

Putting the Earth First:

The Case for Renewable Energy
Transition

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POLICY PAPER



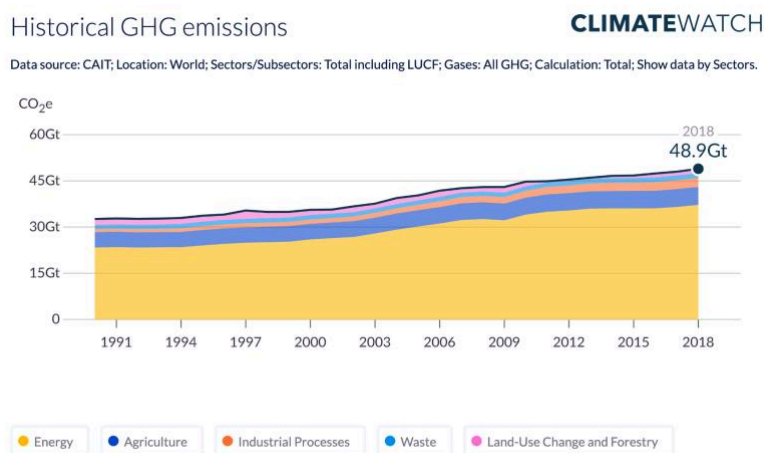
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Introduction

The world is at the precipice of a climate disaster. If no action is taken to mitigate and attempt to limit climate change, its effects will spell catastrophe not only to future generations, but also it would affect our own livelihood. In order to mitigate climate change, the world must prioritize a quick transition to clean, renewable energy, and reduce its greenhouse gas emissions.

Dating back to the 1990's, the energy sector has always been the biggest emitter of greenhouse gases worldwide (See figure below), this means that there is immense pressure on the energy sector to innovate and take action before climate change reaches a point of no return. It is to this effect that the United Nations along with other international organizations such as the International Energy Agency, have called on countries and provided roadmaps for them, to reach carbon neutrality within their countries by 2050, otherwise known as "Net Zero".



This policy brief showcases the reasons why a transition to renewable energy is nonnegotiable to achieve carbon neutrality, and the economic benefits that accompany it. The brief will also present policy recommendations for Egypt in regards to releasing the dependency on fossil fuels and instead reinforce the transition to renewable energy.

The Slow Transition to Renewable Energy

To tackle the impending dangers of climate change, world leaders came together in 2015 and signed the Paris Agreement, an international treaty that aims to finance mitigation and adaptation efforts to tackle climate change. The agreement, which was signed by all UN countries and territories, was a sign of hope for the world, but in order

to do that, drastic measures must be taken, greenhouse gas emissions worldwide have to be lowered, traditional energy such as fossil fuels, must be transitioned to renewable energy. In 2020, the global energy generation from renewable energy sources stands at 29%, up from 27% in 2019 (IEA, 2021). While in Egypt, it is expected that 20% and 42% of the country's energy to be generated from renewable energy sources by the year 2022 and 2035 respectively (ITA, 2020). The numbers suggest that there has been a slower than required transition to renewable energy, and that there remains to be a large dependence on fossil fuels and other traditional forms of energy. The International Renewable Energy Agency has exclaimed that “Renewable energy needs to be scaled up at least six times faster for the world to meet the decarbonisation and climate mitigation goals set out in the Paris Agreement” (IRENA, 2018), the statement from IRENA provides a reality check that the world needs to abandon its fossil fuel dependence.

Reality Check: The appeal of fossil fuels

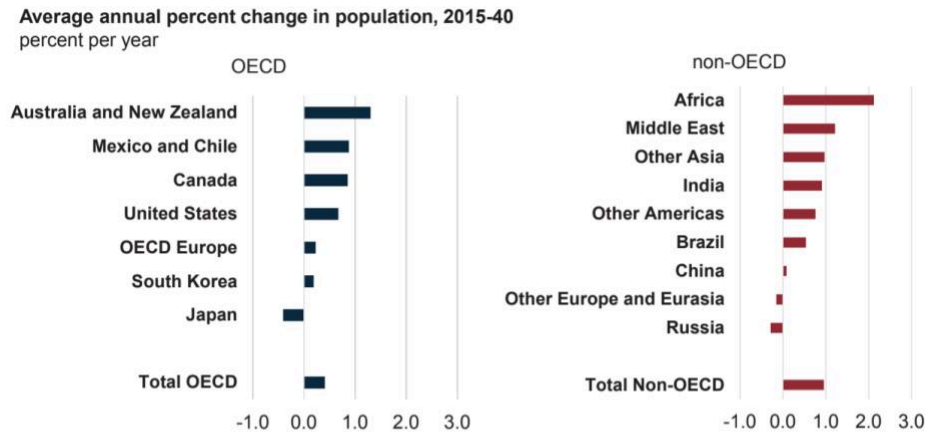
Scientists have been sounding the alarm on the impact of climate change since the 1900's and those warnings have mostly fallen on deaf ears as the inaction of countries continues to drive the world further into the climate crisis. The world's extreme dependence on fossil fuels makes the transition to renewable energy a much more difficult task as well. Fossil fuels are historically considered to be the most cost efficient form of energy generation, it is found in abundance and can be transported, and handled with ease, it is also already a huge factor in our day to day lives (Gross, 2020). A complete transition from fossil fuels to renewable energy would require a massive undertaking and commitment from countries worldwide, yet it is necessary to take the steps towards that transition as the benefits will also far outweigh the financial burdens of the transition.

What are we facing

Along with the climate crisis, the world is going to be facing other challenges that will greatly affect our energy generation. The first of these is our population growth, it is expected, based on the graph below (EIA, 2018), that the world's population will continue to increase in the coming years, especially in non-OECD countries, with this worldwide population growth comes a challenge for our energy consumption. There is a directly



proportional relationship between population growth and energy consumption, meaning that there will be a need for further energy generation, as the EIA projects that the world's energy consumption will grow by 28% between 2015 and 2040 (EIA, 2017), leaving a challenge that needs to be solved but also a potential opportunity to solve that challenge through renewable energy systems.



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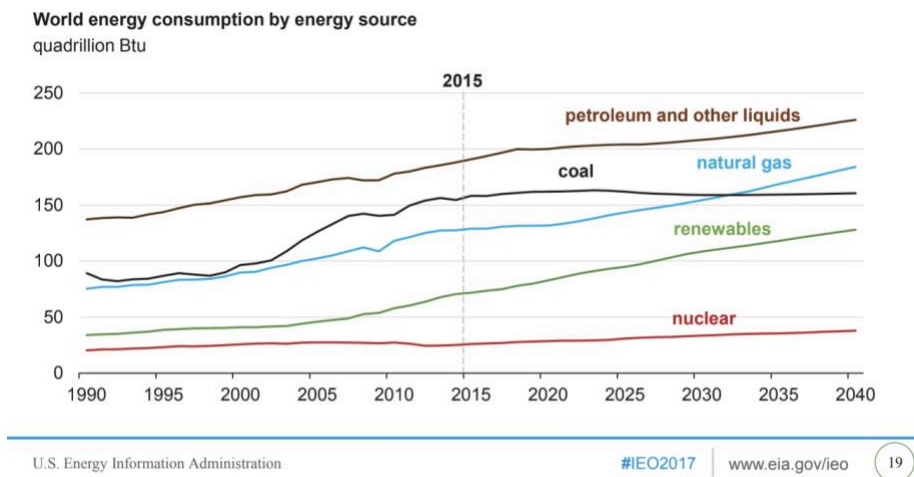
The case for renewable energy

Fatih Birol the IEA Executive Director stated "The social and economic benefits of accelerating clean energy transitions are huge, and the costs of inaction are immense." (IEA, 2021), the data shows that there will be a gap between future energy consumption and generation. This presents the world with an opportune moment to invest in renewable energy generation.

Egypt is almost perfectly situated to take advantage of this opportunity, as its geographical placement on the map makes it an ideal home for renewable energy generation. The gulf of Egypt's Suez enjoys an average wind speed of 10.5m/s, which places it as one of the best locations worldwide for wind energy generation given that the world average wind speed is around 6m/s (ITA, 2020). Egypt also benefits from an average of 9 to 11 hours of sunlight per day all year round, and the country also receives around 2,000 to 3,000 kWh/m²/year of direct solar radiation, thus being dubbed a "sun-belt" country for its tremendous solar generation potential (ITA, 2020).



Investing in renewable energy would provide opportunity for local innovation. Opening up the green technology market in Egypt means potentially more jobs, investment, new technology, and a return on investment into the country's economy (IRENA, 2016). Investing in renewable energy would also mean a diversification of Egypt's energy portfolio, decreasing the dependence on fossil fuels and imported fuels as well. Based on the figure below, we can see that there is a global upward trend in energy consumption, renewable energy consumption is having a sharp rise and is predicted to continue to do so for the foreseeable future, although, based on the graph, the rise in renewable energy consumption does not affect the consumption of other resources (IEA, 2018). This does provide an opportunity for Egypt to place itself as a global exporter of renewable energy, if the country expands on its current renewable energy generation trajectories. Egypt's current trajectory is to have at least 42% of the country's energy generated from renewable energy sources by the year 2035 (ITA, 2020), the country currently generates 11% of its total energy through renewable energy systems, this is due to the country's involvement in different renewable energy generation projects using solar, hydro, wind, and biomass energy generation initiatives (IRENA, 2018).



Putting the Earth first: Policy recommendations

- 1) Removal of fossil fuel subsidies and placing a tax on carbon emissions would provide renewable energy with an edge in the market. In 2019 the International Monetary Fund spent \$5.9 trillion on fossil fuel subsidies (Yale, 2021); in order to



strengthen the case for renewable energy, countries and international organizations must commit to the removal of fossil fuel subsidies. Along with the removal of subsidies, placing a tax on carbon will also deter corporations and heavy fossil fuel emitters from continuing their “business as usual” standards of practice. Although Egypt has committed to removing their fossil fuel subsidies, they have yet to place a strategic plan to tax carbon emissions.

- 2) Providing incentives for green innovation would support entrepreneurs in green tech and eventually lessen the cost of renewable energy. Normalizing green technology and renewable energy will make the technology much more accessible to the general population, which has already become a proven strategy as the price of renewable energy has become one of the cheapest forms of energy (WE Forum, 2021). For Egypt to become a pioneer in renewable energy and the exportation of technology and energy, the government should implement incentives, such as tax, sponsorship/partnership opportunities, etc, to motivate people from the local community to get involved in green technology, which would also lead to a rise in employment opportunities.
- 3) Supporting feed-in tariffs in order to support renewable energy on a local level. Feed-in tariffs are a useful marketing tool to encourage investment in renewable energy on a household level, where a government will buy surplus electricity that a household generates . The Egyptian government had a feed-in tariff initiative in 2014 but it was halted shortly after due to mismanagement of the project (AmCham, 2017). A renewal of the initiative would be beneficial to Egypt, as it was to other countries such as Germany, it would promote renewable energy usage within the country, and the government can use the surplus energy it purchases from its citizens and then export it globally.

Conclusion

The world's growing population and energy demands present a golden opportunity for countries to reverse their dependence on fossil fuels and instead lead us



into a worldwide green energy transformation. The economic benefits of renewable energy, along with their social and environmental benefits, make a strong case for why prioritization of renewable energy should be at the forefront of energy sector policy reform. Countries, like Egypt, that are geographically suited to be the leaders of the renewable energy transition, can benefit tremendously from this opportunity if utilized appropriately.



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