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Research Article

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THE MODEL OF GREEN INCOME DIVERSIFICATION CREATIVITY (GIDC)

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ABSTRACT

Sustainable AI and Green AI are recent essential approaches for the sustainability of green transition for both green investors and green transitioning countries. During the 1998, 2009, and 2015 economic shocks, diversification was essential for gas and oil companies, today, fossil-fuel companies apply a green diversification strategy to solve climate change problems and adapt to energy transition trends. Also, in terms of economy (hard power) and prestige (soft power), green energy investors have a great opportunity to profit from one of the hugest economic transformations ever. However, the 2023 green stock slumps raised a huge warning sign for green energy investors and green transitioning countries and created an urgent need for the model of Green Income Diversification Creativity (GIDC).

Keywords: Sustainability, Green AI, Green income, GIDC, Diversification, Environment, Non-Oil economy, 2030 vision. Zero Carbon, Eco-intelligence.

INTRODUCTION

The world is changing, heat waves, fires, floods, and droughts may soon force millions to leave their homes due to the long scar oil age left in the 20th century in the planet (Clark, 2022). The search for cleaner energy sources is now considered a mandatory task to save the planet (Midilli, Dincer and Ay,2006).

GREEN ENERGY STOCKS SLUMP

China and USA are huge competitors in green energy market, although competition in general leads to more creativity, this competition and political tension between China and USA may delay the transition to the electric vehicles (Chu, 2023). The rise of China to green tech superpower status gave it a commanding position in the industries of clean energy such as solar cells and batteries (Clark, 2022). And China's BYD became the world's biggest producer of hybrid and electric cars (Mundy, 2023).

This tough competition hurts major American manufacturers. Especially when recently stocks of green energy suffered through their worst slump in years (Salzman, 2023). The US Treasury announced that "no US-made EVs with Chinese-manufactured battery components will be eligible for the full subsidies offered by President Joe Biden's $369bn landmark climate law" (Chu, 2023).

This move has been made by the Bidden administration to choke off the role of China in the electric vehicle supply chain of the United States, a move that may slow the transition from petrol-fueled cars according to critics (Chu, 2023).

Major American manufacturers like Ford Motor and General Motors have delayed electric vehicle plans. While newer tech like green hydrogen may take many years to be profitable (Salzman, 2023). Climate Action Tracker (a consortium of scientists) says The United States is not even close to meeting its 2030 target to cut emissions in half from 2005 levels (Salzman, 2023). America will not reach this goal without creative additional emission reduction measures. Economically, this slump led to a fall of 76 of the 77 stocks in the Invesco Wilder Hill Clean Energy exchange-traded fund (Salzman, 2023). However, the US government gave investors in green energy a promise of massive financial support for renewable energy development through the US Inflation Reduction Act (Mundy, 2023).

THE PLEDGES OF COP28 CLIMATE SUMMIT

In Dubai, the UN's COP28 climate summit resulted in a pledge to transition away from fossil fuels, and a vow to triple the capacity of green energy by 2030 (Mundy, 2023). In addition to, a commitment to pursue the rapid deployment of low and zero-emission vehicles (Mundy, 2023). But as previously mentioned, 2023 has not been a good year for green energy investors because the stocks of green energy have slumped behind the oil and gas sector because of the invasion of Russia into Ukraine which raised the prices of fossil fuel (Mundy, 2023). Although there is no doubt that electric vehicles are the future of road transportation, the expansion of oil and gas sector plans is still incompatible with the green transition (Mundy, 2023).

CLIMATE CHANGE VS. CLIMATE VULNERABILITY

Climate vulnerability is distinct from climate change, especially regarding the period or time of change. Climate change is a change in the properties of climate over a long time, typically decades, caused by external reasons such as anthropogenic forces or internal processes (File and Derbile, 2020).

Climate vulnerability refers to variations in climate, like the normal lows and highs, dry and wet periods, and cool and hot periods including extreme values (File and Derbile, 2020). Climate vulnerability can vary daily or from year to year (File and Derbile, 2020).

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That is why green energy investors and green transitioning countries should keep in mind these differences before entering the market to avoid unnecessary losses due to miscalculations such as overproduction and underproduction. And to prioritize their green income diversification.

GREEN DIVERSIFICATION PRIORITIZATION

According to Cherepovitsyn, Kazanin and Rutenko (2023), diversification is considered a strategy for product and new market development, but now it has become a method for maximizing economic reserves usage and maximizing competitive advantages. It is a crucial management decision because it distributes or reduces the risk and helps in gaining financial benefits from investing in new areas.

However, diversification is a hard task that requires process and organizational changes in addition to new management policies deployment. During 1998, 2009, and 2015 economic shocks, diversification was essential for gas and oil companies. Today, fossil-fuel companies apply a green diversification strategy to solve climate change problems and adapt to energy transition trends (Cherepovitsyn, Kazanin and Rutenko, 2023).

GREEN ENERGY STRATEGIES FOR SUSTAINABLE DEVELOPMENT

Midilli, Dincer and Ay (2006) mentioned that one of the key factors of economic, environmental, and social dimensions of sustainable development is energy. As is known, energy has two types: non-renewable (fossil-based) and renewable (green). Unlike fossil-based energy, renewable energy has minimum or even zero environmental impact as it is produced from wind, biomass, hydro, geothermal, solar, etc.

Green energy has industrial and non-industrial applications, thus green energy sustainability is a key factor in the interaction between society and nature (Midilli, Dincer and Ay, 2006). Also, to ensure green energy sustainability it should be available at reasonable costs. That is why low-priced sustainable resources are essential for increasing sustainable industrial productivity and sustainable technological development.

GREEN INCOME DIVERSIFICATION CREATIVITY MODEL

Great creativity is needed in terms of cost reduction and increasing green energy utilization. This task requires integrating green Artificial intelligence (green AI) and technologies in all green industries processes to reach Eco-intelligence. So, green AI refers to deploying and developing AI systems concentrating on reducing their environmental impact Raman *et al.,* (2024). Sustainable AI is an artificial intelligence viability long-term approach.

This creativity aims to optimize hardware, systems, and AI algorithms to reduce energy consumption which reduces cost and environmental impact. On the other hand, green income diversification is very important for green investors and green-transitioning countries to avoid unforeseen financial slumps.

New entities

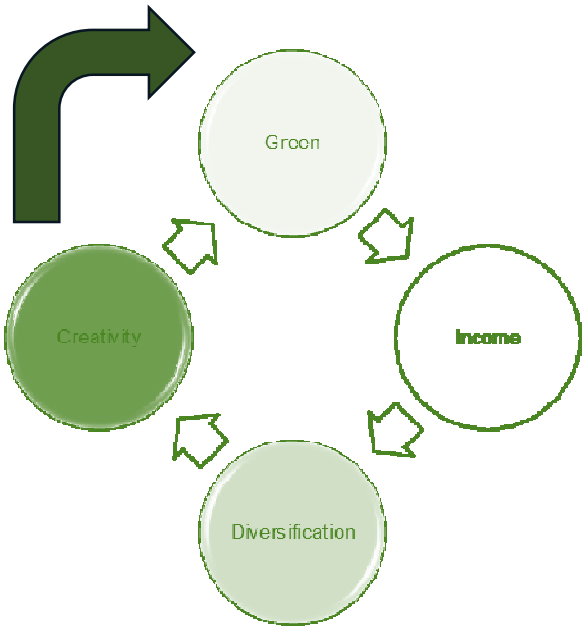

Figure 1: Green Income Diversification Creativity Model

- Green
- Income
- Diversification
- Creativity

The GIDC model shows how these four parameters are perfectly positioned in the following sequence:

(G) There is no future for the planet without **green** transformation.

(I) The appropriate **income** from this investment ensures green transformation sustainability.

(D) **Diversification** protects investors and countries from unforeseen shocks.

(C) **Creativity** maximizes green energy utilization which leads to cost reduction and maximum profitability that encourages other entities to invest in green energy **(G)** and the cycle goes on.

CONCLUSION

GIDC is crucial for the economic survival of green energy industries at the level of investors or countries because economic sustainability is essential for the survival of the business. The governments should support GIDC by making helpful policies that encourage green investors to take risks and survive unpredicted slumps and global shocks.

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