Trump 2.0 Tariff Policy, the AI Boom, and Taiwan's Electricity Demand: Energy-Economic Implications of Supply Chain Restructuring

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The Trump 2.0 tariff policy has heightened uncertainty surrounding global trade and supply chain restructuring. However, Taiwan continues to hold a critical position in international supply chains due to its strengths in semiconductor manufacturing as well as its comprehensive information and communications technology (ICT) industry clusters. The rapid development of artificial intelligence (AI), high-performance computing (HPC), and cloud services continues to fuel global technology investment. This growth has boosted Taiwan's production and exports of semiconductors, electronic components, and ICT products, while driving a corresponding increase in electricity demand.

As Taiwan's industrial structure evolves, the focus of industrial electricity consumption has gradually shifted from traditional energy-intensive industries such as petrochemicals, steel, and cement to high-tech applications, including wafer fabrication, semiconductor packaging and testing, AI servers, and data centers. Energy policy has therefore expanded beyond ensuring adequate power supply to encompass power quality, grid resilience, energy efficiency, and the low-carbon transition.

High-tech manufacturing processes and information systems require highly continuous operations. Even a brief power outage or voltage fluctuation can damage equipment, disrupt production, and reduce yield rates, resulting in substantial economic losses. Future power system planning must therefore do more than meet additional electricity demand. It must also strengthen supply stability, regional power availability, and grid resilience to support the continued development of high-tech industries.

Moreover, the recent shift in Taiwan's export markets toward the United States, together with the growing share of high-tech products in total exports, has deepened the

link between energy demand and global technology cycles, geopolitical developments, and trade policies. If the United States further raises tariffs, tightens local production requirements, expands technology export controls, or introduces measures linked to a carbon border adjustment mechanism, the resulting changes in corporate investment and supply chains could affect Taiwan's industrial production and electricity demand structure. These developments would increase uncertainty in energy planning and supply-demand management.

Overall, future policy should focus on four priorities. First, long-term electricity demand forecasts should incorporate semiconductor capacity expansion, AI servers, data centers, and major technology investments. A dynamic review mechanism should also be established to improve power supply-demand planning. Second, the government should promote deep energy conservation and the low-carbon transformation of industry. Process improvements, energy management, and talent development can enhance energy efficiency and reduce carbon emissions. Third, the government should continue monitoring the implementation and effectiveness of the "Regulations Governing Energy-Saving Assessments and Energy-Saving Plans for Energy Users" and gradually broaden the scope of deep energy conservation initiatives. Fourth, the government should strengthen interministerial coordination across energy, industrial, and net-zero policies. Long-term electricity demand driven by AI should be incorporated into national infrastructure planning to ensure that the energy transition and industrial upgrading advance in tandem, strengthening Taiwan's long-term competitiveness in the global technology supply chain.