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## Policy Paper on Climate Action



Adopted by the participants of the Erasmus+ Support for policy Reform European Youth Together project 'YOU.th RO.und TRIP. For climate action project during the mobility in Madrid, Spain

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## Executive Summary

In the 2030 Agenda for Sustainable Development, Member States express their commitment to protect the planet from degradation and take urgent action on climate change. At the same time Education and skills, and environmental protection and fighting climate change are considered priority topics by at least half of the respondents to European Youth Eurobarometer survey published in January 2018. President Juncker mentioned that European young people are less engaged in traditional forms of participation despite their interest in politics. The paradox which appears is that Member states must design policies to combat climate change which will affect youth's lives in a couple of years, while the latter do not seem to be very interested in voting and engaging with decision making. YOUROTRIP project (short for "YOU.th RO.und TRIP for climate action") aspires to foster youth participation in democratic procedures of decision making through discussions on the high priority topic of climate change.

Through YOUROTRIP project, young people from Greece, France, Spain, Portugal, United Kingdom, Denmark, Romania and Austria met, formed 'Local Youth Councils', discussed and came up with ideas which are recommending as solutions to climate change. In the context of YOUROTRIP project young people met in January 2022 in Spain and discussed about the topic of "Renewable Energy", and in this document, are their policy recommendations on this matter.

## Introduction

Climate change is the long-term changes in Earth's climate and weather patterns. It took nearly a century of research and data to convince the majority of the scientific community that human activity can alter the climate of the entire planet. It was only in the early 19th century that ice ages and other natural changes in the paleontological environment were first suspected, and the natural greenhouse effect was first identified. The UN climate summit confirmed that "1.5" is the socially, economically, politically and scientifically safe limit for global warming by the end of this century and has set a deadline for achieving net zero emissions by 2050.



Thus, in order to even have a chance of maintaining our environment, humanity is said to be through one of the fastest changes in daily life. Unfortunately, climate change cannot be prevented, but it can be slowed down with the right policies, programs, and education so that the world can adjust to the changes in temperature. Therefore, if mankind hopes to have a chance against climate change, action must be taken.

Renewable energies are beneficial to the climate crisis in the following main ways:

- They produce little to no global warming emissions.  
The greenhouse gas emissions connected with renewable energy are negligible, even when "life cycle" emissions of clean energy are taken into account (i.e., emissions from each step of a technology's life: manufacturing, installation, operation, and decommissioning). (1)
- They improve public health by generating electricity with no associated air pollution emissions.  
Indeed, overall air emissions from geothermal and biomass systems are often significantly lower than those from coal- and natural gas-fired power stations. Additionally, since wind and solar energy effectively don't need any water to run, they don't contaminate water supplies or put a pressure on them by competing with agriculture, drinking water, or other crucial water needs.
- Are a source of inexhaustible energy.  
Strong winds, bright skies, a lot of plant matter, earth's heat, and swift water can all provide a lot of energy that is constantly renewed. Currently, studies have consistently shown that renewable energy sources may supply a sizeable portion of future electricity needs, even when potential limits are taken into account [2].
- Provide jobs and further economic advantages.





The renewable energy sector requires more work than fossil fuel technologies, which are frequently mechanized and capital-intensive. Humans are required to install solar panels, while specialists are required to maintain wind farms.

- They can provide stable energy prices.  
Although building renewable facilities requires upfront investments, once they are operational, the cost of ownership is very low (the "fuel" for most clean energy technologies is free). As a result, the cost of renewable energy over time may be fairly stable.
- They are characterized by resilience and dependability  
Because they are scattered and modular, wind and solar power systems are less likely to fail drastically. Because distributed systems span a wide geographic area, a severe weather occurrence in one area won't knock out power for the entire region. Numerous individual wind turbines or solar panels make up modular systems. Most of the system's equipment can still function even if some of it is damaged.

The promotion of renewable energies may be recognized as necessary and beneficial, but there is still too much space for improvement. The young people that participated in the YOUROTRIP Mobility in Spain in January 2022, have thought of some ideas and solutions that they would wish to see become a reality both in local and national level as well as European and International Level.

## Analysis

There are many problems in renewable energy nowadays:

- The installation's high initial cost.  
Global warming is mostly caused by carbon emissions. To enhance its use, numerous initiatives have been made. Cost, however, is a significant issue influencing its acceptance. The expensive initial cost of installation is one of the obstacles in the way of its development. Solar and wind energy are the least expensive energy sources available. The upfront installation costs of a



solar power system and a gas-fired plant, however, differ significantly. Large-scale solar power system installation costs average \$2,000 per kilowatt. Similar to how it costs roughly \$3,700 for a small-scale home system and only \$1,000 per kW for a new gas-fired plant. Undoubtedly, the large variation in installation prices is important. Investors and lenders view renewable energy sources as high risk due to their high upfront installation costs, in contrast to fossil fuel facilities, which have lower construction costs.

- Inadequate infrastructure

When lifespan costs are taken into account, wind and solar energy might be more advantageous investments. Infrastructure deficiency hinders the growth of renewable energy sources. The infrastructure that is now in place is mostly designed for nuclear and fossil fuel facilities. The current energy system needs urgent modification since it cannot handle significant volumes of renewable energy. The fact that some of its best sources have no infrastructure at all is most essential. The aging of the electricity grid is the fundamental issue. In the 1950s and 1960s, the majority of electric transmission and distribution lines were built. Its lifespan of 50 years has already passed. As a result, they are unable to handle the urgent needs and drastic climatic fluctuations.

- Power Storage

The most significant disadvantage is the lack of power storage at a reasonable price. At specific periods of the day, renewable energy sources provide the majority of their energy. The peak hours of demand are not met by its electrical generation. Sunlight and wind are sporadic, thus they cannot serve as an on-demand power source seven days a week. Wind and solar power are unpredictable. Both generation and loads are subject to instability.

- Monopoly on non-renewable energy

Non-renewable energy sources currently hold the lion's share of the global energy market. This undoubtedly presents yet another challenge. Renewable energy sources like solar, wind, and others must compete with the well-established fossil fuel sector. The government heavily supports the fossil fuel business even if it offers subsidies and other forms of support for solar energy. By discrediting climate change, the fossil fuel business prevents the use of clean energy. The best method to combat climate change is through







the use of renewable energy sources. Humans have used fossil fuels for a very long period. As a result, it is deeply ingrained in the national economy.

- Lack of knowledge and awareness

People are hesitant to embrace renewable energy technologies because they lack understanding and awareness of it. In populated locations, fossil fuel plants are typically located. Given that it requires a large workforce to operate, it provides employment for the community. The substantial property tax from fossil fuel plants will benefit the neighborhood.

- Lack of regulations, subsidies, etc.

Renewable energy technologies are not widely accepted because there aren't enough regulations, incentives, subsidies, and policies that support them. The market for renewable energy needs transparent laws and regulations in order to draw investors. In other words, in order to strengthen the market for renewable energy, the government must introduce and carry out support programs. The transition from the venerable fossil fuel business to the renewable energy sector is still hampered by corporate lobbying, political pressure, and fundamental dependence on fossil fuels.

## Good practices

Good practices concerning Climate Action and Renewable Energies were presented in workshops. Also, the participants discussed good practices existing in their home countries. The exchange of ideas occurred in an intercultural level where the participants used some EU countries as an example concerning the use of renewable energies in relation to the other present countries. Some good practices that were presented and discussed were the following:

### St Joseph's infants, Croydon

St Joseph's sells the excess electricity created by its solar panels back to the national grid. Teachers say the school is setting an example to the community by providing a working example of renewable energy technology. A display unit allows pupils and visitors to monitor energy production, giving children the chance to learn about the environment, technology and economics.



### Beaumont primary, Suffolk

Beaumont installed a wind turbine two years ago that generates enough electricity each day to run all the computers in the ICT suite. "The children have quickly taken on board the whole concept of renewable energy," said the headteacher, Stella Burton. "We are sure that they will use the knowledge and understanding that they have gained to improve their future lives and the lives of those around them."

### Morgan academy, Dundee

Morgan academy received £100,000 of Scottish government funding to install ground source heat pumps (boreholes for which are being dug here) that heat the atrium and assembly hall. The school was also awarded funding under the PV programme to install a solar energy system to power the pumps.

### Gunnersbury Catholic, Hounslow

Mounted on the roof of the science block, the school's 1.5kWp solar installation received funding from Scottish Power and the PV programme. A display unit allows pupils, visitors and teachers to monitor energy production and carbon dioxide savings, with the information analysed in science classes

### Nidderdale high, Harrogate

Nidderdale raised more than £90,000 in funding to install its wind turbine two years ago. The school says the installation has saved nearly £3,000 a year with the turbine meeting 15% of its electricity needs.

### Luis Vives, Leganes

Through their project named EcoLab, this school now has a charging point for electric vehicles that are charged through photovoltaic electricity. They have a study container dedicated for students, that has the latest technology, is linked to the same solar energy panels and has mechanical ventilation with heat recovery. They've also implemented a system of recovery for gray water.





## Conclusion

Renewable energy is frequently cited as the most important shift the world can make to fend off the worst consequences of global warming and climate change. This is due to the fact that renewable energy sources like solar and wind don't produce greenhouse gases like carbon dioxide, which contributes to global warming.

More benefits exist for clean energy than merely being environmentally friendly. The expanding industry boosts employment, strengthens the resilience of electric networks, increases access to energy in underdeveloped nations, and lowers energy costs. All of those elements have helped to fuel a resurgence in renewable energy in recent years, with wind and solar power generating more electricity than ever before.

Fossil fuels are a limited supply even in the absence of climate change, so we must switch to renewable energy sources if we wish to extend our lease on the planet.

## Recommendations

### Transition from fossil fuels to renewable energy

- We suggest to invest in research and development of renewable energy and analyze regions, deciding which form of energy production is the most suitable per region (windmills, solar panels, water, biomethane green gas biofuel from algae production).
- We also propose the exportation of renewable- energy productions outside the EU.
- We also propose to set tax-reduction for energy producers in the EU in order to promote the transition from fossil fuels to green and renewable sources. More specifically, we propose that the European Union demands that every country cuts their carbon emissions by 9% every 4 years. This will help the European union overview how the countries are handling the climate crisis and make sure that the countries actually make the changes necessary to stop the temperature from rising to over 2%. If the







EU had more targets over a shorter period of time, it would be able to distribute funds to the countries that meet the targets and make the countries that don't comply pay a fine. This would incentivize the countries to make changes now rather than wait until it's too late.

### Renewable energy at individual level, public sector, and rural areas.

We suggest enabling individual accessibility to renewable energy production / sources (to assist state-level transition) and to set achievable goals for the transition of public infrastructure (schools, hospitals, etc) to make use of renewable energy – and set example for the private sector as well. Rural areas should be considered as a main target for renewable energy since some of them may not have access to any energy at all.

Concerning the use of renewable energy in public infrastructure, we recommend

- At least 60% of energy used to be renewable.
- Rainwater should be collected and used for facilities.
- These changes should be financially supported by public and EU funds, but also from private donations.

### Use of algae as biofuel

Algae fuel, algal biofuel, or algal oil is an alternative to liquid fossil fuels that uses algae as its source of energy-rich oils. Also, algae fuels are an alternative to commonly known biofuel sources, such as corn and sugarcane.

Like fossil fuel, algae fuel releases CO<sub>2</sub> when burnt, but unlike fossil fuel, algae fuel and other biofuels only release CO<sub>2</sub> recently removed from the atmosphere via photosynthesis as the algae or plant grew.

The energy crisis and the world food crisis have ignited interest in algaculture (farming algae) for making biodiesel and other biofuels using land unsuitable for agriculture. Among algal fuels' attractive characteristics are that they can be grown with minimal impact on fresh water resources, can be produced using saline and wastewater, have a high flash point, and are biodegradable and relatively harmless to the environment if spilled.





In comparison with terrestrial-based biofuel crops such as corn or soybeans, microalgal production results in a much less significant land footprint due to the higher oil productivity from the microalgae than all other oil crops. Algae can also be grown on marginal lands useless for ordinary crops and with low conservation value, and can use water from salt aquifers that is not useful for agriculture or drinking. Algae can also grow on the surface of the ocean in bags or floating screens. Thus microalgae could provide a source of clean energy with little impact on the provisioning of adequate food and water or the conservation of biodiversity. Algae cultivation also requires no external subsidies of insecticides or herbicides, removing any risk of generating associated pesticide waste streams. In addition, algal biofuels are much less toxic, and degrade far more readily than petroleum-based fuels. However, due to the flammable nature of any combustible fuel, there is potential for some environmental hazards if ignited or spilled, as may occur in a train derailment or a pipeline leak. This hazard is reduced compared to fossil fuels, due to the ability for algal biofuels to be produced in a much more localized manner, and due to the lower toxicity overall, but the hazard is still there nonetheless. Therefore, algal biofuels should be treated in a similar manner to petroleum fuels in transportation and use, with sufficient safety measures in place at all times.

Studies have determined that replacing fossil fuels with renewable energy sources, such as biofuels, have the capability of reducing CO<sub>2</sub> emissions by up to 80%. An algae-based system could capture approximately 80% of the CO<sub>2</sub> emitted from a power plant when sunlight is available. Although this CO<sub>2</sub> will later be released into the atmosphere when the fuel is burned, this CO<sub>2</sub> would have entered the atmosphere regardless. The possibility of reducing total CO<sub>2</sub> emissions therefore lies in the prevention of the release of CO<sub>2</sub> from fossil fuels. Furthermore, compared to fuels like diesel and petroleum, and even compared to other sources of biofuels, the production and combustion of algal biofuel does not produce any sulfur oxides or nitrous oxides, and produces a reduced amount of carbon monoxide, unburned hydrocarbons, and reduced emission of other harmful pollutants. Since terrestrial plant sources of biofuel production simply do not have the production capacity to meet current energy requirements, microalgae may be one of the only options to approach complete replacement of fossil fuels.

Microalgae production also includes the ability to use saline waste or waste CO<sub>2</sub> streams as an energy source. This opens a new strategy to produce biofuel in





conjunction with waste water treatment, while being able to produce clean water as a byproduct. When used in a microalgal bioreactor, harvested microalgae will capture significant quantities of organic compounds as well as heavy metal contaminants absorbed from wastewater streams that would otherwise be directly discharged into surface and ground-water. Moreover, this process also allows the recovery of phosphorus from waste, which is an essential but scarce element in nature – the reserves of which are estimated to have depleted in the last 50 years. Another possibility is the use of algae production systems to clean up non-point source pollution, in a system known as an algal turf scrubber (ATS). This has been demonstrated to reduce nitrogen and phosphorus levels in rivers and other large bodies of water affected by eutrophication, and systems are being built that will be capable of processing up to 110 million liters of water per day. ATS can also be used for treating point source pollution, such as the waste water mentioned above, or in treating livestock effluent.

#### Use of biomass as a future renewable energy

Biomass can be extracted from a lot of sectors. The personal consumption of an individual can leave behind lots of opportunities for the creation of biomass such as leftover food, excrements and more. Action is also needed on an industrial level. Industries such as the meat- and dairy-industry and the producers of fruits and vegetables have a vast amount of residue which can be produced into biomass. All of this creates a unique opportunity to turn – what would usually be considered as garbage – into biomass. All that residue – if not collected for biomass – would just be left to decompose, and thus emit CO<sub>2</sub>. The CO<sub>2</sub> being emitted is a part of the natural process of decomposition, but by turning in to biomass, we extract valuable energy throughout the process.

For biomass to be sufficient, it must be implemented on a wide scale. For this reason, we recommend the implementation of garbage-sorting. This will be used on an individual level as well as on an industrial level. There are possibilities to incentivize this such as; tax-reduction for companies that distribute their organic waste and a similar model for private homes





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