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Report Name: Taiwan Wood Pellets Market Update

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Report Highlights:

This report is an update of TW2023-0048 Taiwan Wood Pellets Market Brief - New Environmental and Energy Priorities Realize Opportunity for \$300 Million in U.S. Wood Pellets, published in 2023. In 2022, Taiwan published "Taiwan's Pathway to Net-Zero Emissions in 2050," outlining the island's strategy to achieve net-zero carbon emissions by 2050. Developing renewable energy is a crucial component of this plan, and wood pellets were considered by Taiwan to generate additional green energy. However, Taiwan has postponed the conversion of one of its largest coal boilers to burn wood pellets. Instead, Taiwan opted to use natural gas for power generation and purchase an additional \$200 billion worth of liquefied natural gas (LNG) from the U.S. U.S. wood pellets export opportunities remain for paper and petrochemical industries with fluidized bed systems, which required to adopt carbon reduction targets to cut their emissions.

Renewable Energy Development and Policy

Following the announcement of a national goal to reach net-zero carbon emission in 2050, Taiwan's Former President Tsai Ing-wen signed the Climate Change Response Act into law in February 2023. To support this goal, the National Development Council published a new program - *Taiwan's Pathway to Net-Zero Emissions in 2050* to provide the action pathway.

Taiwan aims to increase the share of renewable energy to twenty percent of its total power capacity by 2026, with biomass accounting for three percent of the total renewable energy, as part of the island's goal to reach net-zero carbon emissions. To reach the goal, the state-owned power enterprise Taiwan Power Company (Taipower) was looking into the feasibility of a biomass power generation project and consider converting one large coal boiler to burn wood pellet, which reveals a trade opportunity for U.S. wood pellet export.

Taiwan has been reviewing and ameliorating its energy policies since the new administration took office in 2024. The new team has decided to temporarily shelve the plan to convert coal-fired boilers to burn wood pellets. Currently, Taipower's latest Sustainability Report mentions an increase in the supply of energy from burning LNG. This policy may increase the procurement of LNG from the United States to 240 million USD per year, while the use of wood pellets as biomass fuel is no longer included in the report. Please refer to [GAIN TW2023-0048](#) for details of Taipower's original wood pellet procurement plan.

Despite the uncertainty surrounding the opportunity to supply wood pellets to the state-owned power supplier, trade opportunities for wood pellets remain for the paper and petrochemical industries with fluidized bed systems, which are required to adopt carbon reduction targets to cut their emissions.

As of 2023, renewable energy accounts for less than 10 percent of total energy output in Taiwan. Among all the renewable energy types, biomass's contribution to Taiwan's energy mix was significantly less than other sources such as solar and wind.

Table 1. Taiwan Energy Output by Generation Type**Total Amount and Composition of Power Generation from 2021 to 2023**

	2021		2022		2023	
	Billion kWh	Percentage	Billion kWh	Percentage	Billion kWh	Percentage
Net Amount of Power Generated and Purchased	248.8	100.0%	250.7	100.0%	245.5	100.0%
Amount of Power Generated	189.1	76.0%	188.3	75.1%	174.5	71.1%
Pumped Storage Hydro	3.2	1.3%	3.1	1.2%	3.0	1.2%
Thermal	155.2	62.4%	156.0	62.2%	149.7	61.0%
Nuclear	26.8	10.8%	22.9	9.1%	17.2	7.0%
Renewable Energy	3.9	1.6%	6.3	2.5%	4.6	1.9%
Amount of Purchased Power	59.7	24.0%	62.5 ^{Note}	24.9%	71.0 ^{Note}	28.9%
Privately-Owned Thermal	42.7	17.1%	43.7	17.4%	45.3	18.5%
Renewable Energy	11.9	4.8%	15.3	6.1%	19.7	8.0%
Cogeneration	5.1	2.1%	3.4	1.4%	5.9	2.4%

Note: Detailed items are not equal to the total due to rounding, and the round-off difference is not adjusted.

Source: Taiwan Power Company, 2023 Sustainability Report

Taiwan's Carbon Fees

Taiwan has implemented carbon fees targeting high-emission industries, with preferential rates available for those committing to reduction goals. Approximately 500 installations from 281 companies, representing 54% of Taiwan's total emissions, will be subject to these fees. The standard rate is set at NT\$300 (approximately \$10) per ton, with lower rates for those meeting specific reduction targets. Industries at risk of high carbon leakage can apply for emission adjustment coefficients. Taiwan's objective in collecting these fees is to incentivize carbon reduction, promote sustainable growth, and align with international carbon pricing standards.

These rates take effect on January 1, 2025, as detailed below:

1. Standard Carbon Fee Rate: NT\$300 (\$10) per ton of carbon dioxide equivalent (tCO₂e) for general entities subject to the carbon fee.
2. Preferential Carbon Fee Rate A: NT\$50 (\$1.67) per tCO₂e for entities that apply for a self-determined reduction plan and meet the industry-specific designated reduction rate.
3. Preferential Carbon Fee Rate B: NT\$100 (\$3.33) per tCO₂e for entities that apply for a self-determined reduction plan and meet the technology benchmark designated reduction rate.

Wood Pellet Trade Opportunities

According to industry estimates, petrochemical and heavy industries may consume over 800,000 metric tons of wood pellets per year to generate power. To reduce carbon fee expenditures, these industries will inevitably need to adjust their coal-fired power generation systems to comply with the new regulations. Co-firing biomass in existing coal plants is a straightforward and quickly implemented solution. Specifically, wood pellets are an ideal fuel for this purpose. Regardless of whether they convert existing coal-fired units to either fully burn or co-fire wood pellets, this transition will create significant export opportunities.

Taiwan has implemented the Feed-in Tariff (FIT) system since 2010, aiming to promote the development of renewable energy and encourage private investment in green energy facilities. Under this system, Taipower guarantees the purchase of electricity generated by renewable energy equipment at government-announced rates, typically for a period of 20 years, providing stable investment returns.

According to the announcement by the Ministry of Economic Affairs, the feed-in tariff rates for various types of renewable energy for the year 2025 are as follows:

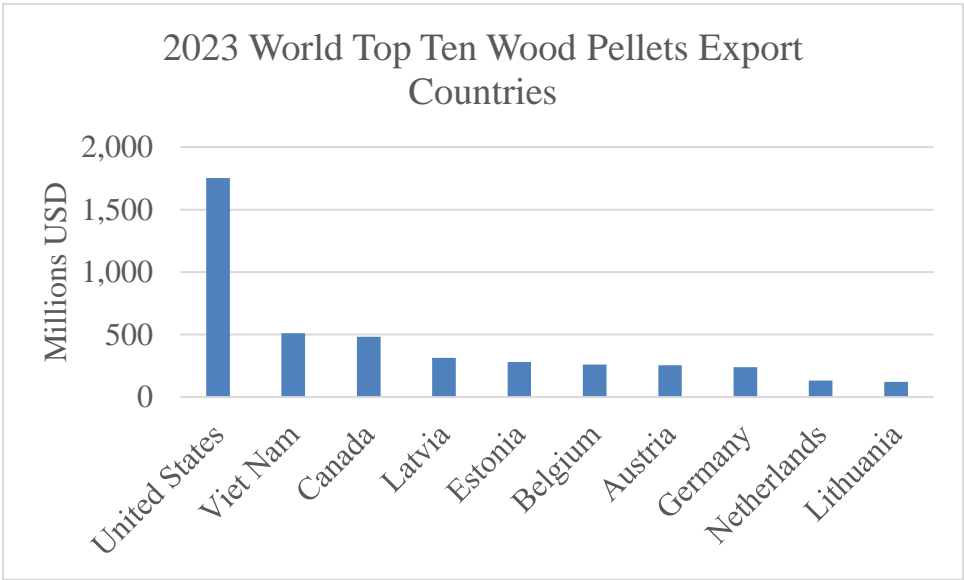
Category	Feed-in Tariff Rate (NTD/kWh)
Biogas (with anaerobic digestion equipment)	7.0192 (\$0.23)
Solid biomass fuel and domestic agricultural residual resources ¹	5.1407 (\$0.17)
Other categories	2.8066 (\$0.09)

Note 1: Wood pellets are categorized as solid biomass fuel.

Wood Pellets Supplies

Taiwan does not have extensive forests or wood resources to support large-scale wood pellet production. Importing wood pellets can be more cost-effective and logistically feasible than attempting to produce them domestically. According to industry estimates, Taiwan produces approximately 300,000 to 400,000 metric tons of non-industrial grade wood pellets annually. This limited production capacity necessitates reliance on imports to meet the growing demand for biomass fuel. North American, European, and Southeast Asian countries are major wood pellet producers and suppliers. In the EU specifically, demand for pellets has significantly outpaced domestic production for the past ten years, leading to increased imports from other regions.

Although wood pellets produced in Southeast Asia are more cost-effective due to lower production and transportation costs, the stable and high-quality supplies from North American suppliers, particularly those sourced from sustainable forests, are a vital consideration for Taiwan's energy market. North American wood pellets are often preferred for their consistent quality, higher calorific value, and adherence to stringent environmental standards. These factors can be particularly important for industries that require reliable and efficient fuel sources to meet regulatory requirements and operational needs.



Source: FAO

Taiwan Wood Pellets Requirements

The principles governing Taipower’s wood pellet imports include supply stability, quality standards based on Taiwan’s Chinese National Standards (CNS) 17225-2 and alignment with the Taiwan Ministry of Environment’s primary solid biomass fuel standards. (Note: CNS17225-2 for wood pellets is based on ISO standards, which specifies requirements for solid biofuels.)

Taiwan does not have specific wood pellet regulations. However, Taiwan’s CNS [17225-2](#) (Chinese version only and can be locate in the search engine) specifies the requirements and classifications for wood pellets used as solid biofuels, including specifications for dimensions, quality requirements, calorific values, additives and binders, sampling and testing, packaging and labeling, quality assurance, and transportation and storage.

Taiwan’s Ministry of Environment have specific requirements for emission levels of wood pellet broiler to ensure they meet environmental and quality standards. The table below listed chemical content and heat value allowed for primary solid biomass fuel, which includes wood pellets.

Chlorine content	≤ 0.1 Wt%
Sulfur content	≤ 0.05 Wt%
Lead content	≤ 20 $\mu\text{g/g}$
Cadmium content	≤ 1 $\mu\text{g/g}$
Mercury content	≤ 0.1 $\mu\text{g/g}$
Lower heating value	$\geq 3,000$ kcal/kg

Source: Ministry of Environment

Conclusion

Taiwan has recently revised several power generation policies, many of which are still in the adjustment and legislative stages. The Agricultural Trade Office (ATO) Taipei will continue to closely monitor the development of these policies and provide wood pellet suppliers with timely and relevant information for reference. It is essential for stakeholders to remain informed about these changes, as they may have significant implications for the renewable energy sector and related industries. By staying updated on the latest policy developments, wood pellet suppliers can better navigate the evolving regulatory landscape and seize emerging opportunities in Taiwan's energy market.

Attachments:

No Attachments.