

- Committee:** General Assembly (GA)
- Issue:** Creating measures to ensure universal access to affordable, reliable and renewable energy services
- Student Officer:** Nour Amr Abdel Hamid (General Assembly President)  
Ayten Labib (General Assembly Chair)

## I. Introduction

Climate change, a problem that has largely developed over the past 35 years<sup>1</sup>, has become one of the most critical problems the world faces today, with global temperatures rising about 0.9 degrees celsius since the late 19th century. Climate change is a problem that has had detrimental effects throughout the years, such as those on health, natural disasters, and weather patterns. The problem has only been accumulating and has reached its climax, with the five hottest years in history being recorded since 2010, and 2016 specifically being recorded as the hottest year in history<sup>2</sup>. Above that, June of 2018 was recorded as the third hottest June in 138 years of modern record keeping<sup>3</sup>. Unless efforts are made regarding the use of renewable energy sources, the problem will only continue to escalate. According to NASA “The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally”<sup>4</sup>.

Finding renewable energy sources is the 7th Sustainable Development Goal (SDG) of 2030, making it an issue of top priority since it affects every country, government, and individual in the world. There are four dimensions to this goal, which are **affordability**, **reliability**, **sustainability** and **modernity**, and it is critical that any solution addresses all four of them. Climate change is mainly caused by the emission of greenhouse gasses and the burning of fossil fuels such as coal and petroleum. The problem remains in the fact that these energy sources are what many governments rely on for production, economy, and commercial use. The problem isn’t in finding new resources, as there have been many new revelations and advancements in clean energy sources, but rather in finding ways to no longer depend on fossil fuels and unsustainable energy sources. In order to achieve this, global coalition and cooperation between governments and agencies is crucial.

## II. Focused Overview of the Issue

### 1) Fossil Fuels

There is no doubt that human activity has been the main cause of climate change throughout the years. This human activity is the use of energy sources that contribute to the release of greenhouse gasses. Greenhouse gasses are gasses that trap heat in the atmosphere. These gasses include carbon dioxide, methane, and nitrous oxide; all of which are substances that

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<sup>1</sup> “Climate Change Evidence: How Do We Know?” *NASA*, NASA, 23 July 2018, <https://climate.nasa.gov/evidence/>

<sup>2</sup> *Ibid.*

<sup>3</sup> “News | Articles – Climate Change: Vital Signs of the Planet.” *NASA*, NASA, 20 Jan. 2017, <https://climate.nasa.gov/news/?page=0>

<sup>4</sup> *Ibid.*

are emitted during the production, transport, or combustion of fossil fuels and through other industrial processes. The three main types of fossil fuels are natural gas, coal, and oil, all of which are the main contributors to global warming.

All three types of fossil fuels pose an issue. Any source of energy used should be generating a consistent stream of power to supply for people's needs and improving living standards and social functioning. It should also be doing this in the most sustainable way possible. Oil is used as the main source of power for transportation, which causes a large percentage of greenhouse emissions. Perhaps the largest contributor out of the three is coal. According to the UN, "Coal has been indispensable to industrialization and the advancement of human well-being. If more of the world's people enjoy previously unimaginable living standards today, it is in large part because of coal"<sup>5</sup>. Coal provides 40% of the world's electricity and almost the same percentage of global carbon emissions.

All fossil fuels are inefficient, have a low mass to energy ratio and contribute largely to pollution, making them unsustainable energy sources. Developing nations such as India are for the most part the ones who depend largely on fossil fuels and also biomass because of their ease of use and affordability. This is why efforts must be made in order to ease the transfer of clean energy to developing countries, since their reliance on non renewables has already been massive.

## 2) Cleaner Energy Sources

As previously mentioned, the four dimensions of this sustainable development goal are affordability, reliability, sustainability and modernity. Throughout the years, more and more sustainable energy sources have been emerging, and more people have been shifting to cleaner energy. The goal isn't just to find clean energy sources, but to find clean energy sources that cover all four dimensions. Biomass is one of the cleaner energy sources; although not 100% clean, it is a lot cleaner than the burning of fossil fuels. An estimated 3 billion people cook and heat in their homes using fires that burn biomass (such as wood, animal dung, and crop waste)<sup>6</sup>. Although they do produce some carbon dioxide emissions, they are a better energy source in comparison to fossil fuels. The problem with biomass however is that it lacks two aspects; modernity and sustainability. Biomass is very affordable which is why it's so widespread, especially in developing nations, however it isn't the ideal type of energy since it isn't 100% clean and some experts argue that the continued use of biomass will eventually deplete our soil, so while it is an alternative to fossil fuels, it isn't the best type of clean energy.

There are of course several known types of clean energy, such as but not limited to: hydro-electric power, wind power, solar power, and geothermal power. There are several obstacles in the shift to renewable energy, but the largest obstacle is without a doubt cost. All of these energy sources cover three of the four dimensions of the goal, however they are missing a fundamental aspect; affordability. Operating clean energy plants is relatively cheap, however it is installing them that is highly costly. For example, energies such as solar and wind power have cheap "fuel" and require very minimal maintenance. However, according to the Union of

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<sup>5</sup> "Goal 7-Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All | UN Chronicle." *United Nations*, United Nations, <https://unchronicle.un.org/article/goal-7-ensure-access-affordable-reliable-sustainable-and-modern-energy-all>

<sup>6</sup> "Oxford Energy." *Fossil Fuels* | *Oxford Energy*, [www.energy.ox.ac.uk/wordpress/energy-in-developing-countries/](http://www.energy.ox.ac.uk/wordpress/energy-in-developing-countries/)

Concerned Scientists in the USA (UCSUSA), “The average cost in 2017 to install solar systems ranged from a little over \$2,000 per kilowatt [kilowatts (kW) are a measure of power capacity] for large-scale systems to almost \$3,700 for residential systems. A new natural gas plant might have costs around \$1,000/kW. Wind comes in around \$1,200 to \$1,700/kW.”<sup>7</sup> This makes institutions less likely to invest in the building of sustainable energy plants. On the other hand, since natural gas and fossil fuel power plants are much cheaper to build, the cost of the fuel can easily be passed on to the consumer, making it more likely to receive investments. If the cost over lifespan of these energy sources is considered however, wind and solar energy are the least expensive energy generating sources. “As of 2017, the cost (before tax credits that would further drop the costs) of wind power was \$30-60 per megawatt-hour [a measure of energy], and large-scale solar cost \$43-53/MWh. For comparison: energy from the most efficient type of natural gas plants cost \$42-78/MWh; coal power cost at least \$60/MWh,”<sup>8</sup> proving that, in the long term, it’s cheaper to rely on renewable energy sources despite the initial high price of building the power plants.

There are other obstacles that face clean energy sources. For example, one large obstacle is the transmission of the energy from where it’s being generated to where it’s going to be consumed. In order to improve transmission, new transmission infrastructure (e.g. transmission lines) is needed which of course costs money. Another obstacle is market entry. Any new type of energy is facing large barriers, since they are competing with already existing major market players such as coal, oil, and gas. There are also many widespread misconceptions about the reliability of new energy sources such as wind and solar. However, solar and wind are very predictable, and according to the UCSUSA, “when spread across a large enough geographic area—and paired with complementary generation sources—become highly reliable. Energy planners often consider narrow cost parameters, and miss the big-picture, long-term opportunities that renewables offer. Increased awareness—and a willingness to move beyond the reliability myth—is sorely needed”<sup>9</sup>.

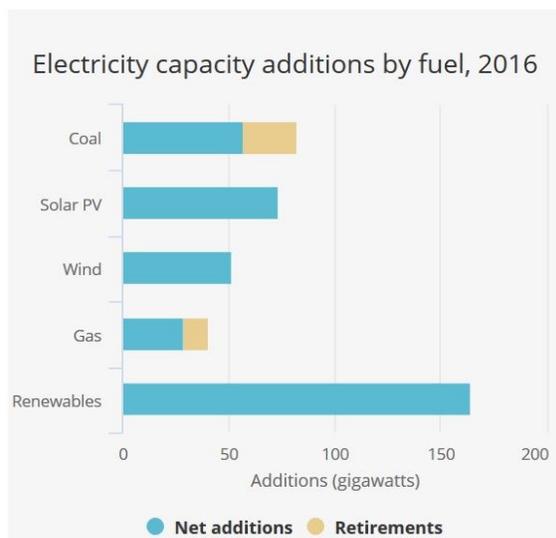


Fig. 1: Electricity Capacity Additions by Fuel 2016<sup>10</sup>

<sup>7</sup> “Barriers to Renewable Energy Technologies.” *Union of Concerned Scientists*, [www.ucsusa.org/clean-energy/renewable-energy/barriers-to-renewable-energy](http://www.ucsusa.org/clean-energy/renewable-energy/barriers-to-renewable-energy).

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> “Renewables 2017 : Key Findings.” *s: Global Carbon Dioxide Emissions, 1980-2016*, [www.iea.org/publications/renewables2017/](http://www.iea.org/publications/renewables2017/).

There have however been some improvements such as new solar Photovoltaic (PV) capacity growing about 50% worldwide in 2017, reaching over 74 GW<sup>11</sup>. It was the first time that solar PV additions grew faster than any other fuel, even more than the net growth in coal (see Fig. 1)<sup>12</sup>. These improvements, however, have not been enough, as global temperatures still continue to increase. If these improvements were enough, the issue wouldn't have been of such high priority like it is now; as the 7th SDG goal, it remains one of the top 10 most important problems today. It is predicted however, that the spread of renewables will continue to increase (Refer to Fig 2), but that will only be achievable if the barriers mentioned above are overcome.

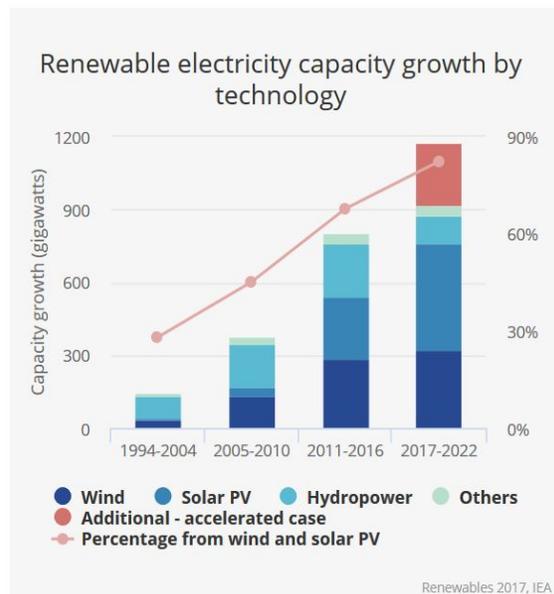


Fig 2: Estimated renewable electricity capacity growth by technology<sup>13</sup>

### 3) The effects of climate change

In order to be able to address this issue, it's important to understand the scope of it, and that entails knowing all the various effects of it. Climate change isn't as simple a problem as the increase in global temperature. There are several implications of rising temperature. Firstly, there has been a continued increase in droughts and heat waves due to the rising temperature. Continuous rise in sea levels due to the melting of the poles has also led to an increase in floods. There have been decreases in certain species of animals such as the Adélie penguins on Antarctica, whose numbers have fallen from 32,000 breeding pairs to 11,000 in 30 years<sup>14</sup>. Climate change has also had several effects on the health of humans and the spread of several diseases. According to the UN chronicle "Even with the expansion of energy accessibility and economic development, the annual death toll from indoor air pollution will still be over 1.5 million people—a higher rate than that from both malaria and tuberculosis."<sup>15</sup> It is estimated that if the temperature continues to increase, there will be even more serious effects. According to National Geographic "Sea levels are expected to rise between 7 and 23 inches (18 and 59 centimeters) by the end of the century, and continued melting at the poles could add between 4 and 8 inches (10 to 20 centimeters)"<sup>16</sup>. Hurricanes are expected to increase in strength and

<sup>11</sup> "Benefits of Renewable Energy Use." *Union of Concerned Scientists*,

[www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power](http://www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power)

<sup>12</sup> "Renewables 2017 : Key Findings." *s: Global Carbon Dioxide Emissions, 1980-2016*,

[www.iea.org/publications/renewables2017/](http://www.iea.org/publications/renewables2017/)

<sup>13</sup> Ibid.

<sup>14</sup> "Global Warming Effects." *National Geographic*, 14 July 2017,

[www.nationalgeographic.com/environment/global-warming/global-warming-effects/](http://www.nationalgeographic.com/environment/global-warming/global-warming-effects/)

<sup>15</sup> "Goal 7-Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All | UN Chronicle." *United Nations*, United Nations, <https://unchronicle.un.org/article/goal-7-ensure-access-affordable-reliable-sustainable-and-modern-energy-all>

<sup>16</sup> "Global Warming Effects." *National Geographic*, 14 July 2017,

[www.nationalgeographic.com/environment/global-warming/global-warming-effects/](http://www.nationalgeographic.com/environment/global-warming/global-warming-effects/)

intensity, less fresh water will be available, diseases such as mosquito-borne malaria and Zika virus will spread, and ecosystems will change completely. These are just some of the problems that will be facing the world if this issue isn't addressed, this just displays how critical of a problem this is.

#### 4) The role of governments

The role of governments is extremely important in a topic like this. To this day, there are still some governments that are skeptical of climate change. If the problem isn't even recognized by some governments, then it's definitely not going to be solved. Governments make investments in the building of power plants, which is why their role is crucial. Instead of investing in coal power plants, natural gas, and other fossil fuels, they should instead focus on investing in cleaner energy sources. Governments have been without a doubt controlling the amounts of greenhouse emissions throughout the years, whether it's through their continuous investments in coal or through their boycotting of coal. Increased government investment is what clean energy needs, in the form of subsidies, loan assistance, and research and development. Solving this issue without the involvement of governments is virtually impossible.

### III. Involved Countries and Organizations

#### 1) United Kingdom

It's 2012, and 40% of electricity generated in the United Kingdom is comprised of coal<sup>17</sup>. In just five years, this number has gone down significantly from 40% to 2%<sup>18</sup>. The United Kingdom has actively been reducing its coal consumption, and in March 2016, the country had enjoyed its first day without any coal output for the first time in 150 years<sup>19</sup>.

UK monthly coal use

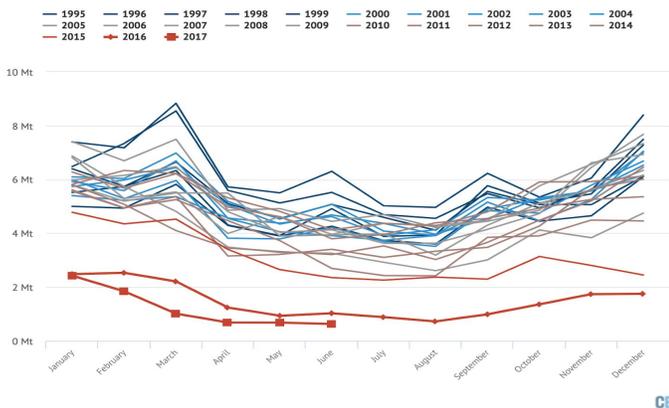


Fig 3: The UK's coal use throughout the years<sup>20</sup>

By 2025, the UK plans to shut down all coal-fired power stations as an attempt to reduce carbon emissions<sup>21</sup>. This sharp decrease in the usage of coal has led the UK to transition to other forms of energy. Some examples are renewable energy, which made up 24.5% of UK's energy in 2016,

<sup>17</sup> Department for Business, Energy & Industrial Strategy. "Climate Change Minister Claire Perry Launches Powering Past Coal Alliance at COP23." *GOV.UK*. GOV.UK, 16 Nov. 2017. Web. 01 Aug. 2018.

<<https://www.gov.uk/government/news/climate-change-minister-claire-perry-launches-powering-past-coal-alliance-at-cop23>>.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Two Charts Show How UK Coal Use Is Collapsing." *Carbon Brief*. Carbon Brief, 27 Apr. 2017. Web. 01 Aug. 2018.

<<https://www.carbonbrief.org/two-charts-show-how-uk-coal-use-is-collapsing>>.

<sup>21</sup> Ibid.

and nuclear energy, which is responsible for 21%<sup>22</sup>. The UK is a good example of a country successfully reducing their carbon footprint in a matter of years. This was mainly achieved through the setting of goals for the country in regards to how much fossil fuel is being used. The graph above (see Fig. 3) shows the changes in the amount of coal used from 1995 to early 2017<sup>23</sup>. Clearly, the UK is a perfect example of a country which has definitely proven it can survive and thrive off of renewable energy sources.

## 2) India

One of the biggest producers of coal, India, is amongst the world's most polluted countries. This has become life-threatening to the millions of people inhabiting the country. As a participant of the Paris Agreement, India has agreed to cut down 35% of their emissions by 2022, along with increasing the amount of energy generated from low-carbon sources to a minimum of 40%. India relies on a number of energy sources,

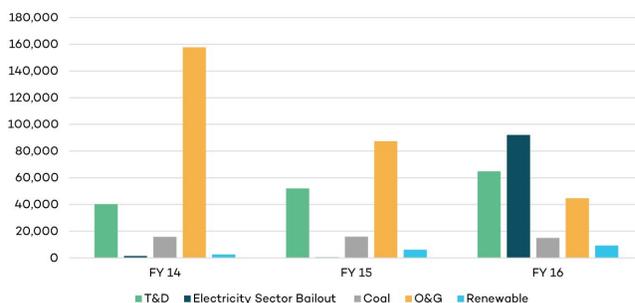


Fig 4: Subsidy for energy types over three years

Although India is still heavily reliant on fossil fuels, there has been a substantial growth in renewable energy generation. From 2012 to 2017, India's installed capacity of renewable energy has gone from 12 to 17.5% due to subsidies the Indian government has placed on renewable energy sources. This was done as an incentive for people to invest in such technology and to ultimately reach goals on renewable energy usage, as set by the government. Therefore, the Indian government is reducing the subsidy being placed on fossil fuels as a result. Figure 4 indicates the amount of subsidy allocated to each energy sector from 2014 to 2015. Although there has been progress, there is still much to be done in India in order to rely completely on sustainable, renewable energy.

## 3) People's Republic of China

China is known for being one of the world's largest coal exporters and recently, some issues related to the fossil fuel have arisen. During the summer of 2018, the price of coal has increased tremendously, causing a major decrease in the resource's demand<sup>24</sup>. This was a major blow to the industry, especially due to the fact that summer is when demand for coal increases in order to power air conditioners, for example. This occurrence has proven how unsustainable fossil fuels such as coal and natural gas truly are. Therefore, the use of hydropower in China has increased as a result of the heavy rainfall the country has been experiencing<sup>25</sup>. This is a step

<sup>22</sup> "Electricity Generation." Energy UK. Energy UK, n.d. Web. 01 Aug. 2018.

<<https://www.energy-uk.org.uk/energy-industry/electricity-generation.html>>.

<sup>23</sup> Two Charts Show How UK Coal Use Is Collapsing." *Carbon Brief*. Carbon Brief, 27 Apr. 2017. Web. 01 Aug. 2018.

<<https://www.carbonbrief.org/two-charts-show-how-uk-coal-use-is-collapsing>>.

<sup>24</sup> "Coal Goes From Summer Boom to Bust on Ample Supply in China." Bloomberg.com. Bloomberg, 30 July 2018. Web. 01 Aug. 2018

<<https://www.bloomberg.com/news/articles/2018-07-30/coal-goes-from-boom-to-bust-this-summer-on-ample-supply-in-china>>.

<sup>25</sup> Ibid.

towards a future with a significantly decreased use of fossil fuels in China, a goal set for 2030<sup>26</sup>. It is stated that China will be closing down old coal plants that are deemed to be inefficient and will open newer, more efficient coal powered plants. Although more efficient, these plants are only temporary, unsustainable solutions and will only decrease emissions slightly compared to renewable energy sources. This is of major importance due to the fact that the United States and China alone create about 42% of the world's CO<sub>2</sub> emissions<sup>27</sup>. The gravity of China's situation can be seen in the air pollution or smog. Daily life has been affected by pollution since cities have been covered with smog. Flights and seaport operations have also been delayed as a result of the pollution. The Chinese government has been attempting to transition to renewable energy sources in order to improve the overall situation of the country, environmentally and economically.



Figure 5: Smog in Tiananmen square in Beijing<sup>28</sup>

#### 4) International Solar Energy Society (ISES)

The International Solar Energy Society was established in 1954 with the goals of increasing the use of renewable energy sources<sup>29</sup>. The non-governmental organization (NGO) was accredited by the United Nations (UN) in 1963 and has been taking part in various UN projects<sup>30</sup>. This includes the UN Commission on Sustainable Development meetings and the United Nations Framework Convention on Climate Change (UNFCCC) Climate Change Conference. The ISES has partnered with people in more than 110 countries with hopes of spreading awareness and knowledge about renewable energy<sup>31</sup>. The main goals of the society encompass working towards the development of global energy development by creating and spreading the technology around the world. In addition to this, the ISES is working towards achieving the 7th Sustainable Development Goal (SDG) of 2030 by supporting research and encouraging the use of sustainable energy. The ISES also aims at bringing institutions together in order to spread and support the use of sustainable energy through communication and cooperation. Thus, the ISES has been doing its part in improving the world, one solar panel at a time.

<sup>26</sup> Silverstein, Ken. "China Is Swallowing A Bitter Pill And Trying To Cut Its Coal Use." *Forbes*. Forbes Magazine, 09 July 2018. Web. 01 Aug. 2018.

<<https://www.forbes.com/sites/kensilverstein/2018/07/09/china-is-swallowing-a-bitter-pill-and-trying-to-cut-its-coal-use/>>.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Equinox. "Vision." *Global 100% Renewable Energy Campaign | ISES*. N.p., n.d. Web. 01 Aug. 2018.

<<https://www.ises.org/who-we-are/about-ises>>.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

## IV. Key Vocabulary

**Biomass:** “Organic matter, especially plant matter, that can be converted to fuel and is therefore regarded as a potential energy source.” Examples include wood, crops, manure, and some garbage.<sup>32</sup>

## V. Important Events & Chronology

Date	Event
December 11th, 1987	Resolution A/RES/42/184 on International co-operation in the field of the environment was passed
November 1988	The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization (WMO) and UN Environment Programme (UNEP). <sup>33</sup>
March 21st, 1994	The United Nations Framework Convention on Climate Change (UNFCCC) enters into force. <sup>34</sup>
December 2009	“World leaders gather for the fifteenth Conference of the Parties in Copenhagen, Denmark, which produced the Copenhagen Accord. Developed countries pledge up to USD 30 billion in fast-start finance for the period 2010-2012”. <sup>35</sup>
December 12th, 2015	The Paris Agreement was adopted. <sup>36</sup>

## VI. Past Resolutions and Treaties

### [A/RES/42/184 - International co-operation in the field of the environment](#)

This resolution, passed on December 11th, 1987, tackles the issue of climate change through different methods. The resolution urges more economically developed countries (MEDCs) and multinational companies to cooperate with less economically developed countries (LEDCs). By doing so, LEDCs will be enabled “to develop and enhance their capacity for identifying, analysing, monitoring, preventing and managing environmental problems in accordance with their national development plans, priorities and objectives.”<sup>37</sup>

### [A/RES/43/53 - Protection of global climate for present and future generations of mankind](#)

This resolution builds upon its predecessor, A/RES/42/184, in 1988. In the resolution, it is stated that the United Nations Environment Programme should work closely with the World

<sup>32</sup> “Biomass.” *Dictionary.com*, Dictionary.com, [www.dictionary.com/browse/biomass](http://www.dictionary.com/browse/biomass)

<sup>33</sup> Golinski, Jan, and United Nations. “Timeline - UNFCCC -- 20 Years of Effort and Achievement.” *UNFCCC*, 19 Mar. 2014, [unfccc.int/timeline/](http://unfccc.int/timeline/)

<sup>34</sup> *Ibid.*

<sup>35</sup> *Ibid.*

<sup>36</sup> “What Is the Paris Agreement?” *UNFCCC*. United Nations, n.d. Web. 01 Aug. 2018.

<<https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>>.

<sup>37</sup> “A/RES/42/184. International Co-operation in the Field of the Environment.” *United Nations*. United Nations, n.d. Web. 01 Aug. 2018. <<http://www.un.org/documents/ga/res/42/a42r184.htm>>.

Meteorological Organization and the International Council of Scientific Unions<sup>38</sup>. The resolution also “encourages the convening of conferences on climate change, particularly on global warming, at the national, regional and global levels in order to make the international community better aware of the importance of dealing effectively and in a timely manner with all aspects of climate change resulting from certain human activities.”<sup>39</sup>

### The Paris Agreement

The 2015 Paris Agreement is an agreement created by member nations of the United Nations Framework Convention on Climate Change (UNFCCC) as an attempt “to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future.”<sup>40</sup> Its main goal is to keep global temperature rise lower than 2 degrees celsius<sup>41</sup>. The agreement implements “nationally determined contributions” (NDCs) in which every member country must participate, which identify the plan of action each country will follow in order to reduce carbon emissions, and therefore hinder climate change<sup>42</sup>. In order to ensure the accomplishment of the goals listed in the agreement, a global stocktake will occur every five years in order to check on the progress of each country in their efforts to decrease their CO2 emissions<sup>43</sup>.

## VII. Failed Solution Attempts

Despite the numerous attempts at reducing global warming and CO2 emissions, some countries are still building fossil fuel powered plants. China is one example of this, where the country is still building coal powered plants, despite the fact that they will be more efficient compared to older power plants<sup>44</sup>. France has also had issues in reducing the amount of gas emissions produced. The country failed to cut the target amount of emissions in 2016 as set by the Paris Climate Accord<sup>45</sup>. This failure was partially due to low oil prices, causing incentive for businesses and people to purchase and use the resource. In order to truly reduce and eventually eliminate global warming, all countries must work together and do their part to minimize emissions. An issue such as global warming must not be taken so lightly in order to make a difference.

## VIII. Guiding Questions

- How can countries promote the use of fossil fuels?

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<sup>38</sup> "A/RES/43/53. Protection of Global Climate for Present and Future Generations of Mankind." *United Nations*. United Nations, n.d. Web. 01 Aug. 2018. <<http://www.un.org/documents/ga/res/43/a43r053.htm>>.

<sup>39</sup> Ibid.

<sup>40</sup> "What Is the Paris Agreement?" *UNFCCC*. United Nations, n.d. Web. 01 Aug. 2018. <<https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>>.

<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> Silverstein, Ken. "China Is Swallowing A Bitter Pill And Trying To Cut Its Coal Use." *Forbes*. Forbes Magazine, 09 July 2018. Web. 01 Aug. 2018. <<https://www.forbes.com/sites/kensilverstein/2018/07/09/china-is-swallowing-a-bitter-pill-and-trying-to-cut-its-coal-use/>>.

<sup>45</sup> "France Fails to Meet Targets for Cutting Greenhouse Gas Emissions." *The Local*. The Local, 23 Jan. 2018. Web. 01 Aug. 2018. <<https://www.thelocal.fr/20180123/france-fails-to-meet-targets-for-cutting-greenhouse-gas-emissions>>.

- Should countries who fail in meeting targets for reducing emissions be punished? If so, what should said punishment be?
- How will countries ensure that people of all classes have access to renewable energy? Should technology such as solar panels be distributed among those who cannot afford it? If so, by what means will this occur through?
- Should the use of everyday transportation, such as cars, be limited? If so, how will countries be able to regulate such a limitation?

## IX. Possible Solutions

There several possible solutions to this issue. Solving this issue depends primarily on reducing the amount of greenhouse emissions. Firstly, since some of the most developed governments in the world have some of the largest carbon emissions in the world, governments that have enough money to spend on cleaner energy sources but instead invest it in non-renewable energy sources should start shifting to clean energy sources. In addition to that, governments could also invest in the area of research and development in order to find renewable energy sources that have all 4 attributes previously mentioned. To aid countries that don't have the resources to spend on renewable energy, an organization could be created under the UN responsible for the funding of power plants in developing countries. Also, technological advancements such as increasing vehicle fuel efficiency could help in reducing carbon emissions. International or local laws could also be created to limit the amount of carbon polluters countries are allowed to use. Finally, the constant effort to research new methods and develop existent renewable energy sources must continue. This can be achieved through an organization as well, specified in the research and development of renewable energy sources. Ultimately, this will lead to more sustainable and widely available sources for even the poorest countries to use.

## X. Useful Links

- **Detailed document on the evidence, effects, and causes of climate change:**

“Climate Change Evidence: How Do We Know?” *NASA*, NASA, 23 July 2018,  
<https://climate.nasa.gov/evidence/>

- **Document on all the various effects of climate change and predictions of long-term effects:**

“Global Warming Effects.” *National Geographic*, 14 July 2017,  
[www.nationalgeographic.com/environment/global-warming/global-warming-effects/](http://www.nationalgeographic.com/environment/global-warming/global-warming-effects/)

- **Document and statistics on the researched benefits of using renewable energy:**

“Benefits of Renewable Energy Use.” *Union of Concerned Scientists*,  
[www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power](http://www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power)

- **Renewable energy statistics and new findings by International Energy Agency:**

“Renewables 2017 : Key Findings.” *s: Global Carbon Dioxide Emissions, 1980-2016*,  
[www.iea.org/publications/renewables2017/](http://www.iea.org/publications/renewables2017/)

- **Detailed document about the barriers and obstacles facing renewable energy technologies:**

“Barriers to Renewable Energy Technologies.” *Union of Concerned Scientists*,  
[www.ucsusa.org/clean-energy/renewable-energy/barriers-to-renewable-energy](http://www.ucsusa.org/clean-energy/renewable-energy/barriers-to-renewable-energy).

- **The United Nations Framework Convention on Climate Change (UNFCCC) 2017 annual climate change report:**

“UN Climate Change Annual Report 2017.” *UNFCCC*, <http://unfccc.int/resource/annualreport>.

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