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BRIEFING

THAILAND'S
HYBRID FIRM PPA SCHEME

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THE ERC RECENTLY ANNOUNCED SPP HYBRID FIRM PPA BIDDING. THIS IS THE FIRST MOVE IN THAILAND TO A PPA FOR MULTI-SOURCE RENEWABLE ENERGY AND TO SWITCH FROM A NON-FIRM PPA TO A FIRM PPA.



“A COMBINED POWER GENERATING CAPACITY OF 300 MW WILL BE ALLOCATED NATIONALLY, BUT THE GREATEST ALLOCATIONS ARE TO SOUTHERN, NORTHERN AND NORTH EASTERN THAILAND.”

One of Thailand's Energy Regulatory Commission's ("ERC") principal functions is the promotion of renewable energy, with its mission statement emphasizing the need to establish a secure energy system that is reliable, efficient and fair. This approach has seen it approve a THB3.66/kWh feed-in tariff ("FiT") power purchase agreement ("PPA") bidding process for 300 MW of electricity generated by hybrid renewable energy power plants delivering between 10 MW and 50 MW.

The hybrid PPA scheme was introduced by Thailand's Ministry of Energy in 2017 to increase energy security. Thailand's previous renewable energy PPAs were "non-firm" and accommodated the delivery of electricity below the installed capacity of the power plant. However, the new hybrid PPAs will be "firm" in order to reduce the variation in intermittent energy sources, and will require a continuous baseline level of production not previously seen in stand-alone solar or wind farms.

The ERC will accept applications for PPAs from small power producers ("SPP") for the sale of capacity between 10 MW and 50 MW. There will be a competitive bidding process which will assess technical offerings and proposed electricity sale prices.

300 MW geographic allocation

The 300 MW of hybrid PPA capacity has been allocated across the following areas of Thailand:

AREA	PURCHASE TARGET (MW)
Bangkok	15
Central Region (Excluding Bangkok)	20
Western	20
Eastern	20
Northern	65
North Eastern	60
Southern (Excluding Phuket and Samui)	65
Phuket	20
Samui	15
Total	300

Firm PPA

The firm PPA lasts for 20 years, and requires the SPP to deliver between 98% and 102% of the PPA capacity during “peak” periods (currently between 9am and 10pm on Monday to Friday) and limits power output at all other times to 66.3% of the PPA capacity.

For example, an SPP with a 10 MW PPA could use a 6.5 MW waste to energy plant exporting to the grid 24 hours per day, supplemented by a solar and wind farm with battery storage, exporting an additional 3.5 MW to the grid during peak hours.

On this example, a hybrid power plant would need a power management system in place to ensure a continuous combined power output between 9.8 MW and 10.2 MW at all times during peak hours, and to limit export to the grid to 6.63 MW at all other times.

The hybrid PPA scheme does not expressly require a minimum power output during off-peak periods, however bidders should assume that the ability of an SPP to provide continuous off-peak delivery of 65% of the PPA capacity will form part of the technical evaluation of the bids.

Renewable Energy Sources

Hybrid PPA applications are required to specify the type(s) of renewable energy to be used in a power plant but there is no requirement for a minimum number of renewable energy types, nor are there any restrictions on the types of renewable energy technology which may be used.

Fossil fuels (such as natural gas) can only be used to the extent required in the start-up process of a power generator, but coal is not permitted in any circumstances.

Biomass, biogas and refuse-derived fuel are obvious choices for generating the 65% baseline requirements, with small hydro, wind and solar generators combined with battery storage bringing capacity up to 100% during peak periods.

If the SPP wishes to amend the proportion of renewable energy supply or technology after the submission of its application, consent will be required from the Electricity Generating Authority of Thailand.

Fuel Procurement Planning

Hybrid PPA applicants are required to prepare a long-term fuel supply procurement plan throughout the 20 year PPA period. This will typically involve long-term feedstock supply contracts.

If biomass is used as a fuel in a power plant project, the fuel supply procurement plan must ensure that there is sufficient energy crop cultivation to fuel the power plant project.

Hybrid PPA FiT Rate

A single FiT benchmark rate of THB3.66 per unit will apply to all renewable energy types, subject to discounts tendered by PPA applicants and variations of the variable component:

FiT* (THB/kWh)			Support Period
FiT _F	FiT _{V 2017}	FiT	
1.81	1.85	3.66	20 years

* FiT_F denotes the fixed tariff component, and FiT_V denotes the variable tariff component

PPA applicants are required to submit a price bid by specifying a percentage discount rate of the FiT_F component (THB1.81/unit)¹.

The power purchase price for hybrid PPA issued to selected applicants will be FiT_F (as determined by the discount submitted in the application) plus FiT_V in each year. The FiT_V Rate of THB1.85/kWh is effective from 2017 and is subject to variation in line with core inflation.

¹ Winning bidders in a recent competitive bidding process for VSPPs offered 81% of the FiT_F component or lower.

Timing

Two important timelines apply to the hybrid PPA scheme. Applications must be lodged between 16 and 20 October 2017 and the scheduled commencement of operation date for each project is required to fall between 1 January 2020 and 31 December 2021.

Summary

The SPP hybrid firm PPA scheme is Thailand's first competitive bidding PPA scheme for SPPs in the renewable sector and is indicative of a policy to tie renewable output to grid demand using firm PPAs. If successful, the SPP hybrid scheme is likely to be followed by a VSPP (very small power producer) "semi-firm" scheme for renewable energy projects below 10MW.

FOR MORE INFORMATION

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