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Supplementary Materials for

Smart Energy in a Smart City: Utopia or Reality? Evidence from Poland

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Table S1. RES in city development documents.

City	Planned RES Activities and Investments Included in Low-Emission Economy Plan	Placement of RES in the City's Development Strategy
Warsaw	• Construction or modification of electricity- and heat-generation plants for high-efficiency co-generation from RES; • construction of, or modification towards, intelligent medium- and low-voltage distribution grids dedicated to increasing renewable energy generation.	**Goal**: We live in a clean natural environment **Action**: Popularising RES and energy-efficient solutions.
Kraków	• Green purchases for Town Hall; • installation of PV on bus roofs.	**Goal**: Sustainable environment **Strategic projects**: Improving the energy efficiency of public buildings.
Łódź	• Purchase and installation of photovoltaic panels on selected buildings; • construction of a reinforced-concrete passive office building and installation of photovoltaic panels.	**Goal**: A green, tidy Łódź **Action**: Optimising energy expenditure through thermal modernisation of municipal facilities, including eliminating low-emission sources and implementing intelligent municipal management systems
Wrocław	• Implementing comprehensive pro-consumer programmes to increase the share of RES in the energy balance and reduce "chimney" emissions.	**Goal**: A smart city: Increasing energy efficiency and using renewable energy sources **Action**: Investments in renewable energy on public building roofs. **Goal**: An inspirational city **Action**: Let's promote and creatively use knowledge about rational energy management.
Poznań	• Constructing and modernizing installations for the distribution of energy and heat from RES; • constructing a DG micro power plant with a total capacity of up to 0.3 MWp; • average annual electricity production efficiency projected to be approx. 11%.	**Goal**: A green, mobile city **Actions**: Introducing modern, energy-saving technologies and solutions in public spaces and buildings, including implementing smart solutions for greater use of renewable energy
Gdańsk	• Supporting and promoting investments that use RES and alternative fuels; • managing projects for co-financing energy-efficiency activities and the use of	**Goal**: Economy and transport: **Action**: Ensuring the city and metropolis's improvement in energy efficiency and energy security, and the reduction of greenhouse gas emissions.

	RES in the City of Gdańsk under available support programmes .	
Szczecin	• Adapting the system for generating, managing and distributing RES energy.	Very general statements about greater energy security
Bydgoszcz	• Replacing conventional lighting with PV-powered lighting in sports facilities	**Goal**: Sustainable management of environmental resources; the municipal economy is conducted according to sustainable development principles; Sustainable energy action plan for the city of Bydgoszcz 2012–2020
Lublin	• Installing two gas engines in the heat and power plant of a sewage treatment plant in order to increase the possibilities of of biogas for energy production; • constructing solar collectors for heating domestic hot water	**Goal**: A friendly Lublin **Actions**: Support development of urban DGs (wind turbines, PV, etc.) **Goal**: Entrepreneurship **Actions**: Development of industrial sector: the region's environmental conditions and the scientific/research potential of Lublin universities are conducive to building a strong renewable energy source in Lublin
Białystok	• Improving energy efficiency and the use of renewable energy sources, or reducing pollutant emissions in single-family buildings; • improving energy efficiency and the use of renewable energy sources, or reducing pollutant emissions in municipal buildings.	No mention of RES in strategy objectives **Actions**: Implementing new technologies in the economy to increase environmental safety and eliminate threats to the environment, developing energy-saving technologies, increasing use of renewable energy.
Katowice	• Installing solar collectors supporting the domestic hot water system and installing a high-efficiency co-generation system, alongside adapting a unit to recover heat from flue gas from the thermal neutralisation of waste in municipal facilities.	**Goal**: Quality of life Just a general statement that an energy refurbishment of the city is planned
Gdynia	• Construction of PV installations on parking shelters at a trolleybus depot; modernisation of the old heat source; • introducing recommendations on energy efficiency in updated and new documents.	**Goal**: A healthy and safe environment in Gdynia **Action**: Promoting and supporting the use of pro-ecological technological solutions for domestic heating and RES energy production.
Częstochowa	• No information.	**Goal**: Improving the city's energy efficiency **Actions**: Establishing, in cooperation with universities, a centre for promoting energy efficiency and the use of RES (technology transfer and management solutions). Sustainable energy action plan (SEAP) for the city of Częstochowa.
Radom	• Use of RES or reduction of pollutant emissions in municipal facilities; • construction of PV.	**Goal**: Supporting pro-ecological initiatives that improve environmental quality and ecological safety **Action**: Increasing the use of energy from renewable sources
Toruń	• Construction of RES installations of various types (PV, biogas plants, wind farms) within the city.	**Goal**: Further improvement to the city's natural environment

		Actions: Diversification of energy sources, including the using RES and increasing broadly understood energy efficiency.
Sosnowiec	• Introducing the rational use of RES for street lighting.	**Goal**: Actions to improve air quality **Actions**: Supporting the use of local RES and assistance in introducing environmentally friendly energy carriers.
Rzeszów	• Increasing the share of RES in total energy consumption by implementing PV installations for public buildings.	**Goal**: Use of resources – clean energy and a rich heritage of activities **Action**: Increasing the share of RES energy in ROF [Rzeszowski Obszar Funkcjonalny], incl. by implementing PV in public buildings.
Kielce	• Installing solar collectors for hot water and PV for electricity.	**Goal**: A green, clean Kielce **Action**: The need to constantly improve the quality of the environment and the energy efficiency of buildings and infrastructure.
Gliwice	• Zero emission from the suburbs – modernising of single-family buildings using ground heat pumps combined with thermal insulation.	**Goal**: Building responsibility for one's own life in private and professional dimensions **Actions**: Activities aimed at energy saving.
Zabrze	• Modernising existing heating systems, using RES in the city of Zabrze.	**Goal**: Environmental protection and adaptation of the city to the requirements of climate change. **Action**: Energy efficiency; implementing projects resulting from the Low-Emission Reduction Programme (replacing heat sources in individual buildings, thermal insulation, RES) and the Low-Emission Economy Plan (reducing greenhouse gas emissions, increasing renewable energy sources and energy saving, improving air quality)