# Taiwan's Energy Security and Recommendations

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Energy security is a key objective in the energy policies of all countries. The Taiwan Energy Security Index, published by the Taiwan Economic Research and Development Center of National Central University, is based on the World Energy Council's energy vulnerability framework. It takes into account factors such as energy supply, infrastructure, and consumption, offering an appropriate variation in energy security.

According to the results of the Taiwan Energy Security Index for the third quarter of 2024, the total energy security index stands at 60.7, a decrease of 2.3 points from the previous quarter and a decline of 5.9 points compared to the same period in 2023. This indicates a downward trend, and the index has continued to drop since 2020, from 87.4 in the first quarter of 2020 to 60.7 in the third quarter of 2024. The reasons of this decline include the slow development of renewable energy, insufficient natural gas infrastructure, and the generator units failed to connect to the grid as scheduled after decommissioning of nuclear power plants. These issues pose risks to Taiwan’s energy supply stability, which may become more severe in the future. Therefore, it is recommended that the government adopt a more pragmatic approach to energy policy to ensure the achievement of energy security and sustainable development goals:

1. Adjust Current Energy Policy and Extend the Operation of Nuclear Power Plants: The government’s energy policy has been in place for eight years but has encountered numerous challenges. Due to the electricity demand will increase with the development of artificial intelligence, the semiconductor industry, and economic growth, it is essential to secure a low-carbon, stable power source. The government should pragmatically assess the challenges of Taiwan’s energy transition. If the three existing nuclear power plants can be extended, they are expected to contribute over 12% to the percent operating

reserve, helping to prevent a long-term risk of power outages.

2. Establish Energy Zones to Support Renewable Energy Development and Integrate with Energy Storage Systems: The lack of suitable space is one of the challenges in developing renewable energy. The government should actively establish energy zones to assist businesses in securing land for building renewable energy systems and adopt a bidding process to encourage participation from various sectors, thereby accelerating the construction of renewable energy infrastructure. Furthermore, due to the intermittent nature of renewable energy, which exerts pressure on grid stability, it is essential to promote the integration of renewable energy with energy storage technologies. This would enhance the stability and grid integration of renewable energy, strengthen support for the power system, and reduce dependence on imported energy, ensuring a more diversified energy supply.

3. Strengthen the Adjustment of Energy Consumption Structure and Improve Efficiency: It is essential to establish energy efficiency standards and strengthen regulatory measures, while promoting energy-saving financial mechanisms and fiscal incentives to improve energy efficiency in response to fluctuations in energy prices. At the same time, the energy consumption structure should be diversified to reduce reliance on a single energy source.

4. Adhere to a Reasonable Energy Price Adjustment Mechanism: If energy prices fail to reflect costs, state-owned enterprises will face losses and will need to rely on government-issued bonds to make up for the shortfall. This undermines the "user-pays" principle and burdens future generations with debt, while also making it difficult for Taiwan Power Company (Taipower) to make long-term investments, thus affecting the stability of infrastructure and electricity supply. Therefore, it is crucial to ensure the fairness, sustainability, and positive environmental impact of the energy price adjustment mechanism.