ENERGY EFFICIENCY
for GHG reduction target in Poland

The Institute of Power Engineering

Research Institute

IEn

Warsaw, Poland

http://www.ien.com.pl/

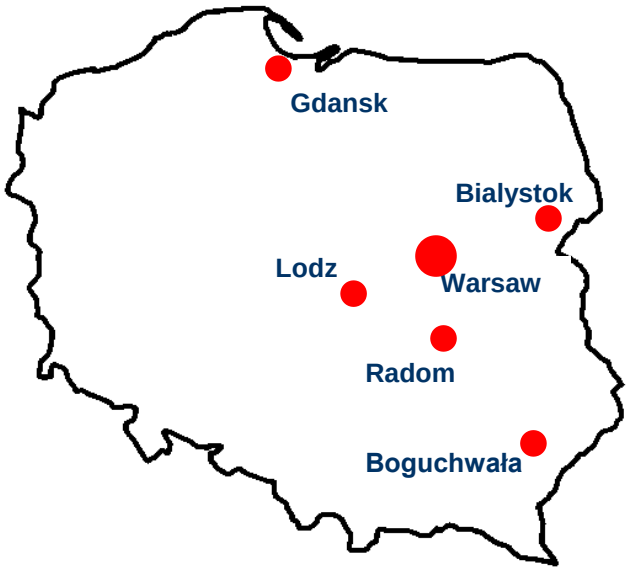
The Institute of Power Engineering (IEn) was established in 1953 (1948) and currently employs above 500 skilled staff

The IEn consists of:

- Central Unit in Warsaw

and six branches in different parts of Poland:

- Ceramic Branch "CEREL" in Boguchwała
- Gdańsk Branch in Gdańsk
- Heating Technology Branch "ITC" in Łódź
- Heating & Sanitary Technology Branch in Radom
- Prototype Production Branch in Białystok



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Director:
Prof. Tomasz Gałka

Institute of Power Engineering
Other units

IEn's Central Unit in Warsaw includes the following units:

Thermal Division

Electric Division

Mechanical Division

Energy Economics Laboratory

Certification Group

Experts Group

Support and Administrative staff

Institute of Power Engineering

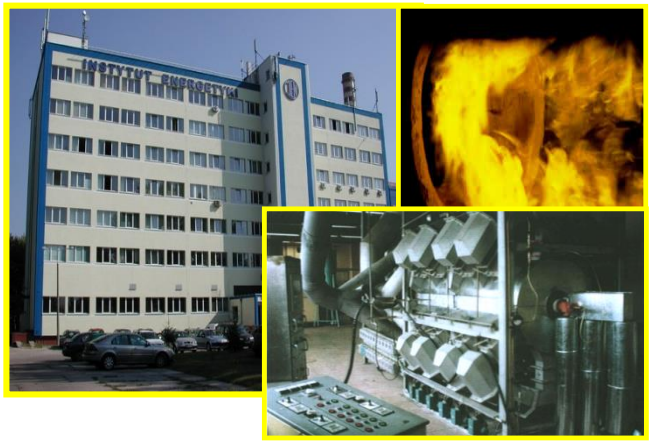
The Institute of Power Engineering (IEn) is one of the largest institutes in Poland and Central Europe providing research in the field of **energy technologies**. The Institute is a modern state owned research and development center.

The Institute covers a **wide area of energy research** from expert works for the **power sector**, to investigations of the most advanced technologies of **energy generation**, such as **fuel cells, clean coal technologies and renewable energy sources**. The advantage of the Institute is the experienced scientific, engineering and technical staff as well as numerous modern, sometimes unique laboratory facilities.

IEn's main activities

Research and demonstration of new energy technologies including:

- energy generation from biomass
- clean coal technologies
- hydrogen and SOFC
- CO2 capture and storage
- wind energy
- distributed energy generation
- smart grids
- advanced ceramic materials



Development of apparatus, machines and equipments for electrical power stations and overhead transmisions lines

Energy strategies, plans and programs for the development of energy sector

Energy policy, economic and social issues related to energy technologies

Protection of environment against harmful effects of energy sector

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European Energy Research Alliance (EERA)

IEn is a member of EERA Executive Committee (since 2009)

The European Energy Research Alliance (EERA) is an alliance of European public research centres and universities. It is one of the cornerstones of the European Strategic Energy Technology Plan (SET-Plan).

IEn is a member of EERA Joint Programmes:

- JP Smart Grids
- JP Wind
- JP Hydrogen and Fuel Cells
- JP Bioenergy
- JP E3S
- JP Smart Cities

EERA
European Energy Research Alliance

IEn coordinates EERA activities in Poland

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Examples of projects linked to EE

HORIZON 2020:

- **UPGRID**, Real proven solutions to enable active demand and distributed generation flexible integration, through a fully controllable LOW Voltage and medium voltage distribution, 2015-2017
- **IN-BEE**, Assessing the intangibles: the socioeconomic benefits of improving energy efficiency, 2015-2017

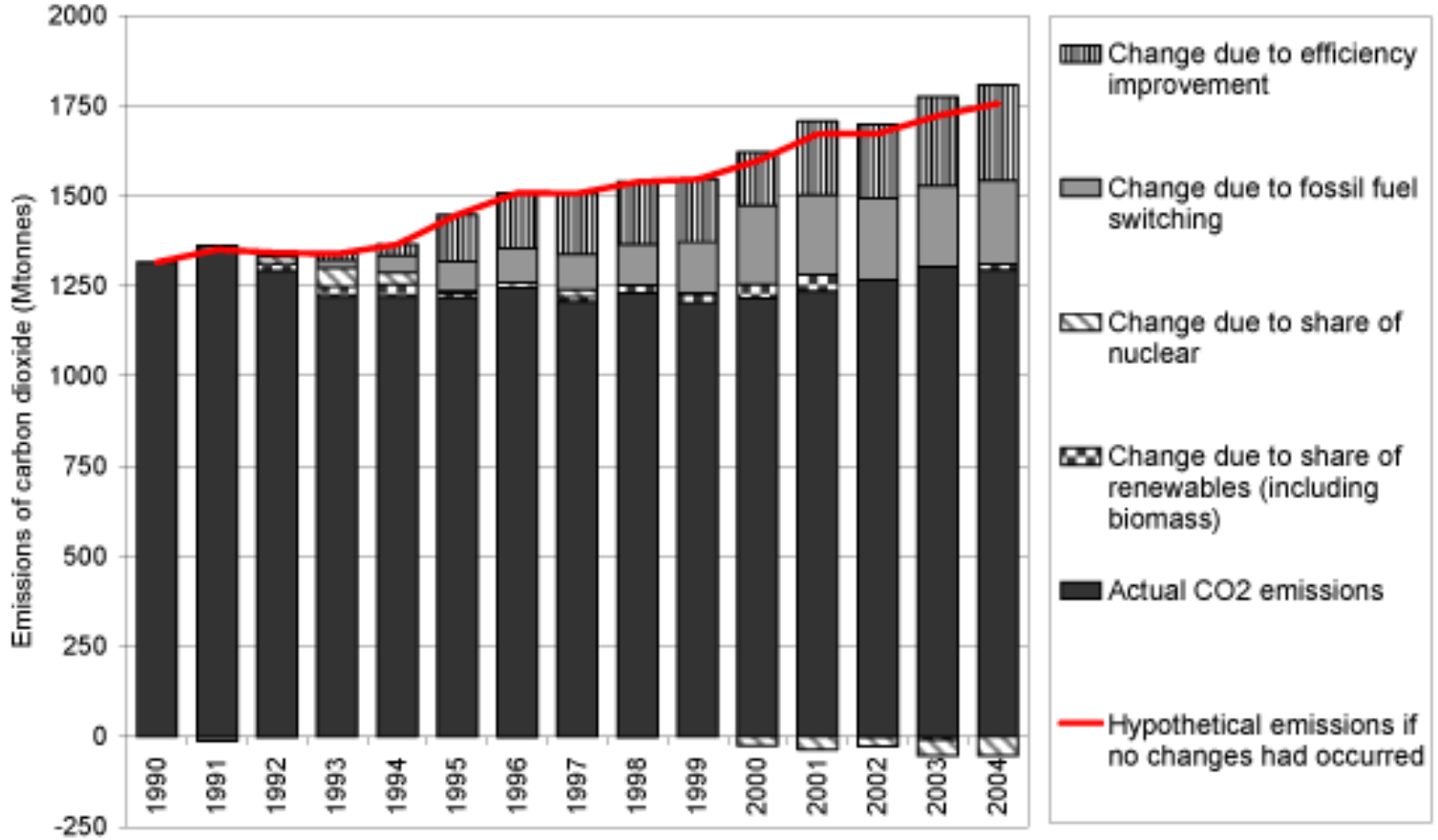
Polish Development Cooperation of the Ministry of Foreign Affairs 2015:

- **UKRE-DEM**, Reinforcing the capacity of public administration and local government of Ukraine in implementing solutions to improve energy efficiency and promote renewable energy in municipal heating, with particular emphasis on public buildings and municipal houses, 2015

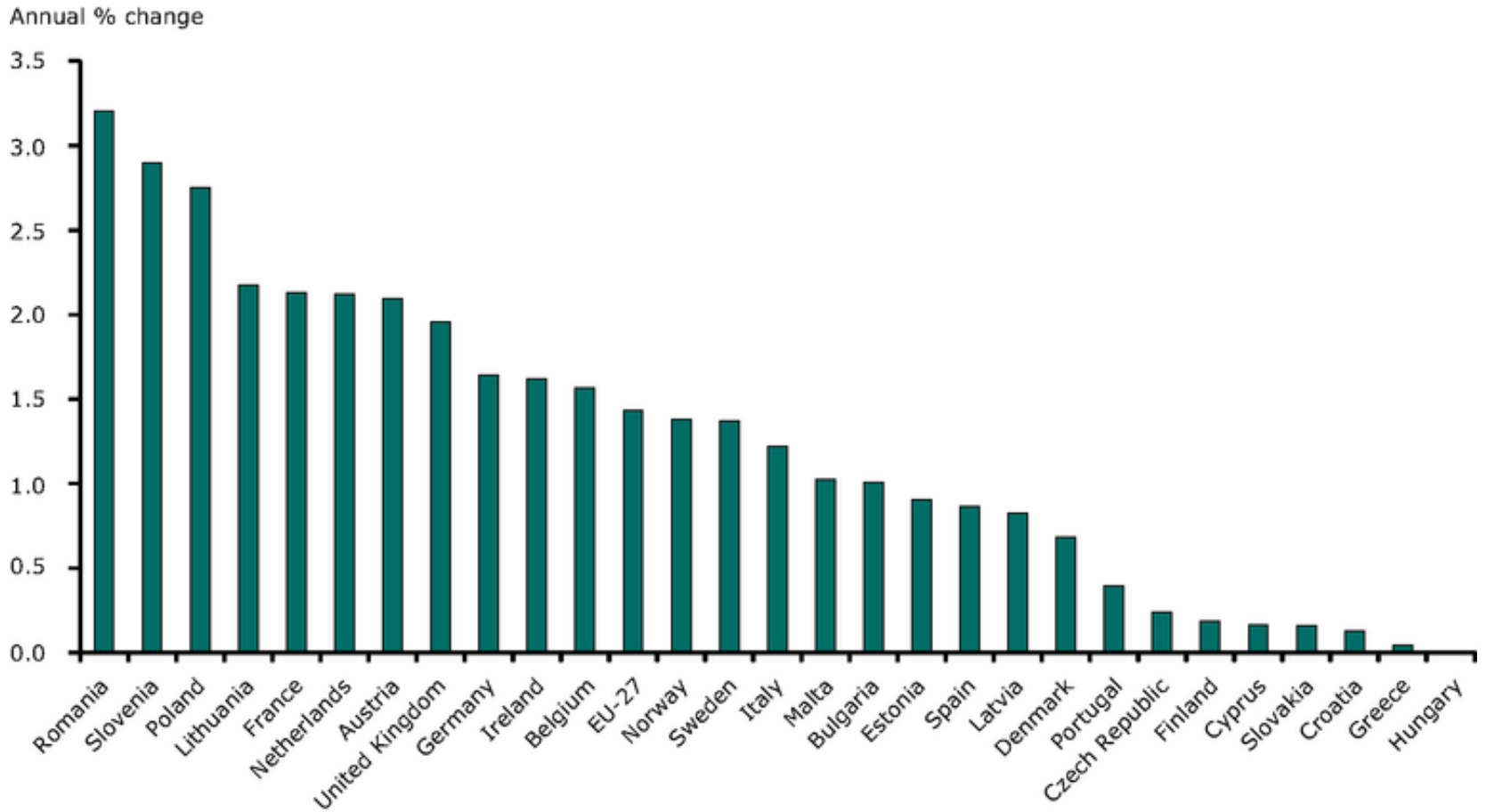
ENERGY EFFICIENCY FIRST

CO_2 emmission

Past experience - Energy Efficiency influence on CO_2 emmission

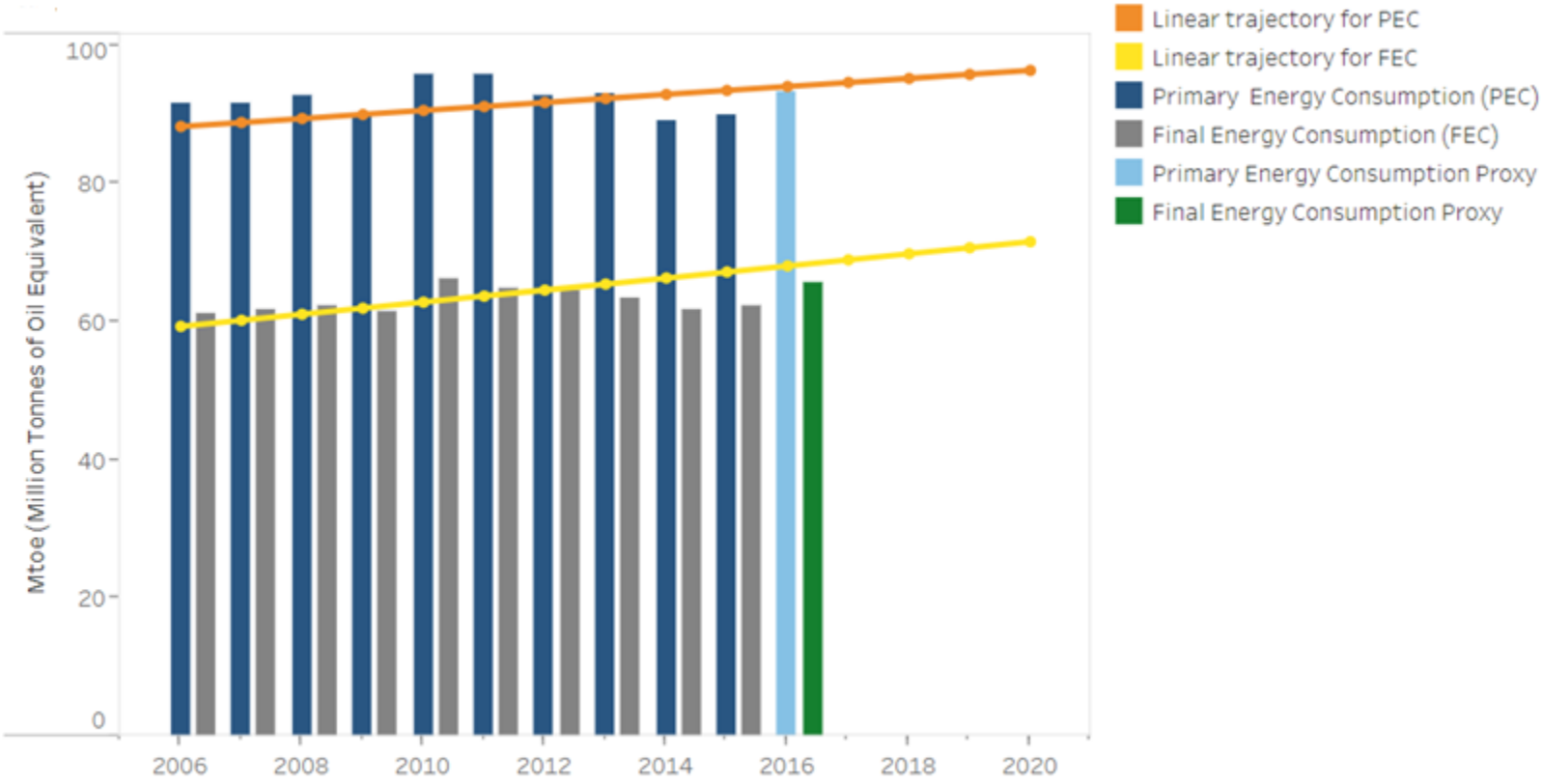


Change in energy efficiency index by country in the period 2000-2009



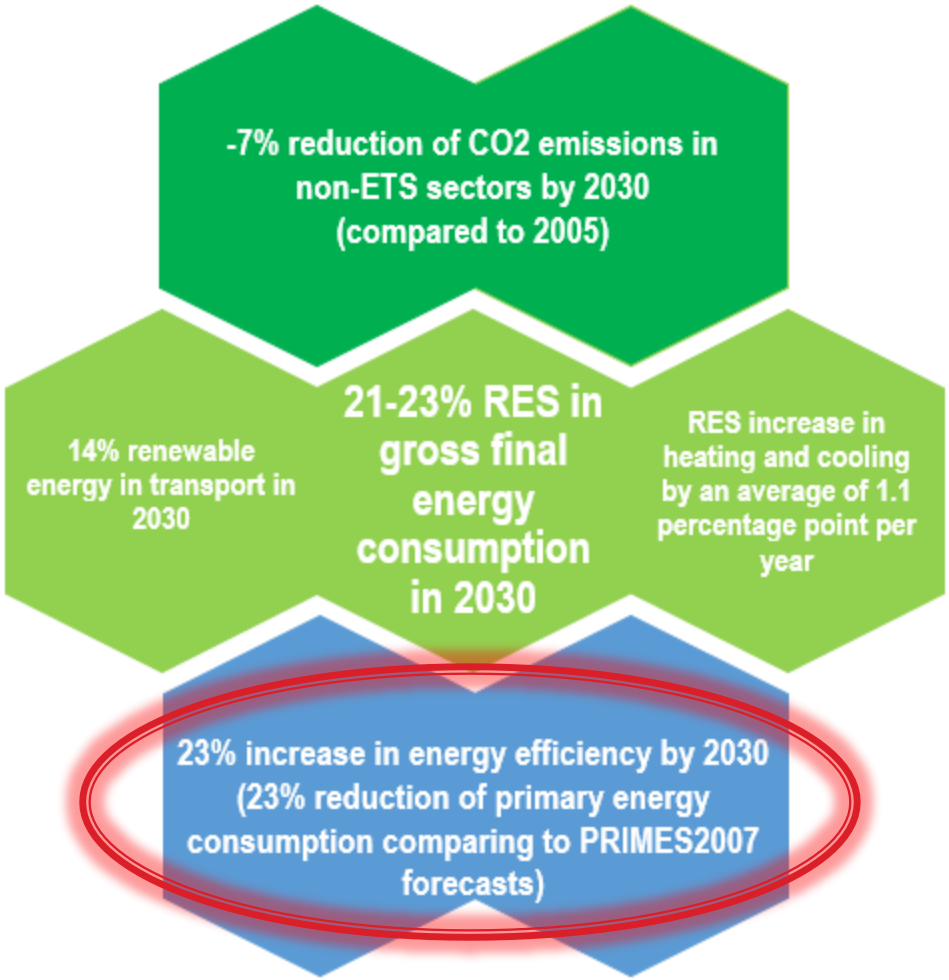
Source: https://www.eea.europa.eu/

Progress towards Poland's primary and final energy consumption targets

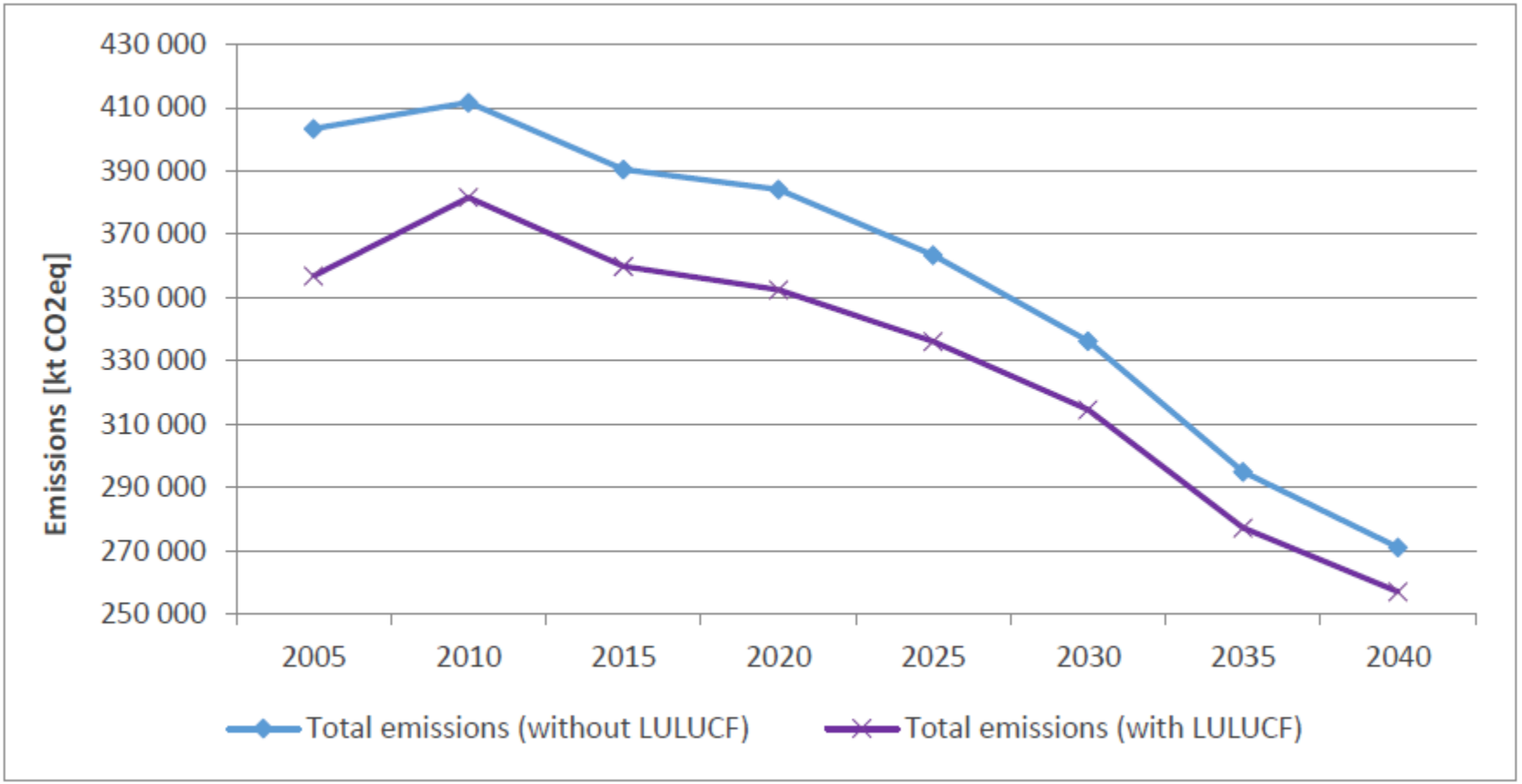


Sources: European Council, 2014; Eurostat, 2017a and 2017b.

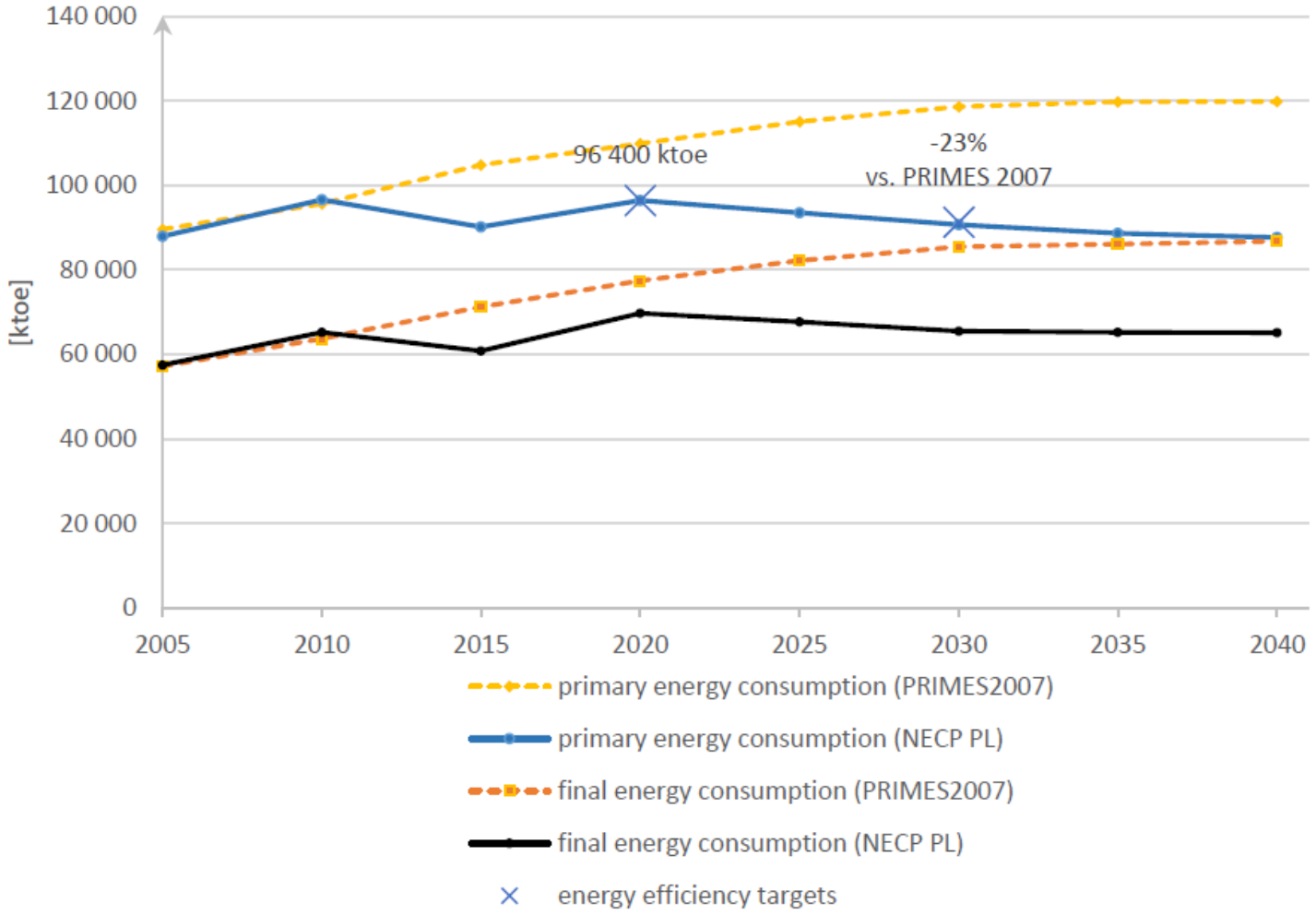
EE in POLAND'S National Energy and Climate Plan for the Years 2021-2030



GHG reduction in POLAND'S NECP for the Years 2021-2030



Energy Efficiency targets for Poland



Source: NECP

Poland
EE improvement measures by sectors (1/7)

Measures in housing and public bodies:

a) Thermomodernization and Repairs Fund (from 1998).

b) 2 Operational Programmes “Energy efficiency and the promotion of renewable energy sources” for the use of financial resources within the EEA Financial Mechanism and the Norwegian Financial Mechanism in 2009-2017;

c) Operational Programme Infrastructure and Environment 2014-2020
   - Supporting energy efficiency in public buildings;
   - Supporting energy efficiency in the housing sector;
   - Supporting energy efficiency in residential buildings of the Śląskie Province;

d) Regional Operational Programmes for 2014-2020.

Poland
EE improvement measures by sectors (2/7)

Measures in the public sector

a) Green Investment Scheme
   - Part 1 – energy management in public utility facilities (from 2012);
   - Part 5 – Energy management in buildings of selected public finance sector entities (from 2012);
   - Part 6 – SOWA – Energy Efficient Street Lighting;

b) EU funded Operational Programme Infrastructure and Environment (OPIE) – Thermomodernization of public utility facilities (2012-2017).

Poland
EE improvement measures by sectors (3/7)

Measures in industry and SMEs

a. Efficient energy use (Part 1) – Supplementary financing of energy and electrical energy audits in businesses (2012-2014).
b. Efficient energy use (Part 2) – Supplementary financing of investment measures aiming at energy savings or at increasing energy efficiency of businesses (2012-2014).
c. Priority Programme Smart Grids (2014-2017).
d. Operational Programme Infrastructure and Environment (2007-2013)
    - Efficient energy distribution (finished).

Poland

EE improvement measures by sectors (4/7)

Measures in transport I

1. Traffic management systems and optimization of the transport of goods.
2. Exchange of fleet in municipal transit companies and the promotion of eco-friendly driving (programme launched in 2012).

Poland

EE improvement measures by sectors (5/7)

Measures in transport II

3. The Operational Programme Infrastructure and Environment Programme 2007-2013
   - Urban transport in metropolitan areas and
   - Development of intelligent transport systems;
4. The Operational Programme Infrastructure and Environment 2014 -2020;
   - Regional Operational Programmes for 2014-2020;
   - Green Investment Scheme Part 7 – GAZELA – Low emission urban transport.

Poland

EE improvement measures by sectors (6/7)

Horizontal measures I

1. Scheme of energy efficiency certificates – so-called ”white certificates” (from 2012).
2. Information campaigns, trainings and education in improving energy efficiency.

Poland
EE improvement measures by sectors (7/7)

Horizontal measures II

c. The Operational Programme Infrastructure and the Environment 2014-2020:

- Promoting low-emissions strategies for all kinds of territories, in particular for urban areas, including support for sustainable multi-modal urban mobility and adaptive measures with mitigatory influence on climate changes;
- Promoting the use of high-efficiency heat and electric energy cogeneration on the basis of the demand for service heat.

Thank you for your attention

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