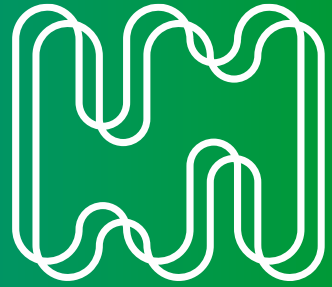


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Energy storage market in Poland

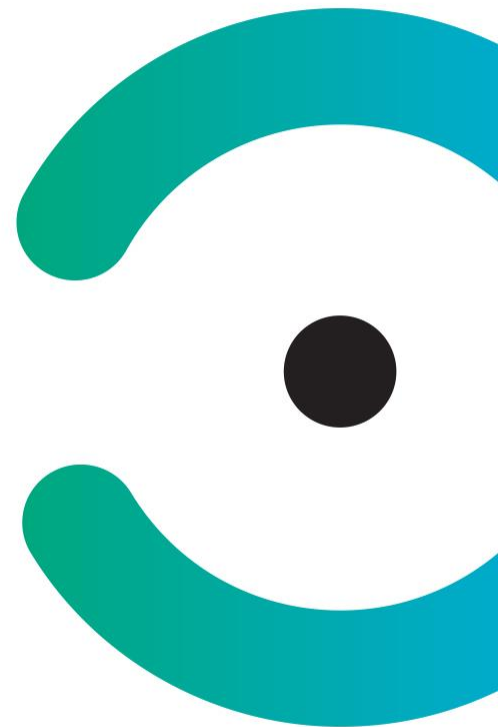
The current state and development prospects

Paweł Grabowski, PhD
Vice President of the Polish Energy Storage Association

Warszawa, 2 grudnia 2020



STAY·ON



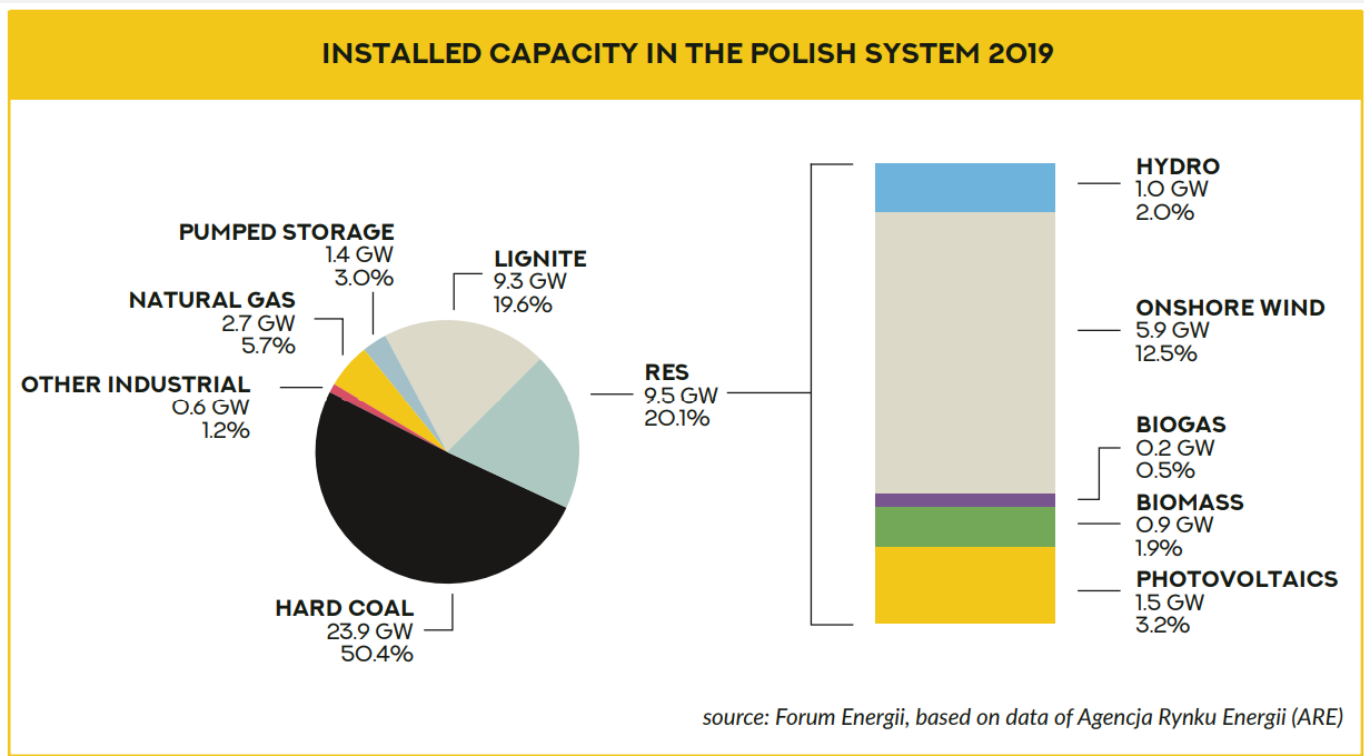
Dr inż. Paweł Grabowski
President & CEO

STAY·ON ENERGY MANAGEMENT
STAY·ON STORAGE ENGINEERING

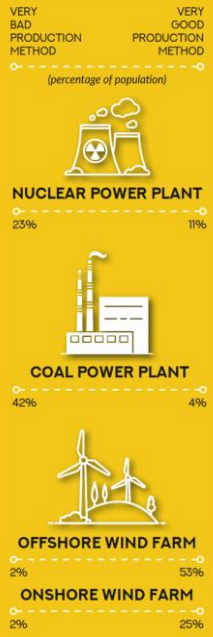
Energy production and consumption in Poland

	2019 (1-10) [GWh]	2020 (1-10) [GWh]	Change
TOTAL Production	13 429	13 553	0,9 %
Conventional	11 406	11 217	-1,7 %
Coil	6 890	6 475	-6 %
Lignite	3 276	3 310	+1%
Renevable			
PV	46	208	357 %
Wind	1 096	1 223	11,6 %
TOTAL consumption	14 626	14 798	1,2%

Installed Capacity



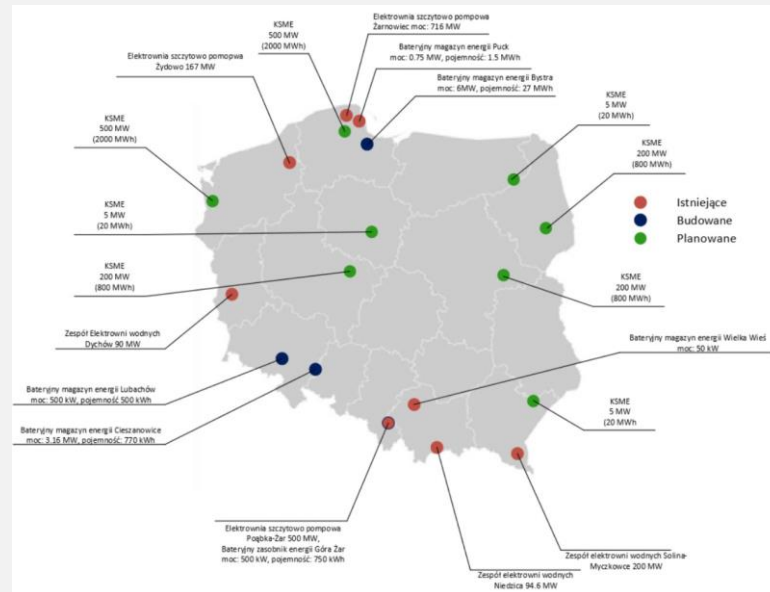
POPULATION ATTITUDE TOWARDS ENERGY SOURCES



Source: Poland Energy Industry 2020

Market size expectations

- Unrealistic expectations! – there is always a bit of trough
- Report by PIME in 2019 as result of expert's workshop
- Total expected National Grid requirement for Energy Storage is around **6,5 GW**
- This is assuming existing generation mix



Source: PIME pt. „Rynek magazynowania energii elektrycznej w Polsce – technologie, wdrożenia, regulacje” 2019

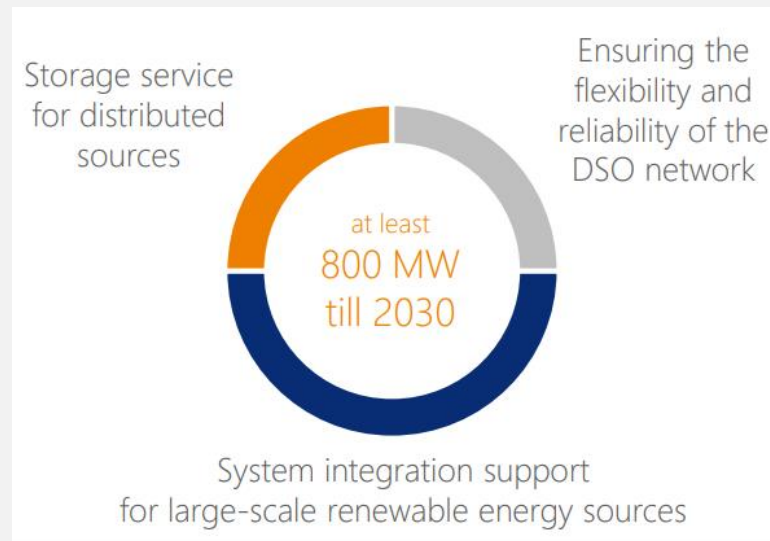
- PGE
 - 42,9 TWh sold
 - 5,46 M consumers
- ENEA
 - 19.8 TWh sold
 - 2.6 M consumers
- TAURON
 - 33,7 TWh sold
 - 5,6 M consumers
- ENERGA
 - 19,8 TWh sold
 - 6 M consumers



Source: Poland Energy Industry 2020

Recently announced strategy (by 2030):

- Offshore Wind Farms – 2.5GW (6.5GW in 2040)
- Land Wind Farms – 1 GW
- Solar Farms – 3GW
- Prosuments – 0,8GW
- ESS – 0,8 GW



Source: PGE Strategy 2030

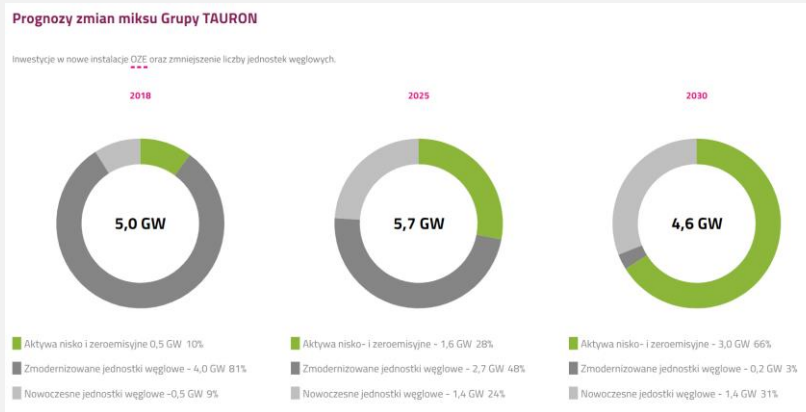
Existing and planned ESS:

- Rzepedź – 2,1MW / 4,2MWh
 - To be opened 2.12.2020
 - Góra Żar – 500kW / 750kWh
 - To be opened End 2020
 - Bełchatów – 1MW / 1MWh
 - Hańcza – 20MW
 - Orla – 10MW
- Other (not confirmed)
- Galicja – 4MW
 - Karnice – 1.75MW



TAURON and energy storage

- Recently announced strategy (by 2030):
- Renewable generation – 66% by 2030 (28% by 2025)
- Continue cooperation with Electric Power Research Institute
- „Energy storage is one of the most important challenges for distribution and efficient distributed energy, and understanding customer needs supports the relationships with customers, which are key from the point of view of the Strategy”



Source: TAURON Strategy 2030

Existing and planned ESS:

- Cieszanowice – 3,16MVA / 774kWh
 - In operation
- Lubachów – 500kW / 500kWh
 - To be opened End 2020

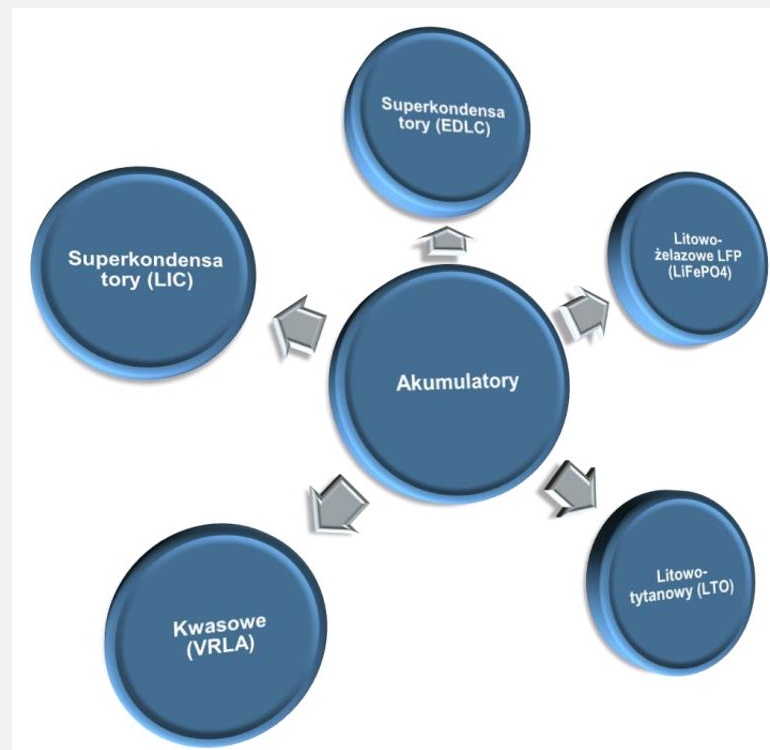
Also

- Existing offer for prosuments
 - 5.6kW/7kWh
 - 2.8kW/3.5kWh



Recently announced strategy (by 2030):

- Strategy under development
- ENEA Nowa Energia funded
 - Investments in RE plans - 14.7 billion zł by 2035
- Continue cooperation with Electric Power Research Institute
 - First EES project – **5x 100kW ESS** in 5 different technologies



Source: ENEA Operator

Existing and planned ESS:

- Bystra – 6MW / 27MWh
 - Hybrid (PB with Li-Ion)
 - Under tests
 - MSA and NEDO project
- Puck – 750kW / 1.5 MWh
 - In operation since 2016

NEDO - New Energy and Industrial Technology Development Organization
MSA – Ministry of State Assets



- PKN ORLEN has acquired an 80% interest in the ENERGA Group
- PKN ORLEN's efforts to build a single multi-utility group with a strong position in Europe and global coverage
- Announced strategy by 2050
 - energy efficiency of production,
 - **zero-emission energy,**
 - fuels of the future
 - green financing.



Summary – three pillars of the Polish Energy Policy

I pillar



Fair transformation

II pillar



Zero emission system

III pillar



Good air quality



Ministerstwo Klimatu



POLITYKA ENERGETYCZNA POLSKI DO 2040 R.

www.gov.pl/klimat



Polish Energy Storage Association

The Polish Energy Storage Association works to advance energy storage and distributed energy in Poland.

- Legislative work on energy and energy storage
- Brings together the communities willing to embrace state-of-the-art technologies
- Environmental protection and energy development
- Advocates for the highest standards of investment safety on the energy storage market.

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Thank you for your attention

Paweł Grabowski

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