



# PacificMUN 2018

Dare to Speak | February 23-25

Economic and Financial Committee  
Backgrounder Guide

# ECOFIN - Topic A

PacificMUN 2018



Dare to Speak.

Dear delegates,

My name is Andrew Guo, and I have the honor of serving as the director of the Economic and Financial Committee at PacificMUN 2018. My Model UN journey began two years ago at this very conference, back when PacificMUN was still a day conference. I was deeply motivated by the delegates within my committee who were able to confidently address the committee with knowledgeable points and inspiring leadership.

A little bit about myself: I am currently a junior at Fraser Heights Secondary, and enrolled in the Science Academy program there. When I'm not stressing about the upcoming test and crying over my notes, I'd probably be biking around the neighborhood, desperately trying to get healthy by running, or practicing martial arts. I'm also a fan of history and comedy films, and the cartoon We Bare Bears.

My parents have always asked why I kept on going to Model UN conferences, unwillingly taking out their wallet and paying for the fees every time. This provoked some thought, and I realized that Model UN is not simply a conference where teenagers in suits give speeches about fake issues. It instead an opportunity to develop various talents, create important friendships, and become keenly aware of the issues that are relevant to all of us today.

As a director, I hope I can offer you the ability to grow as a delegate, meet new people in a warm and inviting committee setting, and gain an understanding of the complex world we live in. With that said, I can assure you that your experience in ECOFIN at PacificMUN 2018 will one that is unforgettable. Along with the rest of the dais, Sarah and Anna, we would like to welcome you to the Economics and Financial Committee at PacificMUN 2018. I look forward to meeting all of you!

Sincerely,

Andrew Guo, ECOFIN

# Committee Description

The Economic and Financial Committee (ECOFIN) is the Second General Assembly of the United Nations and is responsible for discussing issues pertaining to global economics. These discussions include but are not limited to international trade, the global financial system, funding for developing nations, eradication of poverty, human settlements, and globalization. ECOFIN also deals with issues pertaining to groups of countries in special situations, which is why it also considers the item on permanent sovereignty of the Palestinian people in the Occupied Palestinian Territory.<sup>1</sup> Least Developed Countries (LDCs) and Landlocked Developing Countries (LLDCs) are two other types of special situations designated by ECOFIN, as these two groups of nations are at a disadvantage when it comes to economic development.

Currently, the ECOFIN agenda consists of six main items with greater importance, these include macroeconomic policy questions, sustainable development, globalization and interdependence, groups of countries in special situations, eradication of poverty and other developmental issues, and operational activities for development.<sup>2</sup> Out of these six items, all but one (globalization and interdependence) are discussed annually to some degree. On its agenda, ECOFIN has also listed a few minor items that are not examined in too much detail, such as the permanent sovereignty of Palestine, agriculture development and food security, and information technologies used for development.

Being a body of the General Assembly, ECOFIN does not have the authority to move its policy into action. As stated by the United Nations, the Assembly “is empowered to make recommendations to States on international issues within its competence.”<sup>3</sup> The Assembly is unable to take direct action unless there is a threat to peace or the Security Council has failed to act due to a veto, although direct action by the Assembly is very rare. Although policies made within ECOFIN is heavily handicapped, it does have equal representation for all 193 nations that make up the UN.

## Topic Overview

The term ‘fossil fuels’ is used to describe hydrocarbon-based fuels that release energy upon combustion. Formed through a process called anaerobic decomposition of ancient organic matter, fossil fuels are classified as a non-renewable resource due to the millions of years it takes for these fuels to form. Due to their relative abundance and high stores of energy, fossil fuels have been an essential factor to global industrialization since the Industrial Revolution, and it continues to play an important role in economic development throughout both developed and developing nations. The importance of fossil fuels is not only within energy production, for fuels like petroleum (oil) can be refined into a variety of products, ranging from asphalt to plastic and even pharmaceuticals.<sup>4</sup> Fossil fuels are one of the most important elements of global commerce, as many nations depend on exports and imports of fossil fuels for economic survival in a very fragile system threatened by many underlying issues.

All 3 types of fossil fuels, coal, natural gas, and petroleum, have limited global supplies that, although are formed through natural processes, replenish far too slow to keep up with an ever-growing global demand. Depletion isn’t even the main issue; the biggest problem with the consumption of fossil fuels is rather the environmental consequences. Burning fossil fuels releases many different pollutants into the atmosphere, and an even more impacting environmental issue is the correlation between climate change and the

---

1 <http://www.un.org/en/ga/second/>

2 <http://www.un.org/en/ga/second/70/periodicity.shtml>

3 <http://www.un.org/en/ga/about/background.shtml>

4 [https://web.archive.org/web/20110719184614/http://cactus.dixie.edu/smlblack/chem1010/lecture\\_notes/2B.htm](https://web.archive.org/web/20110719184614/http://cactus.dixie.edu/smlblack/chem1010/lecture_notes/2B.htm)

burning of fossil fuels. Climate change is forecasted to cause trillions of dollars in environmental damage globally, making it all the urgent for the United Nations to access global reliance on fossil fuels in the future.

From an economic viewpoint, a global reliance on fossil fuels creates an imbalance of wealth and power around the world, a factor attributed from the uneven geographical stores of fossil fuels. Countries with fossil fuels have an immense amount of lobbying power over nations that import these same fuels for their energy production, and in some cases, export nations have banded together to form organizations that allow them to exert greater control over the prices of these important commodities. The prices of fossil fuels are also alarming, for the United States alone is predicted to spend \$23 trillion in importing fossil fuels from 2010 to 2030.<sup>5</sup> However, this enormous spending generates export profits for other nations and is an essential part of global commerce, and without it, there could be serious alterations to the functioning of the global economy.

There are many different options when it comes to new energy sources, each with its own distinct characteristics, that can be considered solutions to the issue. It is important to remember that there will be an inevitable reduction in global reliance on fossil fuels with the introduction of new energy sources. But this also raises new concerns over the development of nations with fossil fuel-based economies, as fossil fuels make up a majority of their exports. It is up to the delegates of ECOFIN to weigh the advantages and disadvantages of different methods that can be used to foster this shift while maintaining the stability of the global economy.

## Timeline

1600s - Coal begins to be turned into coke, a fuel that burns at a high temperature. This aids iron production in Britain and paves the way for the Industrial Revolution a century later.<sup>6</sup>

1748 - Commercial coal production begins in the United States in Richmond, Virginia. Before this, coal was only used on a small scale and dug out by farmers who sold them by the bushel at local markets.

1760 - The Industrial Revolution begins in Britain, marking the first-time coal was used on a large scale for manufacturing. This solidified the importance of coal in industry. Coal, along with other fossil fuels today, is crucial for the global energy industry, which is greatly related to the overall global economic output.<sup>7</sup>

1769 - The modern steam engine is invented, powered by coal. This creates an increased demand for the fuel as factories now rely on efficient coal-powered engines.

Early 1800s - Steam locomotives, using coal as fuel, become more widespread in Britain during the height of the Industrial Revolution. Now, both transportation infrastructure and the manufacturing of goods requires coal as power.<sup>8</sup>

1882 - The first electric power plant is built in New York City on Pearl Street, running on coal fuel.

1882 - A commercial hydroelectric plant begins operations in Wisconsin, making hydroelectricity the first alternative to fossil fuel electricity generation.

---

5 <http://www.environmentamerica.org/reports/ame/high-cost-fossil-fuels>

6 <http://donsnotes.com/environment/energy-timeline.html>

7 Ibid

8 Ibid

1885 - Coal replaces wood as the most used fuel for home-heating.

1888 - In Ohio, the first windmill to be used to generate electricity is built. This is the beginning of another source of energy other than fossil fuels.<sup>9</sup>

1908 - The Ford Model T, designed to be a mass-produced and affordable automobile, begins production. The Model T ran on gasoline or kerosene, and marked an increase in demand for petroleum.

1950 - As automobiles become more common in the developed world, petroleum overtakes coal and becomes the United States' most used source of energy.

1952 - In what is the deadliest environmental episode in recorded history, a dense smog falls upon London in December, killing a recorded 4000 people. The issue of air pollution from burning fossil fuels becomes more prevalent.

1953 - The silicone solar cell is created, allowing light energy from the sun to be transformed into a measurable electric current.

1955 - Using nuclear technology developed during the Second World War, Arco, Idaho becomes the first town in the world to be powered by a nuclear power plant. Nuclear energy is now one of the options to reduce fossil fuel dependency in the world, becoming more commonly used since its introduction in 1955.<sup>10</sup>

1970 - In the United States, the Clean Air Act is passed. Around this time there was a major shift in governmental policy around the world, by which the environmental consequences caused by burning fossil fuels began to be acknowledged.<sup>11</sup>

1973 - In retaliation for US support towards Israel during the 1973 Yom Kippur War, OPEC, mostly led by Arab states, launched an oil embargo on the United States. This eventually extended to other nations that provided support for Israel. OPEC began using the technique of cutting oil production in order to sustain high oil prices even after the embargo ended.

1978 - Under the leadership of Deng Xiaoping, China begins its policy of economic reform that sparks an increase in the nation for energy. Most of this demand is satisfied by coal power plants, eventually making China the world's biggest polluter and emitter of carbon dioxide.<sup>12</sup>

1979 - The 1979 World Climate Conference begins, lasting about 2 weeks as scientists from around the world and from many different fields of study convene together to discuss climate data following World War II. The impact of fossil fuel emissions began to enter global politics, creating a new era of awareness towards the impacts of fossil fuel-based energy.

1980 - The Iran-Iraq War sparks out of control in the Middle East, briefly reducing the region's oil production by 25%. This causes global oil prices to dramatically increase.

---

9 <https://alternativeenergy.procon.org/view.timeline.php?timelineID=000015>

10 Ibid

11 <https://public.wmo.int/en/bulletin/history-climate-activities>

12 Ibid

1986 - The largest nuclear accident in history occurs in Chernobyl, Ukraine, raising concern over the safety of nuclear power as a means of generating electricity. Combined with the Three Mile Island accident in Pennsylvania in 1979, many developed nations consider halting or slowing down their nuclear programs.<sup>13</sup> November 2015 - The Paris Agreement, an agreement within the United Nations Framework Convention on Climate Change set to limit global warming to less than 2°C, was drafted. Eventually, 195 of the 197 countries recognized by the United Nations have signed the agreement, with 160 countries ratifying it and putting it into practice. This agreement marks the beginning of a new energy industry that will greatly decrease global reliance on fossil fuels.

June 2017 - United States President Donald Trump declares intentions to withdraw the US out of the Paris Agreement in hopes of preserving jobs in the fossil fuel sector.

## Historical Analysis

The small-scale use of fossil fuels for heating and cooking dates back thousands of years. The Chinese were thought to have used coal since 2000 BC to smelt metals like copper. Ancient Babylonians were even able to use petroleum as both a fuel and a road building material, known today as asphalt.<sup>14</sup> It was not until the Industrial Revolution in the 18th Century, when fossil fuels, such as coal, became an essential factor towards industrialization, development, and economic growth. Fossil fuels now supplied mechanical power in factories, enabled faster transportation of goods via steam powered locomotives and ships, and eventually was used for large-scale electricity generation. With the invention of electrical power plants, introduction of the mass-produced automobile, and the expansion of road networks across the world, step by step global fossil fuel dependency increased.

Traditionally, fossil fuels have played a huge role in the development of the global economy. The fossil fuel industry employs millions of people yearly, but most importantly it has allowed nations, like those in the Middle East, to create a stable source of income that sustains their economy. Importers of fossil fuels have gained the ability to quickly expand their industrial capability by using a cheap source of energy, allowing nations such as the United States to become a global superpower and nations like China to lift millions of people out of poverty after economic reform. It is because of these benefits from the global reliance on fossil fuels, to many nations alike, that makes reducing dependency such a challenging feat to accomplish.

The challenges faced when it comes to reducing dependency on fossil fuels is historically highlighted by the many conflicts fueled by these precious commodities. For example, Japan's attack on Pearl Harbor, which provoked the United States' entry into the Second World War, was the result of oil and gasoline sanctions imposed on Japan for its actions in Asia.<sup>15</sup> In addition, a nation's desire to gain more quantities of fossil fuels has led to conquest, illustrated by the 1990 Invasion of Kuwait by Iraq.<sup>16</sup> These cases are just one example out of the many conflicts arisen from an addiction to fossil fuels, showing many nations just how unstable their energy industry is if they continue to rely on imported fossil fuels as their primary energy source.

Delegates must understand the long history of fossil fuels, and that to reduce reliance on these fuels there must be a transition period. The debate should focus on the exact specifics of this transitional period, while also best serving the interests of the items listed under ECOFIN's agenda.

---

13    Ibid

14    <https://alternativeenergy.procon.org/view.timeline.php?timelineID=000015>

15    <http://www.independent.org/newsroom/article.asp?id=1930>

16    <http://nationalinterest.org/feature/5-oil-wars-ended-disaster-14885>

# Current Situation

There is no doubt that the world is currently reliant on fossil fuels for energy production. With over 29 countries in the world today that still get over 90% of their energy from fossil fuels, it seems as if efforts to reduce global dependency on fossil fuels have had little to no effect.<sup>17</sup> In 2014, global energy production increased by 1.4%, less than the 1.6% increase in 2013 and the 2.2% 10-year average.<sup>18</sup> Concurrently, coal consumption only grew by 0.4% while natural gas grew by 1.6%. However, it seems that during the same time, oil production rapidly increased, especially in non-OPEC countries where production increased by 2.1 million barrels per day. This trend shows that overall, coal is likely to become the first fossil fuel to be phased out, with natural gas following second. The reason for the increase in oil production may be due to countless uses for petroleum compared to natural gas and coal. Unlike these two types of fossil fuels, petroleum can be used for a variety of products. Out of the three fossil fuels, petroleum is arguably the most important type due to its wide variety of usages and biggest demand. This importance will make it much more difficult to reduce dependency in the future, making it up to the delegates to decide on a framework as to how they will provide an alternative to petroleum-based products.

Today, fossil fuel consumption and production is growing, but if this growth is taken into account the global increase in demand for energy, it seems as if the growth of fossil fuels is slowly starting to decrease. The concern is now over whether this decrease in growth is fast enough, for recently a former Executive Secretary of the United Nations Framework Convention on Climate Change has stated that in order to roll back the effects of human activity on the earth's climate, the world must peak its carbon emissions by 2020.<sup>19</sup> Achieving this goal, as of now, faces some serious challenges, considering that none of the major consumers of fossil fuels have yet to peak their emissions, let alone the rest of the world. To make matters worse, developing nations like India and nations near rich fossil fuel reserves, including Singapore, have seen constant increases in their fossil fuel consumption in the last 10 years.<sup>20</sup> Whether developing nations should be allowed to use fossil fuels in the name of economic development remains a debatable topic, as there is no definite answer whether fast-paced economic development is more important or the increasingly problematic environmental issues created from burning cheap and accessible fossil fuels.

In the long run, the economic costs of fossil fuels are actually greater than alternative sources. For countries that primarily import their fossil fuels, they need to build an extensive network infrastructure to transport these fuels to where they are needed. This creates huge logistical and transportation costs, all of which add up to billions of dollars in the long run. For developing nations, fossil fuels initially are cheaper, but as development goes on, they need to expand and maintain their infrastructure networks. Not to mention, that environmental cleanups cost billions of dollars as well. Taking a look at the 2010 Deepwater Horizon oil spill from a pure economics perspective, it can be seen that in total the company behind the well, British Petroleum, had to pay a total of \$66 billion for damages, with the clean up of the spill costing \$5 billion alone.<sup>21</sup> Climate change, while seeming like an environmental concern, has great economic retributions if not dealt with. According to the Energy Darwinism II report, the world is forecasted to spend \$200 trillion on energy alone in the next 25 years. If climate change is not dealt with, this could cost the world an extra \$44 trillion in the same time period alone, simply from energy costs. This is because climate action encourages countries from around the world to add a mixture of alternatives into their energy system.<sup>22</sup> Eventually, this

---

17 <http://www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html>

18 <https://yearbook.enerdata.net/total-energy/world-consumption-statistics.html>

19 <https://www.weforum.org/agenda/2017/04/we-ve-got-three-years-to-hit-peak-carbon-and-prevent-devastating-climate-change/>

20 <http://www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html>

21 <http://fuelfix.com/blog/2016/07/14/bp-estimates-cost-of-2010-gulf-oil-spill-at-61-6-billion/>

22 <https://www.cnbc.com/2015/08/18/cost-of-not-acting-on-climate-change-44-trillion-citi.html>

will save these countries billions of dollars yearly as they no longer need to import as much fossil fuels, and this is not including the billions of dollars in environmental damage arising from climate change.

### **New Methods of Extraction**

With the discovery of new methods of extraction for fossil fuels, it seems as if the problem of the world's fossil fuel supply being depleted is of less concern. Fracking and deep-sea oil wells are two recently devised techniques used to pump petroleum, allowing companies and nations to tap into previously inaccessible stores of oil. This has dramatically pushed back the previously predicted "expiry date" of fossil fuels, leaving many to feel less concerned about finding an alternative source of energy and reducing the world's reliance on fossil fuels.

However, environmentalists are challenging some of these extraction methods, citing how they are far more polluting, less cost-effective, and wastes large amounts of resources like water. Upon taking a look at one of the new techniques, hydraulic fracturing (fracking), it is easy to see just how valid these concerns are. Fracking is a technique which has only begun to be used in the past decade or so, beginning in the United States, to extract both natural gas and petroleum. The process of fracking begins with drilling down to a store of natural gas or oil solidified in rock formations. These rock formations are then blasted with a mixture of water, sand and chemical agents, at high pressure, breaking the rock and forcing the oil or gas back to the surface.<sup>23</sup> Overall, this process requires great quantities of water, not to mention the potential for these potentially carcinogenic chemicals to leak into ground and drinking water reservoirs. These new techniques, like fracking, have also created new job opportunities and have ensured a steady supply of fossil fuels for many nations with hard to reach fossil fuel reserves, reducing their demand for imported energy. Though, there are some issues with unconventional extraction methods, namely the economic costs related with these methods. The profitability point of hydraulic fracturing, for example, is at \$65 per barrel, meaning that oil prices must be higher than \$65 per barrel in order for fracking to break even.<sup>24</sup> Delegates will have to decide upon whether the environmental damages caused by a reliance on fossil fuels is enough incentive to reduce global dependency, as it seems now that the problem of running out of fossil fuels is no longer the primary force that is driving the world to find alternatives.

### **Environmental Concerns**

Fossil fuels are tremendously polluting, but this pollution isn't as simple as many may think it to be. This pollution doesn't simply stem from the combustion of these fuels, but they start right from the moment they are extracted. Any form of extracting fossil fuels will cause unwanted pollution, and this includes the newer methods including hydraulic fracturing and deep-sea drilling.

When it comes to extraction, a prime example of just how environmentally damaging fossil fuels is would be the surface mining of coal. In some cases, entire mountains are stripped of their vegetation and topsoil, and then blasted away to reach the deposits of coal that sit a few hundred feet at the bottom. The resulting rock and soil are then dumped into surrounding valleys, burying all kinds of ecosystems underneath. Long term effects of surface mining are even more severe, as the heavy metals within coal deposits leak into nearby water sources, intoxicating the surrounding environment. Natural gas and oil are not safe either; natural gas wells have been known to leak methane into the atmosphere during drilling, and oil spills from deep sea wells have caused major environmental damages, like during the Deepwater Horizon oil spill in 2010. Transporting fossil fuels to where it will be used requires an intensive infrastructure system of pipelines, oil tankers, road networks, and railways, all of which are prone to accidents and spills.

---

23 <http://www.bbc.com/news/uk-14432401>

24 [https://www.vice.com/en\\_uk/article/7b73jb/low-oil-prices-are-killing-the-fracking-industry-but-the-tar-sands-will-be-just-fine-923](https://www.vice.com/en_uk/article/7b73jb/low-oil-prices-are-killing-the-fracking-industry-but-the-tar-sands-will-be-just-fine-923)



As of now, the most popular method of transporting oil and natural gas on land would be pipelines, but the construction and operation of these pipelines have stirred up much controversy in recent years as many fear the damages they will cause on the environment in the case of a leak. But the 2016 Standing Rock protests in Dakota demonstrated the widespread concerns over oil pipelines, as thousands of members of the Sioux tribe fear the pipeline, which crosses the Missouri River less than a mile from the location of their reserve, will contaminate their drinking water in the event of a leak.<sup>25</sup> This is not to mention the hundreds of millions of barrels of oil that have contaminated thousands of square miles of ecosystems, costing billions of dollars in clean up efforts and taking years for the environment to recover.

However, fossil fuels undoubtedly cause the most concern when they are burnt; not only do they release toxic particles into the air, but they are the biggest contributor to man-made climate change, affecting the future of the entire planet. When fossil fuels are burnt, they release chemical agents into the atmosphere like sulfur dioxide and nitrogen oxides, which when mixed causes acid precipitation that affects a whole range of different ecosystems. Not to mention the particulate matter released by fossil fuels when burned. It is this particulate matter which makes up a majority of the smog seen in cities around the world, causing all sorts of respiratory problems and leading to the premature deaths of millions each year.<sup>26</sup> The greater issue with burning fossil fuels is unsolvable by new advances in the industry that aims to reduce particulate matter and unwanted chemicals. In theory, this will enable fossil fuels to burn as a pure hydrocarbon, combining with oxygen and producing water and carbon dioxide in a combustion reaction, but the real issue lies with carbon dioxide. Carbon emissions, stemming from a reliance on fossil fuels, is the biggest contributor to the warming of the planet.<sup>27</sup> Fears of the reparations of climate change are now the most significant factor concerning the use of fossil fuels. However, the science behind climate change is not proven in the eyes of some nations, and they have continued to promote the use of fossil fuels in an attempt to preserve jobs in the sector.

## **Geopolitics**

Any resource in demand will spark competition among countries, and fossil fuels are no different. Competition and demand for fossil fuels is fierce, but its uneven geographical distribution makes controlling the global fossil fuel industry an increasingly important priority for countries, leading to conflicts, sanctions, embargos, and many other disputes.<sup>28</sup> Oil, the most widely used fossil fuel, is becoming increasingly more monopolistic with the rise of powerful coalitions like the Organization of Petroleum Exporting Countries, which controls 81% of the world's accessible oil reserves.<sup>29</sup> This comes at a time when industrialized nations like the United States and the European Union become increasingly dependent on foreign fossil fuel assets, many of which are in OPEC countries, further strengthening OPEC's position in the global energy sector.

Conventional oil is becoming a huge geopolitical issue, especially for a major power like the United States, which could enter into a nationwide energy crisis, like in 1979, if embargoed by a just few OPEC countries. Geopolitics of fossil fuels is driving the development and usage of new extraction methods, like those mentioned earlier, to give industrialized nations access to 'unconventional' stores of fossil fuels. From an environmental perspective, this is extremely troubling, as tapping into unconventional stores of fossil fuels poses some serious risks in unwanted pollution and emissions.

---

25 <https://goo.gl/LmnmWo>

26 <http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils>

27 <http://www.environmentamerica.org/reports/ame/high-cost-fossil-fuels>

28 <https://www.briangwilliams.us/climate-politics/geopolitics-of-fossil-fuels.html>

29 [http://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](http://www.opec.org/opec_web/en/data_graphs/330.htm)

# UN Involvement

The United Nations has been involving itself intensively with reducing global fossil fuel dependency so as to combat climate change. Climate change came under the agenda of the United Nations in 1992, when the United Nations Framework Convention on Climate Change (UNFCCC) was created. The UNFCCC was merely an outline containing no binding limits or enforcement mechanisms for achieving its said goal of “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”<sup>30</sup> Five years later in 1997, the Kyoto Protocol was drafted, with developing nations pledging to reduce their carbon emissions by 5% from 2008-12. But enforcement on the Protocol was very loose, and it did not become international law for those countries who agreed to it until 2005.

In December of 2015, the United Nations was able to negotiate the Paris Agreement at the 21st yearly Conference of Parties session that followed the 1992 UNFCCC. The Paris agreement was ratified by 160 of the 197 UN member states, and it collected 195 of 197 signatories, with only Syria and Nicaragua abstaining.<sup>31</sup> <sup>32</sup> The Paris Agreement set out the goal of preventing global warming from exceeding 2°C, and had “appropriate financial flows, a new technology framework and an enhanced capacity building framework” that was put in place to reach these goals.<sup>33</sup> The United Nations hopes to use these new frameworks in the Paris Agreement to allow developing nations and those most vulnerable to climate change to take action with the support of more developed nations. In 2018, the Paris Agreement will be analyzed in order to compare the combined progress of all countries who chose to ratify the agreement in accordance with the goals set out.

Specific industries that rely heavily on fossil fuels have also been urged by the United Nations to find alternatives. The Food and Agricultural Organization (FAO) has recommended the global food industry transition itself away from a dependency on fossil fuels as its main energy source, citing the fluctuating prices of these commodities as a security risk to the accessibility of food.

## Seeking Resolution

As the world slowly transitions away from a reliance on fossil fuels, much may think that it will be embraced by the already industrialized nations first, while developing nations continue to burn their fossil fuels for energy.

As the price of renewable alternatives drop, with some statistics even showing new solar installations becoming cheaper than building coal plants, it becomes possible to push for alternatives in developing nations that desperately need power, but were traditionally thought to have been unable to afford renewable energy.<sup>34</sup> One area where alternative energy should be pursued with the most aggression is, surprisingly, on the African continent.<sup>35</sup> Energy demand in Africa is expected to exponentially grow in the 21st Century, since the population of the continent is expected to quadruple to 4 billion by 2100.<sup>36</sup> This will in effect put to waste the all efforts so far that are trying to mitigate and reverse climate change, as

---

30 <https://goo.gl/HeD4fQ>

31 [http://unfccc.int/meetings/paris\\_nov\\_2015/meeting/8926.php](http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php)

32 <http://unfccc.int/2860.php>

33 [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php)

34 <https://goo.gl/BkScNW>

35 <http://www.nature.com/news/can-wind-and-solar-fuel-africa-s-future-1.20907>

36 <https://goo.gl/pJGkAm>

Africa's potential carbon emissions alone would make it impossible for global warming to be under 2°C even if all other nations reduce their emissions to zero. Pushing for alternative sources of energy production in developing nations might actually be the best place to focus global efforts on, as a majority of these powerplants have yet to be built. With the price of renewable alternative energy set to fall further in the near future, it will likely become even more logical to promote a fossil-fuel free energy infrastructure in areas projected to have rapid population growth during the course of the 21st Century.

Other solutions towards a reliance on fossil fuels are simple and are being put into practice everywhere around the world. These include building more alternative energy, transforming the transportation industry to one that is powered by electric, and offering incentives to promote the building of renewable energy like solar and wind. In order to achieve the goal set out by the Paris Agreement, a potential tweak in current efforts to de-fossilize the energy industry would be a solution in itself. This tweak would see increases in the pace and amount of investment currently being poured into the various industries which are promoting reducing consumption of fossil fuels.

## Bloc Positions

### Europe

European countries are generally supportive against reducing dependency on fossil fuels in order to combat climate change and reach the targets set out in the Paris Agreement.<sup>37</sup> European Union member nations can only extract fossil fuels if they are granted a license and follow the guidelines listed under the EU's Prospection, Exploration, and Production of Hydrocarbon Directive. European nations are beginning to use unconventional methods of extraction, but this has raised some questions due to the environmental implications brought by unconventional fossil fuels. Europe is also exploring a technology called carbon-capture and storage (CCS) so as to reduce the carbon impact of their energy grid, which is still over 50% supplied by fossil fuels.<sup>38</sup>

### United States

Under the Obama Administration, the United States was fully supportive of developing alternative energy sources to both reduce their dependency on foreign fossil fuels and to mitigate the effects of climate change. These policies have now been reversed under the presidency of Donald Trump in an attempt to preserve the fossil fuel industry in the United States. The Trump Administration have gone as far as announcing that they will officially withdraw the United States from the Paris Agreement, but this is expected to take four years to complete.<sup>39</sup> It seems that as of now, the United States is no longer interested in reducing dependency on fossil fuels by finding alternative sources of energy.

### Middle East

The Middle East, which contains 63% of the world's conventional oil reserves, seems like the most unlikely region to promote the reduction in dependency on fossil fuels.<sup>40</sup> But the climate and geography of the Middle East make it extremely suitable for alternative energy, including solar. The United Arab Emirates recently invested \$134 billion in renewable energy in an attempt to reach a 50% clean energy target by 2050; for some context, the UAE is currently 99.91% dependent on fossil fuels for energy.<sup>41,42</sup> Other Middle Eastern countries are undergoing a similar transition, by using their tremendously large assets from oil

37 [http://ec.europa.eu/environment/integration/energy/unconventional\\_en.htm](http://ec.europa.eu/environment/integration/energy/unconventional_en.htm)

38 <http://ec.europa.eu/energy/en/topics/oil-gas-and-coal>

39 <https://www.nature.com/articles/n-12333274>

40 <http://www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html>

41 <https://goo.gl/fHEBgK>

42 <http://www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html>

production and investing it into alternative sources and taking advantage of the vast solar resources in the region.<sup>43</sup>

### **Central and South America**

Central and South America's geographical location is pushing them to lead the way in alternative energy. Besides Venezuela, Chile, and Colombia, there aren't many reserves of fossil fuels, conventional and unconventional alike.<sup>44</sup> This has pushed the continent to become a leader in renewable alternative energy, with over 53% of energy production in 2014 coming from renewables, compared to the world average of 22%.<sup>45</sup> Costa Rica, a Latin American nation, recently broke headlines when it ran on 100% carbon-free energy for seven straight months.

### **China and India**

China and India are both developing nations with huge populations, and as their average standard of living improves in the upcoming years, so will their energy consumption per capita. This creates huge openings in their energy industries, which both countries are determined to fill with renewable energy. Both of these nations are extremely aggressive when it comes to alternative sources of energy, mostly due to the pollution that makes major cities in China and India almost unlivable.<sup>46</sup> China especially, has pushed for rapid investment in solar, wind, nuclear, and other alternative sources of energy because they see an unfilled leadership role in this new but growing industry.

## **Discussion Questions**

How will nations that rely heavily on fossil fuel exports maintain economic stability as demand for these fuels decreases in the future?

How will the United Nations enforce rules and agreements set out to combat climate change?

What will happen to nations who have attempted to, but are unable to meet the targets and conditions of these agreements?

Should alternative energy technologies be treated as a commodity, like fossil fuels where it can be produced and bought by different countries?

How viable is it to substitute the various other products, like plastic, rubber, and asphalt, produced from fossil fuels?

Should funding and research for alternative energy be spread across a variety of different options, or concentrated on one type to mature the technology?

Where is the line between enforcing agreements and the infringement upon a nation's sovereignty?

Are there any other areas besides energy production and transportation that are heavily dependent on fossil fuels?

---

43 <https://goo.gl/9twGr6>

44 [http://www.irena.org/DocumentDownloads/Publications/IRENA\\_Market\\_Analysis\\_Latin\\_America\\_2016.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_Market_Analysis_Latin_America_2016.pdf)

45 <https://goo.gl/Fv8sYJ>

46 <https://goo.gl/isrerD>

# Further Reading

<https://unchronicle.un.org/article/role-fossil-fuels-sustainable-energy-system>

*UN Chronicle – Role of Fossil Fuels in a Sustainable Energy System*

<http://www1.uwindsor.ca/criticalsocialwork/an-analysis-of-fossil-fuel-dependence-in-the-united-states-with-implications-for-community-social-wo>

*University of Windsor – Analysis of Fossil Fuel Dependency in the United States*

[https://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf)

*United Nations – Paris Agreement*

[http://css.umich.edu/sites/default/files/Unconventional\\_Fossil\\_Fuels\\_Factsheet\\_CSS13-19.pdf](http://css.umich.edu/sites/default/files/Unconventional_Fossil_Fuels_Factsheet_CSS13-19.pdf)

*University of Michigan – Unconventional Fossil Fuels*

<http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils>

*Union of Concerned Scientists – The Hidden Costs of Fossil Fuels*

# Works Cited

“Approximate Cost of New Production (\$US/Barrel).” *Alitis Investment Counsel*, Alitis Investment Counsel, 19 Dec. 2014, <http://www.alitisinvestmentcounsel.com/monthly-update/plunge-oil-prices>. Accessed 30 Aug. 2017.

“Energy and environment.” *European Commission*, European Commission, 16 Aug. 2017, [ec.europa.eu/environment/integration/energy/unconventional\\_en.htm](http://ec.europa.eu/environment/integration/energy/unconventional_en.htm). Accessed 30 Aug. 2017.

“Fossil Fuels.” *IER*, Institute for Energy Research, [instituteforenergyresearch.org/topics/encyclopedia/fossil-fuels/](http://instituteforenergyresearch.org/topics/encyclopedia/fossil-fuels/). Accessed 30 Aug. 2017.

“Historical Timeline - Alternative Energy - ProCon.Org.” *ProCon.org Headlines*, ProCon.org, 13 June 2013, [alternativeenergy.procon.org/view.timeline.php?timelineID=000015](http://alternativeenergy.procon.org/view.timeline.php?timelineID=000015). Accessed 30 Aug. 2017.

“Latin America is set to become a leader in alternative energy.” *The Economist*, The Economist Newspaper, 10 Dec. 2016, [www.economist.com/news/americas/21711307-power-andean-sun-latin-america-set-become-leader-alternative-energy](http://www.economist.com/news/americas/21711307-power-andean-sun-latin-america-set-become-leader-alternative-energy). Accessed 30 Aug. 2017.

“Lecture Notes - Hydrocarbons.” *Lecture Notes - Hydrocarbons*, [web.archive.org/web/20110719184614/http://cactus.dixie.edu/sblack/chem1010/lecture\\_notes/2B.htm](http://web.archive.org/web/20110719184614/http://cactus.dixie.edu/sblack/chem1010/lecture_notes/2B.htm). Accessed 30 Aug. 2017.

“Oil, gas and coal - Energy - European Commission.” *European Commission*, Europa, 30 Aug. 2017, [ec.europa.eu/energy/en/topics/oil-gas-and-coal](http://ec.europa.eu/energy/en/topics/oil-gas-and-coal). Accessed 30 Aug. 2017.

“OPEC Share of World Crude Oil Reserves.” *OPEC : OPEC Share of World Crude Oil Reserves*, Organization of Petroleum Exporting Countries, 2017, [www.opec.org/opec\\_web/en/data\\_graphs/330.htm](http://www.opec.org/opec_web/en/data_graphs/330.htm). Accessed 30 Aug. 2017.

- "The Hidden Costs of Fossil Fuels." *Union of Concerned Scientists*, Union of Concerned Scientists, 30 Aug. 2017, [www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils](http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils). Accessed 30 Aug. 2017.
- "The High Cost of Fossil Fuels." *The High Cost of Fossil Fuels | Environment America*, 30 June 2009, [www.environmentamerica.org/reports/ame/high-cost-fossil-fuels](http://www.environmentamerica.org/reports/ame/high-cost-fossil-fuels). Accessed 30 Aug. 2017.
- "Timeline of Energy & Fuel." *Don's Home*, 28 May 2010, [donsnotes.com/environment/energy-timeline.html](http://donsnotes.com/environment/energy-timeline.html). Accessed 30 Aug. 2017.
- "Total energy consumption." *World Energy Consumption Statistics | Enerdata, Enerdata*, 2017, [yearbook.enerdata.net/total-energy/world-consumption-statistics.html](http://yearbook.enerdata.net/total-energy/world-consumption-statistics.html). Accessed 30 Aug. 2017.
- "UN General Assembly - Second Committee - Economic and Financial - Periodicity of items." *United Nations*, United Nations, [www.un.org/en/ga/second/70/periodicity.shtml](http://www.un.org/en/ga/second/70/periodicity.shtml). Accessed 30 Aug. 2017.
- "UN General Assembly - Second Committee - Economic and Financial." *United Nations*, United Nations, [www.un.org/en/ga/second/](http://www.un.org/en/ga/second/). Accessed 30 Aug. 2017.
- "United Nations, main body, main organs, General Assembly." *United Nations*, United Nations, [www.un.org/en/ga/about/background.shtml](http://www.un.org/en/ga/about/background.shtml). Accessed 30 Aug. 2017.
- "What is fracking and why is it controversial?" *BBC News*, BBC, 16 Dec. 2015, [www.bbc.com/news/uk-4432401](http://www.bbc.com/news/uk-4432401). Accessed 30 Aug. 2017.
- Africa Renewable Energy Initiative. Transforming Africa towards a renewable energy powered future with access for all. *AREI*, 2016. Accessed 30 Aug. 2017.
- Dillinger, Jessica. "Fossil Fuel Dependency By Country." *WorldAtlas*, WorldAtlas, 11 Dec. 2015, [www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html](http://www.worldatlas.com/articles/countries-the-most-dependent-on-fossil-fuels.html). Accessed 30 Aug. 2017.
- Ferroukhi, Rabia, et al. *RENEWABLE ENERGY MARKET ANALYSIS - Latin America*. IRENA.
- Frangoul, Anmar. "Cost of not acting on climate change \$44 trillion: Citi." *CNBC*, CNBC, 18 Aug. 2015, [www.cnbc.com/2015/08/18/cost-of-not-acting-on-climate-change-44-trillion-citi.html](http://www.cnbc.com/2015/08/18/cost-of-not-acting-on-climate-change-44-trillion-citi.html). Accessed 10 Sept. 2017.
- Gies, Erica. "Can wind and solar fuel Africa's future?" *Nature News*, Nature Publishing Group, 2 Nov. 2016, [www.nature.com/news/can-wind-and-solar-fuel-africa-s-future-1.20907](http://www.nature.com/news/can-wind-and-solar-fuel-africa-s-future-1.20907). Accessed 30 Aug. 2017.
- Higgs, Robert. "How U.S. Economic Warfare Provoked Japan's Attack on Pearl Harbor." *The Independent Institute*, The Independent Institute, 1 May 2006, [www.independent.org/newsroom/article.asp?id=1930](http://www.independent.org/newsroom/article.asp?id=1930). Accessed 30 Aug. 2017.
- McKernan Beirut, Bethan. "UAE investing £134bn in renewables in push to reach 50 per cent clean energy target." *The Independent*, Independent, 11 Jan. 2017, [goo.gl/fHEBgK](http://goo.gl/fHEBgK). Accessed 30 Aug. 2017.

- Peck, Michael, et al. "5 Oil Wars That Ended in Disaster." *The National Interest*, The Center for the National Interest, 13 Jan. 2016, [nationalinterest.org/feature/5-oil-wars-ended-disaster-14885](http://nationalinterest.org/feature/5-oil-wars-ended-disaster-14885). Accessed 30 Aug. 2017.
- Press, Associated. "BP estimates cost of 2010 Gulf oil spill at \$61.6 billion." *Fuel Fix*, 15 July 2016, [fuelfix.com/blog/2016/07/14/bp-estimates-cost-of-2010-gulf-oil-spill-at-61-6-billion/](http://fuelfix.com/blog/2016/07/14/bp-estimates-cost-of-2010-gulf-oil-spill-at-61-6-billion/). Accessed 10 Sept. 2017.
- Shankleman, Jess, and Chris Martin. "Solar Could Beat Coal to Become the Cheapest Power on Earth." *Bloomberg.com*, Bloomberg, 2 Jan. 2017, [goo.gl/BkScNW](http://goo.gl/BkScNW). Accessed 30 Aug. 2017.
- staff, The National. "Region's renewable energy boom to require \$200bn investment ." *The National*, The National, 22 July 2017, [goo.gl/9twGr6](http://goo.gl/9twGr6). Accessed 30 Aug. 2017.
- Tollefson, Jeff. "Trump pulls United States out of Paris climate agreement." *Nature News*, Nature Publishing Group, 1 June 2017, [www.nature.com/articles/n-12333274](http://www.nature.com/articles/n-12333274). Accessed 30 Aug. 2017.
- Torkington Simon Torkington, Formative Content, Simon. "We must reach peak carbon emissions by 2020, says former UN climate chief." *World Economic Forum*, World Economic Forum , 11 Apr. 2017, [www.weforum.org/agenda/2017/04/we-ve-got-three-years-to-hit-peak-carbon-and-prevent-devastating-climate-change/](http://www.weforum.org/agenda/2017/04/we-ve-got-three-years-to-hit-peak-carbon-and-prevent-devastating-climate-change/). Accessed 30 Aug. 2017.
- United Nations . UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE. *United Nations* , 1992, [goo.gl/HeD4fQ](http://goo.gl/HeD4fQ) . Accessed 30 Aug. 2017.
- United Nations Framework Convention on Climate Change. "From the UN system." *United Nations Framework Convention on Climate Change*, United Nations Framework Convention on Climate Change, 21 July 2017, [unfccc.int/2860.php](http://unfccc.int/2860.php). Accessed 30 Aug. 2017.
- United Nations Framework Convention on Climate Change. "Status of ratification." *The Paris Agreement - main page*, United Nations Framework Convention on Climate Change, 10 Apr. 2017, [unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php). Accessed 30 Aug. 2017.
- United Nations Framework Convention on Climate Change. "United Nations Framework Convention on Climate Change ." *United Nations Framework Convention on Climate Change*, United Nations Framework Convention on Climate Change , 13 June 2016, [unfccc.int/meetings/paris\\_nov\\_2015/meeting/8926.php](http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php). Accessed 30 Aug. 2017.
- Williams , Brian . "Global Warming Causes." *Brian Williams* , Global Warming Causes , 24 May 2017, [www.briangwilliams.us/climate-politics/geopolitics-of-fossil-fuels.html](http://www.briangwilliams.us/climate-politics/geopolitics-of-fossil-fuels.html). Accessed 30 Aug. 2017.
- Wong, Julia Carrie. "Standing Rock protest: hundreds clash with police over Dakota Access Pipeline." *The Guardian*, The Guardian, 14 July 2017, [goo.gl/LmnmWo](http://goo.gl/LmnmWo). Accessed 30 Aug. 2017.
- Yelland, Tannara. "Low Oil Prices Are Killing the Fracking Industry, but the Tar Sands Will Be Fine (for Now)." *Vice*, Vice , 6 Jan. 2015, [www.vice.com/en\\_uk/article/7b73jb/low-oil-prices-are-killing-the-fracking-industry-but-the-tar-sands-will-be-just-fine-923](http://www.vice.com/en_uk/article/7b73jb/low-oil-prices-are-killing-the-fracking-industry-but-the-tar-sands-will-be-just-fine-923). Accessed 30 Aug. 2017.