

# To Produce Energy Development policy in Vietnam

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**ABSTRACT:** Renewable energy, also known as renewable energy, is a clean, natural, continuously replenished, infinitely reusable, inexhaustible energy source such as solar energy, wind, rain, tides, waves, geothermal, biomass, biofuels. Renewable energy has been and will continue to play an essential role in the socio-economic development of many countries worldwide in various fields of electricity generation, hot water heating, motor fuel and rural electricity. One of the solutions for the sustainable development of Vietnam's energy in the future is to diversify energy sources and open up electricity sources based on renewable energy sources that Vietnam has potential, especially in the world of wind, solar energy. The following article focuses on analyzing the current situation, detecting the remaining problems and challenges we face to offer practical solutions to help develop renewable energy in Vietnam.

**Keyword:** Recycled energy, Sustainable development, wind energy, solar, Vietnam.

## I. INTRODUCTION

Due to hydroelectricity and nuclear power, Polluted thermal power has faced warnings about disasters, which has led to the inevitable need to research, supplement, and gradually replace thermal and hydroelectric power sources with renewable energy generated from wind-solar biomass. The reality of energy development in developed countries also shows that this is an inevitable path. Many countries have paid attention to this field since quite early, such as Sweden, Denmark, Austria, and France. In 2014, renewable energy used accounted for about 13.4% of total energy consumption.

Vietnam is one of the countries with great potential for renewable energy development such as hydropower, wind energy, solar energy, biomass energy, geothermal energy. Specifically, our country is located in the region subtropical monsoon, with a coastline of more than 3000km.

Vietnam is also considered a country with great potential for solar energy, especially in the central and southern regions, with the total number

of sunny hours per year fluctuating between 1,400-3,000 hours. Average solar radiation is about 4-5 kWh/m<sup>2</sup>/day. Solar energy in Vietnam is available all year round and is relatively stable and widely distributed across different country regions. In particular, the average number of sunny days in the central and southern provinces is about 300 days per year.

However, the reality shows that the exploitation and use of renewable energy are still limited. The development of new renewable energy has been booming in the past two years when the Prime Minister's decisions on the FIT price support mechanism (a mechanism and policy introduced to encourage the development of renewable energy sources). In renewable energy, the electricity selling price is calculated so that investors can fully pay the investment costs and make a moderate profit, which is kept fixed for 20 years).

Power planning VII adjusts to prioritize the development of renewable energy sources for electricity production; increase the proportion of electricity produced from renewable energy sources (excluding large and medium-sized hydroelectricity and storage hydropower) to about 7% in 2020 and over 10% in 2030.

Resolution 140 recently issued by the Government on the Government's action program to implement Resolution 55 of the Politburo sets a more ambitious goal than the ratio of renewable energy sources in the total primary energy supply to about approx. 15-20% by 2030; 25-30% by 2045.

Therefore, the article analyzes the current situation and detects the remaining problems and challenges that we face to offer practical solutions to help develop renewable energy in Vietnam on time. Efficiency and sustainable economic development.

## II. CURRENT STATUS OF RENEWABLE ENERGY DEVELOPMENT IN VIETNAM

According to the United States Energy Information Administration (EIA), the share of renewable energy in the total world energy

consumption accounted for 15% in 2018. It is forecasted that 2030 will account for 22%, 2040 for 25% and 2050 for 28%. The share of renewable energy in the total world liquid fuel production

remained unchanged, accounting for 2% in 2018-2050. The share of renewable energy in the total world electricity production accounts for 28% in 2018, 40% in 2030, 46% in 2040 and 49% in 2050.

**Table 1. Renewable energy in the world from now to 2030**

Rate of recycled energy	2018	2030	2040	2050
Total energy consumption	15%	22%	25%	28%
Total production of liquid fuel	2%	2%	2%	2%
Total electricity production	28%	40%	46%	49%

Source: The U.S. Energy Information Administration (EIA)

Currently, many developed countries have used almost entirely renewable energy in their economies and have to power the entire country for a considerable period. Countries that lead the world in renewable energy include Costa Rica, Iceland, Norway, Portugal, Germany, China, the UK, the Netherlands, Chile, India and the US.

Vietnam is considered a country with great potential for renewable energy development. With favourable geographical location, long coastline, tropical monsoon climate, and agricultural economy, Vietnam can exploit abundant and diverse renewable energy sources, making a significant contribution to socio-economic development and ensuring energy security and responding to climate change. Currently, Vietnam can develop five primary renewable energy sources, including solar, wind, water (hydroelectricity), biomass and geothermal energy.

In the context of the country's socio-economic development in the past period, it can be seen that the results of renewable energy development are worthy of recognition. By the end of 2019, wind power plants/farms were operating with a total capacity of about 500 MW; solar power plants with a total capacity of about 5,000 MW; small hydropower plants with a total capacity of about 3,500 MW and biomass power with a total capacity of about 300 MW. In addition, renewable energy is used in industrial production, machinery and equipment operation, mechanization, commercial services, logistics warehouses, wholesale markets, especially for household use families, especially in mountainous, remote, border and island areas.

A system of mechanisms and policies for renewable energy development has been built and completed in the past period. Decree No. 80/HDBT dated July 19, 1983, of the Council of Ministers promulgating the regulation on electricity supply and use, which can be considered the basis for

formulating and promulgating mechanisms and policies for the development of renewable energy create later. Decision No. 22/1999/QĐ-TTĐ dated February 13, 1999, of the Prime Minister approving the rural electricity project up to the year 2000 without specific regulations on renewable energy, but there are mechanisms and policies in place. Bringing electricity to rural areas must combine the development of the national power grid and the development of on-site electricity such as small hydroelectricity, wind power, and solar power with biogas gas tunnel to analyze the optimal cost and other options other relevant factors.

Decision No. 95/2001/QĐ-TTĐ dated June 22, 2001, of the Prime Minister approving the electricity development planning of Vietnam for the period 2001 - 2010 with a view to 2020 (referred to as the Power Plan V). ) have mechanisms and policies to develop small hydroelectricity, wind power, solar power... for areas far from the power grid, mountainous, border and island areas. Then, the Government's Decree No. 45/2001/NĐ-CP dated August 2, 2001, on electricity activities and electricity use promulgated mechanisms and policies to support funding and construction incentives. On-site power sources such as small hydroelectricity, solar power, and other forms of energy for mountainous localities, islands, remote and extremely difficult areas that cannot bring electricity to the national grid countries or bring in the national grid is not economically profitable.

Law on Electricity No. 28/2004/QH11 dated December 3, 2004, and Law No. 24/2012/QH13 dated November 20, 2012, amending and supplementing some articles of the Electricity Law promulgated mechanisms and policies on renewable energy in general. The regulation promotes the exploitation and use of renewable energy sources for electricity generation; has preferential policies for investment projects to develop power plants using renewable energy

sources. The electricity development planning must be consistent with the master plan on primary energy sources for power generation, including renewable energy sources. The national electricity development program includes the development of renewable energy sources. Assess the potential for the development of local power sources, including renewable energy sources. Investment projects on the development of power plants using renewable energy sources are entitled to investment incentives, electricity prices and taxes under the guidance of the Ministry of Finance. Creating conditions for all economic sectors to invest in electricity development using renewable energy. To encourage organizations and individuals to invest in building electricity grids or generating stations using renewable energy to supply electricity to rural, mountainous, border and island areas.

Decision No. 110/2007/QĐ-TTĐ dated July 18, 2007, of the Prime Minister approving the National Electricity Development Master Plan for the period 2006 - 2015 with a vision to 2025 (referred to as Power Plan VI) have mechanisms and policies to develop small hydroelectricity, new and renewable energy for remote, mountainous, border and island areas; encourage investment and development of renewable energy projects. Decision No. 1208/QĐ-TTĐ dated July 21, 2011, of the Prime Minister approving the National Power Development Master Plan for 2011 - 2020 with a vision to 2030 (referred to as Power Master Plan VII), approved by the Prime Minister adjusted according to Decision No. 428/QĐ-TTĐ dated March 18, 2016, of the Prime Minister, there are mechanisms and policies to prioritize the development of power sources using renewable energy; to step up the development and use of renewable energy sources for electricity production, gradually increasing the proportion of electricity produced from renewable energy sources; to form and develop an intelligent power system, capable of integrating with renewable energy sources with a high rate; prioritize the development of renewable energy sources for electricity production; increase the proportion of electricity produced from renewable energy sources; accelerate the development of power sources from renewable energy (hydroelectricity, wind power, solar power, biomass power...), encourage a step-by-step increase in the proportion of electricity produced from renewable energy sources in the power structure.

Based on Resolution No. 18-NQ/TW dated October 25, 2007, of the Politburo on orientations of Vietnam's national energy

development strategy to 2020, with a vision to 2050, the Prime Minister has promulgated Decision No. 1855/QĐ-TTĐ dated December 27, 2007, approving Vietnam's national energy development strategy to 2020, with a vision to 2050 with the development perspective giving priority to renewable energy development. The development objective is to promote renewable energy sources, and the development orientation is to encourage the development of electricity sources using renewable energy. At the same time, formulate and implement investment policies to develop renewable energy sources, establish an energy development fund to support investment in renewable energy development, search, exploration and development develop renewable energy sources.

In addition, a series of mechanisms and policies related to the development of primary renewable energy sources, including Decision No. 37/2011/QĐ-TTĐ dated June 29, 2011, of the Prime Minister, were approved by the Prime Minister amending and supplementing according to Decision No. 39/2018/QĐ-TTĐ dated September 10, 2018 of the Prime Minister on the mechanism to support the development of wind power projects in Vietnam; Decision No. 11/2017/QĐ-TTĐ dated April 11, 2017 of the Prime Minister, amended and supplemented according to Decision No. 02/2019/QĐ-TTĐ dated January 8, 2019 of the Prime Minister on the mechanism to encourage the development of solar power projects in Vietnam; Decision No. 24/2014/QĐ-TTĐ dated March 24, 2014 of the Prime Minister, amended and supplemented according to Decision No. 08/2020/QĐ-TTĐ dated March 5, 2020 of the Prime Minister on the mechanism to support the development of biomass power projects in Vietnam; Circular No. 16/2017/TT-BCT dated September 12, 2017 of the Minister of Industry and Trade, amended and supplemented according to the Circular No. 05/2019/TT-BCT dated March 11, 2019 of the Minister Industry and Trade stipulates project development and Model Power Purchase Agreement applicable to solar power projects.

Decision No. 2068/QĐ-TTĐ dated November 25, 2015, of the Prime Minister approving Vietnam's renewable energy development strategy to 2030, with a vision to 2050, is a driving force in promoting renewable energy. Vietnam's renewable energy has grown enormously. In which viewpoints and orientations on mechanisms and policies to combine the development of renewable energy with the implementation of economic, social and environmental goals have been set forth. The

development and use of renewable energy, combined with the development of the renewable energy industry, prioritize the rapid development of renewable energy fields with considerable resources and good commercial prospects, such as wind power, electricity, solar and biomass electricity. In particular, encouraging the formation of a market for renewable energy, prioritizing investment and using renewable energy in the development of the energy industry as a basis for construction, and promoting the development of the renewable energy market. At the same time, encourage organizations and individuals with different ownership forms to develop and use renewable energy. The State protects the legitimate rights and interests of organizations and individuals developing and using renewable energy.

### **III. POLICY IMPLICATIONS OF RENEWABLE ENERGY DEVELOPMENT IN VIETNAM TODAY.**

Over the past two decades, a system of mechanisms and policies for renewable energy development has been built and gradually completed. However, the potential for renewable energy development in Vietnam is still tremendous, diverse and abundant. Therefore, it is necessary to continue researching, amending, supplementing, and perfecting mechanisms and policies to encourage renewable energy development, including firmly.

Firstly, it is necessary to implement several tasks and solutions according to Resolution No. 55-NQ/TW dated February 11, 2020, of the Politburo on the orientation of Vietnam's national energy development strategy until 2020. 2030, with a vision to 2045, including building breakthrough mechanisms and policies to encourage and promote the development of renewable energy sources vigorously to replace fossil energy sources maximally, to form and develop several renewable energy centers in advantageous regions and localities. Moreover, invest in modernizing the electricity industry from production, transmission to distribution to meet the development requirements of the electricity market, capable of large-scale integration of renewable energy sources, speeding up the roadmap for the implementation of a competitive electricity market, the mechanism of direct electricity purchase and sale contracts between producers and consumers, the appropriate bidding and auction mechanism for energy supply, especially in power projects renewable energy investment projects. Besides adopting policies to encourage consumption and

clean and renewable energy use, develop asynchronous and interconnected energy market between electricity, coal, oil and gas, and renewable energy sub-sectors. To connecting with regional and world markets; perfecting tax policies to encourage the production and use of clean and renewable energy, perfecting the mechanism and implementing the policy on the ratio of renewable energy in the structure of energy investment and supply, researching, formulating and promulgating the law on renewable energy, continue to implement science and technology programs on applied research and development of renewable energy.

Second, continue to implement the Prime Minister's Decision No. 2068/QĐ-TTĐ dated November 25, 2015, approving Vietnam's renewable energy development strategy to 2030, with a vision to 2050. , including strengthening state management in the development and use of renewable energy; investigation of renewable energy resources; planning and planning for the development of renewable energy sources; developed to apply or announce the application of national technical standards for the electricity grid synchronously with renewable energy-using power sources and national technical standards for other related works and equipment relating to renewable energy. Increase the rate of development and use of renewable energy sources, financial support for the development and use of renewable energy, human resource development for renewable energy. Furthermore, supporting the market formation and renewable energy technology, strengthening the work of information and communication, raising awareness of the people and the community about the development and use of renewable energy, and strengthening international cooperation in renewable energy.

Third, to formulate and implement appropriate plans, including the National Electricity Development Master Plan for the period of 2021 - 2030, with a vision to 2045 (Power Master Plan VIII) approved by the Prime Minister and mandated by the Prime Minister case in Decision No. 1264/QĐ-TTĐ dated October 1, 2019. The prime minister approved the national energy master plan for the period 2021 - 2030 with a vision to 2050 in Decision No. 1743/QĐ-TTĐ dated December 3, 2019. In addition, it is necessary to study and complete relevant mechanisms and policies on land, taxes, and credit incentives in renewable energy development.

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