

IMPLEMENTATION OF GREEN ENERGY PROJECTS IN INDUSTRY AND PROMOTION OF ENERGY EFFICIENCY

Masharipova S.R.

PhD student (doctoral researcher)

Annotation: Reflection In the environment of insecurity in the global energy request, adding demand for energy coffers and exacerbation of environmental problems, the perpetration of green frugality principles in artificial sectors is getting an critical issue. In recent times, statistics have shown that the demand for electricity has been steadily adding as a result of population growth and artificial product. At the same time, global political developments and energy request heads, especially the volatility of oil painting and gas prices, increase the need for effective and provident use of energy coffers. In similar grueling conditions, the transition to renewable and indispensable energy sources becomes an important factor not only in icing environmental sustainability, but also in strengthening profitable security. This composition analyzes the significance of energy effectiveness enhancement in artificial sectors, the preface of green frugality principles and the use of indispensable energy sources. Also, the being problems were studied, scientifically grounded conclusions and practical recommendations for their elimination were developed.

Key words: carbon dioxide, energy effectiveness, environmental impact, green economy, industry, electricity, renewable energy.

Introduction

In recent times, environmental issues, similar as climate change and natural resource failure, have come decreasingly pressing on a global scale. These developments are having a direct impact on sectors of the frugality, especially assiduity. In particular, diligence stand out as major consumers of energy coffers and as one of the biggest polluters of the terrain. Emigrations of carbon dioxide (CO₂) from artificial conditioning are one of the main motorists of global climate change. With population growth and expanding profitable exertion, the demand for fossil energies similar as oil painting, gas, and coal is adding. This, in turn, poses a threat of energy failure for unborn generations. thus, there's a growing need to increase energy effectiveness and switch to indispensable energy sources in all sectors of the frugality, especially in assiduity. In this environment, the 2015 Paris Agreement set a thing of keeping global warming below 2 °C and as low as possible at 1.5 °C. In order to achieve these pretensions, the wide preface of renewable energy sources and enhancement of energy effectiveness are important.

Methods

This composition uses statistical data and vaticinations handed by transnational associations, including the International Energy Agency and the transnational Renewable Energy Agency, as a source of analysis. The exploration process used methodological approaches similar as commercial analysis, analysis and conflation, soothsaying and evaluation. Through these styles, the data was anatomized and epitomized. unborn energy consumption and emigration situations were also studied grounded on three main scripts(CPS, way, and NZE) outlined in the World Energy Outlook 2025. Through these scripts, different trends in development are compared.

Results

Analysis of the World Energy Outlook 2025 [1] shows that global demand for electricity is projected to increase by further than 40 by 2035. In particular, significant growth is observed in the following diligence and related sectors (Figure 1):

- ménage appliances and air conditioners;
- electrification of transport;
- artificial product;
- data centers and artificial intelligence.

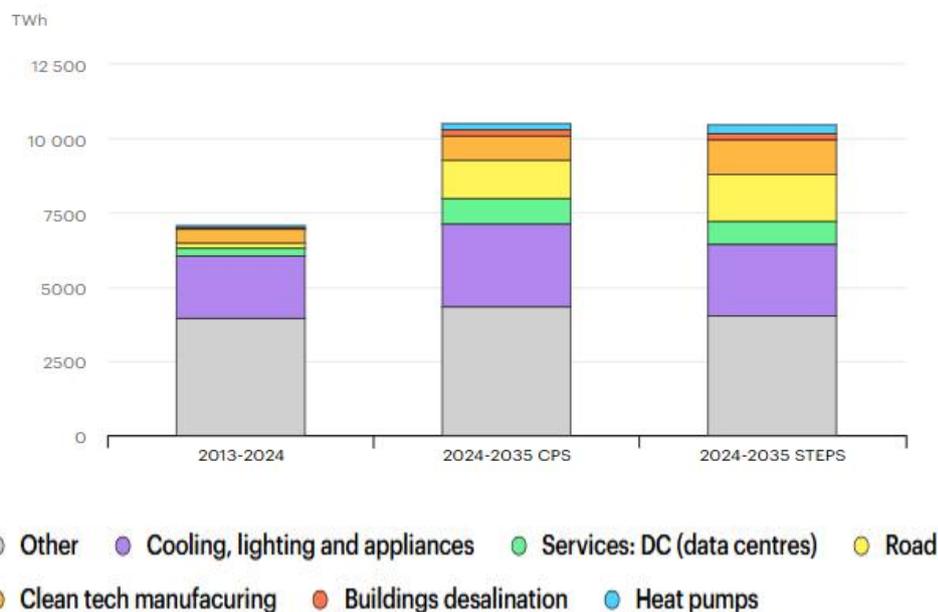


Figure 1. Electricity demand growth from new uses, 2013-2035.[1]

2035 according to 3 scripts There's no single outlook for energy. So the International Energy Agency (IEA) offers several scripts. These scripts are grounded on expansive analysis of current political, technological, and request data, and they are n't prognostications, but implicit trends. These scripts are:

- Current Policy (CPS) Grounded on being legislation and policy, whereby new technologies are introduced into the energy system sluggishly and cautiously.
- Stated Policies Scenario (STEPS) New legislation is pushed forward and technologies are introduced at a moderate pace.
- Clear Zero Emission (NZE) outlines a pathway to zero CO2 emigrations by 2050, and notes that each country has its own pathway in this direction.

The following precedences are linked within the NZE script Electrification and Renewable Energy effectiveness adding Energy Efficiency Introducing Lower Energy Emigrations Reducing Energy Emigrations Over the three decades of this analysis, it's anticipated that energy demand will be advanced in the below sectors. In addition, global climate change is causing global warming to produce anomalous heat in the summer and anomalous cold wave in the downtime. As a result, the dramatic rise in temperature is adding the demand for cooling systems in the population. Another important trend driving the growth of electricity consumption moment is data centers, or artificial intelligence systems. Data centers are one of the swift- growing parts of energy consumption, and their energy consumption is projected to triadic by 2035. That is nearly 10 of the global electricity growth.

The results show that perfecting energy effectiveness in artificial sectors is a critical factor in achieving global climate pretensions. The environmental impact of assiduity can be significantly reduced, especially by switching to renewable energy sources and introducing innovative technologies. At the same time, challenges in the energy system, including geopolitical situations and power force dislocations affecting further than 200 million homes, further increase the need for energy security. In the future, special attention should be paid to the ensuing areas:

- wide preface of green technologies in assiduity;
- use of energy- saving outfit;
- strengthening of state policy;
- magnet of investments.

| RENEWABLE CAPACITY ADDITIONS | 2024 | Average annual additions 2025 - 2030 |
|---|--------------|--------------------------------------|
| Annual additions (GW/yr): | | |
| Renewable power capacity | 581.9 | 1122 |
|  Solar PV | 452.1 | 716 |
|  Wind energy | 114.3 | 317 |
| <i>Wind offshore</i> | 8.6 | 55 |
| <i>Wind onshore</i> | 105.7 | 262 |
|  Hydropower | 9.3 | 31 |
|  Bioenergy | 5.1 | 26 |
|  Geothermal | 0.3 | 8 |
|  CSP | 0.717 | 19 |
|  Marine energy | 0.002 | 5 |

Figure 2. Renewable capacity additions. [2]

In recent times, the use of renewable energy sources and energy product from them has increased. According to the International Renewable Energy Agency's (IRENA) final reports for 2024, global renewable energy capacity reached 4,443 GW. A large part of that quantum went to Asia, especially China. China accounts for nearly two-thirds of the world's installed capacity. Solar and wind reckoned for 97.5 of the global net renewable capacity growth in 2024. That same time, solar power capacity reached 1,859 GW, with an fresh 452.1 GW of new capacity installed. A aggregate of 1133 GW of wind power was generated and another 114.3 GW of new capacity was commissioned.

Renewable capacity additions Sources similar as geothermal, CSP (concentrated solar power) and marine (surge) energy added a aggregate of 1 GW of new capacity in 2024, bringing their total capacity to 23 GW. Unfortunately, these technologies are still underutilized, and it's prognosticated that by 2030, solar panels will formerly again regard for the largest share of renewable energy. At the same time, it's planned to increase renewable energy capacity to 11.2 TWh by 2030 and increase energy effectiveness to 4 by 2022- 2030, in line with the set targets. The Global Energy Efficiency Alliance(GEEA), launched under the UAE's leadership in 2024 as part of COP29, is an important platform to support the achievement of these pretensions. It'll serve to develop transnational cooperation, rally backing and accelerate the relinquishment of technologies.

Conclusion

To epitomize, enforcing green frugality principles in assiduity not only solves environmental problems, but also increases profitable effectiveness. Diversification of energy sources is important in the environment of limited coffers and the growing demand of the population for energy. At the same time, the product and effective use of energy without damaging the terrain is one of the main factors of sustainable development. The development of mechanisms for the preface of indispensable energy sources in countries and the installation of energy installations serve as a solid foundation for the current principles of sustainable development.

Used literature

1. World Energy Outlook, 2025
2. Delivering on the UAE Consensus: Tracking progress toward tripling renewable energy capacity and doubling energy efficiency by 2030
3. Renewable Energy and Jobs Annual Review 2025



4. <https://www.cop28.com/en/global-renewables-and-energy-efficiency-pledge>
5. <https://www.iea.org/>
6. <https://www.irena.org/>