Committee: Special Conference on Reaching Net-Zero (SPECON)

Issue: Establishing the appropriate global economic foundation for the transformation towards Net-Zero

Student Officer: Ioannis Simitzoglou

Position: Deputy President

PERSONAL INTRODUCTION

Dear delegates,

My name is Ioannis (Yiannos) Simitzoglou, I am sixteen years old and in the eleventh grade at Pierce - The American College of Greece. It is my honor to serve as a deputy president of the Special Conference on Reaching Net-Zero (SPECON). I would first and foremost like to welcome you all to the 7th session of the ACG-MUN. The issue of establishing the appropriate global economic foundation for the transformation towards net zero is of supreme importance for global stability and calls for an immediate and effective response.

Before our meeting at the conference, you are expected to carry out research of your own, regarding your country's interests and specific research on our committee's topics. This study guide is meant to act as a foundation for your work and should not be your only means of preparation. Any and all questions are welcome to my email i.simitzoglou@acg.edu, so please do not hesitate to ask whatever may be troubling you and holding you back from regarding this conference.

Looking forward to meeting and collaborating with you,

Yiannos

TOPIC INTRODUCTION

The global imperative to curtail carbon dioxide and other greenhouse gas emissions is underway, carrying profound implications. Human activities continue to release emissions that are wreaking havoc on our planet, pushing us further towards an irreversible climate crisis.

Leaders in governments, scientific communities, and industries worldwide have reached a consensus on the urgent need for action to stave off further global warming. The Paris Agreement states that we must cap the rise in global average

temperature at 1.5°C. Achieving this necessitates a substantial reduction in carbon dioxide emissions by roughly 50% by 2030, ultimately culminating in net-zero emissions by 2050[1].

Global warming presents formidable perils. The empirical evidence underscores a consistent uptick in the Earth's temperature, presently resting at 1.2°C above pre-industrial levels. Although this may appear incremental, the tangible consequences are already manifesting. Erratic weather patterns, such as prolonged heatwaves, devastating floods, and severe storms, punctuate the landscape. Furthermore, observable shifts in climate include the diminishing polar ice, acidification of oceans, and the rise in sea levels.

Should current global policies persist, the trajectory points toward a potential 2.7°C rise in global temperatures by the turn of the century. Such an escalation could render substantial swathes of the planet uninhabitable, amplifying the urgency for a concerted global effort toward achieving net zero emissions.

Climate change impacts all of us because it brings hotter temperatures and unexpected floods, which have a negative impact on the climate. Solving these challenges requires a range of resources, from individual actions like using energy-efficient appliances to large-scale projects like building dams. However, sometimes the costs are too high for individuals or even entire nations to handle. This creates an unfair situation where those with fewer resources, who are less responsible for the problem, face the greatest hardships. Historically, wealthier nations have been the main contributors to greenhouse gas emissions, while less affluent nations with fewer industrial activities have played a smaller role in overall emissions.

DEFINITION OF KEY TERMS

Actors

"Countries, local governments, companies, and financial institutions committed to achieving net zero emissions."[2]

Annex I countries

Annex I Parties include the industrialized countries that were members of the OECD (Organization for Economic Co-operation and Development) in 1992, plus countries

[1] "Paris agreement", United Nations, Climate action https://www.un.org/en/climatechange/paris-agreement

[2]United Nations. "Net Zero Coalition." *United Nations*, www.un.org/en/climatechange/net-zero-coalition

with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.[3]

Carbon Cycle

"The circulation of carbon between living organisms and their surroundings. Carbon dioxide from the atmosphere is synthesized by plants into plant tissue, which is ingested and metabolized by animals and converted to carbon dioxide again during respiration and decay.``[4]

Erratic Weather

Refers to weather conditions that do not follow a regular pattern but move along in an irregular way.[5]

Green Finance

It is a type of financial activity that supports the transition to a low-carbon, sustainable economy while addressing global challenges we face today, such as climate change and emerging environmental and sustainability risks. It involves financing projects and initiatives that have positive environmental impacts such as reducing greenhouse gas emissions and promoting renewable energy.[6]

Green hydrogen (GH2 or GH2)

"Is hydrogen produced by the electrolysis of water, using renewable electricity. Production of green hydrogen causes significantly lower greenhouse gas emissions than production of gray hydrogen, which is derived from fossil fuels without carbon capture."

Greenhouse gas emissions

"The emission into the earth's atmosphere of any of various gasses, carbon dioxide, that contribute to the greenhouse effect."[7]

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[3] "Parties & Observers", United Nations Climate Change
https://unfccc.int/parties-observers

[4] "Carbon cycle", Britannica
https://www.collinsdictionary.com/dictionary/english/carbon-cycle

[5] "Erratic", "Weather", Collins Dictionary
https://www.collinsdictionary.com/dictionary/english/erratic-weather

[6] "Introduction to green and sustainable finance", Chartered Banker
https://www.charteredbanker.com/resource_listing/knowledge-hub-listing/what-is-green-and-sustainable-finance.html

[7] "Greenhouse Gas." *Wikipedia, the Free Encyclopedia*, Wikimedia Foundation, Inc, 16 Oct. 2023, www.en.wikipedia.org/wiki/Greenhouse_gas, Accessed 21 Jan. 2024

Low carbon economy

An economy based on sustainable actions, mainly focused on reducing or even sequestering the greenhouse gasses generated in the production chain, resulting in less environmental impact.[8]

Low emission development strategies (LEDS)

It refers to the policy instrument that identifies the sources of a country's GHG emissions and prioritizes options for their mitigation.[9]

Net-Zero

"The state in which the harmful gasses produced by a particular company, region or country have no impact on the climate because they have been balanced by actions that protect the environment."[10]

Ocean acidification

"It refers to a reduction in the pH of the ocean over an extended period of time, caused primarily by uptake of carbon dioxide (CO2) from the atmosphere."[11]

BACKGROUND INFORMATION

The idea of net zero arose from research that came out in the 2000s. It demonstrated the reaction of the atmosphere, oceans, and carbon cycle to CO2 emissions. It posits that global warming will stop if CO2 emissions are reduced to net zero, an idea way far from reality. According to the Paris Agreement, it becomes necessary "to achieve a balance between anthropogenic emissions from sources and removals from sinks of greenhouse gasses in the second half of this century".

[8] "Low carbon economy: what is it?"
https://ambipar.com/ie/news/low-carbon-economy-what-is-it/

[9] "Aim of LEDS", Environment and Climate Change, Low-Emission Development Strategy (LEDS)
https://transparency-partnership.net/sites/default/files/giz2013-en-climate-leds.pdf

[10] "Net Zero", Oxford
https://www.oxfordlearnersdictionaries.com/definition/english/net-zero?q=net+zero

[11] "What is ocean acidification", National Ocean Service
https://oceanservice.noaa.gov/facts/acidification.html

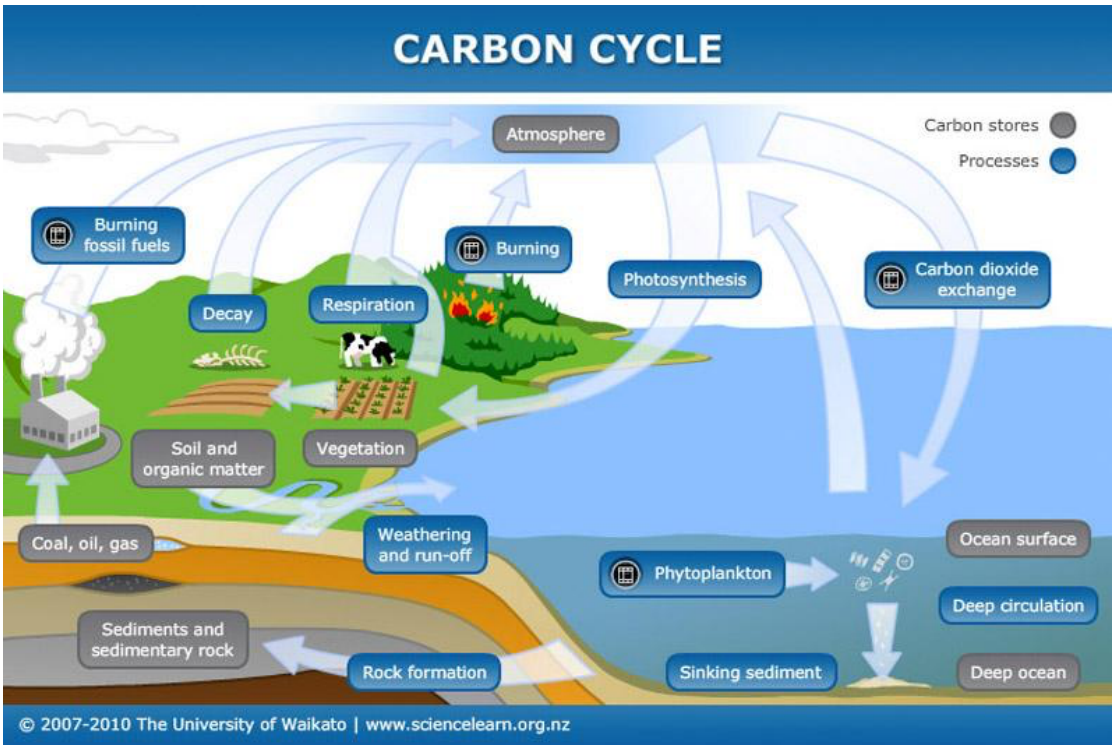

Figure 1: The Carbon Cycle

This effort by both states and organizations to achieve net zero is confused with "stabilizing greenhouse gas concentrations in the atmosphere". This term was used for the first time in the Rio Convention of 1992 and since then it captures the efforts of all to achieve it[12].

Renewable energy

A low-carbon economy (LCE) or carbon-free economy is an economy based primarily on energy sources that produce low levels of greenhouse gas (GHG) emissions. GHG emissions due to human activity have been the dominant cause of observed climate change for nearly a century. Continued increasing emissions of greenhouse gasses will cause long-term and incalculable changes to the climate of the world, increasing the possibility of irreversible impacts on people and ecosystems.

[12] "THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT (1992)" https://www.iau-hesd.net/sites/default/files/documents/rio_e.pdf

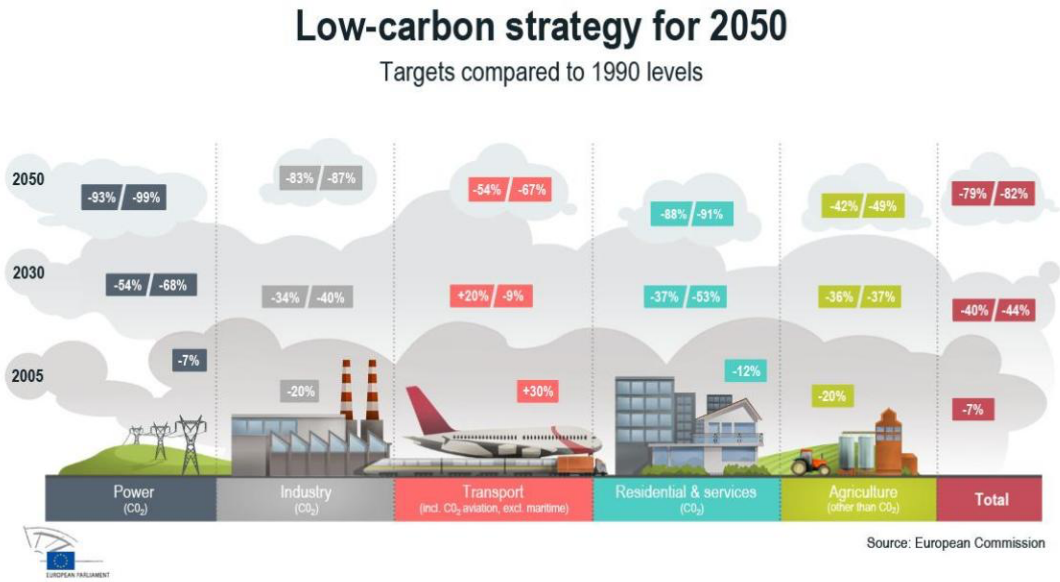

Figure 2: Environment Committee backs "roadmap" to low carbon economy[13]

However, the benefits of the shift to a low-carbon economy on a global scale are incalculable for both MEDCs and LEDCs. Already many of them have designed and implemented low emission development strategies (LEDS). The GeGaLo Index of Geopolitical Gains and Losses is responsible for assessing how the geopolitical position of participating countries might change if the world fully transitions to renewable energy sources.[14] Former fossil fuel exporters such as Saudi Arabia are expected to have a significant economic loss, while the positions of former fossil fuel importers and renewable energy-rich countries are expected to strengthen rapidly, considering that they replace the fossil fuel industry. Low-carbon economies present multiple benefits to ecosystem resilience, by improving air and water quality, trade, and employment, by creating new jobs in the renewable energy field and health.

Benefits for the economy

The creation of jobs has been one of the most important benefits. Transitioning to low-carbon environmentally sustainable economies has a high chance

[13]"Environment Committee Backs "roadmap" to Low Carbon Economy | News | European Parliament." 2 Mar. 2012, www.europarl.europa.eu/news/en/headlines/society/20120126STO36324/environment-committee-backs-roadmap-to-low-carbon-economy

[14] "THE GIGOLO INDEX", Colorado School of Mines https://payneinstitute.mines.edu/the-gegalo-index-geopolitical-gains-and-losses-after-energy-transition/

of contributing to job creation - job upgrading and poverty eradication[15]. These new positions are specialized in the new economic fields and technological developments that will continue to evolve. Unfortunately, estimates suggest that climate change will have a negative impact on businesses and workers that deal exclusively with non-renewable energy as production is estimated to drop by up to 2.4% by 2030, while it is estimated to reach up to 7.2 % by 2050[16]. During the green transition, workers in carbon-intensive industries are most likely to lose their jobs. The transition to a carbon-neutral economy will put more jobs at risk in areas with higher rates of employment in carbon-intensive industries[17].

Meanwhile, research has emerged indicating that about half the global workforce will undergo major positive changes: in agriculture, forestry, fisheries, resource-intensive manufacturing, recycling, buildings, and transfers. The change from non-renewable to renewable sources of energy, although it will lead to the inevitability of the jobs of certain professionals, will create new positions in the world of net zero, laying the foundations for a green world.

Business competitiveness is also one of the most vital advantages for the economy. The transition to net zero and the shift to renewable sources can offer many opportunities to increase the competitiveness of economies and businesses. It is indeed supported by the Global Partnership for Low Emission Development Strategies that investments in lower emission technologies have already begun to concern many corporations[18].

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

United States of America (USA)

The Biden administration has set 2050 as a key goal in an effort to stem the worsening effects of climate change. They announced that this venture would require approximately 590,000 square kilometers of America to be covered in turbines and

[15] "Supporting a green recovery and a just transition through employment policies", ILO https://www.ilo.org/global/topics/employment-promotion/epaf/design-lab/WCMS_857327/lang--en/index.htm

[16] "The energy world is set to change significantly by 2030, based on today's policy settings alone" https://www.iea.org/news/the-energy-world-is-set-to-change-significantly-by-2030-based-on-today-s-policy-settings-alone

[17] "Carbon Neutral Energy Intensive Industries"https://unece.org/sustainable-energy/cleaner-electricity-systems/carbon-neutral-energy-intensive-industries

[18]" LEDS Global Partnership" https://ndcpartnership.org/knowledge-portal/climate-toolbox/leds-global-partnership

panels, an ambitious plan that has yet to be launched. In terms of roads, by the 2030s, $25 billion per decade should be spent on building an extensive EV charging network.

California is a leader in clean energy, with 16 new clean energy projects announced last year. Clean energy investments have already spurred $11.9 billion in investment and helped create nearly 5,300 clean energy jobs in the state. Georgia is at the forefront of the USA's clean energy boom, with 22 new projects announced in the last year. Clean energy investments have already spurred $18.83 billion in investment and helped create 16,600 clean energy jobs in the state. Michigan leads all other states in the nation's clean energy boom, with 24 new projects announced in the state in the last year. Clean energy investments have already reached $21.03 billion while creating 15,800 jobs

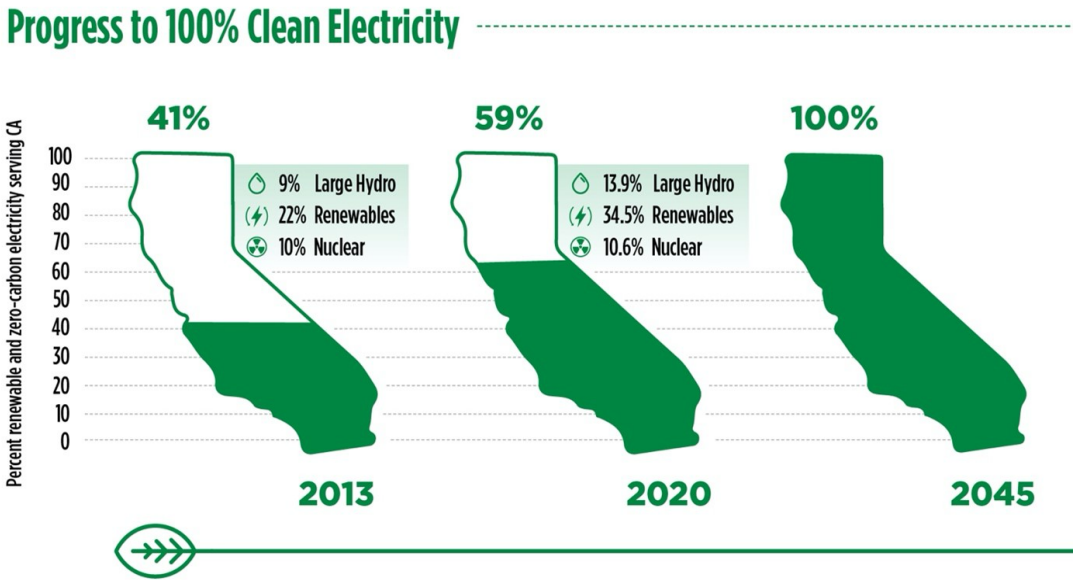

Figure 3: California's net zero endeavor

China

In September 2020, when China's President Xi Jinping pledged to reach net zero by 2060[19]. Their policy document focuses on six areas in which they will be active: industrial production, logistics, infrastructure, consumption, innovation and activation policies. It states that "...by 2035, the efficiency of energy and resource use in key industries and for key products is expected to reach an internationally advanced level". China is responsible for 65% of total carbon dioxide emissions in 2019. In the

[19] "China headed towards carbon neutrality by 2060; President Xi Jinping vows to halt new coal plants abroad"
https://news.un.org/en/story/2021/09/1100642

transport sector, the Ministry of Industry and Information Technology issued a Roadmap for the Development of New Energy Vehicles 2021-2035, with the aim of improving the NEV share of all vehicles sold by about 50% by 2035, with the remaining 50% in eco-friendly.

European Union (EU)

The EU aims to be climate neutral by 2050 by having an economy with net zero greenhouse gas emissions. This goal is at the heart of the European Green Deal[20] and is aligned with the EU's commitment to global climate action under the Paris Agreement. EU member states have started to develop long-term strategies on how they plan to achieve the reductions in greenhouse gas emissions needed to meet their commitments under the Paris Agreement. Finland is one of the few countries that have committed to reaching net zero earlier than 2050 (Finland:2035), followed by Austria and Iceland (2040) Germany, and Sweden (2045)[21].

India

India is the third largest producer of renewable energy in the world, with 42% of their installed capacity coming from clean and sustainable options. The country's goal is to produce a staggering 500 GW of renewable energy by 2030. Specifically, the country's determination to promote low-emission fuels is being done through the Government of India's push for green hydrogen through the National Green Hydrogen Policy. In 2021-2022 alone, investments in green energy reached the staggering number of US$14.5 billion[22].

United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty to combat "dangerous human intervention in the climate system". More specifically its main goal was to stabilize greenhouse gas concentrations in the atmosphere. It was signed by 154 states at the

[20] "What is the European Green Deal?", European Council
https://www.consilium.europa.eu/en/policies/green-deal/
[21] "NET ZERO EMISSIONS RACE"
https://eciu.net/netzerotracker
[22] "India keeps renewables target flexible, goal of 500 GW green energy by 2030 dropped"
https://economictimes.indiatimes.com/industry/renewables/india-keeps-renewables-target-flexible-goal-of-500-gw-green-energy-by-2030-dropped/articleshow/93357477.cms

United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992. Its original secretariat was in Geneva but later moved to Bonn (Germany) in 1996. It has been in force since March 21, 1994.
The very first implementation of measures under the UNFCCC was the Kyoto Protocol, which was signed in 1997 and ran from 2005 to 2020.

TIMELINE OF EVENTS

Date	Description of event
1992	Convention Agreement- 154 nations signed agreement, which committed signatories' governments to reduce atmospheric concentrations of greenhouse gasses with the goal of
1997	Kyoto Protocol was signed in an attempt to reduce greenhouse gas emissions worldwide to mitigate climate change
2015	Paris Agreement signed aiming to limit global temperature increases to well below 2 degrees Celsius above pre-industrial levels.
2050	Estimate of reaching Net-Zero in most MEDCs

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

Convention agreement

The UNFCCC was adopted on May 9, 1992, and opened for signatures on June 4, 1992, during the Earth Summit in Rio de Janeiro[23]. It committed signatory nations to reduce greenhouse gas concentrations, aiming to prevent harmful interference with the climate system. This would necessitate significant emissions cuts.

According to the Convention, countries should act based on their capabilities, with developed nations taking the lead. It specifically outlines general commitments

[23]"United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992"
https://www.un.org/en/conferences/environment/rio1992

to address climate change through mitigation and adaptation efforts. It emphasizes that the effectiveness of developing nations' commitments depends on financial resources and technology transfer from developed countries, keeping development and poverty eradication a top priority.

Clean Development Mechanism (CDM)

This flexible mechanism under the Kyoto Protocol (1997) allowed developed countries to invest in emission reduction projects in developing nations, helping them meet their own reduction targets. The Kyoto Protocol is an international treaty that was adopted to address climate change, promoting the use of renewable energy and setting targets for reducing greenhouse gas emissions. While no longer in operation, considering that its first commitment period ended in 2012, it showcased the potential for global cooperation on emissions reduction and clean technology.

Its objectives, outlined in the Protocol are firstly, to assist non-Annex I countries (primarily developing nations) in achieving sustainable development and lowering their carbon footprint and secondly, to aid Annex I countries (predominantly industrialized nations) in fulfilling their commitments to reduce emissions (greenhouse gas emission caps).

Sustainable Development Goals (SDGs)

Sustainable Development Goals are 17 goals set by the United Nations in 2015, all set to be achieved by 2030. Although not a treaty, the SDGs, particularly Goal 13 (Climate Action), present a global framework for sustainable development, including the transition to a low-carbon economy. Achieving the SDGs has profound economic implications worldwide.

Figure 4: Sustainable Development Goals (SDGs)

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Intergovernmental Panel on Climate Change (IPCC)

It wasn't until the 1970s that the scientific recognition of global warming and climate change initiated discussions on the necessity of reducing carbon emissions. In 1988 the formation of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations took place. The Intergovernmental Panel on Climate Change, or IPCC, is a body of the United Nations. Its job is to promote scientific knowledge about climate change caused by human activities. It has a secretariat in Geneva, Switzerland, hosted by the World Meteorological Organisation (WMO). It has 195 member states that govern the IPCC. Member States elect an office of scientists to serve in an evaluation cycle. Various countries have implemented renewable energy incentives, carbon pricing systems, and sustainability policies. The most important participants in this panel are the USA, the EU, Japan, China, and India. In fact, most of the MEDC have already set net zero goals, most of them being in 2050.

POSSIBLE SOLUTIONS

Supporting Research and Development

Investing in research and development (R&D) of green technologies is crucial for driving innovation. Governments can fund R&D initiatives focused on renewable energy, energy storage, carbon capture and storage, and other sustainable solutions. This not only leads to technological breakthroughs but also stimulates economic

growth in the clean energy sector. This may also be done by member country's governments providing subsidies to organizations carrying out such research.

Promoting Green Investments

Encouraging investment in sustainable technologies and infrastructure is crucial for reducing reliance on fossil fuels. Governments can offer incentives like tax breaks or subsidies to attract private investment in renewable energy projects, energy-efficient buildings, and public transportation systems. This not only drives economic growth but also speeds up the shift to a low-carbon economy.

The promotion of green investments in Less Economically Developed Countries (LEDCs) is essential for the promotion of sustainable development. Green investments, which prioritize renewable energy sources, can make a significant contribution to countries in a variety of ways. First, these investments can enhance energy security by reducing dependence on fossil fuels. This will indeed gradually lead to the alleviation of the impact of unstable global energy prices. In addition, green projects are proven to have long-term operating costs that are much lower than those of non-renewable sources, making them economically viable and contributing to economic stability.

Important to mention is the fact that, by adopting sustainable practices, these countries will be able to significantly reduce their carbon footprint as well as mitigate the negative effects of climate change. These include extreme weather events and sea level rise, which disproportionately affect vulnerable communities. In addition, green investments create new employment opportunities, which is particularly important in areas with high unemployment, as it will undoubtedly contribute to balancing the economy. Overall, promoting green investments in LEDCs will succeed in uplifting other communities and pave the way for a more sustainable and equitable future, as well as a more sustainable and resilient economy.

Promoting Green Finance

Green finance directs investments to eco-friendly projects. Governments issue green bonds for initiatives like renewable energy and energy-efficient upgrades. This attracts funds and creates opportunities in the growing green economy. Many European cities have already implemented numerous eco-friendly projects.

Milan Innovation District is one of the biggest projects that the city has experienced while ranking among the biggest in Europe for the last decade. The Milan Innovation District (MIND) will be built on the former site of the World Expo 2015 and

will provide over one million square meters of space. The Canada Pension Plan Investment Board and Lendlease have agreed to jointly invest about €400 million, while the project also involves several other companies. The contribution of the Italian Ministry of Justice is also important. When completed it will be a zero-carbon site powered only by renewable energy sources. Renewable electricity will come from a variety of sources, including on-site solar panels. The final development value is estimated to reach 2.5 billion euros. The project will also host the new 500-bed IRCSS Galeazzi hospital as well as the new Statale University campus. The last one, in fact, which will host more than 18,000 students.

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