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enabling Consumer to Learn about, Engage with, and Adopt Renewables

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Final Report

ITALY



The project leading to this application has received funding from the European Union's Horizon 2020 research and Innovation Program under grant agreement No 749402





Objectives

We conducted a behavioral survey on changing consumers' sustainable energy behavior

In details:

- To understand the association with the theme of **energy** and **energy-related behaviour**
- To understand the association with the theme of **sustainable energy** and **sustainable energy-related behaviour**
- To understand the **triggers**, the **motivations** and the **restrains** for **changing behavior** in a sustainable way
- To identify **energy behaviors' profiles** regarding use of energy, demand and consumption, and their behavior for saving energy
- To **explore** the **knowledge** and the **experience** with four particular sustainable energy production systems:
 - **Solar panels**
 - **Accumulator batteries** for domestic photovoltaic systems
 - **Pellet-fuelled stoves**
 - **Heat pump air conditioning**





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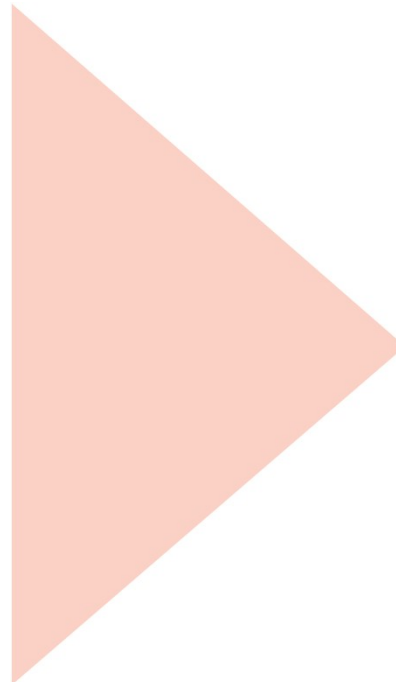
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Methodology

Using our own proprietary platform we conducted a **qualitative digital research study** – during **5 days**.



All of them were invited in a **discussion group step** (that last 5 days), in which the participants were moderated and prompted to speak about their point of view, habits and behaviors towards energy and sustainable energy.



Some of the participants of the discussion group were invited also in an **individual phase**, that took place in the same dates in the last 3 days of the group step.

Each participant **had to fill a personal online space speaking about their experience with sustainable energy tools and solutions**: their purchase journey, drivers and barriers in choosing their system, their daily life experience with it.



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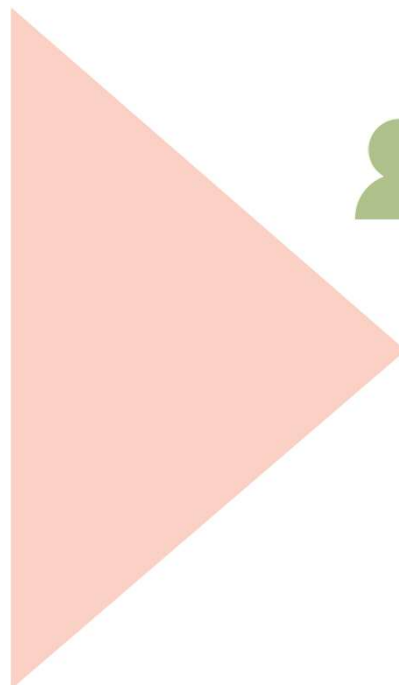
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Target

We have recruited and involved in the research:

 **60**
PARTICIPANTS

- All participants are energy (co-) decision makers in their household
- Representative in terms of age/studies/region
- 30% Tenant; 70% Owner
- Dwelling type:
 - > 50% Flat
 - > 25% Detached house
 - > 25% Semi-detached house



 **31 participants** have been involved in the individual step.

In details:

- 10 people with solar panels
- 1 with accumulator batteries for domestic photovoltaic systems
- 10 people with pellet-fuelled stoves
- 10 people with heat pump air conditioning



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Agenda

In this presentation document we'll go through the discussion area that have been asked to answer to the participants during the 2 steps of the research:

Energy and energy-related behaviour

Sustainable energy

Sustainable energy-related behaviour

Sustainable energy production systems:

- Photovoltaic solar systems
- Accumulator batteries for domestic photovoltaic systems
- Pellet-fuelled stoves
- Heat pump air conditioning

Conclusions



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Energy and energy-related behaviour



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In the respondents' perceptions the theme of **energy, and the behaviour connected with it,** is associated:



First and foremost, with financial savings



For a minority, with concern for the environment



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Saving is a subject often linked to energy-related behaviour

Nearly all of the participants in the study, albeit to differing degrees, employ some measures and forms of «virtuous» behaviour aimed at

controlling consumption and minimising waste,

with the ultimate objective of **saving money**

(in the tangible form of lower energy bills)



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... which leads to a certain awareness in consumption

The desire to reduce costs leads the respondents to a
**reasonable awareness of their energy
consumption:**

a sort of **litmus test of the effectiveness** and usefulness of the
measures and «virtuous» energy-related behaviour adopted.

This also leads to a **deeper knowledge of their real energy and gas
consumptions**, that are estimated annually on average: **630€
electricity and 720€ gas.**



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The theme of concern for the environment emerges spontaneously among a minority

- Both for the **protection and sustainability of the environment**, for example by paying attention to natural equilibriums and having respect for energy resources that, since they are limited and exhaustible, cannot be wasted
- This is also an **act and demonstration of responsibility for future generations**, to avoid compromising their futures





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*«For me, energy means developing and improving behaviour to **avoid unnecessary waste and expenditure**, with the aim of saving family income and thinking big about saving global natural resources.»*

*«The first thing that comes to mind is **energy saving**. We try to behave in an «energy-saving» way: having the fridge door open as little as possible, turning off the light as soon as we leave the room, LED light bulbs, AAA class household appliances...»*

*«Thinking of energy calls to mind the words **«saving» and «renewable»**. In my house we do all we can to teach our daughters to save both water and light...»*



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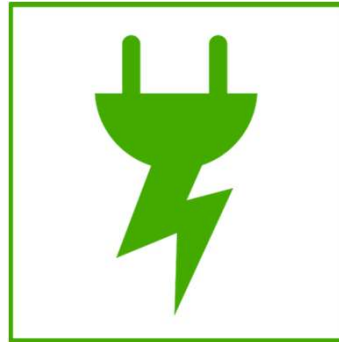




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Sustainable energy



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Sustainable energy: synonymous with renewable energy...

- **Sustainable energy** is a **hot topic** that the **respondents** feel strongly about, and they show a high degree of engagement and interest
- It is mainly associated with **renewable energy sources (air, water, sun)** and, consequently, with all systems and installations that use these sources to produce energy: photovoltaic is the emblem of this *par excellence*



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... it represents the future ...

Faced with the continuing, excessive exploitation of the planet's energy resources, they recognize its **importance and indispensability for the future**, in order to:



Reduce pollution, thus protecting the environment and the planet for future generations



Safeguarding people's health and well-being



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*«The first word I think of is the **future** - I hope sustainable energy will be increasingly used and produced for the sake of the world we'll give to our children and grandchildren ...»*

*«When I think of energy I think of **nature, the wind, the sun, water**»*

*«As regards renewable energy I think it's the **future** - we've drawn upon the planet's resources for too long and **there isn't much left**, we've absolutely got to change our living habits and all move towards more ecologically sustainable energy for the sake of **our children's future**»*

*«I'm very sensitive to this problem ... I think if we don't get moving the earth **will make its voice heard**... We've got natural energy that we should use more»*



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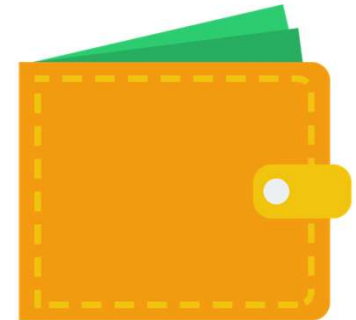


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However

Apart from the small everyday measures that many consumers take, **the financial factor** seems a major **barrier** to the greater use of sources and systems for producing sustainable energy.



People often believe that the **contribution** of individuals is both **important and necessary** but that it also, on the other hand, is only **'a drop in the ocean'** and is therefore insufficient **without the support of governmental and institutional policies.**



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Sustainable energy-related behaviour



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In the minds of consumers, **sustainable energy-related behaviour is mainly connected with the use of natural energy sources**



However, also in the light of a difficulty in accessing sustainable sources, they also regard **small everyday measures and forms of behaviour** as sustainable, reducing consumption/waste and **making it possible to save money**



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Behaviour that can be summarised as follows

SOSTENIBILITÀ



USING RENEWABLE ENERGY SOURCES: the consumer uses energy produced by installations that use renewable sources

INCREASING ENERGY EFFICIENCY: the consumer searches for purchasing choices based on an improvement in energy efficiency

REDUCING CONSUMPTION: the consumer acts consciously to reduce energy consumption

AVOIDING WASTE: the consumer adopts small everyday habits, often totally automatic and guided by «common sense»

Behind the motivations guiding this behaviour it is possible to identify **different degrees of closeness to the concept of energy sustainability.**

In which **those at the top of the pyramid do not necessarily own renewable energy-using equipment** through their own personal choice (they happen to already find it in the house bought/rented).



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The tangible behaviour adopted

USING RENEWABLE ENERGY SOURCES

Buying systems that produce sustainable energy (photovoltaic first and foremost ...)

INCREASING ENERGY EFFICIENCY

Buying LED light bulbs, low-energy consumption household appliances, insulating the home

REDUCING CONSUMPTION

Using the washing machine and dishwasher only with a full load, keeping the home temperature at 20°, not leaving appliances on standby

AVOIDING WASTE

Not leaving lights on, cooking using pan lids, choosing hot showers rather than hot baths, turning on the central heating only when at home



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Based on the **attitudes to sustainable energy** shown during the discussion, we were able to identify **three different consumer profiles**:



THE AMBASSADORS

Identified by an **engaged attitude** towards the subject: they see **sustainable behaviour** from an all-round viewpoint



THE OPPORTUNISTS

Demonstrate an **interested attitude** in the subject, but their behaviour is almost exclusively driven by the **financial return**



THE UNAWARE

Little engaged in the subject, their behaviour is largely guided by **common sense**



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The Ambassadors



- Their energy-related behaviour is not just aimed at obtaining a financial benefit but also at **safeguarding the environment and the health of individuals**
- They try to **integrate their virtuous energy-related behaviour into their everyday lives**
- Conscious supporters of sustainable energy-related behaviour, **they also sometimes take it on themselves to spread and promote the importance of this issue** not only to their own family but also to the local community (they try to tell the family how to be «sustainable», organise/take part in parish/neighbourhood meetings to support and spread «education» in environmental sustainability...)



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The Opportunists



- Their «virtuous» energy behaviour is **mainly aimed at achieving financial savings**
- The **environmental implications** of their conduct are an appreciated consequence of this but of **secondary importance**, almost never intentionally pursued as the only objective
- They are always **up-to-date** with and on the **lookout for possible different behaviour** that can increase the financial benefit (particular attention while cooking, buying specific technologies to check energy consumption)



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The Unaware



- These people **enact only a few forms of virtuous energy-related behaviour**: largely small everyday measures such as not leaving lights switched on
- In adopting these types of virtuous behaviour they are often **driven more by «common sense»** than by other motivations (financial or environmental)



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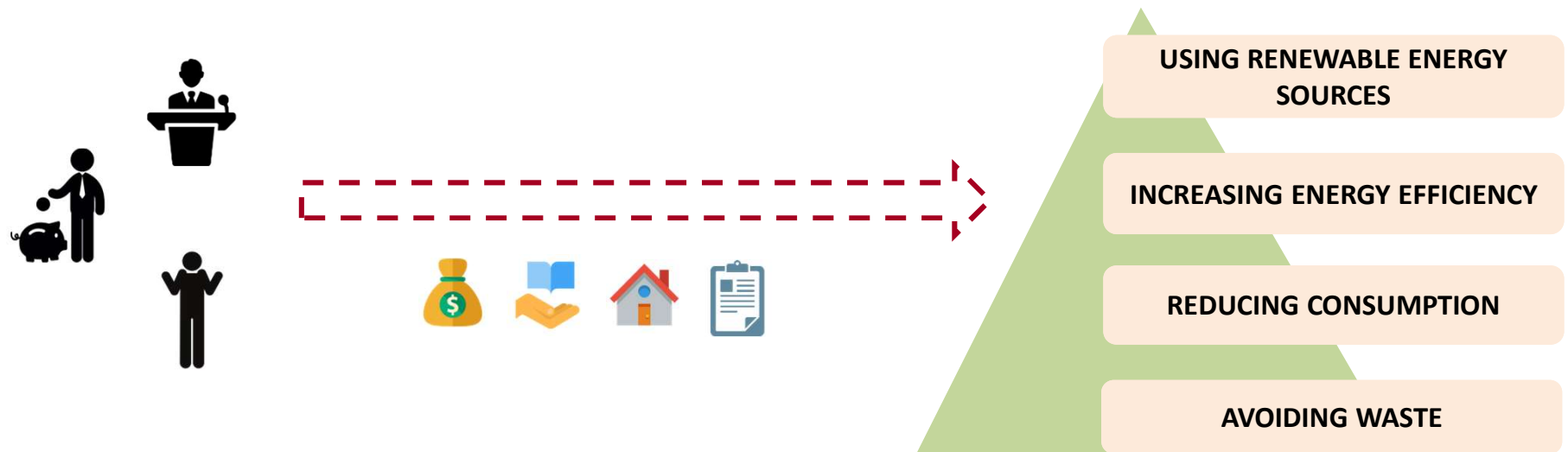


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HOWEVER

there is no clear-cut and direct relationship between their attitude towards sustainable energy and their actual behaviour



There exist some **barriers** that often prevent their conversion into practical action (above all in relation to the installation of **sustainable energy production systems**)



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The main barriers are:



Financial factors



Knowledge of possible sustainable energy solutions



The type of dwelling



Bureaucracy and legislation



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The costs are high and the return on investment is not always clear

The initial expenditure is regarded as high: in fact most respondents say that they **do not have sufficient financial assets** to enable them to meet the initial costs immediately (buying the system, specialist labour, possible structural changes to their home ...).

This is accompanied by:

- a difficulty in **calculating the cost-benefit ratio**
- uncertainty, at the assessment stage, about being able to **estimate how long it will take to see a financial return**





Knowledge of sustainable energy solutions is limited

- The **respondents spontaneously associate sustainable energy mainly with renewable sources** (air, sun, water).
- A consequence of this is that photovoltaic panels are often the only actual installations/systems mentioned, **without a complete a view of all the sustainable energy production systems available to them**
- They also report a lack of information sources to enable them to find out more about the solutions available





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The experience of other people is very important

- **Word of mouth** and the **experience of friends and acquaintances are crucial in the information-gathering and choice process** across all types of installations
- They are often **the only source of information** consulted, and the positive experience of these other people is **often the decisive factor in choice**
- It also plays a **key role in choosing the technical and professional people** who are to be involved



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The type of dwelling affects freedom of choice

The **type of home** that the respondents live in can be a **potential barrier**, since:

- Those who **rent** have fewer choice options than those who own their homes because they are **limited by the decisions of the property owner**
- Those living in an **apartment block** are **conditioned by the rules of the condominium**





Legislation and bureaucracy are often unclear or complex

- The **legislation** (particularly in relation to state incentives and tax deductions) is perceived as **unclear, difficult to interpret and constantly changing** → consumers do not always show either the skills or the cognitive energy to get to grips with it
- The idea of having to go through **a series of bureaucratic forms and procedures is intimidating and discouraging**
- **The feeling also emerges of the lack of a single point of reference** where all the necessary information can be found





As a result, everything is often delegated to professionals

Those who have installed energy systems **feel relieved** to have been able **to completely delegate** all the bureaucratic and tax deduction aspects **to the professionals** - primarily installers but also architects, surveyors...





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«You also have **to convince** your **fellow residents** of a real saving and subsequent reduction in costs.»

«I looked for information on installing solar panels ... I considered the various pros and cons but in the end the **excessive bureaucracy** and the fairly **high initial cost** persuaded me not to..»

«**I'd have liked** to put some solar cells on the roof **but I was in a rented property**... Now I'm back in the city, in an apartment within a huge condominium with central heating, there's very little I can do»

«**I'd like** to install some accumulators for the panels **if they are available at an affordable price**.
What I've found so far isn't worth it financially..»



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What are their expectations for the future?



- The widespread feeling is that sustainable energy will certainly be **increasingly important**, with a possible greater sensitivity towards the subject
- However there is also an impression that **the main barriers will persist**: for this reason **many people struggle to imagine important changes**; the idea is more of **continuing** with the **virtuous behaviour already adopted**



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A synthesis on opportunities and barriers affecting behaviours

I change my behavior regarding sustainable energy because



I would like to change my behavior regarding sustainable energy because ... but ...



I don't want to change my behavior because ...



Inside these word clouds are found the most used words of the Insight Room used to complete the sentences above



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Sustainable energy production systems



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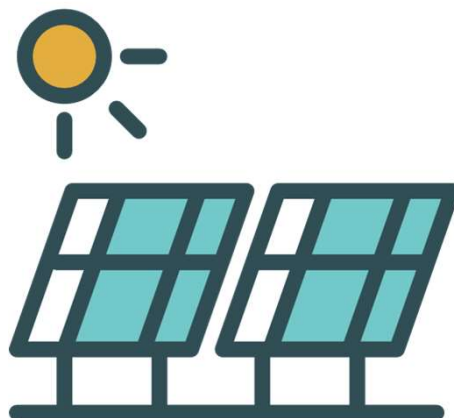
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Photovoltaic solar systems



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The symbol of sustainable energy...

- In the perception of the respondents this is the sustainable energy production system *par excellence*, the one that more than any other **embodies the idea of sustainable energy that the respondents have formed**
- **Well-known and familiar:** something that has often been heard of also through the mass media





... and desired by consumers

- There is **interest and curiosity** in this type of system: many respondents say that they have considered and evaluated installing this type of system in their home
- For this reason it is often **the first thing mentioned** when they say how they would like to develop their systems and thus make their behaviour more sustainable





*«**We'd also like to install** some photovoltaic panels... **but at the moment it's expensive** and we haven't got the financial means, **but it's in our plans** and we're hoping to do it as soon as possible»*

*«**I'm very tempted by photovoltaic systems**, they seem ideal for modern homes, I think they're a clean energy technology that should be given more consideration...»*

*«**In the future I'd like to install some photovoltaic panels** but at the moment I'm living in a condominium and it isn't my decision unfortunately. Installation is also expensive.»*





The possible financial impact is the main driver of choice

- Financial savings resulting from **lower energy bills**
- Financial earnings from **selling the energy produced to the energy supplier**
- Also in view of **state tax deductions**

The fact that this is a system that **exploits sustainable alternative energy** is a **secondary element** for now





*«What led me to install them was the **word-of-mouth** doing the rounds at the time about lower energy bills...»*

*«I took the decision to install the panels primarily for the **saving in energy costs**...»*

*«my decision to install them was both ecological and financial, because within a few years I'd **have got back the investment through the incentives** ...»*

*«I wanted to install the photovoltaic system together with my parents, because we had a bit of money put aside and it **seemed a good investment, financially and also environmentally**...»*





But with a number of entry barriers

- The **financial factor** seems to have the **greatest weight**: as regards both the initial expenditure and the difficulty in actually estimating the return of this investment (*how many years will I take to recoup the expense? How much energy will I produce? How much will I be able to sell?*)
- **Inability to reach a full energetic independence** and the consequent necessity to keep relying on own energy supplier
- **Which is combined with all the barriers** set out above (type of dwelling, bureaucracy and legislation) that often **hinder** the decision to equip the home with a photovoltaic solar system





*«I've never used photovoltaic systems. I think the initial **investment** is rather **expensive** and the **financial return** is **very far-off in the future.**»*

*«**The thing that holds me back is the cost, not knowing how the tax deductions will work and not knowing how many years it will take to absorb the initial expense.**»*

*«There are currently three major limitations in my opinion: the **initial installation costs** and, **time needed to recoup the investment** and the **high costs to implement an energy bank solution**»*

*«In any case the problem is the **initial expense** and the **excessive bureaucracy** to be able to benefit from tax deductions, and also the lack of clarity on this issue»*





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Photovoltaic solar systems: the experience of owners themselves






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The choice process

- The **drivers** of choice are the possibility of **achieving lower energy bills**, and the **return from selling energy** produced but not consumed to the energy supplier
- Moreover, **the experience and opinion of people who already own this system** plays an important and relevant role in the choice process:
 -  They can provide reassurance about the financial value of the investment
 -  They can suggest a trusted installer
 -  They lessen fears and worries regarding the bureaucratic aspects: the installer will take complete care of these



The installation

- Once the decision has been made, the consumer contacts **the installer** (often recommended by people who already have a system of this type), **who is relied upon completely**
- **The professional** - after inspecting the site and analysing consumption patterns based on the energy bill and the size/orientation of the surface on which the panels will be placed - **suggests the type of system to install** based on the KW needed, the position and inclination of the panels and the number of panels
- The stages of **installing** the system are followed by all the respondents **without any difficulty**, and all the **bureaucratic aspects** are **delegated to the installer**, who manages them in the best interests of the customer





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The usage experience

- The usage experience is a **favourable one overall**: consumers note a real reduction in their electricity bills
- Some **initial expectations do not**, however, seem to be **fully met**:
 - **The energy produced** is slightly lower **than that initially estimated** by the installer
 - The **reimbursement** for the energy produced and not used yields less money than expected



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«I've always been curious about these photovoltaic systems, then **my brother-in-law installed one and was soon very enthusiastic about it, so we called our installer and saw what we needed to do.** I'm satisfied, both about the saving on our energy bill ... »

«The system works as it should, although **the energy produced is a bit less than they'd estimated.** As for the savings I must say that although they're not that big you do notice them in the bill..»

«I think it's unfair that if my system isn't producing because it's cloudy **I pay a high price for my energy, whereas what I produce earns me a miserly amount.**»

«the impression the installer gave **isn't in-line with the energy produced** or, as a result, with the return. Overall, though, the difference is a positive one in my favour, so **I do save a bit.**»





Drivers

- **Financial savings:** both on energy bills and through earnings from selling energy produced but not used to the energy supplier
- **Tax deductions** on the installation costs

Barriers

- **High initial costs**
- **Difficulty in estimating** the time for the investment to pay for itself
- **State incentives**, perceived as increasingly **less advantageous**
- Low **return when in selling energy produced but not used to the energy supplier**
- Lack of clarity on costs and **disposal methods** for materials/the system at the end of its operational life
- **Incomplete autonomy from the energy supplier** due to unevenness of production (at night, in the event of several cloudy days...)

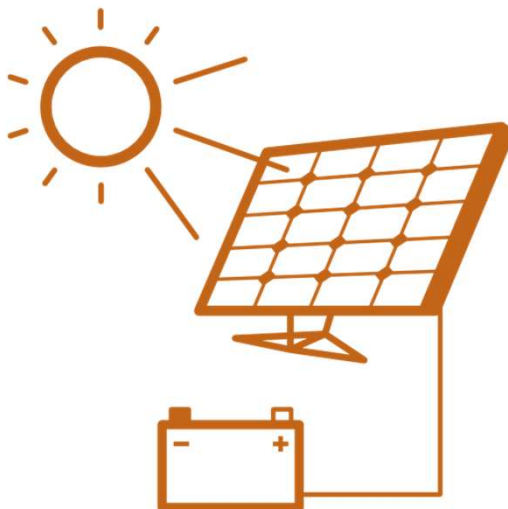




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Accumulator batteries for domestic photovoltaic systems



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A next step after the installation of a photovoltaic system...

Interest in accumulator batteries for domestic photovoltaic systems **often emerges at a later stage after installation of the plant,** motivated by:

- The realisation that **selling the energy produced but not used to the energy supplier generates lower income than they had expected**
- And a consequent **desire to increase their energy autonomy** from their energy supplier





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... that is still difficult to actually achieve

However, purchasing an accumulator battery comes up against a very difficult **barrier** that holds the respondents back: **the high cost of the product** in addition to that of the photovoltaic system itself, further increasing uncertainty about the time needed to recoup the investment.



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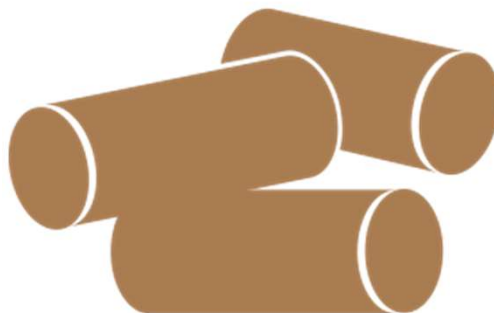




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Pellet-fuelled stoves



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Just a heating system

- **Not always associated with the subject of sustainable energy** since, in the perceptions of the respondents, only energy produced from renewable sources (sun, air, water) is sustainable
- They are mainly **acknowledged** as a **heating system that gives good value for money**
- They have recently **come back into vogue** and for this reason enjoy a high level of **awareness**





Financial savings are the only driver of choice

- At present no reasons emerge in support of choosing pellet-fuelled stoves other than that of having a **heating system that requires a lower financial investment than other systems** (gas first and foremost)
- Some people mention **state subsidies** as a factor that can influence the decision to install a pellet-fuelled stove





*«When we bought our house we decided to install a pellet stove to reduce our winter heating costs. We're very satisfied with the investment because we manage to heat the whole house at a **very low cost**»*

*«It's the heating system that we currently use at home: we chose it because at the time it seemed to be the **system with the best yield/cost ratio**»*

*«I've a very favourable impression of this form of heating... you can achieve enormous advantages, **like not being slaves to gas** and the enormous related costs to keep our home always warm.»*

*«I've heard my neighbours talk favourably about the **financial savings**»*





... the installation of which encounters largely structural barriers

- Having a **chimney flue**: something that is not always easy to install in non-autonomous dwellings (e.g. apartments)
- Having sufficient **room** to place the stove and store the pellets
- **The need to create an air-duct system** to convey warm air to all the rooms in the dwelling





*«I'd really like to install this type of system, but I'm concerned about **the mess it would create in my house during the building work**»*

*«Another **snag is storing the pellets**: you need to have a place to keep all those sacks and I haven't got anywhere.»*

*«I once considered buying a pellet stove, but since we live on the lower floor of a two-story apartment building and **haven't got a chimney flue already installed** we weren't able to cut through the ceiling and go through the apartment above.»*





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Pellet-fuelled stoves: the experience of owners themselves



The project leading to this application has received funding from the European Union's Horizon 2020 research and Innovation Program under grant agreement No 749402





The choice process

- Consumers are mainly driven by a desire to **reduce their heating costs** by:
 - Completely **replacing** their current heating system (gas)
 - **Adding** a pellet-fuelled stove to their current heating system in order to use it less
- A minority of respondents, who say that **they switched from wood-fuelled systems** (wood-burning stoves and/or closed fireplaces) to pellets, also hoped to acquire:
 - A **higher heating capacity** of pellets vs. the fireplace
 - The **higher ease of usage, transport and storage** of pellets vs. wood





The installation

- **The installer** chosen is very often one who was **previously used by friends and/or family members** who already have a pellet-fuelled stove
- One of the criteria borne in mind during installation is the **type of stove according to the size of the home/the number of rooms to be heated**
- The **installation** stages unfold **without any hitches**: no respondents mention any particular problems or mishaps





The usage experience

- **The usage experience** related by the respondents is **positive and satisfactory**: the financial savings are tangible
- The stove is generally lit **every day during cold periods**:
 - It is **left on** for sufficient time to ensure that the house is warm (8-10 hours for large homes, 4-6 hours for smaller homes)
 - While some people do not feel comfortable about leaving the stove working when they are not in the house, others happily **programme it** to come on **during the day**



The choice of pellets

- The **criterion** that guides consumers is the **quality of the product** - this is mainly a factor of its constituent material, which determines:
 - its thermal power
 - the amount of ash produced
 - the price
- **Fir** is mentioned as the best pellet wood, due to its high heat yield. The respondents have also learned to recognise that quality is associated with «**purity**», and in this context they talk about «**100% fir En-plus**»
- **The pellets are often bought in the summer** to take advantage of lower prices, although the respondents complain about an increase in costs due to a rise in VAT (from 10% to 22%)
- **Buying frequency** seems strongly related to the consumer's **ability to store the pellets in good condition** (the more space they have available the more they are able to buy a higher quantity)





*«For this type of heating system I **found out through the direct experience of friends and/or relatives**»*

*«I must say that **I've noted some savings on my energy bill** over the winter compared to when I had the old system, so I'm very pleased.»*

*«As a general rule I buy the pellets according to their quality, thermal power, ash and finally price. I **usually only buy the pellets once, during the summer** »*

*«We prefer to buy the pellets **as needed**, because we haven't got a large storage room to keep them in...»*





Drivers

- Financial savings on heating
- The possibility to programme when the system switches on and off, further optimizing consumption
- Natural, aesthetically pleasing warmth
- The easy availability of the pellets

Barriers

- The need for constant cleaning
- An increase in the price of pellets
- The need for storage space for the pellets
- The heat is not even in all the rooms of the house (unless air ducts are available/installed)
- Difficulty in transporting the pellets/loading them into the stove
- (Non-users only) The need for constant maintenance (cleaning, loading, ...)
- (Non-users only) Uncertainty about how long one load will last

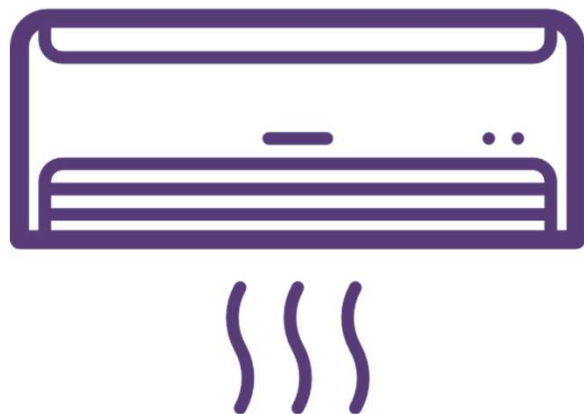




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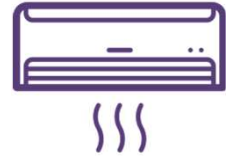
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Heat pump air conditioning



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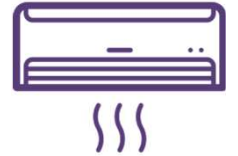




Mainly an air conditioner

- A system **known** mainly as an **air conditioning system** used for cooling
- It is almost never **recognised as being a sustainable energy source**, but on the contrary is seen as the exact opposite: a system that consumes high quantities of electricity
- Once prompted on the subject, moreover, **the respondents struggle to understand how and why this system could be included among systems for producing sustainable energy**

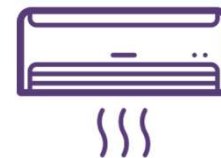




For these reasons, at the present time:

- The only **driver** for the adoption of this system is the **need** - which not all respondents feel - **for a system to cool their home during the summer**
- In terms of entry **barriers**, the only obstacle or constraint emerging seems to be **structural**: the dwelling must already be **installation-ready**, and if this is not the case then major, high-cost structural alterations will be needed





«It's true I've heard of this heat pump technology, but I couldn't really explain how it works or mention any positive or negative aspects»

«I don't know this type of system, if I had some information I might be able to weigh it up as an alternative if it allowed me to save on heating through high-performance and without polluting»

*«In the next few years I'll have to **change the air conditioning** in my house, and I'll consider heat pumps as a solution.»*

*«My impression is that heat pump air conditioning systems are very **wasteful of electricity**, and I don't see them as being very sustainable in terms of their energy impact.»*





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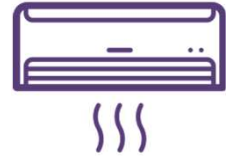
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Heat pump air conditioning: the direct experience of owners themselves



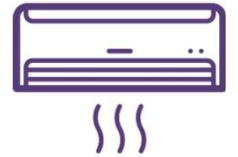
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The choice process

- For the majority of respondents the **driver** of choice is the **need to have an air conditioner**
 - Only in one isolated case was the system recommended by a professional both as a heating and an air conditioning system (the renovation of a holiday home in a seaside location)
- Once the decision has been made the **consumer contacts the installer to describe his/her needs**: following an inspection, the **professional suggests the most suitable solution and provides all the necessary information** (type of system, model, brand ...)
 - It is at **this point of the choice process that the respondents get to know about heat pump air conditioners and their functions**, but not in terms of being sustainable energy production systems



Installation and usage experience

- The **installation** stages unfold **without any particular difficulties**:
- **The usage experience is satisfactory** and in-line with expectations: although the primary use remains that of cooling the rooms, the **consumers also begin to appreciate the heating possibilities**, especially during early autumn as a substitute for the main heating system
- Since **the usage experience is concentrated on the summer months** (vs. the winter), **the consumers do not report any particular reduction in their energy bills**





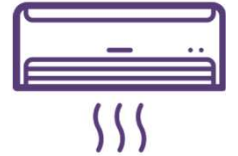
«Previously we didn't have an air conditioner in our apartment ... in the end I chose heat pump technology for the possibility it gave to use the heating function in the first cold days of autumn.»

«It was so hot in the summer that we'd already thought of getting an air conditioner for the summer months. Since we were already going to be spending the money we thought that a heat pump could also be used in the colder months»

«I decided to install this system because I needed it in the summer for the excessive heat, while in the winter, since there were no radiators, I was afraid of the cold...»

«I mainly use this system for air conditioning in the summer..»





Drivers

- 2 products in 1
- The ability to heat in a very short space of time (quicker than traditional heating)
- The possibility to use the system to heat the house in the first cold days of autumn (to avoid switching on the central heating or when this is forbidden)
- The possibility to turn it on only in the room where more heat is needed

Barriers

- High electricity consumption, much more expensive than natural gas
- (user) Once switched off the room cools down quickly
- (user) They heat a room but struggle to bring a whole house to the right temperature





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Conclusions



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For consumers, sustainable energy is a **keenly-felt subject of interest:**

- It **evokes** and is associated **with renewable sources** and systems that exploit these sources to produce clean energy
- Currently there seem to be **a number of barriers** (financial first and foremost) that often hinder consumers from converting a favourable personal attitude towards the subject into tangible behaviour, **above all as regards the adoption of sustainable energy production systems.**
- The respondents show that they **already practice some types of «virtuous behaviour» in the energy context** where, at present, the **main driver** for this «sustainable» behaviour is **financial** - particularly that of **lower energy bills.**





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In the light of these findings, the **main consumer needs as regards sustainable energy** seem to be:



Getting to know in more detail about all the sustainable energy production systems currently available to them (for example with a sort of guide)



Greater clarity regarding the financial return and the time needed to recoup the initial investment (for example by being able to find out about the experiences of other consumers, by having a simulator that can calculate projections of the return on investment...)



Support in understanding the legislation and more information about any bureaucracy involved (the actual need to submit documentation, the types of documentation needed, the possibility or otherwise of delegating this aspect to the installer/supplier...)



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