COST AND BENEFIT ANALYSIS OF RENEWABLE ENERGY POWER TECHNOLOGY IN UZBEKISTAN

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Considering the economic analysis of cost-benefit, we allocate costs and benefit sides of renewable energy production to reveal how is crucial to development of this field. Through a series of specific regulations, incentive measures, subsidy policies Republic of Uzbekistan has made tremendous achievements in implementation and application. According to this analysis, it is seen a huge potential of renewable energy production and limitations in this aspect.

Today renewable energy plays an important role to supply sufficiently with energy in Uzbekistan in the condition of shortage and many reasons, such as growth of population, non-updated technology, lack of resources etc,. The decree of the president “On the Development Strategy of New Uzbekistan for 2022-2026” conducted Goal 24 that refers to: uninterrupted supply of electricity to the household and production, active implementation of green economy technologies in all areas, increase in the energy efficiency of the economy by 20% [1]. According the regulations and decrees signed since 2018 until present concerning for development to renewable energy the country expand its opportunity to diversify in energy sector especially after “blackout” event at the beginning 2022. Though, the government ratified Paris agreement in 2018, the transition to a “green economy” almost begun at the beginning 2020s. According Paris Agreement, Uzbekistan adopted a national commitment to reduce GHG emissions per unit of GDP by 10% of the 2010 level by 2030. Additionally, Decree No. PP-4422 of 22 August 2019 on Accelerated Measures to Improve the Energy Efficiency of Economic and Social Sectors, Implement Energy Saving Technologies and Develop Renewable Energy Sources calls for electricity produced from RESs, including hydropower, to expand to at least 25% of total electricity generation by 2030[2].

Costs of production renewable energy are applicable in different types in Uzbekistan condition. As we known to construct renewable energy production plant the project would be finance by the government or investors. In this occasion, financing by the government is not effectively and theoretically investment incentives play the important position in this area. The objective of the government should create a good environmental investment climate to realize the projects by supporting investors by giving subsidies. The subsidies in Uzbekistan conditions reveals in different ways, such as decrease the interest rate, giving preferential tax, land tax exemption etc,. The calculation installation of renewable energy power technology levelized cost of energy (LCOE) method is most appropriate to define the price of RE [3].

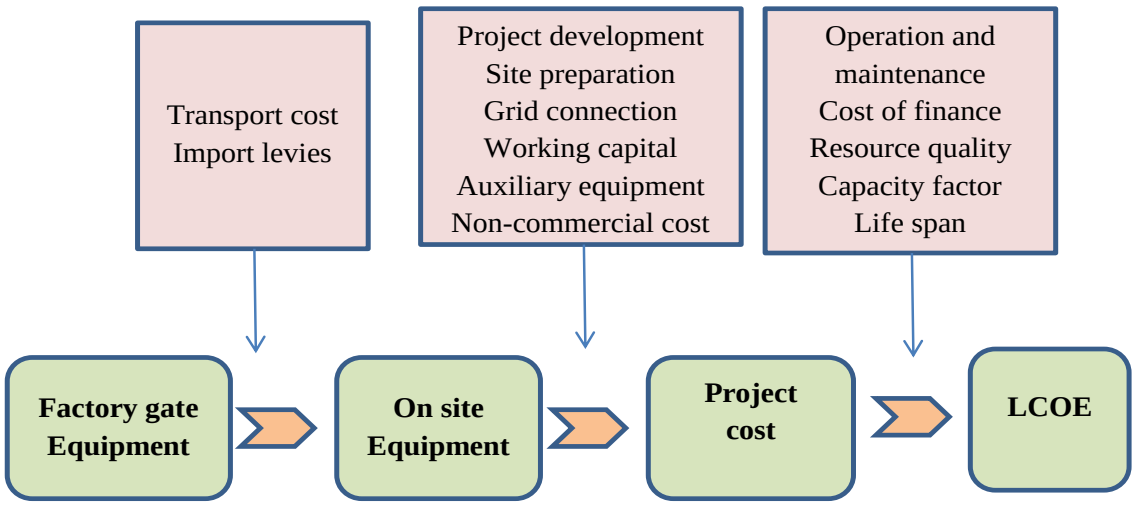

Figure 1. Renewable power generation cost indicators and boundaries [4]

$$LCOE = P_{MWh} = \frac{\sum[(Capital_t + O\&M_t + F_t) * (1+r)^{-t}]}{\sum MWh * (1+r)^{-t}} \quad (1)$$

Where:

LCOE = the average lifetime levelized cost of electricity generation;

$Capital_t$= investment expenditures in the year t;

$O\&M_t$ = operations and maintenance expenditures in the year t;

Ft = fuel expenditures in the year t;

MWh = electricity generation in the year t;

r = discount rate; and n = life of the system [5].

According to the formula (1), RE generation reveals costs in the right side and benefit in the left. To find the price (for instance, $ per MV/h) the calculation method can be used to find the price.

To assume the main costs, we find capital or initial investment which provide by government or foreign investors. Considering initial investment and scale of the project, we can derive operations and maintenance expenditures. Fuel expenditures are not used for production RE and we can omit this variable. So, costs especially, initial investment play the tremendous role in renewable.

The benefit of this implementation is left side of calculation. After installation of equipment of renewable energy, we can reach vary of solutions in environmental, society and economy:

- providing with reliable soft energy (especially, where rural population live without electricity)
- diversification of energy sector
- to solve the problem with shortage of energy
- environmental benefit (reducing greenhouse gas emissions, air quality, CO2 etc,.)

To sum up, cost-benefit analysis shows more advantages to implementation and realization to install equipment of renewable energy such as solar PV, wind turbine and hydro. Hence, list of solutions which mentioned above are important to Uzbekistan while improving of energy sector is significantly impact to the economy of the country.

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OZIQ-OVQAT XAVFSIZLIGI BILAN TA’MINLASHNING MOLIYAVIY IMKONIYATLARI

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Oziq-ovqat xavfsizligi davlatning milliy xavfsizligining asosi bo‘lib xizmat qiladi. Ushbu tushuncha kishilar faol va sog‘lom hayot kechirishi uchun zarur bo‘lgan yetarli miqdordagi xavfsiz oziq-ovqatdan jismoniy va iqtisodiy foydalanish imkoniyatiga ega bo‘lgan vaziyat bo‘lib hisoblanadi. Bu borada jahon oziq-ovqat xavfsizligi to‘g‘risidagi Rim deklaratsiyasi (1996-y.) qabul qilingan bo‘lib, unda har bir insonning yetarli oziq-ovqat va ochlikdan xalos bo‘lish huquqiga mos keladigan xavfsiz va to‘yimli oziq-ovqatdan foydalanish huquqini ta’minlash uchun javobgarlikni mavjudligi ta’kidlangan [1].

Oziq-ovqat xavfsizligi davlatning agrar-iqtisodiy siyosati asosiy maqsadlaridan biri bo‘lib qaraladi. Umumiy shaklda u har qanday milliy oziq-ovqat tizimining harakatlanish yo‘nalishini tashkil qiladi. Shu ma’noda oziq-ovqat xavfsizligiga nisbatan intilish doimiy vazifa va jarayondir. Shu bilan birga, bunga erishish uchun iqtisodiy rivojlanishni ustuvor yo‘nalishlari va qishloq xo‘jaligi siyosatini amalga oshirish mexanizmlari o‘zgarib boradi [2].

Oziq-ovqat xavfsizligi o‘z ahamiyatidan kelib chiqib quyidagi keltirilgan unsurlarni o‘z ichiga oladi:

- yetarli, xavfsiz va to‘yimli oziq-ovqat;
- aholi ijtimoiy guruhlarining hajm va sifatli oziq-ovqat mahsulotlari;
- milliy oziq-ovqat tizimi va uning iqtisodiy mustaqilligi;
- mamlakat aholisini oziq-ovqat bilan ta’minlashga ta’sirini kamaytirish;
- barqarorlik, ya'ni milliy oziq-ovqat tizimining kengaygan rejimda rivojlanishi[3].