DEKRA
CONSTRUCTION

Policy

of energy saving at the construction area

The purpose of the energy conservation policy is to implement commitments to reduce CO2 emissions from construction activities and implement the principles of resource efficiency in the activities of the organization at all levels identified in the organization's environmental policy. The principles of ecological and economic feasibility must guide the implementation of the policy. Management of energy consumption at the construction area is aimed at reducing unnecessary costs and improving the working conditions of employees of construction companies.

The focus of the energy-saving policy and the primary sources of emissions

The policy defines the priority areas for achieving energy-saving goals. The policy's responsibility falls on the management team of "DECRA CONSTRUCTION" JSC. For the implementation of the policy, each construction area of JSC "DECRA CONSTRUCTION" will be assigned a responsible person in charge of the performance of the policy. The scope of the policy applies to area logistics, domestic needs of the construction area, assembly and installation, land, and other types of construction work.

The energy conservation policy is the basis on which the basic principles of energy management are built. The energy-saving policy aims to reduce C02 emissions during construction and covers energy savings from construction activities and fuel savings from internal construction area logistics. However, the policy does not cover C02 emissions associated with the delivery of materials to the construction area, nor does it cover C02 emissions during the production of textiles and the operation of the building.

The policy is intended to:

— Implement energy accounting practices from construction activities;

— Optimize area logistics to reduce CO2 emissions;

— Use only energy-efficient equipment and cabins with improved thermal conductivity characteristics;

— Education of contractor and subcontractor employees in the area of energy savings during construction activities;

— Developing a methodology for reporting and comparing areas with different energy consumption levels.

Background

According to a report by the Carbon Trust, a UK non-profit organization, the following average CO2 emissions from construction activities for the UK market were obtained:

— Construction activities, including energy generation-about 30% of all CO_2 emissions from construction activities;

— Construction area logistics - about 30% of all CO_2 emissions;

— Commuting - about 15% of all emissions;

— Housing -everything else.

These data will vary from facility to facility and can nevertheless be applicable as an indicator of the significant energy consumers on the area.

Example of calculating the distribution of CO_2 emissions from various activities at a construction area (UK)

	Tons of CO2 emissions
Shipping	996
Fuel for equipment	792
Generators	154
Waste removal	2307
Project Management	100

Energy efficient equipment - equipment with an energy efficiency label of at least class A

Declaration of commitment to saving energy on the construction area

Wherever possible and economically feasible, DECRA CONSTRUCTION SA and its project contractors undertake to purchase only energy-efficient equipment.

Whenever possible and economically feasible, the Group of Companies "DEKRA CONSTRUCTION SA" and its project contractors are committed to purchasing alternative energy generators to reduce CO_2 emissions at the construction area.

Group of Companies "DEKRA CONSTRUCTION JSC" is also committed to regular accounting of energy consumption on the construction area and aims to reduce energy consumption by 5% on each project compared to the previous one starting from 2012.

Before the construction, the following targets were set for the facility during the implementation of DEKRA CONSTRUCTION S.A.'s environmental policy.

The energy resources saving policy comes into force at the moment of its approval by the General Director of "DECRA CONSTRUCTION" JSC.

Procedures to implement the policy

Table 1 summarizes the recommended measures to reduce energy consumption at the construction area and the expected effect of these measures. The main list of criteria has been finalized based on the Carbon Trust report and standard energy-saving practices at the building area. A detailed description of the measures can be found in Appendix 1 of this document.

Table 1 Energy saving measures at the construction area

Description of the measure		Share in total energy consumption	Expected savings*
A	Energy efficient cabins	12%	50%
B	Efficient use of construction equipment	17%	15%
C	Early connection to the network	17%	15%
D	Energy management at the construction area	5%	15%
E	Tracking power consumption	-	-
G	Trainings	-	10%
H	Purchase of energy efficient equipment	10%	15%

** According to the Carbon Trust report*

Performance Indicators

In the first year of policy implementation, significant deviations from established goals are allowed due to the emergence of all policy implementation processes. Indicators that can be measured were used in the preparation of the plan. The policy implies an annual review of targets during the formative stage of processes (up to 3 years). The person responsible for the implementation of the policy should monitor the performance of the criteria and conduct a comparative analysis annually.

When preparing the report, the policy implementer must study possible problems related to using environmental materials and equipment. If the organization manages to achieve a high level of compliance with the set targets, the responsible person in agreement with the management can increase the value of the targets.

Table 2 Energy saving targets

Main target indicator	
Achievement of the energy consumption reduction target	For each construction project, the energy consumption should be 5% less than for the previous one*.
Additional targets	
The use of energy-efficient huts	Compliance of all new cabins with the requirements of the EURO standard (see Appendix 1)
Use of energy-efficient lighting	All lamps used on the construction area must be of T5 generation or higher. For lantern lighting, low-pressure sodium
Household equipment	All equipment in energy efficiency class A or higher
Trainings on energy conservation	Regular trainings at least once a month
Accounting for energy consumption	Monthly schedule updates

**Energy consumption is calculated based on the average kWh for 1 month per square meter of the building under construction.*

Energy consumption at a construction area constantly varies and usually increases significantly when the construction work is completed. The typical practice of considering energy consumption based on annual data is entirely inapplicable to construction projects.

In this regard, a step-by-step comparison of energy consumption figures is introduced as follows:

— Comparison of average monthly consumption during the excavation phase (beginning at a comparison of the average monthly consumption during the excavation phase (from the moment when the equipment enters the area until it leaves the area, the primary power consumption is fuel for the equipment)

— Comparison of average monthly consumption at the stage of erecting the main structures (starts from the moment of setting up a work camp, may overlap with the previous stage, ends at the moment of connecting the new building to the networks, construction of the main structures of the building)

— Comparison of average monthly consumption during the finishing phase (starts when the temporary networks are connected to the building and ends when the permanent networks are connected, energy consumption for running systems, testing, temporary and emergency lighting)

— Comparison of the average monthly consumption during the commissioning phase (starts when the permanent mains are connected and ends when the works are taken into use)

The baseline energy consumption is based on the level of 2011

Targets for increasing the energy efficiency of the construction process were formed based on the DTI Construction Industry KPI Pack's recommendations, including Methods of measurement, a Handbook, KPI Wall Chart.

To implement the policy, the person responsible for implementing the policy will develop forms for effectively monitoring energy consumption at the construction area. Implementation of the policy will require the active participation of all project subcontractors, including primary and specialty contractors, construction equipment vendors, logistics firms, consultants, and training organizations.

Exceptions

Exceptions to the policy are when environmental/energy efficient products/measures are unavailable, or their purchase/implementation is not economically feasible.

During the preparation of the environmental and energy conservation policies, various types of alternative energy were considered for use at the construction area, namely:

— Biodiesel-powered generators

— Windmills

— Solar batteries for temporary installation

All options for the use of alternative energy on the construction area were found to be economically inadvisable (most often, the products listed above are not available in the Russian market).

Implementation of measures

The text of the energy-saving policy is a guide for the management and executive staff of the group of companies. In addition, the procedure is a public declaration confirming the company's intention to reduce energy consumption at the construction area. For the collaborative work of the performers, all the goals and plans fixed in the policy should be commented on by the top management discussed and the responsible person, and the corresponding reporting documents should be developed.

In organizing construction work, a database of equipment suppliers will be created that shares the values of JSC "DEKRA CONSTRUCTION" in preserving the environment and a database of implemented measures to save energy. Procurement policy criteria for energy saving should be included in pre-qualification documents with all contractors. Key contractors for equipment and materials should be engaged early in developing projects to achieve maximum environmental performance. All contractors must undergo specialized training to improve their ecological skills.

Reporting

The implementation of this policy will be monitored at the senior management level of the organization and individual project levels. At the same time, a policy implementation officer will be appointed at each construction area, who will regularly monitor the implementation of targets and prepare monthly reports on the achievement of the overall energy consumption indicator, as well as complete reporting once a year or at the end of the project. Reporting should be accompanied by graphic material - a policy implementation schedule.

Once a year, reporting must be submitted to the Group Energy Efficiency Committee, and appropriate adjustments must be made to the policy as necessary.

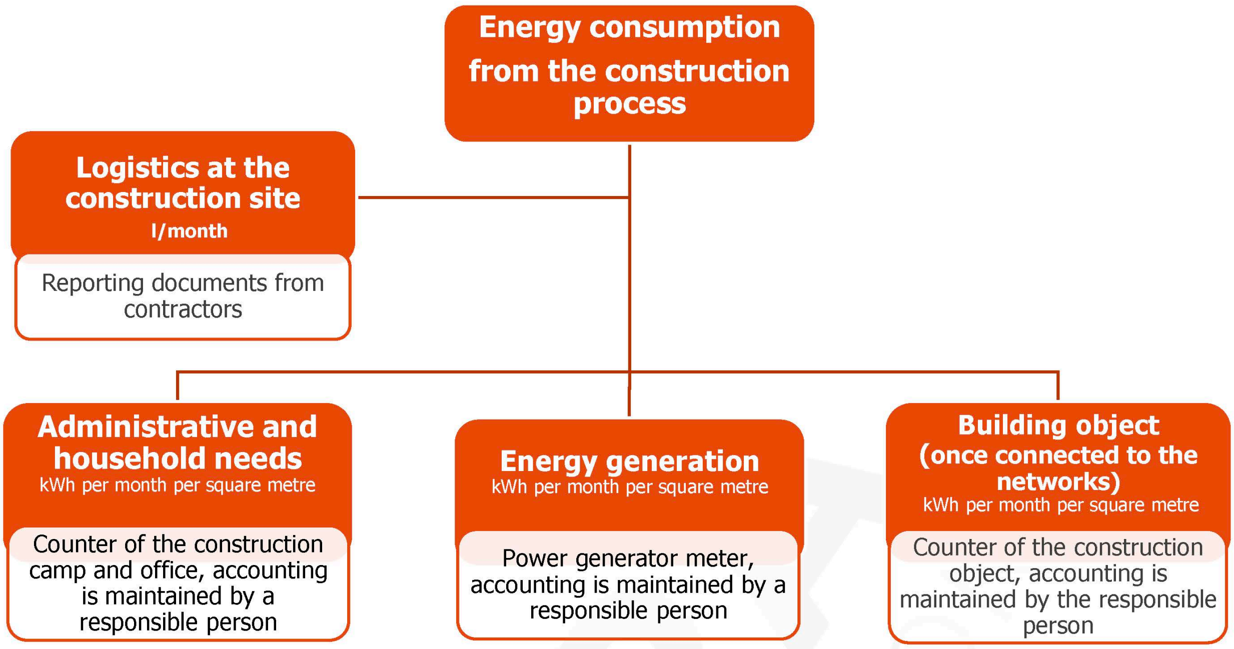
JSC "DEKRA CONSTRUCTION" management will remain actively involved in policy development during the first three years. When preparing the annual report, it is necessary to make changes and additions to the recommended equipment and measures (Appendix 1). The reporting form is given in Appendix 2 of this policy.

Protocol for measuring energy consumption at a construction area

To form averages for energy consumption and CO_2 emissions, it is necessary to apply consistent and uniform measurement methods at all construction areas. In Russian practice, there is no unified methodology for measuring CO_2 emissions from construction activities, so British methods will be used to achieve the objectives of this policy. When determining the energy efficiency of construction, energy consumption indicators in kWh per square meter will be used. m of the facility under construction, as well as the number of liters of fuel consumed by construction equipment on the area. These indicators were chosen due to the need for a unified system for measuring energy consumption adopted in Russia. When preparing reports on energy consumption, it is necessary to strictly follow the procedure and avoid duplication of data (see Schedule of distribution of responsibility for accounting). Reporting on fuel consumption for on-area logistics is formed based on financial statements - submitted checks for fuel consumed from contractors. All data should be consolidated on a monthly basis by the policymaker.

The advantage of introducing an energy accounting system will be the formation of a clear idea of the energy costs of the construction process, as well as the ability to choose the most efficient construction methods based on this criterion.

Diagram 1 Distribution of responsibility for energy accounting at the construction area



General Director of JSC "DEKRA CONSTRUCTION"

Denisov S.A.

Appendix 1

Equipment and Measures Sheet

The list of equipment and measures recommended in the implementation of construction works in order to most effectively implement the policy sheet should be updated on a regular basis (once a year or by construction projects).

Type of work	Type of material	Environmental requirements	Recommended manufacturers
Measures to reduce energy consumption			
Administrative and economic organization	Temporary offices and living quarters on construction areas are often poorly insulated and controlled. Proper design allows temporary facilities to achieve the same energy efficiency as commercial buildings. At the same time, implementing such a measure can help reduce energy consumption. However, it is economically viable not to replace the temporary containers but to combine replacing old containers with efforts to improve the insulation of existing buildings. Measures to improve energy efficiency measures include glazing and thermal insulation, energy-efficient lighting, movement sensors installation, and a single control for the socket group. Obstacles to modernization include a lack of regulatory framework and generally accepted energy efficiency standards of temporary facilities. In the case of rental booths, it won't be easy to convince the owner to upgrade Benefits include increased comfort and increased productivity	EURO standard, the basic parameters of heat conductivity: floor - P = 0.32 W / m2k, roof - U = 0.37 W / m2k, wall panels - U = 0.41 W / m2k, windows - U = 2.40 W/m2k	Euro module
Efficient use of construction equipment	There are several strategies for increasing the efficiency of construction equipment, including: Using the right size equipment (e.g., when loading), eliminating the use of equipment not designed for small loads, for example - Choosing the most energy-efficient equipment - Correct and timely equipment maintenance - Use of low-emission fuel - Minimization of idle time with the engine running Obstacles for implementation - motivation and training of employees The advantages - fewer fuel costs, less noise and dust emissions, improved onarea safety	No	No

Earlier connection to the networks	For some construction areas, it is possible to reduce CO2 emissions by connecting to the general power grid earlier. This way, the amount of diesel used for power generation will be reduced. Obstacles include coordinating the entire chain of power suppliers, which are solved locally. This obstacle can be overcome by correctly timing construction and timely informing local grid electricity suppliers promptly. Benefits include fuel savings, reduced noise and air emissions, reduced fuel delivery to the area, and reduced risk of spills.	No	No
Energy management at the construction area	Best practices for energy management on a construction area include: - Controlling generation based on current needs - Arranging the lighting schedule of a construction area with energy savings in mind - Using energy-efficient lighting equipment, including T5 generation and LED, metal halide lamps - Accounting for energy consumption and demonstrating progress at the construction area with regular updates Barriers include lack of common practices and standards, low priority of energy management at the construction area The main benefit of the measure is reduced energy costs	No	No
Measuring power consumption	To form averaged indicators of energy consumption and CO2 emissions, it is necessary to apply consistent and uniform measurement methods at all construction areas. In Russian practice, there is no uniform methodology for measuring CO2 emissions from construction activities, so British methods will be used to achieve the goals of this policy. In determining the energy efficiency of construction, energy consumption in kWh per square meter of the facility under construction, as well as the number of liters of fuel consumed by construction of power consumed by construction equipment on the area. These indicators have been chosen due to the lack of a unified system for measuring energy consumption adopted in Russia. When reporting on energy consumption, it is necessary to follow the procedure clearly and avoid data duplication (see the chart of accounting responsibilities). Fuel consumption reporting for on-area logistics is generated based on financial reporting - submitted receipts for fuel consumed from contractors. All data shall be consolidated every month responsible for the implementation of the policy. The advantage of implementing a metering system energy consumption will form a clear picture of the energy consumption of the construction process, as well as the ability to choose the most efficient methods of construction based on this criterion	No	No