

Group of Twenty (G20)

The enhancing of renewable energy incentives



Forum:	Group of Twenty (G20)
Issue:	The enhancing of renewable energy incentives
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Introduction

Climate change has become a near undisputed global issue in recent years due to rising global temperatures supported by scientific reports ensuring human activity as the primary cause. Recent reports by the Intergovernmental Panel on Climate Change (IPCC), a United Nations body focused on providing an objective viewpoint on climate change, its causes and its potential consequences, particularly the report Special Report on Global Warming of 1.5 °C (SR15), prove that immediate action has become necessary. The report establishes an aim of limiting global warming to 1.5°C above pre-industrial levels in order to reduce the negative impact on the planet's ecosystems, as well as our health. Furthermore, current projections show that if no action is taken meaning that consumption continues at its current rate, temperatures will rise above the 2°C threshold by 2050. This 2°C threshold is regarded as the point of no return resulting in an exacerbation of sea levels, extreme climate, etc.

In order to reach the global aim of limiting global warming to 1.5°C above pre-industrial levels, concrete action needs to be taken to limit the rise in carbon dioxide levels. More specifically, the Special Report on Global Warming of 1.5 °C, defined that "global net human-caused emissions of carbon dioxide (CO₂) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050" to reach this aim. This report and countless others have proven that action is necessary and increasing renewable energy is the way to move forward. However, most states still use non-renewable energy sources that contribute to global warming due to current infrastructure making them more economically efficient. While conventions such as the Paris Agreement have raised the conversation have created non-binding aims to achieve global aims, further incentives need to be given to states to be able to reach ambitious aims such as reaching net zero carbon by 2050.

Definition of Key Terms



Climate Change

Climate change, also referred to as global warming, is the change in the global climate trends, exemplified through rising temperatures across the world. This has through scientific investigations been proven to have been caused primarily by human activity post the industrial revolution which was then heightened further during the second half of the 20th century. To be more specific, the use of fossil fuels created an increase in greenhouse gases, particularly carbon dioxide, resulting in higher global temperatures due to the Greenhouse Effect.

Greenhouse Gases

Greenhouse gases are the gases that create the greenhouse effect, in turn contributing to global warming. In simple terms, these gases create a layer in the earth's lower atmosphere trapping the heat or infrared radiation that would have otherwise travelled back into space and redirecting it back to the Earth. This then creates this chain reaction amplifying temperatures through trapping heat creating global warming. The most important examples of these gases are carbon dioxide, methane, nitrous oxide and fluorinated gases.

Carbon Tax

A carbon tax is a tax that a government places or imposes on the burning of fossil fuels which create carbon dioxide, namely oil, gas and coal. Essentially, those who emit would have to pay the government an expense of capital proportionate to the amount of carbon they burn. In political terms, the tax is used as a policy to disincentivise companies within both the public and private sector of the economy from using fossil fuels.

General Overview

Even though the Intergovernmental Panel on Climate Change has made it abundantly clear that changes need to be made surrounding fossil fuel usage, in order to avoid the issues listed in the introduction, states still choose to rely on primarily on fossil fuels. This is a result of several different factors, the economics and financial costs of fossil fuels versus renewable energy, current technology within the field of renewable energy sources, and the politics surrounding the issue as a whole.

Efficiency of Renewable Energy

The first reason why states are reluctant to implement renewable energy is that, in comparison to fossil fuels, renewable energy is largely inefficient. When defining efficiency as the amount of electricity created per energy produced there is hardly a disparity, solar



energy has a 20% efficiency rate, wind energy has an efficiency rate near 58%, while coal plants achieve 33% to 40% and gas plants achieve 54% efficiency. However, this disparity occurs once one takes into consideration how much energy it produces in total. Renewable energy sources produce much less energy over a period of time, compared to a coal or gas plant. Furthermore, the most common forms of renewable energy, wind and solar power, are largely dependent on uncontrollable variables, with a lack of wind or sunlight due to overcast causing a significant drop in energy created and in turn also electricity. Both these factors put together mean that it would be difficult for states to rely entirely on renewable energy, disincentivising investment into the industry.

Economics of Fossil Fuels versus Renewable Energy

Possibly the biggest reason why fossil fuels are still widely consumed is the fact that, currently, the total costs of producing energy through fossil fuels are much lower compared to renewable energy. In simple terms, the fixed variable costs of building renewable energy technology per power capacity are much lower than that of a fossil fuel plant. To provide some numbers, a natural gas plant initial production cost sits at an average of \$1,000/kW, drastically lower than that of a solar panel system which ranges from \$2,000/kW to \$3,700/kW. While the variable costs for renewable energy are predicted to be lower in the long-term, it will also produce less energy compared to fossil fuels. This essentially makes the energy produced per price, over extended periods of time equal or lower to fossil fuels, creating an even bigger disparity in costs.

Furthermore, the infrastructure currently in place across the world, is made to support and facilitate our current sources of energy, these being fossil fuel plants. Most if not all renewable energy sources, namely wind, solar, and hydropower systems all rely on being located in specific areas in order to use the renewable, natural resources in wind, water, or sunlight. This would then mean that further infrastructure needs to be built, to be able to transmit the power or electricity harnessed from these renewable energy sources into populated areas. Further infrastructure means further investment with large amounts of capital for what is a less efficient and cost-effective operation, creating a clear monetary incentive for governments to stick with fossil fuels.

Politics surrounding the Issue

The final reason why states can be reluctant to implement renewable energy is the global political situation surrounding the issue. Over the years, many have questioned the legitimacy of both the consequences of climate change predicted by scientists as well as human involvement in causing it in the first place. Even though, these questions have lost



weight thanks to the reports published by the IPCC, governments have been slow to take concrete action, outlining only generalised aims for the future while waiting for further evidence to make more specific policies. It is important to note that there are still a remarkable number of states that have climate sceptic governments, with the most prominent example being the United States' current administration which pulled out of the Paris Agreement.

The growth of the global economy in the past 30 to 50 years attributed to globalisation has in large part been powered through the consumption of fossil fuels. A significant number of countries rely on their fossil fuel industry to contribute for a large part of their economy, this being most evident with states in the Middle East. To provide an example, the oil industry in Saudi Arabia accounts for 90% of their economy. Judging by these figures, it quickly becomes evident why states, who rely on fossil fuels to fuel their economy, would be hesitant to lower production within their fossil fuel industries. At the same time, fossil fuel resources are finite and in order to prevent a complete economic crash in these states once fossil fuels run out, there is an incentive to invest in other forms of energy.

Due to the importance of fossil fuels in economic development, the industry has provided jobs and a subsequent steady income to workers across the world. To be more specific, the industry has particularly benefited working-class households due to the nature of the work in mines being low-skilled physical labour. Closing these mines in favour of renewable energy and lowering carbon emissions would leave workers and their families without said stable income and due to their already weak financial situation could create real issues. On the other hand, research has shown that renewable energy would create more jobs than the already existing fossil fuel industry. The question now remains how these workers would translate and transfer from physical labour to more skilled work within a renewable energy industry.

Finally, the power that the large oil, gas and coal companies hold prevents governments from taking concrete action on minimising fossil fuel production and instead investing in renewable energy. Because of their sheer size, these companies play a big part in a state's economy, gaining influence in the form of lobbyists. States are then less inclined to place regulation on these companies to minimise emissions and equally promote other forms of energy, due to the threat that any one of these companies could decide to relocate to a state with preferable laws. Without a global policy that all states decide to follow, the sheer size of fossil fuel companies gives them the power and influence that makes states rely on fossil fuels.



Major Parties Involved

Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change or IPCC for short is a United Nations appointed body focused on providing an objective viewpoint on climate change, its causes and its potential consequences. The panel has published extensive reports which provide the foundation for all future legislation in tackling climate change setting out clear steps that need to be achieved in order to reach global aims. The Special Report on Global Warming of 1.5 °C (SR15) is the most significant of these reports, citing the aim of limiting global warming to 1.5 °C above pre-industrial levels, and giving concrete steps to achieve this, namely reaching net-zero carbon emissions by 2050.

United States of America (USA)

The United States of America is one of the most significant states involved in the issue, being a global power with large influence but also the second largest greenhouse gas polluter in the world. The current government has taken a weak stance on climate change, with the president calling its legitimacy into question. So far, this has resulted in the USA pulling out of the Paris Climate Accord, going back on previous promises made by the Obama administration. This has occurred in part due to the government plans to revive the state's coal industry, focusing on providing jobs and boosting the state's economy instead of reaching climate aims for the future.

European Union (EU)

The European Union is the world's third largest greenhouse gas polluter. However, compared to the United States of America, the EU has a strong policy to tackle climate change through a mixture of strong regulation and financial incentives and support. The state has clear targets set for 2020 and 2030 tackling all three issues listed in the general overview. For the latter these targets are "At least 40% cut in greenhouse gas emissions compared with 1990; At least 32% of total energy consumption from renewable energy; At least 32.5% increase in energy efficiency".

At the centre of the European Union's efforts is the EU's emissions trading system (ETS). It is a carbon market with a 'cap and trade' system, essentially meaning that a limit is placed on total emissions emitted by an organisation which is reduced over time. These



organisations can then buy or trade emission allowances, allowing for flexibility and cooperation between partners while still limiting total emissions in sectors or industries.

China

China is the largest emitter of greenhouse gases, contributing 27% of all global emissions, equally it is also the second largest economy in the world. The state has made strides to tackle climate change quickly and efficiently in response to the decreasing levels of air quality experienced in the region. China has pledged to peak its greenhouse gas emissions by 2030 and, to accomplish this, has made strides in furthering renewable energy. Furthermore, the state has started implementing the foundation for a national emission trading system based on the EU model in 2017.

Timeline of Key Events

Date	Description of event
1700s	Industrial Revolution began
26 August 1987	Montreal Protocol tackling the hole in the Ozone layer
1988	Formation of the Intergovernmental Panel on Climate Change (IPCC) to create consensus on the issue of climate change
4 June 1992	The start of the United Nation Framework Convention on Climate Change, vowing to tackle the issue
11 December 1997	Kyoto Protocol, the result of the UNFCCC, is signed, committing to reduce greenhouse gas emissions
16 February 2005	Kyoto Protocol officially goes into effect and becomes law in states that ratified the agreement
12 December 2015	Following the Kyoto Protocol, the Paris Agreement is signed by all member states, with each state outlining its own aims to reduce greenhouse gas emissions.

UN involvement, Relevant Resolutions, Treaties and Events

- Kyoto Protocol, 11 December 1997 (1243)
- Paris Agreement, 12 December 2015, (2210)



Previous Attempts to solve the Issue

Both previous attempts to solve the issue the Kyoto Protocol and the Paris Agreement focused around reducing greenhouse gas emissions, the latter being a continuation of the former. Essentially, the Paris Agreement is a climate agreement that allowed states to set their own aims for tackling climate change, with no repercussions in case of failing to meet them. The nonbinding nature of the agreement paired with the freedom that it offered created wide support for it, resulting in all member states signing it and setting out their own aims. However, this means that states are held under no accountability to reach their aims and more importantly that most aims set out are not enough to prevent global temperatures surpassing the 1.5°C to 2°C above pre-industrial levels threshold. In simple terms, the agreement is a step in the right direction and can act as a foundation for what is to follow, but more action is necessary in order to truly tackle and solve the issue.

Possible Solutions

The possible solutions for the issue can be effectively split into two different types, those incentivising renewable energy and those disincentivising the use existing fossil fuels.

The first possible solution to disincentivise the use of fossil fuels would be to suggest the implementation of a carbon tax system. Carbon taxing would mean that governments impose taxes on the burning of fossil fuels which create carbon dioxide, namely oil, gas and coal. Essentially, those who emit would have to pay the government an expense of capital proportionate to the amount of carbon they burn. Due to the reliance on fossil fuels becoming less cost effective for organisations, they are more likely to turn to renewable energy or simply reduce the amount of fossil fuels they are currently using. The concept of carbon tax is simple and transparent, allowing organisations to clearly plan their finances and possible future costs ahead of time. More than 20 states have already implemented or are scheduled to implement a carbon tax, including major global economies such as France, the UK and Canada, proving that the solution works. However, the key downside to the prospect of carbon taxing is that the price of products will likely rise negatively impacting the consumer. This is because companies wish to keep their profit margins the same but now have added costs, forcing price increases.



The second possible solution to disincentivise and limit the use of fossil fuels would be to encourage the implementation of emission trading schemes, be it interstate or national. As explained above, an ETS is a carbon market with a 'cap and trade' system, essentially meaning that a limit is placed on total emissions emitted by an organisation which is reduced over time. These organisations can then buy or trade emission allowances, allowing for flexibility and cooperation between partners while still limiting total emissions in sectors or industries. The EU's ETS has proven to be a successful and effective solution to tackling climate change, while still giving companies the flexibility to succeed financially and keep states' economies in good shape.

Looking at the reasons as to why fossil fuels are favoured over renewable energy, possibly the biggest is that fossil fuels are financially cheaper. Since the UN has unlimited funds within the scope of MUN, financial incentives could be given to promote and incentivise the use of renewable energy sources. This, paired with making the use of fossil fuels less cost effective through the ideas listed above, would essentially disparege the existing financial gap between fossil fuels and renewable energy. Once this gap does not exist, states, organisations and companies have little to no reason to use fossil fuels ahead of renewable energy.

Another reason as to why fossil fuels are used ahead of renewable energy is their efficiency in producing electricity over a period of time. While this is difficult to change instantly, further investment into the research and development of technology used to harness renewable energy is a step in achieving this.

In order to fix the political issues regarding renewable energy, there are several solutions that can be taken. First, one needs to ensure that all workers currently working in fossil fuel plants will still have a job and steady income once renewable energy starts phasing out fossil fuels. This would most likely involve giving them the opportunity to transfer their skills over to the renewable energy industry. Seeing as they are very different jobs, a training program would likely be required in order to create an efficient and effective transition between the two fields of work. One possible way to accomplish this would be for governments to closely work with and financially support the companies looking to move from fossil fuels to renewable energies. Another possible solution in addition to the previous would be effective usage of national and international trade unions to set up these training programmes, seeing as it is their primary aim to support workers and keep them in a job.

Next, to avoid giving large corporations with an interest in fossil fuels influence and power over governments, a global approach needs to be taken where all states are encouraged to



have similar or equal policies on the issue. This might prove to be difficult seeing as a significant number of states rely fossil fuels to play a large role within their economy, Saudi Arabia being the example brought up earlier in the report. To ensure all states play an equal role, financial and infrastructural incentives to aid their transition to renewable energy should be considered for states economically reliant on fossil fuels. However, this would need to be executed with care so as not to give these states a perceived unfair advantage over others. On the other hand, UN resolutions could be passed which strongly enforce hard policies against fossil fuels and for renewable energy. However, it is important to note that there is no way to enforce this type of action seeing as it is outside the reach of the G20 and would result in a breach state sovereignty.

Finally, bodies such as the IPCC and the UNFCCC and their findings need to be encouraged and spread in order to ensure that climate change is viewed as a global issue across the world.

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