

Polish Energy System

Monika Silva

Deputy General Director

Polish Chamber of Power Industry and
Environmental Protection

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About

The Polish Chamber of Power Industry and Environment Protection

- a self-governed, economic organization representing enterprises of the entire polish power industry
- at present the Chamber has around **100 associate members** including: electricity producers, planning and design companies, power industry and environment protection equipment manufactures, construction and engineering service companies, service and trade enterprises (consultants, banks, law firms and other)

Statutory tasks

Representing member interests in front of state administration:

- continuous cooperation with the Parliament, Ministry of State Assets, Ministry of Development and other state administration authorities
- cooperation with non-governmental and self-governing organizations
- consulting and advising on draft laws
- participation in parliamentary meetings of Energy Commission and Subcommission

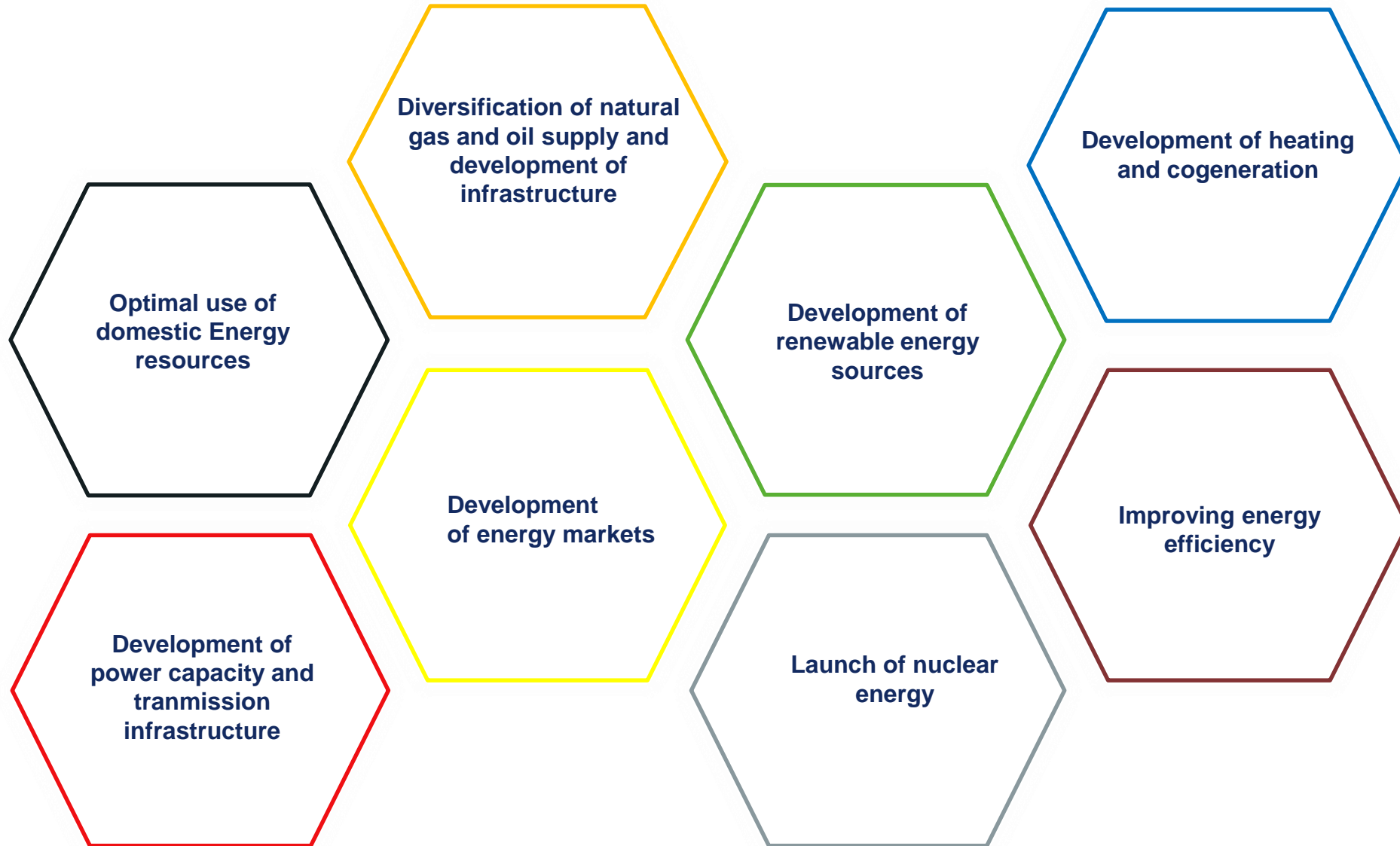
Raising qualifications of power sector employees:

- organizing trainings, conferences and other events on power sector issues

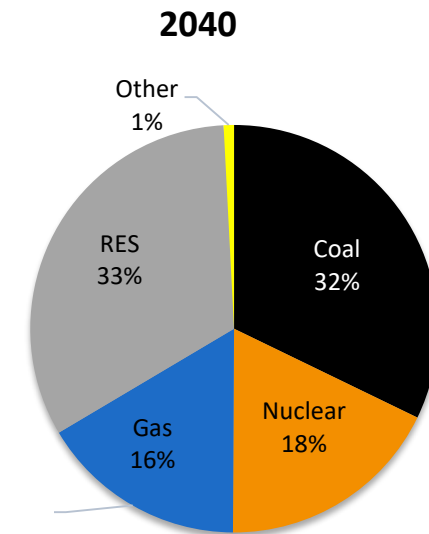
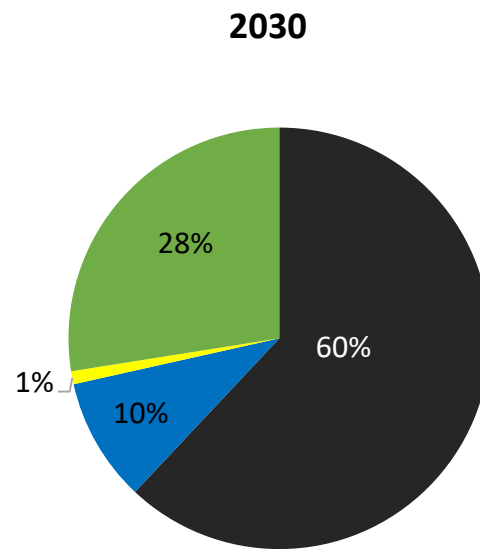
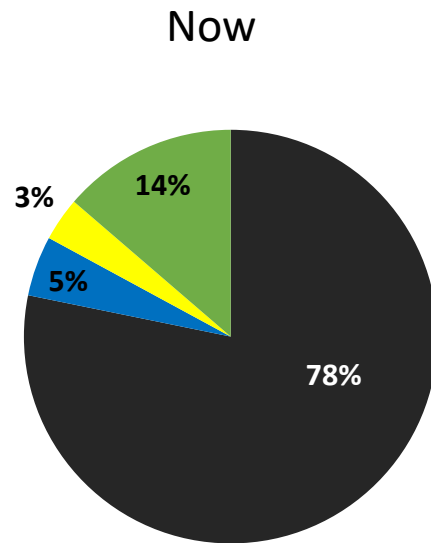
Supporting member companies through:

- promoting member companies' products and activities in conferences, fairs, symposiums, economic missions etc.

Strategic directions of energy policy of Poland until 2040

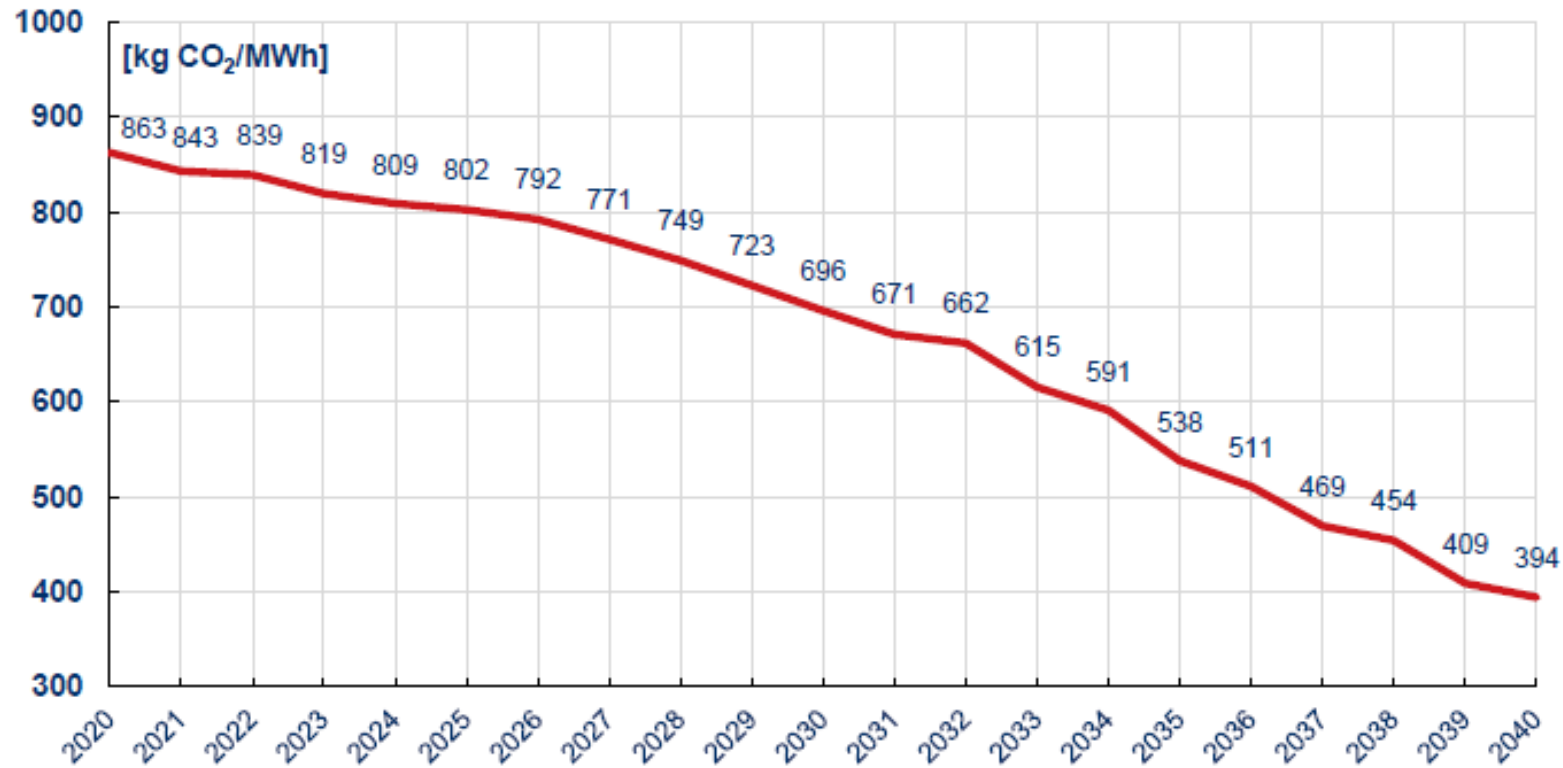


Current and projected electricity generation structure



■ Coal ■ Nuclear ■ Natural gas ■ RES ■ Other

Average emission intensity of electricity production by 2040



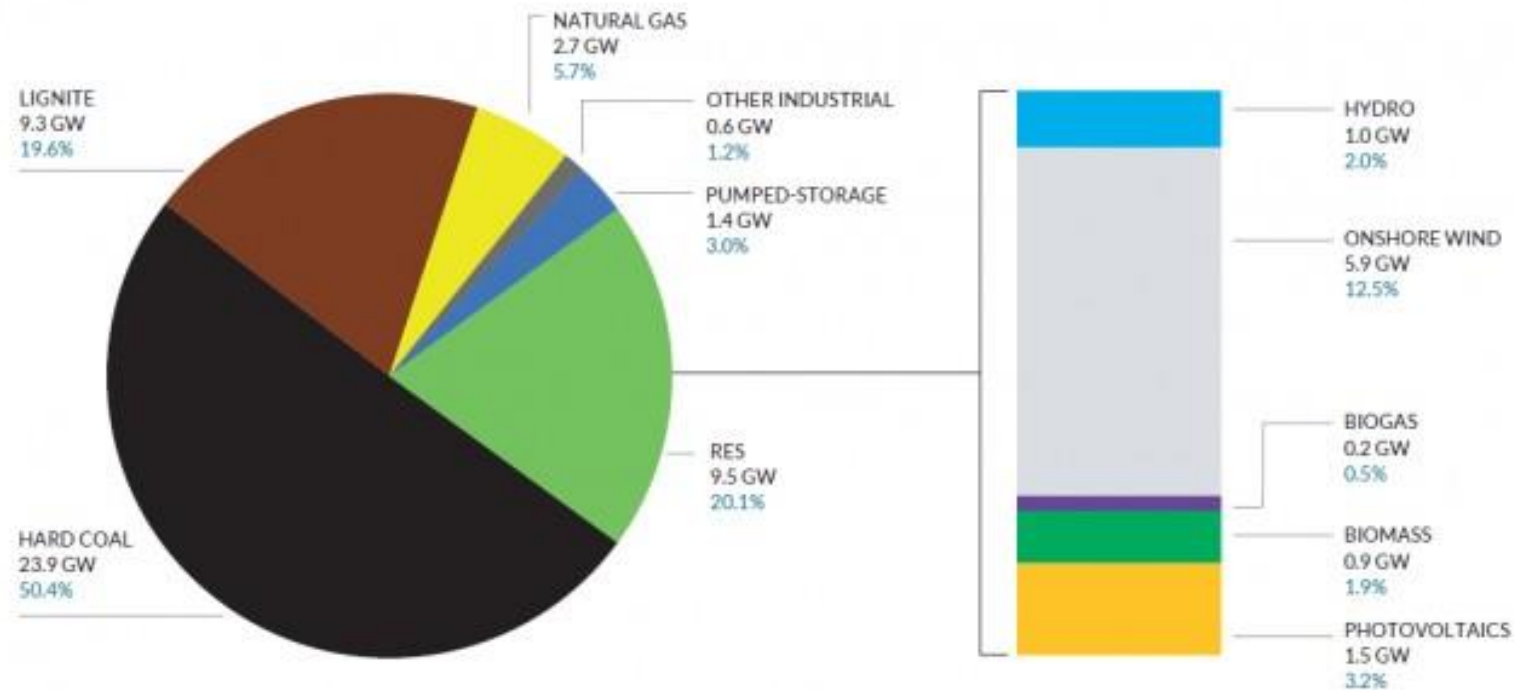
Significant reduction of emissions caused by:

1. nuclear power plants introduction
2. RES implementation
3. higher share of gas turbines
4. closing of exploited coal power plants

Generation capacity

Installed capacity in the Polish system in 2019

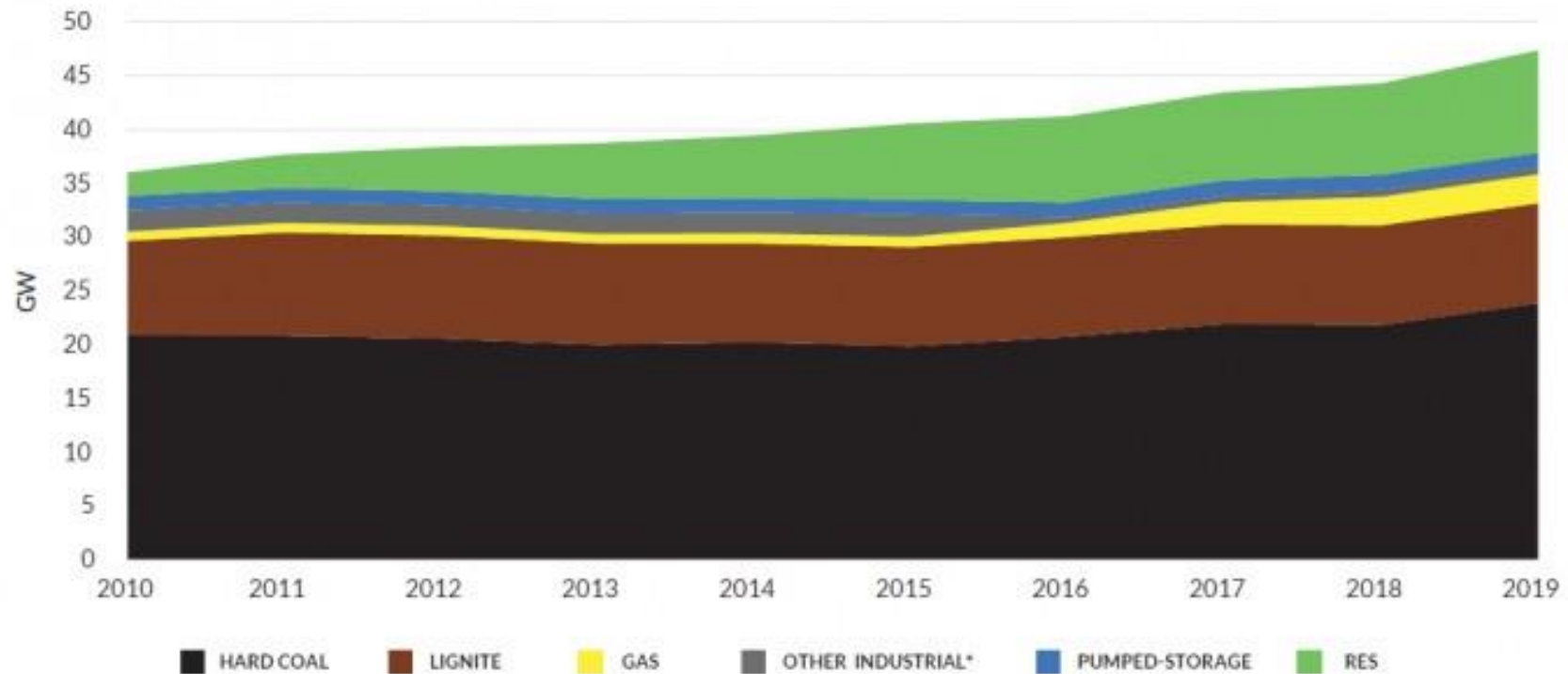
- The share of installed capacity in lignite and hard coal remains at 70%.
- Renewable energy sources account for over 20% of installed capacity.



Source: based on data of the Agencja Rynku Energii S.A. (ARE).
As of 31.12.2019

Changes in installed capacity over the last decade

- Over the last decade, the level of capacity installed in the system has been systematically increasing.
- Between 2011 and 2015, RES installations were the ones being developed. After 2016 it was mainly conventional units

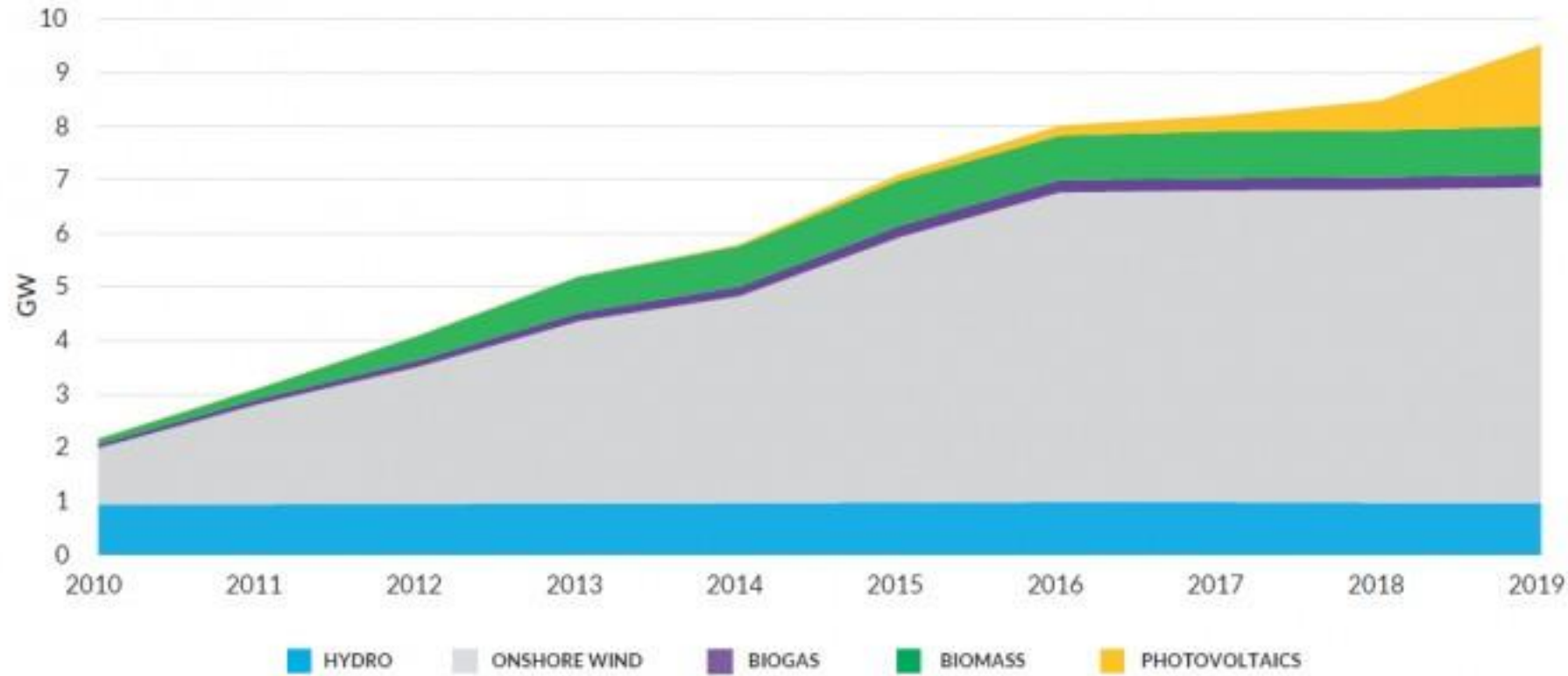


Source: based on data of ARE.

* Since 2016, the "industrial" category has been disaggregated by fuel type.

Changes in installed RES capacity

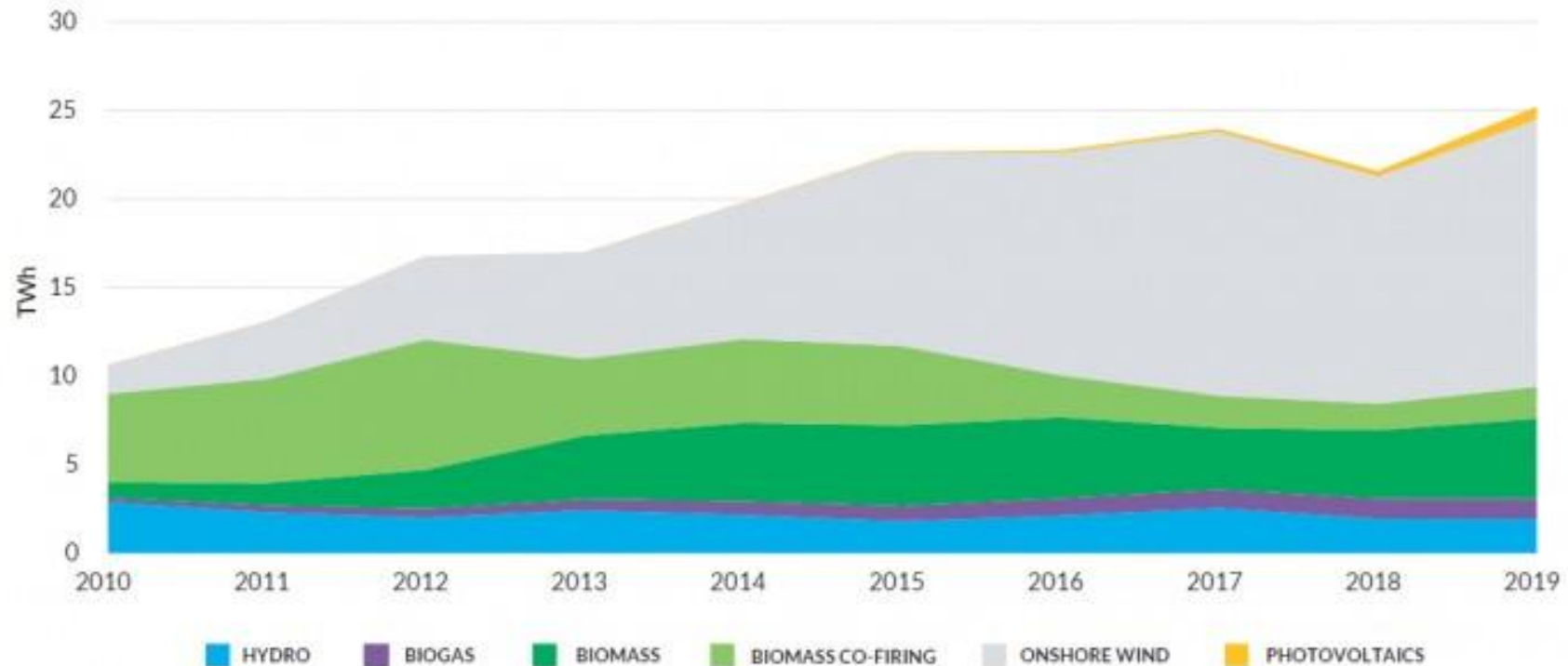
- At the end of 2019, 9.5 GW were installed in RES, of which 1.5 GW in photovoltaic installations.
- The development of RES in the last two years is mainly due to investments in prosumer installations.



Source: based on data of ARE.

Change of electricity production from renewable energy sources over the last decade

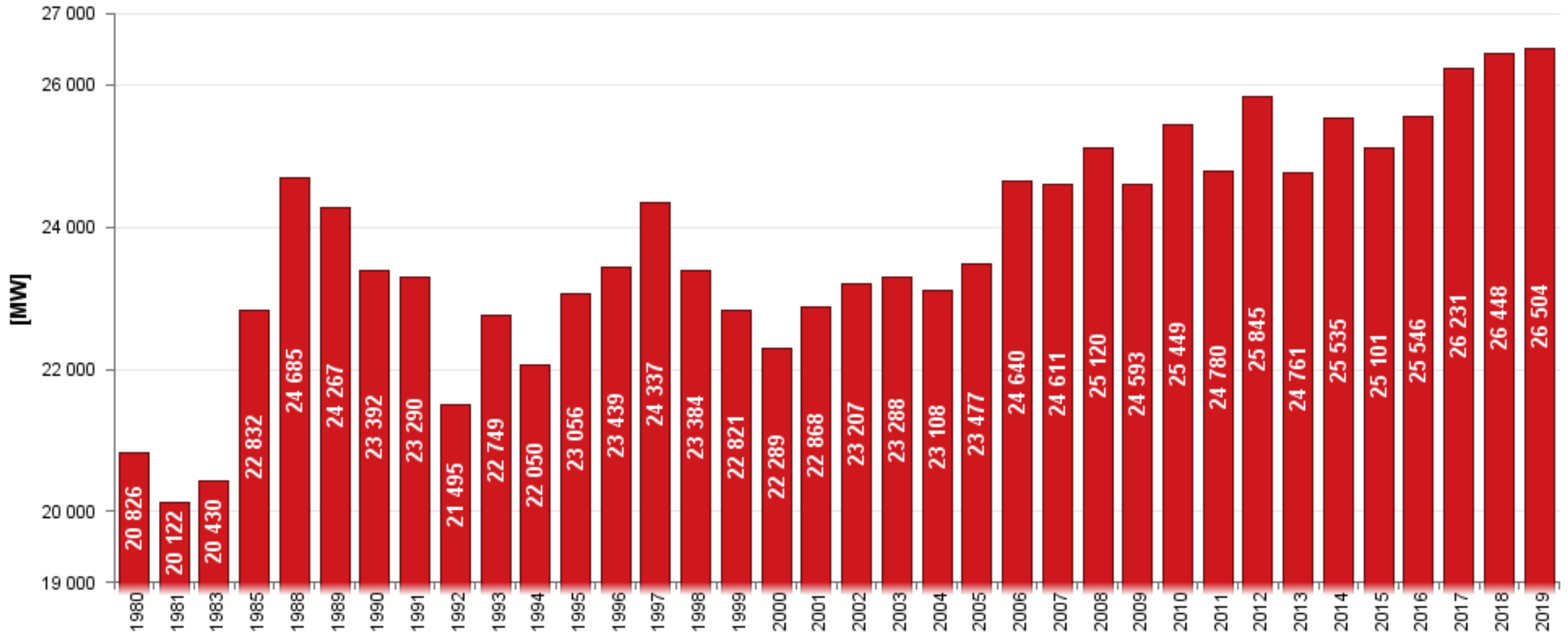
In 2019, the largest amount of electricity in history was produced from RES, - over 25 TWh.



Source: based on data of ARE.

Peak demand in the National Power System

- The highest ever: 25.01.2019 r. - 26 504 MW



Challenges of Polish Energy Market

How to optimize in time possible scenarios of development of Polish power industry, taking into consideration three main areas:

- Security (security of supply, security of networks)
- Competitiveness and energetic effectiveness
- Environmental protection

Big challenge for Poland is to reach a compromise between restrictive EU regulations and present energy mix of Poland with dominant position of coal as a fuel.

Possible Scenarios

Consistent with the objectives of Polish energy policy until 2040, there are a few potential scenarios for achieving a planned energy mix for Poland. The final document should be introduced by the end of 2020 and will be consistent with EU's Green Deal program.

Regardless of the scenario implemented, significant changes will impact all participants in the Polish energy market. It is estimated that the cost of transformation of the Polish energy sector will be at least 140 mld EURO by 2040

Fundamental questions and challenges:

- Nuclear (financing problem)
- Role of coal (if there is a room for new clean technologies)
- Offshore wind
- Energy storage
- Gas (hydrogen)
- Electromobility

Summary

Many investment opportunities in Polish energy sector in upcoming years

- Renewables (wind on shore, wind off shore, PV, biogas, biomass)
- Generation (CHP, CCGT, nuclear ?)
- District heating networks
- Distribution – smart grids
- New technologies (energy storage)

Technology and equity investors will be needed and welcomed.

Thank You



Monika Silva

m.silva@igeos.pl

www.igeos.pl

+48 784 422 110