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THE EFFECTS OF THE RETROSPECTIVE MEASURES IN THE RENEWABLE ENERGY SECTOR

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Abstract: *The boom in investments in the renewable energy sector in the recent years has prompted many EU countries to implement retrospective measures in the form of legislative changes that have become one of the main risks facing the development of renewable technologies. This article examines the main effects of the retrospective measures. Among them are the more difficult access and higher cost of financing, reducing the cost effectiveness of the renewable energy projects and the reduction of investments in this sector.*

Keywords*: Renewable energy sources, Retrospective measures*

The boom in renewable energy in the recent years in the EU countries has led to the proliferation of retrospective actions by the national authorities. These are mainly legislative changes aiming to reduce the cost of renewable energy. On the one hand, these measures were triggered by the excessive support to the development of renewable energy sources that lead to deficits in the energy systems of some countries. On the other hand, however, they have had a substantial negative impact on the already implemented projects for renewable energy.

The purpose of this article is to explore the effects of the retrospective measures on the guaranteed revenue of the renewable energy plants and in particular of those producing solar and wind energy.

Terminology used: There is a debate in literature about the use of the terms "retrospective" and "retroactive" and how different and interchangeable these are and whether they have the same legal effects. Both terms are often used synonymously although a number of authors have detected significant differences between them.

When we talk about retrospective application of the law, we mean the law that creates future legal consequences affecting past actions or events by the removal or disturbance of the acquired rights by imposing new obligations or

obstacles [1]. According to the same authors, retrospective application of measures is often used when the legislature realizes that the current legislation needs adjustment as there is new evidence which shows that the assumptions on which the original law has been based are no longer viable.

Review of the measures imposed against the renewable energy sector in Bulgaria

Temporary access fee - The first such measure imposed on the renewable energy producers is a temporary access fee by Resolution of the Energy and Water Regulatory Commission (EWRC) of September 2013 [2]. The price for access to the transmission and distribution grid reflects the costs which are incurred in relation to the grid management and which relate to the overall management and administration of the electricity system, including costs associated with dispatching, substations, commercial metering, reporting, as well as all other administrative expenses and general-purpose costs for the grid. According to that resolution, a temporary access fee has been imposed on the amount of energy produced by photovoltaic and wind power plants. The fee varies depending on the date of accession of these plants and the capacity of the power plant.

Fee for the production of electricity from renewable sources

- The fee was adopted by the 42nd National Assembly and was set in the transitional and final provisions of the State Budget of the Republic of Bulgaria Act for 2014 [3].

The fee of 20% of the revenues from the production of renewable energy is calculated by the following formula:

(1) $$FPEE = PP \times AEP \times 20\%$$

Where: FPEE is the fee for production of electrical energy; PP is the preferential price without value added tax; AEP is the amount of electricity purchased from the public provider and from the end suppliers.

That fee is to be paid to the public provider (National Electric Company) and to the end suppliers respectively (electricity supply companies) and submitted to the state budget.

Balancing market On June 1, 2014 the balancing market for producers of renewable energy was effectively launched with amendments to the Rules for electricity trading set forth by EWRC. The balancing market is a mechanism by which to pay the additional costs in the electricity system caused by the volatility of production.

According to the requirements of the balancing market, all energy producers and large consumers are required to submit schedules for the day ahead about how much electricity will be produced or used. In cases where the requested energy does not correspond to the real amounts of produced energy, NEC charges a "penalty" for the discrepancy (called unbalance) which the respective power plant has to pay. The idea of this new type of market is to reduce the excess or shortage of energy in the system.

Limiting the operating hours of solar power plants and wind farms - With the amendments to the Energy from Renewable Sources Act (ERSA) to be applied again to the transitional and final provisions of the State Budget of the Republic of Bulgaria Act for 2014 [3], the purchase of electricity from renewable sources at preferential prices is limited to the amount of the annual average duration of the operation of power plants, as decided by EWRC to determine the price of a particular producer. The rest of the energy is sold at freely negotiated prices. The retroaction of this measure stems from the fact that it changes the current legal requirement to purchase all energy produced from renewable sources at preferential prices.

Determination of net generation - With the amendments to the Energy from Renewable Sources Act (ERSA) [4] which come into force from 24.07.2015, an obligation is created for the public provider, respectively the end suppliers, to buy the electricity produced from renewable sources at a preferential price, for the quantities of electricity up to the amount of the net generation. The law regulates the legal definition of the "net generation" to be the average annual electricity production of 1 kW of installed capacity.

Payment of 5% to the Security of the Electricity System Fund (SESF)- Again, with amendments to the Energy from Renewable Energy Act (ERSA), the requirement that all energy producers shall pay 5% of their revenue to a special fund has been introduced. The money from this fund, which collects the proceeds from the sale of National quotas for harmful emissions, are transferred to NEC to offset the cost of renewable energy.

Analysis of the impact of the retrospective measures in the renewable energy sector

Temporary access fee – According to the estimates of the renewable energy associations in Bulgaria, which are the renewable energy producers, this temporary fee access takes between 2 and 40% of the revenue of the photovoltaic plants depending on their date of accession which, in turn, determines the value of the fixed preferential price. With the wind farms, the access fee takes 10% of the revenue regardless of the accession date [5].

In practice, the taking of a certain portion of the revenue of the renewable energy producers distorts the initially pledged profitability and rate of return set by the regulatory authority while determining the preferential prices. A similar measure is reflected in the business plans approved by the banks on the grounds of which such plans have been accepted for funding. Even with the imposition of the fee, all investors were required to restructure their loans, so that a greater part of the payments was to be delayed. But this part must be paid and cannot be postponed indefinitely ([1]).

In June 2013 the Supreme Administrative Court upheld the ruling of the court of first instance from March that the imposed access fee was illegal and should be canceled. The court ruling has been retroactive which means that the collected 300 million levs from the effect of the fee on all renewable energy producers should be returned.

The state budget fee of 20% charged on the producers of wind and solar energy aims to collect 150 million levs for the year to be used for investments and programs in the energy field. Just like the temporary access fee, this is again a violation of the initial economic parameters of these projects.

The effect of this retrospective measure has practically existed for only six months since the Constitutional Court overturned it after the case was referred by the President of the Republic of Bulgaria. The court judgement is that the fee violates the principle of equal treatment since it does not apply to hydro-power plants, biomass plants and CHP plants and it is not clear what services the state provides against it.

According to the information of the Energy and Water Regulatory Commission for the six months of the measure, a total of 80 million levs has been collected. However, the court ruling repealing the fee has not been retroactive which means that the owners of wind and solar farms cannot claim its recovery.

The introduction of the balancing market is related to the requirements of the European Commission to liberalize the electricity system.

The idea of this type of market is to reduce the excess or shortage of energy in the system and is necessary for more efficient management of the power system. In Bulgaria, however, this type of market appears with insufficient regulation enabling the National Electricity Company (NEC), which is obliged to purchase all renewable energy, to disrupt the market which results in inflated prices for balancing. Thus, according to the producers, there are cases where an hour at a specified price for unbalance reaches the amount of 108 thousand levs for MWh.

According to the estimates of renewable energy producers, the balancing charges are one of the most severe measures regarding the effect on their financial parameters. According to the Bulgarian Photovoltaic Association,

between 6 and 8% of the revenue of photovoltaics and 10-12% of wind energy go to balancing.

Net generation - The limitation of the operational hours in which the generated electricity is purchased at preferential prices also leads to a decrease in the revenue of the different producers of renewable energy by 12-15%, again according to the Bulgarian Photovoltaic Association. The most affected by this measure are the photovoltaic systems with sun-tracking system - trackers that have greater production capacity than the ordinary photovoltaic modules with an average of 25.75%. Data on the actual reduction of energy sold at preferential prices are presented in (Table 1) and show that in 2015 31.9% of the electricity produced is in excess of the net generation hours.

Table 1: Photovoltaic power plant with trackers - two-axis trackers 28.9 Kw

Production in 2015 in kWh	Production in 2016 in kWh	
1746.74	1918.13	Average annual production of 1 Kw installed capacity
1188	1188	Net generation as per Ruling SP-1 on 31/07/2015
558.74	730.13	Unrecorded hours by EWRC in determining the net generation

The introduction of 5% fee of the revenue of all electricity producers to the Security of the Electricity System Fund is most positively accepted by the renewable energy producers as it means the least burden as compared to all other retrospective measures imposed on the sector. Although intended for all producers, however, this fee will have the most negative impact only on the renewable energy plants as they have a fixed price which will lead to reduction of the initial planned economic indicators of the projects. With the remaining plants, this additional expense can be offset by price changes although the sector is fully regulated and tariff setting must be annually provided by the energy regulator.

Conclusion: The introduction of a number of retrospective measures on the renewable energy sector leads to the withdrawal of a significant proportion of the guaranteed revenue of the solar power stations and wind farms which, in turn, impacts directly their initially set economic indicators such as profitability and rate of return. Table 2 shows how the introduction of the individual retrospective measures affects the revenue of a photovoltaic plant with tracker structures.

Table 2: Impact of the retrospective measures on the revenue of a photovoltaic power station with tracking structures - trackers

Production in 2015 in kWh	Preferential price	Revenue (thousand / BGN)	Price (average) with net generation	Revenue	Fee 5% SESF	Balancing costs	Revenue
50480.90	0.27591	13,927	0.057592	10375	517.85	688.47	9168

The data above shows how the retrospective measures have had a negative impact on the guaranteed revenue of the renewable energy producers via the preferential fixed price for a certain period of time. The imposition of these measures creates uncertainty in the investment environment, thus increasing financing costs and leading to an outflow of investments in the renewable energy sector.

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i Meglena Rusinova, a chairman on the Bulgarian Photovoltaic Association