What benefits does your own electricity generation provide to an enterprise?

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There are several obvious prerequisites for initiating a project of its own generation based on small-scale distributed generation facilities for the company, as a consumer of electric and thermal energy:

- high prices and amount of charge for electric and thermal energy;
- high requirements for reliability and quality of energy supply;
- the need to ensure the growth of production capacity;
- the need to modernize and improve the efficiency of its energy sector.

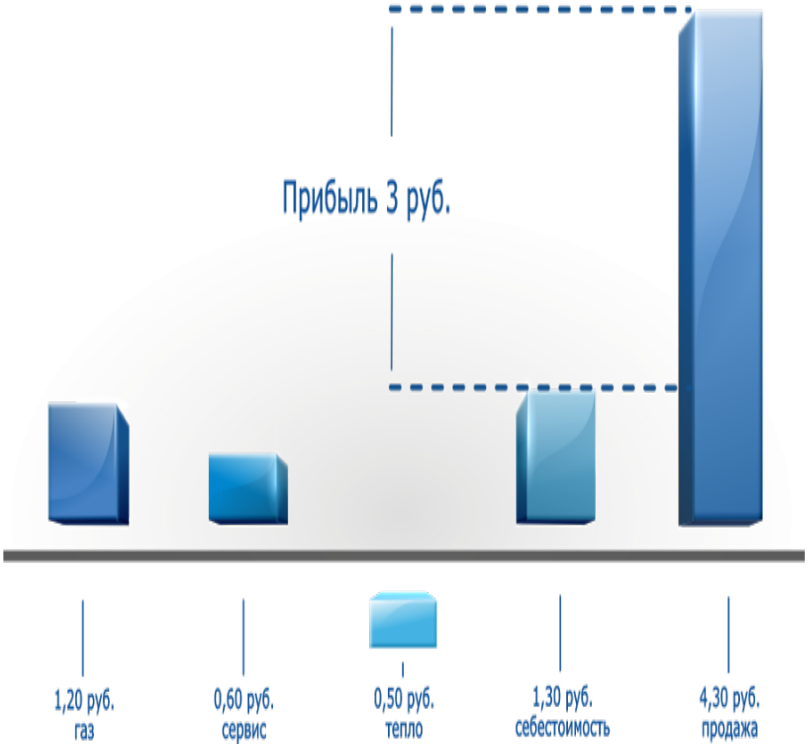
As a result, a competently implemented and operated facility of its own generation allows:

- comprehensively solve the above problems for the consumer;
- reduce the cost of heat and electricity;
- improve the reliability and quality of energy supply;
- ensure the growth of production capacity.

The object of small-scale distributed generation in the company – these are mobile compact power plants with a capacity of up to 25 MW, located directly next to the consumer.

own electricity generation for the enterprise

Small-scale distributed energy is a global trend in energy development. Due to the new technologies emerging, the approach to the development of energy systems has also changed. Combining many distributed generation facilities into a "smart network" ensures high reliability and flexibility of the system. The construction time and capital investment in small-scale distributed generation is 2-3 times less in comparison with large, centralized generation. Small and medium-sized enterprises (SMEs) develop their own generation exclusively at their own expense. Today, small-scale distributed generation is the only actual tool for reducing the cost of electricity for SME consumers.

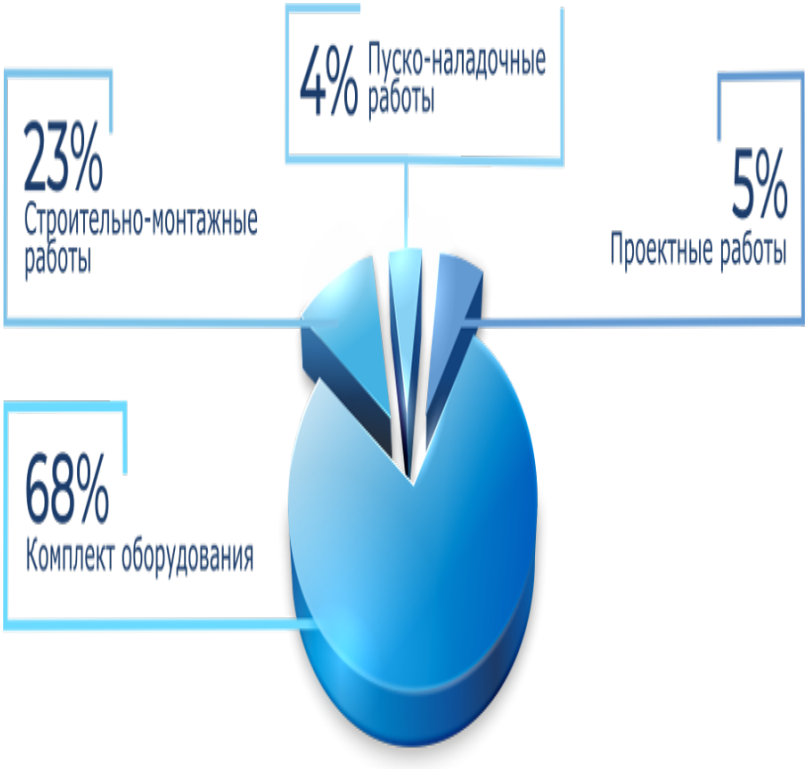


The enlarged structure of the cost of generation and profit per 1 kWh

The diagram shows an approximate structure of the unit cost and economic effect for the consumer when using its own generation. As a result, the consumer can receive electricity much cheaper than from a guaranteeing supplier.

The investment quote in own generation

The advantages of own generation for the consumer are obvious, but every business owner knows how to count money, especially his own, so the issue of the cost of implementing such projects always remains one of the main issues. According to the average estimates of engineering companies organizing the implementation of mini-TPP projects, the estimated unit cost of building such a turnkey facility is about 600-650 euros per 1 kW of installed capacity. These rates are competitive in terms of obtaining the above-mentioned advantages, and competent businessmen understand this. The diagram (Fig. 2) shows an approximate aggregated cost structure for the implementation of a turnkey in-house generation project.



The enlarged structure of the cost of realization of the turnkey object

Project implementation timeframe

Continuing the conversation about the cost and timeframe of the project, we should pay attention to the option of executing company’s own mini-thermal power plant. Currently, the block-modular design is gaining popularity, anapproximate view of which is shown in Figure 3. This design has several advantages compared to a classic building.

The power plant block module is designed to accommodate a gas piston unit (GPU) and all auxiliary systems and combines the advantages of a container (quick installation) and a building (sufficient service area). Among other advantages, the block-modular design significantly reduces the time required to put an object into operation (or transfer it) and the cost of its construction.

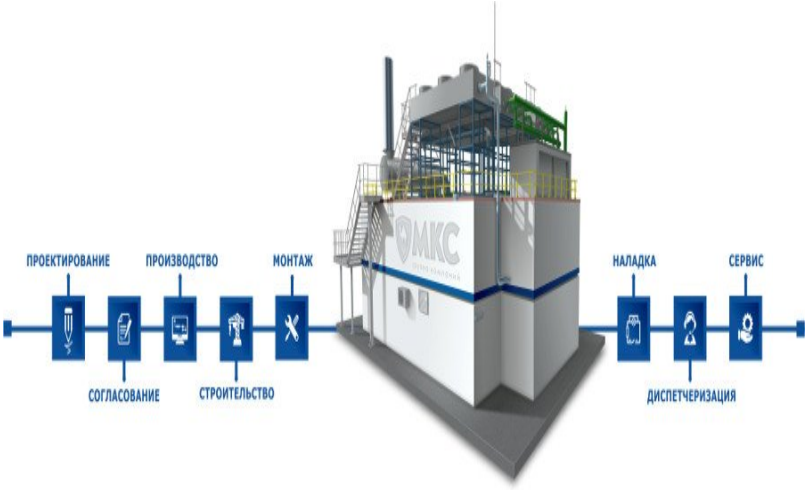
An example of a block-modular power plant manufactured by the MKS Group:

An example of a block-modular power plant produced by the MKS Group of Companies

A 3D model of a mini-thermal power plant in a block-modular design

When implementing an in-house generation facility, the main focus is on quality and a range of services, therefore, as a rule, such projects are implemented by engineering companies that perform the whole range of turnkey works - from design and survey works to facility start-up and maintenance. The problem is that there are not many

companies with such rich experience and competencies in Russia.



An enlarged block diagram of turnkey works

The diagram shows an enlarged flowchart of the work on the construction of a turnkey facility of its own generation by one of the leaders in launching such facilities in the country based on gas piston installations, the MKS Group. Each stage of this technological chain is very important, each stage is not possible without others and requires the highest competence of the performers. If all the work is done by one turnkey company, obviously the final cost of such an object will be lower than if each stage was performed by different contractors. Also, a single contractor will control the quality of work at each stage, which cannot be said about several contractors, where each is responsible only for his specific volume, and not for the project.

An example of a block-modular power plant manufactured by the MKS Group:

an example of a stationary power plant produced by the ISS Group of Companies

Own generation facilities now have a rather attractive payback period for the consumer company - up to 5 years.
At the same time, the deadlines for the implementation of such projects are usually within one calendar year. For comparison, the technological connection of a new powerful production to external electrical networks can take up to several years, especially if the construction of new lines and substations is required. The large distribution networks to which a new facility is connected are rather static and slow to change or build their networks. The large distribution networks to which a new facility is connected are rather static and slow to change or build their networks. In this context, the realization of own generation project becomes not only affordable, but also an obviously profitable and logical step.

Operation of own generation facility

The operation of own generation facility is not an easy task and requires high scope of competence and technical level of employees from the owner. Therefore, in most cases, the owners of mini-thermal power plants sign long-term contracts for maintenance and operation.

Energy service contracts

An innovative solution to this issue is the implementation of an energy service contract – when the generating facility is fully realized and maintained at the expense of the contractor or an external investor, and the consumer receives heat and electricity at a certain discount in relation to the established prices and tariffs. Yes, such an object can no longer be called its own generation, but in this case, it is already up to the consumer to decide how it is more convenient and profitable for him, and the mechanisms for implementing energy service contracts may be different (long-term lease of mini-thermal power plants or direct supply of energy resources). At the same time, the consumer does not incur any capital investments, reduces energy costs, and increases the reliability of energy supply.

The MKS Group is a leading engineering company in Russia, the main activity of which is the construction of small–scale energy facilities - turnkey gas piston power plants. In 14 years, it has commissioned 53 mini-thermal power plants in various regions and abroad. The total capacity of all commissioned facilities of the MKS Group was 244 MW. The MKS Group is the official Russian dealer and service partner of MWM Austria GmbH.

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