

Polish Wind Energy Association (PWEA) Position Paper on the draft Minister for Economy Regulation on the reference prices in 2016 for onshore wind (>1 MW)

1. Introduction

The Polish Wind Energy Association Position Paper **on the draft Minister for Economy Regulation on the reference prices for RES in 2016 was developed in two separate documents** – the Position Paper concerning the grounds for the specification of the reference price for onshore wind energy and the Position Paper on the reference prices for offshore wind energy. In its Position Paper PWEA does not comment the reference prices specified for other generating sources and wind energy below 1 MW of installed capacity. This is left to the competence of relevant industry associations.

Polish Wind Energy Association is of the opinion that the price level published together with the draft Minister for Economy Regulation on reference prices for RES in 2016 for onshore wind departs from the assumptions made during the works on the RES Act, which specified that the price shall allow for the implementation of 80% of projects.

2. General remarks

The substantial number of onshore wind projects leads to a significant advantage – expected strong competition. This should not constitute the basis for the understatement of the reference prices. The prices shall be specified on the basis of average parameters of wind energy projects in Poland as well as macroeconomic parameters relevant for Poland, such as expected return on capital or cost of capital.

The understatement of the reference price may result in an additional pressure on decreasing bid prices below a rational level, what may result in underbidding, i.e. bidding unrealistic prices, which may result in most projects that win the auction never being completed.

These expectations are in line with the results of a simulated auction carried out by PWEA together with PwC and DZP law firm in May 2015. As the simulated auction demonstrated, approximately 49% of megawatthours in projects that won the simulated auction may never be completed. This results from a direct relation between the bid price and declared productivity. For example, it is impossible to build a wind project with investment expenditures of PLN 3 to 5 million per 1 MW of installed capacity, whereas such values would have to be assumed for the “winning projects” to achieve at least minimum profitability.

Alas, the existing RES Act cannot effectively prevent underbidding, yet it may be substantially alleviated. This could be achieved by setting the reference price at a level reflecting a realistic assessment of the investors’ capacity to achieve profitability of wind projects in Poland. Unfortunately, in its works on the reference prices Ministry of Economy proposed very disadvantageous assumptions underlying the reference price. Thus, this Position Paper will refer to particular values quoted by the Ministry in the statement of reasons to the draft regulation in question. A reference for the values assumed by Ministry of Economy are the model values presented in Schedule no. 1 to the Position Paper, developed on the basis of discussions with and questionnaires collected from wind energy investors. The reference to the attached model will enable



the presentation of as objective approach to investment costs and parameters as well as the rate of return required by investors as possible.

3. Detailed remarks to the Minister for Economy assumptions underlying the reference price.

In Table 1 below we present the fundamental differences between particular values affecting the final reference price for wind energy in the PWEA model and the statement of reasons to the Minister's for Economy draft.

Table 1. A comparison of Ministry of Economy and PWEA assumptions to the model calculating the reference price

	Regulation			PWEA proposal		
Installed capacity of a reference project (MW)	25.0			25.0		
Productivity of the reference project (h/yr)	2 300			2 600		
Electricity production	57 500			65 000		
CAPEX	<u>kPLN</u> 157 500.0	<u>kPLN/MW</u> 6 300		<u>kPLN</u> 180 063	<u>kPLN/MW</u> 7 203	
OPEX	<u>kPLN/yr</u> 5 625.0	<u>kPLN/MW/yr</u> 225		<u>kPLN/yr</u> 5 384	<u>kPLN/MW/yr</u> 215	
Profile and balancing costs	<u>kPLN/yr</u> 875	<u>kPLN/MW/yr</u> 35	<u>PLN/MWh</u> 15	<u>kPLN/yr</u> 2 010	<u>kPLN/MW/yr</u> 80	<u>PLN/MWh</u> 31
Balancing costs	875.0	35	15	650.0	26	10
Profile costs		--	--	1 360.4	54	21
Cost of capital – discount rate	%			%		
WACC (nominal)	7.4%			9.3%		
Average inflation rate	2.3%			2.3%		
WACC (real)	5.0%			6.8%		
Other assumptions	%			%		
Residual value	15.0%			20.0%		
Tax depreciation	15.0			15.2		
Reference price	386.8			430.6		

Source: PWEA and statement of reasons to the draft Minister for Economy Regulation on the reference prices for RES in 2016

The cells marked in Table 1 in grey demonstrate the crucial differences between the two models, to which PWEA presents its remarks and proposals of adjustments.

- **Reference price**

As mentioned above, the reference price for onshore wind energy proposed by Ministry of Economy departs from the assumptions made during the works on the RES Act, which specified that the price



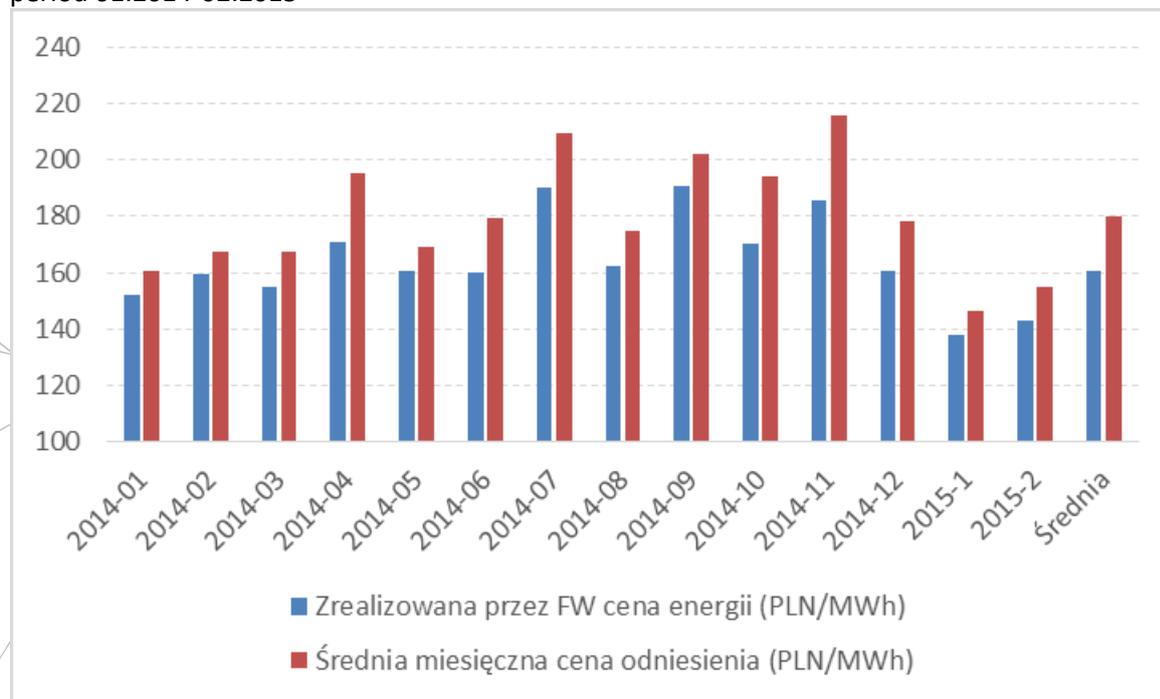
shall allow for the implementation of 80% of wind energy projects. As demonstrated in Table 1 above, the reference price proposed by PWEA shall be set at the level of 430 PLN/MWh. The assumptions to the calculation of that price were developed on the basis of data acquired from analyses carried out by wind energy investors that recently completed a substantial number of projects.

- **Commercial balancing costs (PLN/yr) – no profile costs included**

Although Ministry of Economy included balancing costs in its calculations, it completely disregarded a substantial component thereof, which must be deducted from the electricity sale price acquired by the wind farm, i.e. the profile cost. Due to the obligation to participate in the energy market (average electricity price as the basis for the settlement of the auction price) wind farms have no actual opportunity to sell electricity at the price achieved during an auction. This stems from the fact that the winning bid (strike price) apart from the electricity price achieved by the wind farm and the OREO subsidy also includes an additional hidden cost, i.e. the balancing and profile cost.

In the model developed by PWEA, attached to the Position Paper, the profile cost accounts for almost three quarters of the balancing cost. This is best demonstrated in the figure below, presenting electricity price compared to the base price, i.e. the so-called profile cost.

Figure 1. Market electricity prices achieved by a (existing) model wind farm – electricity prices for the period 01.2014-02.2015



Source: Axpo 2015 – PWEA Conference&Exhibition, Serock, 15 April 2015

The statement of reasons to the draft Regulation published by Ministry of Economy quotes balancing cost at the level of PLN 35 000 per year, which amounts to total balancing cost at the level of 15 PLN/MWh. The PWEA model constituting a schedule hereto, following a thorough analysis, assumes



balancing costs including the so-called profile cost at the level of 31 PLN/MWh (of which 21 PLN/MWh is the profile cost).

- **Discount rate**

The analysis carried out by PWEA together with PwC and provided to Ministry of Economy under the assumptions consultation procedure demonstrated that weighted average cost of capital taking into account the actual expectations of investors being PWEA members and the market bank financing conditions for RES projects amounts to 9.31%, what assuming the average inflation rate of 2.3% over a period of 15 years corresponds to a real discount rate of 6.8%.

The statement of reasons to the draft Regulation published by Ministry of Economy quotes the real discount rate of 5% for all RES technologies, including onshore wind. In unanimous opinion of investors being PWEA members the proposed discount rate, i.e. weighted average cost of capital, is too low to encourage a typical independent investor¹ to engage in a RES project.

With the success of the first auction organised in 2016 in mind, construed as the acquisition of the planned amount of electricity from RES at the best price, one shall encourage the maximum number of investors and projects to participate in the auction. To this end one shall guarantee the return on capital included in the reference price estimate to be perceived by most investors in the renewable energy industry as satisfactory while taking into account all the risks related to the operation of the support scheme in Poland.

Therefore, a clear declaration concerning the acceptable cost of capital will be a clear message encouraging investment in the RES sector.

Cost of equity shall be specified at a level sufficient to encourage investors interested in renewable energy to invest in the construction and operation of wind farms in Poland. It has to be stressed that from the perspective of international investors diversifying their portfolio the key factor is the comparison of conditions offered to investors by particular countries supporting renewable energy, in particular in terms of investment risk and offered rate of return. In this context one may actually refer to competition between RES support schemes on the European market. Furthermore, it shall be noted that the cost of capital assumed for the calculation of the reference price does not include the exchange rate risks, which is an important financial parameter concerning investments in Poland.

Therefore, to encourage investors to engage in Poland the return on invested capital, constituting the remuneration for taking on the investment risk associated with a particular project, shall be higher in Poland (or at least no lower) than in other EU countries rated as developed countries.

In our opinion the best reference for Poland is the auction scheme in the United Kingdom, which has been launched quite recently and whose launch was preceded by the development of a number of studies and analyses substantiating particular parameters thereof, including required discount rate for particular RES technologies. In the United Kingdom the analyses resulted in the decision to apply real discount rate of 10% to all technologies² while specifying in the supplementary materials (Schedule 1) the discount rates specific to all RES technologies – including onshore wind with real discount rate of 7.9%. Both the discount rate specific for onshore wind and the discount rate finally applied to all RES technologies is substantially higher than the Ministry's of Economy proposal specified in the statement of reasons to the draft Regulation.

4. Summary – analysis of auction schemes in the EU

¹ An independent investor is defined as an investor other than one of the large, integrated, state-owned energy groups.

² Department of Energy & Climate Change, Electricity Generation Costs 2013



RES support schemes implemented in different markets are to achieve the target, i.e. the construction of the assumed RES capacity at the lowest cost for the national economy. The achievement of the target is possible only if conditions for actual competition between investors and technology providers are created. Therefore, one may actually refer to competition between support schemes on the European market. The country that offers clearly disadvantageous investment conditions risks independent power producers selecting other markets, while technology providers will perceive the country as non-promising and offer worse price conditions.

As demonstrated by the comparison of onshore wind energy reference prices for 2015 applicable in particular EU countries that implemented the RES auction scheme (Table 2) the price proposed by Ministry of Economy at the level of 385 PLN/MWh substantially differs from the European average. It has to be stressed that all listed countries have much higher experience in the development of and support for wind energy and exhibit much higher share thereof in the production of electricity. Moreover, these are developed countries, with investment risk as perceived by investors being lower than in Poland, which still is a developing country.

Table 2. A comparison of reference prices in Poland, the Netherlands, Italy and the UK.

Country	Reference price	Support period	Productivity
Poland (draft)	385 PLN/MWh	15 years	2 300 h
The Netherlands	107 EUR/MWh (more than 428 PLN/MWh)	15 years	< 2 500 h
Italy	121 EUR/MWh (more than 484 PLN/MWh)	20 years	1 800 h
United Kingdom	95 GBP/MWh (more than 500 PLN/MWh)	15 years	2 400 h

Source: PWEA on the basis of: Assorinnovabili.it, Nederlandse Wind Energie Associatie, UK Government, Ministry of Economy.

Therefore, to encourage investors to engage in Poland the reference prices and corresponding return on invested capital shall be higher than in these countries. However, we are facing the opposite, what may lead to doubts concerning the actual intentions of the Polish government in the area of the support for wind energy and discourage investors and technology providers from participating in the Polish market, which will be deemed non-promising.

Having regard to the analyses and arguments presented above we recommend to set the reference price for wind energy above 1 MW at 430 PLN/MWh.

