ETP

ETP Undergraduate Essay Competition

Climate change is perhaps the the greatest existential threat of our time[1]. Globally, its impacts are already manifest in the form of extreme weather events, biodiversity loss, melting polar ice caps, increased occurrences of heatwaves, droughts, wildfires, and their associated socioeconomic effects. Increasingly, it is being recognized that the world is facing a climate emergency that requires urgent and serious action.

Given that the energy sector is the largest single source of the greenhouse gas (GHG) emissions mainly responsible for climate change[2], a global energy transition is considered paramount in the effort to limit emissions and consequently the impacts of climate change.

Broadly defined, the energy transition, in this context, is the transformation of the global energy sector from fossil-based systems of energy production and consumption to renewable energy sources in an effort to halt the rise in temperature caused by GHG emissions from fossil fuels. In addition to the replacement of fossil fuels (largely coal, oil and gas) with renewables, the development of new technologies such as energy storage and hydrogen, the electrification of certain sectors including transport and buildings, energy efficiency and digitalization are key features of the energy transition.

In order to deliver a global energy transition, individual nations (and organizations) have to commit to transitioning their energy systems, and Nigeria is a leader on the African continent in this regard. In 2021, His Excellency President Muhammadu Buhari announced Nigeria's commitment to net-zero emissions[3] by 2060 at COP26 and shortly after, Nigeria's Energy Transition Plan (ETP) was unveiled[4,5] (a global launch of the ETP took place on the 24th of August, 2022[6,7] and details of the plan can be found at www.energytransition.gov.ng).

However, as essential as such commitments are in light of climate change, they have important implications ranging for example, from concerns around energy security and affordability to the impact on revenue generation and job security particularly in fossil fuel-based sectors. These implications have to be considered alongside other pressing challenges and realities in individual countries.

For example, about 92 million Nigerians lack access to electricity and 175 million lack access to clean cooking solutions[8]. The average person in Nigeria consumes between 140 – 360 kWh[9] of electricity annually which is far below the proposed modern energy minimum of 1000 kWh per capita[10]. Consequently, the Federal Government of Nigeria, even in the promotion of the ETP, has emphasized that "there can be no energy transition without energy access". In fact, the ETP was anchored on key objectives including lifting 100 million people out of poverty, driving economic growth, bringing modern energy services to the full population and managing the expected long-term job loss in the oil sector due to global decarbonization.

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[1] The Elders, "Five reasons climate change is the greatest existential threat of our time", *The Elders*, October 5, 2018, https://theelders.org/news/five-reasons-climate-change-greatest-existential-threat-our-time

[2] Energy consumed for electricity, heat and transport accounts for over 70% of global emissions.

[3] The United Nations notes that, "put simply, net zero means cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance." (https://www.un.org/en/climatechange/net-zero-coalition)

[4] https://www.thisdaylive.com/index.php/2021/11/03/cop26-buhari-targets-2060-for-net-zero-emission-for-nigeria/

[5] https://www.youtube.com/watch?v=glrBNYsRpWI

[6] https://www.seforall.org/events/launch-of-nigerias-energy-transition-plan

[7] https://www.youtube.com/watch?v=tKE7cL4ia0o

[8] https://trackingsdg7.esmap.org/data/files/download-documents/sdg7-report2022-full_report.pdf; https://trackingsdg7.esmap.org/country/nigeria

[9] The lower estimate accounts for just electricity from the grid while the higher estimate considers self-generation using petrol and diesel generators.

[10] https://www.energyforgrowth.org/wp-content/uploads/2021/01/SHORT-Modern-Energy-Minimum-Final-Jan2021.pdf

This implies, among other things, that in Nigeria, resolving significant energy needs must be balanced with contributing to the global climate response while ensuring energy affordability, reliability and security; the maximization of available energy resources; and the long-term resilience and sustainability of the nation's energy systems. Successfully executing this balancing act necessitates rigorous evaluation of available options, strategic energy systems planning and sound decision-making.

Multiple examples can be found in the Power, Transport and Cooking sectors which account for about 18%, 16% and 14% of Nigeria's CO_2 emissions respectively. In the power sector, to electrify the full population and supply enough energy for industrialization while reducing emissions, there is a myriad of energy sources (including Gas, Solar, Wind, Nuclear, Hydro, and Biomass among others) as well as configurations such as centralized (on-grid) and decentralized (off-grid) systems that can be considered. Given factors including costs, resource availability/potential, location of regions to be electrified, amount of power capacity required, the urgency of the access and transition targets, and the legal and institutional energy frameworks in Nigeria, among others, what energy technologies and in what configurations should be prioritized? In the transport sector, to transition from petrol/diesel powered vehicles, there is an immediate choice to be made between compressed natural gas (CNG) vehicles and electric vehicles. Should Nigeria, an important oil and gas nation, prioritize gas vehicles or electric vehicles in recognition of both climate and economic impacts? Similarly, in the cooking sector, should the immediate solution be liquefied petroleum gas (LPG) or electric cooking given the urgent need to move families away from dirty cooking which currently contributes to approximately 95,000 premature deaths each year from household air pollution[11]?

Challenge:

As a policy maker in either the Power, Transport or Cooking sector, how would you weight and balance the social, economic, geopolitical, regulatory, climate and health implications to make a sound decision? What decisions would you make?

Building on the themes highlighted above or other relevant ones, and in no more than 1000 words, share what technology choices you would make in either the Power, Transport or Cooking sector and why.

Note: Pick just one of the three sectors; either power, transport or cooking, and start with at least the technology options and configurations provided above (Gas, Nuclear, Renewables in On-grid or Off-grid configurations for power, CNG vs. electric for transport, LPG vs. electric for cooking).

[11] https://www.ccacoalition.org/en/news/nigerian-women-taking-bold-action-reduce-household-air-pollution#:~:text=Household%20air%20pollution%20in%20Nigeria,their%20children%20are%20most%20vulnerable.

ETP-COMPETE ATTESTATION FORM

STUDENT INFORMATION

Name of Student: _____

Name of Institution: _____

Matriculation Number: _____

Level of Study: _____

Duration of Course: _____

PURPOSE OF ATTESTATION

This attestation form certifies that the above-named student is currently enrolled in the institution and is pursuing the course as mentioned above. This attestation form is required to confirm his/her studentship as a participant in the ETP-Compete, a National Essay Competition for Undergraduate Students in accredited Tertiary Institutions across Nigeria.

ATTESTATION

I, _____, the Head of Department of _____

and _____, the Dean of Faculty of _____,

hereby attest that _____ is a bonafide student of our institution,

_____, pursuing a course of study in _____.

_____ _____

Head of Department ***Dean of Faculty***
Phone number/email address ***Phone number/email address***

Date ***Date***

I hereby confirm that the information provided in this attestation form is true and correct to the best of our knowledge.

Please Note - This form should be properly filled, stamped by approving authority and submitted with your entry