THE INTERNATIONAL REC STANDARD

1. Country Assessment Report

Country/Region Name: Taiwan

Executive Summary
Taiwan's renewable energy market has undergone a fundamental transformation over the past five years. Once driven almost entirely by Feed-in Tariffs (FiTs), the market is now increasingly shaped by corporate procurement, market liberalization, and unsubsidized renewable project development. Since 2020, the share of FiT-supported renewable generation has declined approximately 15%, while non-FiT market-based supply – primarily through corporate power purchase agreements (CPPAs) and wheeling mechanisms has expanded by more than 10%. This shift reflects deep structural changes in both regulatory design and commercial behavior.

These market changes have been reinforced by a series of regulatory reforms, including the 2017 Electricity Act amendment, the 2019 Renewable Energy Development Act (REDA) revisions, and the 2023-2025 regulatory updates enabling partial offtake, retailer-to-retailer trading, and greater participation from storage and demand-response operators. At the same time, corporate demand for renewable electricity has surged, driven by RE100 commitments, supply-chain decarbonization requirements, and tightening global disclosure standards. Taiwan now faces a renewable energy shortfall estimated at ~35 TWh, underscoring the urgency of market-based renewable supply.

Against this backdrop, this report finds that the original rationale for restricting I-REC(E) issuance in Taiwan, limited to small hydropower projects, no longer reflects current legal, technical, or market conditions. Today's non-FiT solar and wind projects are unsubsidized, independently financed, transparently metered, and central to corporate decarbonization.

This report concludes that the International Tracking Standard Foundation (I-TRACK Foundation) should lift its current restrictions on non-FiT solar and wind projects in Taiwan and formally recognize them as eligible I-REC(E) generation sources. This approach is designed to expand issuance permissions in Taiwan while preserving adequate safeguards to prevent double issuance and remaining aligned with the evolving policy and regulatory landscape.

Updated: 2025 Country Assessment Report

This report serves as an updated version of the earlier I-TRACK Foundation Country Assessment for Taiwan. Since the previous assessment, Taiwan's power and renewable energy markets have undergone significant changes in policy, market structure, and corporate procurement mechanisms.

Key changes since the earlier report include:

- Provide a current overview of Taiwan's power and renewable market structure
- Assess how regulatory reforms since 2017 have enabled market-based renewable procurement
- Analyze the transition from FiT-supported development to unsubsidized CPPA-driven projects
- Evaluate changes in environmental attribute ownership and certificate issuance
- Review whether the original restrictions on I-REC(E) eligibility remain justified
- Provide a formal, evidence-based recommendation to the I-TRACK Foundation

The objective of this report is to provide a clear and current overview of Taiwan's renewable energy landscape, highlight the major changes since the first assessment, and outline how these developments influence corporate green power procurement and certificate eligibility today.

Original Basis for I-REC(E) Restrictions in Taiwan

When the I-REC(E) system was first considered in Taiwan, the restriction was not a technology-based limitation, but a response to the regulatory environment that existed at the time. Before the introduction of Taiwan's T- REC system, the country operated the Green Power Purchase Program, under which Taipower purchased renewable electricity – mainly from FiT-backed wind and solar projects and sold it to consumers as "green electricity". Under this framework, the environmental attributes of FiT-supported generation were generally understood to be absorbed into the government-supported green power program, rather than retained by project developers. As a result, there was no clear legal mechanism for wind and solar generators to claim or transfer renewable attributes independently of Taipower's program.

Because of this structure, wind and solar environmental attributes could not be clearly separated from government-owned green electricity, and the risk of attribute misuse or double claims was high. In contrast, small hydropower plants – many of which were developed outside the FiT program and did not participate in the Green Power Purchase Program retained more clearly identifiable environmental attributes. This distinction made small hydro the only practical and low-risk candidate for I-REC(E) eligibility in Taiwan during the early period of market development.

Given these risks, I-REC(E) excluded wind and solar facilities in Taiwan from eligibility, as their environmental attributes could not be clearly separated from government-supported generation or from the domestic T-REC system. In contrast, small hydropower projects were largely developed outside the FiT framework and did not participate in T-REC at the same time, making their environmental attribute ownership clear and auditable. As a result, small hydro became the only technology that was practically eligible for I-REC(E) issuance in Taiwan, not due to preferential treatment, but due to the absence of regulation and double-counting risks.

Power Market Overview:

Taiwan is a highly developed, export-oriented economy with a GDP of roughly US$ 814 billion in 2024 (National Statistics, 2025). Its industrial competitiveness is anchored in semiconductors, electronics, and precision manufacturing, with firms such as TSMC, UMC, Foxconn, Acer, and ASUS forming the backbone of the global supply chains. These sectors drive intense electricity demand and make access to reliable, low-carbon energy increasingly important for economic competitiveness and meeting the expectations of international buyers.

Within this context, Taiwan's renewable energy portfolio has continued to expand and evolve. As shown in Figure 1, around 30% of the renewable energy in recent years comes from Taipower-owned projects. The remaining 70% is produced by IPP projects, which then split into two major categories: FiT-based generation and non- FiT market-driven generation. FiT projects account for roughly 65% of total renewable output, though their share has been declining by around 15% since 2020 as fewer new projects opt into FiT contracts. In contrast, non-FiT generation has grown more than 10% since 2020, driven by the rise of corporate procurement and Taiwan's gradual market liberalization.

Within the non-FiT segment, most market-available renewable electricity is sold through CPPAs. Of these, about 4-5% of total renewable output flows through bundled CPPAs, where both power and certificates are delivered together. A smaller 1-2% comes from unbundled certificate-only transactions, typically used when physical power delivery is not feasible. These growth patterns highlight how unsubsidized, market-based development is becoming central to new project investment.

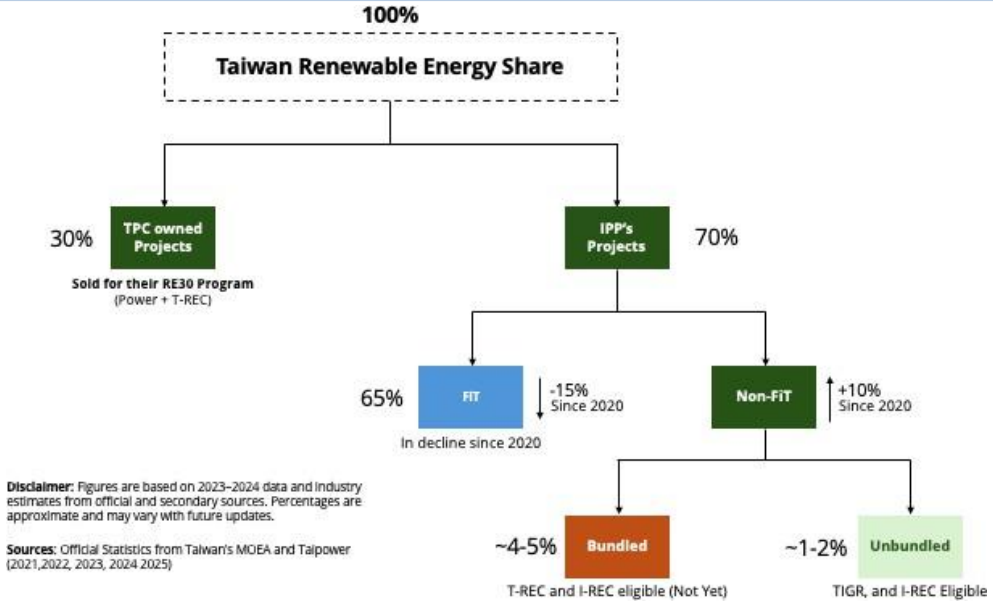

Figure 1 Taiwan Market Tools Share

Overall, this distribution reflects Taiwan's transition toward a more market-driven renewable energy landscape. While FiT projects still constitute the majority of existing renewable generation, new growth is increasingly shaped by corporate procurement, wheeling agreements, and credible certificate systems such as T-RECs and I-REC(E). With industrial electricity prices rising and FiT rates declining, developers are shifting decisively toward long-term corporate contracting, positioning CPPAs as a critical mechanism for achieving both corporate sustainability commitments and Taiwan's broader decarbonization goals.

Taiwan Generation Mix

In 2024, Taiwan generated 251.44 TWh of electricity. The mix remains dominated by fossil fuels, with natural gas accounting for 47.2 % and coal for 31.1%, together making up nearly 80% of the total generation. This heavy reliance on fossil fuels underscores Taiwan's ongoing energy security challenges. Renewables contributed 11.9%, primarily from solar and wind, showing steady progress toward energy transition targets but still falling short of the government's 20% goal by 2025. Nuclear energy accounted for 4.7% before being retired in mid-2025. Smaller contributors such as pumped-storage hydro (1.2%), cogeneration (1.4%), and oil (2.4%) support system stability, while battery storage (0.1%) is beginning to play a role in managing intermittent generation. (TPC, 2025)

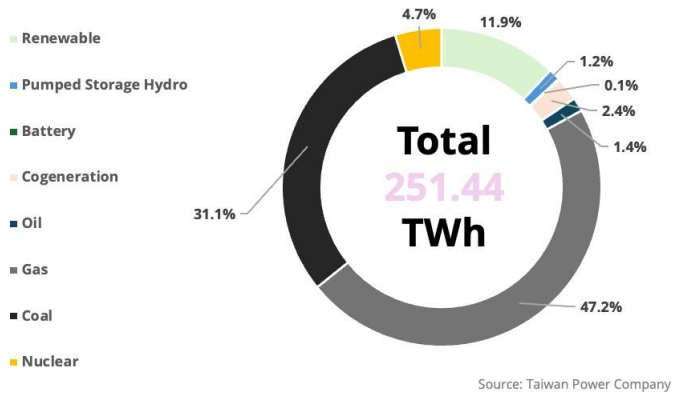

Figure 2. Taiwan Electricity Mix 2024

This evolving generation profile directly influences the structure of Taiwan's power market, which remains dominated by Taipower but is gradually opening to competition. FiTs, renewable auctions, and corporate PPAs are driving private participation, though challenges persist in grid reliability renewable integration, and pricing stability. Continued regulatory reform and infrastructure upgrades will be crucial to building a more resilient and competitive power system.

Supply and Demand of Electricity in Taiwan

Taiwan's electricity supply-demand balance is under increasing strain, reflecting both structural constraints and rising industrial consumption. On the supply side, the country faces persistent limitations due to its dependence on imported fuels, the phase-out of nuclear energy, and a slower-than-expected scale-up of renewables. Although renewable generation reached nearly 28 TWh in 2024, most of it remains tied to Taipower's non-tradable assets, leaving only limited volumes available for corporate procurement via wheeling or released capacity. Grid congestion, land constraints, and permitting challenges continue to restrict renewable expansion, leading to tighter reserve margins and growing reliability concerns.

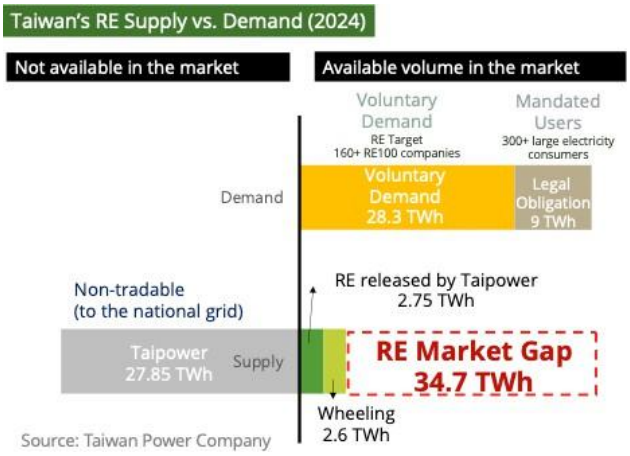

Figure 3. Taiwan RE Supply vs Demand

Meanwhile, demand for renewable electricity is accelerating. Semiconductors and electronics manufacturers, alongside more than 160 RE100 companies and other industrial users, are competing for a very limited pool of green power. Voluntary procurement exceeded 28 TWh in 2024, and combined with mandated obligations, Taiwan faces a renewable shortfall of roughly 35 TWh.

This widening imbalance highlights a central challenge in Taiwan's energy transition: corporate ambition is outpacing the country's renewable energy capacity. Closing this gap will require faster renewable deployment, expanded market liberalization, and enhanced grid flexibility to ensure that supply growth keeps pace with industrial demand and Taiwan's broader decarbonization commitments.

Evolution of Taiwan Regulations contributing to the present update

Taiwan's electricity market has evolved significantly toward a more open and market-driven renewable energy system. The **2017 Electricity Act amendment** marked a major breakthrough, allowing private participation in power generation and retail, establishing the legal basis for CPPAs and power wheeling, and granting priority dispatch to renewable sources (MOEA, 2019). This reform created the foundational conditions for corporates to directly procure green power outside the FIT regime.

The next major regulatory update came with the **2019 amendment to the Renewable Energy Development Act (REDA)**, which introduced the large-user renewable obligation requiring energy-intensive consumers with contracted capacity above 5,000 kW to source at least 10% of their electricity from renewable energy (MOEA, 2023) (T-REC, 2021). Compliance pathways include self-generation, CPPAs, T-RECs, or contributions to the Renewable Energy Development Fund. This shifted renewable adoption from a voluntary choice to a regulatory requirement, accelerating corporate demand for unsubsidized renewable supply.

Between **2023 and 2025**, Taiwan implemented further policy refinements to deepen market flexibility and align the power sector with its **2050 net-zero pathway**. These updates introduced retailer-to-retailer renewable trading, formalized the participation of energy storage operators and demand-response aggregators, and enabled partial-offtake contracting, allowing corporates to purchase a portion rather than the full output of a renewable project (MOEA 2023). Collectively, these post-2017 reforms reinforced Taiwan's transition from a subsidy-based model centered on FITs to a market-oriented renewable ecosystem driven by corporate procurement and transparent trading mechanisms.

Transition from FIT to Market-Based Mechanisms

Taiwan's renewable energy development initially relied on the Feed-in-tariff system largely because the market structure left few practical alternatives. In early stages of the energy transition, wind and solar projects faced limited grid access, lengthy permitting procedures, financing challenges, and an underdeveloped domestic supply chain. Competitive procurement mechanisms, corporate offtake models, and certificate-based trading frameworks have not yet been established, meaning developers had no clear pathway to sell electricity directly to consumers or secure long-term revenue through market-based contracts. Under these conditions, the FiT mechanism introduced through the 2009 Renewable Energy Development Act (REDA) became the only viable option for project development, providing guaranteed offtake and revenue certainty that enabled investment and accelerated capacity growth in an otherwise closed and highly centralized power market.

As Taiwan's regulatory framework evolved, so did opportunities for **market-driven procurement**. The 2017 Electricity Act amendment opened the door to CPPAs by **enabling direct sales** and **wheeling** through Taipower's grid, and subsequent regulatory improvements—particularly those implemented in 2023—introduced greater flexibility by allowing partial offtake contracts and expanding the role of renewable retailers. A major milestone occurred in 2022 when the Hai Long 2B & 3 offshore wind project secured a 20-year CPPA, marking the **first large-scale corporate procurement agreement** in Taiwan and signaling growing confidence in market-based renewable sourcing. Solar projects, especially rooftop and aggregated portfolios, have since expanded rapidly due to shorter development timelines and lower procurement complexity.

FiT treatment of environmental attributes varies globally, and I-REC(E) does not prohibit FiT-supported projects from issuing certificates; instead, such projects are labelled "supported." Whether they can issue I-RECs depends on local rules governing attribute ownership. In Taiwan, similar to Japan, FiT payments are generally interpreted as including the transfer of environmental attributes to the government or Taipower, which prevents FiT projects from issuing EACs during the contract period. Only after a FiT contract expires, or if a generator voluntarily exits the FiT program, do they regain attribute ownership and become eligible for market-based certificate issuance.

Under the liberalized post-2017 framework, **unsubsidized renewable generators** can sign CPPAs, sell electricity directly to corporate buyers, and register the associated generation for EAC issuance. Several solar projects in Taiwan have already transitioned from FIT arrangements to long-term CPPAs with industrial and technology companies, enabling them to issue T-RECs domestically or I-REC(E) internationally. The regulatory refinements introduced between 2023 and 2025—such as the allowance for partial offtake CPPAs, retailer-to-retailer trading, and the integration of storage and demand-response operators—have further strengthened the environment for CPPA-based procurement and certificate-backed renewable claims (MOE, 2023).

Taiwan Green Energy Market Practice – CPPA Mechanism

Corporate Power Purchase Agreements (CPPAs) have become a central mechanism in Taiwan's renewable energy transition, providing a long-term contractual pathway for corporates to directly procure renewable electricity from generators. Under a CPPA structure, a company contracts with a renewable developer – typically wind or solar – to purchase electricity at an agreed price and term. The electricity is delivered through Taipower's grid under Taiwan's wheeling framework, with corporates paying the current wheeling fee of NT$0.2658/kWh for grid usage and transmission services (MOEA, 2025)(Taipower, 2023)

In Taiwan, CPPAs have emerged as an essential tool for corporate sustainability strategies and for renewable project bankability. As government support mechanisms such as Feed-in Tariffs (FITs) are progressively reduced and no longer reflect rising development, capital, and material costs, developers increasingly view CPPAs as a more viable and financially stable revenue model. Corporate buyers are often willing to pay for premium clean power, enabling developers to secure long-term cash flows, reduce financing risk, and pursue new capacity without relying on FIT subsidies.

Beyond electricity delivery, a critical feature of Taiwan's CPPA structure is its flexibility in the type of

environmental attribute certificates (EACs) that corporates may receive. While T-RECs are the most commonly associated certificate in domestic CPPA transactions, Taiwan's regulations do **not** mandate that a CPPA must be paired with T-RECs. The T-REC Code defines how certificates are issued—based on metered renewable generation and supply or self-use—but it does not prescribe which EAC standard must be bundled within a CPPA contract. As a result, CPPA projects in Taiwan may issue different forms of certificates depending on the project's eligibility and the buyer's reporting needs, including **T-RECs**, **TIGR certificates**, or **I-REC(E)** where applicable. This flexibility allows multinational companies—particularly RE100 participants or firms with global supply-chain reporting requirements—to align their Taiwanese procurement with international disclosure systems.

Taiwan's CPPA market has also diversified its contracting models to reflect different risk appetites and procurement needs. Corporates can enter physical CPPAs (with power delivered through Taipower's network) or virtual/ financial CPPAs, where the corporate settles financial differences while receiving renewable certificates for attribute claims. As illustrated in Figure 5, corporates engaging in CPPAs will receive multiple electricity invoices: one for renewable supply under the CPPA and another for residual electricity purchased from Taipower under standard tariffs, reflecting the hybrid structure of Taiwan's power market during its transition phase.

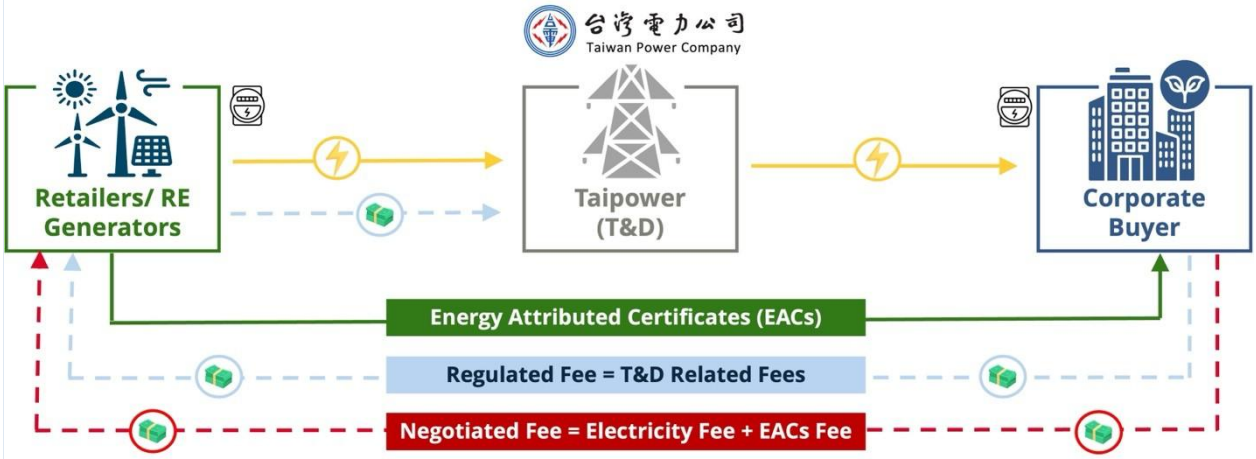

Figure 4. Taiwan CPPA Structure Flow (Illustrated by Mt. Stonegate Team)

Double Counting Risk: Then Vs. Now

When Taiwan's I-REC(E) restrictions were first introduced, the risk of double counting was structurally high. Renewable generation was almost entirely FiT-based, environmental attribute ownership was unclear, and Taiwan's domestic T-REC system operated without cross-registry coordination. In this context, restricting I-REC(E) eligibility was a reasonable safeguard to protect certificate integrity.

Today, these conditions no longer apply. Non-FiT solar and wind projects operate outside government support mechanisms and sell electricity directly to corporate buyers under CPPAs, establishing clear private ownership of environmental attributes. At the same time, Taiwan's T-REC registry has matured, with facility-level registration, metered verification, and improved transparency, significantly reducing the risks of overlapping claims.

Equally important, Taiwan's T-REC system has become highly transparent. Facility registration, metered generation data, and certificate transactions are publicly traceable within the T-REC platform. This transparency significantly reduces the risk of issuing overlapping certificates because the I-REC(E) Issuer, market participants, and third parties can easily verify whether a project is already issuing T-RECs.

Recent regulatory updates – such as partial-offtake CPPAs, retailer-to-retailer trading, and clear disclosure of renewable transactions further improve traceability across the system. As a result, double-counting risk in Taiwan has shifted from a structural concern to a manageable operational issue. With existing regulatory transparency and standard registry controls, allowing I-REC(E) issuance for non-FiT solar and wind would not undermine certificate integrity and can be implemented safely within Taiwan's current market framework.

Renewable Project Development Trends in Taiwan

Over the past several years, Taiwan's renewable energy landscape has undergone a major structural shift – from subsidy-driven model reliant on Feed-in Tariffs (FiTs) to a more open, market-based system led by direct corporate procurement. As the market gradually liberalized under the 2017 Electricity Act and the 2019 Renewable Energy Development Act amendments, renewable developers have increasingly favored CPPAs over FiTs contracts. This marks a fundamental change in how renewable capacity is financed and sold.

Under the earlier FiT framework, renewable developers received guaranteed tariffs and long-term offtake agreements from Taipower, which provided investment certainty but limited flexibility and price discovery. As renewable costs fell and corporate sustainability targets accelerated, FiT rates were progressively reduced to reflect lower development costs. In parallel, average industrial electricity costs in Taiwan have been rising due to fuel price volatility and growing system costs. In recent years, FiT rates have steadily declined (MOEA, 2024) (MOEA, 2025), and the government has narrowed eligibility to smaller-scale rooftop system and legacy installations. Consequently, the pipeline of new FiT projects has dwindled, and nearly all new large solar and offshore developments now operate under auction-based or CPPA structures rather than FiT arrangements.

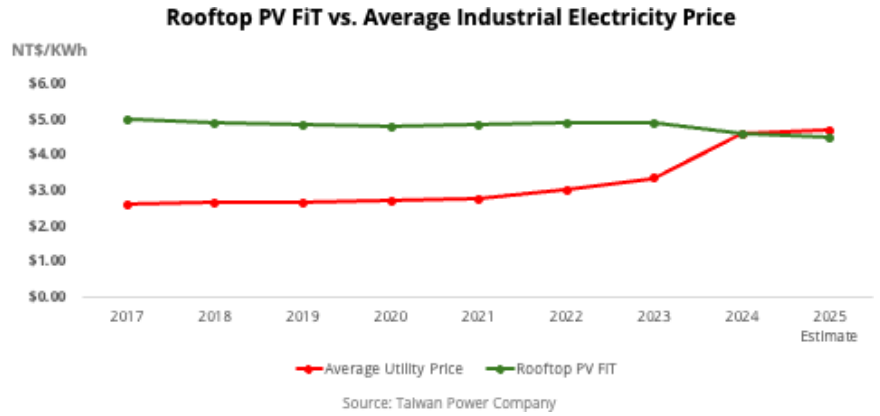

Figure 5. Average Utility Price vs. Rooftop FiT Price

For developers, the liberalized market offers both profitability and alignment with long-term demand. Large industrial users – particularly in the semiconductor and the electronics sectors are under increasing pressure from global supply chains and RE100 or net-zero commitments to procure renewable power directly. This has created a robust CPPA market, where developers can negotiate long-term offtake agreements at competitive rates, often higher than the current FiT levels, while corporates secure renewable supply and Energy Attribute Certificates (EACs) for compliance and reporting. Many developers now prefer to sell electricity via CPPAs, viewing them as a more flexible and sustainable model than traditional tools from Taiwan's early renewable development phase.

The trend is reflected in recent data: while total renewable generation continues to rise, the share of new capacity supported by FiT has sharply declined. By 2024, new FiT project registration was minimal, with nearly all utility-scale solar and offshore wind projects operating under unsubsidized or corporate-driven arrangements. The FiT system now plays a secondary role – mainly supporting small rooftop installations and distributed generation.

In short, Taiwan's renewable market has entered a new investment-driven stage. With market liberalization, corporate demand, and functioning certificate systems such as T-RECs, the country is transitioning from subsidized renewables to competitive, market-based clean energy ecosystem. Developers increasingly view CPPA not as alternative to FiT, but as the future of renewable energy development in Taiwan.

Conclusion

Taiwan's renewable energy market has evolved far beyond the conditions that originally justified limiting I-REC eligibility. The country has shifted from a system dominated by FiT-supported renewable generation and a government-controlled green power program toward a market-based ecosystem centered on unsubsidized solar and wind development, CPPA, and transparent certificate tracking. The decline of FiT as the primary revenue mechanism, paired with the rapid growth of non-FiT projects, demonstrates that renewable developers increasingly rely on competitive, contract-based market arrangements rather than subsidies.

At the same time, the introduction of clearer metering systems, the maturation of Taiwan's CPPA framework, improved disclosure under international reporting standards, and the evolution from the Green Power Purchase Program to T-REC have significantly reduced the double-counting and attribute-ownership risks that originally constrained I-REC(E) applicability. Today, non-FiT wind and solar projects are unsubsidized, independently financed, and accountable procurement pathways. They represent the most important and rapidly expanding segment of Taiwan's renewable supply and the segment most relied upon by corporates pursuing RE100, net-zero, and supply-chain decarbonization commitments.

Maintaining the historic exclusion of these projects no longer reflects Taiwan's market reality and unnecessarily limits the integrity and availability of credible renewable energy certificates. Expanding eligibility to include non-FiT solar and wind would align the I-REC(E) system with Taiwan's modern regulatory framework, support the country's transition to a competitive clean-energy market, and provide corporations with the tools needed to credibly report renewable electricity use.

Based on the market evidence, regulatory changes, and technical safeguards now in place, this report concludes that the I-TRACK Foundation should lift its current restriction and recognize non-FiT solar and wind facilities in Taiwan as eligible I-REC(E) generation sources.

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