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Sustainable Energy Symposium in Africa

Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all, the goals address global challenges we face, including poverty, inequality, climate change, environmental degradation. The exploitation of fossil fuels made the industrial revolution possible and has been providing us with economic growth and technological progress. Economic growth and improving the standard of living for everyone should be achieved in a sustainable manner through focusing on affordable and clean energy, sustainable cities plan, communities, and climate action. In the quest to improve the standard of livelihoods, the human activity has caused more harm than good to the environment.

According to Statista 2021, 592 million people in Sub-Saharan Africa do not have access to electricity and national grid expansion is costly and unlikely to be prioritized over major public work projects. Current traditional methods of electricity generation in Africa have a significant carbon footprint, they generate a significant amount of greenhouse gases, through fossil fuel combustion. In Africa fossil fuels account for about 82% of the total electricity generation, mostly dominated by coal accounting for 41% and natural gas 28%. According to Carbon tracker, constructing new wind and solar plants will soon be cheaper in every major market across the globe than running existing coal-fired power stations. Thus, Africa should come up initiatives to develop alternative ways of electricity generation which are environmentally and financially sustainable. China cancelled the construction of 103 coal fired thermal power station because the coal fired thermal power plants are not environmentally sustainable and the availability of financially viable and cheaper electricity generation options. Humans and wild animals face new challenges for survival because of climate change due to the accumulation of greenhouse gases in the atmosphere. The earth is now experiencing more frequent and intense drought, storms, heat waves, rising sea levels

and melting glaciers, the warming oceans can directly harm animals, destroy the places they live, and wreak havoc on people's livelihoods and communities.

Despite solar photovoltaics being one alternative for generating environmentally and financially sustainable electricity it contributes only 5.3% of the global electricity generation mix. In the sunniest areas like in Sub Saharan Africa Solar Photovoltaics will generate the cheapest electricity. The technology of the Solar Photovoltaics has improved further, and the cost of solar energy has significantly dropped from \$77.00 in 1977 to \$0.22 in 2019 per watt. This reduction in cost of solar photovoltaic has driven adoption solar photovoltaics. As part of the mitigation measures of the nationally determined contributions, solar photovoltaics is one of the practical electricity generation alternatives.

Globalisation and improved trade relationships between countries has led to an exponential increase in transportation. Transportation generates a significant amount of greenhouse gases up to 16.2% of global greenhouse emissions with road transportation contributing 11.2% of greenhouse emissions.

The transportation sector is made up of aviation, shipping, road transportation and rail. Emissions are generated from the burning of petrol and diesel from all forms of road transport which includes cars, trucks, Lorries, motorcycles, and buses. 60% of road transport emissions come from passenger travel that is cars, motorcycles and buses and the remaining forty percent from road freight that is heavy vehicles.

A new generation of vehicles is coming up, the electric vehicle with 2.65 million electric vehicles sold in the first half of 2021. According to Bloomberg we have already passed the peak demand of internal combustion engine vehicles. The Electric Vehicle is expected to become more popular as the cost of the electric vehicle continuously decrease, due to the decrease of the cost of the lithium-ion battery, which is the most expensive part of the electric vehicle. The cost of the lithium-ion battery has dropped price by 98% in the past three decades. The future of road transportation is expected to be dominated by autonomous electric powered vehicles which environmentally and financially sustainable, with charging stations which are powered by renewable energy sources.

To avoid the worst effects of climate change, we need to dramatically reduce global carbon emissions to keep the global temperature increase at below 2°C. However, we must also prepare for the significant and unavoidable consequences of greenhouse gas emissions such as increasing temperatures, shifting precipitation patterns, ocean acidification, sea level rise and the increasing intensity and frequency of extreme weather events. Energy is the biggest constituent in the generation of greenhouse gases, but we cannot do without energy, we need electricity to improve our standard of living, to power our industries and to grow our economies in a sustainable manner. African must adopt alternative ways to generate electricity and still minimize the generation of greenhouse gases. United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Convention itself only asks those countries to adopt policies and measures on mitigation and to report periodically.

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