

«Small energy industry strives for great achievements»: an interview with Maxim Zagornov

October 8, 2024



The International Award "Small Energy - Great Achievements" is held for the tenth time this year. Today it is the main industry award for the best implemented projects in the field of distributed and renewable energy. Maxim Zagornov, President of the Association of Small-scale Power Generation, told the editor-in-chief of the Russian Energy and Industry publication about the main trends and prospects of distributed generation in Russia, how the award is changing taking into account the current realities and new challenges for the industry.

- Maxim Alexandrovich, what trends could you point out in the small-scale distributed power industry in Russia and worldwide? How actively is it developing in our country now?

- Today the position of distributed energy is strengthening in the global market. This is due to the fact that the development of technologies makes it possible to create smaller-scale energy systems with higher efficiency. In the future, it will not be necessary to build expensive energy systems based on large power plants and long power grids. This burdens the economy with inefficient costs when the task of reliable power supply can be solved in a cheaper and more efficient way. I think we will move in this direction: towards the gradual abandonment of global grids thanks to the

development of technology. That is, energy will be in the hands of the consumer in the literal sense of the word.

Our distributed energy systems are as efficient as large power systems, but they do not require high costs, do not have significant losses in transportation, are operated with a higher capacity utilization factor, can be implemented in a shorter period of time, and are mobile.

- How interesting is this direction to investors and potential consumers now?

- Unfortunately, investors are not always ready to work with proposals. But for consumers this direction is very interesting. For them, distributed energy technologies are an opportunity to improve the reliability and quality of energy supply, increase the resistance of their own production to external threats, and reduce the cost of energy resources and production costs. But in the future, I think, a market will be formed to offer energy resources - electricity and heat in remote areas practically in any part of the world. Such technologies will be possible for different industries; it is a matter of the future.

- So, this is the direction in which engineering thought is now moving?

- The emergence of new solutions on the market largely depends on existing needs and market demands. Today, the situation is such that in the European part of Russia there is a very high wear and tear of power grids. In some cases, it reaches 80%. This means that huge funds are required to modernize these networks. There are problems with the shortage and depreciation of generating capacities and dependence on imports. Many generation facilities were created before the import substitution trend began, i.e. at a time when we were buying high-tech, Western products and not developing our own production. Because of this, there is a risk of facing a shortage of electricity on a national scale: the electricity that is now produced not by coal-fired power plants, but by highly efficient foreign gas turbines with high efficiency.

This possible "energy hole" makes consumers think about how to maintain the performance of their capacities in a possible situation of reduced or limited consumption. We recently witnessed a similar situation in the south of the country, when the temperature rose above the average annual temperature, blackouts began, power supply to some enterprises was limited and some had no power at all. For any business, this means halting production, disrupting supplies and, as a result, losses. Another sad example of this year is the cascading blackouts in Primorye.

So today, the main engineering problem that has to be solved is how to improve the reliability and quality of power supply to consumers with minimal costs under the current energy structure.

- So, the consumer chooses in favor of its own additional energy capacities, in particular, gas piston plants, which are connected for reliability at the same time with technical connection to the grid?

- Yes, first of all, these are gas piston units. They have a high efficiency at low power levels compared to gas turbines. They have a higher service life before overhaul, so they perform best in this niche.

In our country, gas is relatively affordable compared to world prices, so gas-fired generation is the cheapest way to produce electricity. And mostly such facilities operate in parallel with the grid. But nowadays there is a great demand for creating systems that operate locally from centralized ones. This is primarily due to the development of technology, but also due to the destructive unilateral regulation of the electric power industry.

Another thing is that almost all our enterprises (at least in the European part) are connected to gas supply networks. By the way, for Gazprom, enterprises with gas-piston generators are excellent consumers, with a constant year-round consumption level. Moreover, gas consumption usually decreases in summer, as many boiler houses stop working. Gas distribution organizations, unlike power grid companies, are always interested in new consumers and are more loyal to gas consumers.

- Are there any proposals for non-gasified regions?

- Of course, energy development in the territory is related to its fuel capacity. If gas is available, it can be gas piston plants, if gas is not available, it can be diesel power plants, wind or solar power plants, small HPPs or coal-fired plants. They can also be hybrid systems. Our engineers can select any variants on request.

Developments such as energy storage systems, in which China is making major breakthroughs, are also having an impact on the development of this area. The first sodium-ion batteries are already being tested there. Such batteries do not contain lithium, cobalt or nickel. The novelty is not inferior in energy capacity to its lithium-iron-phosphate counterparts, but it works better in cold conditions and charges faster. Solar and wind power plants will work differently with the change of storage devices.

- How is the process of import substitution in the field of small-scale energy going?

- It is not as easy as we would like it to be. Our enterprises need affordable money, startups need cheap loans. Today we do not have such a system in the country. Unfortunately, the country's policy is not aimed at supporting small and medium-sized businesses. And so far I do not see any serious state support in this direction. Maybe through our award we will raise attention to this problem.

- The International Award "Small Energy - Great Achievements" is a jubilee one. The independent industry award for the best projects in the field of small distributed and renewable energy will be presented for the tenth time. Could you please tell us what you expect from this year's competition?

- Nowadays the distributed generation market is reviving. And we expect from the award, first of all, a clear confirmation that despite the difficulties of the current period, the small-scale distributed power generation industry in Russia is developing, interesting projects are being implemented in the country, and small-scale generation technologies are in demand by business. Of course, we are waiting for interesting applications, and they are already actively coming to the organizing committee. We also expect that our award this year, as in all previous years, will become a platform for sharing experience, identifying and replicating the best industry practices, and will serve to improve the overall level of engineering in the country.

We would like to see more domestic developments and solutions represented in this year's award. Therefore, we invite Russian research institutes to participate, which could share the latest achievements in the field of distributed energy. Russia has a very good school, great specialists and a lot of unique developments. We will gradually tighten up the technological part as well. As organizers, we expect that thanks to the award, our market participants will be able to get acquainted with modern trends, solutions and technologies.

- Has the competition changed to reflect the current realities and new challenges for the industry?

- The main innovation of this year's award is related to the nominations. This year the award will be presented in six updated nominations. These are:

"Best Small Distributed Power Project up to 5 MW"

"Best Small Distributed Power Project over 5 MW"

"Best Renewable Energy Project, storage and electric transportation"

"Domestic development in the field of small distributed energy"

"Investor of the Year in the field of small distributed energy"

"Research and development in the field of small distributed energy"

This year for the first time we have introduced a nomination related to research and development in the field of small distributed energy. This is an important innovation of this year. And as emphasized by Sergey Vladimirovich Alekseenko, member of the expert council of the prize, academician of the Russian Academy of Sciences, scientific director of the Institute of Thermophysics of the Siberian Branch of the Russian Academy of Sciences, there are many reasons for this. First of all, science is closest to small-scale power engineering. It is here that it is possible to propose an idea and bring it to realization, unlike in the large power industry. Secondly, when we talk about

new technologies, which are being actively implemented in distributed generation today, it is simply impossible to do without science. We are waiting for interesting applications from scientists, from young scientists, from undergraduate and graduate students.

In addition, we have expanded the wording in our third nomination. Now it reads "The best project in the field of renewable energy, storage and electric transportation". We could not leave out such promising areas as storage devices and electric transportation. And we are also waiting for interesting applications from contestants.

- In which category is the competition for the prize expected to be the toughest?

- Time will tell - applications will be accepted until November 1. But now I can say that the main award of the contest - the Golden Lightning statuette that we present to the winners - is a kind of "quality mark" of their work recognized by the engineering and scientific community. The jury of the contest consists of 40 people - outstanding Russian scientists, representatives of government authorities, heads of leading energy companies and organizations of the country, professors of specialized universities, editors-in-chief of key industry media.

This year's competition jury also included respected experts from the United Arab Emirates and China. This is Samuel Mao, Director of the ASPIRE Sustainable Energy Research Institute, Co-Chair of the UAE Universities Climate Network, and Professor of Practice at Khalifa University. That's Lei Cheng, a research scientist at the Institute of Energy and Institute of Carbon Neutrality at Peking University. And this is Meng Xiaoli, general manager for the Russian market of CNPC JICHAO POWER COMPANY LIMITED.

- Does this allow you to provide the most objective view of achievements in the field of small-scale power generation?

- Our award has an international status, so we try to attract specialists from other countries, both as jury members and contestants, and study the experience of foreign companies. It is the exchange of experience that allows us to most effectively apply distributed generation technologies at home and move forward. I invite all interested companies and organizations to participate in the 10th Anniversary International Award "Small Energy - Great Achievements". Applications will be accepted until November 1.

Interview on the Energy and Industry of Russia website