



**USAID**  
FROM THE AMERICAN PEOPLE

**MUNICIPAL HEATING  
REFORM IN UKRAINE**

# MUNICIPAL HEATING REFORM IN UKRAINE

MARKET RESEARCH ON ENERGY  
EFFICIENT EQUIPMENT CERTIFIED  
IN UKRAINE  
AUGUST, 2010

**August 2010**

This report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of International Resources Group (IRG) and do not necessarily reflect the views of USAID or the United States Government.

# MUNICIPAL HEATING REFORM (MHR) PROJECT

August 2010

**DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

# TABLE OF CONTENTS

- I. INTRODUCTION .....2**
  - I.1. RESEARCH OBJECTIVE AND METHODOLOGY ..... 2
  - I.2. METHODOLOGY ..... 3
  - I.3. CERTIFICATION ..... 3
  - I.4. SOURCES OF INFORMATION ..... 4
- 2. DESCRIPTION OF ENERGY EFFICIENCY EQUIPMENT .....6**
  - 2.1. BOILER HOUSES ..... 6
  - 2.2. PIPELINES ..... 7
  - 2.3. BUILDINGS..... 8
  - 2.4. ALTERNATIVE ENERGY SOURCES ..... 10
  - 2.5. OTHER ..... 10
- 3. CONCLUSIONS .....| 1**
- APPENDIX-I LIST OF ENERGY EFFICIENT EQUIPMENT .....|3**
- APPENDIX-2 MATRIX FOR ENERGY EFFICIENT EQUIPMENT .....|5**

# I. INTRODUCTION

The purpose of the MHR Project is to assist the National Government of Ukraine (GOU) and local governments to create a financially viable and sustainable municipal heating sector able to deliver quality services to the population, public institutions and local industries. Main areas of focus include strengthening the legal, regulatory, and institutional framework to improve heating services to customers; improving tariff regulation and methodology; educating the public and government officials through a multi-faceted information, education and outreach campaign; enhancing the capacity of municipalities to plan, manage, and fund the development of the heating systems; facilitating creation of condominium and home owner associations; and improving energy efficiency in residential and municipal buildings.

The energy efficiency improvement in buildings and heating system will be demonstrated in numerous pilot/demonstration projects that require procurement of different equipment from rehabilitation of boiler plants through improvement of heating systems and energy efficiency at building level.

The Market Research is prepared to identify equipment used for different thermo-modernization projects and it is intended for specialists involved in implementation of fuel and energy resources efficiency projects.

The goal of the Market Research is implementation of the energy efficiency pilot projects in Ukraine. This involves the procurement of equipment according to the accepted Geographic Codes for procurement of goods and services.

**The Market Research** was prepared by the Municipal Enterprise “Project implementation unit for the Kyiv public building energy efficiency project”

## I.1. RESEARCH OBJECTIVE AND METHODOLOGY

Research objective is to determine the list of equipment for heat supply systems refurbishment/replacement and buildings’ energy efficiency measures that will be potentially used during procurement of the equipment for pilot projects in Ukraine.

### I.1.1. GEOGRAPHIC CODES

The list should contain equipment, which comply with the following authorized Geographic Codes for procurement of goods and services: Code 000 (United States), 110 (Newly Independent States: Azerbaijan, Belarus, Armenia, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan).

If the equipment originated from authorized countries is not available, not certified for use in Ukraine or do not meet the minimum performance requirements, the list includes equipment manufactured in other countries that meets the minimum performance requirements and is approved for use in Ukraine.

## 1.1.2. RESEARCH AREAS

Main areas of the research:

- **Boiler houses** - retrofit projects (replacement of the following equipment: boilers or parts thereof, burners, automation of combustion), control equipment (controllers, valves, frequency converters, etc.), flue gas removal system, ventilation, pumping systems, various types of gas fittings, water fittings, etc.
- **Utilization of renewables** - installation of new equipment (solar, biomass systems and wind)
- **Pipelines** – control and stop valves, pre-insulated pipes.
- **Buildings** - heating substations (controls and meters, thermostatic valves, distributors of costs for heating, hot water, etc.), buildings envelope (thermal insulation, windows, doors, etc.), lighting systems (energy efficient bulbs, motion sensors, switches, etc.).

The matrix contains at least five manufacturers or suppliers for each product type.

## 1.2. METHODOLOGY

The following methodology was applied for the market research:

- (i) Making a list of energy efficient equipment and agreeing the list with the Client.
- (ii) Making a matrix of energy efficient equipment and agreeing the matrix with the Client.
- (iii) Creating an equipment summary in terms of energy efficiency.
- (iv) Conducting market research on energy efficient equipment in Ukraine based on the following materials:
  - a. Equipment catalogs;
  - b. Offers from the equipment manufacturers and suppliers;
  - c. Information on mandatory and voluntary product certification;
  - d. Materials on equipment that was installed under the energy saving projects in Ukraine.
- (v) Submitting of requests to governmental agencies, which are responsible for product certification in Ukraine, to provide information about the certification of listed products.
- (vi) Submitting of requests to equipment manufacturers and suppliers as well to manufacturers associations to confirm availability of product conformity certificates for their products.
- (vii) Systematization of collected information.
- (viii) Creating of preliminary report and agreeing it with the Client.
- (ix) Creating of final report.

## 1.3. CERTIFICATION

### 1.3.1. CERTIFICATION OF ENERGY EFFICIENT EQUIPMENT IN UKRAINE

#### Certification system UKRSEPRO

Unified State System of Standardization and Certification in Ukraine (UKRSEPRO) was introduced for testing quality and reliability of products or services, as well as consistency of production during the manufacturing processes to ensure their compliance with Ukrainian national standards (DSTU, TU, GOST, etc.).

In accordance with bilateral agreements, UKRSEPRO Certificates are recognized by certification systems of the CIS countries. Products certified in the CIS countries are recognized in Ukraine provided they have the "Certificate of Recognition" issued by UKRSEPRO.

The products subject to mandatory certification are specified in the Order No. 28 of the State Committee of Ukraine for Technical Regulation and Consumer Policy of February 1, 2005. Import, distribution or sale of the products specified in the Order without Certificate of Conformity is illegal.

For products not specified in the Order, the voluntary certification procedure is available. For manufacturers and sellers, Certificate is an evidence of product quality which improves product competitiveness and attractiveness to end users.

For the products certified in the UKRSEPRO system, UKRSEPRO issues "Certificate of Conformity" as confirmation of the product compliance with the Ukrainian national standards and regulations.

The certification procedure includes validation of technical documentation for products or services (data sheets, operation manuals, quality systems) for compliance with Ukrainian standards and specifications, familiarization with manufacturing process and facilities and auditing, which are conducted by experts of UKRSEPRO. In addition, candidate products undergo lab tests.

The tests are conducted by testing laboratories accredited by UKRSEPRO. On successful completion of testing confirmed by a test report, UKRSEPRO issues Certificate of Compliance.

### **State Register of Measuring Devices**

It is the responsibility of SE Ukrmetrteststandard to maintain the State Register of Measuring Devices in Ukraine.

Manufacture, sale, use, lease of measuring devices, which are subject to the state metrological supervision, as well as putting them into operation after repairs, are only allowed provided that they have passed calibration test or state metrological certification.

Manufacture of measuring devices, which are not subject to the state metrological supervision, or putting them into operation after repairs, is only allowed provided that they have passed calibration or state metrological certification.

Import of measuring devices by lots into Ukraine is allowed provided these types of devices are registered in the State Register of Measuring Devices (The Law of Ukraine "On Metrology and Metrological Activity").

## **I.4. SOURCES OF INFORMATION**

- The Registry of Products certified in Ukraine.
- Current national regulations in Ukraine, such as state standards (DSTU), building codes (SNiP), etc.
- Catalogs of equipment manufacturers and suppliers.
- Equipment data sheets.
- Certificates of conformity of equipment.
- The results of the implementation of energy saving projects in Ukraine.

## **WEB LINKS:**

### **Laws and cods:**

<http://zakon.rada.gov.ua>

<http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=z0466-05>

<http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=113%2F98-%E2%F0>

<http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=46-93>

### **Public institution: standardization, certification and metrology.**

<http://www.ukrcsm.kiev.ua/>

<http://www.csm.kiev.ua>

### **Public institution: energy efficiency:**

<http://naer.gov.ua/>

### **State register of measuring devices:**

[http://www.ukrcsm.kiev.ua/index.php?option=com\\_gosreestr&Itemid=&lang=uk](http://www.ukrcsm.kiev.ua/index.php?option=com_gosreestr&Itemid=&lang=uk)

### **Ukrainian Business Catalogs:**

<http://www.rada.com.ua/ukr/catalog/>

<http://www.tradeukraine.com/>

<http://www.yellowpages.ua/>

### **Associations of enterprises in the field of energy efficiency**

<http://www.ucci.org.ua>

<http://www.u-b-a.com.ua>

<http://www.enefcities.org.ua>

<http://www.energy-cities.eu>

<http://www.energoeffect.com.ua/>

[www.newenergy.org.ua](http://www.newenergy.org.ua)

[www.euea-energyagency.org](http://www.euea-energyagency.org)

[www.ua-ea.org](http://www.ua-ea.org)

[www.xebecinc.com](http://www.xebecinc.com)

[www.ukraine2015.org.ua](http://www.ukraine2015.org.ua)

[www.greencubator.info](http://www.greencubator.info)

[www.tiseco.com.ua](http://www.tiseco.com.ua)

[www.uwea.com.ua](http://www.uwea.com.ua)

[www.fuelalternative.com.ua](http://www.fuelalternative.com.ua)

[www.zorg.ua](http://www.zorg.ua)

[www.biomass.kiev.ua](http://www.biomass.kiev.ua)

[www.rea.org.ua](http://www.rea.org.ua)

[www.nrel.gov](http://www.nrel.gov)

[www.iea.org](http://www.iea.org)

# 2. DESCRIPTION OF ENERGY EFFICIENCY EQUIPMENT

## 2.1. BOILER HOUSES

### 2.1.1. WATER BOILERS

Many water boilers operated in Ukraine are inefficient. The main reasons of excessive fuel consumption are the following:

- Boilers run at off-nominal operating modes;
- Ineffective control system;
- Ineffective thermal insulation;
- No economizers;
- Excessive wear of boilers.

### 2.1.2. CONDENSING WATER BOILERS

Condensing boilers use heat recovered from condensing water vapor contained in the flue gases. As compared with the non-condensing boilers, the efficiency of condensing boilers is 10% higher. The disadvantages of condensing boilers are relatively high cost and the need for condensate disposal.

### 2.1.3. ECONOMIZERS

Installation of economizers provides higher efficiency of boiler plants due to extraction of heat from the otherwise wasted flue gases.

### 2.1.4. COGENERATION PLANTS

Cogeneration units (micro CHP plants) produce both heat and electricity, thereby maximizing efficient use of fuel. The competitive advantages of own cogeneration plant:

- More efficient use of expensive traditional fuel. (the total coefficient of efficiency is about 90%).
- Generation of cheap electricity, for own needs or for sales by the grid.
- Autonomy and reliability of electricity supply (especially important advantage for businesses and industrial enterprises).
- Excellent environmental parameters. Reduction of emission of greenhouse gas.

There are many inefficient obsolete pumps (circulation or boost units) operated in Ukraine. In addition there are often oversized hence operate with very low efficiency. This results in excessive consumption of electricity.

Replacing these pumps with the new high-efficiency and high-performance ones can significantly reduce power consumption. When the pumps are installed in residential or office premises, reduction of vibration and noise levels are very important.

### **2.1.5. BOILER AUTOMATION SYSTEMS**

For efficient fuel combustion, reliable and flexible boiler automation is crucial. The main tasks of automation systems include the following:

- Maintain temperature of the heat carrier at the required level;
- Maintain optimum fuel/air ratio;
- Ensure safe and trouble-free operation of boiler plants.

### **2.1.6. PUMP AUTOMATION SYSTEMS**

Pumping equipment is one of the largest consumers of electricity in heating systems. Automation of pumps allows to reduce energy consumption for pumping and to improve the reliability of pumps due to the use of efficient control algorithms.

### **2.1.7. BURNERS**

Burner is a key component of the boiler plants. The quality of the burner affects the combustion efficiency and environmental impact of operation (emissions). Another important indication of the burner performance is a range of power regulation. Fluctuating heat demand requires the efficient burners suitable for a wide power range. The burner performance directly affects boiler efficiency.

### **2.1.8. THERMAL INSULATION**

Thermal insulation is a key factor to ensure high efficiency of heating system, on the way from the boiler unit to the end user. Insulation of surfaces of pipelines, boilers, heat exchangers, valves etc. significantly reduces heat loss into the environment.

In many cases, thermal insulation of existing systems is damaged or missing, which causes considerable heat losses.

### **2.1.9. FREQUENCY CONVERTERS FOR ELECTRIC MOTORS**

In heating systems, the major electricity consumers are pump motors, fans and smoke exhausters. In addition, the workloads on this equipment are uneven. This is the result of the irregular heat demand depending on the external weather conditions, schedule of work, etc. In the existing systems, the performance of pumps, fans or smoke exhausters is mainly controlled by throttling that causes excessive electricity consumption.

Frequency converters are the most effective way to control performance of the electrically driven equipment. Electrical pumps, fans and smoke exhausters with adjustable drives consume only the necessary amount of power. This can significantly improve energy efficiency.

### **2.1.10. CONTROL VALVES**

The main task of the control valves used in heating systems is efficient heat distribution among the consumers while maintaining the characteristics of the fluid (pressure, temperature) at preset level. Control valves could use manual, electric, pneumatic or hydraulic drives. Currently, many heating systems use obsolete control valves. It prevents to maintain the fluid characteristics with sufficient accuracy and leads to excessive power consumption.

## **2.2. PIPELINES**

### **2.2.1. PRE-INSULATED PIPES**

Retrofitting the heating systems with pre-insulated pipes allow to reduce heat losses within heat transmission and distribution systems. Other advantage of pre-insulated pipes is less labor for piping works along with the opportunity for pipelines integrity monitoring.

### **2.2.2. STOP VALVES**

Trouble-free performance of the control valves allows avoiding the fluid leaks. Replacement of damaged control valves in the heat and hot water transmission and distribution systems reduces fuel consumption for heating, electricity consumption for pumping, and water consumption for feeding the network.

### **2.2.3. PIPELINES**

Given the emergency condition of many existing pipelines within heat supply systems, it is safe to say about the great energy efficiency potential due to the pipelines replacement, which will reduce fluid leaks.

## **2.3. BUILDINGS**

### **2.3.1. THERMAL INSULATION FOR BUILDING ENVELOPE**

Most buildings in Ukraine were built at times of low energy costs and low standards for thermal insulation. After a significant price rise, problem of insufficient insulation of external walls has become particularly acute.

Proper thermal insulation can both cut costs for heating and improve living comfort in the premises.

### **2.3.2. CONTROLLERS FOR HEATING AND HOT WATER SUPPLY SYSTEMS**

The transition from central to individual heating substations requires retrofitting heating and hot water supply systems with efficient and reliable controllers. These controllers will help to optimize power consumption due to the following:

- Weather compensation;
- Room temperature reduction during the periods when a room is not occupied;
- Hot water temperature maintenance;
- Interruption of hot water supply during the periods of no-demand.

Controllers for heating and hot water supply systems together with control devices (electric temperature controls) are an integral part of individual heat substations.

### **2.3.3. DIRECT TEMPERATURE CONTROLS**

Direct-acting temperature regulators are designed to support constant temperature in heating, cooling, water supply, air conditioning, different technological systems. These regulators use energy of the working medium, without requiring additional energy supply, sensors or controllers. They are used in systems where the working medium is water, steam, air or cooling agent.

### **2.3.4. AUTOMATIC DIFFERENTIAL PRESSURE CONTROLS**

Because of the pressure fluctuations in heat supply systems, it is necessary to use differential pressure regulators in order to provide reliable operation of automation in individual heat-points.

### **2.3.5. BALANCING VALVES**

Balancing valves effectively redistribute heat carrier flow through the branches and risers of internal heating system.

### **2.3.6. METERING UNITS**

The top priority measure for improvement of energy efficiency is installation of metering units for heat, electricity, gas and water. The installation of meters encourages consumers to use energy more efficiently even without using any other equipment.

### **2.3.7. HEAT EXCHANGERS**

Heat-exchanging equipment is an integral part of all heating systems.

Inefficient and worn-out heat exchangers are one of the reasons of excessive energy consumption in heating and hot water supply systems and frequent water leakages. In addition, heat-exchange equipment greatly affects the performance and reliability of heating and hot water supply systems.

### **2.3.8. RADIATOR HEAT REFLECTORS**

Installation of radiators reflectors is relatively low-cost measure that allows significantly reducing heat losses through the outer walls. The reflectors direct heat from the radiators evenly back into the room.

### **2.3.9. ENERGY EFFICIENT WINDOWS**

Replacement of old wooden windows to energy efficient windows can significantly reduce heat losses due to less heat transfer and less air inflow.

### **2.3.10. WINDOW AND DOOR SEALS**

In case when the existing wooden windows and doors are in satisfactory condition, the heat losses could be reduced by such low-cost measure like sealing.

### **2.3.11. ENERGY- EFFICIENT BULBS**

Compact fluorescent lamps consume 4-5 times less energy compared to incandescent lamps, giving the same light output. Their additional advantage is 4-5 times longer service life.

### **2.3.12. INDIVIDUAL GAS BOILERS**

Individual boilers provide autonomy, particularly useful in cases if the existing centralized heating system can not provide a reliable supply or would require unfeasible replacement of pipelines. Another advantage of using individual boilers is avoiding heat losses in pipelines.

### **2.3.13. INDIVIDUAL ELECTRIC BOILERS**

Using electric boilers is especially effective when working in periods of minimal load power, for "night" tariffs, using heat (hot water) storage tanks.

### **2.3.14. HOT WATER STORAGE TANKS**

When interval tariffs are applicable, use of hot water storage tanks is an efficient way to accumulate heat. Water heating during night time (when electricity tariff is the lowest) could significantly cut costs for heating and hot water. Use of hot water storage tanks is also feasible in the systems with heat pumps and solar collectors.

### **2.3.15. THERMOSTATIC VALVES**

Thermostatic valves allow maintaining constant room temperature. In addition, these valves ensure consuming only as much heat as necessary for specific room.

### **2.3.16. RADIATORS AND CONVECTORS**

Clogged or fouled radiators and convectors are one of the reasons of inefficient heating system operation. Replacement of existing obsolete heaters is essential to efficient performance of the heating system.

### **2.3.17. HEAT PUMPS**

Heat pumps allow using a low-potential heat of ground, air, sewerage, excessive heat from technological processes. Heat pumps consume electricity only for the compressors, circulating pumps and controllers, which is only 22 ... 30% of the thermal power output of a heat pump. For obtaining maximal energy

efficiency it is recommended to use heat pumps with low-temperature heating systems (floor heating for example). Another application of heat pumps is cooling systems (conditioning).

### **2.3.18. WATER SAVING SHOWER HEADS**

Shower heads greatly affect the amount of consumed cold and hot water. Use of water saving shower heads can reduce water and energy consumption.

### **2.3.19. VENTILATION UNITS WITH HEAT RECOVERY**

Most of currently used ventilation systems do not provide heat recovery from exhaust air that results in significant heat loss. Use of ventilation systems with exhaust air heat recovery units will significantly reduce the heat load on ventilation systems. There are small heat recovery systems (for 1-2 rooms) and powerful systems, designed for a whole building. Introducing of efficient ventilation systems is especially important in the case of thermal retrofit of buildings, when natural air inflow is greatly reduced.

## **2.4. ALTERNATIVE ENERGY SOURCES**

### **2.4.1. SOLAR COLLECTORS**

Solar collectors are environment-friendly heat sources. They can be used for providing hot water supply and partially for heating. The advantage of solar collectors is their independence from fossil fuels.

The main disadvantage is the poor performance during the cold season – period of the greatest heat consumption.

### **2.4.2. PHOTOVOLTAIC MODULES**

Photovoltaic modules can be used as a primary or backup power sources. This is environmentally friendly source of free energy. It is recommended to use PV systems in combination with wind turbines.

### **2.4.3. BIOMASS BOILERS**

Given the continuous rise of costs for traditional energy resources (natural gas, oil, electricity, etc.), use of biomass boilers has become increasingly relevant. As a fuel for these boilers, agricultural waste (straw, husk, etc.), timber waste, etc. may be used. In addition to their primary task – heat generation – they help to solve waste disposal issues.

### **2.4.4. BIOGAS PLANTS**

A large number of landfills and agricultural enterprises in Ukraine opens up great opportunities for biogas production. The biogas can be used for heating, hot water supply and electric power generation.

### **2.4.5. WIND TURBINES**

The wind turbines are independent energy supply sources. They can be used as a primary or auxiliary electric power sources. To reach the most constant and highest efficiency, it is recommended to use them in relevant areas with permanent winds, in combination with PV modules.

## **2.5. OTHER**

### **2.5.1. EQUIPMENT FOR ENERGY AUDIT**

Implementation of measures to improve energy efficiency should be preceded by energy audits. Energy audit can answer the question: "Whether energy is used efficiently?" The energy audit requires the use of various portable devices: temperature meters, flow meters, power quality analyzers, etc. Use of quality equipment ensures the most accurate identification of potential energy savings.

# 3. CONCLUSIONS

The completed market research on energy efficient equipment shows the following:

1. The vast majority of products specified in the list are produced in Ukraine, USA and the countries of CIS. For the products listed below at least 3 competitive bids can be received. Particularly the wide choice of the following products is available:

- Water boilers for various purposes, including biomass boilers and electric boilers;
- Pipes, including pre-insulated pipes;
- Burners;
- Heat, gas, water and electricity meters;
- Thermal insulation for buildings and pipelines, radiator heat reflectors;
- Stop valves;
- Heating radiators;
- Controllers for heating and hot water supply systems;
- Energy efficient windows (which are mostly manufactured from profiles imported from Europe).

2. For certain products originated from the above mentioned countries, the choice in Ukrainian market does not meet demand (limited range of sizes, low efficiency, etc.). This equipment includes:

- Frequency converters;
- Heat pumps;
- Ventilation units with heat recovery;
- Solar collectors (in particular, only flat collectors are manufactured in Ukraine);
- Photovoltaic modules (only one manufacturer in Ukraine);
- Control valves (electric temperature controls; direct temperature controls; automatic differential pressure controls, balancing valves);
- Wind turbines;
- Equipment for energy audit.

3. Some types of equipment require substantial investment and usually implemented in one example. Such equipment is usually certified for the use in particular installation. Those are:

- Large capacity cogeneration units;
- Biogas plants;

- Large capacity heat pumps.
4. Some equipment used in standard projects for energy efficiency is not manufactured in Ukraine and not available by import from above mentioned countries. This equipment includes:
- Low noise circulating pumps for heating systems;
  - Thermostatic valves;
  - Water saving shower heads;
  - Vacuum solar collectors.
5. Certain products specified in the list not subject to mandatory certification in Ukraine (solar collectors, heat pumps, frequency converters, etc.).
6. UkrSEPRO certificates are valid for a limited time, so the availability of valid certificate should be checked in the moment of procurement.
7. The matrix of energy efficient equipment shows the market conditions for the equipment used in energy efficiency projects. There are indicated the companies consistently providing energy saving products for a long time, having a wide distribution network and service centers, as well as offering competitive prices.

# APPENDIX-I LIST OF ENERGY EFFICIENT EQUIPMENT

## 1. Boiler houses:

- water boilers;
- condensing water boilers;
- economizers;
- cogeneration plants;
- boost pumps;
- circulating pumps;
- boiler automation systems;
- pump automation systems;
- burners;
- thermal insulation;
- frequency converters for electric motors;
- control valves.

## 2. Pipelines:

- thermal insulation for pipelines;
- pre-insulated pipes;
- stop valves;
- pipelines.

## 3. Buildings:

- thermal insulation for building envelope;
- controllers for heating and hot water supply systems;
- electric temperature controls;
- direct temperature controls;
- automatic differential pressure controls;
- balancing valves;
- heat metering units;

- water metering units;
- electricity metering units;
- gas metering units;
- heat exchangers;
- stop valves;
- radiator heat reflectors;
- energy saving windows;
- window and door seals;
- energy-efficient bulbs;
- individual gas boilers;
- individual electric boilers;
- hot water storage tanks;
- thermostatic valves;
- radiators and convectors;
- heat pumps;
- water saving shower heads;
- heat recovery ventilation units.

#### 4. Alternative energy sources:

- solar collectors;
- photovoltaic modules;
- biomass boilers;
- biogas plants;
- wind mills.

#### 5. Other

- equipment for energy audit.

# APPENDIX-2 MATRIX FOR ENERGY EFFICIENT EQUIPMENT

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Water boilers</b>	Cast iron and steel fire-tube boilers operating on natural gas and diesel fuel. Max. flow temperature; 110°C. Rated output: 50-10000 kW. Efficiency: 92%. TM "Kolvi"	Ukraine	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str, pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	Rated output: 50-10000 kW. Efficiency: 92%	1 year warranty service. Own service center	UA 1.069.0190795-06 UA 1.069.0055576-08 UA 1.165.0061680-09 UA 1.165.0089006-09 UA 1.165.0046411-10	The company was founded in 1991	
2		Cast iron and steel fire-tube boilers operating on natural gas and diesel fuel. Max. flow temperature; 110°C. Rated output: 50-10000 kW. Efficiency: 92-96%. TM "Mayak".	Ukraine	<b>JSC "Mayak",</b> 120, 50 years of Komsomol str., Zmiyiv, Kharkiv region, Ukraine T:+380-57-473-08-68 F:+380-57-473-08-69 www.majak.com.ua	<b>JSC "Mayak",</b> 120, 50 years of Komsomol str., Zmiyiv, Kharkiv region, Ukraine T:+380-57-473-08-68 F:+380-57-473-08-69 www.majak.com.ua	Rated output: 378-1373 kW Efficiency: 92-96%	2 year warranty service. Own service center	UA.1.013.0137665-06	The company was founded in 1991	
3		Water-tube and heat-tube steel boilers operating on natural gas and coal. Max. flow temperature; 110°C. Rated output; 1-12 MW/ Efficiency: 91-92%. Types: VK, KSVa, KV, TV	Ukraine	<b>JSC "Monastyrshchensky Boiler Plant"</b> 122, Lenina str. Monastyrshche, Cherkasy region, Ukraine	<b>JSC«Tekom»</b> 1228, Lenina str. Monastyrshche, Cherkasy region, Ukraine T:+380-47-462-17-05, T:+380-47-462-11-54, T:+380-44-502-28-39, T:+380-44-502-28-40, F:+380-47-462-24-95, www.tekom.com.ua	Rated output: 1-12 MW Efficiency: 91-92%	2 year warranty service. Own service center	does not require certification	The company was founded in 1898	
4		Steel water-tube boilers operating on natural gas. Max. flow temperature 110°C. Rated output: 0,1-5 MW. Efficiency: 92%. TM "RIO"	Ukraine	<b>JSC Berdichivsky Machine-Building Plant "Progress"</b> 79, Karl Libknecht str., Berdychiv, Zhytomyr region, Ukraine, tel. +380 (44) 490 3888 fax. +380 (44) 490 3899 www.progress.ua	<b>JSC "Trade House of "Progress" Plant"</b> 79, K.Libknecht str., Berdychiv, Zhytomyr region, Ukraine, tel. +380 (44) 490 3888 fax. +380 (44) 490 3899 www.progress.ua	Rated output: 0,1-5 MW Efficiency: 92%	1 year warranty service. Own service center	UA1.013.0069343-08 UA 1.013.0045747-08 UA 1.013.0069343-08 UA 1.013.0025334-10	RIO boilers are manufactured since 2007	
5		Steel fire-tube boilers operating on natural gas and liquid fuel. Max. flow temperature; 110°C. Rated output: 0,25-3,15 MW, Efficiency: 91%. Types: VK, KSV	Ukraine	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	Rated output: 0,25-3,15 MW Efficiency: 91%	2,5 year warranty service. Have their own service center	UA 1.013.0101709-07 UA 1.013.0051259-09 UA 1.013.0051841-09	The company was founded in 1945	
6		Water-tube and heat-atube steel boilers operating on natural gas, liquid fuel, coal and other fuels. Max. flow temperature 110°C. Rated output: 0,63 -206 MW, Efficiency: up to 94%. Boiler types: Smolensk, Dorogobuzh, Dnepr, HF, DKM, PTVM	Russia	<b>JSC "Dorohobuzh kotlomash"</b> Verhnedneprovsk, Dorohobuzhskyy district Smolensk region., Russia, 215750 tel.(48144) 541-77, 532-45, 293-90, 293-08 www.dkm.ru	<b>SC "Trade House of "Dorohobuzhskotlomash" Plant",</b> Verhnedneprovsk, Dorohobuzhskyy district Smolensk region., Russia, 215750 tel.(48144) 541-77, 532-45, 293-90, 293-08 www.dkm.ru	Rated output: 0,63-206 MW Efficiency: up to 94%	2 year warranty service. Own service center	UA 1.087.0040257-04 UA 1.087.0040258-04 UA 1.087.0040259-04 UA 1.087.0040261-04 UA 1.087.0040263-04 UA 1.087.0176404-06 valid till 2009	The company was founded in 1962	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Condensing water boilers</b>	Wall-hung gas fired condensing boilers with copper or aluminium heat exchanger, for household heating systems. Rated output: 22-36 kW. Efficiency: up to 109%. Trademark: "Aton"	Ukraine	<b>Plant" Atonmash "</b> 16 Tsentralna str., Krasyliv, Khmelnytsky region, Ukraine, +380-38-554-48-06, +380-38-554-48-07, +380-38-554-38-81, +380-38-554-37-97 www.aton.ua	<b>Plant" Atonmash "</b> 16 Tsentralna str., Krasyliv, Khmelnytsky region, Ukraine, +380-38-554-48-06, +380-38-554-48-07, +380-38-554-38-81, +380-38-554-37-97 www.aton.ua	Rated output: 22-36 kW Efficiency: not less than 109%	3 year warranty service. Own service center	UA 1.013.0186573-06 UA 1.013.0206991-06 UA 1.013.0208886-06 UA 1.013.0156751-08 UA 1.013.0171443-08 UA 1.013.0048147-09 UA 1.021.0012493-11	The company was founded in 2003	
2		Wall-hung and floor-mounted gas fired condensing boilers for household heating systems. Rated output: 45-280 kW. Efficiency: up to 108%. Trademark: "Kolvi"	Ukraine	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	Rated output: 45-280 kW. Efficiency: up to 108%.	1 year warranty service. Own service center	UA1.069.0190795-06 UA1.069.0055576-08 UA 1.165.0061680-09 UA 1.165.0089006-09 UA 1.165.0046411-10	The company was founded in 1991.	
3		Steel and cast-iron boilers operating on natural gas or liquid fuel, for household and industrial needs. Rated output: 3,8-5900 kW, Efficiency: up to 109%. Trademark: "Viessmann"	Germany	<b>Viessmann Werke GmbH и Co KG</b> Viessmannstraße 1 35108 Allendorf (Eder) T: + 49 6452 70-0 F: + 49 6452 70-2780	<b>Viessmann Ltd.</b> pavilion 10-A , 5, Dimitrova str., Kyiv, 03680, Ukraine T:+380-44-461-98-41 F:+380-44-461-98-43 www.viessmann.ua	Rated output: 3,8-5900 kW Efficiency: up to 109%	2 year warranty service. Own service center	UA 1.069.0020992-09 UA 1.069.0028491-09	The representative office of "Viessmann" works in Ukraine since 2000.	
4		Gas fired condensing boilers for household heating systems. Rated output: 4,3-100 kW. Efficiency: up to 109%. Trademark: "Buderus"	Germany	<b>Bosch Thermotechnik GmbH</b> 35576 Germany, Wetzlar, Sophienstrasse 30-32 e-mail: info@buderus.de	<b>Robert Bosch GmbH</b> 1 Krainya str., Kyiv, 02660, Ukraine, T:+380-44-390-71-93 F:+380-44-390-71-94 www.buderus.ua	Rated output: 4,3-100 kW Efficiency: up to 109%	2 year warranty service. Own service center	UA 1.087.0001683-08 UA 1.096.0089615-09 UA 1.069.0048146-10 UA 1.069.0048302-10 UA 1.069.0048358-10	The representative office of "Buderus" works in Ukraine since 2005.	
5		Gas fired condensing boilers for household heating systems. Rated output: 5,3-100 kW. Efficiency: up to 109%. Trademark: "Ferrol"	Italy	<b>GRUPPO FERROLI</b> Via Ritonda 78/a - 37047 San Bonifacio (VR) Tel. 045 6139411 - Fax 045 6100933	<b>Ferrol S.p.A.</b> representativity in Ukraine 10/17, Ivana Klymenko str., Kyiv, 03037, Ukraine, T:+380-44-537-02-39 F:+380-44-461-78-13 info@ferrol.kiev.ua	Rated output: 5,3-100 kW Efficiency: up to 109%	5 year warranty service. Own service center	UA 1.069.0043785-06 UA 1.069.0043790-06 UA 1.069.0044592-06 UA 1.069.0045750-07 UA 1.069.0045751-07 UA 1.069.0050152-07 UA 1.069.0091560-09 UA 1.069.0091561-09	The representative office of "Ferrol" works in Ukraine since 2005.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Economizers</b>	The economizers are manufactured on special request for each separate object	Ukraine	<b>Plant "Enerhomash"</b> 19, Kyrgyzka str., Kharkiv, Ukraine. +380-57-719-43-93, +380-57-719-60-30,	<b>Corporation "UkrEnergEngineering"</b> 4, Lunacharskogo str., Kyiv, Ukraine +380-44-585-22-88, +380-44-585-22-86 www.energomash.com.ua	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	More than 10 years	
2		Types of the heat exchangers: "gas-to-water", "gas-to-gas", "water-to-water". Manufacturing of heat exchangers for temperatures up to 1000C is possible (upon special tech.task).	Ukraine	<b>JSC "Termokompleks"</b> 27a, Guseva str., Fastiv, Kyiv region, Ukraine T/F: +380-45-656-61-97	<b>PA "PROMGAZAPPARAT",</b> Of.15, 10g, Starokyivska str., Kyiv, Ukraine T:+380-44-538-07-28, 29, 30 F:+380-44-538-07-23 <a href="http://www.agaz.com.ua">www.agaz.com.ua</a>	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	The company was founded in 1995.	
3		Shell-and-tube heat exchangers	Ukraine	<b>JSC "Fakel"</b> Provuzol, Fastiv, Kyiv region, Ukraine T/F:+380-44-656-67-60, T/F:+380-44-656-67-62, T/F:+380-44-332-07-07, info@fakel.ua	<b>Industrial Investment Company "TekhMashExport" Ltd.</b> +380-44-332-33-27, +380-44-206-66-97, <a href="mailto:pic@tme.com.ua">pic@tme.com.ua</a>	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	The company was founded in 1982.	
4		The cast iron block heat economizers	Ukraine	<b>JSC "Monastyryshchensky Boiler Plant"</b> 122, Lenina str. Monastyryshe, Cherkasy region, Ukraine	<b>JSC «Tekom»</b> 1228, Lenina str. Monastyryshe, Cherkasy region, Ukraine T:+380-47-462-17-05, T:+380-47-462-11-54, T:+380-44-502-28-39, T:+380-44-502-28-40, F:+380-47-462-24-95, www.tekom.com.ua	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	2 year warranty service. Own service center	not require certification	The company was founded in 1898	
5		The heat exchangers constructed as flat pipes with the cross-fins. The types of heat exchangers: "gas-to-water", "gas-to-gas"	Ukraine	<b>Institute of Engineering Thermophysics, the National Academy of Sciences of Ukraine</b> 2a, Zhelyabova str., Kyiv, Ukraine T:+380-44-456-62-82 T:+380-44-456-92-72 T:+380-44-441-72-01 F:+380-44-456-60-91 www.ittf.kiev.ua	<b>Institute of Engineering Thermophysics, the National Academy of Sciences of Ukraine</b> 2a, Zhelyabova str., Kyiv, Ukraine T:+380-44-456-62-82 T:+380-44-456-92-72 T:+380-44-441-72-01 F:+380-44-456-60-91 www.ittf.kiev.ua	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	The Institute was founded in 1947.	
6		The heat exchangers constructed as flat pipes with the cross-fins. The types of heat exchangers: "gas-to-water", "gas-to-gas", "water-to-water". Power output: from 10 kW to 3,5 MW	Ukraine	<b>SPE "RIKS",</b> P.O.Box 247, Kyiv, 03150, Ukraine, +380-44-528-79-22	<b>SPE "RIKS",</b> P.O.Box 247, Kyiv, 03150, Ukraine, +380-44-528-79-22	Hating capacity: 0,01... 3,5 MW; Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	The company was founded in 1988. Manufactured more than 400 units of equipment.	
7		The economizers are manufactured on special request for each separate object	Ukraine	<b>SPKTB "EnergoMashProekt"</b> 3, Kolektorna str., Kyiv, Ukraine +380-44-593-20-60 www.energomashproekt.com	<b>SPKTB "EnergoMashProekt"</b> 3, Kolektorna str., Kyiv, Ukraine +380-44-593-20-60 www.energomashproekt.com	Heating capacity is calculated specifically for each object. Increases the efficiency of the boiler at 3-10%	1 year warranty service. Own service center	not require certification	More than 10 years	

No	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Cogeneration units</b>	<b>PERVOMAISK DIESELMASH</b> 1. Cogeneration units based on engine with electric capacities 315-800 kW, and thermal capacities 0,3-0,9 Gcal/year. 2. Diesel engines 100, 315, 500, 630, 800 kW. 3. Diesel engines (double-type fueled) 315, 500, 630, 800 kW. 4. Gas-fired engines 315, 500, 630 kW. Fuel: different types of gas with different calorific value.	Ukraine	<b>OJSC "PERVOMAISK DIESELMASH",</b> 17, Gagarina str., Pervomaisk, Mykolaiv region, 55213, Ukraine +380-51-615-23-36 +380-51-615-42-84 +380-51-615-41-69 dieselmash@ukrpost.ua www.dieselmash.com.ua	<b>OJSC "PERVOMAISK DIESELMASH",</b> 17, Gagarina str., Pervomaisk, Mykolaiv region, 55213, Ukraine +380-51-615-23-36 +380-51-615-42-84 +380-51-615-41-69 dieselmash@ukrpost.ua www.dieselmash.com.ua	Reliability, ease of maintenance and repair, low maintenance costs and long service life - over 80000h for the planned overhaul, complete resource - over 200000h. Voltage of the generators: 400, 6300, 10500 V. Payback period of CGU with gas engine generators, in case of installation in existing boiler rooms - within 2 years.	Warranty period for engine is 12 months from commissioning, but no more than 18 months from date of shipment. Storage time - 24 months from the production date. General installation support and all kinds of services are offered.	available	The plant was founded in 1875. The only manufacturer of cogeneration units in Ukraine.	
2		CHP unit Organic Rankine Cycle Infinity Turbine 15, 30, 50, 250 kW Cogeneration units convert energy of excess (waste) heat (in the form of vapor, liquid or compressed air) into electrical energy.	USA	<b>Global Energy (USA)</b>	<b>Domus Rapide,</b> 12, Frunze str., Kyiv, 04080, Ukraine +380-44-417-34-46 info@domusrapide.com.ua www.domusrapide.com.ua	High COE, energy savings potential 20...50% Operates by the principle of the Rankine Organic Cycle (CHP unit Organic Rankine Cycle Turbine	Installation and warranty service are offered.	not included in the list of equipment required for certification. The components are certified.	The supply of other types of CG units is possible. Energy sources: natural gas, propane, furnace gas, pyrolysis gas MSW landfill gas, geothermal energy	
3		<b>Caterpillar</b> cogeneration units natural gas-fired and biogas-fired. Capacities (of 1 unit): 190... 4000 kW. Combined production of electric capacity and heat.	USA	<b>Zeppelin Systems USA Inc.</b> Houston Office (Industrial Equipment) 11050 West Little York Building D Houston, TX 77041 Phone +1 713 84 95 666 Fax +1 713 84 95 655 zeppelin-usa@zeppelin-usa.com www.zeppelin-usa.com	<b>Zeppelin Ukraine Ltd</b> with foreign investments 34, Vasylkivska str., Kyiv, 03022, Ukraine +380-44-494-23-30 +380-44-494-23-31 zeppelin@zeppelin.ua	The World leader. High quality. Full service. High COE.	Warranty period: 1 year + extended period by Maintenance Contract. Complete turnkey operation, tech-prophylactic reviews. Warranty and after-warranty service.	available	The company is in Ukrainian market since 2002. Among main orderers are: Municipal enterprises and production unities. Many cogeneration units of 1 MW and higher were installed across Ukraine.	
4		Cogeneration units natural gas/biogas-fired. Capacity - 50 to 2000 kW. Combined production of electric capacity and heat.	Czech Republic	<b>TEDOM s.r.o.</b> Masarykova 1436 268 01 Hořovice tel: +420 311 744 747 t/f: +420 311 744 748 TRADE-CIS@chp.tedom.cz www.tedom.eu, www.tedom.cz	<b>Energy Servicing company "Energy Company of Ukraine" Ltd.</b> office 418, 5, Solomyanska str., Kyiv, Ukraine +380-44-561-94-14 +380-67-502-99-39 energioservis.kiev@gmail.com www.energioservis.kiev.ua	Common COE of the units is within 80...90%, depending on capacity output and type of fuel	Energy Servicing company "Energy Company of Ukraine" Ltd. Performs installation and service.	not included in the list of equipment required for certification. The components are certified	-	
5		Cogeneration units natural gas/biogas-fired. Motor-generators. Capacities: 50... 2000 kW. Combined production of electric capacity and heat.	Slovakia	<b>ELTECO a.s.,</b> Rosinska cesta 15,P.O.Box C9010 01 Zilina T +421 41 506 61 11, obchod@elteco.sk www.elteco.sk	<b>"ELTECO Ukraine" Ltd.</b> Office 302, 1A, Magnitogorska str., Kyiv, 02660, Ukraine +380-44-559-83-24 office@elteco-ukraine.com.ua www.elteco-ukraine.com.ua	Highly qualitative automatics. Reasonable price, in comparison with competitive analogues (German, for example)	Warranty period: 1 year, then the Maintenance contract is offered. Warranty and after-warranty service.	available	Founded in 1995. In Ukraine since 2002. The largest installation: 1 MW unit (common Capacity output) - in Slavutich.	
6		<b>VITOBLOC</b> cogeneration units natural gas-fired, capacities (el./heat): 50/82... 402/563 kW	Germany	<b>Viessmann</b> 16 factories in different countries, 120 trade offices in 37 countries. Viessmann plant in Allendorf (Germany): Viessmannstraße 1 35108 Allendorf (Eder) Telefon: +49 06452 70-0 Telefax: +49 06452 70-2780 www.viessmann.com	<b>Viessmann Ltd,</b> 10-A, 5, Dimitrova str., Kyiv, 03680, Ukraine +380-44-461-98-41 +380-44-461-98-43 office@viessmann.ua www.viessmann.ua	Common COE: 89,4% - 91,2% The emission of harmful substances is not more regulations for claiming TA-Luft (2002). Ordering plants for biogas or propane is possible.	Warranty period: 2 years + extended period by Maintenance Contract. Installation and warranty service performed by a dealer.	available	The company is in Ukraine since 1997. Has an authorized representativity, warehouse, customer service.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Pressure increasing pumps</b>	<b>WILO</b> pressure increasing pumps MHI, MHIL, MVIS Working range: flow: 5... 25 m <sup>3</sup> /h, lift: 25... 45 m.	Germany	<b>WILO SE</b> Nortkirchenstraße 100 44263 Dortmund T 0231 4102-0 F 0231 4102-7363 wilo@wilo.com www.wilo.de	<b>WILO Ukraine Ltd.,</b> 58/10 Gaidara str., Kyiv, 01033, Ukraine T +380-44-201-18-72 F +380-44-201-18-77 www.wilo.ua	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty: 24-60 months depending on a model. Service life - 10 years. Service center - WILO Ukraine Ltd., network across Ukraine.	UkrSEPRO, Registry # UA1.168.0096685-09	Since 1993 on Ukrainian market; Authorized representativity in Ukraine - since 1998; Network of servicing centers across Ukraine;	
2		<b>GRUNDFOS</b> pressure increasing pumps CH/CHN - up to 14 m <sup>3</sup> /h / 55m, CHIE - up to 14 m <sup>3</sup> /h / 58m, CHI/CHIU - up to 28 m <sup>3</sup> /h / 58m, CRE/CRIE/CRNE - up to 120 m <sup>3</sup> /h / 250m, Working pressure 10 bar	Germany	<b>GRUNDFOS GmbH</b> Schlüterstraße 33 40699 Erkrath  <b>GRUNDFOS Pumpenfabrik GmbH</b> Willy-Pelz-Straße 1-5 23812 Wahlstedt	<b>Grundfos Ukraine Ltd.</b> 8-Б, Moskovska str., Kyiv, 01010, Ukraine, T +380-44-390-40-50, F +380-44-390-40-59, 0-800-501-55-70, (free calls within Ukraine) email: ukraine@grundfos.com	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty: 24-60 months depending on a model. Service life - 10 years. Service center - WILO Ukraine Ltd., network across Ukraine. In Kyiv: Vened, Techmash, Istoki, Interproekt, Ekoflok, Ukrintherm	All the Certificates are available	Grundfos Ukraine Ltd. Was founded in 2004, has headquarters in Kyiv and 4 regional offices in Lviv, Donetsk, Kharkiv, Odessa.	
		<b>NOCCHI</b> Pressure increasing pumps Max. flow: 288 m <sup>3</sup> /h, Max. lift: 111 m. E-Consumption: 2x0,37 - 4x15 kW	Italy	<b>PENTAIR WATER ITALY</b> Via Masaccio,13 56010 Lugnano (PI) T:+39-050-71-61-11, F:+39-050-70-31-37 nocchi-emea@pentair.com www.nocchi.it	<b>Virol-Group Ltd.,</b> 21/30 Garmatna str., Kyiv, 03067, Ukraine T:+380-44-583-06-97,-98, T:+380-44-465-80-71, -72; -91; -96 office@virol.com.ua www.virol.com.ua	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty period - from 12 months. Servicing support.	UkrSEPRO UA1.069.0138488-08 UA1.016.0031559-09	Since 2007. Among the objects there are many industrial and agricultural enterprises.	
3		<b>SAER</b> pressure increasing pumps M94-97-99, M50-60-70-80-300-400, M150-200, M90-100-153-203, M92-102-202 - up to 6 m <sup>3</sup> /h / 83m, Working pressure 8 bar	Italy	<b>SAER ELETTRPOMPE S.p.A.</b> Via Circonvallazione, 22 42016 Guastalla (RE) - Italy Tel. +39 0522 830941 Fax +39 0522 826948 info@saerelettropompe.com	<b>SAER Ukraine Ltd.,</b> 2A Sumska str., Kyiv, 03138, Ukraine +380-44-258-99-00 main@saer.ua www.saer.ua	Lower cost, in comparison with European competitors	Warranty: 2 years. Service performed by SAER Ukraine Ltd. and the dealers.	UkrSEPRO, registry # UA1.168.0056464-10	The production plant of SAER ELETTRPOMPE S.p.A was founded in 1951. SAER Ukraine Ltd. works since 2008.	
4		<b>DAB</b> pressure increasing pumps JET, JETINOX, JETCOM Working range: flow: 0,4... 10,5 m <sup>3</sup> /h, lift: up to 62 m. Range of temperatures: -10°C... +35°C for household systems, -10°C... +40°C for other systems. Max. working pressure: 6 bar (600 kPa) for types Jet and Jetcom; 8 bar (800 kPa) for type Jetinox	Italy	<b>Dab Pumps Spa</b> P.I. 03675230282 Via Marco Polo, 14 Mestrino Padova - Italy	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Low cost, in comparison with European competitors.	Warranty: 2 years. Service.	UkrSEPRO, Registry # UA1.069.0025981-09	The plant of DAB Pumps s.p.a. was founded in 1975. PE AKVA Ukraine works since 1995. The pumps are highly popular in private sector. Successful competitor of WILO and Grundfos	

No	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Circulating pumps</b>	<b>WILO</b> Full range of circulation pumps by power and scope.	Germany	<b>WILO SE</b> Nortkirchenstraße 100 44263 Dortmund T 0231 4102-0 F 0231 4102-7363 wilo@wilo.com www.wilo.de	<b>WILO Ukraine Ltd.,</b> 58/10 Gaidara str., Kyiv, 01033, Ukraine T +380-44-201-18-72 F +380-44-201-18-77 www.wilo.ua	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty: 24-60 months depending on a model. Service life - 10 years. Service center - WILO Ukraine Ltd., network across Ukraine.	UkrSEPRO, registry # UA1.168.0096685-09	Since 1993 on Ukrainian market; Authorized representativity in Ukraine - since 1998; Offices in Lviv, Kharkiv, Mykolayiv, Sympheropol, Ternopil, Donetsk, Zaporizhzhya and Tcherkassy; Delivery from the warehouse in Kyiv; Network of servicing centers across Ukraine; Individual customer care.	
2		<b>GRUNDFOS</b> Full range of circulation pumps by power and scope.	Germany	<b>GRUNDFOS GmbH</b> Schlüterstraße 33 40699 Erkrath  <b>GRUNDFOS Pumpenfabrik GmbH</b> Willy-Pelz-Straße 1-5 23812 Wahlstedt	<b>Grundfos Ukraine Ltd.</b> 8-b, Moskovska str., Kyiv, 01010, Ukraine, T +380-44-390-40-50, F +380-44-390-40-59, 0-800-501-55-70, (free calls within Ukraine) email: ukraine@grundfos.com	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty: 24-60 months depending on a model. Service life - 10 years. Service center - WILO Ukraine Ltd., network across Ukraine. In Kyiv: Vened, Techmash, Istoki, Interproekt, Ekoflok, Ukrintherm	All the Certificates are available	Grundfos Ukraine Ltd. Was founded in 2004, has headquarters in Kyiv and 4 regional offices in Lviv, Donetsk, Kharkiv, Odessa.	
		<b>NOCCHI</b> Pressure increasing pumps Flow: 2-9 m <sup>3</sup> /h, Lift: 1,5-8,5 m. E-Consumption: 71... 275 W	Italy	<b>PENTAIR WATER ITALY</b> Via Masaccio,13 56010 Lugnano (PI) T:+39-050-71-61-11, F:+39-050-70-31-37 nocchi-emea@pentair.com www.nocchi.it	<b>Virol-Group Ltd.,</b> 21/30 Garmatna str., Kyiv, 03067, Ukraine T:+380-44-583-06-97,-98, T:+380-44-465-80-71, -72; -91; -96 office@virol.com.ua www.virol.com.ua	Reliability. Low energy consumption. Intellectual pump control systems.	Warranty period - from 12 months. Servicing support.	UkrSEPRO UA1.069.0138488-08 UA1.016.0031559-09	Since 2007. Among the objects there are many industrial and agricultural enterprises.	
3		<b>IMP</b> Full range of circulation pumps by power and scope.	Slovenia	<b>IMP PUMPS d.o.o.</b> Zagorica 18, 1292 Ig, Slovenia +386 (0)1 28 06 400 +386 (0)1 28 06 460 info@imp-pumps.com	<b>SAER Ukraine Ltd.,</b> 2A Sumska str., Kyiv, 03138, Ukraine +380-44-258-99-00 main@saer.ua www.imp-pumps.com.ua	The manufacturer is specialized only on circulation pumps, for 50 years. In comparison with German counterparts: high steel, 3 speed, switching automatically. There are pumps with frequency control, with power consumption not less than Class A (energy saving up to 70%).	The warranty period is 2 years. Service is performed by SAER Ukraine Ltd. and the dealers.	UkrSEPRO, registry # UA1.168.0056464-10	The production plant was founded in 1947. IMP is on Ukrainian market since March of 2010. The biggest customer is Municipal Heating Network of Kotsyubynske town.	
4		<b>DAB</b> Full range of circulation pumps by power and scope. Heating, conditioning, hot water supply.	Italy	<b>Dab Pumps Spa</b> P.I. 03675230282 Via Marco Polo, 14 Mestrino Padova - Italy	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Low cost, in comparison with European competitors.	Warranty: 2 years. Service.	UkrSEPRO, Registry # UA1.069.0025981-09	The plant of DAB Pumps s.p.a. was founded in 1975. PE AKVA Ukraine works since 1995. The pumps are highly popular in private sector. Successful competitor of WILO and Grundfos.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Automatic boiler control system</b>	Automatic control of technological processes and energy equipment with thermal capacity up to 20 MW.	Ukraine	<b>"Elas" Ltd.,</b> 27a, Guseva str., Fastiv, Kyiv region, 08500, Ukraine T:+380-44-593-39-77; F:+380-45-656-66-00, F:+380-44-593-39-78, info@elas.com.ua www.elas.com.ua	<b>"Elas" Ltd.,</b> 27a, Guseva str., Fastiv, Kyiv region, 08500, Ukraine T:+380-44-593-39-77; F:+380-45-656-66-00, F:+380-44-593-39-78, info@elas.com.ua www.elas.com.ua	Automatic control for boilers with rated output up to 20MW	3 year warranty service. Own service center	not require certification	More than 3 years	
2		Automatic control of technological processes and energy equipment with thermal capacity up to 25 MW.	Ukraine	<b>SPLTD "DyToN" and LTD "SPE"Promelectronika"</b> 1 Hakasska str., Zaporizhzhya, 69093, Ukraine www.diprom.zp.ua	<b>SPLTD "DyToN" and LTD "SPE"Promelectronika"</b> 1 Hakasska str., Zaporizhzhya, 69093, Ukraine www.diprom.zp.ua	Automatic control for boilers with rated output up to 25MW	5 year warranty service. Own service center	not require certification	The company was founded in 1994	
3		Automatic control devices for autonomous mini-boilers, for setting and support of temperature for heating supply networks, and providing operation safety for mini-boilers	Ukraine	<b>PE"Linia"</b> 9 Lunacharskogo str., Sevastopol, Crimea, 99053, Ukraine F:+380-69-254-25-56, T:+380-69-254-18-21, linegroup@1-line.com.ua, www.1-line.com.ua	<b>PE"Linia"</b> 9 Lunacharskogo str., Sevastopol, Crimea, 99053, Ukraine F:+380-69-254-25-56, T:+380-69-254-18-21, linegroup@1-line.com.ua, www.1-line.com.ua	Automatic control equipment for autonomous mini-boilers	1 year warranty service. Own service center	not require certification	The company was founded in 1991	
4		Automatic control devices, process control and protection of boilers operating on natural gas, liquid and solid fuel.	Ukraine	<b>"Ukrahropromkompleks"</b> of. 2 , 4/7 Citadela str., Kyiv, 01015, Ukraine +380-44-280-60-92, +380-44-280-02-63, +380-44-280-33-78, +380-44-254-20-25 www.uapk.com.ua	<b>"Ukrahropromkompleks"</b> of. 2 , 4/7 Citadela str., Kyiv, 01015, Ukraine +380-44-280-60-92, +380-44-280-02-63, +380-44-280-33-78, +380-44-254-20-25 www.uapk.com.ua	Automatic control devices, process control and protection of boilers operating on natural gas, liquid and solid fuel.	1 year warranty	not require certification	The company was founded in 1996	
5		Automatic control devices, boiler control and protection devices, for boilers operating on natural gas and liquid fuel, of small and medium capacities.	Ukraine	<b>SE "Scientific-Technical Center of Energy Instrumentation" Institute of Engineering Thermophysics, NAS of Ukraine</b> 2 Zhelyabova str., Kyiv, 03057, Ukraine +380-44-453-28-48, +380-44-453-29-99; www.encenter.at.ua	<b>SE "Scientific-Technical Center of Energy Instrumentation" Institute of Engineering Thermophysics, NAS of Ukraine</b> 2 Zhelyabova str., Kyiv, 03057, Ukraine +380-44-453-28-48, +380-44-453-29-99; www.encenter.at.ua	Automatic control devices, boiler control and protection devices, for boilers operating on natural gas and liquid fuel, of small and medium capacities.	1 year warranty	not require certification	The company was founded in 1992	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Automatic pump control systems</b>	Control devices AKN Series pumps can be successfully applied in automatic control systems: - Water pumping from artesian wells; - Pressure increase pumps; - Circulating pumps for heating and hot water supply; - Sewage pumps.	Ukraine	<b>The Institute of Applied Electronics</b> of. 707, Building 2, 33 Polytechnic str., Kyiv, 03056 T:+380-44-353-24-71 F:+380-44-454-98-37 sale@akn.com.ua www.akn.com.ua	<b>The Institute of Applied Electronics</b> of. 707, Building 2, 33 Polytechnic str., Kyiv, 03056 T:+380-44-353-24-71 F:+380-44-454-98-37 sale@akn.com.ua www.akn.com.ua	Pumps control devices AKN series are equipped with modern specialized microprocessor controllers, which provide rich functionality and diversity of different algorithms for driving pumping units	1 year warranty service. Own service center	not require certification	The Institute was founded in 1999	
2		Kontar controller used to control pumps in heating systems, hot and cold water supply, water inflow, drainage, fire, and other pumps.	Russia	<b>JSC "Moscow factory of thermal automation"</b> 33 Mironovskaya str., Moscow, 105318, Russia T:+7-495-720-54-44 F:+7-495-720-54-82 info@mzta.ru www.mzta.ru	<b>SPE "Intellekt Group"</b> NSC, 55 Velyka Vasylykivska str., Kyiv, 05210, Ukraine T/F:+380-44-237-09-14 www.kontar.com.ua	Easy programmable controllers providing easy automation solutions to many problems - from monitoring several process parameters to complex automation of buildings and structures groups.	1 year warranty service. Own service center	not require certification	The company was founded in 2000	
3		HYDROLOGIC-01 controller used for pumping units. One device can control a group consisting of up to 5 pumps.	Ukraine	<b>Raut-Automatic Ltd.</b> of. 330, Bldg. 8, 27 Krymskogho st., Kyiv-142, Ukraine. +380-44-422-89-57 <a href="mailto:office@raut-automatic.kiev.ua">office@raut-automatic.kiev.ua</a> www.raut-automatic.kiev.ua	<b>Raut-Automatic Ltd.</b> of. 330, Bldg. 8, 27 Krymskogho st., Kyiv-142, Ukraine. +380-44-422-89-57 <a href="mailto:office@raut-automatic.kiev.ua">office@raut-automatic.kiev.ua</a> www.raut-automatic.kiev.ua	One device can control a group consisting of up to 5 pumps.	1 year warranty service.	not require certification	The company was founded in 2000. The products are successfully operating in more than 10 000 objects in Ukraine, Russia, Moldova and Kazakhstan.	
4		The controllers of ACS series intended to create automatic monitoring and maintaining systems for water level and for pump control.	Russia	<b>SPE "OWEN"</b> 2 Entuziastiv str., block.5 (territory of "Kompressor" plant), Moscow, 111024, Russia T:+7 (495) 221-60-64 F:+7 (495) 728-41-45 www.owen.ru	<b>"SV ALTERA" Ltd.</b> 4, Ivana Lapse ave., Kyiv, 03680, Ukraine T:+380-44-496-18-88 F:+380-44-496-18-18 <a href="mailto:office@sv-altera.com">office@sv-altera.com</a> www.svaltera.ua	Easy programming with special indicator; wide range of sensors which can be connected; possibility of manual control.	1year warranty service.	not require certification	The company was founded in 1991	
5		Control cabinets of NTT "Elekon are used to regulate and control pumps in heating systems, hot and cold water supply, water inflow, fire, drainage, and other pumps.	Ukraine	<b>SPE "Elekon"</b> 42 Glushkova Ave., Kyiv, 03680, Ukraine +380-44-526-70-12, +380-44-526-62-14 info@elecon.kiev.ua www.elecon.kiev.ua	<b>SPE "Elekon"</b> 42 Glushkova Ave., Kyiv, 03680, Ukraine +380-44-526-70-12, +380-44-526-62-14 info@elecon.kiev.ua www.elecon.kiev.ua	Control cabinets allow the following functions: automatic or manual control of pumps in hot water supply systems, heating, inflow; automatic support of the required temperature in heating and hot water supply systems etc.	1 year warranty service. Own service center	not require certification	The company was founded in 1992. There were installed more than 5500 control cabinets of "Elekon" and their modifications in Kyiv and other cities of Ukraine	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Burners</b>	The burners realize jet-recess technology of burning fuel without twisting stream, but provide constant burning. Power: 50-40000 kW	Ukraine	<b>Flohyston Ltd.</b> 53, Frunze str., Kyiv, Ukraine, T/F:+380-44-462-52-62, T/F:+380-44-503-75-34, T/F:+380-44-503-70-61, snt@online.ua	<b>JSC«Tekom»</b> 1228, Lenina str. Monastyrysche, Cherkasy region, Ukraine T:+380-47-462-17-05, T:+380-47-462-11-54, T:+380-44-502-28-39, T:+380-44-502-28-40, F:+380-47-462-24-95, www.tekom.com.ua	Capacity: 0,05-40 MW	1,5 year warranty service. Own service center	UA 1.013.0062255-10 UA 1.013.0062266-10 UA 1.013.0191082-08	The company was founded in 2000. More than 600 facilities implemented in Ukraine.	
2		The quasi-kinetic modular gas burners are designed for various energy and processing equipment with automatic control. Power: 0,05-25 MW	Ukraine	<b>JSC "Termokompleks"</b> 27a, Guseva str., Fastiv, Kyiv region, T/F:+380-45-656-61-97	<b>PA"PROMGAZAPPARAT"</b> Of. 15, 10g , Starokyivska str., Kyiv, Ukraine T:+380-44-538-07-28, 29, 30 F:+380-44-538-07-23 www.agaz.com.ua	Capacity: 0,05-25 MW	1,5 year warranty service. Own service center	UA 1.013.0073471-09	The company was founded in 1995	
3		Gas-fired burners, burners for liquid fuel and combined oil-gas burners for various energy and processing equipment. Modular, injector, ceiling-mounted, variable airflow etc.	Ukraine	<b>PP Gas Institute of National Academy of Science of Ukraine</b> 39, Dehtyariivska str, Kyiv, 03113, Ukraine +380-44-456-39-15	<b>PP Gas Institute of National Academy of Science of Ukraine</b> 39, Dehtyariivska str, Kyiv, 03113, Ukraine +380-44-456-39-15	Capacity is calculated specifically to the facility	1 year warranty service. Own service center	not require certification	The Institute was founded in 1949	
4		Gas-fired burners, burners for liquid fuel and combined oil-gas burners for various energy and processing equipment. Modular, injector, ceiling-mounted, variable airflow etc. Power: 70-9000 kW	Ukraine	<b>JSC "Fakel"</b> Provuzol, Fastiv, Kyiv region, Ukraine T/F:+380-44-656-67-60, T/F:+380-44-656-67-62, T/F:+380-44-332-07-07, info@fakel.ua	<b>Ltd. "Industrial Investment Company "TekhMashExport"</b> +380-44-332-33-27, +380-44-206-66-97, <a href="mailto:pic@tme.com.ua">pic@tme.com.ua</a>	Capacity: 70 - 9000 kW	1 year warranty service. Own service center	not require certification	The company was founded in 1982	
5		Modular gas burners for various energy and processing equipment with smooth point-to-point control. Power: 340-3500 kW	Ukraine	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	Capacity: 340-3500 kW	1 year warranty service. Own service center	UA 1.013.0051520-09 UA 1.013.0051259-09	The company was founded in 1945	
6		Gas-fired burners, burners for liquid fuel and combined oil-gas burners with automatic single-, double- or three-step, modulated regulation. Power: 30-22000 kW. Brand: Weishaupt	Germany	<b>Walter Dreizler GmbH</b> Max Planck Strasse 1-5 78549 Spaichingen Germany Tel. +49-(0)7424-70090 Fax. +49-(0)7424-700990 info@dreizler.com	<b>"TEPLOTEKH" Ltd.</b> 12 Mayska str., Kyiv, Ukraine +38 044 524-83-54 +38 044 524-83-55 +38 044 524-83-53 www.weishaupt.ua	Capacity: 0,03-22 MW	1 year warranty service. Own service center	UA1.069.0028921-09 UA1.069.0028922-09	More then 5 years	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Thermal insulation</b>	Insulation based on mineral wool (cylinders). Temperature range: -150... +650°C	Ukraine	<b>Corporation "Energoresurs-Invest",</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-39 info@energoresurs.com www.energoresurs.com	<b>Corporation "Energoresurs-Invest",</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-39 info@energoresurs.com www.energoresurs.com	Temperature range: -150... +650°C	-	UA1.100.0188745-08	Since 2008	
2		Insulation based on mineral wool. Temperature range: -260 ... +700°C Thermal conductivity: 0,038... 0,065 W/m*K	Ukraine	<b>"SEVERODONETSK PLANT OF INSULATION MATERIALS",</b> 2A, Zavodska str., Severodonetsk, Lugansk region, 93400, Ukraine	<b>Ukropromizol Ltd.,</b> 47 Mandrykovska str., Dnipropetrovsk, 49094, Ukraine +380-56-371-05-17, ukrizol@mail.ru	Temperature range: -260 ... +700°C Thermal conductivity: 0,038... 0,065 W/m*K	-	available	More than 5 years	
3		Insulation based on mineral wool. Temperature range: -269... +700°C Thermal conductivity: 0,033... 0,047 W/m*K	Ukraine	<b>Rotys Ltd.,</b> 41 Zavodska str., Tchernivtsi, 58007, Ukraine +380-37-252-91-25, +380-37-252-91-26, +380-37-252-94-25, rotys@sacura.net	<b>Rotys Ltd.,</b> 41 Zavodska str., Tchernivtsi, 58007, Ukraine +380-37-252-91-25, +380-37-252-91-26, +380-37-252-94-25, rotys@sacura.net	Temperature range: -269... +700°C Thermal conductivity: 0,033... 0,047 W/m*K	-	available	More than 5 years	
4		Insulation based on mineral wool. Temperature range: -260... +700°C Thermal conductivity: 0,038... 0,062 W/m*K	Ukraine	<b>Kyiv Plant of Insulation Materials Ltd.,</b> 20 Sadova str., Gorenka, Kyivo-Svyatoshinsky district, Kyiv region, 08105, Ukraine +380-44-332-30-97, kzim@gala.net www.kzimbасalt.com.ua	<b>Kyiv Plant of Insulation Materials Ltd.,</b> 20 Sadova str., Gorenka, Kyivo-Svyatoshinsky district, Kyiv region, 08105, Ukraine +380-44-332-30-97, kzim@gala.net www.kzimbасalt.com.ua	Temperature range: -260... +700°C Thermal conductivity: 0,038... 0,062 W/m*K	-	available	More than 5 years	
5		Pipe insulation based on perlite, Thermal conductivity: 0,115... 0,118 W/m*K	Ukraine	<b>Budperlit Ltd.</b> 102 Frunze str., Kyiv, 04080, Ukraine +380-44-531-96-02, +380-44-492-00-55 budperlit@ukr.net	<b>Budperlit Ltd.</b> 102 Frunze str., Kyiv, 04080, Ukraine +380-44-531-96-02, +380-44-492-00-55 budperlit@ukr.net	Thermal conductivity: 0,115... 0,118 W/m*K	-	available	More than 5 years	
6		Insulation materials "Bestizol" Thermal conductivity: 0,037... 0,039 W/m°C; Use: insulation of walls, roofs, ceilings, floors	Ukraine	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, galant.ua@gmail.com www.galant.biz.ua	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, galant.ua@gmail.com www.galant.biz.ua	Thermal conductivity: 0,037... 0,039 W/m°C;	-	UA1.016.0047811-09	Since 1993	
7		Heat reflectors, Temperature range: up to 700 °C. Thermal conductivity: not more 0,038 W/m°C	Ukraine	<b>JC "Bilytskiy zavod "Teplovukoizolyacia",</b> 7, Ponomaryova str., Kotsubinske, Kyiv reg., Ukraine Tel.:+38(044)390-63-63 e-mail: info@tzi.kiev.ua ; teplovukoizol@bigmir.net www.tzi.kiev.ua	<b>JC "Bilytskiy zavod "Teplovukoizolyacia",</b> 7, Ponomaryova str., Kotsubinske, Kyiv reg., Ukraine Tel.:+38(044)390-63-63 e-mail: info@tzi.kiev.ua ; teplovukoizol@bigmir.net www.tzi.kiev.ua	Heat reflectors, Temperature range: up to 700 °C. Thermal conductivity: not more 0,038 W/m°C	-	UA1.057.0043141-07 UA1.055.0077851-06	Since 1973	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Range, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Frequency converters for electric motors</b>	Type: CFM 340, CFM 710, CFM 311, CFM 240 Power: 0,5-355kW	Ukraine	<b>SPU "Avtomatika"</b> 2, Panikakhi str., Dnipropetrovsk, 49600, Ukraine T:+380-56-788-55-27 F:+380-56-747-03-89 mentals@ukr.net www.npoautomatic.com	<b>SPU "Avtomatika"</b> 2, Panikakhi str., Dnipropetrovsk, 49600, Ukraine T:+380-56-788-55-27 F:+380-56-747-03-89 mentals@ukr.net www.npoautomatic.com	Power: 0,5-355 kW	1 year	Not subject to mandatory certification	Since 2006	
2		Type: E1, E2, E3 Power: 0,2-1000kW	Russia	<b>Vesper Ltd.</b> 22, Kosmonavta Volkova str., Moscow, Russia, 127299 T/F:+7-495-258-00-49, mail@vesper.ru www.vesper.ru	<b>"Kompania Topenergokompleks" Ltd.</b> 94A, Povitroflotskiy Ave., Kyiv, 03151, Ukraine T:+380-44-223-53-41, T:-380-44-223-53-42, F:+380-44-206-46-25, mail@vesper.com.ua www.vesper.com.ua	Power: 0,2-1000 kW	1 year	Not subject to mandatory certification	More than 10 years	
3		Type: VLT® 2800, VLT® Automation Drive, VLT® HVAC Drive Power: 0,25-1200kW, Frequency: 0-1000 Hz Wide model range	Denmark, USA	<b>Danfoss A/S</b> Nordborgvej 81 6430 Nordborg Denmark Tel.:+45 (74) 88-22-22 danfoss@danfoss.com www.danfoss.com "Danfoss Drives", 4401 N. Bell Sckool Road, Loves Park, IL- 61111, USA	<b>"Danfoss" Ltd.</b> 15/15/6, Vikentia Khvoiki str., Kyiv, 04080, Ukraine T.:+380-44-461-87-00 a_postmaster@danfoss.com www.danfoss.ua	Power: 0,25-1200 kW	1 year	Voluntary certification: UA1.043.0018270-10 UA1.043.0018398-10	More than 10 years	
4		Type: Altivar 0,18-2000kW Wide model range	France	<b>"Schneider Electric Industries SAS"</b> 89, Boulevard Franklin Roosevelt, 92500 Rueil - Malmaison Cedex, France T.: (33) 141-29-85-01	<b>"Schneider Electric"</b> 20, Metalistiv str., Kyiv, 03057, Ukraine, T:+380-44-538-14-70 F:+380-44-538-14-71	Power: 0,18-2000kW	1 year	Not subject to mandatory certification	More than 10 years	
5		Type: Micromaster Power: 0,12-250 kW	Germany	<b>Siemens AG</b> Wittelsbacherplatz 2 80333 Munich Germany contact@siemens.com www.siemens.com	Siemens Ukraine 4B, M. Grinchenka str., Kyiv, 03038, Ukraine T:+380 44 201-23-86 F:+380 44 201-24-66 ad.ua@siemens.com www.siemens.ua/iadt	Power: 0,12-250kW	1 year	Not subject to mandatory certification	More than 10 years	

1	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Control valves</b>	Threaded and flanged balancing valves with diameters of 15 to 200 mm. Working pressure for various structural designs: up to 1,62... 2,53 MPa	Ukraine	<b>Ukrspetsarmatura Ltd.</b> 3, Boryspilska str., Kyiv, Ukraine www.ukspar.com	<b>UKRSPAR Ltd.</b> 5, Revutskogo str., Kyiv, 02091, Ukraine T:+380-44-563-33-00, T:+380-44-563-78-41, F:+380-44-563-92-73, office@ukspar.com	Diameters: 15...200 mm. Working pressure for various structural designs: up to 1,62... 2,53 MPa	1 year warranty service. Own service center	UA 1.069.0034286-10	More than 10 years	
2		Control valves with manual and electric drive, diameters: 10...300 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	The structure of CJSC <b>"Promarmatura"</b> includes various enterprises in Ukraine, Russia, Uzbekistan and others. www.promarmatura.ua	<b>CJSC "Promarmatura"</b> 17 Simferopolska str., Dnipropetrovsk, 49005, Ukraine +380-56-235-66-01 pa@promarmatura.dp.ua	Diameters: 20...350 mm.	1 year warranty service. Own service center	Available	The company was founded in 1994	
3		Control valves with electric drive, diameters: 15...100 mm. Working pressure for various structural designs: up to 1,6 MPa	Ukraine	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Diameters: 15...100 mm.	1 year warranty service. Own service center	UA1.003.0060085-06	The company was founded in 1995	
4		Full range of control valves, diameters: 10...500 mm. Working pressure for various structural designs: up to 16 MPa	Germany, Poland, Czech republic	<b>Siemens,</b> ARI-Armaturen GmbH, LDM, Termen	<b>Techprilad Ltd.</b> 4/9, Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-40, T:+380-44-467-26-60. F:+380-44-467-26-44 info@techprilad.com	Diameters: 10...500 mm. Working pressure for various structural designs: up to 16 MPa	1 year warranty service. Own service center	UA1.087.0145796-06 UA 1.148.0063137-10 UA 1.148.0089284-09	The company was founded in 1994	
5		2-, 3- and 4-way valves with electric drives, for heating systems, diameters: 15...600 mm . Working pressure for various structural designs: up to 4 MPa	Switzerland, Germany	<b>Siemens Schweiz AG</b> Industry Sector Building Technologies Division International Headquarters Gubelstrasse 22 CH-6301 Zug Switzerland Tel. +41 41 724 24 24 Fax +41 41 724 35 22 www.siemens.ua	<b>BC "Horyzont Park"</b> 4-B, Mykoly Grinchenko str., Kyiv, 03038, Ukraine T:+380-44-201-23-00 F:+380-44-201-23-01 ua.public @ siemens.com	Diameters: 15...600 mm. Working pressure for various structural designs: up to 4 MPa	1 year warranty service. Own service center	UA 1.003.0073065-09	Representative office in Ukraine opened in 1992	
6		2-, 3- and 4-way valves with electric drives, balancing valves and pressure regulators for heating systems. diameters: 15...600 mm . Working pressure for various structural designs: up to 4 MPa	Germany	<b>Honeywell GmbH</b> Böblinger Straße 17 71101 Schönaich Germany Tel: +49 (0)7031 63701	<b>"Honeywell Ukraine"</b> "Silver Center", 4, Ivana Lipse blvd., Kyiv, 03680, Ukraine. F:+380-44-351-15-50, F:+380-44-351-15-51, www.honeywell-ukraine.com	Diameters: 15...600 mm. Working pressure for various structural designs: up to 4 MPa	1 year warranty service. Own service center	UA 1.013.0055651-10	More than 10 years	
7		Full range of control valves, diameters: 15...350 mm. Working pressure for various structural designs: up to 4 MPa	Denmark	<b>Danfoss A/S</b> Nordborgvej 81 6430 Nordborg Denmark Phone: +45 7488 2222 Fax: +45 7449 0949	<b>Danfoss Ltd.</b> 11, Vykentiya Hvoyki str., Kyiv, 04080, Ukraine T:+380-44-461-87-00 F:+380-44-461-87-07 www.danfoss.ua ua_postmaster@danfoss.com	Diameters: 15...350 mm. Working pressure for various structural designs: up to 4 MPa	1 year warranty service. Own service center	UA1.069.0096345-09 UA1.069.0095626-09 and others	Representative office in Ukraine opened in 1997	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Boiler house</b>										
1	<b>Thermal insulation for pipelines</b>	Insulation based on mineral wool (cylinders). Temperature range: -150... +650°C	Ukraine	<b>Corporation "Energoresurs-Invest",</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-39 info@energoresurs.com www.energoresurs.com	<b>Corporation "Energoresurs-Invest",</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-39 info@energoresurs.com www.energoresurs.com	Temperature range: -150... +650°C	-	UA1.100.0188745-08	Since 2008	
2		Insulation based on mineral wool. Temperature range: -260 ... +700°C Thermal conductivity: 0,038... 0,065 W/m*K	Ukraine	<b>"SEVERODONETSK PLANT OF INSULATION MATERIALS",</b> 2A, Zavodska str., Severodonetsk, Lugansk region, 93400, Ukraine	<b>Ukropromizol Ltd.,</b> 47 Mandrykivska str., Dnipropetrovsk, 49094, Ukraine +380-56-371-05-17, ukrizol@mail.ru	Temperature range: -260 ... +700°C Thermal conductivity: 0,038... 0,065 W/m*K	-	available	More than 5 years	
3		Insulation based on mineral wool. Temperature range: -269... +700°C Thermal conductivity: 0,033... 0,047 W/m*K	Ukraine	<b>Rotys Ltd.,</b> 41 Zavodska str., Tchernivtsi, 58007, Ukraine +380-37-252-91-25, +380-37-252-91-26, +380-37-252-94-25, rotys@sacura.net	<b>Rotys Ltd.,</b> 41 Zavodska str., Tchernivtsi, 58007, Ukraine +380-37-252-91-25, +380-37-252-91-26, +380-37-252-94-25, rotys@sacura.net	Temperature range: -269... +700°C Thermal conductivity: 0,033... 0,047 W/m*K	-	available	More than 5 years	
4		Insulation based on mineral wool. Temperature range: -260... +700°C Thermal conductivity: 0,038... 0,062 W/m*K	Ukraine	<b>Kyiv Plant of Insulation Materials Ltd.,</b> 20 Sadova str., Gorenka, Kyivo-Svyatoshinsky district, Kyiv region, 08105, Ukraine +380-44-332-30-97, kzim@gala.net www.kzibasalt.com.ua	<b>Kyiv Plant of Insulation Materials Ltd.,</b> 20 Sadova str., Gorenka, Kyivo-Svyatoshinsky district, Kyiv region, 08105, Ukraine +380-44-332-30-97, kzim@gala.net www.kzibasalt.com.ua	Temperature range: -260... +700°C Thermal conductivity: 0,038... 0,062 W/m*K	-	available	More than 5 years	
5		Pipe insulation based on perlite, Thermal conductivity: 0,115... 0,118 W/m*K	Ukraine	<b>Budperlite Ltd.</b> 102 Frunze str., Kyiv, 04080, Ukraine +380-44-531-96-02, +380-44-492-00-55; budperlit@ukr.net	<b>Budperlite Ltd.</b> 102 Frunze str., Kyiv, 04080, Ukraine +380-44-531-96-02, +380-44-492-00-55, budperlit@ukr.net	Thermal conductivity: 0,115... 0,118 W/m*K	-	available	More than 5 years	
6		Insulation materials "Bestizol" Thermal conductivity: 0,037... 0,039 W/m°C; Use: insulation of walls, roofs, ceilings, floors	Ukraine	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, galant.ua@gmail.com www.galant.biz.ua	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, galant.ua@gmail.com www.galant.biz.ua	Thermal conductivity: 0,037... 0,039 W/m°C;	-	UA1.016.0047811-09	Since 1993	
7		Heat reflectors, Temperature range: up to 700°C. Thermal conductivity: not more 0,038 W/m°C	Ukraine	<b>JC "Bilytskyi zavod "Teplozvukoizolyacia",</b> 7, Ponomaryova Str., Kotsubinske, Kyiv reg., Ukraine Tel.:+38(044)390-63-63 e-mail: info@tzi.kiev.ua ; teplozvukoizol@bigmir.net http://tzi.kiev.ua	<b>JC "Bilytskyi zavod "Teplozvukoizolyacia",</b> 7, Ponomaryova Str., Kotsubinske, Kyiv reg., Ukraine Tel.:+38(044)390-63-63 e-mail: info@tzi.kiev.ua ; teplozvukoizol@bigmir.net http://tzi.kiev.ua	Heat reflectors, Temperature range: up to 700°C. Thermal conductivity: not more 0,038 W/m°C	-	UA1.057.0043141-07 UA1.055.0077851-06	Since 1973	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Pipelines</b>										
1	<b>Pre-insulated pipes</b>	pre-insulated pipes with polyethylene or galvanized jacket Ø26-1020 mm	Ukraine	<b>Pershyy trubnyy zavod, Ltd</b> 8A, Rezervna Str., 04074, Ukraine, +380-44-464-84-35 +380-44-419-39-43 mark@ptz.kiev.ua www.ptz.kiev.ua	<b>Pershyy trubnyy zavod, Ltd</b> 8A, Rezervna Str., 04074, Ukraine, +380-44-464-84-35 +380-44-419-39-43 mark@ptz.kiev.ua www.ptz.kiev.ua	Ø26-1020 mm	-	UA 1.090.201780-06	Since 2006	
2		pre-insulated pipes with polyethylene jacket Ø57-159 mm.	Ukraine	<b>PC "Transprogres",</b> 26/2, Engelsa str., Mariupol, 87500, Ukraine, +380-62-933-52-51 progress@anet.com.ua www.transprogress.com.ua	<b>PC "Transprogres",</b> 26/2, Engelsa str., Mariupol, 87500, Ukraine, +380-62-933-52-51 progress@anet.com.ua www.transprogress.com.ua	Ø57-159 mm	-	UA1.100.0063972-06	Since 2006	
3		pre-insulated pipes with polyethylene jacket Ø26-1020 mm	Ukraine	<b>Zavod santehnichnih zagotovok Ltd.</b> 24, Ekskavatorna, str., Kyiv, 03062, Ukraine, +380-44-501-06-75 mark@zstz.kiev.ua www.ptz.kiev.ua	<b>Zavod santehnichnih zagotovok Ltd.</b> 24, Ekskavatorna, str., Kyiv, 03062, Ukraine, +380-44-501-06-75 mark@zstz.kiev.ua www.ptz.kiev.ua	Ø26-1020 mm	-	Available	Available	
4		pre-insulated pipes with polyethylene or galvanized jacket Ø26-1220 mm	Ukraine	<b>"EnergoResurs-Invest" Corporation</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-37 info@energoresurs.com www.energoresurs.com	<b>"EnergoResurs-Invest" Corporation</b> 131, Zelena str., Lviv, 79035, Ukraine +380-32-225-54-37 info@energoresurs.com www.energoresurs.com	Ø26-1220 mm	-	UA1.100.0031677-06	Since 2006	
5		pre-insulated pipes with polyethylene or galvanized jacket Ø27-630 mm	Ukraine	<b>Onix Ltd.,</b> 360, Gagarina str., Kharkiv, 61031, Ukraine, +380-57-775-31-32 OniksLTD@list.ru www.trubappu.com.ua	<b>Onix Ltd.,</b> 360, Gagarina str., Kharkiv, 61031, Ukraine, +380-57-775-31-32 OniksLTD@list.ru www.trubappu.com.ua	Ø27-630 mm	-	Available	Available	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Pipelines</b>										
1	<b>Stop valves</b>	Stop valves made of brass, steel, stainless steel: ball valves, wedge gate valves, butterfly valves with diameters from 15 to 600 mm. The working pressure of valves (depends on various structural designs): 1.0, 1.6, 2.5 MPa	Ukraine	<b>UkrSpetsArmatura Ltd.</b> , 3, Boryspilska str., Kyiv, Ukraine www.ukspar.com	<b>UKRSPAR Ltd.</b> , 5, Revutskogo str., Kyiv, 02091, Ukraine T:+380-44-563-33-00, T:+380-44-563-78-41, F:+380-44-563-92-73, office@ukspar.com	Diameters of stop valves: 15... 600 mm	1 year warranty service. Own service center	UA 1.069.0034286-10	More than 10 years	
2		Flanged and threaded valves with diameters from 10 to 350 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	<b>Truboprovodni Systemy Ltd.</b> 1, Stefanyka str., Lugansk, 91005, Ukraine F:+380-64-234-17-51, F:+380-64-255-61-75, T:+380-64-234-17-52 www.ts.lg.ua	<b>Truboprovodni Systemy Ltd.</b> 1, Stefanyka str., Lugansk, 91005, Ukraine F:+380-64-234-17-51, F:+380-64-255-61-75, T:+380-64-234-17-52 www.ts.lg.ua	Diameters of stop valves: 10... 350 mm	1 year warranty service. Own service center	UA 1.039.0189357-07	The company was founded in 1995	
3		Various types of valves with diameters from 20 to 350 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	The structure of <b>CJSC "Promarmatura"</b> includes various enterprises in Ukraine, Russia, Uzbekistan and others. www.promarmatura.ua	<b>CJSC "Promarmatura"</b> 17 Simferopolska str., Dnipropetrovsk, 49005, Ukraine +380-56-235-66-01 pa@promarmatura.dp.ua	Diameters of stop valves: 20... 350 mm	1 year warranty service. Own service center	Available	The company was founded in 1994	
4		Flanged and threaded steel ball valves with diameters from 10 to 200 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	Lugansk pipeline valves factory <b>CJSC "Spetsavtomatika"</b> , 13, Montazhna str., Lugansk, 91054, Ukraine T:+380-64-259-97-77, F:+380-64-264-41-55, info@marshal.su www.marshal.su	Lugansk pipeline valves factory <b>CJSC "Spetsavtomatika"</b> , 13, Montazhna str., Lugansk, 91054, Ukraine T:+380-64-259-97-77, F:+380-64-264-41-55, info@marshal.su www.marshal.su	Diameters of stop valves: 20... 350 mm	1 year warranty service. Own service center	UA 1.039.0077297-07	The company was founded in 1991	
5		Steel ball valves, return valves plate rotary gate valves with diameters from 15 to 2400 mm. Application with electric and pneumatic actuators is possible. Working pressure for various structural designs: 1.0, 1.6, 2.5, 4.0, 6.4 MPa	USA	<b>Bray International, Inc.</b> 13333 Westland East Blvd. Houston, Texas 77041 United States Telephone: (281) 894-5454 Fax: (281) 894-9499	<b>BRAY CONTROLS</b> representative office in CIS: of. 502, 1 Mahnytohorska str., Kyiv, 02606, Ukraine T:+380-67-246-79-09 F:+380-44-490-09-24 www.braycontrols.com.ua	Diameters of stop valves: 10... 2400 mm.	1 year warranty service. Own service center	UA 1.069.0063806-09 UA 1.069.0063808-09 UA 1.069.0063813-09	Representative office in Ukraine opened in 2008	
6		Various types of valves with diameters from 10 to 600 mm. Working pressure for various structural designs: up to 4 MPa	Finland, Germany, Swiss and others	<b>Vexve, Brandoni</b> and others	<b>Techprylad Ltd.</b> , 4/9, Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-40, T:+380-44-467-26-60, F:+380-44-467-26-44, info@techprylad.com	Diameters of stop valves: 10... 600 mm.	1 year warranty service. Own service center	UA1.087.0027242-09 UA.1.087.0027155-09 UA.OAC-19.1397-07 UA1.148.0037346-10 and others	The company was founded in 1994.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Pipelines</b>										
1	<b>Pipelines</b>	Types: metal-plastic SITEK: PE-AL-PE, SITEK: PEX-AL-PEX, Bio-SITEK: PEX-AL-PEX+Ag999; DN: 16... 32 mm; Working temperature: -45...+95 °C; Working pressure: 1 MPa; Scope: water-supply engineering, heating systems, floor heating	Ukraine	<b>SITEK, Ltd</b> 15 Bulygina str., Dnipropetrovsk, 49019, Ukraine +380-56-233-52-52 www.sitek.com.ua	<b>SITEK, Ltd</b> 15 Bulygina str., Dnipropetrovsk, 49019, Ukraine +380-56-233-52-52 www.sitek.com.ua	Material: metal-plastic; DN: 16... 32 mm;	Warranty period: 5 years.	Available	since 2003	
2		Type: enameled steel ; DN: 48... 159 mm; working temperature: 45-95 °C; Scope: water supply engineering; Type: pressure pipe, polyethylene; DN: 32... 255 mm; working pressure: 0,25-1,25 MPa	Ukraine	<b>Pershyy trubnyy zavod, Ltd.</b> 8A, Rezervna Str., 04074, Ukraine, +380-44-464-84-35 +380-44-419-39-43 mark@ptz.kiev.ua www.ptz.kiev.ua	<b>Pershyy trubnyy zavod, Ltd.</b> 8A, Rezervna Str., 04074, Ukraine, +380-44-464-84-35 +380-44-419-39-43 mark@ptz.kiev.ua www.ptz.kiev.ua	Material: enameled steel; DN: 48... 159 mm;  Material: polyethylene; DN: 32... 255 mm;	Warranty period: 5 years.	UA 1.090.201764-06 UA 1.090.201775-06	More than 5 years	
3		Type: <b>polyethylene</b> ; DN: 20... 630 mm; Pressure: 0,6... 2,5 MPa; Temperature: 0... 40 °C	Ukraine	<b>Elplast-Lviv, Ltd.</b> 4 Zavodska str., Gorodok town, Lviv region, 81500, Ukraine +380-32-298-61-30, +380-32-298-61-28, +380-32-313-02-13, +380-32-313-00-50 elplast@elplast.com.ua www.elplast.com.ua	<b>Elplast-Lviv, Ltd.</b> 4 Zavodska str., Gorodok town, Lviv region, 81500, Ukraine +380-32-298-61-30, +380-32-298-61-28, +380-32-313-02-13, +380-32-313-00-50 elplast@elplast.com.ua www.elplast.com.ua	DN: 20,, 630 mm;	Warranty period: 5 years.	UA 5.001.009	since 1996	
4		Type: steel pipelines; DN: 10... 150 mm	Ukraine	<b>JSC "Dnipropetrovsk steel works Comintern"</b> 7 Komintern str., Dnipropetrovsk, 49023, Ukraine kominmet@yandex.ru www.kominmet.com.ua	<b>JSC "Dnipropetrovsk steel works Comintern"</b> 7 Komintern str., Dnipropetrovsk, 49023, Ukraine kominmet@yandex.ru www.kominmet.com.ua	Material: steel ; DN: 10... 150 mm;	Warranty period: 5 years.	Available	since 1994	
5		Type: steel pipelines; DN: 20... 1016 mm	Ukraine	<b>JSC "Novomoskovskyy trubnyy zavod"</b> 115 Suchkova str. Novomoskovsk Dnipropetrovsk region, Ukraine T:+380-56-791-12-03, T:+380-56-791-15-19, T:+380-56-791-18-17, F:+380-56-934-23-49, F:+380-56-934-23-92	<b>JSC "Novomoskovskyy trubnyy zavod"</b> 115 Suchkova str. Novomoskovsk Dnipropetrovsk region, Ukraine T:+380-56-791-12-03, T:+380-56-791-15-19, T:+380-56-791-18-17, F:+380-56-934-23-49, F:+380-56-934-23-92	Material: steel; DN: 20... 1016 mm;	Warranty period: 5 years.	Available	since 1935	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Thermal insulation for building envelope</b>	Pulp insulation "Unisol"; density: 65 kg/m <sup>3</sup> ; thermal conductivity: 0,037-0,04 W/m °C;	Ukraine	<b>Runatel ECO Ltd.</b> build.1, 35-B Dzerzhynskogo str. Dnipropetrovsk, 49027, Ukraine T:+380-56-235-00-91, F:+380-56-370-34-51 info@runateleco.com.ua www.runateleco.com.ua	<b>Runatel ECO Ltd.</b> build.1, 35-B Dzerzhynskogo str. Dnipropetrovsk, 49027, Ukraine T:+380-56-235-00-91, F:+380-56-370-34-51 info@runateleco.com.ua www.runateleco.com.ua	Thermal conductivity <sup>^</sup> 0,037-0,04 W/m °C; jointless technology of laying	-	UA1.024.0011484-10	Since 2007	
2		Polystyrene plates ПСБ-С-15, ПСБ-С-25, ПСБ-С-35; density: 250-350 kg/m <sup>3</sup> ; thermal conductivity: 0,055-0,175 W/m °C	Ukraine	<b>Paroplast Ltd.</b> 33 Chornovola str., Vyshneve, Kyiv region Ukraine +380-44-222-69-13, +380-44-221-03-49, +380-96-359-36-59; paroplast@ukr.net www.paroplast.com	<b>Paroplast Ltd.</b> 33 Chornovola str., Vyshneve, Kyiv region Ukraine +380-44-222-69-13, +380-44-221-03-49, +380-96-359-36-59; paroplast@ukr.net www.paroplast.com	Thermal conductivity 0,055-0,175 W/m °C;	-	UA1.052.0095324-08	Since 2007	
3		Warm plaster "Teplover"; thermal conductivity: 0,09 W/m °C; density: 350 kg/m <sup>3</sup> ;	Ukraine	<b>SME "UkrVermiculit"</b> 1 Prorizna str. Vasylykiv, Kyiv region, 08606 Ukraine, T:+380-44-332-45-63, F:+380-44-716-49-53 info@vermiculite.com.ua www.vermiculite.com.ua	<b>Suchasni SpetsTechnologiyi Ltd.,</b> 22/30 Tantsorova str., Ternopil, Ukraine, +380-35-252-55-85 +380-35-242-34-24 www.stmodern.com.ua	Thermal conductivity 0,04 – 0,062 W/m °C;	-	Available	Available	
4		Facade insulation "Scanroc"; thermal conductivity: 0,032-0,042 W/m °C	Ukraine	<b>Scandi Ltd.</b> 41 Volgogradska str., Kyiv, 03141, Ukraine T:+380-44-270-17-94, F:+380-44-502-31-15, scanroc@scandi.kiev.ua www.scanroc.com.ua	<b>OJSC UkrFasad Montazh</b> of.309, 20A Tchervonogvardiyska str., Kyiv, Ukraine www.ukrmt.com.ua	Thermal conductivity: 0,032... 0,042 W/m °C (Depends on material)	-	UA1.055.0162844-07	Since 2003	
5		"BESTIZOL" insulation: thermal conductivity: 0,037-0,039 W/m °C; application: for walls, ceiling, roof, floor	Ukraine	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, +380-54-492-38-93, +380-54-497-15-15 galant.ua@gmail.com www.galant.biz.ua	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, +380-54-492-38-93, +380-54-497-15-15 galant.ua@gmail.com www.galant.biz.ua	Thermal conductivity 0,037-0,039 W/m °C	-	UA1.036.0017446-07	Since 1993	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Controllers for heating and hot water supply systems</b>	Types: Waterheat-S1, Waterheat-U3X, Waterheat-UM1 For heating and hot water supply systems. Time- and weather-responsive control.	Ukraine	<b>Raut-Automatik Ltd.</b> Of. 330, 27, Ak. Krimskogo str., Kyiv, Ukraine +380-44-422-89-57 office@raut-automatic.kiev.ua www.raut-automatic.kiev.ua	<b>Raut-Automatik Ltd.</b> Of. 330, 27, Ak. Krimskogo str., Kyiv, Ukraine +380-44-422-89-57 office@raut-automatic.kiev.ua www.raut-automatic.kiev.ua	For heating and hot water supply system. Time- and weather-responsive control.	1 year	Not subject to mandatory certification	More than 5 years	
2		Type: "PT-10" For heating and hot water supply system. Time- and weather-responsive control.	Ukraine	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	For heating and hot water supply system. Time- and weather-responsive control.	1 year	Not subject to mandatory certification	More than 5 years	
3		Types: "АТР-03ИД"; "АТР-04ИД" For heating and hot water supply system. Time- and weather-responsive control.	Ukraine	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	For heating and hot water supply system. Time- and weather-responsive control.	1 year	Not subject to mandatory certification	More than 5 years	
4		Types: RVD 115/109 (RVD110), For heating and hot water supply system. Time- and weather-responsive control.	Switzerland	<b>Siemence Building Technologies AG</b> Gubelstrasse, 22 CH 6301 Zug Switzerland	<b>RPE TECHPRYLAD, Ltd.,</b> 4/9 Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-30 F:+380-44-467-26-44 info@techprilad.com www.techprilad.com	For heating and hot water supply system. Time- and weather-responsive control.	1 year	Not subject to mandatory certification	More than 5 years	
5		Types: ECL 100, ECL 200, ECL 300 For heating and hot water supply system. Time- and weather-responsive control.	Denmark	<b>Danfoss A/S</b> Nordborgvej 81 6430 Nordborg Denmark Tea.:+45 (74) 88-22-22 danfoss@danfoss.com www.danfoss.com	<b>Danfoss Ltd.</b> 11, Vykentiya Hvoyki str., Kyiv, 04080, Ukraine T:+380-44-461-87-00 F:+380-44-461-87-07 www.danfoss.ua ua_postmaster@danfoss.com	For heating and hot water supply system. Time- and weather-responsive control.	1 year	Not subject to mandatory certification	More than 5 years	

	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	Control valves (electric temperature controllers, direct temperature controllers, automatic differential pressure controllers, balancing valves)	Flanged and threaded balancing valves with diameters from 15 to 200 mm. Working pressure for various structural designs: up to 2,5 MPa	Ukraine	<b>UkrSpetsArmatura Ltd.</b> , 3, Boryspilska str., Kyiv, Ukraine www.ukspar.com	<b>UKRSPAR Ltd.</b> , 5, Revutskogo str., Kyiv, 02091, Ukraine T:+380-44-563-33-00, T:+380-44-563-78-41, F:+380-44-563-92-73, office@ukspar.com	Diameters: 15... 200 mm. Working pressure for various structural designs: up to 2,5 MPa	1 year warranty service. Own service center	UA 1.069.0034286-10	More than 5 years	
2		Control valves for operating with manual or an electric drive. Diameters: 10... 300 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	The structure of <b>CJSC "Promarmatura"</b> includes various enterprises in Ukraine, Russia, Uzbekistan and others. www.promarmatura.ua	<b>CJSC "Promarmatura"</b> 17 Simferopolska str., Dnipropetrovsk, 49005, Ukraine +380-56-235-66-01 pa@promarmatura.dp.ua	Diameters: 10... 300 mm. Working pressure for various structural designs: up to 4 MPa	1 year warranty service. Own service center	Available	The company was founded in 1994	
3		Control valves for operating with an electric drive. Diameters: 15... 100 mm. Working pressure for various structural designs: up to 1.6 MPa	Ukraine	<b>PE AKVA Ukraine</b> , office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	<b>PE AKVA Ukraine</b> , office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Diameters: 15... 100 mm. Working pressure for various structural designs: up to 1.6 MPa	1 year warranty service. Own service center	UA1.003.0060085-06	The company was founded in 1995	
4		Full range of types of control valves. Diameters: 10... 500 mm. Working pressure for various structural designs: up to 16 MPa.	Germany, Poland, Czech republic	<b>Siemens, ARI-Armaturen GmbH, LDM, Termen</b>	<b>RPE TECHPRYLAD, Ltd.</b> , 4/9 Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-40 T:+380-44-467-26-60 F:+380-44-467-26-44 info@techprilad.com www.techprilad.com	Diameters: 10... 500 mm. Working pressure for various structural designs: up to 16 MPa.	1 year warranty service. Own service center	UA1.087.0145796-06 UA 1.148.0063137-10 UA 1.148.0089284-09	The company was founded in 1994	
5		2-, 3- and 4-way valves for heating systems, with electric controllers. Diameters: 15... 600 mm. Working pressure for various structural designs: up to 4 MPa.	Switzerland, Germany	<b>Siemens Schweiz AG</b> Industry Sector Building Technologies Division International Headquarters Gubelstrasse 22 CH-6301 Zug Switzerland Tel. +41 41 724 24 24 Fax +41 41 724 35 22 www.siemens.ua	<b>BC "Horyzont Park"</b> 4-B, Mykoly Grinchenko str., Kyiv, 03038, Ukraine T:+380-44-201-23-00 F:+380-44-201-23-01 ua.public @ siemens.com	Diameters: 15... 600 mm. Working pressure for various structural designs: up to 4 MPa.	1 year warranty service. Own service center	UA 1.003.0073065-09	Representative office in Ukraine opened in 1992	
6		2-, 3- and 4-way electric valves, balancing valves and pressure regulators for heating systems. Diameters: 15... 600 mm. Working pressure for various structural designs: up to 4 MPa.	Germany	<b>Honeywell GmbH</b> Böblinger Straße 17 71101 Schönaich Germany Tel: +49 (0)7031 63701	<b>"Honeywell Ukraine"</b> "Silver Center", 4, Ivana Lepshe blvd., Kyiv, 03680, Ukraine. F:+380-44-351-15-50, F:+380-44-351-15-51, www.honeywell-ukraine.com	Diameters: 15... 600 mm. Working pressure for various structural designs: up to 4 MPa.	1 year warranty service. Own service center	UA 1.013.0055651-10	More than 10 years	
7		Full range of types of control valves. Diameters: 15... 350 mm. Working pressure for various structural designs: up to 4 MPa.	Denmark	<b>Danfoss A/S</b> Nordborgvej 81 6430 Nordborg Denmark Phone: +45 7488 2222 Fax: +45 7449 0949	<b>Danfoss Ltd.</b> 11, Vykentiya Hvoyki str., Kyiv, 04080, Ukraine T:+380-44-461-87-00 F:+380-44-461-87-07 www.danfoss.ua ua_postmaster@danfoss.com	Diameters: 15... 350 mm. Working pressure for various structural designs: up to 4 MPa.	1 year warranty service. Own service center	UA1.069.0096345-09 UA1.069.0095626-09 and others	Representative office in Ukraine opened in 1997	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Heat meters</b>	Types: CA-97/1; CA - 97/2M; CA-97/2; DN: 10-300 mm; flow rate: 0.016... 2500 m <sup>3</sup> /h; type of flow meters: electromagnetic; calibration period: 4 years; suitable for opened and closed types heat supply systems	Ukraine	<b>CJSC "ASWEGA-U"</b> 1 Solomyanska str., Kyiv, 03035, Ukraine T:+380-44-248-71-11 T/F:+380-44-244-94-25 aswega@stackman.com.ua www.aswega.kiev.ua	<b>CJSC "ASWEGA-U"</b> 1 Solomyanska str., Kyiv, 03035, Ukraine T:+380-44-248-71-11 T/F:+380-44-244-94-25 aswega@stackman.com.ua www.aswega.kiev.ua	Calibration period: 4 years Accuracy class: 4 Flow rate: 0.016 - 2500 m <sup>3</sup> /h Possible to order: max. flow rate up to 4000 m <sup>3</sup> /h, DN 400 mm.	Warranty period: 18 months. Own service center	Y919-98	Since 1997	
2		Types: CBTY – 10M (M1, M2, 5M1, 5M2); CBTY – 11T; DN: 20-1000 mm; flow rate: 0.06... 28 500 m <sup>3</sup> /h; type of flow meters: ultrasonic; calibration period: 4 years; suitable for opened and closed types of heat supply systems	Ukraine	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	Calibration period: 4 years Accuracy class: 2,5; 4 (depending on modification) Flow rate: 0.06 - 28 500 m <sup>3</sup> /h;	Warranty period: 48 months from the date of shipment from the manufacturer to the purchaser. Own service center	Y947-07	Since 1992	
3		Types: Supercom-01, Supercom-01-1; DN: 15-100 mm; flow rate: 0.6... 60 m <sup>3</sup> /h; type of flow meters: ultrasonic; calibration period: 4 years suitable for opened and closed types of heat supply systems	Ukraine	<b>RPE Techprylad Ltd.,</b> 4/9, Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-30, F:+380-44-467-26-44, info@techprilad.com	<b>RPE Techprylad Ltd.,</b> 4/9, Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-30, F:+380-44-467-26-44, info@techprilad.com	Calibration period: 4 years Accuracy class: 2 Flow rate: 0.6 - 60 m <sup>3</sup> /h	Warranty period: 48 months from the date of commissioning.	Y1036-06	Since 1994	
4		Types: "AKBA-MBT", "AKBA-MBT-1"; DN: 20-250 mm; flow rate: 0.06... 1 200 m <sup>3</sup> /h; type of flow meters: electromagnetic, vortical, ultrasonic, tachometric; calibration period: 4 years (for electromagnetic and ultrasonic types) or 2 years (for vertical and tachometric types); suitable for opened and closed types of heat supply systems	Ukraine	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	<b>PE AKVA Ukraine,</b> office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Calibration period: 4 or 2 years Accuracy class: 4; 5 (depending on modification) Flow rate: 0.06 - 1 200 m <sup>3</sup> /h	Warranty period: 12 months from the date of purchase. Own service center	Y1057-05	Since 1995	
5		Type: ABTE-3C, ABTE-3C1, ABTE-3C-K; DN: 15... 1000 mm; flow rate: 0.06... 750 m <sup>3</sup> /h; type of flow meters: electromagnetic; calibration period: 4 years suitable for opened and closed types of heat supply systems	Ukraine	<b>KatrLess, Ltd.</b> 8-A Druzhby Narodiv blvd., Kyiv, 01103, Ukraine +380-44-501-63-86, +380-44-257-17-52, KatrLess@meta.ua www.katrless.com.ua	<b>KatrLess, Ltd.</b> 8-A Druzhby Narodiv blvd., Kyiv, 01103, Ukraine +380-44-501-63-86, +380-44-257-17-52, KatrLess@meta.ua www.katrless.com.ua	Calibration period: 4 years Accuracy class: 4 Flow rate: 0.06 - 750 m <sup>3</sup> /h	Warranty period: 18 months from the date of purchase. Own service center	Y1100-10	Since 1995	

	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Water meters</b>	Types: BCT-U, BCT-U-1; DN: 15-250 mm; flow rate: 0.06 - 1200 m <sup>3</sup> /h; calibration period: 2 years	Ukraine	<b>PE AKVA Ukraine</b> , office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	<b>PE AKVA Ukraine</b> , office 23, 43, Voloshska str., Kyiv, 04070, Ukraine T +380-44-531-37-43, (44) T +380-44-531-99-12, (14) F +380-44-531-37-17 www.au.ua	Temperature range: +5... +90 °C (Dn 15, 20 mm); +5... +150 °C (Dn 25...250mm); Pressure: up to 1,6 MPa; Pulse output	Warranty period: 12 months from the date of commissioning. Own service center	Y 747-97; Y 748-97	From 1995	
2		Types: BCKM-5/20, BCKM 16/40, KB-1,5, KBБ-2,5, KBБ-10, TB-50, TB-65; DN: 15-65 mm; flow rate: 0.06 - 50 m <sup>3</sup> /h; calibration period for cold water meters: 6 years; calibration period for hot water meters: 4 years	Ukraine	<b>OJSC "ElektroTermoMetriya"</b> 40, Kovelska str., Lutsk, 43001, Ukraine +380-33-277-43-04, +380-33-277-43-05, +380-33-224-22-61, www.etm.lutsk.ukrpack	Dealer network across Ukraine: <a href="http://www.etm.lutsk.ukrpack.net/">http://www.etm.lutsk.ukrpack.net/</a>	Temperature range: +5... +90 °C Pressure: up to 1 MPa;	Warranty period: 30 months from the date of commissioning.	Y427-98, Y333-07, Y1516-07, Y689-03	Since 1954	
3		Types: AK-15X, AK-15Г, AK-20X, AK-20Г; AK-25X, AK-32Г; DN: 15-65 mm; flow rate: 0.06... 50 m <sup>3</sup> /h; calibration period: for cold water meters: 6 years; for hot water meters: 4 years	Ukraine	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	Temperature range: +5... +90 °C Pressure: up to 1 MPa;	Warranty period: 18 months from the date of commissioning.	Y1740-03	Since 1966	
4		Type: CBTY – 11B; DN: 20... 100 mm; flow rate: 0.05... 360 m <sup>3</sup> /h; type of flow meters: ultrasonic; calibration period: 4 years	Ukraine	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	<b>SEMPAL Co., Ltd.</b> 3 Kulibina str., Kyiv, 03062, Ukraine +380-44-239-21-97 +380-44-239-21-98 info@sempal.com www.sempal.com	Temperature range: +5... +150 °C Pressure: up to 4 MPa;	Warranty period: 48 months from the date of shipment from the manufacturer to the purchaser. Own service center	Y2956-09	Since 1992	
5		Type: BAP230x; DN: 10-400 mm; flow rate: 0.004... 5000 m <sup>3</sup> /h; type of flow meters: electromagnetic; calibration period: 2 years	Ukraine	<b>CJSC "ASWEGA-U"</b> 1 Solomyanska str., Kyiv, 03035, Ukraine T:+380-44-248-71-11 T/F:+380-44-244-94-25 aswega@stackman.com.ua www.aswega.kiev.ua	<b>CJSC "ASWEGA-U"</b> 1 Solomyanska str., Kyiv, 03035, Ukraine T:+380-44-248-71-11 T/F:+380-44-244-94-25 aswega@stackman.com.ua www.aswega.kiev.ua	Temperature range: +5... +150 °C Pressure: up to 2.5 MPa; Pulse output	Warranty period: 18 months from the date of shipment from the manufacturer to the purchaser. Own service center	Y1345-00	Since 1997	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Electricity meters</b>	Type: "Energia-9"; accuracy class 1,0; calibration period 4 years; Scope: multirate single-phase, multirate three-phase, single-rate single-phase, single-rate three-phase; multifunction (accuracy class 0,2S);	Ukraine	<b>PKF Telekart-prylad</b> 105 Marshala Zhukova str., Odesa, 65104, Ukraine +380-48-714-28-43 comdpt@telecard.com.ua +380-48-237-01-61 oppu@telecard.com.ua www.telecard.odessa.ua	<b>PKF Telekart-prylad</b> 105 Marshala Zhukova str., Odesa, 65104, Ukraine +380-48-714-28-43 comdpt@telecard.com.ua +380-48-237-01-61 oppu@telecard.com.ua www.telecard.odessa.ua	accuracy class 1,0; manufacturing of meters with accuracy class 0,2S is possible;	accuracy class 1,0; manufacturing of meters with accuracy class 0,2S is possible;	Warranty period: 12 months	Y1335-07	
2		Types: "Hik" 2102-02, 2102-04, 2301, 2303; Scope: single-phase or three-phase; accuracy class 1,0; Possibility of connection with an automatic control system calibration period 16 years	Ukraine	<b>NIK- Electronica, Ltd.</b> 20 Polarna str., Kyiv, Ukraine +380-44-248-74-71, +380-44-501-65-76, info@nikel.com.ua www.nik.net.ua	<b>NIK- Electronica, Ltd.</b> 20 Polarna str., Kyiv, Ukraine +380-44-248-74-71, +380-44-501-65-76, info@nikel.com.ua www.nik.net.ua	accuracy class 1,0;	accuracy class 1,0;	Warranty period: 3 years from the date of purchase.	Y2162-06	
3		Types of single-phase meters: "CO-ЭА05" (single-element); "CO-ЭА09" (double-element); "CO-ЭА10"; Types of three-phase meters: "CT-ЭА05"; "CT-ЭА08"; "CT-ЭА12"; "CT-ЭP02"; accuracy class 1,0; calibration period: for single-phase meters - 16 years; for three-phase meters - 10 years;	Ukraine	<b>SSPE Corporation "Comunar"</b> 8 Grygoriya Rudyka str., Kharkiv, 61070, Ukraine +380-57-707-01-72, +380-57-315-01-69, kommunar@tvset.com.ua www.tvset.com.ua	<b>SSPE Corporation "Comunar"</b> 8 Grygoriya Rudyka str., Kharkiv, 61070, Ukraine +380-57-707-01-72, +380-57-315-01-69, kommunar@tvset.com.ua www.tvset.com.ua	accuracy class 1,0;	accuracy class 1,0;	Warranty period: 3 years from the date of commissioning.	Y1406-06; Y1527-07; Y2797-08; Y1568-07; Y1606-06; Y1607-06; Y1837-07; Y1875-07; Y2709-08; Y2746-08;	
4		Type: "Rostok", single-phase: "COE-5028", -5032, -5033; three-phase: "CA4E-5030", -5031; accuracy class 1,0 and 2,0; calibration period 16 years	Ukraine	<b>Rostok Co., Ltd.</b> 4 Ivana Lapse Blvd., Kyiv, 03067, Ukraine +380-44-201-45-11 svs@rostok.ua www.rostok.ua	<b>Rostok Co., Ltd.</b> 4 Ivana Lapse Blvd., Kyiv, 03067, Ukraine +380-44-201-45-11 svs@rostok.ua <a href="http://www.rostok.ua">www.rostok.ua</a>	accuracy class 1,0 and 2,0;	accuracy class 1,0 and 2,0;	Warranty period: 12 months	Y1519-05; Y1812-07; Y1813-07; Y2009-05; Y2152-05;	
5		Types: "AO-1000", "AO-1011"; (single-phase, single-rate); accuracy class: 1,0; calibration period: 2 years	Ukraine	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	accuracy class 1,0;	accuracy class 1,0;	Warranty period: 12 months	Y 1754-07	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Gas meters</b>	Types: G2,5; G4; G6; G10Ex (rotary); DN: 20; 32 mm; flow rate: 0.016... 16 m <sup>3</sup> /h;	Ukraine	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	<b>State enterprise "Novator"</b> 17 Ternopil'ska str., Khmelnytsky, 29016, Ukraine T: 0-800-50-152-90 office@novator-tm.com www.novator-tm.com	flow rate: 0.016 - 16 m <sup>3</sup> /h;	Warranty period: 5 years.	Y 869-97, Y 2375-06, Y 1070-02, Y 845-02	Since 1966	
2		Types: "OKTABА-A G6-2", G4/G6-1, G4L, G2,5L, G1,6L, G4, G2,5, G1,6 DN: 20; 25 mm; flow rate: 0.016... 10 m <sup>3</sup> /h;	Ukraine	<b>State enterprise "Generator"</b> 18, Novokostantyniv'ska str., Kyiv, 04080, Ukraine +380-44-413-94-24; +380-44-417-75-19; oktava@generator.com.ua www.generator.com.ua	<b>Akord, Ltd.</b> 20 Polyarna str., Kyiv, Ukraine +380-44-412-04-72 oktavis@ukr.net	flow rate: 0.016 - 10 m <sup>3</sup> /h;	Warranty period: 5 years	Y484-05; Y1802-03; Y1892-04; Y2116-05	Since 1959	
3		Types: MGM-UA, MGMI-UA; (diaphragm) DN: 20-32 mm; flow rate: 0.016... 6 m <sup>3</sup> /h; calibration period 8 years	Ukraine	<b>Energosberigayuchi sistemy, Ltd.,</b> Zdolbuniv'ska str., Kyiv, 02081, Ukraine T:+380-44-599-20-71 F:+380-44-294-26-27 info@gross-meter.com www.gross-meter.com	<b>Energosberigayuchi sistemy, Ltd.,</b> Zdolbuniv'ska str., Kyiv, 02081, Ukraine T:+380-44-599-20-71 F:+380-44-294-26-27 info@gross-meter.com www.gross-meter.com	flow rate: 0.016 - 6 m <sup>3</sup> /h;	Warranty period: 12 months	Y 2513-07;	Since 2006	
4		Types: "Kypc-01" (G16-G-400); DN: 40-150 mm; flow rate: 0.16... 650 m <sup>3</sup> /h; calibration period 2 years	Ukraine	<b>PKF "Kurs"</b> 30 Chicherina str., Dnipropetrovsk, 49006, Ukraine T:+380-56-232-10-97, T:+380-56-232-10-98, F:+380-56-232-10-97, office@kurs.ua www.kurs.ua	<b>PKF "Kurs"</b> 30 Chicherina str., Dnipropetrovsk, 49006, Ukraine T:+380-56-232-10-97, T:+380-56-232-10-98, F:+380-56-232-10-97, office@kurs.ua www.kurs.ua	flow rate: 0.16 - 650 m <sup>3</sup> /h;	Warranty period: 12 months	002913	Since 1990	
5		Types: "AT-K-Ex" (turbine G160-G-4000); DN: 80-300 mm; flow rate: 13... 6500 m <sup>3</sup> /h; "PTC-Ex" (rotary G25, G40, G65) DN: 50, flow rate: 0,25... 100 m <sup>3</sup> /h; "PTA-Ex" (rotary G10, G16, G25, G40, G65) DN: 32-50, flow rate: 0,16... 100 m <sup>3</sup> /h; "PTK-Ex" (rotary G25, G40, G65, G100, G250, G400) DN: 50, 80, 125, 150, flow rate: 1,3... 650 m <sup>3</sup> /h; calibration period: 2 years	Ukraine	<b>Promprylad, Ltd</b> 23, Sakharova str., Ivano-Frankivsk, 76000, Ukraine T:+380-34-275-05-92, T/F:+380-34-223-22-05, T/F:+380-34-278-42-01, prylad@prylad.com.ua www.prylad.com.ua	<b>Promprylad, Ltd</b> 23, Sakharova str., Ivano-Frankivsk, 76000, Ukraine T:+380-34-275-05-92, T/F:+380-34-223-22-05, T/F:+380-34-278-42-01, prylad@prylad.com.ua www.prylad.com.ua	flow rate: 0.16 - 6500 m <sup>3</sup> /h;	Warranty period: 12 months	Y 666-02, Y 121-08;	Since 1956	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Heat exchangers</b>	Gasketed plate heat exchangers, made of stainless steel. For various liquids. Operating temperature: -30... +190°C. Pressure for different structural designs: to 1.0, 1.6, 2.5 MPa. Heat exchanging surface: 5... 2100 m <sup>2</sup> .	Ukraine	<b>Energy Equipment Plant "DAN"</b> 25B, Myru str., vil. Petrushki, Kyiv region, 08113, Ukraine T:+380-44-222-54-92 F:+380-44-227-54-91 www.teploenergo.od.ua	<b>Corporation "UkrTeploEnergo",</b> 16/30 Tchernyakhovskogo str., Kyiv, 03190, Ukraine T:+380-44-422-22-72 F:+380-44-422-23-39 office@encentrum.kiev.ua	Working temperature: -30... +190°C. Pressure for different structural designs: 1; 1,6; 2,5 MPa. Heat exchanging surface 5... 2000 m <sup>2</sup> .	1 year warranty service. Own service center	UA 1.013.0071890-09 UA 1.013.0071441-09	The company was founded in 1998.	
2		Gasketed plate heat exchangers, brazed plate and tubular heat exchangers, made of stainless steel. For various liquids. Operating temperature: -30... +190°C. Pressure for different structural designs: 1.0, 1.6, 2.5 MPa.	Ukraine	<b>Teplo-Polis Ltd.</b> 11-b Feuerbach str. , Kharkiv, T:+380-57-758-46-82 T/F:+380-57-732-39-21, T/F:+380-57-751-96-97, teplo-polis@ukr.net www.teplo-polis.com.ua	<b>Teplo-Polis Ltd.</b> 11-b Feuerbach str. , Kharkiv, T:+380-57-758-46-82 T/F:+380-57-732-39-21, T/F:+380-57-751-96-97, teplo-polis@ukr.net www.teplo-polis.com.ua	Working temperature: -30... +190°C. Working pressure for various structural designs: 1; 1,6; 2,5 MPa	1 year warranty service. Own service center	Available	The company was founded in 2004.	
3		Gasketed plate heat exchangers, brazed plate and tubular heat exchangers, made of stainless steel. For various liquids. Operating temperature: -30... +190°C. Pressure for different structural designs: 1.0, 1.6, 2.5 MPa. Heat exchanging surface: 5... 2000 m <sup>2</sup> .	Ukraine	<b>Vostok-Invest Ltd.</b> 14/16, 250 rokiv Donbasu str., Snizhne , Donetsk region, 86510, Ukraine. M:+380-67-628-42-00 T/F:+380-62-565-16-95 www.vostok-invest.com.ua	<b>Vostok-Invest Ltd.</b> 14/16, 250 rokiv Donbasu str., Snizhne , Donetsk region, 86510, Ukraine. M:+380-67-628-42-00 T/F:+380-62-565-16-95 www.vostok-invest.com.ua	Working temperature: -30... +190°C. Pressure for different structural designs: 1; 1,6; 2,5 MPa. Heat exchanging surface 5... 2000 m <sup>2</sup> .	1,5 year warranty service. Own service center	UA1.069.0001219-06	The company was founded in 2001.	
4		Gasketed plate heat exchangers, brazed plate and tubular heat exchangers, made of stainless steel. For various liquids. Operating temperature: -30... +190°C. Pressure for different structural designs: 1.0, 1.6, 2.5 MPa. Heat exchanging surface: 0,05... 3500 m <sup>2</sup> .	Ukraine	<b>PSPC "Anchor-Teploenergo"</b> floor 3, building 1, 19, Kyrgyzka str., Kharkiv, 61105, Ukraine T:+380-57-719-37-91, T:+380-57-719-37-93, -719-37-79, -719-37-80 F:+380-57-719-37-93 www.ankor-t.com	<b>PSPC "Anchor-Teploenergo"</b> floor 3, building 1, 19, Kyrgyzka str., Kharkiv, 61105, Ukraine T:+380-57-719-37-91, T:+380-57-719-37-93, -719-37-79, -719-37-80 F:+380-57-719-37-93 www.ankor-t.com	Working temperature: -30... +190°C. Pressure for different structural designs: 1; 1,6; 2,5 MPa. Heat exchanging surface 0,05... 3500 m <sup>2</sup> .	1 year warranty service. Own service center	UA1.069.0162604-07 UA1.069.0057673-09	The company was founded in 1991.	
5		Shell-and-tube heat exchangers for district heating systems of residential buildings. Pressure for different structural designs: 1 MPa.	Ukraine	<b>JSC "Fakel"</b> Provuzol, Fastiv, Kyiv region, Ukraine T/F:+380-44-656-67-60, T/F:+380-44-656-67-62, T/F:+380-44-332-07-07, info@fakel.ua	<b>Industrial Investment Company "TekhMashExport" Ltd.</b> +380-44-332-33-27, +380-44-206-66-97, <a href="mailto:pic@tme.com.ua">pic@tme.com.ua</a>	Heating capacity is calculated specifically for each object.	1 year warranty service. Own service center	Available	The company was founded in 1982.	
6		Tubular heat exchangers, made of stainless steel. For various liquids. Temperature: up to +250° C. Pressure for different structural designs: up to 1,6 MPa. Flow range: 0,2... 200 m <sup>3</sup> /h	Ukraine	<b>Teploobmen Ltd.</b> office 11, 5, Partyzanska str., Sevastopol, 99011, Ukraine +380-69-254-54-38, +380-69-255-35-88 teploobmen@ttai.ru www.ttai.ru	<b>Teploobmen Ltd.</b> office 11, 5, Partyzanska str., Sevastopol, 99011, Ukraine +380-69-254-54-38, +380-69-255-35-88 teploobmen@ttai.ru www.ttai.ru	Working temperature: up to +250° C. Pressure for different structural designs: up to 1,6 MPa. Flow range: 0,2... 200 m <sup>3</sup> /h	1,5 year warranty service. Own service center	not required	The company was founded in 1991.	
7		Gasketed, brazed plate and tubular heat exchangers, of stainless steel. For various liquids. Working temperature: up to +150 °C for plate heat exchangers, +195... +230 °C for brazed heat exchangers. Pressure for different structural designs: 1; 1,6; 2,3; 3,0 MPa.	Ukraine	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	Working temperature: up to +150 °C for plate heat exchangers, +195... +230 °C for brazed heat exchangers. Pressure for different structural designs: 1; 1,6; 2,3; 3,0 MPa.	1 year warranty service. Own service center	Available	The company was founded in 1991.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Buildins</b>										
1	<b>Stop valves</b>	Ball valves, wedge gate valves, butterfly valves. Material: brass, steel, stainless steel. Diameters: 15... 600 mm. Working pressure for various structural designs: 1; 1.6; 2.5 MPa	Ukraine	<b>Ukrspetsarmatura Ltd.</b> 3, Boryspilska str., Kyiv, Ukraine www.ukspar.com	<b>UKRSPAR Ltd.</b> 5, Revutskogo str., Kyiv, 02091, Ukraine T:+380-44-563-33-00, T:+380-44-563-78-41, F:+380-44-563-92-73, office@ukspar.com	Diameters: 15... 600 mm	1 year warranty service. Own service center	UA 1.069.0034286-10	More than 10 years	
2		Flanged and threaded valves. Diameters: 10... 350 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	<b>Truboprovodni Systemy Ltd.</b> 1, Stefanyka str., Lugansk, 91005, Ukraine F:+380-64-234-17-51, F:+380-64-255-61-75, T:+380-64-234-17-52 www.ts.lg.ua	<b>Truboprovodni Systemy Ltd.</b> 1, Stefanyka str., Lugansk, 91005, Ukraine F:+380-64-234-17-51, F:+380-64-255-61-75, T:+380-64-234-17-52 www.ts.lg.ua	Diameters: 10... 350 mm	1 year warranty service. Own service center	UA 1.039.0189357-07	The company was founded in 1995	
3		Various valves with diameters from 20 to 350 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	The structure of <b>CJSC "Promarmatura"</b> includes various enterprises in Ukraine, Russia, Uzbekistan and others. www.promarmatura.ua	<b>CJSC "Promarmatura"</b> 17 Simferopolska str., Dnipropetrovsk, 49005, Ukraine +380-56-235-66-01 pa@promarmatura.dp.ua	Diameters: 20... 350 mm	1 year warranty service. Own service center	Available	The company was founded in 1994	
4		Flanged and threaded steel ball valves. Diameters: 10... 200 mm. Working pressure for various structural designs: up to 4 MPa	Ukraine	Lugansk pipeline valves factory <b>CJSC "Spetsavtomatika"</b> , 13, Montazhna str., Lugansk, 91054, Ukraine T:+380-64-259-97-77, F:+380-64-264-41-55, info@marshal.su www.marshal.su	Lugansk pipeline valves factory <b>CJSC "Spetsavtomatika"</b> , 13, Montazhna str., Lugansk, 91054, Ukraine T:+380-64-259-97-77, F:+380-64-264-41-55, info@marshal.su www.marshal.su	Diameters: 20... 350 mm	1 year warranty service. Own service center	UA 1.039.0077297-07	The company was founded in 1991	
5		Steel ball valves, return valves plate rotary gate valves with diameters from 15 to 2400 mm. Application with electric and pneumatic actuators is possible. Working pressure for various structural designs: 1; 1.6; 2.5; 4.0; 6.4 MPa	USA	<b>Bray International, Inc.</b> 13333 Westland East Blvd. Houston, Texas 77041 United States Telephone: (281) 894-5454 Fax: (281) 894-9499	<b>BRAY CONTROLS</b> representative office in CIS: of. 502, 1 Mahnytohorska str., Kyiv, 02606, Ukraine T:+380-67-246-79-09 F:+380-44-490-09-24 www.braycontrols.com.ua	Diameters: 10... 2400 mm	1 year warranty service. Own service center	UA 1.069.0063806-09 UA 1.069.0063808-09 UA 1.069.0063813-09	Representative office in Ukraine was opened in 2008	
6		Various valves with diameters from 10 to 600 mm. Working pressure for various structural designs: up to 4 MPa	Finland, Germany, Swiss and others	<b>Vexve, Brandoni and others</b>	<b>RPE Techprylad Ltd.,</b> 4/9, Kurenivsky lane, Kyiv, 04073, Ukraine T:+380-44-467-26-40, T:+380-44-467-26-60, F:+380-44-467-26-44, info@techprylad.com	Diameters: 10... 600 mm	1 year warranty service. Own service center	UA1.087.0027242-09 UA.1.087.0027155-09 UA.OAC-19.1397-07 UA1.148.0037346-10 and others	The company was founded in 1994.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Radiator heat reflectors</b>	Heat reflectors of types: "ФСС", "ФСТ", "ФЛ", "ФЛСТ". Heat reflection coefficient: 0,9; Temperature range: -40...+130 °C	Ukraine	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, +380-54-492-38-93, galant.ua@gmail.com www.galant.biz.ua	<b>OJSC Galant</b> 3 Lenina str., Shostka, Sumy region +380-54-496-52-85, +380-54-496-14-32, +380-54-492-38-93, galant.ua@gmail.com www.galant.biz.ua	Heat reflection coefficient: 0,9	-	UA1.016.0091011-09	Since 1993	
2		Heat reflectors. Temperature range: up to +700 °C	Ukraine	<b>JSC "Bilytsky zavod "TeploZvukoIzolyaciya",</b> 7, Ponomaryova str., Kotsubynske, Kyiv reg., Ukraine +380-44-390-63-63 info@tzi.kiev.ua teplozvukoizol@bigmir.net www.tzi.kiev.ua	<b>JSC "Bilytsky zavod "TeploZvukoIzolyaciya",</b> 7, Ponomaryova str., Kotsubynske, Kyiv reg., Ukraine +380-44-390-63-63 info@tzi.kiev.ua teplozvukoizol@bigmir.net www.tzi.kiev.ua	High temperature resistant	-	available	More than 5 years	
3		Heat reflectors, Temperature range: -40... +90°C, Thermal conductivity: 0,035...0,045 W/m*K	Ukraine	<b>Plus Ltd.</b> 1, Prorizna str., Shostka, Sumy region, Ukraine +380-54-492-15-58, www.plus.ua	<b>Plus Ltd.</b> 1, Prorizna str., Shostka, Sumy region, Ukraine +380-54-492-15-58, www.plus.ua	Thermal conductivity: 0,045 W/m*K	-	available	Since 1993	
4		Penofol Heat reflection coefficient: 0,9; Temperature range: -60... +100 °C; Thermal resistance: 1,07... 1,36 m <sup>2</sup> °C/W;	Russia	<b>CJSC "IT Plant "LIT"</b> 1, Sovetskaya str., Pereyaslav-Zalessky, Yaroslavl reg., 152020, Russia, T:+7-485-353-06-50, T:+7-485-353-08-71, T:+7-485-353-28-49, F:+7-485-353-22-66, lit@lit.botik.ru www.zavodlit.ru	<b>Delta-Lit Ltd.</b> 1, Lenina Ave., Alchevsk, Lugansk reg., 94201, Ukraine, +380-64-425-04-05, www.penofol.com.ua	Heat reflection coefficient: 0,9	-	available	More than 5 years	
5		Izolon Temperature range: -40... +90°C, Thermal conductivity: 0,048-0,049 W/m·K	Russia	<b>JSC " IZHEVSK PLASTICS PLANT"</b> 7, Avtozavodskaya str., Izhevsk, Udmurtskaya rep., 426065, Russia, T:+7-341-246-46-72, F:+7-341-246-16-50, F:+7-341-220-34-11, market@ipp.ru www.ipp.ru	<b>PE "Samoylov A. A."</b> 9, Poltavsky Shlyah str., Kharkiv, 61012, Ukraine +380-57-719-15-19, +380-57-754-55-10, +380-57-754-55-20,	Thermal conductivity: 0,049 W/m*K	-	available	More than 5 years	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	Energy efficient windows;	3- and 5-chamber profile; 1- and 2 - chamber glass unit	Ukraine	<b>Briz, Ltd.</b> 12, Kyivska str., Vyshneve, Kyiv region, Ukraine +380-44-406-09-42 briz2000@list.ru www.briz.in.ua	<b>Briz, Ltd.</b> 12, Kyivska str., Vyshneve, Kyiv region, Ukraine +380-44-406-09-42 briz2000@list.ru www.briz.in.ua	Thermal resistance: 0,42 m <sup>2</sup> K/W	Warranty service period: 5 years	UA 1.003.0063298-08	Since 2001	
2		3-, 4-, 5-chamber profile; heat transfer coefficient: 1,4W/m <sup>2</sup> K; class of noise insulation: A	Ukraine	<b>Vikonni Systemy Ltd.</b> 238, Zelena str., Lviv, Ukraine +380-32-241-81-81 ws.lviv@gmail.com www.wsystem.com.ua	<b>Vikonni Systemy Ltd.</b> 238, Zelena str., Lviv, Ukraine +380-32-241-81-81 ws.lviv@gmail.com www.wsystem.com.ua	Heat transfer coefficient: 1,42 W/m <sup>2</sup> K	Warranty service period; 10 years	UA 1.021.0044308-07	Since 2003	
3		3-, 4-, 5-chamber profile;	Ukraine	<b>Plant "Master OK"</b> 9/21, Baykalska str., Dnipropetrovsk, 49000, Ukraine T:+380-56-732-42-50, T:+380-56-732-42-60, T/F:+380-56-235-05-05, zavod@masterok.dp.ua www.masterok.com.ua	<b>Plant "Master OK"</b> 9/21, Baykalska str., Dnipropetrovsk, 49000, Ukraine T:+380-56-732-42-50, T:+380-56-732-42-60, T/F:+380-56-235-05-05, zavod@masterok.dp.ua www.masterok.com.ua	Thermal resistance: 0,45 m <sup>2</sup> K/W	Warranty service period: 5 years	UA 1.024.0106964-07	Since 1998	
4		3-chamber profile	Ukraine	<b>Municipal enterprise "Kyiv Plant of Aluminum Building Constructions"</b> 30, Nezalezhnosti str., Brovary, Kyiv region, 07400, Ukraine +380-44-272-18-01 impex@kzask.com.ua market@kzask.com.ua www.alubuild.kiev.ua	<b>Municipal enterprise "Kyiv Plant of Aluminum Building Constructions"</b> 30, Nezalezhnosti str., Brovary, Kyiv region, 07400, Ukraine +380-44-272-18-01 impex@kzask.com.ua market@kzask.com.ua www.alubuild.kiev.ua	Thermal resistance: 0,45 m <sup>2</sup> K/W	Warranty period; 5 years	Available	Since 2001	
5		1- and 2-chamber glass unit (4-16-4); (4-10-4-10-4), (4-6-4-14-4)	Ukraine	<b>Vinso-Vikna Co., Ltd.</b> 17, Kikvidze str., Kyiv, 01103, Ukraine +380-44-239-10-67 okna@vinso.kiev.ua www.vinso.kiev.ua	<b>Vinso-Vikna Co., Ltd.</b> 17, Kikvidze str., Kyiv, 01103, Ukraine +380-44-239-10-67 okna@vinso.kiev.ua www.vinso.kiev.ua	Thermal resistance: 0,42 m <sup>2</sup> K/W	Warranty period; 5 years	UA 1.003.0121632-08	Since 1999	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Window and door seals</b>	Rubber seals	Ukraine	<b>TM "WELLNES"</b> 71, Kotsyubynskogo str., Kalynivka, Vinnytsya region, Ukraine +380-43-332-11-96, office@welless.com.ua daysan@list.ru www.welless.com.ua	<b>TM "WELLNES"</b> 71, Kotsyubynskogo str., Kalynivka, Vinnytsya region, Ukraine +380-43-332-11-96, <a href="mailto:office@welless.com.ua">office@welless.com.ua</a> daysan@list.ru www.welless.com.ua	-	10 years	Available	Since 2007	
2		Polymer seals	Ukraine	<b>TM "POLY"</b> 28 Makarova str., Dnipropetrovsk, Ukraine +380-56-790-44-25(26); +380-56-790-94-91 mail@poli-upl.com www.poli-upl.com	<b>TM "POLY"</b> 28 Makarova str., Dnipropetrovsk, Ukraine +380-56-790-44-25(26); +380-56-790-94-91 mail@poli-upl.com www.poli-upl.com	-	5 years	Available	More than 5 years	
3		Polymer seals	Russia	<b>Deventer-rus Ltd.</b> Factory "БОЭЗМНН", Zavodskaya str., st. Bronnitsa, Ramensky distr., Moscow region, Russia +7-495-933-82-26 info@deventer.ru www.deventer.ru	<b>ARtec Ukraine</b> 11, Simiy Sosninykh str., Kyiv, 03680, Ukraine T:+380-44-407-11-60/67 F:+380-44-537-27-93 artecua@arteconline.com www.arteconline.com	-	5 years	Available	Since 1996	
4		SEALMASTER Window and door seals Draught and weather seals Intumescent seals Fire stopping seals	The United Kingdom of Great Britain	<b>SEALMASTER</b> Pampisford, Cambridge, England, CB22 3HG T: 01223 832851 F: 01223 837215 sales@sealmaster.co.uk www.sealmaster.co.uk	<b>UNIT-T Ltd.,</b> 47 Promyslova str., Lviv, 79024, Ukraine +380-32-242-28-85, +380-32-242-28-86, +380-32-299-43-12, office@kwtka.com.ua www.unit-t.com.ua		5 years	Available	Since 2003	
5		SECIL Window and door seals	Turkey	<b>Secil Kaucuk</b> Tarsus-Adana Karayolu 7 Km. Tarsus-Mersin, 33400, Turkey T:+90-324-616-11-40 F:+90-324-616-04-04, seciltr@seciltr.com, www.seciltr.com	<b>Secil-Ukraine Ltd.,</b> office 15, Peremohy ave., Kyiv, 03179, Ukraine T:+380-44-220-00-03 F:+380-44-220-00-06 secilukraine@seciltr.com <a href="http://okna.ua/sechilua">http://okna.ua/sechilua</a>	Resistant to temperatures: -45...+100C	5 years	Available Certification: R.A.L 803, GLOBAL, ГОСТ-0179868 from 08.07.2003, TSE	Since 2003	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	Energy-efficient bulbs	Type: compact fluorescent lamp; power: 7... 55W; lamp cap: E14, E27; G23; service life: 8000 hours	China, Japan, Russia, Ukraine, Belarus	<b>OJSC "STC-Ukraine", Ltd., TM «COSMOS»</b> 64, Novoselskogo str., Odesa, 65023, Ukraine +380-48-236-51-52 www.kosmos.od.ua	<b>OJSC "STC-Ukraine", Ltd., TM «COSMOS»</b> 64, Novoselskogo str., Odesa, 65023, Ukraine +380-48-236-51-52 www.kosmos.od.ua	power: 7 - 55W; service life: 8000 hours	Warranty period: 12 months.	Available	More than 3 years	
2		Type: compact fluorescent lamp; power: 11... 24W; lamp cap: E27; service life: 6000 hours	Ukraine	<b>Iskra, Ltd., TM "Iskra", TM "Volta"</b> 14, Vuletska str., Lviv, 79066, Ukraine T:+380-32-245-43-31 F:+380-32-221-90-66 info@iskra.com.ua www.iskra.com.ua	<b>Iskra, Ltd., TM "Iskra", TM "Volta"</b> 14, Vuletska str., Lviv, 79066, Ukraine T:+380-32-245-43-31 F:+380-32-221-90-66 info@iskra.com.ua www.iskra.com.ua	power: 11 - 24W; service life: 6000 hours	Warranty period: 12 months.	Available	More than 3 years	
3		Type: compact fluorescent lamp; power: 5... 25W; lamp cap: E14, E27; service life: 6000 - 15000 hours	Ukraine	<b>Gasotron-Lux, Ltd.,</b> 39, Gagarina str., Rivne, 33003, Ukraine T:+380-36-269-04-54, F:+380-36-269-04-94, info@lummax.com.ua www.lummax.com.ua	<b>Gasotron-Lux, Ltd.</b> 13, Staronavodnytska str., Kyiv, 01015, Ukraine T:+380-44-206-04-57, F:+380-44-206-05-87, www.lummax.com.ua	power: 5 - 25W; service life: 6000 - 15000 hours	Warranty period: 12-24 months.	UA1. 035. 0199352- 06	More than 3 years	
4		Type: compact fluorescent lamp; power: 5... 30W; lamp cap: E14, E27; service life: 8000 hours	Bulgaria, China, Ukraine	<b>HKD-Trade, Ltd., TM "Realux"</b> 140, Polyova str., Kharkiv, 61140, Ukraine T:+380-57-752-52-31 F:+380-57-752-52-32 ukraine@realux.bg www.realux.ua	<b>HKD-Trade, Ltd., TM "Realux"</b> 140, Polyova str., Kharkiv, 61140, Ukraine T:+380-57-752-52-31 F:+380-57-752-52-32 ukraine@realux.bg www.realux.ua	power: 5 - 30W; service life: 8000 hours	Warranty period: 12 months.	Available	Since 2003	
5		Type: compact fluorescent lamp; power: 5... 200W; lamp cap: E14, E27, E40; service life: 10000-12000 hours	China	<b>Willfly industrial company limited</b> office 3-39, Lane 15, No.421, Zhongshan East Road, Ningbo, China	<b>TM "SVOYA"</b> 99, Postysheva ave., Kharkiv, 61002, Ukraine +380-57-376-44-97 lighting@svoya.com.ua www.svoja.com.ua	power: 5 - 200W; service life: 10000-12000 hours	Warranty period: 12 months.	UA1. 007. 0013080- 10	Since 2007	

	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Individual boilers</b>	Wall-hung and floor-mounted boilers with copper or steel heat exchanger. Single- or double-circuit (HWS). Rated output: 7-100 kW, Efficiency: 92%. Trademark: "Kolvi".	Ukraine	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	<b>Kolvi Ltd.</b> pavilion 10-A, 1, Gorkogo str., pp. Sofiyivska Borschagivka, Kyiv district, Ukraine +380-44-594-81-00, +380-44-594-81-01 www.kolvi.com	Capacity: 7-100 kW, Efficiency: 92%	3 year warranty service. Own service center	UA 1.069.0190795-06 UA 1.069.0055576-08 UA 1.165.0061680-09 UA 1.165.0089006-09 UA 1.165.0046411-10	The company was founded in 1991	
2		Floor and Suspended boilers with copper or steel heat exchanger, single-or double-circuit for hot water. Capacity: 7-96 kW Efficiency: 90%. Trademark: "Aton"	Ukraine	<b>Plant" Atonmash "</b> 16 Tsentralna str., Krasyliv, Khmelnytsky region, Ukraine, +380-38-554-48-06, +380-38-554-48-07, +380-38-554-38-81, +380-38-554-37-97 www.aton.ua	<b>Plant" Atonmash "</b> 16 Tsentralna str., Krasyliv, Khmelnytsky region, Ukraine, +380-38-554-48-06, +380-38-554-48-07, +380-38-554-38-81, +380-38-554-37-97 www.aton.ua	Capacity: 7-96 kW Efficiency: 90%	3 year warranty service. Own service center	UA 1.013.0186573-06 UA 1.013.0206991-06 UA 1.013.0208886-06 UA 1.013.0156751-08 UA 1.013.0171443-08 UA 1.013.0048147-09 UA 1.021.0012493-10	The company was founded in 2003	
3		Floor and Suspended boilers with copper or steel heat exchanger, single-or double-circuit for hot water. Capacity: 7-80 kW Efficiency: 90%. Trademark: "Atem"	Ukraine	<b>ZhytomyrTeploMash Ltd.,</b> 8, Kowalska str., Berezhivka, Zhytomir region, Ukraine +380-41-241-88-60, +380-41-249-60-71,	<b>JSC "Trade house "Atem"</b> 6, Byalyka str., Zhytomyr, Ukraine +380-41-225-74-27, +380-41-225-87-82, www.atem.zt.ua	Capacity: 7-80 kW Efficiency: 90%	2 year warranty service. Own service center	UA 1.013.0143951-07 UA 1.013.0143969-07 UA 1.013.0144105-07 UA 1.013.0102236-08 UA 1.013.0156905-08 UA 1.013.0058621-09 UA 1.013.0065601-09 UA 1.013.0086505-09 UA 1.013.0086506-09	The company was founded in 1988	
4		Steel and cast iron boilers floor with copper or steel heat exchanger, single-or double-circuit for the PRT. Capacity: 10-100 kW Efficiency: 92-94%. Trademark: "Mayak".	Ukraine	<b>JSC "Mayak",</b> 120, 50 years of Komsomol str., Zmiyiv, Kharkiv region, Ukraine T:+380-57-473-08-68 F:+380-57-473-08-69 www.majak.com.ua	<b>JSC "Mayak",</b> 120, 50 years of Komsomol str., Zmiyiv, Kharkiv region, Ukraine T:+380-57-473-08-68 F:+380-57-473-08-69 www.majak.com.ua	Capacity: 10-100 kW Efficiency: 92-94%.	3 year warranty service. Own service center	UA.1.013.0137665-06	The company was founded in 1991	
5		Steel and iron, floor or wall fired boilers with copper or steel heat exchanger, single-or double-circuit for the hot water. Capacity: 7,5-96 kW Efficiency: 90%. Trademark: "Danko".	Ukraine	<b>JSC "Agroresurs",</b> 35, Nyzhnyodvoretska str., Rivne, Ukraine +380-36-263-19-38, +380-36-226-39-13, www.agroresurs.com.ua	<b>JSC "Agroresurs",</b> 35, Nyzhnyodvoretska str., Rivne, Ukraine +380-36-263-19-38, +380-36-226-39-13, www.agroresurs.com.ua	Capacity: 7,5-96 kW Efficiency: 90%	3 year warranty service. Own service center	UA.1.013.0101309-06	The company was founded in 1997	
6		Steel floor boilers with copper or steel heat exchanger, single-or double-circuit for the PRT. Capacity: 7-100 kW. Efficiency: 92%	Ukraine	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	<b>SE "63rd Boiler Plant"</b> 11, Khrypynska str., Ivano-Frankivsk, Ukraine, 6002 T:+380-34-222-51-96, T:+380-34-222-32-74, F:+380-34-223-22-61, F:+380-34-222-56-70 e-mail: kzz63@mail.ru	Capacity: 7-100 kW. Efficiency: 92%	2,5 year warranty service. Own service center	UA 1.013.0101709-07 UA 1.013.0051259-09 UA 1.013.0051841-09	The company was founded in 1945	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Individual electric boilers</b>	EHE and electrode boilers, 3... 150 kW. Various completions and performances. Equipped with point-to-point temperature controller. Voltage: 220/380V. Max. working pressure: 0,6 MPa.	Ukraine	<b>Factory "Teplotekhnika"</b> of. 237, 93 Karl Marx avenue, Dnipropetrovsk, 49000, Ukraine T:+380-56-233-33-06 F:+380-56-745-33-97 www.teplotekhnika.dp.ua	<b>Factory "Teplotekhnika"</b> of. 237, 93 Karl Marx avenue, Dnipropetrovsk, 49000, Ukraine T:+380-56-233-33-06 F:+380-56-745-33-97 www.teplotekhnika.dp.ua	Capacity: 3-150 kW	1 year warranty service. Own service center	UA1.069.0027915-09	The company was founded in 1996	
2		EHE boilers, 4... 120 kW Various completions. Point-to point type of control. Voltage: 220/380V.	Ukraine	<b>Plant "TEPLOMASH"</b> , of. 237, 162-A, Heroyiv Staligradu str., Dnipropetrovsk, 49057, Ukraine +380-56-378-91-02, -3, -4, -5, -6, +380-56-378-22-01, -2, +380-56-378-22-21, -22, -23 teplomash@yahoo.com www.teplomash.com.ua	<b>Plant "TEPLOMASH"</b> , of. 237, 162-A, Heroyiv Staligradu str., Dnipropetrovsk, 49057, Ukraine +380-56-378-91-02, -3, -4, -5, -6, +380-56-378-22-01, -2, +380-56-378-22-21, -22, -23 teplomash@yahoo.com www.teplomash.com.ua	Capacity: 4-120 kW	1 year warranty service. Own service center	available	The company was founded in 1995	
3		EHE boilers, 4... 120 kW Various completions. Point-to point type of control. Voltage: 220/380V. For opened and closed types of heating systems. Max. working pressure: 0,6 MPa.	Ukraine	<b>"NPP ElektroTeploMash" Ltd.</b> , 27, Udarnykyv str., Dnipropetrovsk, 49038, Ukraine +380-56-234-05-71, +380-56-370-58-73, <a href="mailto:office@etm.in.ua">office@etm.in.ua</a> www.etm.in.ua	<b>"NPP ElektroTeploMash" Ltd.</b> , Of. 151, 6, Slavy blvd., Dnipropetrovsk, 49038, Ukraine, +380-56-234-05-71, +380-56-370-58-73, <a href="mailto:office@etm.in.ua">office@etm.in.ua</a> www.etm.in.ua	Capacity: 3-120 kW	1 year warranty service. Own service center	available	The company was founded in 2001	
4		EHE boilers, 3... 540 kW Various completions. Point-to point type of control. Voltage: 220/380V.	Ukraine	<b>PME "Titan"</b> 1-L, Kursantska str., Dnipropetrovsk, 49051, Ukraine, +380-56-234-87-67, -34-87-68, +380-56-234-93-73, -34-84-65, www.titanelektro.dp.ua	<b>PME "Titan"</b> 1-L, Kursantska str., Dnipropetrovsk, 49051, Ukraine, +380-56-234-87-67, -34-87-68, +380-56-234-93-73, -34-84-65, info@titanelektro.dp.ua	Capacity: 3-540 kW	1 year warranty service. Own service center	UA1.024.0007212-10	The company was founded in 1995	
5		EHE boilers, 3... 16 kW Various completions. Point-to point type of control. Voltage: 220/380V. For opened and closed types of heating systems. Max. working pressure: 0,3 MPa.	Ukraine	<b>Alvi-Synergiya Ltd.</b> , Svitlohorska (KARZ-6) str., Kyiv, Ukraine, +380-44-223-53-73 <a href="mailto:office@alvisi.kiev.ua">office@alvisi.kiev.ua</a> <a href="mailto:alvisi@ukr.net">alvisi@ukr.net</a> www.alvisi.kiev.ua	<b>Alvi-Synergiya Ltd.</b> , Svitlohorska (KARZ-6) str., Kyiv, Ukraine, +380-44-223-53-73 <a href="mailto:office@alvisi.kiev.ua">office@alvisi.kiev.ua</a> <a href="mailto:alvisi@ukr.net">alvisi@ukr.net</a> www.alvisi.kiev.ua	Capacity: 3-16 kW	1 year warranty service. Own service center	UA1.003.0066689-09	The company was founded in 2000	
6		Electrode boilers, 3... 100 kW Various completions. Point-to point type of control. Voltage: 220/380V.	Ukraine	<b>"Lugansk Electric Apparatus Plant" Ltd.</b> , 6 Alchevsk Highway, vill. Yuvileyne, Lugansk region, 91493, Ukraine, +380-64-234-60-23, +380-64-234-60-41, +380-64-234-60-23, secretar@leaz.com.ua www.leaz.com.ua	<b>"Lugansk Electric Apparatus Plant" Ltd.</b> , 6 Alchevsk Highway, vill. Yuvileyne, Lugansk region, 91493, Ukraine, +380-64-234-60-23, +380-64-234-60-41, +380-64-234-60-23, secretar@leaz.com.ua www.leaz.com.ua	Capacity: 3-100 kW	1 year warranty service. Own service center	available	The company was founded in 1958	
7		EHE boilers, 4... 75 kW Various completions. Point-to point type of control. Voltage: 220/380V. For opened and closed types of heating systems. Max. working pressure: 0,2 MPa.	Ukraine	<b>SPC Spectr Ltd.</b> 201/203, Kharkiv highway (within the territory of JSC "Pivden"), Kyiv, 02121, Ukraine +380-44-361-39-53, +380-94-926-09-53, +380-95-337-77-09, +380-44-562-92-22 www.spectr.in.ua	<b>SPC Spectr Ltd.</b> 201/203, Kharkiv highway (within the territory of JSC "Pivden"), Kyiv, 02121, Ukraine +380-44-361-39-53, +380-94-926-09-53, +380-95-337-77-09, +380-44-562-92-22 e-mail: NVC_Spectr@ukr.net	Capacity: 4-75 kW	1 year warranty service. Own service center	available	More than 3 years	
8		Electrode boilers, 3... 25 kW Various completions. Point-to point type of control. Voltage: 220/380V.	Ukraine	<b>Galan-Kyiv Ltd.</b> Build. #4, 8, Ivana Lepshe blvd. , Kyiv, Ukraine, +380-44-594-29-42, +380-44-497-51-13, www.e-kotel.com	<b>Galan-Kyiv Ltd.</b> Build. #4, 8, Ivana Lepshe blvd. , Kyiv, Ukraine, +380-44-594-29-42, +380-44-497-51-13, info@e-kotel.com	Capacity: 3-25 kW	1 year warranty service. Own service center	not required	The company was founded in 2002	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Hot water storage tanks</b>	Steel HWS tanks, with outer thermal insulation and internal EHE and tubular heat exchanger. Capacities: 0.4... 2 m3. Max working pressure: 1 MPa	Ukraine	<b>Eurotherm Ltd.</b> 20, Tantsorova str., Ternopil, Ukraine, T:+380-35-243-49-63, F:+380-35-252-18-35, M:+380-67-371-03-07, www.teplobak.com.ua	<b>Eurotherm Ltd.</b> 20, Tantsorova str., Ternopil, Ukraine, T:+380-35-243-49-63, F:+380-35-252-18-35, M:+380-67-371-03-07, www.teplobak.com.ua e-mail: info@euro-term.com.ua; manager@euro-term.com.ua	Steel HWS tanks, 0,4... 2 m3	1 year warranty service. Own service center	not required	More than 3 year	
2		Polymeric HWS tanks, with outer thermal insulation and internal EHE and tubular heat exchanger. Capacities: up to 5 m3. Max working pressure: 0.6 MPa	Ukraine	<b>Termoakkumulyator Ukraina Ltd.</b> of. 9B, bui.ld 12, 2, Panykahy str., Dnipropetrovsk, 49600, Ukraine +380-56-747-04-39, +380-56-747-07-77, www.termoakkumulyator.com.ua	<b>Termoakkumulyator Ukraina Ltd.</b> of. 9B, bui.ld 12, 2, Panykahy str., Dnipropetrovsk, 49600, Ukraine +380-56-747-04-39, +380-56-747-07-77, termoakkumulyator@i.ua	Polymeric HWS tanks, Max. 5 m3	Special service during the operation is not required	not required	More than 3 years	
3		Electric hot water storage tanks, working in automatic mode. Capacities: up to 20 m3. Various electric power.	Ukraine	<b>"NPP ElektroTeploMash" Ltd.,</b> 27, Udarnykyv str., Dnipropetrovsk, 49038, Ukraine +380-56-234-05-71, +380-56-370-58-73, <a href="mailto:office@etm.in.ua">office@etm.in.ua</a> www.etm.in.ua	<b>"NPP ElektroTeploMash" Ltd.,</b> Of. 151, 6, Slavy blvd., Dnipropetrovsk, 49038, Ukraine, +380-56-234-05-71, +380-56-370-58-73, <a href="mailto:office@etm.in.ua">office@etm.in.ua</a> www.etm.in.ua	Electric HWS tanks, Max. 20 m3	1 year warranty service. Own service center	not required	The company was founded in 1997	
4		Heating complex "Teplon", consisting of: HWS storage tank, electrolytic heaters "Teplon", circulating pumps, controllers. The capacity is calculated specifically for each object.	Ukraine	<b>Company Group "TEPLON"</b> 4 Shakhtarska str., Kyiv, 04074, Ukraine +380-44-206-04-43 +380-44-206-04-44 +380-44-206-04-45 www.teplon.com.ua	<b>Company Group "TEPLON"</b> 4 Shakhtarska str., Kyiv, 04074, Ukraine +380-44-206-04-43 +380-44-206-04-44 +380-44-206-04-45 www.teplon.com.ua	The capacity is calculated specifically for each object.	3 year warranty service. Own service center	not required	More than 3 years	
5		Steel vertical and horizontal HWS tanks for heating systems. Available capacities: up to 20 m3. Max. working pressure: 0,4 MPa.	Ukraine	<b>PE "Argus-Service",</b> Tcherkasy, Ukraine T:+380-47-265-32-36 F:+380-47-265-95-77 www.argus-service.com.ua	<b>PE "Argus-Service",</b> Kyiv, Ukraine, +380-44-362-15-20, +380-44-362-15-30 e-mail: 1@teplo.com	Steel HWS tanks, Max. 20 m3	1 year warranty service. Own service center	not required	The company was founded in 1998	
6		Steel HWS tanks, with outer thermal insulation and enamelled inside. Internal EHE and tubular heat exchanger. Capacities: 0,2... 5 m3. Max working pressure: 0.8 MPa.	Italy	<b>ZANI</b>	<b>SPE "OPEKS energy systems" Ltd.</b> of. 12, 12 Tchyhoryna str., Kyiv, 01042, Ukraine +380-44-536-11-90 +380-44-286-45-84 +380-44-286-34-52	Steel HWS tanks, 0,2... 5 m3	1 year warranty service. Own service center	UA1.069.0123461-07	The company was founded in 1999	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Thermostatic valves</b>	<b>VALTEC</b> Thermostatic radiator valves VT.31, VT.32; VT.T1000, VT.T5000	Italy	<b>VALTEC S.R.L.</b> Via Solferino 3, 25122 Brescia - Italy T:+39 030 3752871 F:+39 030 3772669 www.valtecsrl.com	<b>Vesta Ukraine Ltd.,</b> 3 Parnykova str., Krukivshyna, Kyiv region, 08136, Ukraine T:+380-44-503-91-93, F:+380-44-503-91-92, info@ua.vesta-trading.com www.vesta-trading.com.ua	Full range by types and sizes. Competitive ratio "price-quality", which is confirmed by the rapid growth of sales volumes and the number of installed objects.	Warranty period: 2 years. Installation and servicing support performed by dealers.	UkrSEPRO UA 1.080.0066216-09	Since 2004 in Ukraine. Dealer network across Ukraine. Great demand among installation firms. Most of the objects are in private sector.	
2		<b>DANFOSS</b> Thermostatic radiator valves, locking and regulating armature - 23 models, spare parts.	Danmark	<b>Danfoss Trata d.o.o.</b> Ulica Jožeta Jame 16 SI-1210 Ljubljana Šentvid Slovenija +38-61-582-02-00 danfoss-trata@danfoss.com www.trata.danfoss.si	<b>Danfoss Ltd.,</b> 15/15/6 Vikenty Khvoyko str., Kyiv, 04080, Ukraine T:+380-44-461-87-00 M:+380-50-312-98-75 F:+380-44-461-87-07 ua_postmaster@danfoss.com www.danfoss.ua	The main distinction: the thermostatic actuators are filled with gas condensate = speed reaction (low system inertia) and accuracy of regulation. Full range of types and sizes. Competitive ratio "price-quality". Adapted for Ukraine and CIS. There are valves for double-pipe, and for single-pipe systems. Working pressure - up to 16 bar, the tem-re - up to 120 C.	Warranty period: 1 year. In some objects Danfoss valves work more than 30 years. Installation and servicing are performed by dealers.	UkrSEPRO UA 1.069.0095626-09	Since 1997 in Ukraine. Educational institutions (NTUU), many objects of public purpose. Cooperation with the State Committee on Energy Saving, ESCO.	
3		<b>HERZ</b> Thermostatic radiator valves TS-90-V, TS-98-V, TS-FV, TS-90-kV, TS-90-E, TS-E, TS-90 locking and regulating armature, spare parts.	Austria, Slovenia	<b>HERZ ARMATUREN GmbH</b> Richard-Strauss str. 22, WIEN, Österreich, A-1230 T:+43 (0) 1 616 26 31 - 0 F:+43 (0) 1 616 26 31 - 27 office@herz-armaturen.com www.herz-armaturen.com  GRMASKA CESTA 3, 1275 SMARTNO PRI LITIJI (Slovenia).	<b>HERZ Ukraine,</b> 10, Lunacharskogo str., Kyiv, 02002, Ukraine T:+380-44-569-57-07, T:+380-44-569-57-08, F:+380-44-569-57-09, kyiv@herz.ua www.herz-armaturen.com.ua	Wide range of sizes and types, purposes, circuit solutions. Competitive ratio "price-quality". Working pressure - 10 bar, the tem-re - up to 120C.	Warranty period: 5 years. Installation and servicing support performed by dealers.	UkrSEPRO UA 1.069.0048540-09	Since 1997 in Ukraine. HERZ valves are in use in large number of residential buildings, industrial, social and sacral purpose. The list of referent objects: <a href="http://www.herz-armaturen.com.ua/index.php/uk/ukraine">http://www.herz-armaturen.com.ua/index.php/uk/ukraine</a>	
4		<b>VTFT 45/71</b> Thermostatic valves	Italy	<b>V.M.C. S.P.A CREAZZO</b> Via Almerico da Schio, 4 / A - B I-36051 CREAZZO (VI) - ITALY P.I. IT 03117360242 T:+390-44-452-14-71 T:+390-44-434-11-15 F:+390-44-427-51-12 info@vmcitaly.com www.vmcitaly.com	<b>JE UKRTECHNOSINTEZ Ltd.,</b> 6 Kursky lane, Sumy, 40020, Ukraine T:+380-54-221-41-02 T:+380-54-221-41-39 F:+380-54-221-41-79			UkrSEPRO UA 1.036.0055343-09		
5		<b>HEIMEIER</b> Pipe armature, thermostatic valves for heating systems and HWSS	Germany	<b>Theodor Heimeier Metallwerk GmbH</b> Völlinghauser Weg 59597 Erwitte, Deutschland T:+49-294-389-1-52 F:+49-294-389-11-72 kundendienst@heimeier.com www.heimeier.com	<b>IMI International,</b> 13K Pymonenko str., Kyiv, 04050, Ukraine +380-44-220-39-61 office@imi-international.com.ua www.imi-international.com.ua	High quality. Operating pressure - up to 16 bar. Heimeier is the inventor of liquid-filled thermostatic actuators.	Warranty period: 2 years. Installation and servicing support performed by dealers.	UkrSEPRO UA 1.166.0056560-09	Since 1999. in Ukraine. Among the objects: multi-storey buildings, shopping and entertainment centers, banks, educational institutions.	

No	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Radiators and convectors</b>	<b>KONVEKTOR</b> Into-floor mounted convectors, a wide range by heat output and sizes. With or without fans.	Ukraine	<b>Trade House Interresources Ltd.</b> , production plant: 50 Darvina str., Kirovograd, 25014, Ukraine T:+380-52-256-70-06 F:+380-52-256-70-06 M:+380-67-520-09-59 info@konvektor.ua www.konvektor.net	<b>Trade House Interresources Ltd.</b> , Sales office: 4v Rayevskogo str., Kyiv, 01042 T:+380-44-529-00-51 F:+380-44-529-05-22 M:+380-97-889-51-44 s.lipovoy@bosco.com.ua www.konvektor.net	1. Small hydraulic resistance. 2. Convectors with axial fans (12V), three speed control. 3. Can be used in cooling systems. 4. Solutions for rooms with special requirements for interior design. 5. The price is 2-2,5 times lower than for the competitive analogues of the EU.	Warranty: on heat exchangers - 5 years on resistance to corrosion of the corpse - 15 years on axial fans, power units and controllers - 1 year. Installation and servicing performed by dealers (in Kiev: PP "Montazhnik")	available	Private sector	
2		<b>PK PRES</b> Steel welded register radiators PP3-500-6; PP3-500-9; PP3-500-14, PP3-M-500-3, PP3-M-500-4, PP3-M-500-5, PP3-M-500-7, Bimetallic 5-sectional radiators PB 024-5199, PB 024-5207, PBII-1-500-5	Ukraine	<b>PRES Ltd.</b> , 49/2 Peremohy ave., Kyiv, 03057 +380-44-456-14-47, +380-44-456-69-07, info@pres.ua www.pres.ua	<b>PRES Ltd.</b> , 49/2 Peremohy ave., Kyiv, 03057 +380-44-456-14-47, +380-44-456-69-07, info@pres.ua www.pres.ua	1. Not require special water treatment, unlike those of aluminum. 2. High working pressure - up to 18 atm. 3. Competitive price.	Warranty period: 5 years  Service life: 40 years	UkrSEPRO UA 1.013.0010660-06 UA 1.013.0046375-07 UA 1.013.0099017-07	Applied in many public objects. Example: Railway Terminals of Ukrzaliznytsya.	
3		<b>REENO-0,3-0,7</b> (Liquid-filled electrode heater)	Ukraine	<b>"Alliance-Ukraine"</b> , 5 Kurchatova str., Kyiv, 02156, Ukraine+380-44-518-85-38 alians_ukraina@ukr.net www.teplo-servis.kiev.ua	<b>"Alliance-Ukraine"</b> , 5 Kurchatova str., Kyiv, 02156, Ukraine+380-44-518-85-38 alians_ukraina@ukr.net www.teplo-servis.kiev.ua	In case of using REENO with thermostat, it consumes 0,3-0,9 kW/h, but provides heating to a room of 25-300 m3, depending on type of heat exchanger (radiators made of different materials, registers, tanks, etc.)	The warranty period is 1 year. Installation and service.	UkrSEPRO UA.OC-01.0074-07	Enterprise "Alliance-Ukraine" is a collective member of Academy of Science of Ukraine, laureate of national competitions among the best energy-savings devices.	
4		<b>ASAL INDUSTRY</b> Aluminium radiators APK-350/N, APK-500/N, AKII-500, APKII-600	Ukraine	<b>ASAL INDUSTRY Ltd.</b> , 67 Popovycha str., Donetsk, 83056, Ukraine 44 Khimikiv str., 44, Donetsk, 83057, Ukraine +380-62-332-00-08, +380-62-332-01-29, +380-62-332-01-99, +380-50-474-86-23, asal@mail.ru www.asal-industry.narod.ru	<b>ASAL INDUSTRY Ltd.</b> , 67 Popovycha str., Donetsk, 83056, Ukraine 44 Khimikiv str., 44, Donetsk, 83057, Ukraine +380-62-332-00-08, +380-62-332-01-29, +380-62-332-01-99, +380-50-474-86-23, asal@mail.ru www.asal-industry.narod.ru	1. High corrosion resistance. 2. High heat conductivity. 3. Working pressure - to 1,8 MPa (18 kgs/cm2) Testing pressure: 2,5 MPa (25 kgs/cm2) Maximal pressure: 6 MPa (60 kgs/cm2)	Warranty period: 6 years	UkrSEPRO UA 1.015.0067045-06	Since 2001 on Ukrainian market. Collaborated with the following construction firms: SP «Donkonterm» (Donetsk) GAZSTROYSERVIS Ltd. (Dnepropetrovsk) CONSOL Ltd. (Crimea) «Zhitlobudinvest» (Kyiv, 18-floor buildings).	
5		CAST-IRON RADIATORS MC-140 M4 500-0,9-2 - MC-140 M4 500-0,9-8; PA-100 500 1,2-2 - PA-100 500 1,2-10; MC 100 M1 3KII-500-1,2-2 - MC 100 M1 3KII-500-1,2-10; MC 100 M1 3KII-300-0,9-2 - MC 100 M1 3KII-300-0,9-10;	Ukraine	<b>CJSC "LUGANSK CASTING MECHANICAL PLANT"</b> , 195 Lenina str., Lugansk, 91055, Ukraine T:+380-64-271-85-86, F:+380-64-234-31-10, F:+380-64-234-31-11, ves@llmz.lg.ua www.llmz.lg.ua	<b>AsiaMetalKonstruktsiya Ltd.</b> , 7a Boryspilska str., Kyiv, 02099, Ukraine +380-44-206-45-25, +380-44-567-11-36, +380-44-332-43-91, amk@aziametall.com.ua www.aziametall.com.ua	Reliability. Working pressure - 1,2 MPa Testing pressure - 1,8 MPa High heat capacity.	Warranty period: 2,5 years.  Service life: more than 40 years.  Installation and service performed by dealers.	UkrSEPRO UA 1.013.0029192-07	The plant was founded in 1933. The radiators are manufactured since 1996.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Heat pumps</b>	<b>REFMA</b> Heat pumps from 5 to 1500 kW (in one unit), air-to-air heat pumps, other combinations of energy carriers.	Ukraine	<b>REFMA, OJSC "Melitopol Refrigerating Engineering Plant",</b> 15 Profinternu str., Melytopol, Zaporizhzhya region, 72301, Ukraine +380-61-927-64-27, +380-61-927-62-22, +380-61-926-97-73, www.refma.ua	<b>REFMA, OJSC "Melitopol Refrigerating Engineering Plant",</b> 15 Profinternu str., Melytopol, Zaporizhzhya region, 72301, Ukraine +380-61-927-64-27, +380-61-927-62-22, +380-61-926-97-73, www.refma.ua	Ordering of heat pump units with various combinations of energy carriers, for heating and cooling is possible. COP: 2,9 (-10°C/+60°C) 3,5 (+2°C/+60°C) 4,1 (+10°C/+60°C) 5,0 (+10°C/+50°C)	Warranty period: 2 years. Installation and service provided by dealers.	available	The plant works about 45 years. Customers: industry, educational institutions, state orders.	A leading manufacturer of refrigeration equipment in Ukraine. The only manufacturer of high power heat pumps in Ukraine
2		16 models "water-water" 3-phased heat pumps, from 6 up to 157 kW. To= -5, Tk=+ 50, Exclusive ordering of high capacities is possible.	Made in Ukraine. Completed with the compressors of "Copeland Scroll™" (Ireland-USA)	<b>V.D.E.-Ukraine Ltd.,</b> office 15, 14 Nezalezhnosti str., Brovary, Kyiv region, Ukraine T:+380-44-221-11-88 F:+380-44-221-73-60 vde@vde.com.ua www.vde.com.ua	<b>V.D.E.-Ukraine Ltd.,</b> office 15, 14 Nezalezhnosti str., Brovary, Kyiv region, Ukraine T:+380-44-221-11-88 F:+380-44-221-73-60 vde@vde.com.ua www.vde.com.ua	Wide range of capacities up to 157 kW; COP = 2.77 ... 2.96 (t <sub>air</sub> = 0C, t <sub>water</sub> =35/50 °C)	Warranty period: 5 years. Servicing support. Own service center.	Patents and Technical Conditions (TY) for the production. The company has an official letter of confirmation that the UkrSEPRO Certificate is not required.	The company was founded in 2007. About 80 objects in Ukraine. 90% of all objects are in private sector. Example: Kyiv Golf Club.	Regular training seminars.
3		15 models "water-water" 3-phased heat pumps, from 6 up to 150 kW. Exclusive ordering of high capacities is possible.	Made in Ukraine. Completed with the compressors of "Copeland Scroll™" (Ireland-USA)	<b>EUROENERGOSERVIS Ltd.</b> 1 Shumskogo str., Kyiv, Ukraine +380-44-220-17-14, +380-44-220-17-15, +380-67-365-77-90, www.ees.org.ua	<b>EUROENERGOSERVIS Ltd.</b> 1 Shumskogo str., Kyiv, Ukraine +380-44-220-17-14, +380-44-220-17-15, +380-67-365-77-90, www.ees.org.ua	Wide range of capacities up to 150 kW COP =3.4 ... 4.7	Warranty period: 5 years. Servicing support. Own service center.	The company has an official letter of confirmation that the UkrSEPRO Certificate is not required.	More than 3 years	
4		<b>AL THERM</b> Heat pumps "water-water", "ground-water" 6... 100 kW	Made in Ukraine. Components are made in EU.	<b>AlTherm Ltd.</b> 27/5 Kyivska str., Vyshneve, Kyivo-Svyatoshynsky district, Kyiv region, 08132, Ukraine T:+380-44-383-87-78 M:+380-67-901-53-02 M:+380-50-355-66-84 F:+380-44-239-13-45 headoffice@altherm.kiev.ua www.altherm.kiev.ua	<b>AlTherm Ltd.</b> 27/5 Kyivska str., Vyshneve, Kyivo-Svyatoshynsky district, Kyiv region, 08132, Ukraine T:+380-44-383-87-78 M:+380-67-901-53-02 M:+380-50-355-66-84 F:+380-44-239-13-45 headoffice@altherm.kiev.ua www.altherm.kiev.ua	COMPONENTS: Compressors: "COPELAND" series ZH, Ireland, USA Plate heat exchangers: "SWEP", Sweden Circulating pumps: "WILO", Germany Electric starting-up switching equipment: "Schneider Electric", France Chilling equipment parts: "DANFOSS", Denmark Three-way valves: "ESBE", Sweden Built-in Circulating Pumps The cost of AL Thermo heat pumps is 40% lower than similar European product.	5-year warranty. General installation support, service. Training seminars. Manufacturing on special order is possible within 2 months.	UkrSEPRO registry # UA1.168.0096685-09 UA1.043.0035158-09	Private sector. Experience of application for office buildings of 1500 sq.m, three floors. Experience of work with Zhitomir City State Administration. Production is located in the Kiev region, since 2003.	
5		Air-to-water heat pumps with heating and cooling functions, 5,75... 16 kW	Belgium, Czech Republic	<b>Daikin Europe N.V.</b> Zandvoordestraat 300 BE-8400 Oostende Belgium T.: +32 59 55 81 11 F.: +32 59 55 88 99 BTW BE 0412 120 336 RPR Oostende	<b>DAIKIN-Ukraine,</b> Kyiv, +380-44-592-24-23, info@daikinua.com.ua www.daikinua.com.ua	1. Competitive price, high efficiency (COP), 2. No need for boreholes or trenches. 3. The outdoor unit can be installed on the facade or on the roof.	Warranty period: 3 years. Installation and service provided by dealers.	available	private sector	
6		<b>Viessmann Vitocal</b> Heat pumps 1,52... 85,6 kW for heating and cooling, with selection from various energy sources.	Germany	<b>Die Viessmann Werke in Allendorf:</b> Viessmannstraße 1 35108 Allendorf (Eder) Telefon: +49 06452 70-0 Telefax: +49 06452 70-2780	<b>Viessmann Ltd.,</b> corpse 10-A, build. 5 Dimitrova str., Kyiv, 03680, Ukraine T:+380-44-461-98-41 F:+380-44-461-98-43 www.viessmann.ua	1. Competitive price. 2. No need for boreholes or trenches. 3. The outdoor unit can be installed on the facade or on the roof. 4. High efficiency. COP is about 3.6 (t <sub>air</sub> = +2°C / t <sub>water</sub> = +35°C).	Warranty period: 2 years. Installation and service provided by dealers.	available	private sector	
7		<b>Viessmann KWT</b> Heat pumps of large capacities (to 1500 kW), for various applications, with selection from various energy sources.	Germany	<b>KWT Manufacturing company</b> in a group Viessmann	<b>Viessmann Ltd.,</b> corpse 10-A, build. 5 Dimitrova str., Kyiv, 03680, Ukraine T:+380-44-461-98-41 F:+380-44-461-98-43 www.viessmann.ua	1. No similar competitive offers on the Ukrainian market. 2. Depending on the situation at the site and the technical task, KWT manufactures units, selected for specific use and types: "water-water", "R410A-water", "air-water". 3. The range of capacities is from 15 to 1500 kW. The power output can be extended by use of cascaded scheme with several heat pumps.	Warranty period: 2 years. Installation and service provided by dealers.	available	no	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	<b>Water saving shower heads</b>	DN: 15; Water pressure: 0,05... 1 MPa; Max. water temperature: +80°C	Germany	<b>GROHE AG</b>	<b>GROHE AG</b> Representativity in Ukraine 18A, Ivana Franka str., Kyiv, 01030, Ukraine T:+380-44-537-52-73 F:+380-44-590-01-96 info@grohe.net.ua www.grohe.ua	-	Warranty period: 5 years	not required	Since 1997	
2		DN: 15; min. water pressure: 0,25 MPa; water flow 6... 12 l/h	Germany	<b>Hansgrohe AG</b>	<b>Hansgrohe AG</b> Representativity in Ukraine: of.205, 1, Vasylykivska str., Kyiv, 03040, Ukraine T:+380-44-568-50-12 F:+380-44-568-50-12 info@hansgrohe.ua www.hansgrohe.ua	-	Warranty period: 5 years	not required	Since 1992	
3		DN: 15; material: brass; water flow 12 l/h	Finland	<b>Oras Ltd.</b>	<b>Oras Ltd.</b> Representativity in Ukraine: of.201, 2 Solomyanska str., Kyiv, 03035, Ukraine T:+380-44-240-20-48, T:+380-44-240-62-19, T:+380-44-240-20-22, T:+380-44-469-58-17, F:+380-44-537-01-49 Info.Ukraine@oras.com www.oras.com	-	Warranty period: 2 years	not required	Since 1994	
4		DN: 15; max. water pressure: 1 MPa; max. water temperature: +80°C	Sweden	<b>Villeroy &amp; Boch Gustavsberg</b>	<b>Villeroy &amp; Boch Gustavsberg</b> Representativity in Ukraine: of. 17, 4, Tchapayeva str., Kyiv, 01030, Ukraine, T:+380-44-493-98-68, F:+380-44-493-98-67 info.ukraine@gustavsberg.com www.gustavsberg.com.ua	-	Warranty period: 5 years	not required	Since 1995	
5		DN: 15	Poland	<b>«Ferro» S.A.,</b> 7 Przemyslowa str. 32-050 Skawina, Poland. Tel.: +48 12 25 62 100, Fax: +48 12 27 67 606, e-mail: export@ferro.pl	<b>«Ferro» S.A.,</b> 42, Kosmonavta Komarova, Kyiv, Ukraine, +380-44-497-10-24, +380-44-497-21-26, ferro-info@mail.ru www.ferro.net.ua	-	Warranty period: 5 years	not required	Since 1995	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Building</b>										
1	Ventilation units with heat recovery	<b>TeFo</b> recuperators of ventilation air heat Flow range: 30... 130 m <sup>3</sup> /h	Ukraine	<b>Teploobmen Ltd.</b> office 11, 5, Partyzanska str., Sevastopol, 99011, Ukraine +380-69-254-54-38, +380-69-255-35-88 teploobmen@ttai.ru www.ttai.ru	<b>Teploobmen Ltd.</b> office 11, 5, Partyzanska str., Sevastopol, 99011, Ukraine +380-69-254-54-38, +380-69-255-35-88 teploobmen@ttai.ru www.ttai.ru	The degree of recovery - up to 71%. Recuperator has two fans. Power consumption: from 3 to 50 Watts.	1 year warranty service. The dealers provide installation and services	available	The company was founded in 1993	
2		<b>VENTS</b> extract-and-input ventilation units with heat recovery. Types: VUT EG: 350, 500, 530, 600; Flow: 1000, 2000 m <sup>3</sup> . Efficiency of recovery: 78... 87%	Ukraine	<b>JSC "Ventilation systems"</b> 1, Kotsyubynskogo str., Kyiv, 01030, Ukraine, T:+380-44-406-36-27 F:+380-44-406-07-50 sale@vents.kiev.ua www.vents.ua	<b>JSC "Ventilation systems"</b> 1, Kotsyubynskogo str., Kyiv, 01030, Ukraine, T:+380-44-406-36-27 F:+380-44-406-07-50 sale@vents.kiev.ua www.vents.ua	The ratio price / quality. High recovery coefficient. A wide range (up to 2000m <sup>3</sup> /hod). The leading Ukrainian manufacturer.	1 year warranty service. The dealers provide installation and services	available	Since 90 years VENTS equipment was introduced at the facilities: The Palace of Sports, National Bank of Ukraine, the station "Kyiv-Pass." KCSA, Palace Ukraine, International Exhibition Centre, the Airport ", residential complexes, etc.	
3		<b>DAIKIN</b> extract-and-input ventilation units with heat recovery. Flow range: 150... 2000 m <sup>3</sup> .	Belgium, Czech Republic	<b>Daikin Europe N.V.</b> Zandvoordestraat 300 BE-8400 Oostende Belgium T.: +32 59 55 81 11 F.: +32 59 55 88 99 BTW BE 0412 120 336 RPR Oostende	<b>LIKOND Ltd.</b> 10a, Yakira str., Kyiv, 04119, Ukraine T:+380-44-238-61-21, F:+380-44-238-61-20, daikin@leacond.com.ua www.leacond.com.ua	1. High efficiency of heat transfer. 2. Low noise level. 3. Compact.	3 year warranty service. The dealers provide installation and services	available	In Ukraine since 2000	
4		<b>VITOVENT</b> extract-and-input ventilation units with heat recovery. Flow: 230 m <sup>3</sup> .	Germany	<b>Viessmann Werke GmbH и Co KG</b> Viessmannstraße 1 35108 Allendorf (Eder) TeA: + 49 6452 70-0 Факс: + 49 6452 70-2780	<b>Viessmann Ltd.</b> pavilion 10-A , 5, Dimitrova str., Kyiv, 03680, Ukraine T:+380-44-461-98-41 F:+380-44-461-98-43 www.viessmann.ua	High efficiency of heat transfer	2 year warranty service. The dealers provide installation and services	available	In Ukraine since 2000. Most clients - owners of private houses.	
5		<b>SYSTEMAIR</b> extract-and-input ventilation units with heat recovery. Flow range: 150... 5400 m <sup>3</sup> .	Sweden	<b>SYSTEMAIR</b> Industrivägen 3, SE-739 30 Skinnskatteberg T +46 222 440 00, F +46 222 440 99, mailbox@systemair.se, www.systemair.com There is production in Germany, Austria, Baltic States	<b>SKS Ltd.,</b> 4-A, Tarasivska str., Kyiv, 01033, Ukraine +380-44-228-09-42 +380-95-892-89-87 +380-93-403-60-04 +380-44-248-00-09 sales@systemair-ukraine.com www.systemair-ukraine.com	Efficiency up to 90%. Quality. Wide range. Possible special order equipment of large capacity.	1 year warranty service. The dealers provide installation and services	available	In Ukraine since 2000. Most clients - owners of private houses. There are office buildings, public order.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Renewable energy</b>										
<b>Thermal solar systems</b>	1	Flat-plate solar collectors, up to 2 m2 - 390\$, U-pipe solar collectors, effective square 0,71 m2 - 732\$, Heat tube solar collectors, effective square 1,04 m2 - 996\$	Ukraine	<b>Afros Ltd.</b> (PP Naumenko L.I.), manufacturing and installation, 3/2, Odeska str., Sevastopol, Crimea, 09001, Ukraine +380-692-54-18-52, +380-692-54-79-48, www.afros.com.ua, afros@sevcable.net	Dealer in Kyiv: <b>PP "Volodymyr - Engineering Systems"</b> M:+380-67-465-69-57, F:+380-44-524-40-12, T:+380-44-465-69-57, v-ing-sist@ukrpost.net	high efficiency, reasonable price, possibility to install systems of any complexity	warranty: 10 years	available	10 years on the Ukrainian market. First SC manufacturer in Ukraine. Among the objects there are many hotels and sanatoriums.	About 10 authorized dealers in Ukraine
	2	Flat-plate solar collectors 2017x1017, effective square 1,88 m2, COE 81%, Heat tube solar collectors 2130x860, effective square 1,014 m2, COE 78%	Ukraine	<b>SINTEK Ltd.,</b> 11, Tchekistiv str., Zaporizhzhya, 69063, Ukraine +380-61-213-61-15, +380-61-220-32-40, +380-61-213-61-16, +380-61-213-19-09, sintsolar@sintek.zp.ua, www.sintsolar.com.ua	Authorized representativity in Symferopol, dealer network across Ukraine	The highly selective absorber provides high efficiency. The price is 1,5-2 times lower than relevant European analogues.	warranty period: for solar collectors - 10 years, for whole system - 3 years	available	Established in 1991	Full technical support, trainings for partners on the objects..
	3	Flat-plate solar collectors FKA-240, 2100x1200, absorber net sq. 2,2 m2, Heat tube solar collectors VKA 58/12: absorber net sq. 1,2 m2	Ukraine	<b>JSC "ROSS",</b> In Kyiv: 31-37, Strutynskogo str., Kyiv, +380-44-501-11-39, rosskiev@ukr.net, In Kharkiv: 129, Kotlova str., +380-57-719-47-13, www.ross.com.ua	<b>JSC "ROSS",</b> 31-37, Strutynskogo str., Kyiv, +380-44-501-11-39, rosskiev@ukr.net, www.ross.com.ua	High COE. Competitive price. Large wholesale order.	The maintenance and service are performed by dealers. List: <a href="http://www.ross.com.ua/dilers.php?group=11">http://www.ross.com.ua/dilers.php?group=11</a>	available	Manufactured solar collectors by state orders	Oriented on B2B wholsale. Multi-producer.
	4	Flat-plate solar collectors 2 m2, 2070x1060, with highly selective covering	Joint Ukraine-Italy. Full production cycle is to be started in Ukraine	<b>TM "TADIRAN",</b> Qbox Ltd, 40, Frunze str., Kyiv, 04080, Ukraine +380-44-238-66-00	<b>Qbox Ltd.,</b> 40, Frunze str., Kyiv, 04080, Ukraine +380-44-238-66-00	The highly selective absorber provides high efficiency. The price is 1,5-2 times lower than relevant European analogues.	warranty period: for solar collectors - 10 years	The certification is in process	New firm on the market. The production was started in 2009.	Also PV systems are offered
	5	Flat-plate solar collectors TopSon F3-1 1099x2099 (2,3 m2) Evacuated tube solar collectors CRK 1390x1640 (2,28 m2) vertical and horisontal models	Germany	<b>WOLF GmbH</b> Industriestr. 1 84048 Mainburg Telefon 08751/74-2550 Telefax 08751/74-2560 VKB.Muenchen@Wolf-Heiztechnik.de	<b>Universal House GmbH,</b> office 133, build. 15, 21, Vikentiya Khvoyko str., Kyiv, 04655, Ukraine +380-44-425-99-12 office@wolf-uh.com www.wolf-uh.com	For flat-plate solar collectors: Optical COE: 2,1%, tmax. +198C  For evacuated tube solar collectors: Optical COE: 89%, tmax. +272C	Warranty period: 2 years. Installation and service are performed by dealers.	available	In Ukraine since 2005. Among reference objects: NBU, Odessa Port Plant, Kyiv Synagogue, FC "Metallurg" (Donetsk).	
	6	Flat-plate solar collectors Vitosol 200-F1056x2380 (2,3 m2)evacuated tube solar collectors Vitosol 300-T1419x1996 (2 m2),2126x1996 (3 m2),vertical and horisontal models	Germany	<b>Viessmann</b> 16 factories in different countries, 120 trade offices in 37 countries, 54% of turnover is provided by export. Viessmann plant in Allendorf (Germany): Viessmannstraße 135108 Allendorf (Eder) Telefon: +49 06452 70-0 Telefax: +49 06452 70-2780 www.viessmann.com	<b>Viessmann Ltd.</b> pavilion 10-A , 5, Dimitrova str., Kyiv, 03680, Ukraine T:+380-44-461-98-41 F:+380-44-461-98-43, office@viessmann.ua www.viessmann.ua	Different types and models. Possibility to install on horisontal roof, on facades, with any angle.For flat-plate solar collectors:Optical COE: 79%, tmax. +202CFor evacuated tube solar collectors:Optical COE: 80,9%, tmax. +273C	Warranty period: 2 years. Installation and service are performed by dealers.	№ 926346 Δ3	The authorized representativity works in Ukraine since 2002. The solar collectors are highly popular in private sector.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Renewable energy</b>										
1	<b>Photovoltaic modules / Solar power systems</b>	Photovoltaic modules 6... 180 W. Average cost: 3,17 EUR/W	Ukraine	<b>JSC «Kvazar-Micro»,</b> 1-3, Pivnichno-Syretska str., Kyiv, 04136, Ukraine +380-44-239-99-55, +380-44-200-95-95 +380-44-434-86-96 +380-44-205-34-71 Director General: Gennady Martynov www.kvazar-micro.com	Dealer network across Ukraine. Dealers in Kyiv: Avante, Gresa Group, Astra-Sneks	Wide range by power output: 6... 180 W, warranty period: up to 25 years.	Warranty period: 12 years for power output ≥90%, 25 years for power output ≥80%,	available	Works since 1999. The only Ukrainian producer of PV. The most successful competitor in Ukraine, as well as against PV of foreign origin.	Also produces power inverters.
2		Sun covered Stirling Dish system	USA	<b>Cleanergy (USA)</b>	<b>Domus Rapide,</b> 12, Frunze str., Kyiv, 04080, Ukraine +380-44-417-34-46 info@domusrapide.com.ua www.domusrapide.com.ua	1. In the Stirling engine the constant amount of working gas (helium or hydrogen) is being heated and cooled. 2. The working gas drives two pistons rotating the shaft, due to expansion, when heated, and compression when cooled. Thus the energy of solar heat is converted to mechanical energy of rotation. Stirling engine efficiency increases with increasing temperature..	Installation and warranty service are offered.	International Certificates are available. In Ukraine the certification of such an equipment is not necessary.	There are no such objects in Ukraine. The nearest one is in Western part of Poland.	There are no competitive proposals of the same type of equipment in Ukraine.
3		Photovoltaic modules 5... 140 W	USA	<b>Sun Solar USA, Inc.</b> 13951 Ceatral Ave., Chino, CA91710, T: (909) 902-9542, F: (909) 628-0436 www.sunsolarusa.com sunsolar_usa@yahoo.com	<b>Sun Solar USA, Inc.</b> 13951 Ceatral Ave., Chino, CA91710, Tel: (909) 902-9542, Fax:(909) 628-0436 www.sunsolarusa.com sunsolar_usa@yahoo.com	Wide range by types and power output: 5... 140 W		No Ukrainian Certificates available	not available	
4		VISSMANN Vitovolt 100 photovoltaic modules 260 W, 1336x1605 mm	Germany	<b>Viessmann</b> Die Viessmann Werke in Allendorf: Viessmannstraße 1 35108 Allendorf (Eder) T: +49 06452 70-0 F: +49 06452 70-2780	<b>Viessmann Ltd.,</b> corpse 10-A, build. 5, Dimitrova str., Kyiv, 03680, Ukraine +380-44-461-98-41 +380-44-461-98-43 office@viessmann.ua www.viessmann.ua	PV-modules Vitovolt 100 are made of amorphous silicon. Amorphous silicon on glass is applied by special deposition method. This enables to make layers of silicon, 100 times thinner than crystalline silicon layers.	Warranty period: 10 years for power output ≥90%, 25 years for power output ≥80%,	available	Mostly popular in private sector. UPS systems for equipment of boiling rooms.	
5		VAILLANT auroPOWER VPM photovoltaic modules 160, 175, 260 W COE 12-13%	Germany	<b>Vaillant GmbH</b> Berghauser Strasse 40 D-42859 Remscheid Germany T: +49-2991-18-0 F: +49-2991-18-28-10 www.vaillant.de	<b>Vaillant Ltd.,</b> 4/8 Kurenisky lane, Kyiv, 04073, Ukraine, T: +380-44-379-13-20 F: +380-44-379-13-25 www.vaillant.ua	160 W / 1000 V - 994x1318 mm, 175 W / 1000 V - 826x1575 mm, 260 W / 1000 V - 1336x1605 mm COE 12-13%	Warranty period: 10 years for power output ≥90%, 25 years for power output ≥80%,	No Ukrainian Certificates available	not available	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Renewable energy</b>										
1	<b>Boilers fired by solid fuel and biomass</b>	Industrial boilers fired by solid fuel and biomass, with mechanical fuel supply system: 300, 500, 820, 1500 kW	Ukraine	<b>Trade House "KRIGER"</b> 81, Shorsa str. , Zhytomyr, 10003, Ukraine +380-41-248-15-30 +380-41-248-14-99 sales@kriger.com.ua www.kriger.com.ua	<b>Trade House "KRIGER"</b> 81, Shorsa str. , Zhytomyr, 10003, Ukraine +380-41-248-15-30 +380-41-248-14-99 sales@kriger.com.ua www.kriger.com.ua	fuel: firewood, coal, canola pellets, sunflower husk, buckwheat husks, wood pellets and waste. Efficiency 84-90%	Installation and warranty service are offered.	available	Implemented international quality system ISO-9001: 2000. Certified the products in Ukraine, CIS and EU.	The feasibility study is published on the company web-site.
2		Solid fuel boilers * capacity: 18... 1150 kW; * temperature of hot water: Tmax = +95° C; * working pressure: P = 0,2-0,35 MPa (up to 0,6 MPa upon request); * COE is up to 93%, depending on type of the fuel..	Ukraine	<b>PPF «Retra»,</b> T/F +380-36-225-60-38, mob +380-50-435-03-57, 45, Strytskogo str., Rivne, 33024, Ukraine, www.retra.com.ua	<b>Authorized representative in Kyiv: Capital Trade Ltd.,</b> +380-67-534-95-23, +380-44-351-13-52, +380-44-351-13-53	Environmental aspects: Low emission of smoke and poisonous substances; Improving of the environment by use of wood waste and other solid waste as fuel.	# Warranty period: 24 months, with observance of operation conditions; # Continuous service after the warranty period;			
3		Pyrolysis Combustion Boilers 25, 48, 70 kW, COE 83...92%	Ukraine	<b>CJSC «Stankinprom»,</b> 16, Krasnoshkilna Embankment, Kharkiv, 61010, Ukraine +380-57-732-98-40, +380-57-732-93-29 www.stankinprom.com.ua	<b>CJSC «Stankinprom»,</b> 16, Krasnoshkilna Embankment, Kharkiv, 61010, Ukraine +380-57-732-98-40, +380-57-732-93-29 www.stankinprom.com.ua	Pyrolysis combustion = ultrahigh efficiency and low CO emissions. Continuous combustion of one load - 12 hours. The possibility of smooth regulation of power, easy cleaning.	Installation and warranty service are offered.	available		
4		15, 30, 60, 90 kW, COE 85%	Ukraine	<b>CJSC «MAKAGROTECH»,</b> 107, Kyivska str., Kalynivka village, Makariv district, Kyiv region, +380-45-783-36-38, +380-50-281-56-25, +380-67-850-50-39, macagrotech@ukr.net www.macagrotech.com	<b>CJSC «MAKAGROTECH»,</b> 107, Kyivska str., Kalynivka village, Makariv district, Kyiv region, +380-45-783-36-38, +380-50-281-56-25, +380-67-850-50-39, macagrotech@ukr.net www.macagrotech.com	fuel: firewood, sawdust, briquettes, peat, straw, and others. Water and air heating, forced ventilation, thermal "curtains".	Installation and warranty service are offered.	available		
5		Solid fuel boilers 16, 20, 25, 30, 35, 40 kW, COE 89%	Ukraine	<b>CJSC «Agroresource»,</b> +380-36-263-19-38; rivne@agroresurs.com.ua +380-36-226-65-02; service@agroresurs.com.ua 35, Nyzhnyodvoret'ska str., Rivne, 33001, Ukraine www.agroresurs.com.ua	<b>CJSC «Agroresource»,</b> +380-36-263-19-38; rivne@agroresurs.com.ua +380-36-226-65-02; service@agroresurs.com.ua 35, Nyzhnyodvoret'ska str., Rivne, 33001, Ukraine www.agroresurs.com.ua	Boiler "Danko TPL" with auger feed, 20 kW, COE 89%. Batch hopper 370L, fuel consumption: 4,5 kg/h	The manufacturer guarantees compliance of the boilers to the requirements of TU 28.2-24175498-001-2002, in case of following the rules of construction, storage, transportation and operation. Warranty period - 30 months	available		
6		Straw fired boilers, 100, 250, 350 kW. Biogas plants for generating heat and electricity.	Ukraine	<b>SEC "BIOMASS"</b> P.O.Box 66, Kyiv-67, 03067, Ukraine, +380-44-456-94-62, +380-44-453-28-56, info@biomass.kiev.ua www.biomass.kiev.ua	<b>SEC "BIOMASS"</b> P.O.Box 66, Kyiv-67, 03067, Ukraine, +380-44-456-94-62, +380-44-453-28-56, info@biomass.kiev.ua www.biomass.kiev.ua	Biogas plants for generation of heat and electricity in ordered capacities. Reduction of CO emissions. Decision to problems of waste utilization.	Operation and warranty service performed by an Installer.	available	Established in 1998. The company has experience of reconstruction of communal heat supply system, collection and use coal mine methane gas, the gas from from MSW landfill.	Leading company in Ukraine on biogas projects
7		Solid fuel boilers 28, 48, 78 kW, COE 90%	Ukraine	<b>«MC Granula»,</b> 33A, Nauki ave., Kyiv, Ukraine +380-44-493-37-59, info@granula-ms.com.ua www.granula-ms.com.ua	<b>«MC Granula»,</b> 33A, Nauki ave., Kyiv, Ukraine +380-44-493-37-59, info@granula-ms.com.ua www.granula-ms.com.ua	The boilers have batch hoppers with auger feed. CO content is less than 0.7 hr/m3 while the norm is 4 hr/m3	warranty period for the heat exchanger is 3 years.	available		

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Renewable energy</b>										
1	<b>Biogas plants</b>	Biogas plants for generating heat and electricity. Development of JI projects in energy use of biomass (wood industry waste, sunflower husk, biogas from animal waste and agronomy, biogas from MSW landfills) under the Kyoto Protocol.	Ukraine	<b>SEC "BIOMASS"</b> P.O.Box 66, Kyiv-67, 03067, Ukraine, +380-44-456-94-62, +380-44-453-28-56, info@biomass.kiev.ua www.biomass.kiev.ua	<b>SEC "BIOMASS"</b> P.O.Box 66, Kyiv-67, 03067, Ukraine, +380-44-456-94-62, +380-44-453-28-56, info@biomass.kiev.ua www.biomass.kiev.ua	Generation of heat and electricity in ordered capacities. Reduction of CO emissions. Decision to problems of waste utilization.	Operation and warranty service performed by an Installer.	not included in the list of equipment required for certification. The components are certified.	Established in 1998. The company has experience of reconstruction of communal heat supply system, collection and use coal mine methane gas, the gas from from MSW landfill, associated petroleum gas.	Leading company in Ukraine on biogas projects
2		Biogas plants for generation of heat and electricity in ordered capacities. Raw: spirit production waste, manure drainage, litter, sunflower husks, silage, spent grain, beet bagasse, MSW landfill gas.	Ukraine	<b>TIS Eco Ltd.</b> 1, Mashynobudivnykiv str., Tchabani, Kyivo-Svyatoshynsky district of Kyiv region, 08162, Ukraine +380-44-251-05-81, +380-44-251-05-82, +380-44-251-05-83, +380-44-251-05-80 www.tiseco.com.ua	<b>TIS Eco Ltd.</b> 1, Mashynobudivnykiv str., Tchabani, Kyivo-Svyatoshynsky district of Kyiv region, 08162, Ukraine +380-44-251-05-81, +380-44-251-05-82, +380-44-251-05-83, +380-44-251-05-80 www.tiseco.com.ua	Generation of heat and electricity in ordered capacities. Reduction of CO emissions. Decision to problems of waste utilization.	Operation and warranty service performed by an Installer.	not included in the list of equipment required for certification. The components are certified.	Established in 2008. The current project is MSW landfill in Mariupol.. Gas extraction: on average 630 m3/h, or 4,7 million m3/year. Average electric power production - 1,0 MWh, or 8 GWh/year; average heat capacity – 1,5 MWh, 12,5 GWh/year.	member of the partnership «Methane to markets»
3		Biogas plants for generation of heat and electricity in ordered capacities. Raw: spirit production waste, manure drainage, litter, sunflower husks, silage, spent grain, beet bagasse, MSW landfill gas.	Ukraine	<b>Energy Advice Ltd.</b> office 213, 20a, Gogolya str., Poltava, 36039, Ukraine +380-50-943-67-53, +380-53-261-21-40, +380-53-269-26-36, +380-53-269-26-46, www.advice-ua.com	<b>Energy Advice Ltd.</b> office 213, 20a, Gogolya str., Poltava, 36039, Ukraine +380-50-943-67-53, +380-53-261-21-40, +380-53-269-26-36, +380-53-269-26-46, www.advice-ua.com	Generation of heat and electricity in ordered capacities. Reduction of CO emissions. Decision to problems of waste utilization.	Operation and warranty service performed by an Installer.	not included in the list of equipment required for certification. The components are certified.		
4		Biogas plants for generation of heat and electricity in ordered capacities. Raw: spirit production waste, manure drainage, litter, sunflower husks, silage, spent grain, beet bagasse, MSW landfill gas.	Joint Ukraine-Switzerland	<b>ZORG-UKRAINE Ltd.</b> 172, Antonovycha str., Kyiv, 03680, Ukraine +380 44 5212951 +380 44 5212952 +380 44 5212953 biogas@zorg.ua www.zorg.ua	<b>ZORG-UKRAINE Ltd.</b> 172, Antonovycha str., Kyiv, 03680, Ukraine +380 44 5212951 +380 44 5212952 +380 44 5212953 biogas@zorg.ua www.zorg.ua	Generation of heat and electricity in ordered capacities. Reduction of CO emissions. Decision to problems of waste utilization.	Operation and warranty service performed by an Installer.	not included in the list of equipment required for certification. The components are certified.	Since 2006 in Ukraine. Experience in designing and construction of industrial and agricultural enterprises, in municipal sphere. There is an object of 1 MW in Zgurivky district of Kyiv region.	the price-lists are available on the company website.
5		Biogas plants for generation of heat and electricity in ordered capacities.  Electric power: 250 kWh, Heat: 320 kWh	Germany	<b>Fa. Lipp GmbH</b> Industriestraße 36 D-73497 Tannhausen Germany +49 (0) 7964 9003 0 +49 (0) 7964 9003-27 www.lipp-system.de info@lipp-system.de	Project implementation: MNC Project Group of. 402, 11, Novgorodska str., Kharkiv, 61166, Ukraine +380-57-752-30-74, +380-57-752-30-75, +380-57-752-28-33, info@mnc.in.ua www.mnc.in.ua	Electric power production - 250 kWh, heat power output – 320 kWh, biogas consumption - about 3000 m3/24h	Construction and installation by the company Lipp. Exploitation holds Elite Ltd: +380-45-636-32-71, +380-67-440-49-26, 2, Pervomayska str., t. Terezine, Bilotserkivsky district of Kyiv region.	not included in the list of equipment required for certification. The components are certified.	In Ukraine since 2007. Biogas plant in t. Terezyne in Bilotserkivsky district of Kyiv region.	

No	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Renewable energy</b>										
1	<b>Wind turbines / Wind energy systems</b>	Wind turbines 800, 1200, 3100, 4400, 6700, 9000, 14000 W, towers for WES, power inverters, batteries, PV-modules	Ukraine	<b>PE "SVIT VITRU", Kharkiv,</b> +380-57-756-0-765, +380-99-202-71-22, svit_vitru@mail.ru www.mirvetra.com.ua	Dealers in Kyiv: PE Avante, Gresa Group Ltd., PE Admiral, Akvadom Ltd.	average monthly power output: (accordant to nominal output): 30, 200, 400, 1000, 2000, 5000 kW	warranty period: 1 year	not included in the list of equipment required for certification. The components are certified.	Production started in 2001. Most of the customers are in private sector. There are many wind turbines operate in Kyiv and neighborhood.	
2		<b>YUZHMAH</b> Wind turbines of high capacities, for wind turbine industry. Large wind turbine capacity. For wind turbine industry. Manufacturing of wind turbines under the license of Kenetech Windpower (USA).  <b>USW 56-100: 107,5 kW, T600-48: 600 kW</b>	Ukraine - USA	<b>JE Windenergo Ltd.,</b> 4, Velyka Kiltseva str., Kyiv, 03180, Ukraine T:+380-44-537-21-53, T:+380-44-537-21-55, F:+380-44-537-21-55,  co-founders: US Windpower, Putman, Hayes and Bartlett, State Property Fund of Ukraine  Production based on "YUZHMAH" plant	<b>JE Windenergo Ltd.,</b> 4, Velyka Kiltseva str., Kyiv, 03180, Ukraine T:+380-44-537-21-53, T:+380-44-537-21-55, F:+380-44-537-21-55  http://3944.ua.all-biz.info	Wind turbine USW 56-100: nominal power output: 107,5 kW; starting wind speed: 5 m/s; nominal power output reached with: 13 m/s; Rotor diameter: 17 m; Rotary speed: 72 rpm.	Installation and service. Warranty period: 1 year. Extension of warranty period is possible by special conditions.	Certified by Ukraine State Standard	The company was founded on 11.12.1992. The only enterprise in Ukraine that produces series of wind turbines and WES. Since 1994, Ukrainian factories, subcontractors of Windenergo Ltd., produce wind turbines USW 56-100 (107,5 kW), and since 2002 - they produce turbines T600-48 (600 kW) under the license of Belgian company "TURBOWINDS ". Currently there are about 500 wind turbines are explored in Ukraine, with total capacity of 50 MW.	
3		<b>WINDER</b> Wind turbines 500, 1200, 2400, 6000, 12000, 20000 W, towers for WES, power inverters, batteries, PV-modules	Ukraine, China (wind turbines)	<b>ASTRA SNEKS Ltd.</b> (TM WINDER), 80, Shorsa str., Sofiyivska Borshagivka village, Kyiv region, Ukraine, info@winder.com.ua www.winder.ua	<b>ASTRA SNEKS Ltd.</b> (TM WINDER), 80, Shorsa str., Sofiyivska Borshagivka village, Kyiv region, Ukraine, info@winder.com.ua www.winder.ua	Manufacturing of exclusive towers for WES (special orders)	Installation and service. Warranty period: 1 year. Extension to 10 years is possible by special conditions.	not included in the list of equipment required for certification. The components are certified.	Production started in 2006. Most of the customers are in private sector. Manufacturing of exclusive towers for WES (special orders)	towers for WES, power inverters, batteries, controllers. Main competitor is Windelectric.
4		Wind turbines 1,5, 2, 3, 5, 8, 12, kW, towers for WES, power inverters, batteries, PV-modules	Ukraine, China (wind turbines)	<b>Windelectric Ltd.,</b> Kyiv, +380-44-467-77-88 info@windelectric.kiev.ua www.windelectric.kiev.ua	PU Kontaktor Ltd., Network across Ukraine	Low starting wind speed - from 1,5 m/s	warranty period: 1 year	not included in the list of equipment required for certification. The components are certified.	Since 1998. Most of the customers are in private sector. There are many wind turbines operate in Kyiv and neighborhood.	towers for WES, power inverters, batteries, controllers. Main competitor is Winder
5		<b>EuroWind</b> wind turbines 0,5... 110 kW, towers for WES, power inverters, batteries, PV-modules	China, Taiwan	<b>"Ukrainian Alternative Energy" Co.,</b> office 2, 74, Turgenivska str., Kyiv, 04050, Ukraine T:+380-44-361-39-00 M:+380-94-926-09-00 T:+380-44-486-60-03 F:+380-67-236-83-01 mail@ae.net.ua www.veter.ae.net.ua	<b>"Ukrainian Alternative Energy" Co.,</b> office 2, 74, Turgenivska str., Kyiv, 04050, Ukraine T:+380-44-361-39-00 M:+380-94-926-09-00 T:+380-44-486-60-03 F:+380-67-236-83-01 mail@ae.net.ua www.veter.ae.net.ua	Starting wind speed - from 2,5 m/s (for 0,5 kW) up to 3,5 m/s (for 100 kW)	Warranty period for wind turbines - 2 years.  Warranty period for batteries - 1 year.	not included in the list of equipment required for certification. The components are certified.	Most of the customers are in private sector.  Dealer network across Ukraine.	

№	List of energy efficient equipment	Brief specifications	Country of origin	Manufacturer info	Supplier info	Measures of performance, advantages	Technical support and warranty service	Certificate of conformity	Experience of implementation in Ukraine	Notes
1	2	3	4	5	6	7	8	9	10	11
<b>Other</b>										
1	<b>Equipment for energy audit</b>	Portable flowmeter: Vzlyot PR –U	Ukraine	<b>Vzlyot-Premier Ltd.</b> 13a, Kharkivske Shosse str., Kyiv, 02090, Ukraine, T/F: +380-44-292-70-46 M: +380-67-209-57-38 F: +380-44-573-42-46 office@vzljot.com.ua	<b>Vzlyot-Premier Ltd.</b> 13a, Kharkivske Shosse str., Kyiv, 02090, Ukraine, T/F: +380-44-292-70-46 M: +380-67-209-57-38 F: +380-44-573-42-46 office@vzljot.com.ua	-	1 year	V1508-01	More than 2 years	
2		Electric instruments	Ukraine	<b>JSC "Elektrovymiryuvach"</b> 10, Peremogy sq., Zhytomyr, 10003, Ukraine T/F: +380-41-222-45-38 office@eliz.com.ua www.eliz.com.ua	<b>JSC "Elektrovymiryuvach"</b> 10, Peremogy sq., Zhytomyr, 10003, Ukraine T/F: +380-41-222-45-38 office@eliz.com.ua www.eliz.com.ua	-	1 year	V264-07 V355-99 and other	More than 3 years	
3		Pyrometer: Smotrich-4PM1, Instruments for measuring temperature	Ukraine	<b>NVO "Termoprylad"</b> 3, Naukova str., Lviv, Ukraine T: +380-32-263-03-08, T: +380-32-263-21-14, F: +380-32-263-13-61, thermo@mail.lviv.ua thermo@lviv.net	<b>NVO "Termoprylad"</b> 3, Naukova str., Lviv, Ukraine T: +380-32-263-03-08, T: +380-32-263-21-14, F: +380-32-263-13-61, thermo@mail.lviv.ua thermo@lviv.net	-	1 year	V627-96 V1196-05 and other	More than 10 years	
4		The wide range of equipment for energy audit	USA, Germany and others	<b>Fluke Corporation</b> P.O. Box 9090 Everett, WA USA 98206 www.fluke.com	<b>Kharkiv-Prylad Ltd.</b> 25/27, Prymerivska str. 25/27, Kharkiv, 61050, Ukraine, office@pribory.com www.pribory.com	-	1 year	V1828-05 Metrological certification	More than 5 years	
5		The wide range of equipment for energy audit	USA, Germany and others	<b>Testo Inc.</b> 40 White Lake Road Sparta, N.J. 07871 - USA Tel.: +1 862 354 5001 Fax: +1 862 354 5020 info@testo.com www.testo.us	<b>Lifot Ltd.</b> of. 410, 3, Simyi Sosninykh. Kyiv, 03148, Ukraine +380-44-501-40-10, +380-44-501-40-44, +380-44-599-68-08, +380-95-111-80-10, www.testo.kiev.ua	-	1 year	Metrological certification	More than 5 years	
6		The wide range of equipment for energy audit	USA, Taiwan and others	ABM, Amprobe, Brymen, ChiTai, Dagatron, DerEE, Fluke, GE Druck, Gossen-Metrawatt, Hart Scientific, LeCroy, MCP, Megger, Optris, Owon, Picotest, Pintek, Prova, Raytek, Rigol, Time Electronics, Transmille та інші.	<b>Elektrovymir Ltd.</b> Of. 237, b5, 199, Moskovsky Ave., Kharkiv, Ukraine T: +38057-728-13-06 F: +380-57-728-13-06, -07 www.elektroizmerenie.uaprom.net	-	1 year	Metrological certification	More than 2 years	



**U.S. Agency for International Development**

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

**[www.usaid.gov](http://www.usaid.gov)**