

# Preferential Tariffs and Administrative Procedures for Obtaining Licenses for Use of Electric Power From Photovoltaics

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**Abstract** – Like any other investment, for installing a solar power plant first we should do a techno-economic analysis. By definition, techno-economic analysis compares all benefits and costs associated with some project during its working life. Costs include initial and annual recurring costs, while benefits include incomes from sale of energy. Depending on the results of the economic analysis of projects for solar power plants, the value of the economic indicators, the final decision for the investment should be done. The process of building of a solar power plant continues with obtaining all necessary permits: building permit and permission from the municipality where we are going to build a solar power plant; a license for performing energy activities, the final license for performing the activity and energy solution for preferential tariff; enrolment in a register, solution for preferential production; agreement with MEPSO for the purchase of produced electricity and power line from EVN. All these licenses, decisions and agreements are obtained in accordance with regulations prescribed by the entities which are authorized for this activity.

**Keywords** – Photovoltaics, Tariff Book, Photovoltaic power plant.

## I. INTRODUCTION

By the end of 20<sup>th</sup> century, the United Nations Organization has started to pay greater attention to reduction of the emission of greenhouse gases in the atmosphere which are responsible for the greenhouse effect. Regarding the reduction of the greenhouse effect, in the last several years recommendations for increased use of renewable sources in the field of electricity production have been intensified. Solar energy as an inexhaustible source plays an important role in the production of electric power in many countries worldwide [1]. The need of electric power being increased, many new generations of photovoltaic panels started to appear, each with greater energy efficiency in order to gain the most of the space in which they would be installed.

Republic of Macedonia as an area with extremely favourable conditions [2,3] for the production of electric power from

photovoltaics has adopted regulations for building a photovoltaic power plant, but unfortunately, an important capacity for production of electric power from photovoltaics is not installed yet.

In the last twenty years the production capacities in the developed countries show a constant growth regarding the production of electric power from photovoltaic systems. For development and realization of a photovoltaic power plant, a sound technical and economic analysis has to be made in order to check if it fulfils all the requirements. The technical and economic analysis, by definition, compares all the gains and costs related to a certain project while it last [4].

Costs include initial and annual recurring costs, while benefits include income from the sale of energy. The economic analysis of projects for solar power plants, usually provides the basis for a final decision whether to continue with such an investment - in the case that it is positive, i.e. gives positive economic results, or, if economic indicators are negative, to stop it [5].

Besides all the processes to build a solar power plant, it is necessary to obtain all necessary permits for its implementation by several entities, such as site conditions, building permit and use permit is obtained from the municipality of residence<sup>1</sup> (in accordance with the Law on Construction/ Law on Energy) where the solar power plant would be built. The licenses for carrying out energy activities, for performing energy activities and solving the preferential tariff are obtained from the Regulatory Commission of the Republic of Macedonia[6]. Enrolment in the Register and Approval/Decision for preferential manufacturer is obtained from the Energy Agency of Macedonia[7]. A contract with MEPSO is needed for purchase of the electric power produced, whereas EVN should approve a gain power line connection to the power network. All of these licenses, approvals and agreements are pursuant to the Law on Energy and all the Regulations and Rulebooks passed by the bodies in charge of this particular field.

## II. PREFERENTIAL TARIFFS

Today in the world the current trend is the tendency for continuous energy saving and a particular attention is paid to environmental pollution. With it, the conventional fuel savings and maximum use of renewable sources of energy are imposed. In such a situation, intensifying of the development

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<sup>1</sup> According to the installed power capacity

of all types of energy with special place for photovoltaic plants is inevitable.

Given that the solar potential is inexhaustible source of energy and from a view of environmental protection it is the purest form, it is by chance subject to major investigations and scientific studies.

The most appropriate way to absorb the solar potential is the construction of photovoltaic plants. Their construction is of great importance for the economic exploitation of so far unexploited solar potential.

Tests are performed on various models of financing and construction of photovoltaic power plants in order to obtain better economic indicators.

Brought in 1997, The Kyoto Protocol recommended that each State Party, to advocate for reducing emission of carbon dioxide (CO<sub>2</sub>) into the atmosphere, thus to slow down the process of global warming. Construction of plants of renewable sources for electric energy production is part of the entities that are prescribed with the protocol.

Construction of a plant for production of electric power from renewable energy sources is an expensive investment. Because of the relatively new technology and its rapid technological development that strives for greater efficiency, this investment is very expensive.

TABLE I  
PRICES OF THE FIRST TARIFF BOOK

Group	Installed power (kW)	Preferential tariffs (euro cents/kWh)
I	to 50	45,00
II	51 - 1000	41,00

In order to attract investors in this field and stimulate their quick return on investment, the state provides price list for the sale of electricity. In Republic of Macedonia, the Regulatory Commission had issued a price list for purchase of electricity produced by a photovoltaic plant, but after a certain period of time, a new price list was issued by the same body.

The prices of the first Tariff book are given in the Table I.

In order to stimulate building of smaller solar power plants, the price of ransom kWh is greater. The price for a plant up to 50 kW differs from the price for photovoltaic plants in a way that the price is lower for the photovoltaic plants.

TABLE II  
PRICES OF THE NEW TARIFF BOOK

Group	Installed power (kW)	Preferential tariffs (euro cents/kWh)
I	to 50	38,00
II	51 - 1000	34,00

Regardless of the location of the photovoltaic plant, on the ground or on a roof, the cost of the purchased energy is the same. The second Tariff book is with lower prices of approximately 17% for a sold watt, which may lead to

investors hesitating because the period of return on investment will be 15% longer than the previous one.

The new Tariff book is given in Table 2.

### III. ADMINISTRATIVE PROCEDURES FOR OBTAINING LICENSES FOR USE ELECTRIC POWER FROM PHOTOVOLTAICS

Construction of a photovoltaic power plant is far from easy and simple operation. After obtaining an approval for a construction of a photovoltaic power plant, the process needs to be stated by applying for licences, approvals, and permits in accordance with the laws and regulations in the country.

When selecting the most suitable location, i.e. finding the land where the plant would be built, it is needed to be determined in the Cadastre whether land is in private possession or it is owned by the state. Accordingly, in the case that the land is owned by the state, it is necessary to sign a concession agreement to use the land for some number of years. After the land is chosen, it is required urban plan to be made, to transform the land into a building land and an urbanistic decision to be adopted by the Municipality Council. After the completion of these processes and creation of a draft of the photovoltaic plant, a request for location conditions is filed in the municipality. The next step is application for building license with completed documentation for the plant. The Municipality Council is obliged to respond to the request in due period prescribed by the laws and regulations.

Application for issuing energy agreement is to be made to the company for power distribution EVN Macedonia. Energy approval is issued pursuant to statutory limit. Documents required for completing the documentation are in accordance with the conditions of EVN.

Licensing requirements for performing energy activities shall be submitted to the Regulatory Commission of the Republic of Macedonia. The required documents to be submitted are given in a Rulebook on the conditions, manner and procedure for issuing, changing, renewal and revocation of licenses for conducting energy activities, adopted at a meeting of the Regulatory Commission. The documentation should contain the energy approval provided by EVN and the draft of the photovoltaic plant. The Commission is obliged to provide the license in a period of time prescribed by the law.

The Energy Agency must be filed for registration in the registry under the policy for renewable electricity production and require proper documentation. The Agency is bound to issue the decision within the period of time prescribed by the Agency and in accordance with the regulations.

The Energy Agency is also responsible for issuing a decision on preferential producer of electric power, provided by the Rulebook on a preferential producer. The Agency is bound to issue this decision in a certain period of time, prescribed by the legal regulations.

The Energy Regulatory Commission of the Republic of Macedonia is the body where it should be applied for a decision on preferential tariff, prescribed according to the Rulebook for preferential tariff for photovoltaics.

MEPSO is a legal entity with which ends the procedure for deploying a production capacity of photovoltaics in the power system with signing an agreement for purchase of the produced electric power.

The period needed for obtaining the complete required documentation is 8 to 10 months, in case that all the due dates are taken into consideration.

The initiative for building photovoltaic power plants in Republic of Macedonia is in initial stage. The interest of investors to invest in energy in our country is growing in time. It is necessary to establish long-term strategy and program for intensifying the construction of photovoltaic power plants and, very importantly, creating conditions for attracting more investors.

In this regard, complete eradication of the factors that negatively affect the investment and construction of photovoltaic power plants is needed, including the following:

- Weak technological and economic documentation
- Lack of positive examples and lack of information
- Weak social policy for photovoltaic plant construction
- Weak legislation and passivity of the institutions in the issuance of the necessary documentation
- Bad signal sent to investors for reduction of the tariff rate.

#### IV. CONCLUSION

The exploitation of solar energy by building photovoltaic power plants is a topic that is very relevant in the Republic of Macedonia. During this period, applications for obtaining the necessary licenses and permits for the construction of photovoltaic plants are submitted. According to the data from relevant laboratories for solar irradiation, the regions around Ohrid and Bitola are most suitable for the construction of photovoltaic plants.

According to the analysis and studies carried out in the field of solar energy which concern investing in energy, the utilization of solar potential, and evolving process of construction of photovoltaic power plants in countries from Europe, including Republic of Macedonia.

Regarding the fact about the expected application of the Republic of Macedonia for membership into the European Union, in the near future it can be expected:

- Essential use and adaptation of the overall legislation, including the processes in the energy sector;
- Defining the conditions, as well as unknown elements associated with investing in photovoltaic plants, and for which important and necessary is the role and the assistance from the World Bank for Reconstruction and Development.

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