

## INVESTING IN ENVIRONMENTAL PROJECTS IN THE ENERGY INDUSTRY

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**Abstract.** *The article highlights the issues of financing environmental projects in energy industry to achieve the Net Zero goal by 2050.*

**Key words:** *environmental, energy, investing.*

### **Introduction.**

Climate change and the use of fossil fuels are issues that are more relevant than ever and are a concern to society today. Politicians, scientists and general public are actively working to resolve the question of how to reduce carbon emissions, mitigate the effect of climate change and conserve fossil fuels. Many positive steps have been taken in this direction in the last decade. As noted on the World Economic Forum 2023[1], many new solar home system SHS companies, minigrid operators and other distributed companies of new renewable energy sources have emerged as donors and impact investors have recognized the significant potential offered by these solutions. As reported by the International Energy Agency (IEA), the growth of the world's capacity to generate electricity from solar panels, wind turbines and other renewable technologies is on course to accelerate over the coming years [6].

### **Main text**

According to latest research by EIA [2], positive forecast shows that by 2026 global renewable electricity capacity will rise more than 60% from 2020 levels to over 4800 GW, what is equivalent to the current total global power capacity of fossil fuels and nuclear power combined. It is forecasted that renewables are set to account for almost 95% of the increase in global power capacity through 2026, with solar panels alone providing more than half. This increase can be driven by stronger support from government policies and more ambitious clean energy goals announced during the COP26 Climate Change Conference [2].

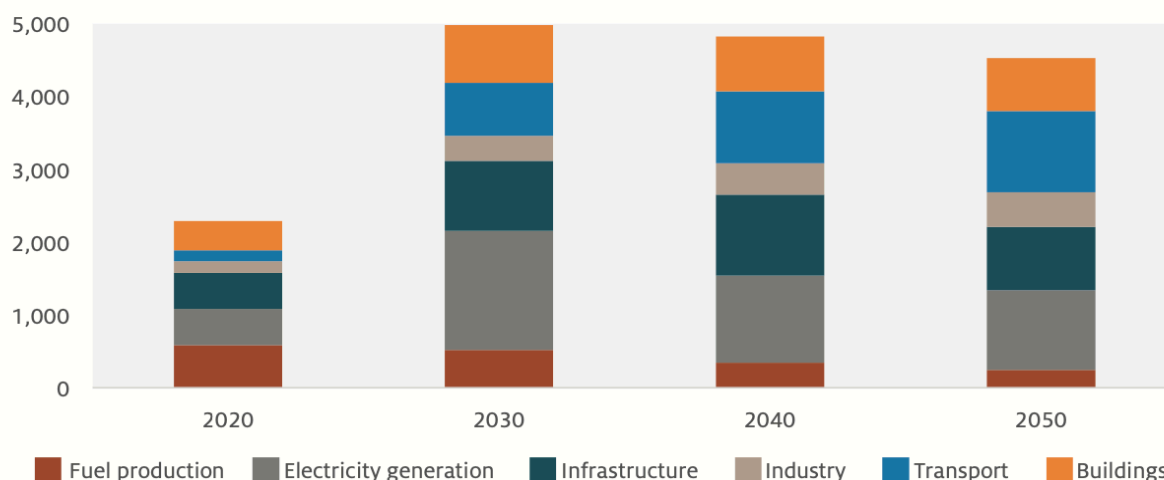
Grand idea accepted by many countries Net Zero by 2050 Roadmap provides a pathway for the global energy sector to achieve net zero CO<sub>2</sub> emissions by 2050, setting out more than 400 milestones for what needs to be done, and when to decarbonize the global economy in just three decades. This scenario assumes that all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs) and long-term net zero targets will meet in full and on time. These great targets reflect current policy setting on country-by-country assessment of the specific policies that are in place as well as those that have been announced by governments around the world [4]. The realization of such goals requires global capital investment. A preliminary assessment of investment needs was carried out by EIA.

Despite huge achievements on the way to Global goals by the world community, the share of renewable sources in the total composition of energy production

increased from 1965 to 2021 only from 6.45% to 13.47%, respectively. Figure 2 “World Energy Balances” from IEA Sources shows the structure and changes of renewable energy resources over the world.

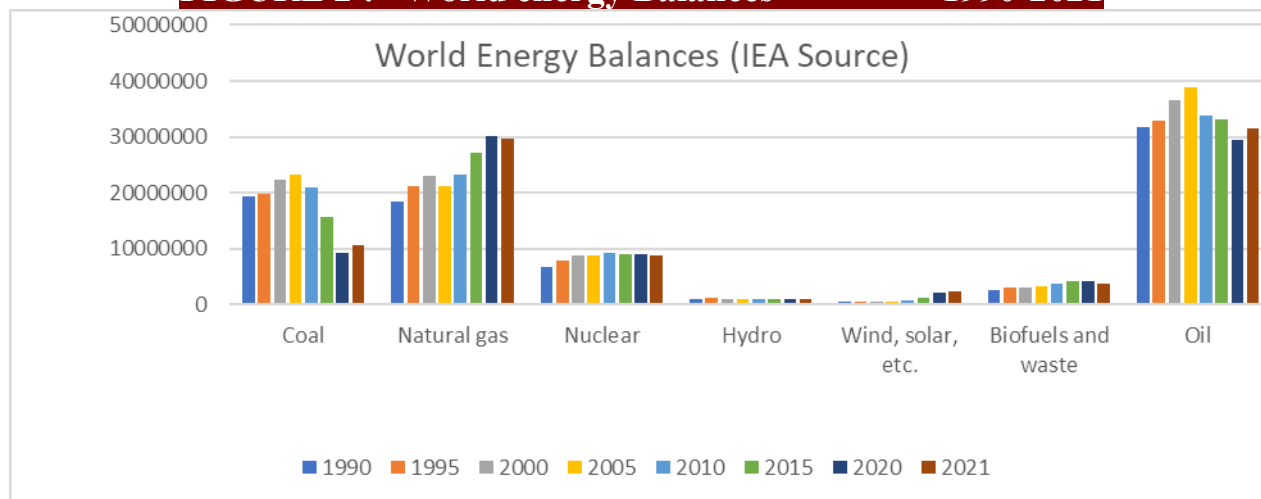
**FIGURE 1: Estimated annual global capital investment required to reach NZE by 2050 (USD bn)**

*The world hasn't been investing in green energy fast enough to make up for declining fossil fuel capex, but that is expected to change this decade*



Source: U.S., EIA, Bloomberg [2,3]

**FIGURE 2 : World energy Balances 1990-2021**



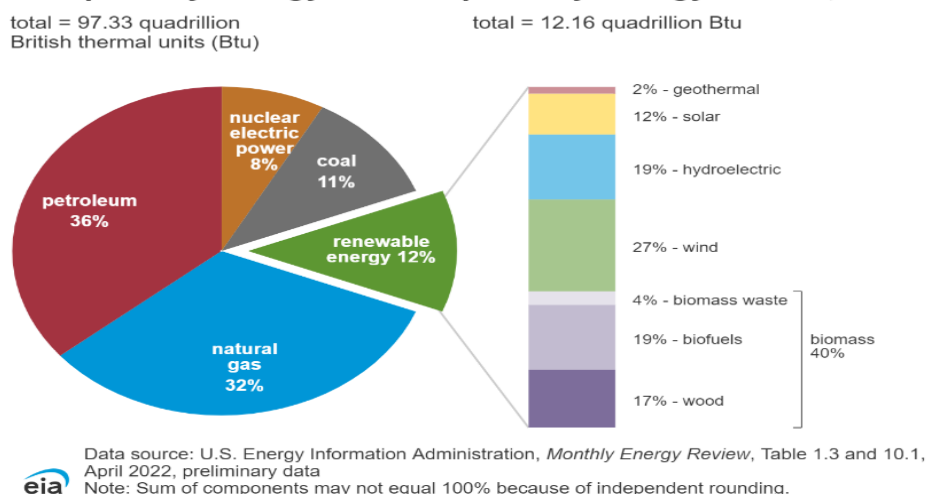
Source: U.S., IEA [2]

Even in such a developed country as the United States, production and consumption of energy from renewable sources is only 12%.(Figure3)

All the evidence suggests that the production and consumption of fossil energy sources is still a large part of the total energy consumption and requires attention, as it threatens climate change and leads to a decrease in supply of natural resources for future generations. While paying great attention to the development of new energy sources, we sometimes lose sight of the fact that a huge percentage of the equipment of serious energy facilities becomes obsolete every year. A separate EIA report found

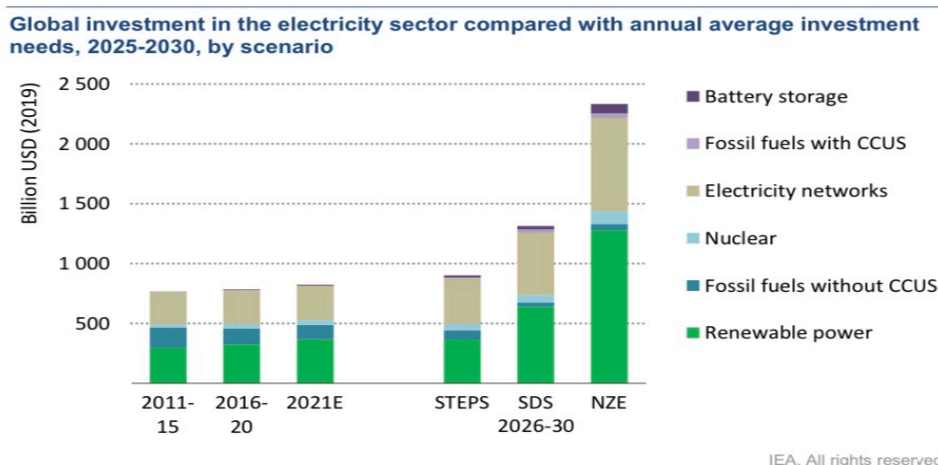
that more than 70 percent of the grid’s transmission lines and power transformers are more than 25 years old, and the average power plant is more than 30 years old.

**Figure 3: Primary energy consumption by energy source, 2021**  
**U.S. primary energy consumption by energy source, 2021**



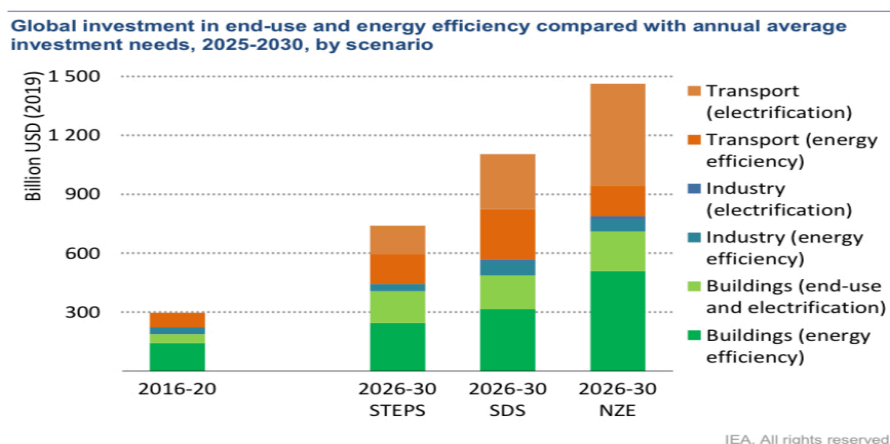
Global energy investment rose nearly by 10% (\$1.9 trillion) from 2020 to 2021 [5]. For the same period energy demand increased by 4.6%. As pointed out in “World energy investment 2021” study, many energy companies remain in a fragile financial position, however due to accommodative policy and government backing to plan infrastructure developments it was possible to invest in new projects. Most of these projects include midstream and downstream oil and gas infrastructure, electricity networks and batteries. Although global investment in technology in the energy sector had a slight increase in 2021, it remains insufficient for what is needed for a cleaner and more electrified energy future.

**Figure 4: Global investment in the electricity sector, 2025-2030**



Source: U.S., World Energy Investment, 2021, IEA [5].

The same investment lags far behind what is required to meet NZE by 2050 in the sector of efficiency and end-use investments.

**Figure 5: Global investment in end-use and energy efficiency, 2025-2030**

Source: US, World Energy Investment, 2021[5].

The implementation of environmental scenarios requires increasing and accelerating the search for new technologies and new economic and financial decisions that appear as result of successful research and development (R&D). Corporate energy R&D spending has fallen in recent years due to the fall in energy consumption and accordingly, the less income of energy corporations.

Lack of funds to invest in new bold projects in order to implement Net Zero scenarios for society development requires an unconventional approach and attraction of additional funds from alternative investments. Private capital can play a huge role in financing projects in the energy industry.

Global early-stage venture capital is already funding start-ups in such clean energy technology as: low carbon transport, renewables, energy efficiency, energy storages and hydrogen, conventional fuel and other low carbon new technologies.

Private debt and private equity as well as Public-private partnership (PPP) can considerably increase investment flow in implementation of environmental projects. It could be made as a direct investment into an energy corporation or into projects of energy infrastructure, or as a co-investment as well as investment through Alternative investment funds.

Real estate investment trust (REIT) can participate in the construction of the new buildings and edifices that will be required when new enterprises are being created or reconstructing existing one.

### Summary and conclusions.

Additional funding sources that have been considered in this article may be fully involved in the process of investing in the energy industry under certain conditions for investors. These conditions may be as government decision to provide incentives if the investment funds are directed to finance environmental project, as economic and financial conditions and rules that affect the owners of private capital in the process of their deciding when it is more profitable to direct investments.

**References:**

1. World Economic Forum 2023. Documents.
2. U.S. Energy Information Administration (EIA) <https://www.eia.gov>
3. Bloomberg
4. Net Zero by 2050 -Analysis, <https://www.iea.org/reports/net-zero-by-2050>
5. World Energy Investment, 2021, <https://iea.blob.core.windows.net/>
6. International Energy Agency (IEA), <http://iea.org>

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