Feed In Premium (Fip)

written by Ikeda Tomoyo | September 24, 2024



A Feed-in Premium (FIP) program allows renewable energy producers to sell their electricity at market rates while receiving additional compensation. FIPs can be categorized as fixed—offering a set payment—or sliding, which fluctuates with market prices. Fixed FIPs are straightforward but may result in overpayments in high-price markets or underpayments in low-price scenarios, prompting the inclusion of minimum and maximum payment limits. Sliding FIPs continuously adjust based on market conditions relative to a reference price, ensuring that producers remain responsive to price changes and conserving funds during low-price periods.

FIPs vary by renewable energy type, project scale, and location, often including incentives for specific technologies or direct sales costs. To maintain long-term sustainability, payment limits may be implemented.

Merits of FIP

FIPs effectively encourage renewable energy operators to generate electricity during peak demand periods, optimizing output when other energy sources may be less reliable. They also guide investors in site selection for renewable projects, ensuring better alignment with consumer electricity needs. This adaptability makes FIPs crucial for integrating renewable energy into the electricity market, particularly as reliance on these sources increases.

Fixed FIPs often include a “floor” to minimize risk for investors, guaranteeing a minimum revenue level. Similarly, sliding FIPs offer a reference price that acts as a safety net, providing reassurance to investors. In some instances, FIPs can yield higher revenues compared to traditional fixed payment structures when market prices rise.

Demerits of FIP

While FIPs suit controllable renewable energy sources, like biomass and geothermal, they pose challenges for variable sources such as wind and solar, which struggle to adjust output to market price fluctuations. Consequently, FIP schemes may incur additional costs for balancing services.

Similar to Feed-in Tariffs (FIT), FIPs can lead to over- or under-compensation for producers due to government-set rates or reference tariffs. This introduces unpredictability for investors, as revenue can fluctuate with market prices, potentially raising financing costs. Although price boundaries can mitigate these risks, the complexities of direct market sales may deter small-scale renewable operators from engaging in FIP programs.

Examples of FIP in various countries

Spain
Spain has been at the forefront of FIP implementation in Europe since introducing a sliding FIP scheme in 1998. Renewable energy operators could choose between a guaranteed fixed FIT and a FIP, except for photovoltaic projects, which only qualified for FIT. For projects over 50 MW, FIP became mandatory. Maximum and minimum payment levels were established through Royal Decree 661/2007, ensuring remuneration remained within specified bounds. However, by February 2013, all FIP payments were reduced to zero, effectively terminating the program.

Czech Republic
In 2006, the Czech Republic launched an optional FIP program, allowing operators of renewable energy plants to receive a “Green Bonus” alongside their electricity sales revenue. The program incentivized participation by providing bonuses for self-consumed renewable energy. FITs were limited to plants with capacities up to 100 kW (30 kW for photovoltaics and 10 MW for hydropower). However, both FIT and FIP schemes were closed to new projects after 2013.

Germany

Germany introduced an optional sliding FIP in 2012 as part of a “market integration model.” This premium is calculated based on the difference between specific reference values for renewable technologies and the average market value. By 2014, the FIP became mandatory for new renewable installations, although exceptions were made for smaller plants. If market prices turn negative, resulting in lower payments for operators, the difference is covered by an EEG surcharge passed on to consumers.

United Kingdom

The UK is implementing a sliding FIP system via “Contracts for Difference” (CfD), set to replace the existing renewable energy quota system. This framework involves a government-established “strike price” agreed upon in long-term contracts with renewable energy operators. If market prices drop below this strike price, the difference is provided as a FIP payment. Conversely, if prices exceed the strike price, operators must repay the excess. The first round of CfD applications commenced in October 2014, with plans for competitive bidding and continued support for smaller renewable projects under the existing FIT scheme.

Japan

The Feed-in Tariff (FIT) program was introduced in Japan in 2011 and implemented in 2012 to promote renewable energy, specifically targeting smaller power plants across solar, wind, hydro, geothermal, and biomass sources. Under this scheme, grid operators are required to purchase energy from independent power producers, with costs ultimately passed on to consumers through additional taxes, meaning the entire nation shares the financial responsibility for renewable energy expansion.

By 2021, FIT-covered energy production reached 115 TWh. The Japanese government is now transitioning toward a Feed-in Premium (FIP) system to enhance competitiveness and align prices with market dynamics. A new pricing measure was introduced in 2022, with details available on the government website.

This transition presents a significant opportunity for existing plants as their FIT periods expire, allowing them to sell electricity under new terms and continue generating revenue. This shift incentivizes plant owners to keep their operations running even after the FIT expires.

Calculating FIP revenue

To estimate the expected revenue from a Feed-in Premium (FIP), use the following formula:

FIP Income = Market Price Revenue + Premium

Where the **Premium** is calculated as:

Premium = [Base Price (Fixed) – Market Reference Price] × Energy (kWh)

The **Market Reference Price** is periodically adjusted based on the average market price index from the previous year and the average market price for the current month relative to the previous month. It is determined using the following formula:

Market Reference Price = Annual Average Market Price (Previous Year) + (Monthly Average Market Price (Current Year) – Monthly Average Market Price (Previous Year)) + Revenue from Sale of Renewable Energy Certificates – Balancing Costs (Fixed)

References

https://energypedia.info/wiki/Feed-in_Premiums_(FIP)