



GCMUN '22

UNEP

STUDY GUIDE

Table of Contents

Table of Contents	ii
Letter from the Secretary-General	iii
Letter from the Under-Secretary-General	iv
1. Introduction	1
2. Current Situation	4
3. Covid-19 and Energy	6
4. Energy Crisis	10
5. Green Energy and Transition	13
A. Green Energy Types	13
1) Wind Power	13
2) Solar	14
3) Biomass	14
4) Hydropower	15
5) Geothermal	15
6) Nuclear	15
6. Challenging Sectors	16
A. Building Sector	16
B. Industry Sector	17
C. Transport Sector	18
7. UN Green Energy Politics	18
A. Paris Agreement	18
B. Glasgow Climate Act	19
C. SDG-7	20
D. Sustainable Energy for All (SEforALL)	21
E. COPs	22
8. Transition to Green Energy	23
9. Points that a Resolution Should Cover	27
10. References	28

Letter from the Secretary-General

Honorable participants,

My name is Arda and I, as the Secretary-General of the Gazi College Model United Nations 2022, am very honored to welcome you all to the fourth annual session of GCMUN on behalf of our Director-General Deniz Başak and also our well-prepared academic and organization team members.

While organizing GCMUN our aim was to provide all of our participants significant and remarkable experiences; and consequently, rising awareness through global issues that our world is facing has been our main purpose. In this conference, we ensure you that you will gain diversified world visions about the current situation from our agenda items and it will redound your debating and negotiating skills, therewithal your knowledge and sensibility.

As the academic team of GCMUN'22 we have chosen our committees in order to make you focus on various topics and they are suitable for various levels of MUNers, so you will be able to enjoy. We have 6 different committees for both highly experienced and unexperienced delegates. Our first GA committee is GA-1:DISEC and our second one is UNEP. Moreover, we have United Nations Security Council, North Atlantic Treaty Organization, JCC: British Civil Conflicts and lastly a JR United Nations International Children's Emergency and Fund committee which we only opened for middle school students in order for them to state their opinions confidently about the current issue of the world since every child are affected from every single conflict that composed in our world.

I highly encourage all of you to be well-prepared and enthusiastic in order to be efficient during the conference.

Best regards,

Letter from the Under-Secretary-General

Distinguished participants to the Gazi College Model United Nations Conference,

My name is Erva Gökbaşı. I am an undergraduate student in Middle East Technical University studying Political Science and Administration. I have been attending MUN conferences for 3 years as a delegate, and taking responsibilities for 2 years as a member of the academic team.

I believe every MUN conference will make you better in discussing diplomatic language, in crisis management skills in a formal way, in finding relevant and meaningful solutions for global problems, and in writing skills in a diplomatic way of expressing your ideas.

Under the rule of the United Nations Environmental Programme, I have prepared a currently valid and conclusive agenda item; enhancing the transition to sustainable energy as a response to the energy crisis and climate change. In the framework of this agenda, you are expected to enhance the current policies of the United Nations considering the developing countries' energy policies, to solve the financing problem of the transition, and to create a multilateral environment for the introduction of solutions by cooperating with other organizations and collaborating among the member states. I believe all of you will gain experience concerning the climate crisis and the need for an action taken by the governments and non-governmental organizations. Since there is a lack of movement concerning the transition to green energy in the borders of the green politics in Turkey, I believe after this conference, each of you will get hardware enough to be aware of the climate and the possible diplomatic actions.

I want to conclude my letter by proposing distinguished and hardworking team members of the Gazi College Model United Nations Conference; Secretary-General Arda Elibol, for making me a part of this team, and showing me tolerans almost in every problem I have dealt with; Deputy-Secretary-General Zehra Yıldırım, for being always flexible and considerate attitudes toward myself.

Erva Gökbaş, Under-Secretary-General of the United Nations Environmental Programme



1. Introduction

The concept of the “energy” poses a great importance for the people’s lives since it is related to the different sectors and segments of everyday life. Building, heating, transport, and industry are the sectors that are closely linked with energy. This concept is also related to other sub notions such as the energy security, the continued access to energy, energy prices, and the distribution of the energy sources to different parts of the world. Therefore, the efficient and effective usage of the energy sources is critical for the qualified social, economic, and political dimensions of a society. It is seen as a fact that to have natural sources as a tool to produce energy is not enough to ensure economic, political, and social stability. Therefore, along with the energy sources, the effective usage of them has a determining role in the multilateral international arena. In order to sustain and develop the access of the energy and effective usage of the sources, the international organizations should propose a guideline for other societies.

However, since the past decades, the main agenda for many states and organizations has been revolving around the concept of climate change. As mentioned by the United Nations, climate change refers to the shift in the temperatures and weather patterns in the long-run. The main force behind these shifts is seen as human activities¹. These activities can be classified in the framework of the ineffective usage of the energy sources, which causes the increasing gap between the social costs and marginal costs to the society. Since industrialization, human beings’ activities include the increasing usage of fossil fuels like coal, oil, and gas². Burning fossil fuels like carbon dioxide and methane causes the unhealthy coverage of the earth, trapping the sun’s heat and raising the temperatures. The usage of fossil

¹ Nations, United. 2022. "What Is Climate Change? | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/what-is-climate-change>.

² Nations, United. 2022. "What Is Climate Change? | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/what-is-climate-change>.

fuels in building, heat, transport, and industry is more than the other sectors, causing the researchers and multilateral organizations to focus on these areas while pursuing their objectives concerning climate change³. Since these sectors also compose the final energy demand and the final energy consumption, the greenhouse gas (GHG) emissions released from them are more than other sectors. As a result of the increase in the emissions of the GHG, the Earth is now warmer than compared to the 1800s, and the most warmer era was seen in the last decade (2011-2021)⁴.

The consequences of climate change include different areas. Firstly, as a result of it, the sea level will be rising due to the melting of the glaciers affected by the rising temperatures. This may cause a decrease in biodiversity⁵. Moreover, water scarcity and intense droughts resulting from the changes in the conditions of the weather may cause many societies to migrate from a part of the world to other areas. Therefore, the affecting chain of the greenhouse gas emissions caused by the extreme usage of the fossil fuels may cause separate social, and economical consequences in the world. Climate change also affects the health of the people, ability to grow enough and qualified food, housing, safety, and work⁶. Because of this, the multilateral organizations and the individual states should provide necessary and immediate actions on the subject.

In the next decade, climate change will affect every aspect of the energy systems in the world. The changing conditions challenge the stability and predictability of the demand and supply of the energy sources, which is seen as a precondition for sustainable development⁷.

To prevent the destructive effects of climate change, the increase in the energy source

³ Nations, United. 2022. "What Is Climate Change? | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/what-is-climate-change>.

⁴ Nations, United. 2022. "What Is Climate Change? | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/what-is-climate-change>.

⁵ Nations, United. 2022. "What Is Climate Change? | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/what-is-climate-change>.

⁶ *ibid.*

⁷ *ibid.*

categories and options are seen as a solution. As stated by the International Renewable Energy Agency (IRENA), the proof energy sources, being attached to the one categorical energy source while not putting enough importance and investment to other types of the energy, will lead to the business cycles, and structural stagnation in the economy causing the slow-growth rate in long-run⁸. The past years have shown the weakness and the vulnerability of a system depending on fossil fuels in the 20th century⁹. Depending on a centralized energy source may lead to the unpreventable increase in the greenhouse gas emissions, and decrease the sustainable development of underdeveloped countries. During the Covid-19 process, followed by the energy crisis in the European countries, increasing demand and urgent need for the energy from the developing and underdeveloped countries, and finally the Ukrainian-Russian war have shown the critical importance of the transition to sustainable and independent energy sources in the market as a substitution of the fossil fuels¹⁰.

The effects of climate change, and relatively the energy sources, has shown a difference for the developed and developing countries. In recent years, due to the unpredictable changes after the Covid-19, the energy prices have increased fast compared to the previous years. This challenging factor not only shows itself in the prices, but additionally in related sectors such as transport, heating, and building. The sharp increase in the energy prices has caused reflections in the political arena. Inside the developed countries, people started to protest the energy prices. The authoritarian regimes have used this increase in the prices to strengthen the dependence of the developed and democratic countries to themselves. After the Covid-19 process, developed countries and international organizations started to find solutions to the energy crises for short-run and long-run, and to diversificate the energy sources, making them more sustainably green sources, to decrease the dependence on authoritarian regimes.

⁸ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

⁹ "Energy Transition". 2022. *Irena.Org*. <https://www.irena.org/energytransition>.

¹⁰ "Energy Transition". 2022. *Irena.Org*. <https://www.irena.org/energytransition>.

On the other hand, developing and underdeveloped countries have been dealing with the problem of access to energy sources. With the increase in the energy prices, many countries have been exposed to a scarcity in providing enough energy for the sustainable and continuous implementation to the related sectors. In addition to this fact, countries having not enough energy and natural sources have been challenging in the framework of finding sources to implement and use in sectors. Considering the continuous relation of the developed countries with developing countries, it can be said that the financing of the renewable sources in the ground of diversification of the sources poses a critical importance since this can support the sustainable access of other countries, as well as the decrease in the greenhouse gas emission rates.

2. Current Situation

The world has been facing two main problems when the framework comes to energy¹¹. Firstly, the world has been challenged by not having enough diverse energy sources to minimize the greenhouse gas emission rates. Still, a substantial rate of the sources consists of fossil fuels¹². As a second problem, the lack of access to safe, sustainable, and stabilized energy and its sources by many countries can be counted¹³. Since energy is also necessary for the development of a country, and even if it means the safe and clean water and food for the society, the lack of access poses a critical problem to be solved. Therefore, in order to create short and long run solutions, and a general future framework in this field, the current rates and situation poses an utmost importance. The current situation can also be divided into categories; such as the access to the energy sources, the greenhouse gas emission rates as sector base, and the usage rates of various energy sources in the total final energy consumption (TFEC). Currently, around 789 million people (almost %11 of the overall

¹¹ Roser, Max. 2020. "The World'S Energy Problem". *Our World In Data*. <https://ourworldindata.org/worlds-energy-problem>.

¹² Roser, Max. 2020. "The World'S Energy Problem". *Our World In Data*. <https://ourworldindata.org/worlds-energy-problem>.

¹³ Ibid.

population) are still facing problems in accessing electricity since 2019, nearly the %75 of them in Sub-Saharan Africa¹⁴. This lack of access has been causing the inability of the people to have clean food, and water¹⁵. According to the data published by Max Roser, the poor countries have low carbon emission compared to developed countries. People in poor countries, such as Ethiopia, Uganda, and Malawi emit less carbon dioxide in 4 days than in the developed countries¹⁶. The main reason behind this unequal distribution in greenhouse gas emission rates based on countries' economic growth rate is that the poor countries have no access to the modern energy sources and technology to implement and supply the energy to the population¹⁷.

According to the data published by "Our World in Data", there is a correlation between the per-capita consumption based CO2 emissions and the GDP per capita. The countries whose GDP per capita is less than \$20.000 has around 5t CO2 emission per capita while the countries whose GDP is in between \$20.000 and \$100.000 has approximately 20t CO2 emission¹⁸. This shows that the energy poverty is seen in poor countries, while the greenhouse gas emission rate is higher in the developed countries compared to the others. Therefore, the two general problems considering the access and the diverse energy sources creates an inequality in the framework of energy. There is a need for an action planned by the developed countries and international institutions to solve the problem by putting the attempts at increasing energy access and modern technology, decreasing the emission caused by the usage of fossil fuels by enhancing the green energy sources. The problem of access to energy

¹⁴ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpqEMRdbIZGdlg3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

¹⁵ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpqEMRdbIZGdlg3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

¹⁶ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpqEMRdbIZGdlg3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

¹⁷ Roser, Max. 2020. "The World'S Energy Problem". *Our World In Data*. <https://ourworldindata.org/worlds-energy-problem>.

¹⁸ "The World'S Energy Problem". 2022. *Our World In Data*. Accessed May 28. <https://ourworldindata.org/worlds-energy-problem>.

sources, like electricity, is a critical point that has been tried to be solved by the international organizations.

The greenhouse gas emission rates decreased in 2020 compared to the previous two years since the Covid-19 has caused a decrease in the usage of cars, and other transportation vehicles by limiting the mobilization and movements of the people all over the world¹⁹. However, the concentration of CO₂ in the atmosphere has been continuously rising since 2020 due to the sudden changes in the demand and supply chain of the energy sources, showing there is need for a structural change in the sense of energy sources²⁰. Additionally, the sectoral usage of the energy sources has affected the greenhouse gas emissions in separate ways. According to the data published by the United Nations, the energy supply sector; such as electricity, and heat, is the largest contributor to the emission by approximately %35²¹. Moreover, in a general way the %80 of the global energy sources, and %66 of the electrical generation has been supplied by the usage of fossil fuels, being the critical determinant of the GHG emissions²². Apart from electricity, the contributions of the transport sector to greenhouse gas emissions has been doubled since the 1970, with around %80 of the increase coming from the road vehicles²³. Different areas affect the greenhouse gas emission rates in a different amount. In general, the largest share of the total emission rates is created by the transport sector (%27 of the 2020 emission rate)²⁴. The main trigger behind this rate relies on the fossil fuels burned for the usage of cars, ships, trucks etc. The electricity production composes the %25 of the CO₂ emission rates calculated in 2020, while the industry creates

¹⁹ "Economic Impacts Of Covid-19 – Global Energy Review 2021: Analysis". 2021. *IEA*. <https://www.iea.org/reports/global-energy-review-2021/economic-impacts-of-covid-19>.

²⁰ "Economic Impacts Of Covid-19 – Global Energy Review 2021: Analysis". 2021. *IEA*. <https://www.iea.org/reports/global-energy-review-2021/economic-impacts-of-covid-19>.

²¹ Nations, United. 2022. "Facts And Figures | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/actnow/facts-and-figures>.

²² Nations, United. 2022. "Facts And Figures | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/actnow/facts-and-figures>.

²³ Nations, United. 2022. "Facts And Figures | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/actnow/facts-and-figures>.

²⁴ "Sources Of Greenhouse Gas Emissions | US EPA". 2022. *US EPA*. Accessed May 28. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

the 24% of the total emitted greenhouse gases in 2020²⁵. The industrial emissions are generally caused by the usage of fossil fuels in the creation of raw materials.

Total demand for modern renewable energy sources increased sharply, approximately 4.4% annually, during the last decade (15.1 exajoules) while the total final energy consumption (TFEC) has increased 1.8% annually by growing to 60.8 EJ²⁶. This data shows that the demand for renewables has grown as more than twice of the growing rate for the TFEC²⁷. The 25% of the increase in the TFEC is created by renewable energy sources, meaning that the rest of the TFEC consists mainly of fossil fuels (grew 1.7% annually)²⁸. In 2021, according to the data published by the BP, China was the largest contributor to the renewable growth, followed by the USA, then the European countries²⁹. The data shows that although the demand for renewables has been increasing in the total final energy consumption rate, there is still a considerable rate for the demand of fossil fuels.

3. Covid-19 and Energy

Covid-19 has challenged the global landscape for the energy sources and the demand-supply chain of it intensively. It especially affected energy access in a political and economical framework. Suddenly, the pandemic has shown people that there is a necessary need for the improvements of reliable, affordable, and accessible energy sources to provide people an independent and green energy ground to keep them safe, both economically, and politically³⁰. Considering the economic effects of the Covid-19, the recovery plans providing a reliable and

²⁵ Nations, United. 2022. "Facts And Figures | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/actnow/facts-and-figures>.

²⁶ "Renewables 2020 Global Status Report". 2021. REN21. https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpgEMRdbIZGdIq3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaOEjShoCzZUQAvD_BwE.

²⁷ "Renewables 2020 Global Status Report". 2021. REN21. https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpgEMRdbIZGdIq3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaOEjShoCzZUQAvD_BwE.

²⁸ *ibid.*

²⁹ "Statistical Review Of World Energy". 2021. <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>.

³⁰ "Statistical Review Of World Energy". 2021. <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>.

green transition while enhancing the economic conditions of the countries are started to be discussed in the international organizations' agendas³¹.

During the past years, the limitations on the movement and certain goods, along with the introduction of the Covid-19 has caused the change in the position of countries and institutions to the production and the use of energy source. In these years, the primary energy demand worldwide decreased approximately %4, the largest decline since World War II, which resulted in the overall decrease in the global-energy related carbon dioxide emissions³². However, with the unexpected sudden decrease in the restrictions on movement and the usage of energy sources lead to the sharp increase in the demand for energy in 2020. The increasing price levels in all energy-related goods has caused many countries to implement policies considering the enhancing usage of fossil fuels as a solution. For instance, according to the data published by the United Nations, the recovery packages introduced by the developed countries after the pandemic process covers mostly the usage of fossil-fuels³³. However, it is shown that the problem of the energy access dealt by developing and underdeveloped countries is not a problem which can be solved with the introduction of the traditional energy sources to the economy again³⁴.

The impact of the Covid-19 in the building sector can be observed in its peak in 2020. The restrictions considering being in the home resulted in the energy demand in the building sector. %55 of the global energy demand in 2020 consisted of the demand coming from this sector-base usage of energy since as a result of the restriction people started to stay home,

³¹ "Statistical Review Of World Energy". 2021.

<https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>.

³² "Economic Impacts Of Covid-19 – Global Energy Review 2021: Analysis". 2021. *IEA*.

<https://www.iea.org/reports/global-energy-review-2021/economic-impacts-of-covid-19>.

³³ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

³⁴ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

shifting the energy usage and demand away from industrial activities towards residential buildings³⁵. Apart from the building sector, as an addition; the transport area has been affected by the Covid-19. In the beginning of the pandemic, people stopped using public transportation vehicles due to the precautions enhancing the health related conditions, causing the sharp drop in the energy demand coming from the transportation sector³⁶. Moreover, after the Covid-19, the rates representing the energy usage and the greenhouse gas emissions considering the transport sector has remained low since people started to prefer their own transportation vehicles instead of public transportation meaning being with a crowded population in the same place³⁷.

In addition to the sector-based usage and demand of the energy, the Covid-19 has affected the employment rates and the nature of many jobs. Lockdowns and other restrictions on the capability of the movement for people has led to structural changes in the economic activities, especially concretely showing itself in the employment basis³⁸. Since the energy demand has affected the price levels and the demand-supply chain of the economy, along with the changes in employment rates and the types of jobs, the economic activity of the many countries has faced and challenged the structural stagnation, and business cycle fluctuations during the pandemic process³⁹. Depending on labor market activities and the different and separate character of the sectors compared to the one country with another,

³⁵ "Renewables 2020 Global Status Report". 2021. REN21.
https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpqEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

³⁶ ibid.

³⁷ "Renewables 2020 Global Status Report". 2021. REN21.
https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpqEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

³⁸ "Renewables 2020 Global Status Report". 2021. REN21.
https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpqEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

³⁹ "Renewables 2020 Global Status Report". 2021. REN21.
https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpqEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

many people has lost their jobs⁴⁰. In addition to the employment rates, the inequality of lack of access to the energy sources has been increased as an additional social impact. In the pandemic, the populations not having enough success in the energy sources, have been exposed to severe conditions; such as lack of energy, food and water that are not clean and healthy enough, heating, and building sectors.

The Covid-19 has also affected the renewable energy usages and politics proposed by the countries. In an economical perspective, the sharp decrease in the general energy demand in the world puts the renewable energy sector in danger of financial loss⁴¹. In particular, the sudden change in the global energy market has resulted in the challenges and changes in the renewable energy demand-supply chain⁴². Moreover, with the absence of the state and the government incentives for the usage and the improvements of renewable energy has caused to the shutdowns of several major wind-turbines in some countries⁴³. Furthermore, the obstacles that have slowed the process in the usage of renewable energy in past decades continued to be efficient in 2020. Because of this, for the first time, the number of countries placing renewable energy political frameworks for the future enhancement has not increased comparing the previous years⁴⁴. However, considering the fact that the fossil fuels and other traditional energy sources have regional importance in the framework of dependence, after the Covid-19 states and governments has started to search for new ways to introduce and diversificate the renewable energy sources whose character sahep as being independent and green. Considering the time-periods before and after the Covid-19 process, and their effects on both renewables and fossil fuels, it is seen that more than 256 gigawatts (GW) has been

⁴⁰ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

⁴¹ ibid.

⁴² ibid.

⁴³ ibid.

⁴⁴ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbIZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

introduced to the global renewable energy sector⁴⁵. Seeing the fact that the fossil fuel usages and demand-supply chain has been challenged by the changes in the economical activities about the energy, the improvements regarding the usage of the renewable energy sources should be introduced by the countries⁴⁶.

After 2020, many countries have increased their attempts to introduce renewable energy. At least two countries withdrew support for fossil fuel exploration. Denmark ceases opportunities to cut the fossil fuel exploration overseas and domestically by 2050, while the United Kingdom has announced primary intentions to support the renewable energy sources and reduce the oil, gas, and fuel projects “as soon as possible”⁴⁷. Japan also considers putting an end to overseas exploration. In addition to these countries’ projects, the multilateral development banks dedicated USD 13 billion for the introduction and improvement of renewable energy sources⁴⁸.

Considering the fact that the Covid-19 pandemic has affected the energy demand-supply chain, the gap between the developing countries and developed countries in terms of the access to the energy sources, and the social effects considering the employment rates and the business structure types, the multilateral organizations searching for the ways to enhance the sustainable transaction to the renewable energy sources.

4. Energy Crisis

The energy sector has been facing many expansions, and shrinkages in history due to the multilateral dependence of the country to each other. A political, and economical change concerning the energy sources in international relations can affect the lives of many people

⁴⁵ "Renewables 2020 Global Status Report". 2021. REN21.
https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmWlVhEi8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

⁴⁶ ibid.

⁴⁷ ibid.

⁴⁸ ibid.

and the stabilization of the various sectors. Therefore, the long-run, and determinant solution to short-and medium term problems about the energy sources should be provided by the international organizations such as the United Nations.

Energy crisis concerns the dependence on fossil fuels, and other conventional energy sources, which contributes to the greenhouse gas emissions causing climate change all over the world⁴⁹. Recent price increases in the European countries due to the less supply to the energy demand in the region has shown the need for solid and necessary action aiming at the gradual decrease in the demand for fuels, and increase in the usage of renewable energy by 2050. Especially after the Covid-19 pandemic, increasing demand, but not enough supply as a response to these demands pushed the intergovernmental organizations to take steps for the purpose of diversification of the energy sources, which are renewable and non-harmful for nature, being environmental considering the greenhouse gas emissions. As an addition to the Covid-19 effect on energy, the Russian-Ukraine war has been determinant for the energy crisis in 2022⁵⁰. The data proposed by the UNCTAD estimates that the world economy will be less than previous years considering the GDP due to the effects of war⁵¹. Since the Russian Federation is the primary supporter and supplier of the traditional energy source, the war will affect many countries⁵². From the beginning of the war the tight food, energy, and the financial markets have been damaged, the further improvements for the roadmap of the countries to implement and enhance the usage of renewable energy poses a great importance in this field⁵³. Due to war, crude oil prices have increased by approximately %60, while gas

⁴⁹ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵⁰ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵¹ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵² "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵³ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

and fertilizer prices have doubled twice⁵⁴. According to the Food and Agriculture Organization of the United Nations, the food prices have increased by around %34, and it is expected to be higher in the years⁵⁵. As a result of this, the vulnerable populations depending on food and agricultural products in the developing countries have been exposed to price increases. Since energy is a chain covering all the world countries, the Russian-Ukraine war will have a domino effect in this area. Therefore, as an addition to the social unrest due to the Covid-19, the war is expected to be effective in the increase in social disabilities⁵⁶. Considering the fact that the Russian Federation has been a main supplier for the energy sources, it can be seen that the energy prices will also be affected from the invasion of Russia to the Ukraine. With the dichotomy of the European countries; being a supporter of the Ukrainian citizens' rights and freedoms, as well as the border security mentioned by the international laws and regulations, while at the same time continuing buying energy sources from Russian Federation, the energy prices will be affected, creating an inequality and changing the policies for many different countries. Moreover, the global inflation has risen %5.2 compared to previous years, causing many central banks to increase their interest rates⁵⁷. This increase in the interest rates is expected to be determinant in the higher debt servicing costs for the developing countries. According to the Financing for Sustainable Development Report 2022, %60 of underdeveloped and low-income countries are at the risk of high-debt rates⁵⁸.

According to the United Nations Environmental Program, there are three channels of transmission; debt distress, food shortages, and trigger collapse. In the framework of these conditions, there are also many countries, called "perfect-storms", which are exposed to the

⁵⁴ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵⁵ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁵⁶ *ibid.*

⁵⁷ *ibid.*

⁵⁸ *ibid.*

three transition periods at the same time⁵⁹. 69 economies in the world, and 1.2. billion people of the world population has been falling under this category⁶⁰. The increase in the prices can shift all changes considering the introduction of renewable energy if the underdeveloped, or developing countries back into the extractive industries and fossil fuel based energy consumption. The objective of the multilateral organizations is to diversificate the energy sources by enhancing the transmission period with the introduction of the renewable energy sources to the market, by the condition of not leaving any country and even any people in the behind. Therefore, under the framework of the energy crisis, the agendas of the countries and organizations consist of two-sided aims. In the first stage, there is need for finding a reliable solution for the increase in renewable energy politics of the countries, and enhancing the energy access of the developing, or underdeveloped countries by not leaving them behind the progress⁶¹.

The UN Framework for the Immediate Socio-Economic Response to the Covid-19 indicated that the effects of the Covid-19 will increase the socio-economic inequalities in a global scale since its effects are varying from country to country in accordance with their economical state⁶². After the Covid-19 pandemic, the world countries have started to open their economies by releasing the limitations on movement and restrictions over trade, which can trigger the short and medium term destabilization in the economic activities over all. According to the data published by the United Nations, 40-60 million people will be pushed into extreme poverty due to the economic shocks during the pandemic⁶³. Moreover, among

⁵⁹ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁶⁰ "Global Impact Of War In Ukraine On Food, Energy And Finance Systems". 2022. *UNEP - UN Environment Programme*. <https://www.unep.org/resources/publication/global-impact-war-ukraine-food-energy-and-finance-systems>.

⁶¹ "World Energy Transitions Outlook 2022: 1.5° C PATHWAY". 2022. *Irena.Org*. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Mar/IRENA_WETO_Summary_2022.pdf?la=en&hash=1DA99D3C3334C84668F5CAA029BD9A076C10079.

⁶² Hoang, Anh Tuan. 2021. "Impacts Of COVID-19 Pandemic On The Global Energy System And The Shift Progress To Renewable Energy: Opportunities, Challenges, And Policy Implications". *ENERGY POLICY*, no. 154.

⁶³ "Green Approaches To COVID-19 Recovery: Policy Note For Parliamentarians". 2022. Inter-parliamentary Union & UN Environment Programme. Accessed May 28. https://wedocs.unep.org/bitstream/handle/20.500.11822/34542/PNP_en.pdf?sequence=1&isAllowed=y.

the major effects of the pandemic to the economic sector is related to the women employment in the world. Because of the lock-downs in these years starting with the spread of the virus, the women 's employment has been decreasing over the years. Additionally, in some regions in the world, the insurance paid for the unemployed people was lower than other areas, creating an imbalance and inequality among these countries. For instance, about 1.6 million, both formal and informal, workers have lost their income with no insurance, and payment⁶⁴.

Considering the problems of a dependent character of the usage of energy sources, it can be said that immovable and dependent on a single region sources do not provide solutions to challenges in the world socio-economic system. Additionally, if the vulnerabilities of certain regions when it comes to the energy sources, and the lack of access to them is considered in the inequality perspective of the multilateral arena, the prominent solution for these obstacles should be provided immediately. The rates concerning the employment rates for men and women are not different subjects from the concept of energy. Moreover, if the Covid-19 pandemic and the recent Russian-Ukraine war will be taken into consideration, it can be understood that there is an urgent need for an action covering the distribution, diversification of the energy sources in the condition of being renewable and sustainable energy sources.

5. Green Energy and Transition

A. Green Energy Types

1) Wind Power

Wind power is seen as the most advanced and applicable renewable energy source in the world⁶⁵. The precondition for the wind power is to have winds with the speed of more than 18 km/hr. 2016 GW wind power is expected to provide %12 of global electricity 2050⁶⁶. As a

⁶⁴ "Green Approaches To COVID-19 Recovery: Policy Note For Parliamentarians". 2022. Inter-parliamentary Union & UN Environment Programme. Accessed May 28. https://wedocs.unep.org/bitstream/handle/20.500.11822/34542/PNP_en.pdf?sequence=1&isAllowed=y.

⁶⁵ "GLOBAL RENEWABLES OUTLOOK". 2022. IRENA. Accessed May 28. https://irena.org/-/media/Files/IRENA/Agency/Publication/2020/Apr/IRENA_Global_Renewables_Outlook_2020.pdf.

⁶⁶ "Wind Power – Analysis - IEA". 2021. IEA. <https://www.iea.org/reports/wind-power>.

possibility of this aim to be accomplished, it is expected to avoid annually 2.8 gigatonnes of emissions equivalent to the CO₂⁶⁷. However, as is other renewable energy source, it requires a profound investment made by intergovernmental organizations or the states themselves. In this framework, approximately the introduction of wind power requires USD 3.2 trillion during the years between 2010-2050⁶⁸.

As far as the pros and the cons are concerned, wind power is beneficial since it is a renewable source resulting in no level of carbon dioxide emission in the region. Moreover, the usage of wind power can be beneficial for the implementations of green policies of the countries regarding climate change. However, it has disadvantages concerning the effects on nature. First of all, it affects the visual ground in the region⁶⁹. Apart from this, the wind power plants are seen as an obstacle for the way of migratory birds⁷⁰. Therefore, the usage of them and introduction of these plants is expected to affect the natural balances.

2) Solar

Another type of green energy is solar energy sources. It is kind of a system, which can produce energy everywhere where the sun shines. An increase in the shine of the sun will cause a proportional increase in the energy produced, and decrease in the per kWh costs in general.⁷¹

As for the benefits of the Solar energy source, the voice and structural functions can be counted. The solar energy usage causes no more voice, it is quiet to produce⁷². Moreover, it can easily be moved apart, and installed again. However, it has serious drawbacks. The production and the usage of the solar energy is expensive, even than the introduction of the

⁶⁷ "Wind Power – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/wind-power>.

⁶⁸ "Wind Power – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/wind-power>.

⁶⁹ *ibid*.

⁷⁰ *ibid*.

⁷¹ "Solar PV – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/solar-pv>.

⁷² "Solar PV – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/solar-pv>.

fossil fuels (Its levelized cost is US cents 20-40/kWh) approximately⁷³. Additionally, since there is no sun shining in the sky of the region, the solar energy cannot be produced⁷⁴. Therefore, compared to other renewable sources, solar power is less competitive in the energy market.

3) Biomass

Biomass refers to the biologically-produced matters, including agricultural and forestry residues, wastes covering industrial and municipal solid refuses⁷⁵. Biodiesel energy is produced by the reintroduction of the leftover food products, such as animal wastes and vegetable oils and crops grown just for the purpose of energy source production⁷⁶.

The strong advantage of the biomass is that it can be turned on and off, which makes it dispatchable in the energy market. However, as in the other renewable energy source it has cons, as well. The biomass burning does produce particulates, and cause the emission of SO_x and NO_x⁷⁷.

4) Hydropower

The hydropower energy sources presents the %90 of the renewable power generation⁷⁸. Many countries, such as Sweden, Switzerland, and Norway, get virtually all the electricity from the hydropower⁷⁹. Although it is usually preferable for many countries, since the geography plays a vital role in the introduction of the hydropower, it has disadvantages. However, it is one of the cheapest way of producing electricity⁸⁰.

⁷³ "Solar PV – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/solar-pv>.

⁷⁴ "Solar PV – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/solar-pv>.

⁷⁵ "Bioenergy Power Generation – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/bioenergy-power-generation>.

⁷⁶ "Bioenergy Power Generation – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/bioenergy-power-generation>.

⁷⁷ "Bioenergy Power Generation – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/bioenergy-power-generation>.

⁷⁸ "Hydropower – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/hydropower>.

⁷⁹ "Hydropower – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/hydropower>.

⁸⁰ "Hydropower – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/hydropower>.

5) Geothermal

The notion of “geothermal energy” cover both of the energy for space, heating, water heating, and industrial processes, which are more common, and the energy for electricity, which are rarer⁸¹.

It has many advantages and can be used in the transition period of the energy system to renewable sources. It has no carbon foot-print since it has no costs for the nature in terms of greenhouse gas emission⁸². It is large, and is available all year round with low level of environmental costs. However, the air pollution can be caused by the release of the H₂S, CO₂, NH₃, Rn gasses to the air⁸³. Low magnitude earthquakes may be triggered by the usage of geothermal energy, and land subsidences may takes place due to the increase changes in the reservoir pressure⁸⁴.

6) Nuclear

Considering the fact that the nuclear power energy sources are rejected from being renewable energy sources by many countries, and still it can be evaluated as the main tool for the energy transition to the green energy sources, it can be said that the pros and cons of nuclear energy should be discussed from a large perspective. In fact, by the European Union, the nuclear energy sources are counted as renewable energy sources recently. However, this subject still poses a controversial point is its body in other international organizations and states, as well.

According to the data published by the International Atomic Energy Agency (IAEA), the global nuclear power capacity will reach between 473 GWe (low projection) to 748 GWe

⁸¹ "Geothermal Power – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/geothermal-power>.

⁸² "Geothermal Power – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/geothermal-power>.

⁸³ "Geothermal Power – Analysis - IEA". 2021. *IEA*. <https://www.iea.org/reports/geothermal-power>.

⁸⁴ *ibid*.

(high projection) in 2030⁸⁵. However, the point of creating controversial positions among countries is the future of nuclear energy. Since the main aim of providing a green transition in the energy system by introduction of renewable energy sources is to leave a green future with no carbon emission to the air triggering the climate change, nuclear power is not seen as a tool in this process due to the danger possessed by itself⁸⁶.

6. Challenging Sectors

A. Building Sector

Recently, the residential and service sectors are accounting for $\frac{2}{3}$ and $\frac{1}{3}$ of the energy use respectively⁸⁷. Buildings are also responsible for about $\frac{1}{4}$ of the CO₂ emissions in the global scale⁸⁸. They are also representing the higher shares of consumption in a large-scale country; such as %42 in Russian Federation, 41% in the European Union, %37 in Japan, %34 in US⁸⁹. However, the consumption rates counted as a part of the final energy consumption in total can be changed from time to time. In 2019, consumption in every sector has increased to 9.1. Gtoe, whereas their shares in the total final energy consumption rate remained slightly in the same rate⁹⁰. In this respect, the building is seen as the most energy consuming sector, followed by industry and transport sectors. Moreover, since 2000 the consumption rates for the building sector have been changing in an increasing way. This is because, since 2000, the population has been growing, with a need for a safe shelter⁹¹. After these years, there is also an expectation for higher building services and comfort levels⁹². Apart from the population, and the quality of the building, since 2000, the time people have spent inside their buildings

⁸⁵ "Nuclear Power | UNECE". 2022. *Unece.Org*. Accessed May 28.
<https://unece.org/sustainable-energy/cleaner-electricity-systems/nuclear-power>.

⁸⁶ "Nuclear Power | UNECE". 2022. *Unece.Org*. Accessed May 28.
<https://unece.org/sustainable-energy/cleaner-electricity-systems/nuclear-power>.

⁸⁷ "Nuclear Power | UNECE". 2022. *Unece.Org*. Accessed May 28.
<https://unece.org/sustainable-energy/cleaner-electricity-systems/nuclear-power>.

⁸⁸

⁸⁹ Coronel, Juan. 2022. "A Review On Buildings Energy Information: Trends, End-Uses, Fuels And Drivers". *Energy Reports* 8: 626-637.

⁹⁰ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

⁹¹ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

⁹² *ibid*.

has been constantly increasing. Thereby, the consumption in the building sector has risen by 1.2%.%/yr in 22 years⁹³.

The Covid-19 pandemic has affected the energy use in the building sector. Since there are many restrictions on movement and the motions to stay at home proposed by the international organizations, and states, the daily life of the people has been impacted by the pandemic. People started to stay at home, and even study from their “home-offices”. It is witnessed that there appeared a correlational change between many sectors, and building was one of them. According to the data published by the Renewables 2021 Global Status Report, during the pandemic, %55 of the global primary energy demand consisted of the demand coming from the building sector⁹⁴.

B. Industry Sector

The industrial sector creates the critical amount of final energy consumption rates. However, it mostly relies on fossil fuel energy sources, which makes it an essential point when the transition to green energy is considered. The total industrial energy is composed of renewable energy sources by %14.8 amount of it while the rest is dependent on the traditional energy sources⁹⁵. Moreover, the %90 of the energy sources creating the %14.8 of the industrial sector is composed of renewable energy sources, mostly biomass⁹⁶. Bioenergy usage is common in the regions where bio-based industries are dominant; such as Brazil, China, India, and the United States⁹⁷.

⁹³ *ibid.*

⁹⁴ "Renewables 2021 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpqEMRdbIZGdlg3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaOEjShoCzZUQAvD_BwE

⁹⁵ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

⁹⁶ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

⁹⁷ *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

There are three types of CO₂ emissions in the industry sector; emissions through the improvements in the efficiency that can result in the recycling of waste materials, and changes in the product design, feedstock substitution like greater use of biomass, and finally the CO₂ capture and storage⁹⁸. Each emission type and purpose poses an essential importance in the transition period to the green energy sources.

C. Transport Sector

Energy usage in the transport sector accounted for 1/3 (%32) of the total final energy consumption on a global scale in 2018⁹⁹. The fragmented components of the transport sector are as follows: the road transport (%74), aviation (%12), maritime transport (%9.6), and finally the rail (%2)¹⁰⁰. Transport sector has the lowest share of renewables in the framework of energy source. The critical majority of the source of the sector (%95.8) composed of oil and petroleum products¹⁰¹. The remaining small shares of the sources are composed of the renewables (%0.4)¹⁰².

With the Covid-19, the transportation sector's emission release to the global climate has been decreased due to the restrictions in public transportation population limit and the restrictions over the movement of people since people have the fear for the Covid-19 contagion from being on crowded buses or trains¹⁰³. Considering the fact that the transport sector has the most emission, being dependent on conventional energy sources, and the need for the transportation activities in a global scale, the transition of the energy sources in this sector,

⁹⁸ ibid.

⁹⁹ ibid.

¹⁰⁰ ibid.

¹⁰¹ ibid.

¹⁰² *Global Renewables Outlook*. 2020. International Renewable Energy Agency.

¹⁰³ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hpgEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE

and introduction of vehicles where the green energy is used, the transport sector plays a profound role in the green political agendas of the multilateral organizations.

7. UN Green Energy Politics

A. Paris Agreement

The Paris Agreement is seen as a solution for climate change, providing a common ground for countries and organizations to act in a collective way. It aims to strengthen the global climate change actions of the multilateral organizations and the states as a response to the increasing dangers by increasing the ability of each state and institutions to adopt policies adversing impacts of climate change and foster climate resilience¹⁰⁴. The general goals of the agreement: to make the capacity and resilience of the states more adaptive, to improve the implementation of the sustainable development for the purpose of reducing the vulnerability, to ensure the adequate adaptation response in the framework of a goal to stabilize the average global warming well below 2 degrees C, and to maintain the temperature below 1.5 degrees C¹⁰⁵.

The Paris Agreement requires all parties signing the document to engage in adaptation planning and implementation with introducing the national adaptation plan, monitoring and evaluation tools in their political and economical realms, which shall be recorded in a public registry¹⁰⁶. Moreover, with the improvements considering the transparency framework, it is aimed to provide a fair and open door for the public and every institution of the parties to question and follow the policies¹⁰⁷.

B. Glasgow Climate Act

¹⁰⁴ Nations, United. 2022. "The Paris Agreement | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/paris-agreement>.

¹⁰⁵ Nations, United. 2022. "The Paris Agreement | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/paris-agreement>.

¹⁰⁶ Nations, United. 2022. "The Paris Agreement | United Nations". *United Nations*. Accessed May 28. <https://www.un.org/en/climatechange/paris-agreement>.

¹⁰⁷ *ibid*.

The Glasgow Climate Act is a package of proposals to cover the climate action plans in a common ground, aiming to turn the 2020s as a turning point in the history of global action towards climate change¹⁰⁸. The package consists of a range of agreed items for each subtopic related to the transition period. It includes strengthening efforts to build and maintain the resilience to climate change, reducing greenhouse gas emissions, and most importantly financing the both objectives in a total framework¹⁰⁹. Considering the fact that the developed and the developing countries' budgets are in different sizes making them separate. However, with the objective of "leaving no one behind"¹¹⁰, the development of the underdeveloped countries in the framework of the transition to green energy poses a great importance for the overall actions of other states¹¹¹. Since climate change has no specific relation with borders, making specialized actions of each state necessary, the actions toward it should be coherent and interrelated with each other. Therefore, financing the developing countries to help them in implementation and introduction of the transition policies plays a critical role in the collaborative actions. As a result of this need, the countries have agreed on the 100 billion dollars annually from developed to the developing countries¹¹². However, according to the United Nations Secretary-General Antonio Guterres, the promise made in the Glasgow Climate Act cannot be reached even in the "realistic scenarios"¹¹³. He indicated that the efforts and the energy towards the financing of the transition requires a different level of effort, however the structure "is not there yet"¹¹⁴. The changes concerning the financial

¹⁰⁸ "United Nations Climate Change". 2022. *Unfccc.Int*.

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26#:~:text=UNFCCC%20Nations%20adopted%20the%20Glasgow%20Climate.of%20climate%20action%20and%20support>.

¹⁰⁹ "United Nations Climate Change". 2022. *Unfccc.Int*.

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26#:~:text=UNFCCC%20Nations%20adopted%20the%20Glasgow%20Climate.of%20climate%20action%20and%20support>.

¹¹⁰ "United Nations Climate Change". 2022. *Unfccc.Int*.

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26#:~:text=UNFCCC%20Nations%20adopted%20the%20Glasgow%20Climate.of%20climate%20action%20and%20support>.

¹¹¹ *ibid.*

¹¹² *ibid.*

¹¹³ feature, news. 2021. "The Broken \$100-Billion Promise Of Climate Finance". *Nature.Com*.

<https://www.nature.com/articles/d41586-021-02846-3#:~:text=Twelve%20years%20ago%2C%20at%20a.That%20promise%20was%20broken>

¹¹⁴ feature, news. 2021. "The Broken \$100-Billion Promise Of Climate Finance". *Nature.Com*.

<https://www.nature.com/articles/d41586-021-02846-3#:~:text=Twelve%20years%20ago%2C%20at%20a.That%20promise%20was%20broken>

promises is criticized by the International Center for Climate Change and Development for rejection of the Glasgow Climate Act requirements and putting obstacles in the way for a transparent transition period¹¹⁵.

C. SDG-7

Sustainable Development Goal 7 aims to ensure access to affordable, sustainable, reliable and modern energy in the framework of the transition to the green energy sources covering all sectors using traditional energy sources to enhance the resilience toward climate change¹¹⁶. Achievement of the SDG7 is expected to be efficient for many people in the world. It will lay the foundation of the eradication of poverty, for a sustainable world where the climate action steps have been taken in a coherent way with the improvements of the relation between states and organizations¹¹⁷. According to the data published by the World Bank, the SDG7 ground is drawn with related aims concerning specified areas, such as access to electricity, clean cooking, renewables, energy efficiency, and international financial flows¹¹⁸. SDG7 is seen as necessary and critical to realize the climate action plans and Paris Agreement. Under the SDG7, there are some points and goals expected to be accomplished by 2030, such as:

- Ensuring universal access to the affordable, reliable, and modern energy services,
- Increasing the potential of the renewable energy sources in the total final energy consumption in a global scale,
- Doubling the global rate of improving the energy efficiency and effectiveness,

¹¹⁵ feature, news. 2021. "The Broken \$100-Billion Promise Of Climate Finance". *Nature.Com*. <https://www.nature.com/articles/d41586-021-02846-3#:~:text=Twelve%20years%20ago%2C%20at%20a.That%20promise%20was%20broken>

¹¹⁶ "Who We Are". 2022. *Sustainable Energy For All | Seforall*. Accessed May 28. <https://www.seforall.org/who-we-are>.

¹¹⁷ "Who We Are". 2022. *Sustainable Energy For All | Seforall*. Accessed May 28. <https://www.seforall.org/who-we-are>.

¹¹⁸ "Report: Universal Access To Sustainable Energy Will Remain Elusive Without Addressing Inequalities". 2021. *The World Bank*. <https://www.worldbank.org/en/news/press-release/2021/06/07/report-universal-access-to-sustainable-energy-will-remain-elusive-without-addressing-inequalities>.

- Enhancing the international cooperation to introduce an opportunity of access to the clean energy research and technology, covering the renewable energy, and cleaner fossil fuel technology,
- Promoting investments in energy infrastructure, and clean energy technology,
- Expanding the energy infrastructure for the coverage of the renewable energy sources, and upgrading technology for supplying modern, and sustainable energy services for all countries, especially the developing countries, in accordance with their respective programmes of support¹¹⁹.

D. Sustainable Energy for All (SEforALL)

Sustainable Energy for All is one of the main organizations working with United Nations, leaders in government, private sector entities, financial institutions, and civil society institutions on a global scale for the purpose of enhancing and supporting the implementation of the Sustainable Development Goal 7 in line with the Paris Agreement objectives¹²⁰. However, due to the shortcomings of the previous version of the goals determined by the SEforALL and lack of implementation of the SDG7 in a large/short term, the new version of it is needed in international relations¹²¹. Since it is easy to get lost among the material and quantitative data concluded by the implementation of the red-tape side of the SEforALL, the multilateral organizations should focus on how people reach clean and affordable energy, which makes it necessary to take actions from a new point of view¹²². From this position, it can be concluded that the new approaches will include:

¹¹⁹ "GOAL 7: Affordable And Clean Energy". 2022. *UNEP - UN Environment Programme*. Accessed May 28.

<https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-7>.

¹²⁰ "Who We Are". 2022. *Sustainable Energy For All | Seforall*. Accessed May 28. <https://www.seforall.org/who-we-are>.

¹²¹ "Seforall 3-Years Business Plan 2021-2023". 2020. Business Plans. SEforALL. https://www.seforall.org/system/files/2020-10/SEforALL-Business-Plan_21-23.pdf.

¹²² "Seforall 3-Years Business Plan 2021-2023". 2020. Business Plans. SEforALL. https://www.seforall.org/system/files/2020-10/SEforALL-Business-Plan_21-23.pdf.

- new and enhanced partnership,
- raising finance for the developing countries to make them more flexible in their transition period to the renewable energy sources,
- creating insights to scale-in country interventions, which creates a space for transparent and fair policies to be implemented by the certain institutions of the government.¹²³

E. COPs

Conference of the Parties (COPs) are the gathered conferences that the United Nations has been providing for three decades for enhancing global climate action¹²⁴. From the beginning of the gathering process of the countries, the top priority of the global agenda was set as the global action towards climate change¹²⁵. The last Conference of the Parties was held in Glasgow, where the Glasgow Climate Act articles were accepted, called COP26¹²⁶. The coming conference will take place from 7-18 November 2022¹²⁷. Decisions taken in Glasgow are studied under the three UN climate treaties: The United Nations Framework Convention on Climate Change (the COP), Kyoto Protocol (the CMP), and The Paris Agreement (the CMA)¹²⁸. The decisions taken in the last COP are as follows:

- Enhancing national planning and implementation of adaptation actions,
- Enabling each Party to follow and implement the decision concerning the accomplishment of climate targets,

¹²³ "Seforall 3-Years Business Plan 2021-2023". 2020. Business Plans. SEforALL.

https://www.seforall.org/system/files/2020-10/SEforALL-Business-Plan_21-23.pdf

¹²⁴ "COP26: The Negotiations Explained". 2021. UN Climate Change Conference UK 2021. UK Government.

<https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf>

¹²⁵ "COP26: The Negotiations Explained". 2021. UN Climate Change Conference UK 2021. UK Government.

<https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf>

¹²⁶ "COP26: The Negotiations Explained". 2021. UN Climate Change Conference UK 2021. UK Government.

<https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf>

¹²⁷ "Event: UN Climate Change Conference 2022 (UNFCCC COP 27) | SDG Knowledge Hub | IISD". 2022. *IISD*.

<https://sdg.iisd.org/events/2021-un-climate-change-conference-unfccc-cop-27/>

¹²⁸ "COP26: The Negotiations Explained". 2021. UN Climate Change Conference UK 2021. UK Government.

<https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf>

- Facilitating nationally appropriate systems for monitoring and evaluating adaptation actions,
- Strengthening the adoption process of the climate targets in developing countries¹²⁹.

Under the decision referred to in Article d; the financing of the climate targets in line with the Paris Agreement and the Kyoto Protocol in developing countries has been discussed. Agreed in 2009 and extended through to 2025, the precondition goal as financing developing countries to improve their qualification on action considering the climate change with the \$100bn is set as a totemic issue of international climate action and negotiation¹³⁰. Although the goals regarding the financing of developing countries is an agreed point, it still poses controversial positions from the countries about the value, and the volume of the money they will finance.

8. Transition to Green Energy

The primary advantages of a green economy are low-carbon development, resource efficiency and social inclusion¹³¹. This economic model essentially recognizes natural sources and capital as a critical economic asset for the loop. An inclusive green economy can be established with three main dynamics; the reduces, reuses, and recycles goods¹³².

The usage of renewable energy in different sectors is seen as an advantage due to its characteristics such as cost-competitiveness and the public appealness¹³³. By stabilizing the demand-supply chain in the economic market, it is evaluated as having an effect for

¹²⁹ "The Six-Sector Solution To The Climate Crisis - Energy". 2022. *UN Environment*. Accessed May 28.

<https://www.unep.org/interactive/six-sector-solution-climate-change/energy/index.php>

¹³⁰ "The Six-Sector Solution To The Climate Crisis - Energy". 2022. *UN Environment*. Accessed May 28.

<https://www.unep.org/interactive/six-sector-solution-climate-change/energy/index.php>

¹³¹ "Green Approaches To COVID-19 Recovery: Policy Note For Parliamentarians". 2022. Inter-parliamentary Union & UN Environment Programme. Accessed May 28. https://wedocs.unep.org/bitstream/handle/20.500.11822/34542/PNP_en.pdf?sequence=1&isAllowed=y.

¹³² "Green Approaches To COVID-19 Recovery: Policy Note For Parliamentarians". 2022. Inter-parliamentary Union & UN Environment Programme. Accessed May 28. https://wedocs.unep.org/bitstream/handle/20.500.11822/34542/PNP_en.pdf?sequence=1&isAllowed=y.

¹³³ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE

traditional energy sources; being a substitution for other types of energy sources. Beyond its advantages in the market, it is also beneficial since it can improve public health by reducing pollution on a global scale¹³⁴. Moreover, it increases reliability and resilience¹³⁵. The usage of renewables in diversified sectors in the market can also enhance the economy, improving and supporting employment. Considering the fact that the Covid-19 and the traditional energy source market has created many inequalities considering the gender in the workplace, and unemployment rates, the introduction of renewable energy sources can be beneficial for enhancing the economy with many qualities.

In the transition period, there are divisions of responsibilities among the institutions and certain organizations, such as the private sector, governments, agencies concerning the energy, and the supplies of the energy sources like oil and gas firms¹³⁶. In this perspective oil and gas firms can be effective in the transition by reallocating their profound capital to address the investment gap facing in the renewable energy sector. In this stage, companies can be divided into two main categories, ones wanting to be a determinant in the competitive market, ones rejecting the transition of their sources and capital to the production of renewable energy sources. Moreover, some companies still hesitate to diversify their investment through renewables, while at the same time remain more inclined to protect their core businesses in the conventional energy market. According to the head of the United Nations Environment Programme Finance Initiative, the role of the private sector is essential for the smooth transition into the market. For him, there is not enough money, and capital, coming from the public sources, for the recovery from Covid-19, for financing massive

¹³⁴ *ibid.*

¹³⁵ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

¹³⁶ "Renewables 2020 Global Status Report". 2021. REN21.

https://www.ren21.net/reports/global-status-report/?gclid=CjwKCAjwkMeUBhBuEiwA4hqpEMRdbJZGdIe3DB6cmW1VhFiT8DaPAUX47-HMS40J0XEfDncmaQEjShoCzZUQAvD_BwE.

structural changes which the market needs¹³⁷. Since there are many actors counted as an essential tool for introduction to the green sources, different actions should be taken in a cohesion. These actions are as follows:

- Convening the wide range of stakeholder, such as governments, funding partners, private sector players, financial institutions, and the civil society,
- Assisting stakeholders, such as governments, institutions, and the companies, to implement the plans and policies considering the transition period they have designed through enhancing the partnership between/among the UN and them,
- Unlocking, accelerating, and sustaining funding to the energy access sector,
- Working closely with stakeholders to set up implementation mechanisms, build capabilities, and finally enable data-driven decision-making¹³⁸.

The transition to the green energy system has many advantages. According to the International Renewable Energy Agency (IRENA), a transformation in the energy system through renewable usage can boost the economy in terms of cumulative global Gross Domestic Product since it is estimated that there will be US\$98 trillion cumulation in the GDP by 2050¹³⁹. Moreover, there is an opportunity for an increase by 42 million in the renewable energy jobs, by 21 million in expanding employment considering the energy efficiency, by 15 million in system flexibility¹⁴⁰. In addition to the general increase in the limits of the economy, each renewable energy source will affect certain dynamics. For example, with the introduction of the hydropower into the system, the sector will employ 2.1

¹³⁷ "Why Financial Institutions Are Banking On Sustainability". 2022. *UNEP*. Accessed May 28. <https://www.unep.org/news-and-stories/story/why-financial-institutions-are-banking-sustainability>

¹³⁸ "Seforall 3-Years Business Plan 2021-2023". 2020. Business Plans. SEforALL. https://www.seforall.org/system/files/2020-10/SEforALL-Business-Plan_21-23.pdf.

¹³⁹ "Renewable Energy And Jobs Annual Review 2019". 2019. IRENA. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jun/IRENA_RE_Jobs_2019-report.pdf.

¹⁴⁰ "Renewable Energy And Jobs Annual Review 2019". 2019. IRENA. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jun/IRENA_RE_Jobs_2019-report.pdf.

million people directly; while with the implementation of the wind power will lead 1.2 million people to have a job directly¹⁴¹. Apart from the employment rate, gender equality and the role of the women poses a key role in the energy market. Due to the multidisciplinary function of renewable energy sources, the green sector appeals to women in ways that the traditional fossil fuel industry does not. As an indication of this proclamation, it is calculated that women currently represent the %32 of the renewable energy workplace, substantially higher than the global oil and gas industry, where women represent the %22 of the workforce¹⁴². Therefore, as stated by the UNEP climate change expert Niklas Hagelberg, renewable energy sources can provide a wide range of recovery packages from the Covid-19, and opportunities for the unemployment rate, and gender equality in the workforce¹⁴³.

In order to achieve the smooth transition to green energy, the indirect and policies should be implemented by the actors of the process. In the framework of the indirect policies, the carbon pricing and emission trading programmes have the potential to be determinant in the process¹⁴⁴. The indirect policies increase the deployment of renewables by effectively enhancing the relative cost of energy from fossil fuels. Mexico and New Zealand are the countries where the indirect policies are implemented¹⁴⁵. Along with the pricing mechanisms, the ban and phase-out techniques are also counted as indirect policies. As an example, the most common type of fossil fuel ban enacted at the national level was coal¹⁴⁶. Considering the fact that the coal is generally used for the electricity generation, the ban implemented to this energy source can enhance the usage of renewable energy types indirectly. For the

¹⁴¹ ibid.

¹⁴² ibid.

¹⁴³ "Renewable Energy And Jobs Annual Review 2019". 2019. IRENA.

https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jun/IRENA_RE_Jobs_2019-report.pdf.

¹⁴⁴ "Renewable 2021 Global Status Report". 2021. Global Status Reports. REN21.

https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf.

¹⁴⁵ "Renewable 2021 Global Status Report". 2021. Global Status Reports. REN21.

https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf.

¹⁴⁶ "Renewable 2021 Global Status Report". 2021. Global Status Reports. REN21.

https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf.

phase-outs, the European countries can be given as an essential example; Austria and Sweden have closed their last coal fired power plants as a part of phase-out policy¹⁴⁷.

Direct policies are the policies enhancing and supporting the implementation of the renewable energy sources into the market directly. France's new national energy plan (Programmation Pluriannuelle de l'énergie) includes targets for renewable generation capacity for 2023 and 2028¹⁴⁸. Moreover, European Union commitment to reduce greenhouse gas emission %55 by 2030, and financing the developing countries with a certain amount of money can be also counted as direct policies¹⁴⁹.

Along with the benefits of renewable energy, it has many challenges to be implemented. First of all, the rate of the use for fossil fuels has remained the same compared to the total final energy consumption¹⁵⁰. This can be the result of the action of certain countries which are still rejecting the efficient implementation of renewable energy sources in the energy market. Moreover, the transition in the types of energy requires fundamental changes and shifts in the energy market. For instance, in a situation where all the energy sources have turned to be green energy, the infrastructure of the sectors, the types of jobs, and even policies regarding the energy sector will change in accordance with the evaluation. Therefore, there is a need for comprehensive and consistent policies for countries and other actors to enhance and support the smooth transition to the renewable energy source.

9. Points that a Resolution Should Cover

¹⁴⁷ *ibid.*

¹⁴⁸ "Renewable 2021 Global Status Report". 2021. Global Status Reports. REN21. https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf.

¹⁴⁹ *ibid.*

¹⁵⁰ Coronel, Juan. 2022. "A Review On Buildings Energy Information: Trends, End-Uses, Fuels And Drivers". *Energy Reports* 8: 626-637.

- The reasons and effects of the energy crisis; in the perspective of economy, health, and energy, in developed, developing, and underdeveloped countries.
- The role of the Covid-19 in the energy crisis, and its effects on the economy.
- Green energy types and their affordability on a country and regional basis.
- Whether nuclear energy should be counted as renewable energy, and what should be the role of nuclear energy in the transition?
- The role of the industry as a challenging sector and specific policies to enhance the usage of renewables in the industrial sector.
- The role of the building as a challenging sector and specific policies to enhance the usage of renewables in the building sector.
- The role of the transport as a challenging sector and specific policies to enhance the usage of renewables in the transport sector.
- In the framework of UN green energy policies, what types of actions of the actors should be rearranged in order to enhance the introduction of green energy?
- What kind of actors should play the major role, how and in what way in ensuring the energy transition?
- The role of the direct and indirect policies in enhancing the transition.
- Possible solutions;
 - to decrease the inequality between countries and regions in access to energy,
 - to increase the policies enhancing the economy,
 - to slow the transition period in challenging sectors,
 - to the ways of financing the developing countries for the transition period,
 - to find ways for increasing the demand for the renewable energy sources şn total final energy consumption.

10. References