

# TAKE THE CHALLENGE AND START THE 3R's

**Reduce, Reuse, Recycle.**

**Promoting zero-waste lifestyle among adults.**

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**SAVING  
ENERGY**



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## CLIMATE CHANGE, ENERGY AND SUSTAINABILITY

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The objective of this module is to establish a clear vision of the field of energy and its importance both in the economy and in daily life, its current importance as a scarce resource, the degree of incidence regarding global warming and the actions that are being taken, carried out at different levels of political decision.

At the same time, and as the main objective, different types of actions are proposed, which, especially from an individual point of view, can be implemented more or less easily in daily life and which can lead to an improvement in terms of environmental impact.

For this, the specific context or antecedents must be described; climate change and its relation to energy. Climate change is caused by the increase in the Earth's temperature (global warming) which comes from adding more greenhouse gases to the atmosphere than those occurring naturally add or without human intervention. These extra greenhouse gases mainly come from burning fossil fuels to produce energy, as well as from other human activities like cutting down rainforests, agriculture, farming livestock and the production of chemicals. Because of this, stable long-term strategies are crucial to help achieve the economic transformation needed and broader sustainable development goals, as well as move towards the long-term goal set by the Paris Agreement – holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C.

Energy has been proven as the main sector that creates GHG emissions that affect Climate change; thus, better energy production (green energy) and energy saving is essential to achieve global and local objectives related to climate change, and EU policies. These are the main greenhouse gases, their origin and relation to energy:

- **Water vapor.** It arises as a consequence of evaporation and its amount in the atmosphere depends on the temperature of the ocean surface. It is largely a natural process in which human action is not directly involved.

- **Carbon dioxide (CO<sub>2</sub>).** It is the most important in two senses; it is the most dependent on human activities and the main responsible for the greenhouse effect. The concentration in the atmosphere is mainly due to the use of fossil fuels for energy production, industrial processes and transport / mobility. Its emission comes from combustion processes (oil, coal, wood) or from volcanic eruptions or forest fires.
- **Methane (CH<sub>4</sub>).** Due mainly to fermentations produced by specialized anaerobic bacteria found in swampy areas, crops and in emissions from the intestinal tract of livestock. It is also produced by the leaks from natural deposits and industrial pipes.
- **Nitrous oxide (N<sub>2</sub>O).** Caused mainly by the massive use of nitrogen fertilizers in intensive agriculture. Also due to other sources such as thermal power plants, automobile exhaust pipes and aircraft engines, biomass burning, and the manufacture of nylon and nitric acid.
- **Chlorofluorocarbons (CFCs).** They are man-made chemical compounds that are present in small concentrations in the atmosphere but are extremely harmful in the greenhouse effect. They have multiple industrial uses in refrigeration systems, such as aerosol components, aluminum production and electrical insulators, among others.
- **Tropospheric ozone (O<sub>3</sub>).** Largely caused by burning polluting energy sources.

Moreover, to achieve objectives of energy saving is not only good to fight climate change and take care of our planet and animal species, but as well is obviously good for our economy, as doing this we learn to do the same with less resources and thus with a lesser energy invoice.

Nowadays is clear that the EU is achieving to create employments related to the green energy sector, maintain its activity, and save money at the same time. There are plenty of already proven technologies and techniques to achieve these results.

We are going to take a tour of the different areas in which effective solutions can be proposed and that are in our hands. In any

case, it should be noted that, in addition to the transition to green energy production and the progressive abandonment of fossil fuel consumption, it is increasingly important to save energy in a general way (individual behaviors and lifestyles, production of goods and services, insulation of buildings and homes ...), only in this way will we be able to get closer to achieving global and local objectives regarding climate change, and therefore to the objectives set by institutions such as the EU and the United Nations.

## MAIN INITIATIVES OF INTERNATIONAL ORGANIZATIONS

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Concern for climate change, and more generally for environmental issues, is not new to the main international organizations, and especially the European authorities. There are many international encounters and attempts that have been progressing in the conception of the phenomenon of climate change.

### MAIN EU ACTIONS

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The European Union has been one of the most active supranational entities in this regard, with a strong concern that is recorded in the main milestones reached.

- Energy and Climate Change Package 2013-2020
- Roadmap 2050
- Frame 2030
- European Climate Pact
- European Green Deal 2019
- European climate law 2021
- European Adaptation Strategy 2021

Expense information about EU policies and strategies related to better energy use and energy transition can be found in the following links:

1. EU Energy policy can be consulted here:

<https://www.europarl.europa.eu/factsheets/en/sheet/68/energy-policy-general-principles>

2. As well as EU Energy Strategy:

[https://ec.europa.eu/energy/topics/energy-strategy-and-energy-union\\_en](https://ec.europa.eu/energy/topics/energy-strategy-and-energy-union_en)

The EU has placed different policies aimed at reducing our consumption of energy and use it in a more intelligent way. That advances of the EU can be checked in the following link:

[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy\\_saving\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_saving_statistics)

## **DIFFERENT STRATEGIES AGAINST CLIMATE CHANGE: MITIGATION AND ADAPTATION**

Before continuing, it is necessary to make a distinction in the actions and strategies aimed at combating or facing climate change: Mitigation and Adaptation Strategies:

### **Climate change Mitigation:**

It refers to actions aimed at moderating or reducing net emissions of Greenhouse Gases (GHG) whose current levels have led us to the climate emergency in we are. Therefore, they are all those actions that seek not to increase the problem, to act today to stop the climate emergency

### **Climate Adaptation:**

Strategies that detail what we can do in the future and present to protect ourselves from the impact of climate change, seek to limit the risks derived from climate change, reducing our vulnerabilities

It is important to clarify that mitigation and adaptation are clearly complementary: without mitigation, our adaptive capacity will be more quickly overwhelmed. On the other hand, an adaptation that is not low in Greenhouse Gas emissions is meaningless, since it intensifies the change, whose effects are to be avoided.

Regarding this we can make several reflections, many of us have seen - and even experienced - the effects of climate change. However, it is not extreme weather like floods, droughts and hurricanes. Slower and less noticeable changes in our climate have the potential to completely alter the way we live. The changes produced by

climate change have the power to transform our world, affecting food and water supplies and our health. The bigger the problems, the more difficult and expensive it will be to solve them - which is why taking early action to deal with climate change is the best option. From the traditional economic logic, we are delaying certain costs, transferring negative externalities to the future, but this will imply that the cost will be much higher and that perhaps we can reach points of no return, with serious consequences in food production, scarcity of resources and even an increase in conflicts associated with these situations in the long term.

## **FACT AND COMMON PROBLEMS IN ENERGY SAVINGS**

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The question in energy is that it has been, is and will be a key sector, but at the present time, with the high degree of dependence of many territories and the increase in global consumption, both due to the increase in production and consumption, it means that energy becomes even more important, even as a geostrategic element.

Likewise, the geostrategic component and generator of employment makes it a particularly sensitive sector, in which any intervention is uncertain in economic terms from a macro point of view, even so we can speak of a certain transition to cleaner energies. These days, it should be noted that despite the problems posed by any transition, the EU is achieving the creation of jobs related to green energy, maintaining economic activity and saving money at the same time. There are plenty of already proven technologies and techniques to achieve these results.

As we propose in this project, it is necessary to act from an individual-collective logic, to develop actions at the micro level to achieve macro effects, which will allow many small improvements and energy savings, which in aggregate terms will be especially valuable. Our scope for action is limited, but it contributes to collective achievement.

It is necessary to fight the usual attitude that part of the citizenship shows in which it is considered that other institutions, organizations or states are the only ones responsible, to start assuming our

own part of responsibility as individual citizens, how we produce, how we consume, how we move. In addition to the fact that many contributions allow a change, we establish a strategy of visibility and exemplarity for others and of pushing towards institutions and companies, from the bottom up. Move from consciousness to individual action to achieve collective achievement. As indicated later, the data support that the European population is clear about the seriousness of the problem.

The EU has conducted a citizen European survey and the results are clear, as European citizens now identify climate change as the single most serious problem facing the world. Over a quarter of Europeans (29%) chose either climate change (18%), deterioration of nature (7%) or health problems due to pollution (4%) as the single most serious problem we face. Moreover:

- 93% of EU citizens see climate change as a serious problem and 78% see it as a very serious problem. 90% of respondents – and at least three quarters in each Member State – agree that greenhouse gas emissions should be reduced to a minimum while offsetting the remaining emissions, in order to make the EU economy climate-neutral by 2050.
- 87% think the EU should set ambitious targets to increase renewable energy and support energy efficiency.



## HOW TO TACKLE THE DESCRIBED ISSUE/PROBLEM? GENERAL AND PERSONAL LEVEL

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There are different ways to expand our knowledge and skills to be able to act in an increasingly responsible way and in accordance with the care of the environment. Especially thanks to new technologies we have the ability to expand our knowledge about human action (more and more measurement and sensorization of space is greater) and on the other hand, the tools and ways of dissemination are multiplying, being able to orient efforts to different audiences' objective.

Doing a simple search on the internet we can find various guides and projects to guide action on energy saving, guides that are usually relatively easy to follow and that provide advice adapted to different areas. It must be taken into account that many of the contents of these tools will be conditioned by the place where you live, others, however, may be easily exportable or interchangeable in different European countries.

Another very useful resource is the private initiative platforms that have been created to cover certain needs and / or promote certain guidelines or lifestyles in line with energy saving. In this sense, those solutions of the so-called collaborative economy that help to expand the servitization of certain assets for private use stand out, as is the case of the private vehicle through car-sharing in all its modalities.

Also, it is necessary to highlight institutional platforms aimed at increasing awareness or providing certain answers to the subject at hand, in this sense the following are a good example of educational platforms whose contents or experiences can be applied at the local level. They collect both results and a compendium of actions to take into account, with different levels of complexity:

- Initiative of the county council of Granada EN CLAVE DE SOL: [www.enclavedesol.eu](http://www.enclavedesol.eu), a traveling exhibition that has traveled throughout the province of Granada and is currently available online with the aim of promoting a new energy model.

- **“Euronet 50-50”** (<http://www.euronet50-50max.eu/en/>) which aims to mobilize energy savings in public buildings by applying the 50/50 methodology in 500 schools and nearby of another 50 public buildings in 13 EU countries. The 9-step methodology increases the energy awareness of building users and actively involves them in energy saving actions. The financial benefits obtained are shared equally between the users of the buildings and the local authority that pays the energy bills. It won the 2013 European Prize for Sustainable Energy. Thanks to the new project the 50/50 network will be extended across Europe with the participation of new schools and other public buildings. The tool is in several languages and we propose to follow it as an activity.
- **Our planet, our future. Fighting Climate change together.** Specific informative platform to help citizens understand why change is necessary and what we can do about it, including a “teacher center” that contains classroom exercises and relevant materials for the “Causes”, “Impacts” and “Solutions”. Made from the EU
- [https://ec.europa.eu/clima/sites/youth/solutions\\_en](https://ec.europa.eu/clima/sites/youth/solutions_en)
- [https://ec.europa.eu/clima/sites/youth/teachers\\_en?field\\_clmtl\\_topic\\_tid\\_i18n=61](https://ec.europa.eu/clima/sites/youth/teachers_en?field_clmtl_topic_tid_i18n=61)
- **Energy Neighborhoods Project guidelines:** A very useful database to search for actions and different matters related to energy.
- <https://ec.europa.eu/energy/intelligent/projects/en/projects/en2>
- **Spanish national energy agency guide:** Finally, we want to highlight a Spanish national guide with a large number of resources and tips.
- <http://guiaenergia.idae.es/>

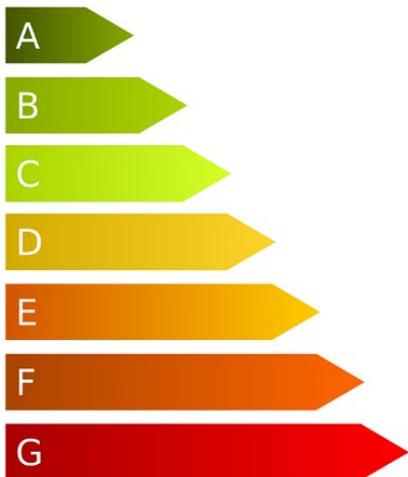
We also propose two practical activities to do.

## ACTIVITY 1: CARRY OUT MEASUREMENTS IN THE HOME WITH AN INFRARED THERMOMETER FOR DOMESTIC USE.

Since the insulation of the home is one of the aspects that most influences the energy consumption of a home, it may be an opportunity to work on an activity that increases awareness. It is proposed to make measurements at different points in the house and at times of the day, making a small follow-up in a table that can later be extrapolated to a small graph, in addition, these data can be contrasted with those of classmates or with data from the school. This device is not an extremely sensitive tool like professional devices for detecting thermal leaks, but it does have the necessary sensitivity for this activity and it may also be available in many homes since it is an increasingly common object.

It is proposed to make a sketch of the house and 4 different points are chosen: Glass of a main window, window frame or profiles, main façade wall, secondary façade wall. A measurement would be made at two different times of the day (with sun and at night) to compare the energy leaks at both times.

The result will make it possible to become aware of how the use of some materials or others generates significant energy losses.



## **ACTIVITY 2. ANALYSIS OF CONSUMPTION THROUGH SMART METER ACCESS APPLICATIONS**

Another proposal is to carry out an analysis of consumption patterns in the home and the consumption of certain electrical appliances, through access to the smart electricity meter.

The implementation of the smart metering system is not similar in all countries, but this activity is proposed for cases where it is possible. It is a very practical activity, where through the platforms of electricity distributors a basic analysis of family consumption can be carried out, in order to be aware of their own consumption patterns that are carried out, and therefore how we could try to reduce that consumption. Although each electricity marketer has a different format, the following data can usually be seen through the different platforms:

- Record with hours and consumption
- Record by days
- Maximum consumption peaks
- Possibility of seeing consumption in real time (connecting and disconnecting electrical appliances, for example, when turning on the oven, the power peak could be seen).

In general, it provides different statistics that are very useful to be able to make certain decisions at home, optimize consumption or even to assess the possibility of changing the company or the type of contract depending on the use made.

Of course, there is a lot of other materials in each country in local languages, our suggestion is to ask the national ministry related to energy or environment, that usually promotes different campaigns and/or educational material related to the topic.

Without intending to be exhaustive, we are going to collect here some of those that we consider may be more relevant and/or useful, synthesizing from different sources, both European projects, institutional information, as well as companies in the sector.

There are some general actions to be taken:

- Look on how you move yourself; whenever possible go in ac-

tive modes (walking/cycling) or in public transport. When not possible, share your trips, and try to use cleaner vehicles.

- Check how you use lights in the rooms you are, try to change those lights for other that consume less energy, use the lights only when needed and take advantage of natural light when possible. The use of clear colours is an option to reduce the need of light.
- Look on how you use heating and cooling systems, can you reduce the energy consumption by wearing other type of clothes? It is possible to better adjust the thermostats? Do you leave open windows and doors?
- When using home appliances, buy efficient ones when possible, use their efficient working programs when possible, and check how you use those to be more efficient (don't leave fridge door open, use adequate programs in the dishwasher, etc.)
- When you cook, use residual heats when possible, close the pans to heat faster, and do not put hot things in the fridge.
- When you buy things, those needed an amount of different resources, including energy. Think about it and see the real use of those things or if there is an option to share the product or rent it.

As well, actions that are more specific are presented grouped by themes:

### Sustainable mobility

On the subject of mobility, the marginal gains for each person who leaves the private vehicle are very high, it is necessary to reflect on the way we move, whenever possible go in active modes (walking / cycling) or in public transport. When not possible, share your trips, and try to use cleaner vehicles.

The recent advancement of electrical devices for individual use may be an avenue to explore for those who cannot enjoy the above options, especially when green energy production solutions are spread in cities.

## Domestic environment

- **Ironing.** Do not iron what is not necessary, do the maximum amount of clothes possible at one time, start with the clothes that need less ironing, continue with those that need more ironing and end up taking advantage of the residual heat for those that need less.
- **Refrigerator.** Make a planned use to avoid opening it excessively (Eg. Put the yogurts or the cans already separated previously so as not to do it inside). It is also necessary to adapt the temperature to the season of the year and the volume of products, avoid placing the refrigerator next to heat sources. Do not put hot food in the refrigerator.
- **Washing machines and dishwashers.** Avoid washing with unnecessary temperature, as well as using them at half load. Avoid pre-washes whenever possible and try to use the eco programs if you have them.
- **Dryer.** Whenever possible, avoid its use or use it to finish drying clothes after a first drying in the open air.
- **Devices on stand by.** It is necessary as far as possible to avoid the use of this option, for example through power strips to disconnect several appliances at once, or also through the use of smart plugs.
- **Cooking.** In addition to a good selection of the most efficient appliances, a good planning of the menus is important to cook adequate quantities (double servings for another day, cook several dishes in the oven at the same time...). It is also important to know the actual cooking times of food and the use of timers, the use of residual heat, the choice of pans and pots that optimize energy, either by more efficient materials (eg cast iron), type of construction (thick base) or cooking mode (pressure cookers) and using lids to concentrate the heat.
- **Maintenance of household appliances.** In some cases, simple maintenance actions will facilitate gains in energy savings such as cleaning the refrigerator coil, cleaning the oven, purging the radiators, maintaining the heating pressure.

- **Lighting.** Substitution of light bulbs by the most efficient modalities and in cases where it is appropriate to establish presence sensors to avoid forgetting when turning off the lights. The use of clear colors is an option to reduce the need of light.
- **Windows and doors.** If the windows are not very efficient, the ideal is to replace them, for which there are a multitude of very advanced technical options and at this time the availability of public subsidies for this. If they cannot be replaced, it is necessary to put weatherstripping and even curtains that create some insulation.
- **Heating.** Maintain the comfort temperature by controlling the opening of windows, and adapt to a reasonable temperature according to the time of year, adapting our clothing to it. It is also important to ensure that heating installations have good thermal insulation. In the field of heating, there is a very high potential for savings using complex or simple home automation systems, such as a basic open window warning system. The use of smart thermostats that allow calculating optimal use for air conditioning can be especially useful. Take advantage of natural light for air conditioning, use of blinds and awnings, cross ventilation, adapting these actions to each area, for example, the use of colors to take advantage of irradiation (dark awnings in winter and light in summer). The use of fans as an alternative to air conditioning is also very useful, especially ceiling fans and with a programmer.
- **Other domestic aspects.** The hot water temperature can be regulated, getting used to a lower comfort temperature and trying to shower in the bathrooms closest to the water boiler.

## Work environment

In workspaces, you can act from management or individually. From the organization:

- Promote telework days as much as possible
- Promotion of sustainable mobility. Create collective or coordinated transportation systems. Promote bicycle transportation policies. In this regard, there are many options, such as applications that are based on gamification such as the competition of kilometers on a work trip by bicycle.
- Adapt lighting and heating with smart sensors.

## Individual Actions

- As far as possible, adapt our clothing to the temperatures of the work space
- Analyze the electronic devices of habitual use for a correct use, an example could be to configure the computers in the most sustainable configurations, to use the screen shutdown.

## Responsible consumption

- The production of goods and services largely involves the use of energy, as consumers we must be responsible and proactive, ask ourselves if we really need the products that we are going to buy, what more sustainable alternatives are there, and try to buy zero kilometer products or short distribution chains.
- Despite the fact that in today's society repair is not always the cheapest option, it is necessary to increase the rate of repair of household items.
- It is also necessary to take into account, with respect to certain goods, to what degree we do not need your property and we do need its specific and limited use as a service eg. Motorbike or electric bike. Collaborative platforms have been a catalyst in this regard and their use must be encouraged.
- Take advantage of the information provided by labeling systems such as the efficiency of household appliances or homes to make conscious and responsible purchases

## Renewable energies and home: photovoltaic

In this document, we are interested in considering the options that for to existing homes, for new homes there are increasingly demanding standards, especially in insulation.

Although for domestic use there are other sustainable energy options such as biomass, photovoltaic becomes the main option to consider. Its benefits exceed the individual, starting with the obvious environmental benefits, but also the ability to increase the degree of energy autonomy (and its geopolitical consequences) and to loosen the energy grid system by creating a more decentralized and optimized system, avoiding energy losses.

### Profits

- Clean energy without disturbances, compared to other options, and except in the case of places with special protection (natural or patrimonial) there are usually no problems.
- Long duration. The cost of the installation is easy to amortize since it is very durable equipment, with an average of 25 years of useful life.
- Low maintenance. Maintenance is very easy, on many occasions, it is enough to carry out the established periodic reviews, and as it is managed electronically, it is easy to detect possible errors or malfunctions.
- Savings. Especially in recent years, the decrease in the cost of the bill is increasing with these systems, especially due to the increase in the cost of energy. Now market conditions make it interesting.

### System and Modalities

Energy production can be done in two ways, centralized or distributed, which is when energy is created at the same point it is consumed. Specifically, the domestic photovoltaic system is made up of the following elements:

- Solar panels: or similar devices (solar tiles, glass...), fixed to the roof or other surface by means of a structure
- Other connection elements such as inverters, cables and connectors.

- **Battery storage system**, this would be an optional component

These systems can work in different ways:

- **Turning your energy into the general network**
- **Consuming directly the energy produced**
- **Storing the energy produced for later use.**

With the previous three options and depending on the regulations of each country and the choice of the consumer-producer or “prosumer”, different combinations can be made to create multiple complex mixed systems. In any case, the current trend is towards self-consumption, and in this sense the regulations have gone from encouraging the transfer of energy (via “feed in tariff” premiums) to encouraging consumption at the point of production. So it ends up being more profitable for the “prosumer” consumption.

The photovoltaic model has evolved a lot not only from the technical point of view of efficiency. Legislative changes in the sector and the lowering of its cost imply the possibility of adopting different modalities, including even participation in solar production initiatives without having space for it thanks to the so-called energy communities and virtual solar plants. This are new formulas that extend the possibility to more citizens and not only to those who enjoy certain material conditions (location, space, orientation, individual housing...)

### **Installation Decision**

In the case of wanting to assess the possibility of making a solar installation, a series of parameters must be taken into account to make the decision:

- **Prioritization of actions:** The basic condition, especially for self-consumption, is to achieve good insulation and then consider the option of solar production.
- **Analysis of personal casuistry:** Analysis of one’s own habits or lifestyle (quantity of consumption, hours in which it is consumed...) and the necessary dimensioning, current regulation (if there is a net balance system, if it is worth dump energy)
- **Material capacity:** If the conditions are met to do so, there are no legal limitations, good condition of the house in which it is

going to be installed, especially the roof, solar irradiation, absence of shading... In this sense there are some tools (sig's and online calculators) for a first approach to the subject [https://joint-research-centre.ec.europa.eu/pvgis-photovoltaic-geographical-information-system\\_en](https://joint-research-centre.ec.europa.eu/pvgis-photovoltaic-geographical-information-system_en)

## **ROLE OF STATE SUBSIDIES**

In many of the previous tips, we talk about the benefits that the substitution of certain goods for other more efficient ones (vehicles, windows, electrical appliances ...) can bring, but the obvious cost implies a brake that. If we want a change to take place relatively fast, in most cases for the average citizen only possible if there are certain economic incentives or subsidies. A recent positive example is the bicycle buying campaigns carried out in Italy.

In this sense, the existence of national programs to promote the substitution of these goods, either by financing part directly or by means of tax deductions, is usually common. This mechanism must be fine-tuned to achieve maximum efficiency, preventing bureaucratic obstacles from preventing its execution or altering market prices.

Regarding economic aid for energy efficiency, in the context of the next generation funds, a very ambitious system is being articulated that will allow the rehabilitation of both public buildings, neighborhood communities, as well as private homes.

## **MAIN CHALLENGES**

It is evident that the main challenges are multiple and a synthesis is difficult, but we believe that as a first approximation the following challenges should be highlighted:

- **Resistance to change.** People tend to keep doing things the way they have been doing over time. Both personal guidelines and cultural guidelines associated with the culture to which they belong imply a way of acting. Therefore, certain changes imply a degree of initial discomfort that must be overcome,

through awareness-raising and through the aforementioned tools, cultural change is possible. And these small changes achieve a degree of individual commitment that goes beyond simple social demands, little by little, which is confirmed in the new generations, there is an ethical commitment that will be a fundamental impulse for the necessary changes. In this sense, a creative approach is necessary to achieve both attention and commitment.

- **Belief systems**, although we live in the knowledge society and with an unparalleled degree of scientific and technical development, there are still belief systems that deny widely contrasted empirical realities, such as the denial of climate change or the false trade-off between economic development and sustainability. In this sense, although it is difficult to break this barrier, it is necessary to be persistent and continue with awareness-raising efforts to try to reduce the effect of these approaches.
- **Private interests not aligned with sustainability**, especially in productive economic dynamics, short-term views predominate and above all a tendency not to take into account the externalities of the economic process. However, this economic approach is changing intensely, whether due to brand image objectives, citizen demands, legislative push, or due to conviction, companies are increasingly aware of and committed to responsible and sustainable production.
- **Cost in terms of employment**, it is evident and true that certain actions with an environmental focus have a short-term cost with respect to employment. However, in many cases the opposite effect is not taken into account, in which not only new sources of employment appear, but also a driving effect on the economy. In this sense, the states have a difficult task to combine the necessary maintenance of the existing economic dynamics and at the same time discourage certain sectors or industries such as everything related to fossil fuels. In many cases, social protest can represent a considerable brake on the push that states can exert, both in economic and legislative terms.

## **EXPECTED RESULTS IF WE CAN APPLY THE CURRICULUM AND IMPLEMENT CHANGES IN OUR BEHAVIOUR**

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Talking about the consequences in the short or long term of actions like those mentioned, can simply become a wish list falling into generalities if we are not minimally rigorous, which is difficult. However, thanks to the results provided by the European Energy Neighborhoods document, there is evidence that as a consequence of the change in behavior in energy matters there is a potential of saving nearly 20% of energy consumption with low-cost or zero-cost measures. So the potential of real impact after promoting educational materials among young adults is huge. This implies net improvements, together with an increase in the degree of environmental commitment, which probably extends to other facets of each person.

Moreover, in marketing is well known the fact that the best advertisement is the advice of a relative, this is "word of mouth". Because of this the implementation of successful educational materials among citizenship will promote them to become new promoters of the need to save energy and use it in a better way, and enlarge the impact to other wider audience.

# RESOURCES

## Institutions

- FEDARENER: <https://fedarene.org/>
- MANAGENERGY: <https://www.managenergy.net/>
- COVENANT OF MAYORS: <https://www.covenantofmayors.eu/>
- National Contact Points: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/ncp>

## EU Policies and Facts

- General principles on energy policy: <https://www.europarl.europa.eu/factsheets/en/sheet/68/energy-policy-general-principles>
- EU Energy Strategy: [https://ec.europa.eu/energy/topics/energy-strategy-and-energy-union\\_en](https://ec.europa.eu/energy/topics/energy-strategy-and-energy-union_en)
- EU Climate Action: [https://ec.europa.eu/clima/policies/eu-climate-action\\_en](https://ec.europa.eu/clima/policies/eu-climate-action_en)
- EU Statistics on Climate Change: <https://ec.europa.eu/eurostat/web/climate-change>
- EU Energy Saving Statistics: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy\\_saving\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_saving_statistics)

## Facts and Educational materials

- EU site for youths on Clima: <https://ec.europa.eu/clima/sites/youth/>
- EU site for youth Teachers on Clima: [https://ec.europa.eu/clima/sites/youth/teachers\\_en?field\\_clmtl\\_topic\\_tid\\_i18n=61](https://ec.europa.eu/clima/sites/youth/teachers_en?field_clmtl_topic_tid_i18n=61)
- Satellite information about Climate Change: <https://climate.copernicus.eu/ESOTC/2020>
- Affection to daily life of Clima: <https://www.edf.org/card/7-ways-climate-change-affecting-daily-life>
- National Geographic Climate Change: <https://www.national->

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Take the challenge and start the 3R's

# Reduce. Reuse. Recycle.

Promoting zero-waste lifestyle among adults.

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