

Gas-free living

Complete e-book



Our colleague Henk went before you. Learn from his experiences and take up the challenge.



What have you come up with to save more gas?

The Netherlands wants to be completely gas-free by 2050. To achieve this, many steps still need to be taken. Many inhabitants of the Netherlands are also already working on saving gas. Not only good for the environment, but also for the wallet. After all, the price of gas is a lot more expensive than the price of electricity.

Our colleague Henk has decided to go completely gas-free. Not just to save money, but mainly to see how far he can get. In this e-book, Henk tells you all about saving gas. Henk also challenges you to think of something yourself that will help you save gas. For example, Henk himself invented a device that can convert electricity into heat!

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Step by step to a gas-free home

Making your entire home gas-free in one go would require a complete renovation. Far better to tackle your home step by step. Start by insulating your home in places you can easily access. Include insulation immediately with every renovation and maintenance.

Step 1. Check your home's insulation

Before you start making plans at random to make home gas-free, you will have to start at the beginning. And that is insulating your home. With good insulation, you lose less heat, which means the stove doesn't have to work as hard and you therefore use less gas.

Get to know your home well and check your home's insulation. Look inside the roof, examine the exterior walls and floor of the ground floor and crawl space, and check what kind of glass is in your windows.

Don't know how to check your home's insulation check? [Milieu Centraal](https://milieucentraal.nl) has developed an Insulation Self-Scan that you can do for free to find out the state of your home's insulation. If you live in a house built in 2000 or later, you can be sure it is already well insulated.



Step 2. Improve the insulation of your home

Making your home gas-free is no easy task. For insulation alone, you need at least the following:

- Cavity wall insulation;
- Good or very good floor insulation;
- Good or very good roof insulation;
- HR++ glass in the windows of living areas and bedrooms.

Not only does it take less energy to heat your home with heating water of around 50 degrees. This in turn is essential for using a heat pump.

Find out what you can do to improve your insulation:

Improve roof insulation

Your roof insulation falls under very good when it has an insulation value of Rc 6 or more. It is best to improve your roof insulation when you get new roof tiles or roof covering, when you are going to renovate or renovation or when you are going to install a dormer window.

Improve floor insulation

Very good floor insulation has an insulation value of Rc 5 or more. In most cases, it is easy to insulate your floor through the crawl space. You can do this at any time.

Are you having an extension installed? Then get an insulated floor in this space right away. Floor insulation is not an expensive measure that pays off immediately.

Will you have underfloor heating soon or is it on your wish list? Then a very high insulation value is also very important to prevent heat loss.

Improve wall insulation

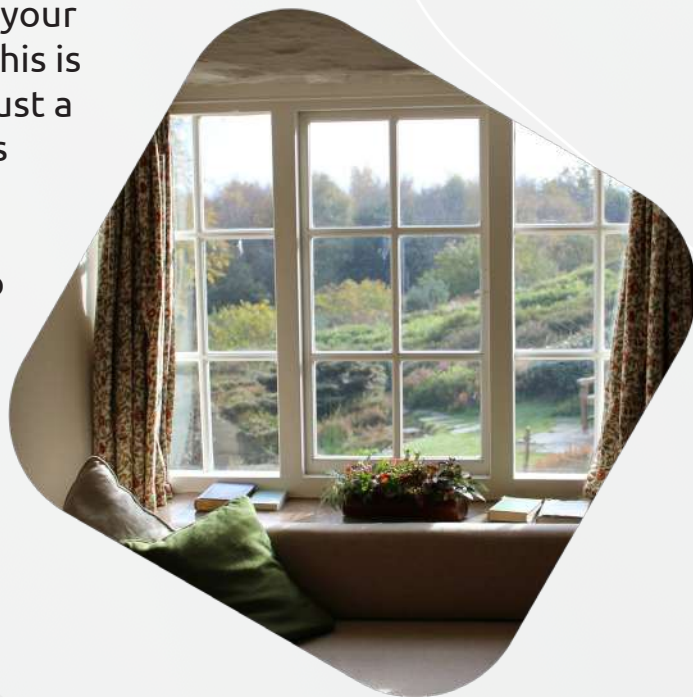
Did you know that cavity wall insulation has an insulation value of only Rc 1.7? That's not very much, nevertheless cavity wall insulation makes a lot of sense. After all, you save a lot compared to no insulation at all. Cavity walls can be filled at any time. So you don't have to wait for a renovation.

Want to save even more? Then it is a good idea to combine cavity wall insulation with insulation on the outside or inside of the facade. This is a very radical and expensive measure, though. If you choose to combine this insulation combine it with a conversion or renovation, the costs might fall. A good time could be the refurbishment of the living room or bedrooms, having the external facade renovated or when you have new window frames and doors installed in a facade.

Improve window insulation

You would do well to replace the glass in your existing window frames for HR++ glass. This is often perfectly doable, sometimes with just a few adjustments. For triple glazing, this is usually not the case.

Want to spread the cost? Then it's best to start by replacing glass in the living areas and replace the bedrooms later.



Step 3. Check and improve ventilation

Ventilating your home properly is very important for your health. However, this also costs a lot of energy. After all, fresh air has to be reheated. Nowadays, there are many smart ways to ventilate your home properly and energy-efficiently with less draught.

Think, for example, of wind pressure-controlled grilles or a ventilation unit in the living room that lets in just enough fresh air and pre-heats the incoming air. Smart ventilation contributes to a pleasant and comfortable home. Air entering through seams and cracks creates cold draughts. Besides feeling unpleasant, this draught is also difficult to warm up.

Step 4. Check the radiators

Eventually, of course, you will want to replace your central heating boiler (running on natural gas) with a sustainable heating system. Or perhaps you will opt for a low-temperature heat network. Then it is important to know whether your radiators are big enough for these lower temperatures. If a radiator is too small, it cannot give off enough heat and you will have to adjust some things, for example replacing your radiators or installing multiple radiators.

Step 5. Switch to electric cooking

Electric cooking is one of the last things you do to switch to gas-free living. After all, cooking doesn't use that much energy. That 2 to 3% of your annual gas consumption doesn't immediately do a whole lot for the climate.

This is different when you want to have your kitchen replaced. In that case, it is advisable to switch to induction immediately.

Step 6. Replace the boiler

When your house is well insulated and you have switched to electric cooking, it is time for completely gas-free living. How you can start heating your home depends on the heat plan for your neighbourhood.

Heat grid

Has a heat network been chosen for your neighbourhood? Then you do not need a heat pump. In addition, chances are you won't need to adjust your radiators (unless the heat network works with a low temperature).

In this case, a solar water heater or a shower with heat recovery can be a good addition to your energy consumption.

Green gas

There will be green gas in some districts in the Netherlands. This is gas from biomass. Green gas will be combined with a hybrid heat pump. You then heat your house mainly electrically and in case of cold, green gas will support.

Heat pump

Some neighbourhoods will have a collective heat pump. This is a large heat pump for several houses.

When you want to live gas-free, you don't want to compromise on comfort. So you want to keep a warm house, take nice hot showers and keep a hob for your meals. Fortunately, there are already many alternatives to your high-efficiency boiler on the market.

Electric water pump

An electric water pump makes it possible to go completely off natural gas. It does everything a normal central heating boiler does: heat the house as well as supply hot water. However, an electric pump is a whole lot more sustainable. In fact, your CO2 emissions for heating are reduced by around 40 to 55%.

An all-electric heat pump runs on electricity. It extracts heat from the air, soil or groundwater and turns it into a usable temperature. To distribute that heat, the heat pump has a hot water reservoir. This makes the pump the size of a tall refrigerator.

The electric water pump is good to used in combination with floor or wall heating or radiators that give off enough heat at low temperatures. It is also very important to have your home well insulated.



Hybrid water pump

Don't want to go completely off gas immediately, but do want to go partially off gas? Then a hybrid water pump might be for you. This pump works together with your boiler and uses electricity instead of gas. The hybrid water pump allows you to use up to 60% less natural gas to heat your home.

The hybrid water pump draws energy from the outside air. This makes the pump an energy-efficient device. The hybrid water pump is connected to your boiler. Initially, the water pump will start heating your home. It will only enlist the help of your boiler when it is too cold outside to heat your house properly or when it takes too long to get the house up to temperature. In addition, the boiler makes sure you have hot water in your home.

Heat grid

A heat network heats several houses simultaneously in the same neighbourhood. As a result, a gas-fired boiler is no longer needed in every house. The government expects a lot from these kinds of heat networks. The ambition is to have a quarter of the neighbourhoods with a heat network by 2030. neighbourhoods with a heat network by 2030.

A heat network is also known as a district or block heating system. In fact, it is one large central heating system located somewhere in the area with a central heat source. Through pipes, the hot water flows to the houses connected to the network. In each house there is a small installation (delivery set). This is fitted with a heat exchanger and distributes the heat to your heating and taps. The cooled water flows back to the central source.

Infrared panels

An infrared panel can serve as good auxiliary heating in your home. As a main heating system, an infrared panel is only suitable if your house is particularly well insulated.

Infrared panels can be placed or hung wherever you want. So this can also be on the wall or ceiling. They emit radiant heat to a certain spot in the room. For example, when the panel is aimed at your seating area. When you sit in the radiant heat of the panel, the warmth will feel comfortable, even if the temperature in the rest of the room is lower.

Pellet stove or biomass boiler

Using a pellet stove or biomass boiler, you can heat your home completely without natural gas. This is because you use wood pellets instead.

Pellets are pellets made of wood. A single pellet stove has enough power to heat one room in your house. With a pellet stove CV, you can heat the whole house. The biomass boiler is a central heating boiler for both your heating and hot water.

There is still much debate about burning wood. This is because it also releases CO₂ and particulate matter. These particles are harmful to your health. So whether a pellet stove or biomass boiler is right for you is something you should decide for yourself.



Saving gas can of course be done very simply by turning off (or turning down) the heating or switching to electric cooking. But not everyone is eager to spend whole days in the cold. Fortunately, there are a lot of tools on the market that will help you save gas without having to directly cold cold.

Minor adjustments

Many tools are quick and easy to apply. Consider, for example, the following:

Automatic air vent

Venting the heating system becomes a lot easier and faster with an automatic air vent. This is because it ensures that your entire central heating system is bled automatically. There is only one thing you need to take into account: the bleed valve should be located at the highest point of your heating system.

An [automatic air vent](#) works as follows: There is a float in the air vent. This floats on the water level and keeps the valve closed. When air collects in the float chamber air collects, the water level will drop and thus open the vent valve. The collected air can now escape, causing the water level to rise again.



Ventilation strips

Using [draught strips](#) at your doors and windows is a great way to keep out the cold out. By installing a draught strip, you prevent drafts in your house. Draughts can be prevented in two ways:

- **Draught tape:** A draught tape is easily applied to the door, window or even your letterbox.
- **Draught strip:** These are placed at the bottom of the door.

You can also choose from different types of materials and you can apply draught strips to both internal and external doors.



Radiator foil

A radiator radiates heat in all directions. So also to the wall. This heat disappears unused through the wall, unknowingly requiring more gas to fully heat your living room. Using radiator foil, you can reflect the heat back, into the room.

You stick [radiator foil](#) directly onto the radiator itself. This ensures that the air behind the radiator is still heated. As a result, just as much heat enters the room as without foil. However, you now need less energy to heat the room.



Radiator fan

One of the innovations that has grown enormously in popularity is the radiator fan. By placing it under your radiators, you can save up to 22% on your heating costs.

As soon as the radiator fan turns on, the fans blow air past the hot radiator into the room. This air has already been warmed by the heat from the radiator. So your room will heat up faster. In addition, you can also lower your central heating boiler to around 60 or 70 degrees. After all, it is no longer necessary to run your radiator at full strength.



Insulation

With the help of the right insulation, you can save a lot of gas. In this case, we are talking about insulating your home or even the entire property. Insulation can include cavity wall insulation, floor insulation, roof insulation or the insulation of central heating pipes.

HR-boiler

Are you still using an old boiler to heat your home and water? Then replace it for a new type of high-efficiency boiler. This boiler easily uses 15 to 20% less gas compared to your old boiler. This investment pays off especially if your boiler is older than 12 years.

Hybrid water pump

Don't want to replace your central heating boiler (yet)? Then you can also opt for a hybrid water pump. It connects to your boiler and ensures that the boiler only switches on at a very low temperature to heat the house. heating. The hybrid water pump will be enough to heat your home. It also runs on electricity instead of gas. So you can save up to 60% on your gas consumption.

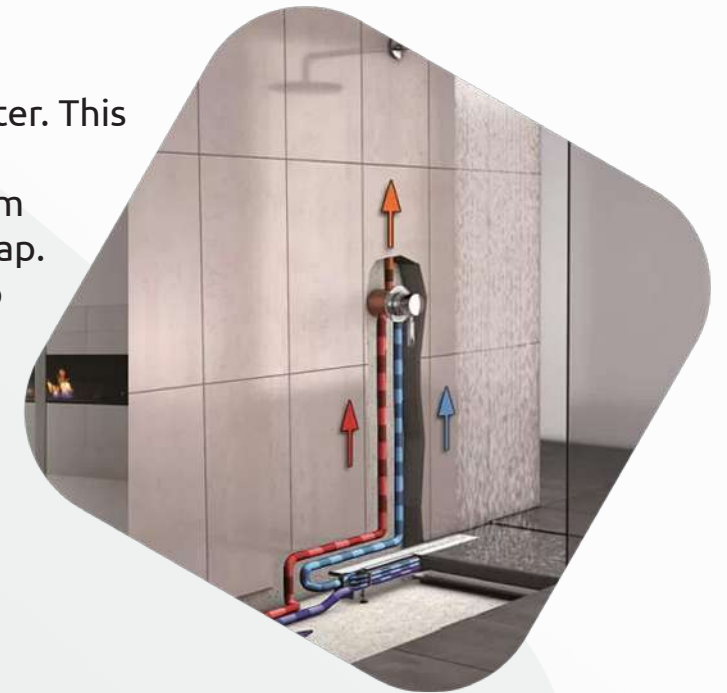
Saving in the bathroom

Besides making the necessary adjustments to save gas, there is more you can do in the bathroom to reduce your gas consumption.

Shower channel

The [ACO WTW shower channel](#) has a built-in heat exchanger. This ensures ensures that the cold water flows through the heat exchanger through the shower channel to the shower tap. The water is collected in the shower channel while showering.

The copper pipes of the heat exchanger transfer this heat to the flowing cold water. This ensures that your cold tap water can be heated up to as much as 20 degrees. From here, the water flows on to the shower tap. Your central heating boiler or heat pump thus needs to supply less hot water to reach the desired shower temperature.



Showersave

You can easily achieve sustainability with the [Showersave](#) without compromising on design and comfort. It too features a high-efficiency heat exchanger that uses the residual water from your shower to heat the supply line to the heating appliance.

How does solar energy work?

The accessibility of solar panels has skyrocketed in recent years. More and more households are choosing to have solar panels installed to save on their energy consumption. But how does solar energy actually work?

The sun is an inexhaustible source of clean energy. With the help of a solar panel, we can convert sunlight into electricity and heat. Solar energy should eventually make sure we no longer need fossil fuels to generate energy.

What is solar energy?

Solar energy is the collective term for a number of different technologies for converting sunlight into usable forms of energy. Solar energy can be converted into solar power. This is done by using solar panels, a solar water heater or by passively using solar rays.

How does solar energy work?

The sun sends a large amount of energy and heat to the earth. With solar panels you can capture this energy and convert it into electricity. Basically, solar energy works the same way for all solar cells: the solar cell absorbs light and converts the light energy into electrical energy.

Solar panels consist of solar cells. To generate solar energy, most solar cells consist of two thin layers of so-called semiconductor material. These layers only conduct electricity when light actually falls on them. At the interface of these layers, a kind of charge filter spontaneously appears. When absorbed, the light particles from the sunlight cause negatively charged electrons and their positively charged "opposites" to move in the semiconductor material.



At the interface, the two are separated by the filter, causing a build-up of negative charge on one side and positive charge on the other. This creates an electrical tension between the layers. When the two layers are connected externally, an electric current can start flowing and power can be delivered, just like in a battery.

An inverter is used to convert this current into alternating current. This is the same kind of power that comes out of your wall socket. The inverter sends this alternating current into the electricity grid and records the total output of your solar panels.

How is solar energy captured?

There are several ways to capture your solar energy. For example, consider the following three:

- **Solar panels:** A solar panel can be used to convert solar energy into electricity. This is because the solar panel consists of several solar cells.
- **Solar water heater:** A solar water heater uses the sun to heat water. In the Netherlands, the sun shines more than enough to run a solar boiler and solar panels.
- **Sun tower:** The sun tower is a kind of glass canopy with a tower in the middle. The air under the glass heats up, similar to a greenhouse, and wants to rise. The tower in the middle pulls the air towards it. This makes the air pressure along the way drive turbines which generates electricity.
- **Passive solar energy:** With passive solar energy, for example, you make use of the heat from the sunlight falling in without the need for additional appliances. Passive solar energy can help you save a lot of gas already. For example, consider installing large windows facing south and smaller ones facing north. Or choose to remodel to change the layout of your house so that the living room faces south.

Advantages of solar panels

- **Lower energy bill:** Because your own solar panels generate energy generate energy, you consume less energy from the supplier. This ensures that your energy bill will be lower at the end of the year
- **Better for the environment:** Solar energy is sustainable energy. This means that no CO2 is released while generating the energy.
- **Higher home value:** Investing in solar panels will increase the value of your home.
- **You will receive a higher energy label:** When your solar panels generate more energy than you use, you can choose to supply the remaining energy back to the electricity grid.
- **Low maintenance:** A solar panel is low-maintenance. You don't have to do much to them. The rain washes the panels clean. However, it is wise to check the panels for damage once a year.

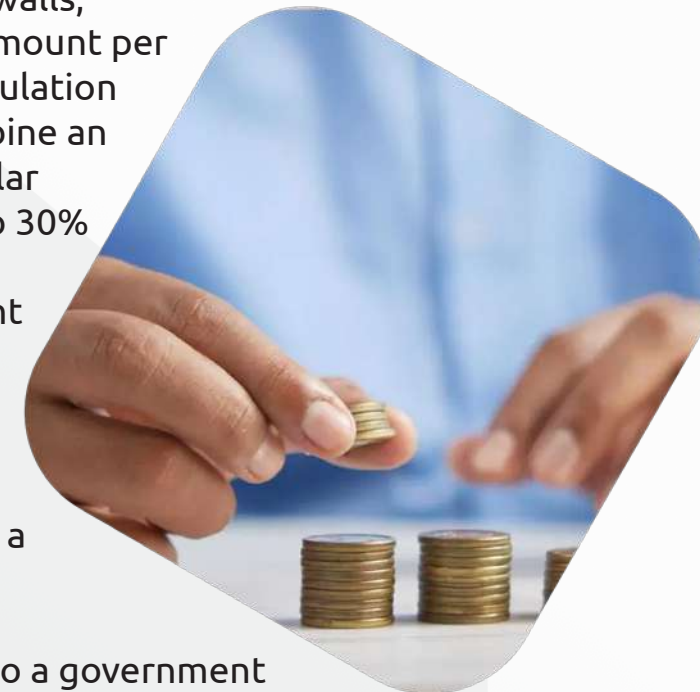
Disadvantages of solar panels

- **The roof must be suitable:** Some roofs are not or less suitable for solar panels. This is because there are certain requirements your roof must meet. For example, at least 10 metres of surface area must be available and the panels must face south.
- **Large investment:** Solar panels are not cheap. You will have to invest a large sum of money to have them installed. The cost of solar panels can go up to a few thousand euros. The payback period of solar panels is on average between 7 and 10 years. After that, you will make a profit.
- **Insufficient energy:** Usually, the solar panels do not provide enough energy to supply your entire household. As a result, you still additional energy from the grid.

With the right tools, you can save a lot of energy, and therefore gas. Think the right insulation for your home, installing solar panels or a new high-efficiency boiler. The purchase costs of many of these aids can quickly add up. The right subsidies and financing make it interesting to switch.

Grants and subsidies

- Did you know there is a [national grant](#) available for insulating your home? You can use this to insulate your roof, exterior walls, windows and floor. The subsidy is a fixed amount per square metre. Do you take two or more insulation measures at the same time? Or If you combine an insulation measure with a heat pump or solar boiler, for example? Then you can get up to 30% of your of your expenses. Do you go for a single insulation measure? Then the amount is considerably lower. This subsidy is also available for VvEs.
- There are several national subsidies you can use to buy [solar boilers](#), [heat pumps](#) or a connection to the [heat grid](#).
- Are you having your home insulated? Due to a government scheme, you only have to pay [9% VAT](#) on the labour of the hired workers.
- Several municipalities and provinces have made their own subsidies available from local pots. On [Energiesubsidiewijzer](#) you can easily see which subsidies are available in your municipality and province.
- Having solar panels installed has additional benefits besides saving on your energy costs. Namely, you can [reclaim VAT](#) from the tax authorities. This immediately saves you 21% of the cost.



- Don't have enough savings, or don't want to spend your savings on sustainability? Even then, there are schemes available. For instance, there is an energy savings loan where you can borrow money on favourable terms to pay for appliances. It is also sometimes possible to get [extra mortgage space](#) for energy-saving measures.

Insulation of your home

As mentioned earlier, there are several subsidies for insulating your home. With the right subsidies, you can save up to 30 per cent on the cost.

The subsidies for insulation can be divided into high and low subsidy amount. For the high amount, you have to carry out at least two insulation measures within one year. For example, think about your cavity walls and floor insulation. It is also possible to combine an insulation measure with the purchase of, for instance, a heat pump. Do you take a single measure? Then you fall under the low subsidy amount and get up to 15% of the costs reimbursed.

Solar boiler, heat pump and heat grid

Do you have an existing house and want to buy a solar boiler or heat pump? Or do you want a connection to the heat grid? Then there are interesting subsidies available.

You will already receive one of these subsidies if this is the only measure you take. So you do not have to combine the purchase of one of these objects with an insulation measure.

VAT

Thanks to a government measure, VAT on labour costs for insulation is only 9%. However, there are some conditions attached to this:

- The low VAT rate only applies to the installation of insulation. A regular VAT rate of 21% applies.
- The regular VAT rate of 21% also applies to the purchase of materials.
- You only benefit from the low VAT rate if your home is at least two years old, or the building has been used as a home for at least two years.
- The adjusted VAT rate does not apply to the installation of window frames.

Tips to stay warm in winter

With some clever tricks, you can save gas without having to sit shivering in your house because you turned off the gas tap. Did you know that there are several ways to heat your home and yourself without immediately turning on your thermostat?

Layers, layers, layers

When you have several layers of clothing on, you can adjust more quickly to transitions from indoors to outdoors and vice versa. Choose a shirt under your shirt and another cardigan or thick jumper over that. But you can also wear several layers of clothing: tights under your jeans for example. jeans, for example.

By combining several layers of clothing, you can protect yourself against the cold or when you don't want to turn on the heating. when you don't want to turn on the heating. Should it get a bit warmer, you can also act quickly by taking some off.



Electric vests, body warmers or socks

The electric blanket is a well-known phenomenon. But the number of garments you can buy powered by electricity is also surprisingly high. Think, for example, of an electric cardigan that is rechargeable. You can choose from electric vests, body warmers or even socks, among others.

Downside: many electric garments are not produced sustainably and are also very pricey.

Choose a rug

Snuggle under a rug on the sofa in the evening. This rug also looks stylish during the day, while keeping you warm as soon as it starts getting cold getting cold. Nowadays, there are many different types and sizes of rugs available. Opt for a very large one if you prefer to crawl under the rug together.

Making smart use of your curtains

Do you have curtains hanging in your living room? Then you can cleverly use them to bring in free heat during the day and keep it in at night. Open your curtains during the day to let the sunlight in. This will warm your house slightly. By closing the curtains when it gets dark outside, you create an extra layer of insulation and keep the heat inside.

Get a warm and soft rug

A warm and soft rug is also very atmospheric for your home. It also ensures that your feet land on something warm when you get up from the sofa. This prevents your feet from cooling down faster.

Do not heat all rooms

It is often not necessary to heat your whole house. By keeping one room warm where you and your family can stay for longer periods of time and closing off unused rooms, you can save a lot of gas.

Keep doors tightly closed and cover the warm room with blankets whenever possible. You can also use heaters and other appliances from the rest of your home to keep that one specific room warm.

Light candles

Of course, you can light candles in your home all year round for some extra atmosphere and cosiness. However, lighting candles in winter has an additional function: it creates a wonderful, cosy warmth. The more candles you light, the more cosy it becomes.

Turn on the fireplace - if present

Do you have a fireplace in your home? Then light it! Besides the warmth the fireplace will give off, it also creates a cosy atmosphere in your home. With a fireplace, the temperature can quickly rise higher that you will no longer need a rug.

Keep your head, hands and feet warm

At home, opt for nice warm slippers or extra thick house socks to keep your feet well warm. But cut-off gloves and/or a headgear can also help keep your body warm.

However, it is vital to make sure that your hands and feet are already warm before covering them. Once your body is cold, insulating clothing has no effect. Clothing slows heat release as soon as there is a temperature difference.

Drink something hot

Drinking a hot beverage makes you feel nice and warm inside, besides, this feeling can also last for a while. An additional advantage of a hot drink is that it is good for warming your hands.

Note: drinking an alcoholic drink is not as good again. Despite the burning sensation you get at first, it actually lowers your body temperature.

Cuddling with your pet, child or partner

Pets and babies are like living heaters. This, of course, also applies to your older children and/or partner. So a good reason to snuggle up on the sofa or take your pet/baby on your lap.

Leave devices open to cool down

Many people regularly use the oven for dinner or baking sandwiches, for example. By leaving the oven ajar, you use the heat from the oven in the rest of your home. The temperature of your home can rise by just a few degrees without using extra energy.

Of course, this also applies to other appliances such as the dryer.

Do not sit too close to the radiator

As tempting as it may be to put your favourite chair close to the radiator, don't do it! This is because the chair absorbs heat that should actually be moving into the house. By placing your favourite seat elsewhere, the warm air can circulate freely. This also applies to curtains and drying clothes.



Keep moving

Many professions these days require working behind a computer. This causes you to move little and thus get cold. Therefore, make sure you move regularly. Get some coffee, wave your arms or walk around your home/office. You can also easily turn in circles with your feet when you are sitting still.

Save money? Your own innovation!

Our colleague Henk himself has developed a smart device that manages to convert electricity into heat. As a result, he can save more gas but still have his house comfortably warm. [Check out the interview with Henk on our YouTube channel.](#)

Your own innovations

At Beeliners, we are always looking for new, innovative ideas. Have you thought of something to save more gas? Or do you have another cool idea that you would like to turn into reality?

Working with Beeliners means that we will work with you to make your idea a reality. We like to think along with you!

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