

## Renewable energy: a chance for employment growth in Ukraine

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### *Анотація:*

В статті розглядаються проблема формування привабливого інвестиційного клімату в такій перспективній сфері, як відновлювальна енергетика.

### **Ключові слова:**

відновлювальна енергетика, «зелена» енергетика, інвестиції.

### *Abstract*

Analysis of the situation with the formation of an attractive investment climate in such a promising industry as renewable energy is given in the article.

### **Keywords:**

renewable energy, green energy, investment.

The development of renewable energy is rapidly increasing in all developed countries of the world, gradually replacing traditional, environmentally harmful energy sources. According to IRENA, doubling the share of renewable energy sources (RES) in the global energy mix will lead to more than 24 million jobs worldwide by 2030. Meeting the needs of the growing labour market that the green sector will need will contribute to a more stable and predictable policy framework that encourages deployment, encourages investment in local industry, strengthens firm-level capacities and promotes education and training.

While employment growth in the global economy has slowed compared with previous years, the total number of jobs in renewable energy throughout the world continues to grow, which contrasts sharply with depressed labour markets in the wide energy sector. In 2015, green energy created 8.1 million jobs (compared with 7.7 million in 2014 and 6.5 in 2013). Solar photovoltaic technologies provided the largest number (2.8 million) of jobs, among other types of renewable energy sources. Taking into account the use of all renewable energy technologies, the leading employers in 2015 were China, Brazil, USA, India, Japan and Germany.

In second place to increase employment among the sectors of "green energy" is the energy of biofuels (1,678 thousand work places). Brazil (821 thousand work places), the USA (277 thousand work places), China (71 thousand work places) distinguished themselves here. This industry makes it possible to attract a large number of jobs where the agricultural sector is developed, as well as woodworking. For example, in Brazil, sugarcane cultivation provided the necessary amount of biomass. In the USA, large quantities of corn are grown. In this regard, Ukraine has great potential, which is still little used. At the same time, it is possible to note the positive moment of the adopted law restricting the export of roundwood. And after all the work on wood processing, and waste for biofuels remain in Ukraine.

The third place in terms of the number of jobs created at the end of 2015 in the sphere of renewable energy sources, according to IRENA, is occupied by wind power. This industry has created 1,081 thousand jobs. Most of all, China (507 thousand work places), Germany (149 thousand work places), the USA (88 thousand work places), the Scandinavian countries (162 thousand work places) advanced in this direction.

In the Netherlands, for example, train power is completely provided by wind energy.

Last year, the UK government allocated £730 million to build the world's largest wind farm with a capacity of 1,800 megawatts. It is already known that this will create about 2,000 jobs in the construction industry and 580 jobs in the field of operation and maintenance. In Ukraine, there are also prerequisites for the development of wind power plants, especially on the shores of the Black and Azov Seas.

For our country, the development of solar energy in the United States deserves attention. The number of "solar" jobs in the United States more than doubled over the past five years. At present, labour is involved in the solar industry even more than in the sphere of oil and gas production and is almost three times as large as the labour force of all coal production.

The solar sector added 35,000 jobs in 2015, up 20% from the previous year, according to *SolarFoundation*. In contrast, oil and gas companies cut production to almost 17,000 jobs in 2015, as energy prices continue to fall.

Forcing up tariffs in 2014 for cheap Chinese solar panels to market value, the United States increased its own production in this industry, abandoning Chinese imports. This policy also led to a significant increase in employment in the solar energy sector.

The industry attracted about 209 thousand workers in the United States, which include solar panel manufacturers, designers, engineers, vendors, managers and installers. The share of the latter is 57% of all jobs in the "bright" American industry.

The incentives that operate from 2006 to 2022 regarding the right of enterprises and homeowners to a tax credit of 30%, if they install solar panels in their own territory, make the sector more accessible to everyone.

Employment in the field of photovoltaic panels can expand due to the development of various related technologies, ranging from stand-alone installations (such as solar lights and solar systems for homes) to mini-networks, as well as to the production of roofing materials, road markings, battery chargers and even a large number of devices, equipment and materials with accumulation and use of the sun's energy.

In general, autonomous systems can create more jobs for the installation of distribution equipment, while mini-networks require more staff in operation and maintenance.

One can imagine what employment growth will entail the construction of *Tesla* and *SolarCity* factories in Buffalo for the production of "solar" roofs. Manufacturers declared the price of their "solar" roof as even less than traditional roofs. Moreover, their coverage is a full-fledged roof, and not elements that are installed over the roof, which can damage the roof. Such innovations can lead to a revolution not only in the energy sector, but also in construction and architecture as early as 2017.

Taking into consideration this optimistic situation with the development of renewable energy in the United States and other countries, and especially with the statistics of job growth in this area, we would also like to achieve such results in Ukraine.

The construction of plants for the production of equipment for renewable energy sources can bring Ukraine a real increase in jobs and ensure economic growth.

In this regard, the signing of the protocols of intent to build a plant for the production of equipment for solar energy in Kherson between the leadership of the region and the Lithuanian *Global BOD Group*, which is in the TOP-5 of the world in the field of renewable energy, gives hope.

Together with production facilities, scientific laboratories and educational institutions that will train specialists, develop and introduce new technologies will inevitably develop. In the green energy industry, physicists work with chemists, material experts and engineers to increase the efficiency of equipment. Engineers are one of the most sought-after jobs for employers in the solar industry. According to the Solar Foundation, 53 percent of manufacturing firms reported difficulties in hiring qualified engineers in 2010.

To improve this situation in Ukraine, the German company *SchneiderElectric* opened educational and scientific laboratory of solar energy at the Vinnytsia National Technical University. Teachers and students of the university will now be able to study the design of solar power plants using the example of an existing solar power plant with a capacity of up to 10 kW, which *SchneiderElectric* has built for this educational institution. This will enable the Ukrainian university to prepare specialists in the field of automation of energy and technological processes, electrical equipment, energy efficiency and energy management, conducting joint research with German colleagues.

In addition to engineers, scientists, factory workers, jobs will be created for programmers and other IT specialists. Modern production is unthinkable without automation and computerization of technological processes. Jobs will also receive electricians, installers, builders, designers and workers in the service sector – financiers, accountants, managers, drivers, etc.

If an attractive investment climate is created in such a promising industry as renewable energy, and more specifically in the construction of its own plants for the production of solar panels, wind turbines, hydroturbines and other equipment for green power plants, employment will significantly increase, the budget will be filled and wages that will rise more than the minimum of 4200 hr. without any control, checks and penalties.

The growing number of renewable energy facilities in Ukraine is necessary for our state not only to fulfil its obligations to the world community, but also for our own stability, independence and energy security. In order to become at least a little influential player in the world political arena, you need to keep up with the times, develop and introduce modern technologies, including the energy sector and catch up with the developed countries. Otherwise, lagging behind, we will long remain a dependent, colonial country that will be used and exploited by stronger players on the world market.

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