



ECO-FRIENDLY HEATING

Therefore it offers more longevity and sustainability. Other benefits are energy efficiency, renewable energy sources and improved air quality due to the emission reductions. Additionally, you will be future-proofing your home and increasing your property value. Depending on your location and availability, you can choose from a range of biomass fuels, which is available in your area and therefore the most suitable and cost-effective for your needs.

Tips for more energy efficiency:

1

Check and improve your home's insulation to save energy and money when heating or cooling your house. Make sure to seal air leaks as well.

2

Install programmable or smart thermostats and controls to optimize your energy usage. This helps you track and optimize your heating patterns, to maximize comfort while minimizing energy consumption, e.g. by adjusting the temperature when you are away from home to not waste energy.

3

Upgrade to energy-efficient appliances with Energy star label.

4

Optimize natural lighting to reduce need for artificial lighting.

5

Switch to LED bulbs, which are more energy-efficient and durable, making them more cost-effective and environmentally friendly.

6

Unplug electronics when they are not in use, as many appliances continue drawing power in standby mode.





ALTERNATIVE HEATING OPTIONS

Solar heating

Function:

Solar panels can generate electricity or be used for heating purposes. There are two formats:

- Hydronic collectors are solar liquid heating systems which heat up the liquid to warm the house; would be chosen if you have a radiant heating system in place
- Air Systems you would choose if you already have a forced-air system in place

Benefits

Solar energy is one of the most abundant renewable energy sources. Heating with it is the most energy-efficient option. After initial costs you are getting free energy for the rest of your home life. Solar thermal systems can provide up to 70 % of a home's hot water needs.

Wind power

Function:

Using wind to heat your home. Many models use wind turbines to run an air source heat pump. Others generate electricity for a geothermal heat pump. There are also wind powered heaters which use wind turbines to directly heat air or water.

Benefits

Suited if you live in a windy area with enough airflow to turn the turbine. They are highly efficient and low maintenance, while producing no emissions. Wind powered heaters can produce more energy than they consume, making them a renewable energy resource for your home. They are reliable and long-lasting with a lifespan of 20 to 25 years.

Initial Installation Cost

Has decreased in recent years, but is still quite high. Installation of additional infrastructure may be required, like back-up heating systems or energy storage solutions, for periods of low wind.



Heat pumps

Function:

They are particularly energy-efficient, because rather than generating heat, they transfer heat from one place to another:

- Most common are air-source heat pumps, which extract heat from outside, indoor or exhaust air
- Ground-source (geothermal) heat pumps use the constant temperature of the earth or underground water to heat and cool homes. It is installed beneath the earth's surface; therefore installation is quite expensive, but typically pays for itself within eight years by decreasing monthly heating bills.
- Water-source heat pumps extract heat from water sources like lakes, aquifers, rivers, seawater as well as wastewater or cooling water from industrial systems

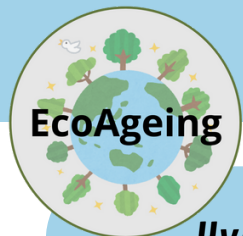
Benefits

1. While typical oil boilers only last 10 to 15 years, geothermal heat pumps for example can last up to 25 years with good maintenance.
2. Geothermal pumps can be 300 – 400% efficient, by delivering 3 – 4 units of heat for every unit of electricity used; they are 3 – 5 times more efficient than gas boilers. This leads to lower energy consumption and reduced utility bills. Heat pumps can reduce electricity use for heating in moderate climates by approximately 50% compared to electric heating.
3. Waste heat, heat recovery, seawater or groundwater are among the key sustainable, local and non-fuel heat sources for heat pumps.
4. Additionally, heat pumps can provide both heating and cooling, which makes them a year-round climate control solution.
5. They have a long lifespan of 15 – 25 years with proper maintenance (while still requiring less maintenance than traditional heating systems)

Initial Installation Cost

higher than traditional heating systems





Activity 48: Eco-friendly Heating

Hydronic heat system

Function:

A liquid like water or oil is heated and circulated through pipes under your floor, baseboards or radiators, using thermal radiation to heat the room, instead of heating the air. A boiler using solar or geothermal power heats the water and a pump sends it through the house. Most common for residential hydronic heating systems are copper fin-tube radiators.

Benefits

High efficiency and affordability, with low maintenance and long lifespan.

Initial Installation Cost

high, but helps save costs in the long run. Installing into a ready-made home is a hassle.

Biomass heating with Pellets vs. Masonry heater

Function:

Biomass heating burns organic materials like wood pellets, agricultural waste or energy crops to produce heat.

Benefits

Biomass heating is considered carbon-neutral as carbon dioxide released during combustion is offset by the carbon absorbed during the growth of the organic material. The pellets are eco-friendly and affordable, especially compared to wood. Pellet stoves are easy to install and budget-friendly. They are very long-lasting.

Initial Installation Cost

may sound scary, but money later saved on pellets will pay for it; higher installation cost which is worth the savings in the long run

Wood burners, e.g. Masonry heaters

Function:

One of the oldest ways to heat your home in winter. Masonry heaters are smaller heating systems burning wood, which trap the heat within the bricks of the twisty smoke chambers, providing warmth for up to 24hours.

Initial Installation Cost

high

Benefits

Modern versions exist, which are eco-friendly and more efficient. They are powerful enough to heat your entire home. But you need to chop wood and store it outside, as it might attract pests. Masonry heaters use wood, but more efficiently than traditional wood heating due to slow burning and trapping the heat. They are very long lasting.





PROGRAMMES & FINANCIAL INSTRUMENTS

Policy support for green heating solutions like is growing quickly with the aim of fulfilling heat decarbonisation goals across the globe. Many governments offer incentives, tax credits, grants, subsidies or rebates for installing environmentally friendly heating systems. These financial benefits help offset the initial installation costs, saving you money in the long run and make the transition more affordable.

Here some sources for your research into Spanish policies:

[Heat pumps for Spain: Reforming Spanish energy policy to support the transition to clean heating - Regulatory Assistance Project](#)

[Spain_Update_EN_Final_March23.pdf](#)

[Renewable energy policy database and support: Spain](#)

Sources on alternative energy systems:

[Eco-Friendly Heating: 8 Sustainable Heating Systems in 2024 \(+tips\)](#)

[Green heating and heat pumps: a deep dive into eco-friendly heating](#)

[A Guide to Eco-Friendly Options for Your Home](#)

[Harnessing the Power of Wind: The Future of Home Heating Using Wind Power - The Tecky Energy](#)

[Hydronic Heating: Everything You Need To Know](#)

