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PERSPECTIVE

With over 300 sunny days per year and high wind capacity in various regions, Iran has vast potential for generating electricity from clean energy sources, yet it has not fully exploited its renewable energy reserves.

Currently, renewables account for only 1% of the country's electricity generation. The Ministry of Energy last year pledged to develop 30,000 megawatts of renewable energy over the next five years.

Last year, the government set a target to launch plants that generate 6,000 MW of solar and wind power but fell short, -- only a fraction materialized (about 30%), underscoring persistent challenges.

Iran's electricity generation capacity exceeds 93,000 megawatts per day. But according to the statistics provided by the Ministry of Energy, Iran's "actual" power generation capacity is about 75,000 MW. The country's hydropower plants have not been generating electricity at their full nominal capacity due to the drought. The shortfall peaks at 14,000 MW or 20% during summer.

The country's daily electricity consumption exceeds 70,000 megawatts, peaking at 80,000 megawatts during this summer.

This summer, the government has adjusted the working hours of the public sector and implemented electricity cuts in dozens of offices due to high electricity consumption from cooling systems.



Let's harness 300 sunny days and high winds

It's notable that the government bureaucracy consumes only 2,000 MW of electricity even at peak demand using all cooling systems, representing just 3% of the country's total electricity demand. Even if the entire public sector, including offices, banks, hospitals, schools, and universities, were closed and street lighting completely cut off, it would only mitigate half of Iran's summer electricity deficit.

The electricity industry holds significant influence over other sectors, including industry, agriculture, and services. Recognized as a fundamental pillar of the economy, the electricity industry plays a pivotal role in driving economic growth and enhancing societal welfare. The advantages of electrical energy, marked by its cleanliness, user-friendliness, and adaptability

to various forms, also underscore its vital importance. The major challenge facing the Ministry of Energy, however, is the electricity imbalance, which stands at approximately 15,000 megawatts, according to the Industries and Mines Commission of the Parliament.

With rapid population growth and increasing energy needs, Iran is facing significant challenges in ensuring sustainable energy supply. At the same time, the environmental and economic constraints associated with fossil fuel and natural gas consumption have made renewable energy a strategic priority, offering a sustainable solution for the country's future energy needs.

According to statistics from the Ministry of Energy, Iran's electricity consumption is distributed as follows: public and road

lighting sector 10%, household sector 32%, industrial sector 36%, agriculture 14.5%, and commercial sector 7.5%.

Taken steps

According to an official from the Renewable Energy and Energy Efficiency Organization of Iran (SATBA), the country aims to increase its renewable energy capacity to 30,000 megawatts by 2030. A significant portion of this capacity is currently in the project control phase. In fact, contracts have already been signed for over 13,000 megawatts of renewable power plants, and they are at various stages of development.

To achieve this goal, the organization has developed plans and introduced attractive policy models to attract domestic and foreign investors.

Key initiatives include:

- * Establishing a green energy exchange for the sale of renewable power plants, a first in West Asia
- * Incentive programs for industries to supply part of their electricity consumption through renewable sources

- * Guaranteed purchase of renewable electricity from private power plants at incentivized prices

- * Construction of 550,000 5-kilowatt rooftop solar systems

Masoud Rezaei, Director General of Strategic Planning and International Affairs at the Renewable Energy and Energy Efficiency Organization noted that renewable energy can play a key role in addressing Iran's environmental and economic challenges, reducing dependence on fossil fuels, and making Iran a leading producer of clean energy in the region.

Advantages of renewables

The production of electricity from renewable sources, such as solar and wind power, offers numerous benefits. For one, it can significantly reduce greenhouse gas emissions, enabling Iran to meet its international commitments on climate change. Additionally, renewable energy can contribute to diversifying the country's energy supply, thereby reducing the risks associated with fluctuations in oil and gas prices. Furthermore, increasing the capacity of renewable energy production can reduce dependence on energy imports and create opportunities for exporting electricity to neighboring countries, particularly during periods of surplus production.

However, the widespread development of renewable energy requires careful planning and significant investment in infrastructure and technology.

One of the main challenges in this sector is the high initial cost of building solar and wind power plants. To address this issue, policymakers must seek government support and attract private investment. Effective measures include providing financial facilities for the development of renewable energy projects, reducing taxes, and enacting supportive laws.

Mohsen Tarzatab, the new head of the SATBA, emphasizes the need to focus more on the capacity of the green energy exchange in the energy bourse. He notes that the financial models designed by SATBA rely too heavily on government resources, which must be avoided, and the green energy exchange in the energy bourse must be deepened. Tarzatab also stresses the importance of striking a balance between the development of renewable energy and energy optimization. He points out that good resources have been allocated for this purpose, enabling the energy optimization sector to take shape quickly.

The Deputy Minister of Energy adds that special conditions have been created for SATBA, given the country's high demand for electricity and the potential for rapid results from investing in solar panels and wind turbines.

According to the latest statistics on the status of renewable energy production, the energy produced in these power plants has reached 1.28 billion kilowatt-hours since the beginning of the Iranian year (began on March 20, 2024), and the production of renewable energy on July 22 - Aug 21 has been reported to be 264 million kilowatt-hours, showing a 1% increase compared to the previous month and a 23% growth compared to the same period last year.

Advanced countries have demonstrated that with appropriate incentives and sustainable policies, initial costs can be reduced over time, leading to sustainable economic growth. In this regard, government support for clean energy through the development of suitable laws, encouragement of the private sector to enter this field, and the creation of incentive mechanisms, including the guarantee of purchasing renewable energy by the government, will play a crucial role in the development of this industry. The experience of successful countries has shown that the government can eliminate one of the biggest obstacles to the development of this industry by investing in electricity transmission and distribution infrastructure.

The private sector can also play a key role in this transformation by innovating technologies and launching renewable energy projects. Investing in solar, wind, and other renewable energy sources not only helps to sustainably supply energy but can also create extensive job opportunities in various industrial and technological sectors.

