

Evaluation of the Polish Renewable Auctions

Authors: Alfa Diallo, Bettina Dézsi, Mária Bartek-Lesi, László Szabó

Budapest, 25.06.2019



AURES has received funds for the years 2018-2021 from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 817629

- Overview of renewable situation in Poland
- Legalisation
 - Evolution of RES legalisation
 - Auction design
- Evaluation of auction results
 - New PV & Wind less than 1 MW
 - New PV & Wind more than 1 MW
 - New other technologies
 - Auctions for existing power plants
- Concluding remarks

Renewable situation in Poland

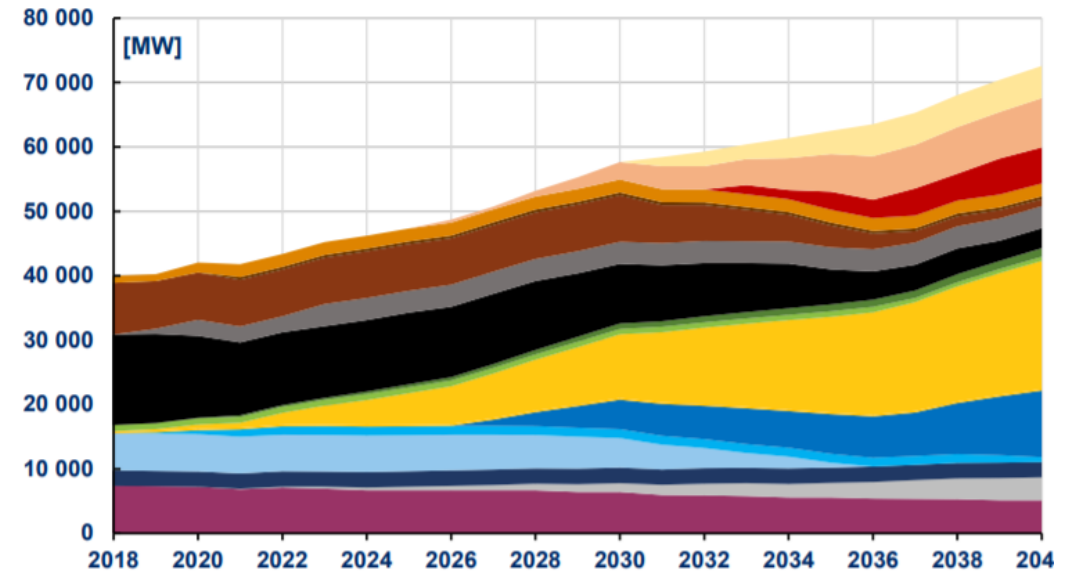
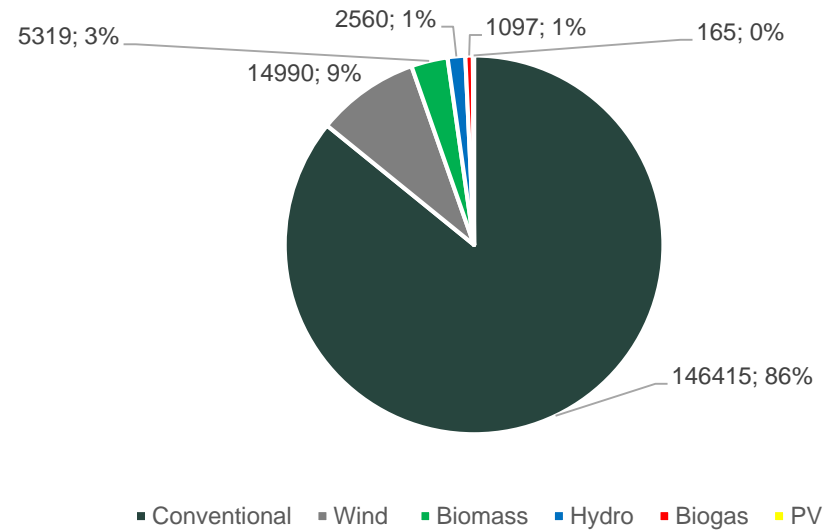


Figure 1. Installed net capacity by technology until 2040



- 86% of electricity generation is based on conventional fuels
 - Significant onshore wind production
- 2020 renewable target is 15%
 - Poland is struggling to reach it
- A significant increase in offshore wind and PV capacities is planned, while onshore wind is to be phased out.

Evolution of renewable legalisation



- Before 2016 Poland operated a green certificate system, which was replaced by an auction-based feed-in premium system, to decrease the cost of support
 - Currently the two support schemes coexist, however it is possible to migrate from the certificate system to FIP.
- The RES act was amended, twice before the first auction (in 2016) and twice after the first and second auction (2017 and 2018)
- The government is planning to amend the RES act again in 2019, the draft version is already available
- In 2016 the government introduced the „Distance Act” which made it almost impossible to get building permit for new onshore wind power plants

Characteristics of the Polish RES auctions

- Pay as bid auctions with coexisting budget and volume limits
- Auction baskets are separated based on three main category
 - Technology (Agricultural biogas; biomass and non agricultural biogas; PV and wind; geothermal, hydro, biofuels and offshore wind)
 - Size (less than 1 MW capacity, more than 1 MW capacity)
 - Existence (New power plants; power plants migrating from the green certificate system)
- Realisation times are differentiated by technology
 - PV- 18 month, onshore wind - 30 month, offshore wind – 72 month
- Prequalification requirements
 - Financial: One-stage bid bond (bank guarantee), with confirmed bonds required before auction date (7.02 EUR/kW for existing and 14.04 EUR/kW for new power plants)
 - Legal: building permit, grid connection agreement, extract from local land use plan, schedule of works and expenditures, schematic drawing of installation
- 3 round of auctions were held, with altogether 18 baskets (2016,2017, 2018)
 - Very high budgets – aiming to help fulfilling RES target of Poland

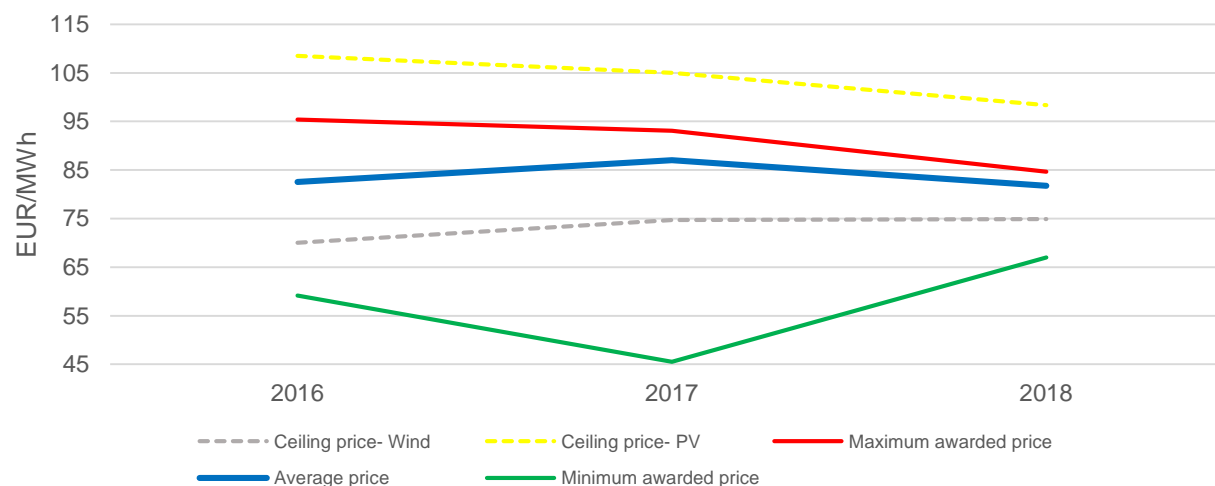
Evaluation of Polish Auction result



-
- Auctions for new PV and wind installations under 1 MW capacity
 - Auctions for new PV and wind installations with size of at least 1 MW capacity
 - New installations of other technologies
 - Existing installations switching to the new support system.

Auction- New PV & Wind, less than 1 MW

	2016	2017	2018
Auctioned amount (TWh)	1.57	4.72	16.07
Available budget (million EUR)	319	509	6243
Number of submitted offers	152	472	N.A
Number of winning offers (share relative to submitted)	84 (55%)	352 (75%)	552 (N.A)
Share of awarded volume relative to offered volume	99.51%	99.91%	50.86%



- Auction volume and budget increased significantly between the rounds
 - The auction volume in the third round was very large even in the European context
 - As a result, only half of the planned volume was contracted
- Average prices were higher than European prices
 - Almost all winners are PV projects
- Average prices were relatively constant across the auction rounds
- Very low ceiling price for wind may have hindered competition between technologies
- The realisation rate for the 2016 auction was fair
 - PV: 55 completed out of 73
 - Wind: 1 completed out of 11

Auction- New PV & Wind, more than 1 MW

Technology	Number of winners	Auctioned energy (share)	Assigned budget (share)	Minimum price	Average price	Maximum price
PV and Wind, more than 1 MW	31 (all wind)	42 TWh (93.32%)	1.929 billion EUR (52.27%)	36.95 EUR/MWh	45.93 EUR/MWh	50.80 EUR/MWh

- In 2018 an auction for large scale PV and wind was held with auctioned energy equivalent to 1 GW of wind capacity
 - All winners were wind producers
- It was highly cost effective, while almost all amount was auctioned, only half of the budget was assigned
- Prices were lower than similar auctions in Germany
 - Possible incentive is the „Distance Act” legalisation, as promoters wind building permits have to participate in auctions until 2020 in order to realise projects

Auction – New, other technologies

Technology	Number of successful bids	Contracted volume (share of offered)	Minimum price	Average price	Maximum price
Biomass or non-agricultural biogas, more than 1 MW	1	0.97 TWh (1.70%)	93.65 EUR/MWh	93.65 EUR/MWh	93.65 EUR/MWh
Agricultural biogas, less than 1 MW	29	3.49 TWh (29.83%)	126.17 EUR/MWh	132.33 EUR/MWh	133.39 EUR/MWh
Hydro, Bioliquids, Geothermal, Offshore Wind more than 1 MW	5	0.82 TWh (15.19%)	98.03 EUR/MWh	108.72 EUR/MWh	112.38 EUR/MWh
Agricultural biogas more than 1 MW	3	0.72 TWh (20.51%)	116.13 EUR/MWh	118.28 EUR/MWh	121.05 EUR/MWh

- The categorization of the technologies is not evident
- Out of the 6 other technology auctions only the above 4 had accepted bids
- The number of participants and auctions volumes are very low, the latter never exceeds 30%
- Prices are close to the ceiling prices in most of the auctions

Auction – Existing power plants

Name	Technology	Offered volume	Auction Budget	Number of winning bids	Auctioned volume
2016 AZ/1	agricultural biogas, less than 1 MW	2.11 TWh	294 million EUR	6	0.82 TWh
2016 AZ/2	agricultural biogas at least 1 MW	2.31 TWh	319 million EUR	Unsuccessful auction	
2016 AZ/4	hydro, less than 1 MW	1.57 TWh	126 million EUR	49	0.42 TWh
2017 AZ/2	hydro, less than 1 MW	1.48 TWh	148 million EUR	44	0.31 TWh
2018 AZ/1	biomass and non-agricultural biogas, at least 1 MW	33.86 TWh	3.325 billion EUR	Unsuccessful auction	
2018 AZ/2	agricultural biogas, at least 1 MW	1.47 TWh	189 million EUR	Unsuccessful auction	
2018 AZ/3	geothermal, hydro, bioliquids, offshore wind, less than 1 MW	1.48 TWh	180 million EUR	Unsuccessful auction	
2018 AZ/4	agricultural biogas less than 1 MW	1.15 TWh	153 million EUR	Unsuccessful auction	
2018 AZ/5	biomass and non-agricultural biogas, less than 1 MW	0.92 TWh	120 million EUR	Unsuccessful auction	

- Out of the 9 auctions which targeted existing power plants only three had accepted bids
- In case of successful auctions the auctioned volume was below 50% of the offered volume
- Average prices for hydro were moderate (86 EUR/MWh), for biomass close to ceiling price (118 EUR/MWh).
- Except for hydro projects, the willingness to migrate to the FIP system was low

Conclusions

- Some of the goals of the Polish auction system are contradicting
 - Price efficiency & Supporting small power plants
- RES legalisation is changing frequently in Poland which makes the investment environment unpredictable
- The auction design is too complex
 - High number of auction types and baskets results in few number of bids for many auctions
- Large scale wind power plants are significantly more competitive with respect to prices than small scale PV
 - Large scale PV & wind auction ended with better prices than similar auction in Germany
- Except for hydro power plants, historical results suggest that power plants are not willing to migrate from the green certificate system



Alfa Diallo
Regional Centre for Energy Policy Research (REKK)
alfa.diallo@rekk.hu

AURES II

Website: <http://aures2project.eu/>
LinkedIn: AURES II
Twitter: @auctions4res
Newsletter: <http://eepurl.com/gd42zz>



AURES has received funds for the years 2018-2021
from the European Union's Horizon 2020 research and innovation programme
under grant agreement no. 817629