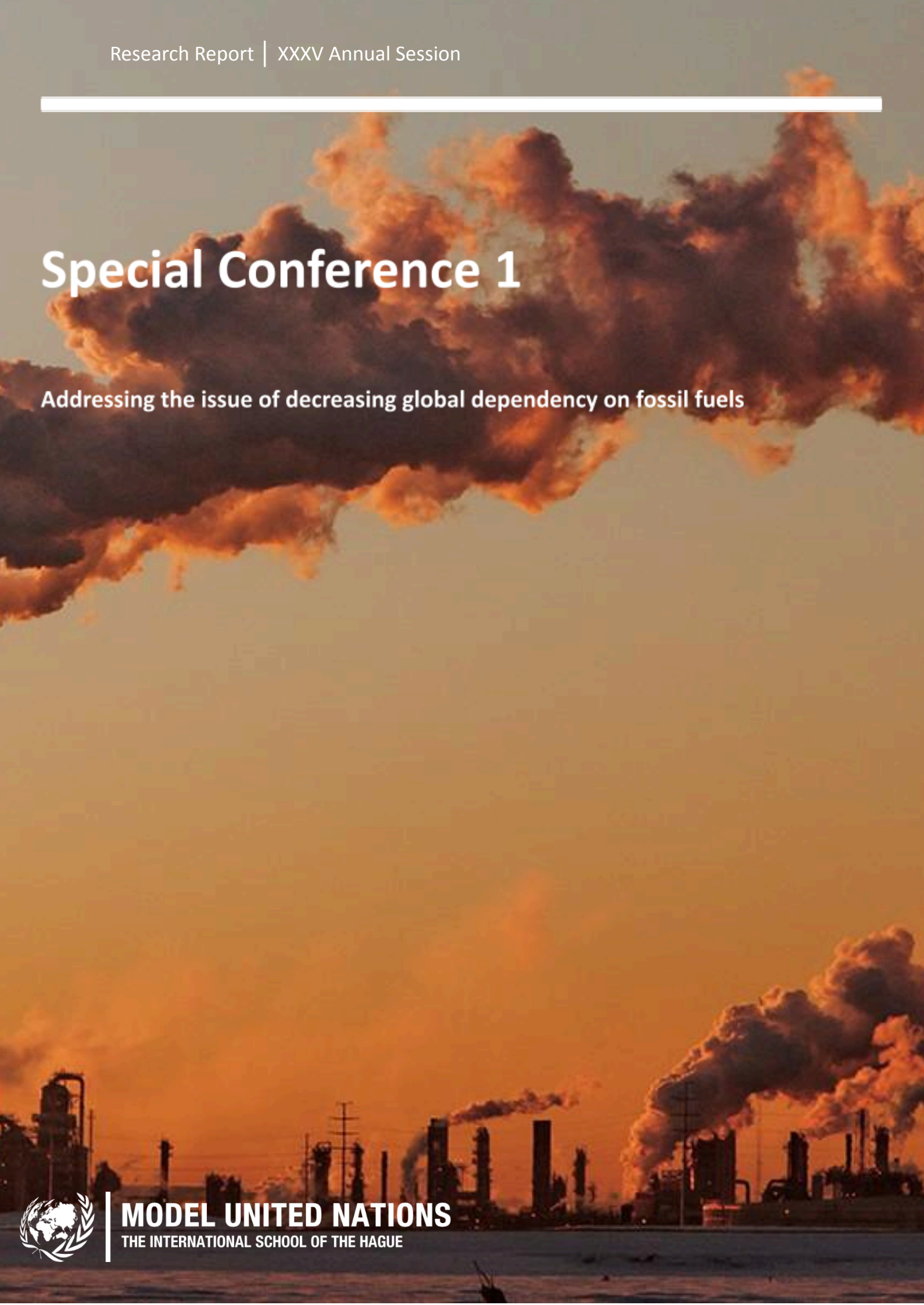
Special Conference 1

Addressing the issue of decreasing global dependency on fossil fuels



MODEL UNITED NATIONS
THE INTERNATIONAL SCHOOL OF THE HAGUE

Forum	First Special Conference
Issue:	Addressing the issue of decreasing global dependency on fossil fuels
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Introduction

The current dependency on fossil fuels as a source of energy is impactful towards energy security, economic stability, the environment, the health of citizens and food scarcity (ClientEarth). It is crucial when working towards more sustainable industrial processes and stable,long lasting energy sources that this dependency is addressed. However, addressing this instability is a complex and intricate issue. The burning of fossil fuel began as early as in the industrial revolution and grew exponentially over time. Although there is more awareness in the media regarding ethical and sustainable energy sources -and coal consumption may be falling in some areas- oil and gas consumption continues to grow rapidly (Ourworldindata). According to the UN, fossil fuels account for over 90% of Carbon emissions worldwide. The countries that have been found to be the highest emitters as of 2022 were the US, China, India, Russia and Japan in that order (Enviornment.Co) . Whilst the emissions of the superpowers had been justified by high populations and economic dependency, the fossil fuels are damaging no matter where they come from and justifying the dependency further perpetuates the issue. What is important to acknowledge is the economic reliance of certain nations on fossil fuels. A multilateral solution that takes into account a variety of perspectives is necessary due to the different socioeconomic factors that may influence a nation's reliance on such means of energy.

Definition of Key Terms

Renewable Energy

Energy which comes from a source that replenishes faster than it is consumed or energy that is not emptied when used.

Energy independence

The definition of energy independence can depend on the context. Energy independence can refer to "a nation that produces all the energy it needs domestically without relying on foreign imports" (Ecoflow). However a nation may be energy independent in terms of some energy sources and independent in terms of others.

Emission Reduction

The process of lowering the rate at which harmful or specific chemicals are released into the atmosphere. Most frequently refers to the release of greenhouse gases.

Economic stability

The stability(also known as lack of fluctuations) regarding a country's, nations, regions or individual's economic situation. In a country this includes stability in housing access, education, employment , healthcare etc.

Carbon Capture and Storage

Also known as CCS. It is a process used to reduce the amount of both natural occurring or industrially caused carbon dioxide in the atmosphere. The process involves separating the Carbon Dioxide and then storing it in a way that prevents it from entering the atmosphere (usually underground). This method has been around for over fifty years but is still being developed and emerging.

Energy Transition

A shift or move in the way that energy is being produced or consumed. Usually refers to the production of fossil fuels.

Green energy

Energy produced from a sustainable method. Usually refers to one that is natural, does not damage the environment and is replenished faster than it is consumed.

Greenhouse gases/ Greenhouse gas effect

Greenhouse gases are the gases in the Earth's atmosphere which contribute to the warming or fluctuations in temperature of the planet. These are the gases that trap heat, they absorb infrared radiation which would be usually lost to space. The gases that make up the greenhouse gas effect include H_2O, CO_2, N_2O, CH_4, and O_3. The greenhouse gas effect is the warming of the earth that results from this process.

General Overview

The beginning of the dependency

Initially society depended on burning wood, agricultural residues and using animal dung for energy (GreenFacts). As mentioned above, the dependency on fossil fuels has been strongly associated with the Industrial revolution with an extreme rise in coal consumption (DuurzameStudent). As Humanity evolved and populations rose, fossil fuels and biomass energy pushed the world to new discoveries through providing cheaper and more powerful sources of energy than before. Transportations and machinery were improved as the global energy dependence scene was set (Department of Energy). A reliance on coal was created through powering railways and engines as well as heating (Lancester University). At the start of the 1700s, about 3 million tons of coal were mined per year however by 1830 this increased to about 30 million (BBC).Using coal for so many new developments created a demand and hence a dependency. , Furthermore, methods of deriving energy such as oil or petrol refinement took place-For example the first drilling of oil in Titsuville Pennsylvania in 1895 (EKT Interactive) .International oil companies such as the Standard Oil Company founded shortly after oil drilling- in 1870 (Library of Congress Research Guides) and hence markets were shaped and dependency on oil and petrol had dug in. This includes oil consumption skyrocketing after oil entered the markets to replace whale oil for lightning and had then become highly popular for means of transport especially after the second world war (Brookings June 2020). This time was highly significant, not only an oil came to a popularity as people shifted away from coal, but gas consumption also quickly rose especially in the domestic sectors (Sciencedirect). As humanity continued to advance in technology almost exponentially and populations became too high, the dependence on energy became inevitable.

Such examples include the oil crises. In in the 1970s oil prices spiked dramatically and an extreme fuel shortage took place in a very short period of time (EBSCO). This occurred due to two events;

Firstly, the 1973 Oil Embargo, also known as the first oil crisis which was caused by Organization of Arab Petrolum Exporting Companies (OAPEC) cutting off oil supplies to nations in support of Israel, Specifically the US for its support during the Yom Kippur War (Energy Education). This led to a shortage, especially within the US highlighted by a strong rise in prices (for example from $3 to $11 per barrel) (EBSCO).

Secondly, in the second oil crisis known as the 1979 Iranian Revolution, due to internal conflicts within Iran an instability in oil production occured. The Iranian revolution overthrew the government which put the oil exports on pause (Britannica). Due to the rapid change in oil production, many nations that depended strongly on Irans exports expiereineced recurring shortages and insecurity (ICNC).

The oil crisis highlight how dependency on one energy source, especially a non renewable "unstable" one such as oil may pose a risk to energy security. In this situations a heavy dependance on imported oil led to disruptions, especially in Western economies.

Currently, about 80% of the world lives in countries which are fossil fuel importers (United Nations) highlighting still existing prominent dependency . Furthermore we are now more aware of the impact of fossil fuels on the environment than at the beginning of their rise in popularity. Therefore the importance of reducing the dependency on such energy sources for the enviornment as well as energy security is more apparent.

The most common means of acquiring energy

The most highly consumed energy source in 2020 was Coal followed by Oil, Natural gas, Hydropower and finally Nuclear energy (OurWorldInData). As the chart below shows there is a significant difference between the extent to which fossil fuels are used as an energy source in comparison to means such as hydropower, wind or solar energy.

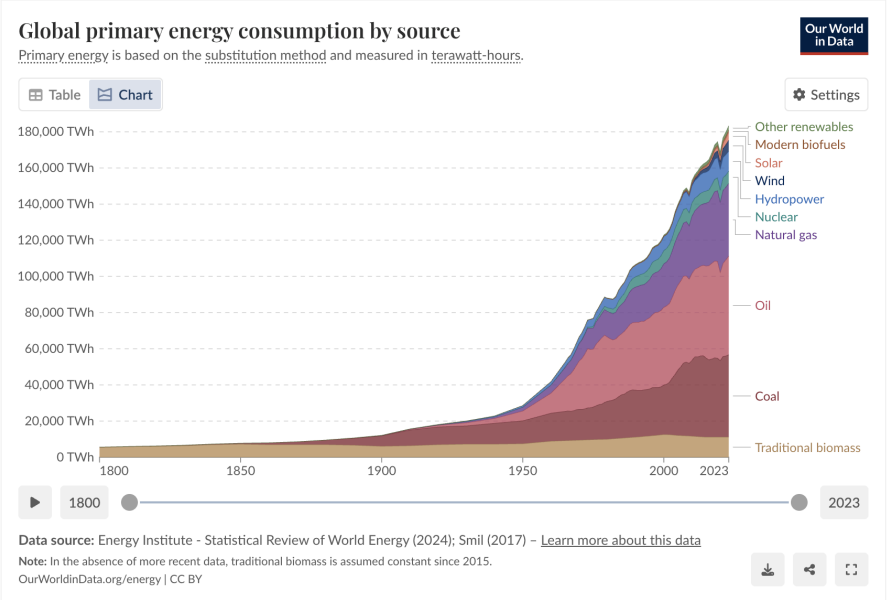

Fig 1- OurWorldInData, Hannah Richie, Pablo Rosado July 2020

As previously mentioned, the reason for why so many of these non-renewable energy sources are employed is partially due to historical context but also because of how easy and efficient it is to derive and transport these very well known resources. They are therefore often reliable for businesses as well as nations as a whole and they are “ready made energy”. Investment into renewable energy sources may not be accessible to all, especially less economically developed countries.

The consequences of fossil fuel use

Fossil fuels pose a variety of threats such as Climate, Environmental and Health abnormalities (Bertrand Savannah ,Dec 17 2021, Environmental and Energy Study Institute). According to the author, examples of possible climate impacts include; Ocean acidification, sea level rise, and extreme weather/temperature.

The adverse environmental effects are frequently mentioned such as water pollution, toxic air pollution and land degradation (NRDC). Possible impacts on humanity include health issues such as , respiratory and heart disease, cancers, pregnancy complications and post-pregnancy complications such as learning delays (United Nations). (Xu Yufei, Wylie Kate, 2 Sept 2024,"). Many additional factors are partially linked to the ones mentioned above. For example, economic impacts of fossil fuels are often linked to environmental effects such as pollution- It is estimated that global economic losses from just air pollution equal about $2.9 Trillion annually (February 12 2020, Greenpeace).

The current state regarding fossil fuel dependance

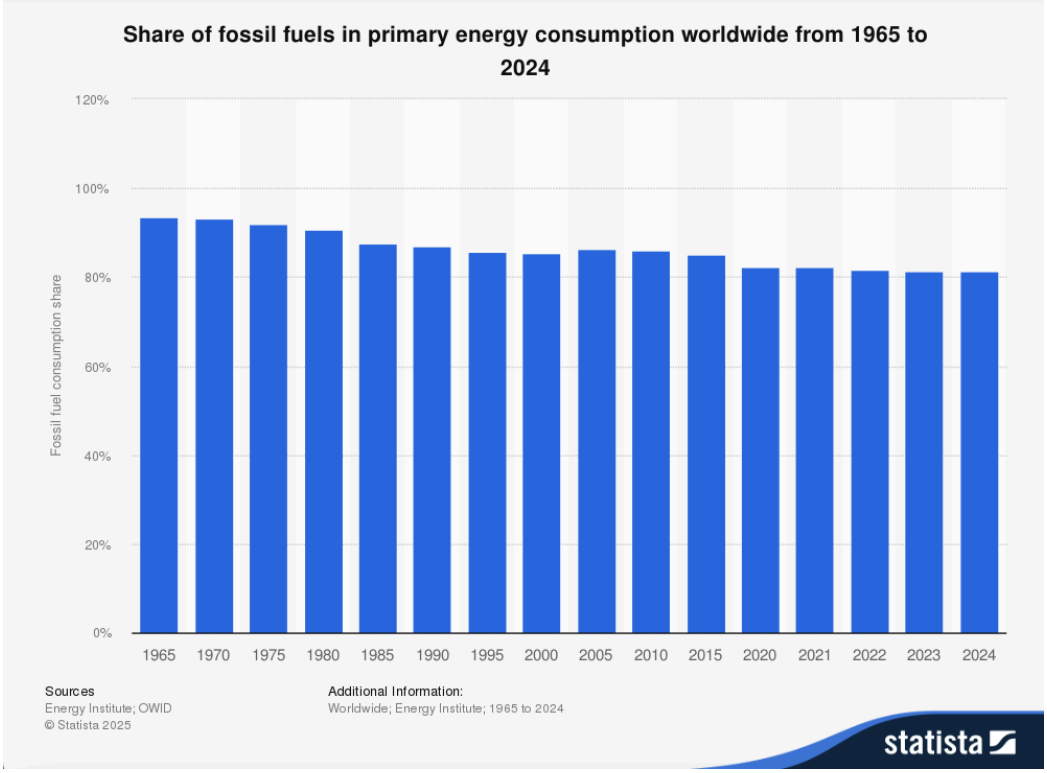

Fig 2- Statista "Share of fossil fuels in primary energy consumption worldwide from 1965 to 2024".

The current global state regarding fossil fuel dependence remains extremely complex. As demonstrated by figure 2, although fossil fuel dependency is declining, fossil fuels continue to make up the majority of energy resources (about 80% in 2024 as shown by the graph). According to the UN, the annual electricity capacity of renewable energy sources has increased by 140% between 2015 and 2024 (United Nations). As further discussed in the report, international treaties such as the Kyoto Protocol have been implemented in an attempt to push nations towards progress. From a general perspective, energy demand continues to rise with a 2.2% rise in 2024 contrasting the

average annual rise of 1.3% between 2013 and 2023 (24 March 2025 IEA). With rising demand, needs must be met.

In contrast with the current efforts, the deep rooted issues due to past and current dependence remain persistent. “74% of the world's population living in fossil fuel importing nations face rising energy security risks”- (22 April 2025, Ember). Such risks could be linked to price fluctuations in energy sources as demonstrated by the Ukrainian-Russian war and a 52.33% increase in oil prices (Zhang, Hu, Jiao, & Wang, 2024, Humanities and Social Science Communications)- Being highly dependant on one or few unstable energy sources may pose risks with the rapidly changing climate and political tensions.

Major Parties Involved

The European Union

The European Union has significantly contributed towards the reduction of the use of fossil fuels. This impacts the dependency on fossil fuels as new perspectives and alternatives are brought in. The EU has set throughout history up to now a variety of targets and goals that nations are either legally bound to follow or recommendations regarding the use of fossil fuels. Examples include increasing the 30% renewable energy target to 42% by 2030 (European commission). Furthermore the European Union has contributed funding to the switch towards renewable energy such as through funding 5.6 million to the European Green deal which is significantly larger than previous efforts up to 2020 (European Commission).

China

China is a highly populated nation which has been significant in energy consumption. China and the US are responsible for 47% of the world's fossil fuel consumption. (Bruno Venditti- Elements). As the nation requires such large amounts of energy it is highly linked to dependency on fossil fuels. China has invested significantly in renewable energy across the past 20 years such as commissioning the same amount of solar PV as the entire world (In 2022) (World Energy Investment 2024) . However the nation is still dominating coal consumption which accounts for a third of the world total (DW world). It is crucial for the sake of fossil fuel dependency and energy security that this mass production and consumption is decreased.

The United Nations (UN)

The United Nations have significantly contributed towards the reduction of fossil fuel consumption and hence dependency. A highly significant example of such includes the Paris agreement which was a legally binding treaty on climate change that provides a framework on the financial and logistical measures that must be taken to reduce rising temperatures (UNFCCC). The reduction of rising temperature is strongly correlated with decreasing the use of fossil fuels.Fossil fuel release contributes to the greenhouse effect hence rising temperatures. Other examples of frameworks imposed by the United Nations include the climate change conferences and promoting and educating the message of the necessity and urgency of investing in sustainable, renewable energy.

Saudi Aramco

Saudi Aramco will be used as an example of the significance of extremely large petrol, gas or oil producers. The company is based in Saudi Arabia and it is the world's largest oil producer producing over 10 million oil barrels per day (EOG). Such large companies generate copious amounts of carbon dioxide and industrial waste which are detrimental to the environment. Furthermore, these mass companies such as Saudi Aramco, Shell, PetroChina, Exxonmobil (and many more) extremely impact the dependency on fossil fuels. By creating relatively cheap supply in mass amounts the companies create and shape a global market for their products and hence a supply.

Greenpeace

Greenpeace is a world known organization that operates across 55 different countries (Wikipedia). The organization has strongly advocated and advised the reduction of fossil fuels and the switch towards renewable energy. This has been done through protests such as sit ins and blockades as well as lobbying and posing legal challenges such as through attempting to hold institutions for environmental damage.

The United States (USA)

The United States, as one of the superpowers, is frequently held accountable for setting the example for other nations due to high influence, developed technology and strong financial means. In the past decade, 80% of the energy expenditure of the United States has been from fossil fuels.

Timeline of Key Events

Date	Description of event
1760-1830	The first industrial revolution occured
1882	First hydropower plant made powered by the Edison Light Company
1884	The first electronic vehicle invented by Thomas Parker
1909	The development of synthetic fertilizers (these release nitrous oxide)
1973	First oil crisis
1978	Amoco Cadiz Oil spill (lead to huge amounts of oil pollution)
1979	Energy crisis
1989	Exxon Valdez oil spill (extreme disruption of ecosystems)
1997	Toyota releases the first mass produced hybrid electric car
1997	The kyoto protocol
2008	The oil price shock
2016	The Paris agreement
2022	Ukrainian- Russian war impacting crude oil prices and exports
2030	The United Nations Run to Zero reaches its deadline
2050	The EU climate neutrality goal reaches its deadline

UN involvement, Relevant Resolutions, Treaties and Events

- COP1 in Berlin

- Paris Agreement (2015)
- COP26 Statement on International public support for the clean energy transitions (Nov 12 2021)
- COP28 UN Climate Change Conference in Dubai (13 December 2023)
- UN SG Climate Action Acceleration Agenda (March 8 2024)
- The Imperative of defossilising our economies, A/HRC/59/42, 15 May 2025
- COP29 UN Climate Change Conference in Azerbaijan, Baku, 22 November 2024
- COP30 Future UN Climate Change Conference in Belem, Nov 10-21 2025

Previous Attempts to solve the Issue

The Paris Agreement

This international treaty occurred in Paris in December of 2015 at the UN climate change conference (UNFCCC). According to the UNFCCC, It became implemented in November 2016. It demanded that nations set their own goals regarding greenhouse gas emissions called Nationally Determined Contributions/ NDC's (Earth.org) . This agreement required long term efforts as nations were required to update and review their goals every five years also known as the five year cycle (UNFCCC). A key recent deadline was for February 10, 2025 where nations were meant to submit their targets leading up to 2035 (Dunne Daisy, February 10 ,2025, Carbonbrief). However the battle with climate change has not been an easy one. According to said article, only 13 out of the 195 nations involved had published their emission cutting goals at the newest deadline.

The Kyoto Protocol

The Kyoto protocol is an international treaty, drafted in 1997 and finally adopted in 2005 (UNFCCC). According to the UNFCCC, the treaty was primarily focused on working with industrialized nations in reducing their emissions. This protocol applied legally binding emission targets which is significant as the Paris agreement is more individual for each nation and voluntarily. The kyoto protocol is also primarily focused on developed countries which could be perceived as a flaw as it fails to include China and India who are major emitters of carbon (Jan 21 2025, Council on Foreign

relations).The article describes how another issue with the attempt is that the US, as already established a major energy consumer, withdrew their signature.

The UN Climate Conferences

According to the UNFCCC, The UN climate conferences are global forums focused on the discussion of issues related to climate change. The conferences are divided into separate parties, some key ones are the conference of Parties, The Conference of parties serving as the meeting to the parties of the Kyoto protocol, The Conference of parties serving as the meeting to the parties of the Paris agreement (UNFCC). This additionally demonstrates the significance of said conferences towards environmental progress, these are the most recognized treaties. According to the official united nations website, the purpose of the UNFCCC and the climate change conferences is to “measure progress and negotiate multilateral responses to climate change”. However many have criticized how in spite of the conferences and many efforts, the human impacts on the climate seem to just be getting worse (Mar 27 2019, Climate home news).

Investments into clean energy (Most relevant China, US, The eu)

“Clean energy technologies continue the trend of attracting around twice as much capital as oil, natural gas and coal combined. Around USD 2.2 trillion will go towards renewables, nuclear, grids, storage, low-emissions fuels, efficiency and electrification in 2025.”- (Bhalla Kriti, IIGCC). Such progress demonstrates the possible decrease in dependency on fossil fuels in question. Key contributing nations have been superpowers such as China and the US which are also very energy dependent ones, as well as the EU.

In 2023 and 2024 China represented about 60% of the global additions to solar and wind capacity (Zhai Fan Jul 8 2025, AMRO).Regarding the US, in 2024 the total clean energy investments reached $272 billion which was 16% higher to the prior year. (Feb 24, 2025, Rhodium Group). However many investments fell in the first half of 2025 due to political changes (Aug 26 2025, Innovation Origins). Whilst the US has the means and responsibility to aid the dependency on fossil fuels, its future actions may be difficult to predict due to a rapidly changing socioeconomic environment Finally, The European Union focuses on strategies and policies further related to investments into clean energy (European Commission). The investments of the EU in 2025 have almost reached 390 billion USD (International Energy Investment).

The Powering Past Coal Alliance (PPC)

The PPCA is a forum focused for governments and organizations to unite and collaborate towards reducing the number and usage of coal-powered plants in the EU and OECD (Oneplanetsummit). The PPCA focuses on phasing out of coal dependence in a way that is both sustainable but also economically stable (Government of Canada). Criticism directed at the alliance had been focused on the fact that some nations who participate burn very little coal/ none at all (,Jan 2020, Science direct). Many organizations have also been leaving the alliance in recent years such as Swiss Re, Storebrand and Ethos showing lack of progress regarding environmental concerns (14 Feb 2025, Responsible Investor)

Possible Solutions

There are many possible solutions to the issue based on both legal frameworks or ones based on initiative. The dependency on fossil fuels has been created and shaped over the years through poverty, uneducated decision making, large populations and global markets. This issue is highly dependent on the economies of nations in question, job stability, amount of energy needed and a plethora of other socioeconomic factors. Therefore the approach to providing a solution must be one that takes into account a variety of different economic situations and perspectives. Possible solutions include;

Creating targets and frameworks

Creating more frameworks and agreements across nations . There have been many agreements and targets set for nations to reach as explained with the significance of the Paris agreement or the goal targets set by the European union. These could help provide a clear target that nations can work towards and enforce collaboration towards solving the issue. A possible downside of this solution is that the UN cannot enforce agreements which would impose sanctions if not completed. This is against the typical conduct of UN solutions. Possible consequences nations could face if not following such treaties could possibly include trade barriers or diplomatic isolation but these are quite extreme. Therefore it is recommended to supplement such a solution with ones that are most objective and imposed to ensure collaboration from all nations that have the means to do so.

Supplementation of fossil fuels with renewable energy

A possible solution that is already being implemented by many nations is to slowly reduce the use of fossil fuels and supplement so with renewable energy sources. While green energy may be expensive upfront, the slow increase of it will mean that the nations in question will have a long term stable energy solution instead of one that may run out. A possible downside of this solution is that it is not particularly accessible to LEDC's. Green energy can be expensive and sources such as wind or water energy may require particular geographical conditions.

Creating subsidies

Another solution involves the creation of subsidies. A subsidy is a form of financial support from a government or legal body in position of power , for carrying out a certain activity (Curtis). There are still currently fossil fuels subsidies imposed which are found broadly in the middle east and north africa (International Monetary Fund) . It is highly important to phase out these subsidies and encourage one's binding to the use of green energy as a method of phasing out fossil fuel dependence.

Bibliography

"A Brief History of the Electric Car." *Energy Saving Trust*, 9 Aug. 2021, energysavingtrust.org.uk/a-brief-history-of-the-electric-car/.

Abellon, Andrea. "China's Renewable Surge: Unlocking the next Phase of Decarbonization." *ASEAN+3 Macroeconomic Research Office - AMRO ASIA*, 8 July 2025, amro-asia.org/chinas-renewable-surge-unlocking-the-next-phase-of-decarbonization.

Afary, Janet. "Iranian Revolution | Causes, Effects, & Facts." *Encyclopedia Britannica*, 28 Mar. 2019, www.britannica.com/event/Iranian-Revolution.

Bertrand, Savannah. "Climate, Environmental, and Health Impacts of Fossil Fuels." *Environmental and Energy Study Institute*, 17 Dec. 2021, www.eesi.org/papers/view/fact-sheet-climate-environmental-and-health-impacts-of-fossil-fuels-2021.

Bhalla, Kritti. "World Energy Investment 2025 Highlights Electricity Demand and Energy Security as New Drivers." *Iigcc.org*, IIGCC, 10 June 2025, www.iigcc.org/insights/world-energy-investment-2025-highlights-electricity-demand-and-energy-security-new-drivers.

Bhushan, Chandra. "After 25 Years of Failure, We Should Abandon the UNFCCC." *Climate Home News*, 27 Mar. 2019, www.climatechangenews.com/2019/03/27/25-years-failure-abandon-unfccc/.

Blondeel, Mathieu, et al. "Moving beyond Coal: Exploring and Explaining the Powering Past Coal Alliance." *Energy Research & Social Science*, vol. 59, Jan. 2020, p. 101304, https://doi.org/10.1016/j.erss.2019.101304.

Britannica. "Industrial Revolution." *Encyclopedia Britannica*, Britannica, 5 Oct. 2024, www.britannica.com/event/Industrial-Revolution.

British Geological Survey. "The Greenhouse Effect." *British Geological Survey*, 2022, www.bgs.ac.uk/discovering-geology/climate-change/how-does-the-greenhouse-effect-work/.

Canada, Environment and Climate Change. "Coal Phase-Out: The Powering Past Coal Alliance." *Government of Canada*, 16 Nov. 2017, www.canada.ca/en/services/environment/weather/climatechange/canada-international-action/coal-phase-out.html.

"Clean Investment Monitor: Q4 2024 Update." *Rhg.com*, 24 Feb. 2025, rhg.com/research/clean-investment-monitor-q4-2024-update/. Accessed 15 Aug. 2025.

Client Earth. "Fossil Fuels and Climate Change: The Facts." *Client Earth*, 27 Mar. 2025, www.clientearth.org/latest/news/fossil-fuels-and-climate-change-the-facts/.

Curtis. "What Are Subsidies in International Trade? | What Does the Government…." *Curtis, Mallet-Prevost, Colt & Mosle LLP*, www.curtis.com/glossary/international-trade/subsidies.

Denchak, Melissa. "Fossil Fuels: The Dirty Facts." *Natural Resources Defense Council*, 1 June 2022, www.nrdc.org/stories/fossil-fuels-dirty-facts.

Department of Energy. "Fossil Energy Study Guide: 300 Million Years Ago." *Energy.gov*, 2022, www.energy.gov/sites/prod/files/Elem_Coal_Studyguide.pdf.

Druten, Daan van. "Why Is Humanity so Dependent on Fossil Fuels?" *Duurzame Student*, 16 Jan. 2023, www.duurzamestudent.nl/2023/01/16/why-is-humanity-so-dependent-on-fossil-fuels/.

EKT Interactive. "History of Oil - a Timeline of the Modern Oil Industry." *EKT Interactive*, 2023, ektinteractive.com/history-of-oil/.

"Energy Crisis of the 1970s | EBSCO." *EBSCO Information Services, Inc. | Www.ebsco.com*, 2022, www.ebsco.com/research-starters/power-and-energy/energy-crisis-1970s.

"Energy Independence." *Wikipedia*, 17 Aug. 2023, en.wikipedia.org/wiki/Energy_independence.

"Energy Security in an Insecure World | Ember." *Ember*, 22 Apr. 2025, ember-energy.org/latest-insights/energy-security-in-an-insecure-world/.

European Commission. “2050 Long-Term Strategy.” *Climate.ec.europa.eu*, European Commission, 2025, climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en.

---. “Energy and the Green Deal.” *Commission.europa.eu*, 8 Apr. 2022, commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/energy-and-green-deal_en.

---. “Renewable Energy Targets.” *European Commission*, 2023, energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-targets_en.

“Fossil Fuels Are a Health Hazard - InSight+.” *InSight+*, 2024, insightplus.mja.com.au/2024/34/fossil-fuels-are-a-health-hazard/.

Fuergy. “The Early History of Water Power.” *Www.fuergy.com*, 18 July 2019, www.fuergy.com/blog/the-early-history-of-water-power.

“Glossary: Traditional Biomass.” *Www.greenfacts.org*, www.greenfacts.org/glossary/tuv/traditional-biomass.htm.

“Google Search.” *Google.com*, 2025, www.google.com/search?q=exxon+valdez+oil+spill&rlz=1C5CHFA_enNL1093NL1093&oq=exxon+valdez+&gs_lcrp=EgZjaHJvbWUqBwgBEAAYgAQyBggAEEUYOTIHCAEQABiABDIHCAIQABiABDIHCAMQABiABDIHCAQQABiABDIHCAUQABiABDIHCAYQABiABDIHCAcQABiABDIHCAgQABiABDIHCAkQABiABNIBCDM2NzlqMGo3qAIAsAIA&sourceid=chrome&ie=UTF-8. Accessed 27 Aug. 2025.

GreenPeace Staff. “Greenpeace.” *Greenpeace*, 9 Oct. 2024, www.greenpeace.org/usa/new-research-air-pollution-from-fossil-fuels-costs-the-world-8-billion-every-day/.

Gross, Samantha. "Why Are Fossil Fuels so Hard to Quit?" *Brookings*, Brookings, June 2020, www.brookings.edu/articles/why-are-fossil-fuels-so-hard-to-quit/.

IEA. "Growth in Global Energy Demand Surged in 2024 to Almost Twice Its Recent Average - News - IEA." *IEA*, 24 Mar. 2025, www.iea.org/news/growth-in-global-energy-demand-surged-in-2024-to-almost-twice-its-recent-average.

IMF. "Fossil Fuel Subsidies." *International Monetary Fund*, 2022, www.imf.org/en/Topics/climate-change/energy-subsidies.

International Energy Agency. "China – World Energy Investment 2024 – Analysis." *IEA*, 2024, www.iea.org/reports/world-energy-investment-2024/china.

Khalid Azizuddin. "Several Financial Institutions Leave Coal Phase-out Initiative." *Responsible Investor*, 14 Feb. 2025, www.responsible-investor.com/several-financial-institutions-leave-coal-phase-out-initiative/. Accessed 2 Sept. 2025.

Letters and the Lamp. "The Industrial Revolution, Coal Mining, and the Felling Colliery Disaster | Letters and the Lamp." *Letters and the Lamp*, wp.lancs.ac.uk/lettersandthelamp/sections/the-industrial-revolution-coal-mining-and-the-felling-colliery-disaster/.

Lyu, Di, et al. "Impact of Russia–Ukraine Conflict on Global Crude Oil Shipping Carbon Emissions." *Journal of Transport Geography*, vol. 128, Pergamon, June 2025, p. 104311, https://doi.org/10.1016/j.jtrangeo.2025.104311.

Maizland, Lindsay, and Clara Fong. "Global Climate Agreements: Successes and Failures." *Council on Foreign Relations*, 21 Jan. 2025, www.cfr.org/backgrounder/paris-global-climate-change-agreements.

National Grid. “What Is Carbon Capture and Storage?” *National Grid*, 26 Mar. 2024, www.nationalgrid.com/stories/energy-explained/what-is-ccs-how-does-it-work.

---. “What Is Green Energy? | National Grid Group.” *Www.nationalgrid.com*, 9 Aug. 2023, www.nationalgrid.com/stories/energy-explained/what-is-green-energy.

Paull, John. “Organic Eprints - a Century of Synthetic Fertilizer: 1909-2009.” *Orgprints.org*, June 2009, https://doi.org/id/eprint/15797/1/15797.pdf. Accessed 27 Aug. 2025.

“Powering Past Coal Alliance.” *Oneplanetsummit.fr*, 2018, oneplanetsummit.fr/en/coalitions-82/powering-past-coal-alliance-174. Accessed 26 Aug. 2025.

Ritchie, Hannah, and Pablo Rosado. “Fossil Fuels.” *Our World in Data*, Oct. 2022, ourworldindata.org/fossil-fuels.

Sanjerehei, Mohammad Mousaei, and Philip W. Rundel. “A Comparison of Methods for Detecting Association between Plant Species.” *Ecological Informatics*, vol. 55, Jan. 2020, p. 101034, https://doi.org/10.1016/j.ecoinf.2019.101034.

Sarah Rudge. “Energy, Oil & Gas Magazine.” *Energy, Oil & Gas Magazine*, 19 Feb. 2025, energy-oil-gas.com/news/the-10-biggest-oil-companies-powering-the-global-economy/.

“Share of Fossil Fuels in Primary Energy Consumption Worldwide from 1965 to 2024.” *Statista* , Image, www.statista.com/statistics/1302762/fossil-fuel-share-in-energy-consumption-worldwide/.

Shukla, Nikita. “Explainer: What Is the UNFCCC?” *Earth.org*, 22 Dec. 2023, earth.org/explainer-what-is-the-unfccc/.

Swart, K. “Trends in the Energy Market after World War II (WW II).” *Journal of Power Sources*, vol. 37, no. 1, Jan. 1992, pp. 3–12, https://doi.org/10.1016/0378-7753(92)80059-K.

Team IO. “Investments in Clean Energy Shifting from US to EU.” *IO+*, 26 Aug. 2025, ioplus.nl/en/posts/investments-in-clean-energy-shifting-from-us-to-eu. Accessed 27 Aug. 2025.

The Network for Public Health Law. “Economic Stability.” *Network for Public Health Law*, 2023, www.networkforphl.org/resources/topics/covid-19-health-equity/economic-stability/.

UNFCCC. “The Paris Agreement.” *United Nations Climate Change*, United Nations, 2015, unfccc.int/process-and-meetings/the-paris-agreement.

---. “What Is the Kyoto Protocol?” *UNFCCC*, 2025, unfccc.int/kyoto_protocol.

---. “What Is the Kyoto Protocol?” *UNFCCC*, 2025, unfccc.int/kyoto_protocol.

Union, European. “European Union – World Energy Investment 2025 – Analysis - IEA.” *IEA*, 2025, www.iea.org/reports/world-energy-investment-2025/european-union.

United Nations. “Renewable Energy – Powering a Safer Future.” *United Nations*, 2025, www.un.org/en/climatechange/raising-ambition/renewable-energy.

---. “Taking Action for the Health of People and the Planet.” *United Nations*, 2024, www.un.org/en/climatechange/science/climate-issues/health.

US Department Of Energy. “Hydropower Basics.” *Energy.gov*, Office of Energy Efficiency & Renewable Energy, www.energy.gov/eere/water/hydropower-basics.

“What Is Emission Reduction? | Trace.” *Www.our-Trace.com*, www.our-trace.com/emission-reduction.

"What Is Energy Transition? (Definition, Benefits and Challenges)." *Www.twi-Global.com*, www.twi-global.com/technical-knowledge/faqs/energy-transition.

"Why Was Coal so Important to the Industrial Revolution?" *BBC Bitesize*, www.bbc.co.uk/bitesize/articles/zpfy3j6#zqx6hcw.

Wikipedia Contributors. "Greenpeace." *Wikipedia*, Wikimedia Foundation, 27 Feb. 2019, en.wikipedia.org/wiki/Greenpeace.

Zhang, Qi, et al. "The Impact of Russia–Ukraine War on Crude Oil Prices: An EMC Framework." *Humanities and Social Sciences Communications*, vol. 11, no. 1, Jan. 2024, pp. 1–12, https://doi.org/10.1057/s41599-023-02526-9. Nature.

Zunes, Stephen. "The Iranian Revolution (1977-1979)." *International Center on Nonviolent Conflict*, Apr. 2009, www.nonviolent-conflict.org/iranian-revolution-1977-1979/.

Unfccc.int, 2024, climateaction.unfccc.int/Initiatives?id=Race_to_Zero.