Situation and prospects of the wind power market in Poland

Piotr Czopek, Director, PWEA

POLISH WIND ENERGY ASSOCIATION

POLISH WIND ENERGY ASSOCIATION

- 100 member organisations
- 2 decades of experience in energy policy shaping
- www.psew.pl

POLISH WIND
ENERGY ASSOCIATION


POLENERGIA
equinor
GE Renewable Energy
VIATEC engineering
EDF renewables
ENERTRAG
PRS
Baltic Power ORLEN GROUP
ORLEN
TUNDRA advisory
MAG Morska Agencja Gdynia
edp renováveis
NORTHLAND POWER
DMS LEGAL
BT BALTIC TRADE and INVEST
sevivon
ENERCON ENERGY FOR THE WORLD
GRwind Energy for life.
arp Agencja Rozwoju Przemysłu S.A.
VULCAN TRAINING & CONSULTANCY
K2 Management
wpd think energy
acciona Windpower
UL
DOMREL Biuro Usług Inwestycyjnych Sp. z o.o.
axpo
Vestas
enern
VISTAL
ENGIE
elawan energy
tpa
SW LAW TAX
CEZ POLSKA
windhunter academy study & training camp
DNB
MARSH
Qair
Elmont Grupa
seawind
OX2
BUREAU VERITAS
DOHEMA offshore
winergy
dwf
antea group
POLISH WIND ENERGY ASSOCIATION
NORDEX
acciona Windpower
RØNNE HAVN A/S COMMERCIAL PORT OF BORNHOLM
MEGA
Ørsted
rpGLOBAL
eurocape New Energy
LOTOS Petrobaltic
SCADA international
p&q
ignitis renewables
ERG
wento wind energy
WKB WIERCIŃSKI KWIECIŃSKI BAEHR
PEXAPARK
DNV·GL
TERNA ENERGY GEK TERNA GROUP
Deutsche Windtechnik
en wind novenergia
OWC AN AQUALISBRAEMAR COMPANY
GP RENEWABLES GROUP
Eurus Energy
PGE baltica
TAURON POLSKA ENERGIA
Castrol
RWE
VSB
WIND PROSPECT
electrum
MHI VESTAS OFFSHORE WIND
CTP WIND civil engineering Design of wind turbine foundations
enel Green Power
aldesa Energy
TELEVARD we produce the future
AARSLEFF
elwiko
IBEREOLICA Grupa Uriel Inversiones S.A.
SFW ENERGIA
ABO WIND
PROKON
re: respect energy
WindSpace
BayWa r.e. renewable energy
CLIFFORD CHANCE
Energa OZE
greenbear
Centralna Grupa Energetyczna
TFKable
GOTECH
MARTIFER RENEWABLES
PBDI
vortex energy
Impax ASSET MANAGEMENT
Enea
SIEMENS Gamesa RENEWABLE ENERGY
EUROWIND ENERGY A/S
Statkraft
THE GDYNIA MARITIME SCHOOL

Wind industry in Poland today

- ✓ **6,5 GW** of operating onshore wind turbines + circa **3,5 GW** under construction
- ✓ Next auction for RES – June 2021 (we expect around 600 MW for onshore wind and 1000 MW for PV projects)

8,7 GW in localisation permits for offshore wind projects. Support was already granted to 6 projects in phase one of support scheme (~5,3 GW)

8-10 k jobs directly in the industry and 13-17 k around the sector

POLISH WIND
ENERGY ASSOCIATION

Building regulatory foundations for further wind development

- Polish Energy Policy 2040 was adopted by the Council of Ministers on 2 February 2021
- Offshore wind Act was passed by the Parliament on 17 December 2020 and entered into force on 18 February 2021
- Polish Offshore Sector Deal is expected in the middle of 2021
- A draft regulation on the adoption of a spatial development plan for Baltic Sea was published and is waiting for the approval of the Council of Ministers
- Wind investment act („Distance Act") is on good track to being updated allowing the localisation of new onshore wind projects (consultation phase)

POLISH WIND
ENERGY ASSOCIATION

POLISH WIND ENERGY ASSOCIATION

Polish Energy Policy 2040 - selected assumptions

- Increase in the share of renewable energy sources in all sectors and technologies. In 2030, the share of renewable energy sources in gross final energy consumption will be at least 23%, not less than 32% in electricity (mainly wind and PV)
- Offshore wind energy - installed capacity will reach approx. 5.9 GW in 2030 to approx. 11 GW in 2040
- Onshore wind energy - installed capacity will reach approx. 10 GW in 2040
- There will be a significant increase in the installed capacity in photovoltaics to approx. 5-7 GW in 2030 and approx. 10-16 GW in 2040
- In 2033, the first block of a nuclear power plant will be launched, with a capacity of approximately 1-1.6 GW. Subsequent blocks will be implemented every 2-3 years, and the entire nuclear program involves the construction of 6 blocks
- Natural gas will be a bridge fuel in the energy transformation

Act on promotion of electricity generation in offshore wind farms dated 17 December 2020

Key elements of the Act:

- Support system
- Supply chain plan for materials and services
- Power output infrastructure and grid connection
- Administrative decisions in the offshore wind farm investment process
- Applications for the issuance of the seabed permits

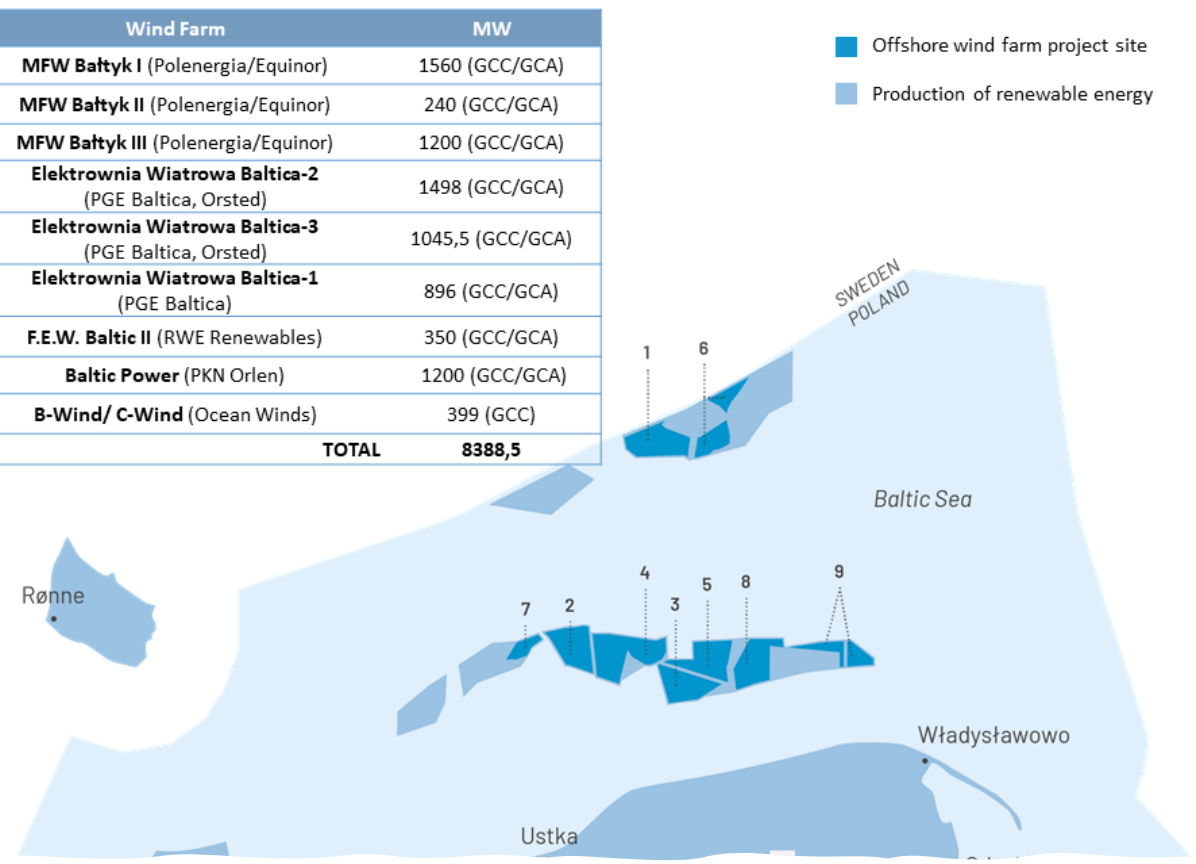
POLISH WIND
ENERGY ASSOCIATION

Support system for offshore

- Producers will benefit from support in the form of a right to cover the negative balance (contract for difference)
- The producers will exercise the right to cover the negative balance for a period of 25 years, calculated from the first day of generation and entry of electricity into the grid, the right to cover the negative balance is granted for an amount of energy up to 100 000 hours multiplied by the installed electrical capacity
- Phase I (before auction) - the right to cover the negative balance obtained on the basis of an administrative decision issued by the President of the ERO at the request of the investor, for the most advanced projects placed in the areas specified in the annex to the act (5,9 GW)
- Phase II (auction) – formula of competitive auctions, 2,5 GW in 2025, 2,5 GW in 2027

POLISH WIND
ENERGY ASSOCIATION

No.	Wind Farm	MW
1	**MFW Bałtyk I** (Polenergia/Equinor)	1560 (GCC/GCA)
2	**MFW Bałtyk II** (Polenergia/Equinor)	240 (GCC/GCA)
3	**MFW Bałtyk III** (Polenergia/Equinor)	1200 (GCC/GCA)
4	**Elektrownia Wiatrowa Baltica-2** (PGE Baltica, Orsted)	1498 (GCC/GCA)
5	**Elektrownia Wiatrowa Baltica-3** (PGE Baltica, Orsted)	1045,5 (GCC/GCA)
6	**Elektrownia Wiatrowa Baltica-1** (PGE Baltica)	896 (GCC/GCA)
7	**F.E.W. Baltic II** (RWE Renewables)	350 (GCC/GCA)
8	**Baltic Power** (PKN Orlen)	1200 (GCC/GCA)
9	**B-Wind/ C-Wind** (Ocean Winds)	399 (GCC)
	TOTAL	**8388,5**



Polish projects

POLISH WIND ENERGY ASSOCIATION

Till today ERO has granted support for below projects (in 1st phase of support scheme):

- Elektrownia Wiatrowa Baltica-2 Sp. z o.o. - 1498 MW,
- Elektrownia Wiatrowa Baltica-3 Sp. z o.o. - 1045 MW,
- Baltic Trade and Invest Sp. z o.o. - 350 MW,
- MFW Bałtyk II Sp. z o.o. – 720 MW,
- MFW Bałtyk III Sp. z o.o. – 720 MW,
- Baltic Power - 1197 MW.

New possibilities

The Maritime spatial plan for the Baltic Sea has entered into force on 22 May

- The implementation of projects in Polish maritime areas requires, in the first place, obtaining location permits, i.e. permits for the construction or use of artificial islands, structures and devices, as well as permits or arrangements for the location and methods of maintaining cables or pipelines.
- In the case of an application for a permit for artificial islands, structures and devices in the exclusive economic zone, the minister responsible for maritime economy announces the possibility of submitting further applications. If further applications are received, the adjudication procedure is carried out.
- When selecting the location of projects in Polish sea areas, the spatial development plans for internal sea waters, the territorial sea and the exclusive economic zone, adopted by the Council of Ministers in the form of a regulation, should be followed.

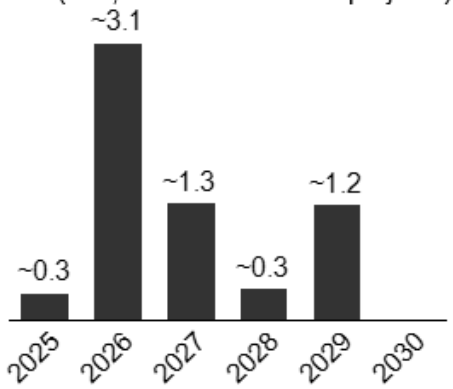
POLISH WIND
ENERGY ASSOCIATION

Business opportunities

I Base case

Top-down energy forecast:
2030: ~5GW
2040: ~12GW

Bottom-up incremental installed capacity to be commissioned (GW, PL Offshore Wind projects)

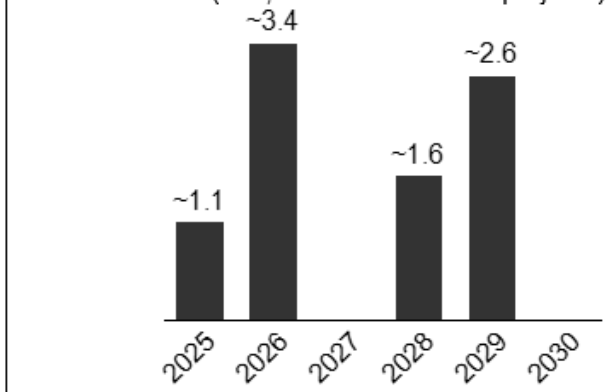


Cumulative cap. (GW)	0.3	3.4	4.7	5.0	6.3	**6.3**

II Optimistic case

Top-down energy forecast:
2030: ~8GW
2040: ~17GW

Bottom-up incremental installed capacity to be commissioned (GW, PL Offshore Wind projects)

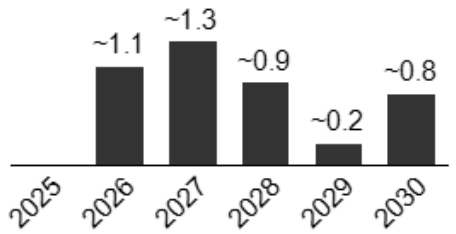


Cumulative cap. (GW)	1.1	4.4	4.4	6.0	8.6	**8.6**

III Pessimistic case

Top-down energy forecast:
2030: ~4GW
2040: ~8GW

Bottom-up incremental installed capacity to be commissioned (GW, PL Offshore Wind projects)



Cumulative cap. (GW)	0.0	1.1	2.4	3.3	3.6	**4.3**

POLISH WIND
ENERGY ASSOCIATION

Business opportunities

I Base case

Installed capacity commissioned by 2030 (GW)	6.3
Projected (2020-2030)[2]	
Key cost categories (PLN B)	
Total	**75.8**
Project design	6.1
Turbine	31.9
Foundation and connect.	15.0
Installation	15.8
Operation[4]	7.0
Key material demand (K tonnes)	
Steel	1,886.0
Copper	38.3
Lead	2.2
XLPE insulation	6.8
Polypropylene	3.5
Fiber glass	45.5
Resin	26.4
FTEs[3] (K)	
Total Employment	**55**
Direct Employment	18
Indirect Employment	15
Induced Employment	22

II Optimistic case[1]

Installed capacity commissioned by 2030 (GW)	8.6
Projected (2020-2030)[2]	
Key cost categories (PLN B)	
Total	**99.9**
Project design	7.5
Turbine	41.6
Foundation and connect.	21.3
Installation	21.1
Operation[4]	8.4
Key material demand (K tonnes)	
Steel	2,598.8
Copper	52.4
Lead	2.9
XLPE insulation	9.2
Polypropylene	4.8
Fiber glass	59.4
Resin	34.5
FTEs[3] (K)	
Total Employment	**63**
Direct Employment	21
Indirect Employment	17
Induced Employment	25

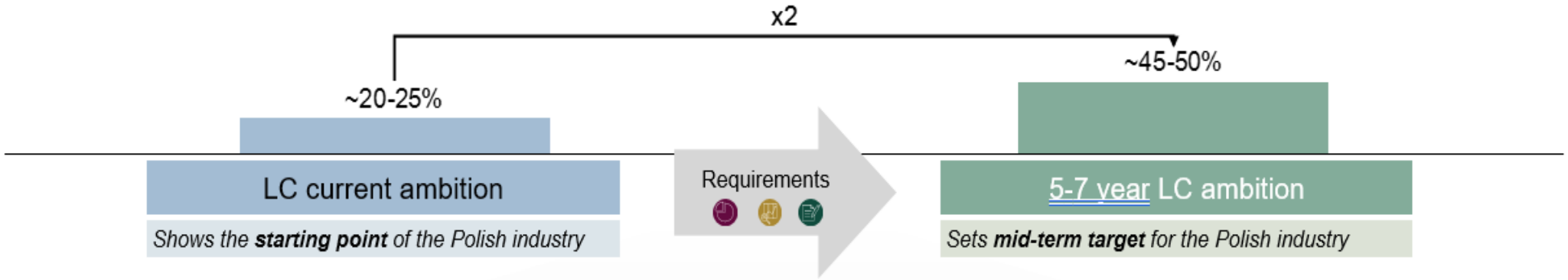
III Pessimistic case

Installed capacity commissioned by 2030 (GW)	4.3
Projected (2020-2030)[2]	
Key cost categories (PLN B)	
Total	**50.7**
Project design	3.9
Turbine	21.8
Foundation and connect.	10.4
Installation	10.5
Operation[4]	4.1
Key material demand (K tonnes)	
Steel	1,314.5
Copper	26.2
Lead	1.5
XLPE insulation	4.7
Polypropylene	2.4
Fiber glass	31.0
Resin	18.0
FTEs[3] (K)	
Total Employment	**38**
Direct Employment	13
Indirect Employment	10
Induced Employment	15

Note: 1) Assumes full realization of announced nameplate capacity by announced timeline 2) Based on assumed realizations within given time horizon 3) FTE requirements based on UK benchmarks and polish labor productivity 4) Includes cost category 'Other' (insurance, project mgmt. and spent contingency)

POLISH WIND ENERGY ASSOCIATION

Local content



Sector development and investments

Investments of the **current players or new players** entry through e.g. joint-venture with the local entities in the specific segments

National OW supply chain development plan

Financial, educational, regulatory and organizational **stimulating measures** aimed at enabling the sector growth, integrating the market participants and deploying investments (e.g. development of Polish installation port is a critical enabler for the development of local offshore industry)

Sector Deal and commitment to Polish Local Content

Sector and public administration **Sector Deal** leading to voluntary agreement to **measure and track Local Content** according to developed methodology in exchange for Government support

POLISH WIND ENERGY ASSOCIATION

Building regulatory foundations for further onshore wind development

- The Distance Act is on good track to being updated allowing the localisation of new onshore wind projects in first half of 2021 – Jarosław Gowin - Minister of Development Labor and Technologies stated

POLISH WIND ENERGY ASSOCIATION

Declared direction of changes in the Distance Act

- Maintaining the 10H rule and the planning requirement
- Municipalities can adopt a different distance in the local zoning plan (based of forecasted impact), but no less than 500 m
- Extending the obligations of local governments regarding public consultation
- Individuals may build their houses closer to the existing wind farms
- Transitional provisions allowing for continuation of commenced projects under condition of maintaining the minimal 500 m limit

POLISH WIND
ENERGY ASSOCIATION

Outlook for the next decades

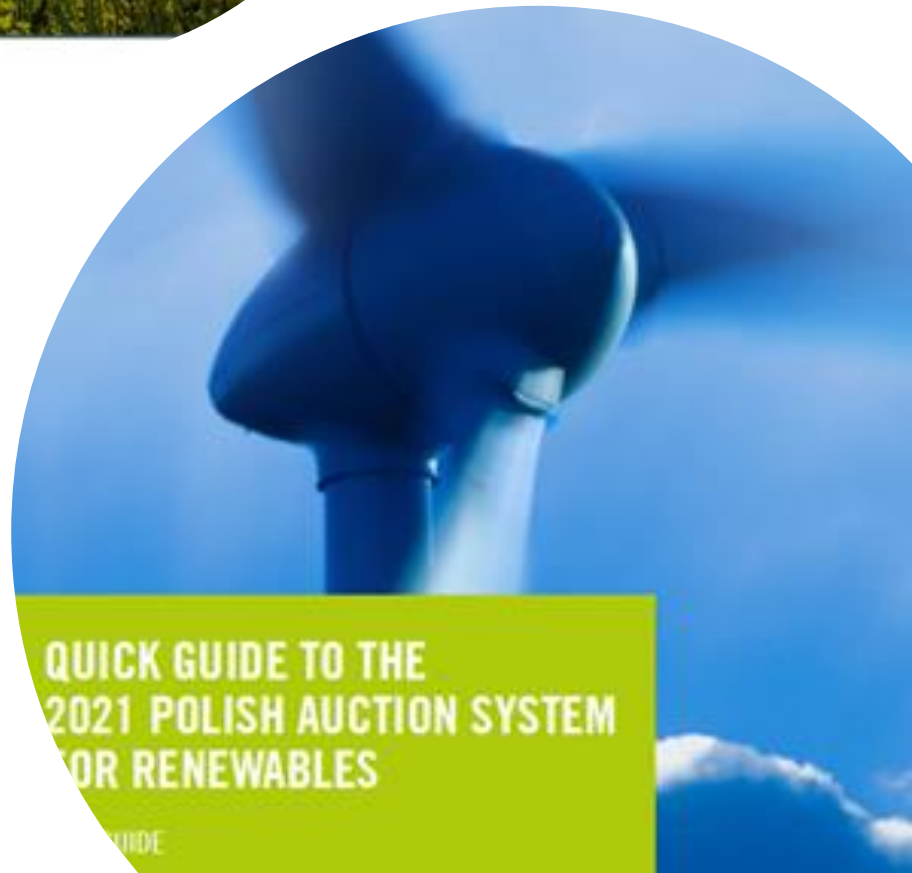
(installed capacity in the state's strategic documents vs. potential)

PEP-2040 (Polish Energy Policy)	Potential
Onshore 10 GW	22-24 GW (2040) (+42 k jobs)
Offshore 5,9 GW (2030) 11 GW (2040)	28 – 35 GW (2050) (+ 34 k jobs just out of first 10 GW)

POLISH WIND ENERGY ASSOCIATION

More info

- **Quick Guide to the 2021 Polish auction system for renewables -** explains step by step what the support system is, how long it lasts and what obligations are imposed on the auction winner. The handbook in a thoughtful way introduces you to the subject of the auction and introduces you to current issues.
- **Onshore wind Energy in Poland** – a compendium of knowledge on the wind energy sector in Poland in 2021. The report is the result of the collaboration between the Polish Wind Energy Association, TPA Poland /Baker Tilly TPA and DWF Poland



POLISH WIND ENERGY ASSOCIATION

PWEA 2021

30.08-01.09.2021
SEROCK

Poland's leading wind energy event

For more info, please contact:

Sponsorship/Programme
Dorota Bereza
Marketing Manager, PWEA
d.bereza@psew.pl
+48 665 370 868

Registration/ Sponsorship
Marta Mosiądz
Event Specialist, PWEA
m.mosiadz@psew.pl
+48 661-660-460

konferencjapsew.pl

Thank you for your attention!

POLISH WIND
ENERGY ASSOCIATION
www.psew.pl