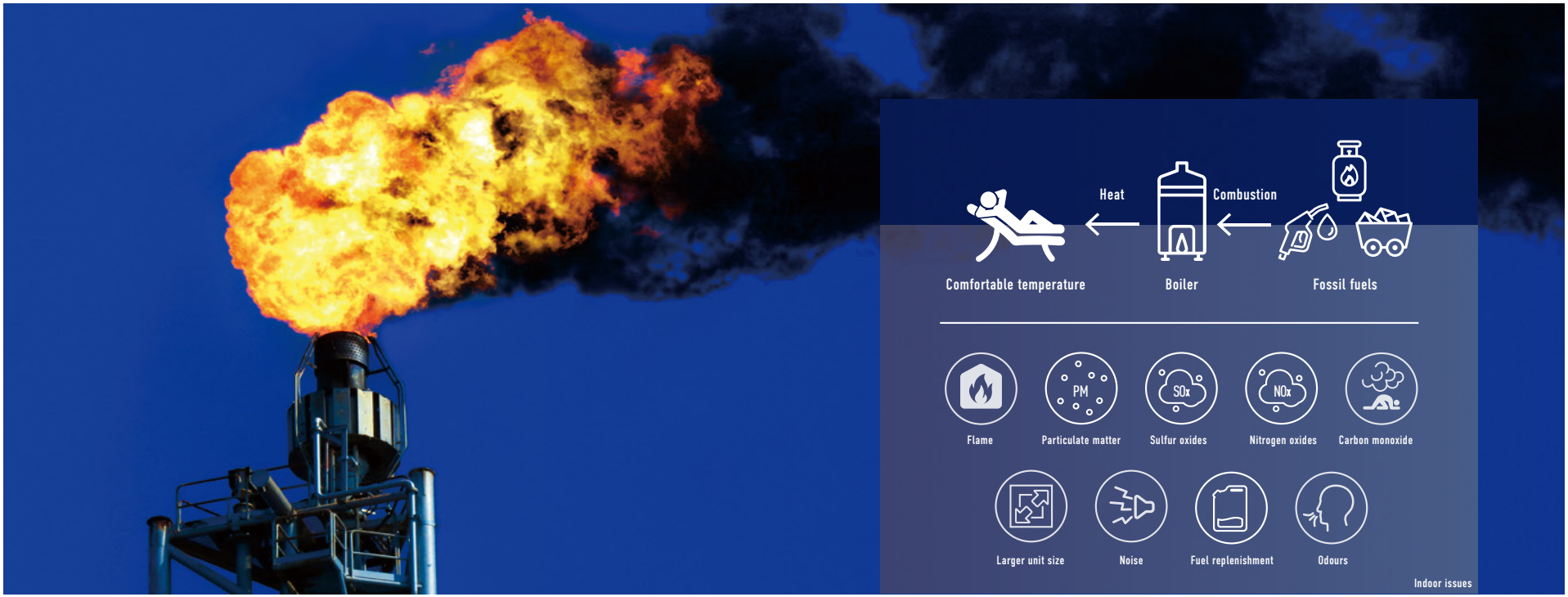
Presentation of an energy-efficient technical solution

Today, in order for our homes to be warm and comfortable, we still have to burn fossil fuels. This decision was characteristic of the Soviet period, when energy prices were cheap and end consumers were forced to heat with boilers using fossil fuels. Of course, during the Soviet period, energy efficiency was out of the question.
The use of fossil fuels is accompanied by negative factors, including: flame, solid particles, sulfur oxides, nitrogen oxides, carbon monoxide, special measures to arrange a special room for explosive equipment, noise, unpleasant odors, damaged health.



Since energy efficiency equals a reduction in the cost of utility services, taking into account Russian aggression and a significant increase in energy prices, energy efficiency in Europe is more relevant than ever.

In order for the house to have a comfortable temperature (20.5° during the day and 19° at night), it is not necessary to install a high-temperature gas, diesel, coal or wood boiler for heating and an air conditioner for cooling, it is enough to install a heat pump, which will provide the consumer with heat, cold and hot water.

For these purposes, we offer an energy-efficient technical solution, which involves the installation of heating-cooling systems and hot water supply without fossil fuels.

Solutions 1: Newly built

When new heating systems are installed, renewable energy is required to heat the house and produce hot water.
In the case of gas or oil boilers, some additional devices are needed to meet the renewable energy requirement.
Specific regulations differ from country to country.

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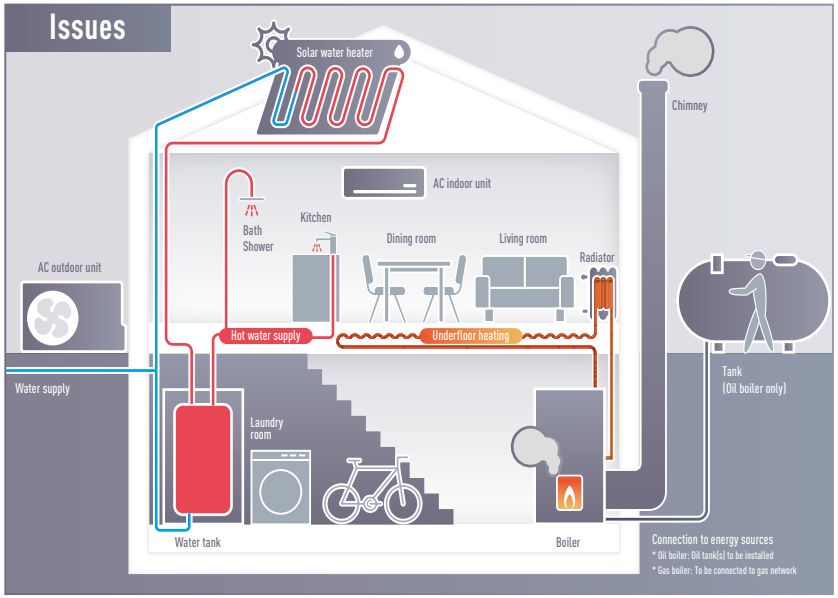
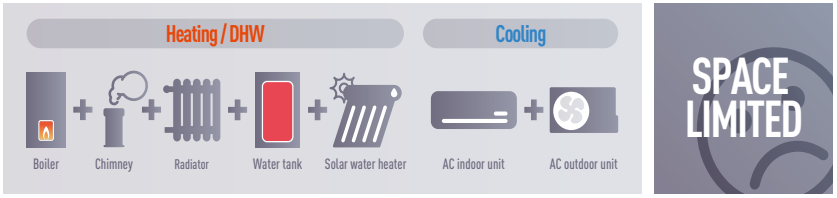
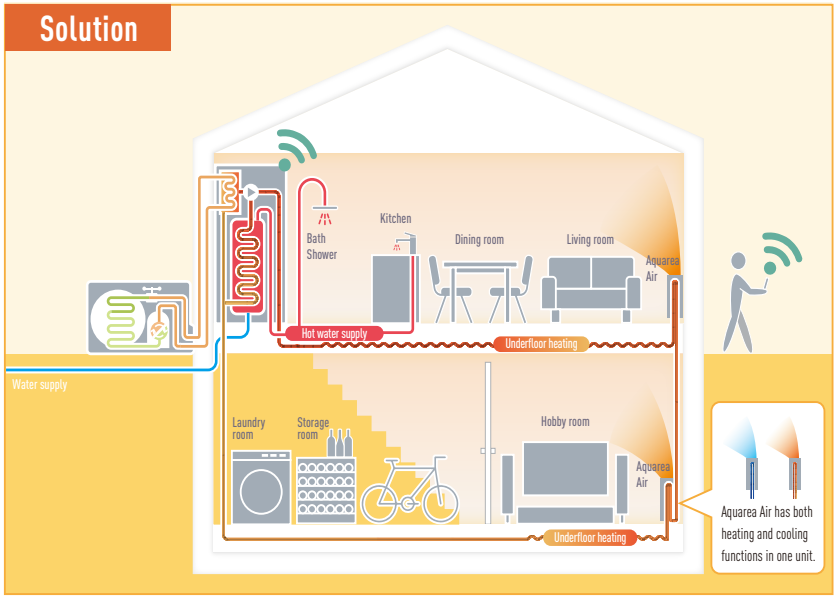
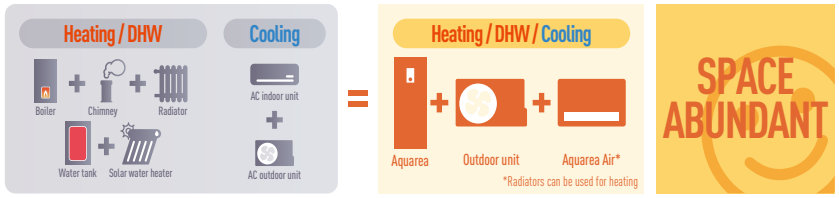
Aquarea heats and cools the home and produces hot water in one system, making possible more flexible use of space.









Around 79% of European homes' energy consumption is for heating and hot water production, so compared to conventional boilers and electric heaters, high-efficiency heat pump technology is essential.

In addition, by converting thermal energy from the air, water or soil into household heat, this technology helps reduce utility bills and, at the same time, reduces air pollution.

Some projects made with the help of heat pumps

Buildings of Justice in Tbilisi and Batumi, Georgia

Some projects using heat pumps in Turkey

MALL OF İSTANBUL - İSTANBUL

KATAL AYPARK / KARŞIYAKA - İZMİR

ANKARA HIZLI TREN GARI & AVM & OTEL - ANKARA

Projects in Batumi currently under construction using heat pumps: "Alliance Privilege" and "Alliance Centropolis"

www.alliance.ge

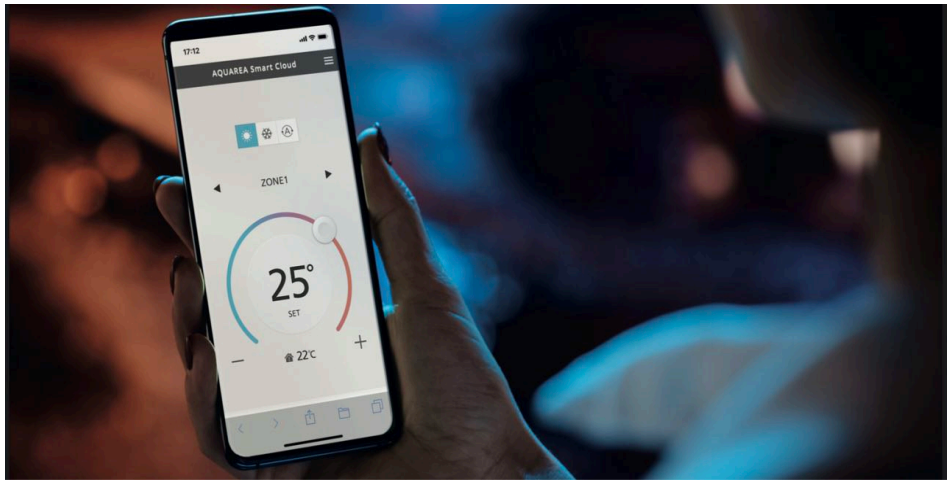
Some of our private projects

The main principle of the heat pump is the accumulation of heat by the device from all possible sources - earth, air, water and its transformation into ecologically clean energy, which is directly used in the process of heating, cooling and hot water supply.

The heat pump has the following important advantages:

1. Fully automated system that does not require liquid or gaseous fuel

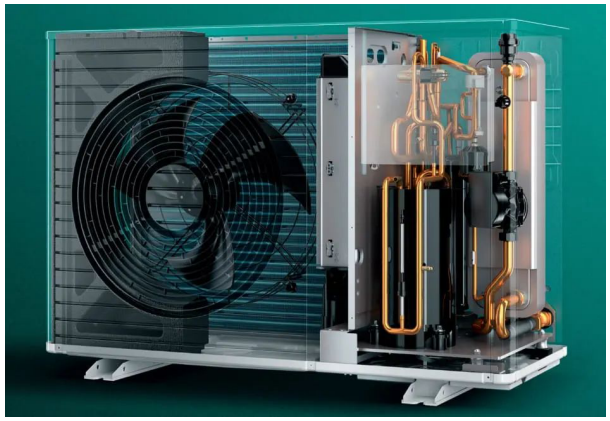
The heat pump only needs to be connected to the electrical network. Unlike, for example, various types of traditional boilers, the heat pump works fully automatically, does not require fuel supply, and therefore does not require a place to store it.



2. Reliability and security

Compared to traditional boilers, which require regular cleaning of combustion products, the heat pump requires almost no maintenance. Correctly selected, correctly installed and configured on site, the heat pump works efficiently, without preventive inspections, cleaning and maintenance.

Compared with the case of using natural gas as fuel, where there is a risk of fire or explosion, in this type of air conditioning equipment, there is no flame during heating operation, that is, there is no risk of fire, and it is safe.
In addition, if the user correctly selects the electrical switch and the current stabilization device, the electrical wiring, ensures the strength of the electrical cable connections and observes all installation norms and rules, the system will work without any problems.



3. Savings in terms of paying for communal services.

To transfer 1 kW/h to the heating system, this modern unit needs to spend about 0.2-0.35 kW/h of electricity, which is 4-5 times less than when using conventional electric heaters. In this regard, the savings when using heat pumps significantly increases.

4. Environmental friendliness

Heat pumps belong to the most ecological climate systems, especially in heating mode. They do not emit harmful substances into the atmosphere, but use renewable and inexhaustible resources as a source of energy.
Also, heat pumps are absolutely safe for human health.

The possibility of use at private, public or commercial facilities of any purpose, at high-altitude facilities or in different climatic conditions, including in mountainous areas where there is no gas supply infrastructure.

If you dream of building an energy-efficient house in a cozy place with clean air around, for your family, this is exactly the case when a heat pump will help make your dream come true.

5. Functionality

The main task of the heat pump is, of course, to generate heat for the heating system, but in the summer it can switch to cooling mode, which allows it to be used instead of an air conditioner. Also, the heat pump provides the need for hot water supply throughout the year.
In addition, since the heat pump consumes less electricity, the load on the central network is reduced.

6. Comfort and long service life

If you choose a heat pump and install it professionally, you will achieve greater comfort, compared to solid fuel or gas boilers, with lower utility costs.

Continuous operation of the heat pump during the calendar year is possible for 20-25 years. No other heating system is capable of such indicators, and all this work is in the mode of minimum load on the main nodes.

Air and soil heating - use of renewable energy with the help of heat pumps

Heat pumps use renewable energy from the earth, sun, groundwater or air. They reduce the consumption of fossil fuels, preserve the cleanliness of the surrounding environment, preserve the planet's precious resources and reduce CO2 emissions, which are harmful to people and the Earth's climate. At the same time, there is an additional advantage: most heat pumps can bring a pleasant coolness to the house in hot weather.
Heat pumps are equally suitable for new buildings and reconstruction of old buildings.

Heat pumps in new buildings and old houses

Heating systems of new buildings based on heat pumps are gaining more and more popularity. This especially applies to European countries. For example: according to the Federal Statistical Office of Germany, 32% of all residential buildings built in Germany in 2016 were equipped with heat pumps. In some federal states of Germany, this indicator reaches almost 50%. Such trends create the impression that this heating system is suitable only for new buildings, but this is not the case at all.

Heat pumps in old houses

Unlike new buildings, existing buildings have higher heat requirements. Although heat pumps can be easily integrated into such buildings, it is difficult to achieve energy efficiency using only heat pumps. Because a truly energy-efficient heat pump requires a system that operates at low flow temperatures (underfloor heating, etc.) and with as little final energy consumption as possible.
After repair, the installation and operation of the heat pump becomes more profitable.

Optimum energy sources for old buildings

In old buildings, the same heat sources are used as in new buildings. In practice, homeowners often choose air-to-water heat pumps. This is partly due to relatively low investment costs and quick installation. However, if the area is suitable for the installation of an underground (geothermal) system, it is worth considering the possibility of using a brine heat pump. This ensures higher annual efficiency and further reduces operating costs.

Combined systems with a heat pump

Another way to economically and profitably use a heat pump in an old building is bivalent operation - if the existing heating system is still working well, then in most cases a heat pump can be connected to it. During operation, intelligent control technology ensures that the heat pump operates at high efficiency and the existing boiler is only switched on during the maximum peak load.

Use of heat pumps in new buildings

New buildings usually have good energy efficiency and therefore low levels of heat loss. For space heating, gas condensing boilers are traditionally used, which work with high efficiency even in the temperature range from 35 to 50 degrees Celsius. However, the heat pump is also a very popular technology, especially in new buildings in Europe. The reason is obvious: heat pumps achieve the highest efficiency in such buildings.

Heat pump system with photovoltaics

You can also use the free energy of the environment with photovoltaic systems. They absorb solar radiation with the help of absorbers and convert solar energy into electrical energy. Depending on the parameters, the type of collectors and the level of radiation, the photovoltaic system can cover a significant part of the need for electricity.

With the help of a heat pump, solar energy can be used in the refrigerant circuit. This will make heat pump owners independent of the electricity supplier.
The heat pump itself has an intelligent function of optimizing its own electricity production. Thus, the energy produced in your home is used to the maximum.

Some examples of the use of heat pumps in apartment buildings in Ukraine

1. Address of the complex: Ukraine, Lviv, str. Zelena, 111. 120 units of heat pumps were installed

https://smartestate.eu/wp-content/uploads/2023/06/111-Zelena-111_Presentation_web-1.pdf

https://www.youtube.com/watch?v=I_qjzlVpyyU

https://smartestate.eu/projects/111-zelena/

2. The Ukrainian construction company "KarpatBud" installed geothermal heat pumps of the Swiss brand "NIBE" in a 500-apartment multi-storey building.
www.karpatbud.com.ua

3. In a residential building with an area of 14,000 square meters in the capital of Ukraine, Kyiv, heat pumps of the "air-water" type were installed.
Address: Ukraine, Kyiv, Volodymyr Ivasyuk Avenue, 12D, residential complex "Arovan".
Unlike the houses around, the utility bill has been reduced by 50%

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