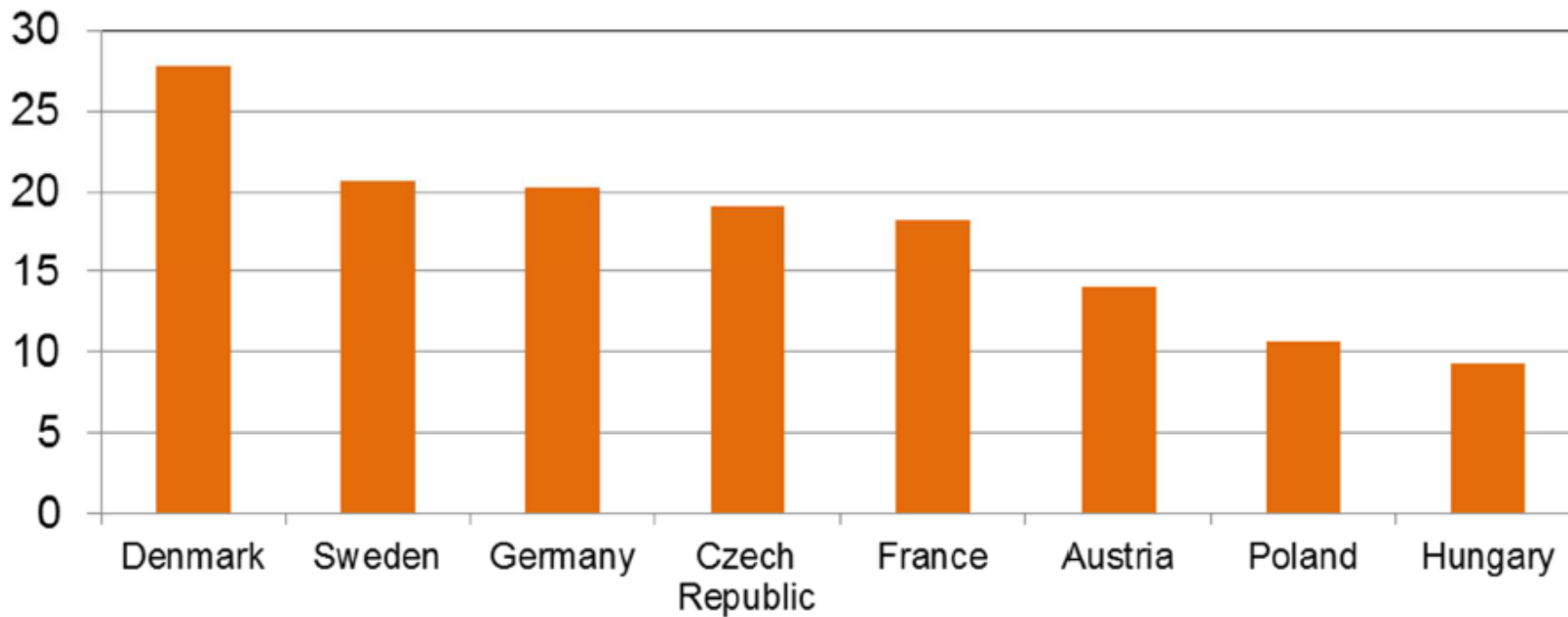
78% city demand's fulfilled



Warsaw as a area of low heat prices

District heating prices in year 2011

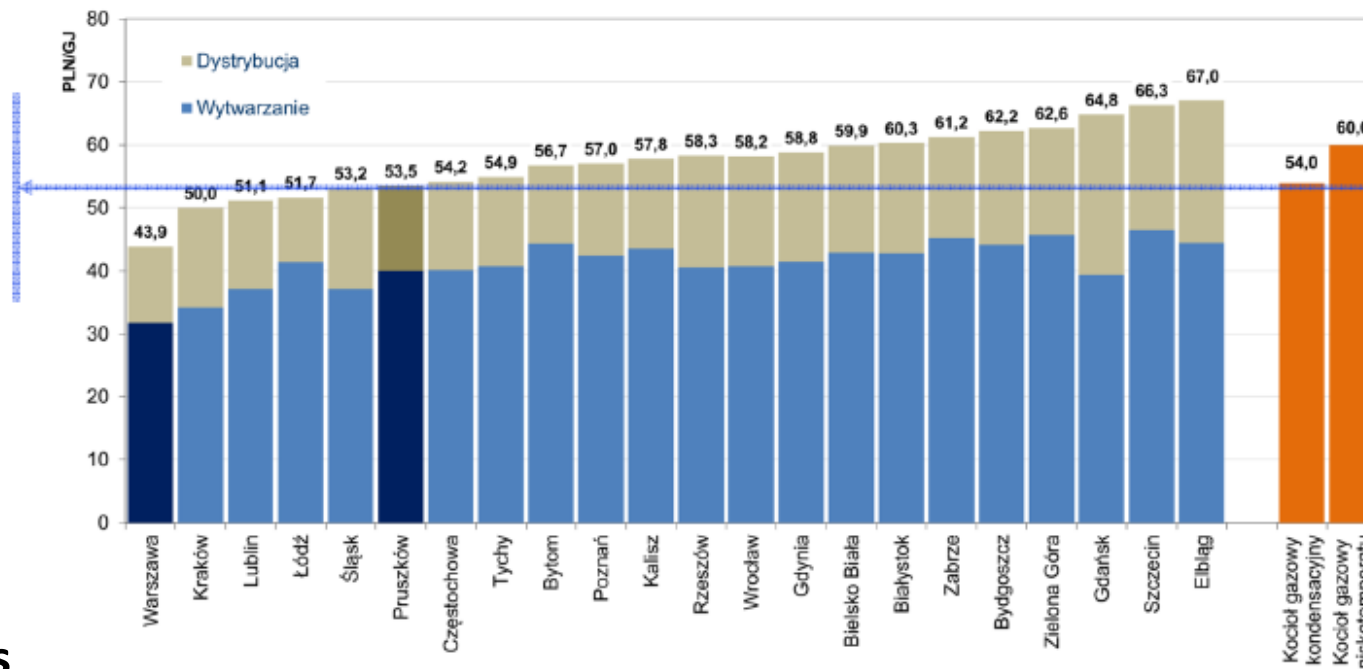
EUR/GJ





Warsaw as a area of low heat prices

Average DH heat price
53,2 PLN/GJ
(191,5 PLN/MWh)



Competitive heating prices

- ✓ 70% cheaper than electricity
- ✓ 55% cheaper than heating fuel
- ✓ 33% cheaper than natural gas





Modernization and extension of „Czajka” Wastewater Treatment Plant

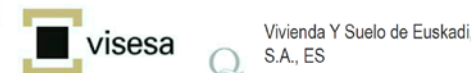
- 30 January 2008 – Warsaw Waterworks (MPWiK S.A.) signed a contract for the extension of the Czajka WWTP – completed in 2012. The contract’s main subject were high-tech wastewater treatment lines.
- Additional elements like sludge thermal incineration plant, which provides the Czajka with heat and electricity, with max. day capacity - 671 t of fuel and max. electric power - 1,6 MW. Energy is obtained also from biogas combustion. Total yearly output of the installations: 29 930 MWh of electricity (30% of our street lighting’s consumption) and 58 133 MWh of heat (equivalent of 140 railway tracks of coal).
- Total value with accompanying investments amounted to 822 million euro: the largest recent investment in Europe in the field of environmental protection at one of the largest construction sites in Poland, which ensured treatment of 100% wastewater from the Warsaw area (capacity increased from 240 000 m³/day up to 435 300 m³/day) and reduced amount of connected nitrogen released via Vistula River to the Baltic Sea by 74%, while in case of phosphorus – by 84%.
- External co-financing started already from pre-accession funds, after Polish accession to the European Union financing amounting to 248 million euro from the Operational Programme „Infrastructure and Environment”.



Energy efficiency in buildings – OPEN HOUSE



- Project OPEN HOUSE (7th Framework Programme, 19 partners – mainly from construction sector, coordinator - Acciona)
- Developed and tested in more than 60 case-studies throughout Europe a common methodology of assessing sustainability of buildings, feasible to use in public procurement procedures
- Websites: <http://www.openhouse-fp7.eu>, <http://openhouse.building-21.net>





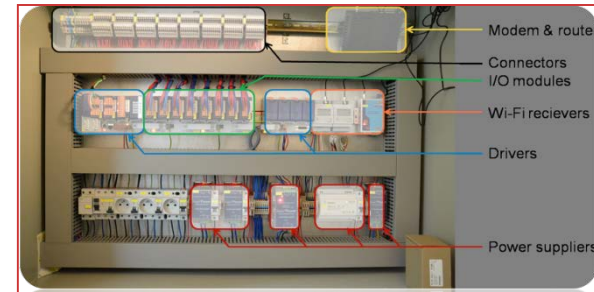
Energy efficiency in buildings – E3SoHo



- Project E3SoHo (Competitiveness and Innovation Framework Programme, coordinator - Acciona) – holistic solutions for ICT-enabled energy efficient social housing developments
- Developments tested in 3 cities: Warsaw, Genoa, Saragossa
- Website: <http://www.e3soho.eu>



Detectors in flats



Meters

Pad



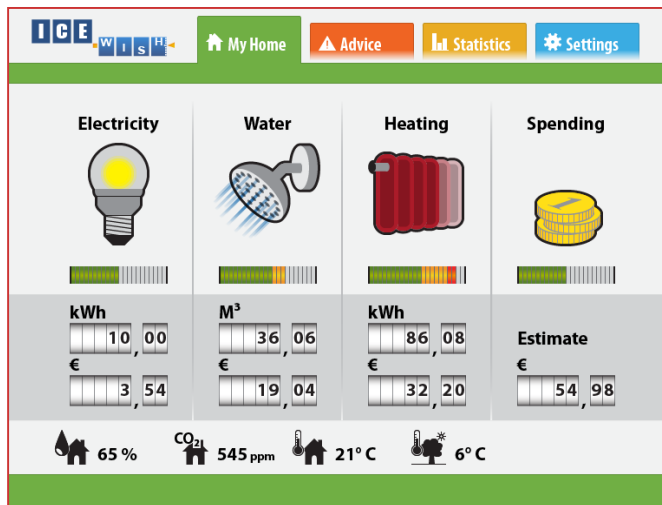
Weather station



Energy efficiency in buildings – ICE-WISH



- Project ICE–WISH (Competitiveness and Innovation Framework Programme, coordinator - Consorzio Nazionale CasaQualita) - comprehensive, integrated control and management system of media consumption in buildings, in particular in social housing
- Partners: 10 European cities and experts
- Website: <http://www.ice-wish.eu/uk/icewish.asp>





**Warsaw
Energy**
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Thank you!

