

Taiwan's Big and Clean Bets: Towards Green Cooperation

By Wen-Yu Weng

We are living in a period of excitement for Taiwan's energy transition journey. The election of President Tsai in 2016 swept in the promise of a green energy revolution, partnered with an elevated climate agenda, as one of the touted "[five industry pillars](#)."

Wen-Yu Weng, Clean Energy and Climate Response Expert at PA Consulting, explains that "the future of Taiwan's energy transition lies in making big bets in highly creative and highly technical approaches" and green energy "policy needs to embrace the fundamentally decentralized and democratized nature of solution-generation, agenda-setting, and experimental models."

Taiwan's offshore wind sector is a bellwether for Taiwan's sustainability and climate ambition, encompassing the good, the bad and the ugly. On the one hand, from the bottling up of policy ambitions and investor enthusiasm, to the whispers of an industry boom, Taiwan has kickstarted its industry at an opportune moment, turning heads of savvy international players. Taiwan's leap into offshore wind came as the world was increasingly eyeing scalable, long-term asset opportunities in the Asia Pacific with positive environmental social and governance (ESG) valuations. Offshore wind also ticks boxes for the goals of energy independence and industrial promotion. Translating the plan from paper proved moderately successful even in these early days: the sector has benefitted from an attractive subsidy scheme, a liberalizing power market, the green supply chain agenda of Taiwan's manufacturing industries, as well as the island's strategic location as a potential launchpad for future offshore and onshore renewable energy projects in East and Southeast Asia.

While these factors have all contributed towards attracting top developers and asset owners, regulatory uncertainties at critical junctures, delays, excessive bureaucratic red-tape, and uninspired coordination of cross-sector efforts have all led to narrowly defined energy sector strategies that fell short of maximizing the supply chain and economic benefits of the offshore wind expansion. Moreover, Taiwan's business-as-usual approaches have found resistance in inspiring public support.

Much of the friction exists around legacy views of policymaking. Centralized industrial policies were a key element of Taiwan's economic growth during its developmental state days, and glimmers of the past are also now apparent in the pursuit of the low-carbon state. From the socialization of industrial returns to the localization of sector activities, the government has returned to the safe bet of state-driven industrialization, with some indisputable success. Nonetheless, the future of Taiwan's energy transition lies in **making big bets in highly creative and highly technical approaches**. If these wagers are to be successful, policy needs to embrace the fundamentally decentralized and democratized nature of solution-generation, agenda-setting, and experimental models.

Taiwanese society has the capability to rally behind a democratized and innovative energy transition, but the upsides of Taiwan's status as a technology and engineering powerhouse has yet to be fully exploited. Taiwan's keystone position in the global electronics value chain is well understood, with an intensely competitive and qualified workforce. However, there are also underutilized advantages in its corporate, societal, industrial, and academic communities. The oversized political and economic presence of the semiconductor industry has overshadowed other advanced technology sectors. Accordingly, greater support for a broad entrepreneurial and creative culture in Taiwan will be a crucial step in the transition to a low-carbon future.

Beyond chips, investment in broad-base, end-to-end digital and engineering capability is required to accelerate not only the Industrial Revolution 4.0, but also enable the emergence of "[Energy 4.0](#)" sector models and buck broader commoditization trends seen in the early days of value generation in the energy transition. The energy

sector of the future, for example, will deploy smart and connected systems to advance the flexibility, trust, and efficiency of processes across the energy value chain—from manufacturing and design, generation and supply, storage and transport, to consumption. Smart Grids provide utilities, generators, and consumers new ways to connect and transact. Other innovations, such as big data and artificial intelligence, are poised to optimize complex energy and power systems and uncover new insights. While innovation in hardware remains important, so are the creative operational and commercial solutions required to align incentives and fashion the appropriate profit or risk sharing models.

Taiwan possesses many pieces of the puzzle. With outstanding research and academic institutions, a rapidly growing innovation ecosystem, and increasing internationalization of its technology and business communities. To date, however, [Taiwan has gained only modest traction in diversifying its trade and investment partners](#), and its export focus remains constrained to subsegments of the information and communication technology sector.

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It is important to recognize that Taiwan's value-add to its trade and knowledge partners will not come from only exporting goods, services, technology, or operating models for Energy 4.0 industries. Taiwan also offers financial, commercial, and regulatory know-how to its partners. For example, Taiwan's lessons learned from fully leveraging its workforce, institutions, and innovation ecosystem to accelerate the energy transition matters to the world. Equally, the value of Taiwan's experience resolving regulatory tension between the interests of investors and asset owners, and the interests of the broader community should not be understated. As sustainability and the pursuit of Net Zero becomes increasingly pertinent in policy discussions across the globe, an increasing number of governments will embrace "green growth," with clean energy driving the forefront of industrialization and employment.

In 2011, the Taiwan government has launched the "Green Trade Promotion Program." Over the years, there has been a renewed focus on sustainable trade promotion and investment efforts led by the [Taiwan External Trade Development Council \(TAITRA\)](#) both in Taiwan and overseas. Recent bilateral efforts with Taiwan's neighbors, Japan and South Korea, also highlight the benefits of co-operating on energy transition efforts as all three countries are highly reliant on fossil fuel with minimal indigenous resources. In this sense, cooperative energy development and exporting energy sector products, IP and knowhow is not a new paradigm.

Taiwan's collaboration in the future could extend to advanced energy market solutions, going beyond clean energy generation opportunities. Cooperation can be driven by societal and geographical logic, as well as requirements for sophisticated solutions addressing complex network and consumption issues. For example, due to the highly urbanized nature of Taiwan's economy, Taiwan is well placed to explore decentralized models, including virtual power plants, embedding [internet of things \(IOT\)](#) concepts across the energy value chain, and local grids and/or blockchain-enabled energy trade or consumption. These technologies will enable the aggregation of distributed resources in urban areas, optimize participation, deepen trust, and reduce overall carbon footprint, particularly in cities. The promise of distributed energy technologies and models hold true in urbanized areas across North American and European markets as well.

Ultimately, a true **big and clean bet** for Taiwan goes beyond power generation to encompass a broad range of technologies that will enable the energy systems of the future. In addition, Taiwan has a tremendous opportunity to not only provide innovative products key to Energy 4.0 industry, but also cultivate "innovation through people" by facilitating the formation of a creative entrepreneurial class.

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