



Limitless energy



GEONOVIS

IMPIANTI GEOTERMICI



GEO NOVIS

Welcome to our world of **sustainable solutions**.

We combine **renewable energy and smart technologies**
for an ideal comfort inside civil and industrial buildings.

Discover more about our expertise in the design and installation
of shallow-geothermal systems.



GEOHERMAL SYSTEMS

Geothermal energy has **no limits**:

available to everyone, everywhere in the world.

Active all year round.

In any season, rain or shine, day or night.

A source of
free, clean, costless and **renewable energy**.

Available right below your house, and simple to use.

How is this possible? Find it out with Geonovis!

THE BEST CHOICE FOR **WINTER AND SUMMER** AIR CONDITIONING

A heat pump system is the key to use **geothermal energy** for air conditioning:

A single system that provides **winter heating, summer cooling** and **domestic hot water**.

There are more than 11 million buildings in Europe using this technology (EHPA data, May 2019).



An ecological alternative,
with countless **advantages**:

1 Remarkable
reductions in
operating costs

from 75% up to 95% if combined with
a photovoltaic system

Fast
total return
on investment

thanks also to incentives and
tax deduction schemes

2

3 Energy
independence
from fossil fuels

A user-friendly system

respecting all regulatory requirements related to
renewable energy sources applied in buildings

4



Barely no
maintenance required

or minimal maintenance for
some system configurations

5

6

Safe installation
and operation

as it does not imply any combustion,
danger, storage of fossil fuels or
connection to the gas network

A reliable system
with long lifetime

For geothermal probes the lifetime is the
same as that of the house itself,
while it is about 25 years for heat pumps

7

8

No need for
dedicated rooms

The heat pump can be located indoor,
in a power station but also in a common
household appliance

Adaptable technology

Perfect for new and renovated buildings heat
pump can be located indoor

9

10

Increased property
value

contributing to the energy efficiency
and sustainability of the building

Served by a
remote-control system

It can be integrated into building
automation systems

11

12

Possible integration
in the system of
existing wells

THE RIGHT CHOICE FOR EVERYBODY'S FUTURE

The ultimate replacement of **fossil fuels** can no longer be postponed: a concrete commitment from each of us, individuals, companies and institutions, is urgently needed.

Heating of buildings is one of the major causes of environmental pollution.

The only viable route to truly sustainable air conditioning is through geothermal energy.

Undertaking it means choosing to tangibly lower the ecological footprint of one's way of living, producing and dwelling.





SUSTAINABLE DEVELOPMENT GOALS

With our geothermal energy systems, you can make a concrete contribution to as many as **5 of the 17 Sustainable Development Goals** defined by the United Nations in the context of the 2030 Agenda for Sustainable Development.

7 AFFORDABLE AND
CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all.

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

11 SUSTAINABLE CITIES
AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable.

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Ensure sustainable consumption and production patterns.

13 CLIMATE
ACTION



Take urgent action to combat climate change and its impacts.

The message is clear: each of us, in our everyday life, can do something relevant for the present and the future of the planet.

Geothermal solutions eliminate **fossil emissions**, involve only moderate and sustainable consumption of **primary electrical energy** which can be generated through renewable sources, and aim to maximize **energy efficiency**.

AN EFFICIENT SYSTEM INSPIRED BY NATURE

A geothermal system builds on the extraordinary efficiency of Nature.

The building is powered from the ground below by a virtuous circle of energy extraction and release, just as a tree uses its roots to obtain vital energy from the earth.

The elements that determine the efficiency of a geothermal system are:

- quality of **design** and **installation**
- quality of the **heat pump**: we have chosen the most reliable and high-performing Swedish technology (Nibe)
- type of **heat source** and its temperature
- type of **distribution system** and the consequent temperature required for its functioning
- punctual **management** of the system.

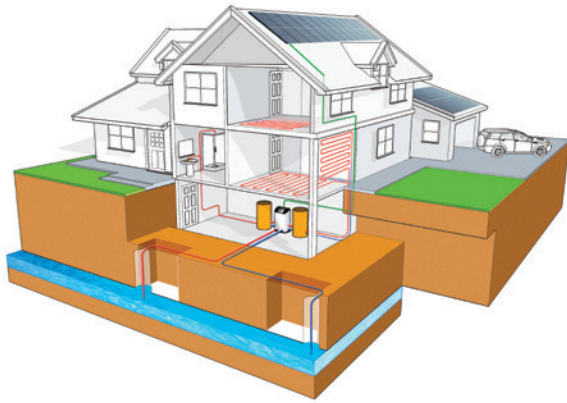




LIVE GREEN

100%

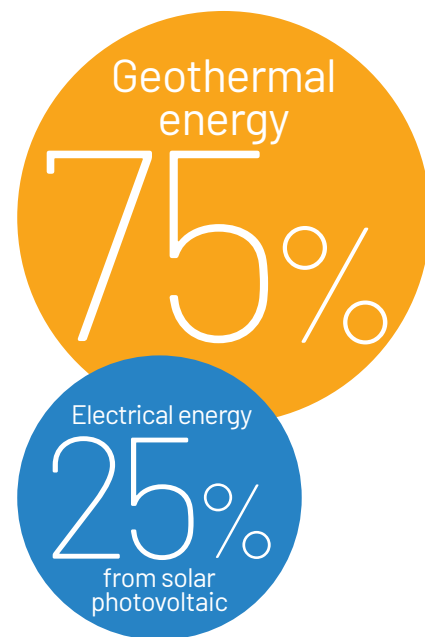
Free and renewable energy



Due to the high efficiency of our heat pumps, the electricity demand for the operation of the system is highly limited, never exceeding 25% of the total power requirement of the building.

From an ecological stand point, geothermal systems are therefore the most efficient given their high reliance (about 75%) on renewable energy.

Thanks to the collaboration with Soland S.r.l., which has been operating in the photovoltaic sector for years, we are able to offer the design and installation of the PV system perfectly fit to produce all the electrical energy needed for your building: consequently, it will be totally autonomous and environmentally friendly as it is 100% powered by renewable energy.



In addition to all this, along with the photovoltaic system, Soland can supply and install charging columns for electric vehicles.

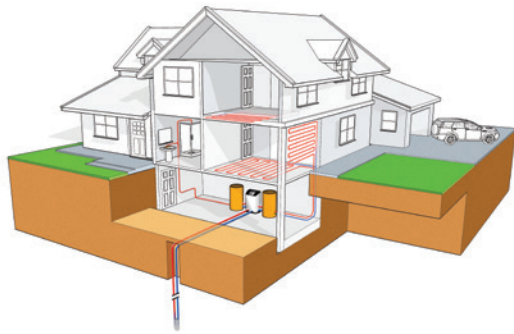


For more information please visit our website:

www.geonovis.com



VERTICAL GROUND-TO-WATER SYSTEMS (CLOSED-LOOP)



The **vertical probe** is the most constant type of geothermal collector because it benefits from the fact that at about 10/15 meters depth the ground temperature remains stable around 10 °C year round.

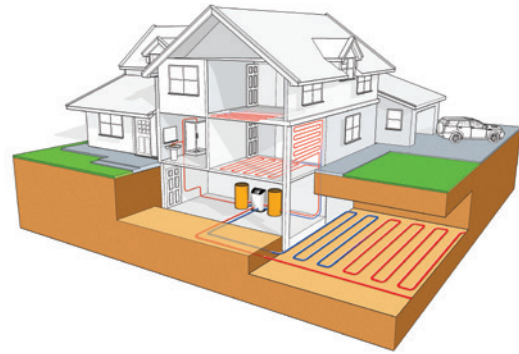
This permanent supply of energy allows the best yields, both in winter for heating and in summer for cooling.

The drillings, on average 100/150 m deep, have a diameter of just 15 cm. Geothermal probes are composed of 2 or 4 U-shaped tubes that descend and ascend in a closed circuit containing a heat transfer fluid.

The extension of the complete geothermal exchanger is designed according to the building energy requirement and the thermal subsoil resources at the site of installation.



HORIZONTAL GROUND-TO-WATER SYSTEMS (CLOSED-LOOP)




A large green area adjacent to the building presents a viable option of installing **horizontal probes**.

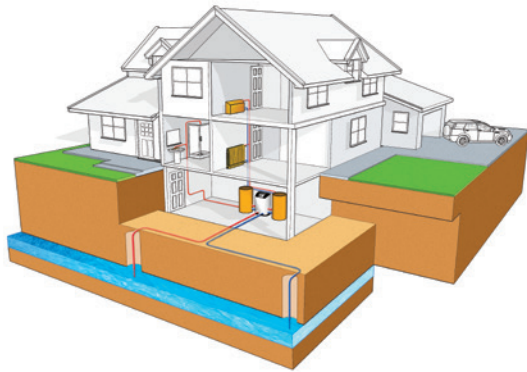
The investment in the construction of the geothermal collector is reduced since the probes are installed at a limited depth and the use of specific drilling machines and equipment is therefore not required. When operating, the system will inevitably be affected by the seasonal fluctuation of the soil temperature, but it will maintain high overall efficiency.

The green surface occupied by a horizontal probe system is, approximately, twice the surface to be heated in the building.

It requires about 25 sqm to draw 1 kW.



WATER-TO-WATER SYSTEMS (OPEN-LOOP)



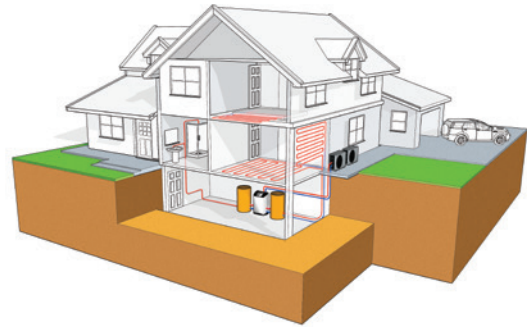
In geographical areas characterized by **aquifers at limited depths** (as often in the case of Po Valley), the use of groundwater as the primary heat vector is highly recommended.

Geothermal systems using groundwater are advantageous in terms of efficiency, exploiting the constant temperature all year round of aquifers. Compared to ground-to-water systems, construction costs are in this case considerably reduced, especially in the case of medium or high thermal requirements of the building.

Furthermore, withdrawn groundwater, used and re-injected into the water table, is not chemically altered in any way.







AIR-TO-WATER HEAT PUMP SYSTEMS



This is a valid alternative to the previously mentioned solutions: in high efficiency conditions, it allows remarkable energy savings compared to a traditional heating system.

In fact, even the outside air can be a source of thermal energy. Yields and operating costs are not comparable to geothermal systems ones, and the investment is significantly lower.

Air-to-water heat pumps are particularly suitable for buildings with low energy consumption, limited use (like holiday houses), or located in areas that are not accessible to drilling machines.

				
ENERGY EFFICIENCY	●●●●●	●●●●●	●●●●●	●●●●●
ENVIRONMENTAL SUSTAINABILITY	●●●●●	●●●●●	●●●●●	●●●●●
PLANT COST	●●●●●	●●●●●	●●●●●	●●●●●

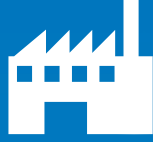
YOUR **TAILOR-MADE** GEOTHERMAL SYSTEM



HOUSES
DETACHED AND
SEMI-DETACHED



BLOCK
OF FLATS



FACTORIES



FARMS



HOTELS

Rely on our decades of experience and **contact us**.
Nothing is more convincing than visiting one of the more than
400 systems installed in **Piedmont** and **Aosta Valley**.

We can **design and install shallow-geothermal systems** for all types of buildings.
Above all, we know how to advise you on the best performing solution, and the most
suitable for your specific energy needs.

We carry out every phase of the process with our internal staff along with certified
professionals, with consolidated experience in the sector. We take care of:

- site inspections and hydrogeological researches
- energy needs analysis
- the design and sizing of each system according to actual thermal needs of the building
- drillings, probe laying and thermal conductivity checks (Ground Response Tests)
- the installation of the power station, with certified components of the highest quality
- the system start-up and post-sales services
- system productivity controls (through remote control system)
- full support in identifying best incentives available.





NIBE heat pumps, chosen by Geonovis for your systems, and top of the range in the sector, can be positioned in technical rooms, but also in domestic settings, thanks to their modern and aesthetically pleasing design.



HOUSES

Location
PIEDMONT

Type of system
Closed-loop geothermal system

Installed power
30,00 kW
for winter and summer air conditioning (free and active cooling) pool heating and domestic hot water production.
Valuable renovation work

Distribution system
Radiant floor



BLOCK OF FLATS

Location
PIEDMONT

Type of system
Closed-loop geothermal system

Installed power
40,00 kW
for heating, cooling, DHW production for newly built apartments plus medical offices

Distribution system
Radiant floor and fan coil units

All case studies on www.geonovis.com



FACTORIES

Location
PIEDMONT

Type of system
Open-loop geothermal system
N.2 Nibe heat pumps mod. F1345-60

Installed power
120 kW
with heating and cooling functions
(free and active cooling) for offices
and newly built factory

Distribution system
Fan coil units



FARMS

Location
PIEDMONT, LANGHE

Type of system
Closed-loop geothermal system

Installed power
80,00 kW
heating and cooling functions (free
and active cooling) for a winery

Distribution system
Radiant + fan coil units + AHU



HOTELS

Location
AOSTA VALLEY

Type of system
Open-loop geothermal system

Installed power
180,00 kW
Heating functions, AHU, pool heating,
DHW production for a new ecohotel
(rooms, restaurant and wellness centre)

Distribution system
Radiant floor

Location
AOSTA VALLEY

Type of system
Closed-loop geothermal system

Installed power
56,00 kW
heating functions and DHW
production for an eco-friendly
mountain refuge/restaurant

Distribution system
Radiant floor

The geothermal system at
the highest altitude in Italy
(2.450 m above sea level)

All case studies on
www.geonovis.com





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Members of ANIGHP consortium



System partner for Piedmont and Aosta Valley of:



Swedish heat pump technology
with high performance, reliability and
adaptability to any climate.



Consolidated experience and top quality
in the design and construction of
photovoltaic systems.