DEVELOPMENT OF THE ELECTRICITY FUTURES MARKET:

SECOND PHASE OF THE FUTURES INCENTIVE SCHEME

CONSULTATION PAPER

Closing date for submission of comments and feedback:

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DEVELOPMENT OF THE ELECTRICITY FUTURES MARKET: SECOND PHASE OF THE FUTURES INCENTIVE SCHEME

1. Background

1.1. The Energy Market Authority ("EMA"), in partnership with the Singapore Exchange ("SGX") and the electricity industry, launched the electricity futures market ("EFM") in April 2015. The EFM complements both the existing wholesale and retail electricity markets, by providing a platform for efficient trading to manage volatility and mitigate risks. A liquid futures market also provides a robust price discovery process for future supply of electricity, while enabling efficient transfer of risk between participants. In addition, the electricity futures market enables the entry of independent electricity retailers and facilitates new business models. This benefits consumers by putting downward pressure on prices and facilitating the development of new retail products.

1.2. As the EFM is a key enabler in ensuring vibrant electricity wholesale and retail markets, EMA launched the Futures Incentive Scheme ("FIS") in August 2018 to invest in and develop our nascent electricity futures market. The FIS consist of 2 different phases, each for a duration of 1.5 years. The first phase ("1st FIS") will end on 31 January 2020. The EMA will assess the market performance from the 1st FIS and reserves the right to revise the market making obligations for the second phase ("2nd FIS") from 1 February 2020 to 31 July 2021. Following the FIS, EMA will assess the market performance and review the need for further market support schemes. Meanwhile, market players are advised to assume that there will be no further market support schemes beyond July 2021 when making their commercial decisions.

1.3. From 1 August 2018 to 30 April 2019, there were a total of 10,064 lots traded for the quarterly base load electricity futures contracts (about 11,038 GWh with a total value of approximately S$1.18 billion) and a total of 4,463 lots traded for the monthly base load electricity futures contracts (about 1,628 GWh with a total value of approximately S$194 million). While transaction volumes and open interest[1] for the quarterly contracts had been generally increasing over time (refer to Fig 1), the volume was dominated by market makers ("MMs") (refer to Fig 2), indicating the continued importance of MMs. For the 9 forward quarterly contracts offered by MMs at any one point in time, open interest distribution tends to be more heavily weighted in the earlier and medium term quarters (refer to Fig 3); in other words, futures market participants tend to trade in quarterly contracts over shorter time horizons.

1.4. Given the data and findings, EMA proposes to revise the market making obligations under the 2nd FIS to encourage higher levels of liquidity from participants and ensure long-term sustainability of the EFM, especially as there may be no further market support schemes. In addition, given the ongoing consultation on developing a Forward Capacity Market ("FCM") to enhance the Singapore Wholesale Electricity Market

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[1] Open interest figures refer to the number of contracts outstanding in futures trading, i.e. futures contracts that have not been closed yet.

("SWEM"), EMA would also like to seek views on the potential impact of the FCM on the EFM.

Figure 1: Volume and Average Open Interest for Quarterly Contracts from 1 Aug 2018 to 30 April 2019 (Source: SGX)

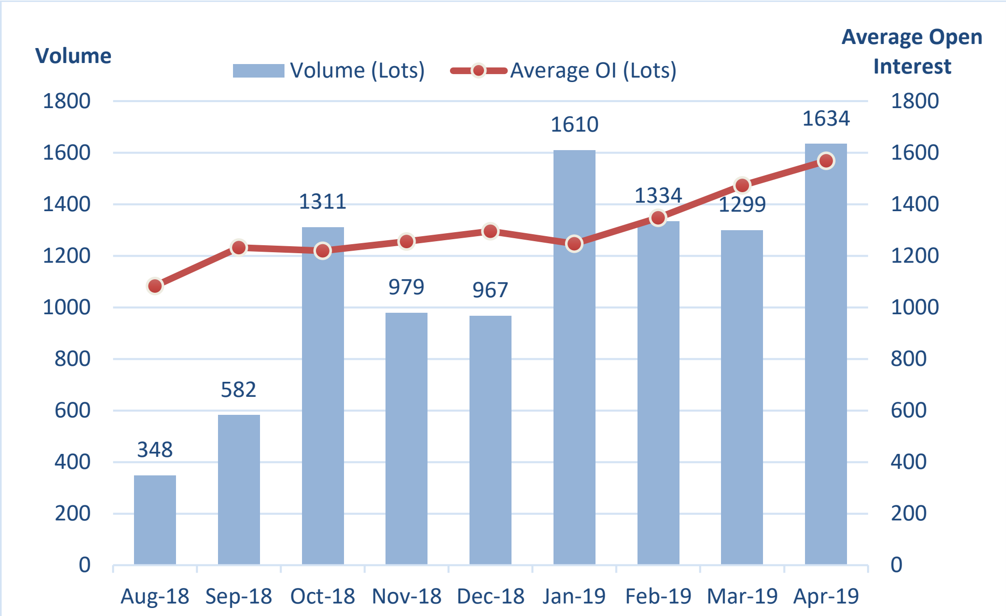


Figure 2: Volume Mix by Participant for Quarterly Contracts from 1 Aug 2018 to 30 April 2019 (Source: SGX)

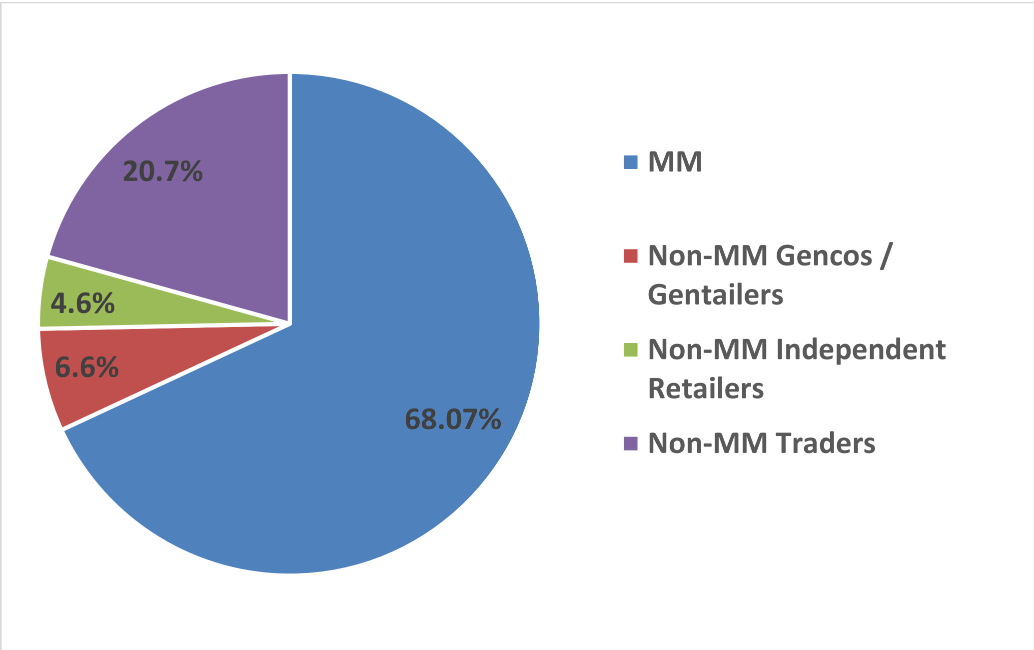
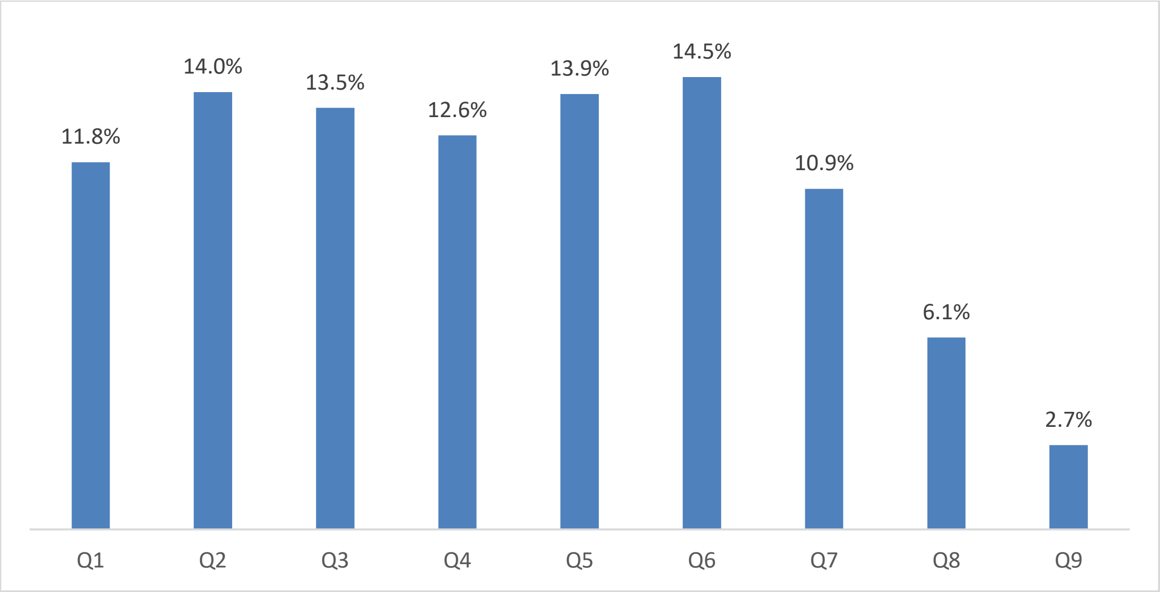


Figure 3: Distribution of Open Interest for Quarterly Contracts across 9 Forward Quarters, from 1 Aug 2018 to 30 April 2019 (Source: SGX)



2. Proposed Parameters for the 2nd Futures Incentive Scheme (FIS)

Rationale for Proposed Approach

2.1. Under the 1st FIS from 1 Aug 2018 to 30 Apr 2019, the transaction volumes in the EFM had grown to more than 30% of the underlying physical market on an annualised basis. The monthly average open interest had increased 53% over the same period. While the increasing liquidity is encouraging, EMA is of the view that there is potential to revise the market making obligations to further increase the long-term sustainability of the EFM and enhance its relevance for industry players.

2.2. To achieve this, EMA has proposed two kinds of changes from the 1st FIS. To make the EFM more attractive for participants and increase contributions from non-market makers ("non-MMs"), the key changes include tighter spreads for non-prompt futures contracts, a longer trading window, and smaller contract sizes. To help MMs better support the products and move towards a sustainable EFM, the key changes are a reduction in market making volume, making Request-for-Quote ("RFQ") optional, a reduction in refresh requirements for prompt contracts, and the introduction of continuous quoting for non-prompt contracts.

2.3. In addition, EMA is considering the potential introduction of monthly peak load electricity futures as part of market making obligations under the 2nd FIS as described in Table 1. The intent is to expand the portfolio of trading products available and provide more hedging options to meet industry needs. Specifically, this product is a more targeted instrument for participants who may want to lower their costs of hedging by only hedging the peak load period (for e.g. if this better fits their retail load profile).

2.4. EMA notes that introducing this new monthly peak load product may increase the market making obligations. To balance this, EMA is considering two implementation options to ensure that MMs only have to focus on two products (i.e. quarterly and one of the two monthly products) at one time, in addition to the implementation option which MMs will offer all three products:

a) Option 1 is to split the market making window for the monthly futures products. For example, MMs could offer the monthly base load product for the first half of the market making window, and the monthly peak load product for the remaining half of the market making window. This ensures similar risks across all MMs but each monthly product will be available for a shorter time – this may not be a concern as volumes of monthly futures are smaller than volumes of quarterly futures.

b) Option 2 is to divide the MMs into two groups. While both groups will offer quarterly baseload products, each group will be assigned to offer only one monthly product (i.e. baseload or peak load) at one time. The groups will be rotated every 3 months. This means that there are fewer MMs for each monthly product and possible risk asymmetry, but both monthly products will be available for the whole market making window.

c) Under Option 3, all MMs will offer all three products for the whole market making window.

Table 1: Indicative contract specifications for new electricity product

Product	Indicative Contract Specifications
Monthly Peak Load Electricity Futures	• Contract Size: 0.1 MW over each half an hour based on a peak load profile. Peak load profile is defined as the National Electricity Market of Singapore (NEMS) peak load period from 7.00am to 11.00pm Mondays to Fridays (excluding Public Holidays and any other non-trading days determined by SGX) • Contract Period: 4 – 6 consecutive contract months starting with the current contract month. A new quarter (3 months) will be listed upon expiry of the nearest quarter[2] • Final Settlement Price: Arithmetic average of USEP peak load half - hourly prices over the expiring contract month • Market Making Obligations: Same as the Market Making Obligations proposed for monthly base load electricity futures contracts.

2.5. EMA seeks industry feedback on:

a) Whether the revised market making obligations for the 2nd FIS will fulfil the policy objectives of increasing liquidity and long-term sustainability of the EFM, including increasing the participation of non-MMs;

b) The level of industry demand and interest for smaller futures contract sizes and the monthly peak load product;

c) The options to implement the monthly peak load product as part of market making obligations;

d) How the revised obligations may impact the risk and costs of market making for the EFM;

e) The uniform price auction format of the tender, vis-à-vis pay-as-bid auction;

2 The number of contracts varies depending on the month, based on quarters ending on the last day of March, June, September and December. For example, MMs are required to put up 6 contracts in April 2019 (April to September 2019) but 5 contracts in May 2019 (May to September 2019).

f) Any other feedback and suggestions on market making obligations and/or new products which can benefit the industry and make the EFM more attractive to non-MMs.

Proposed Market Making Obligations for the 2nd FIS

2.6. Market-making requires the putting up of two-way pricing (i.e. both buy and sell) within a pre-determined price spread. This is similar to how liquidity is often created and maintained by MMs, in the trading of other commodities in the context of a futures market.

2.7. The proposed market making obligations for the 2nd FIS, developed in consultation with SGX, are as follows:

Table 2: Proposed specifications for associated market making obligations

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	
Market Making Volume	MMs are required to put up 6 lots of 0.5 MW contracts (totalling 3 MW) for each side, for each of the first 5 listed quarterly contracts; and 4 lots of 0.5 MW contracts (totalling 2 MW) for each side, for each of the next 4 listed quarterly contracts	MMs are required to put up 6 lots of 0.5 MW contracts (totalling 3 MW) for each side, for each of the 4 – 6 listed monthly contracts	MMs are required to put up 2 MW of contracts for each side, for each of the 9 listed quarterly contracts	MMs are required to put up 2 MW of contracts for each side, for each of the 4 – 6 listed monthly contracts	EMA is proposing to introduce continuous quoting requirements for non-prompt futures contracts (reference refresh requirements below), to provide market participants the assurance that continuous prices would be available in the market. In order to reduce the expected increased burden on MMs, EMA is proposing to reduce the required market making volumes accordingly.

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	
Two-way Price Making Spread	August to December 2018: $2/MWh January 2019 onwards: $1/MWh or 2% of bid price whichever is lower[3]	Prevailing quarterly contract two-way price making spread + $1/MWh	Prompt contract[4]: $1/MWh or 2% of bid price whichever is lower Other / non-prompt contracts[5]: $0.50/MWh or 1% of bid price whichever is lower	Prompt contract: Prevailing prompt quarterly contract two-way price making spread + $1/MWh Other / non-prompt contracts: Prevailing non-prompt quarterly contract two-way price making spread + $0.50/MWh	The two-way price making spread helps to build liquidity by providing assurance to participants that there will be sufficient bids and offers within a fixed spread for them to buy or sell futures contracts. A dynamic spread that varies depending on the historical bid prices will ensure that the spread reflects changes in the prevailing market conditions and remains relevant. EMA is proposing tighter spreads for non-prompt futures contracts to incentivise longer term hedging behaviour and greater liquidity in contracts which are further away from maturity.

[3] This will be determined quarterly based on the historical bid prices. For example, for Q1 2019, this will be based on the available historical bid prices for Q4 2018.

[4] This refers to the futures contract which is closest to maturity.

[5] This refers to all futures contracts except the one which is closest to maturity.

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	
Refresh requirements	August 2018 to January 2019: Not less than 2 reloads February to July 2019: Not less than 3 reloads August 2019 to January 2020: Not less than 4 reloads No grace period for refreshing of quotes		Prompt contract: Not less than 2 reloads Other contracts: Continuous quoting No grace period for refreshing of quotes		The refresh requirement is an important feature in a liquid electricity futures market to ensure continuous prices are available in the market for participants to enter and exit trading positions. With the assumption that there would be no market support schemes beyond the 2nd FIS, EMA is proposing to introduce continuous quoting requirements for non-prompt futures contracts as a necessary step towards a sustainable and liquid market. Continuous quoting requires MMs to reload their two-way pricing immediately after a trade has been made with respect to their bids (e.g. when another participant accepts the price offered by the MM, either on the buy or the sell side), throughout the market making period, which facilitates liquidity. As of April 2019, the actual average number of reloads per contract by each MM is less than one. Therefore, unless liquidity grows substantially, the continuous quoting requirement for non-prompt futures contracts

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	
					should not increase the risk to MMs vis-à-vis the refresh requirements in the 1st FIS. In fact, the proposed refresh requirement for prompt contracts is less demanding vis-à-vis the refresh requirements towards the end of 1st FIS, which would mitigate the risk to MMs when wholesale electricity prices are volatile.
Cumulative Contract Duration	Not less than 2 years (8 full quarters, plus the balance of the current quarter)	4 – 6 consecutive contract months starting with the current contract month. A new quarter (3 months) will be listed upon expiry of the nearest quarter[6]	No change		N.A.

[6] The number of contracts varies depending on the month, based on quarters ending on the last day of March, June, September and December. For example, MMs are required to put up 6 contracts in April 2019 (April to September 2019) but 5 contracts in May 2019 (May to September 2019).

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	**Monthly Base Load Electricity Futures**	**Quarterly Base Load Electricity Futures**	**Monthly Base Load Electricity Futures**	
Market Making Window	The Market Making Window for each Singapore Business Day will be not less than ½ hour, as may be directed by the Exchange (currently set at 4.30pm-5.00pm).		The Market Making Window for each Singapore Business Day will be not less than 1 hour, as may be directed by the Exchange (currently set at 4.00pm-5.00pm). EMA reserves the right to review and expand the market making window in consultation with SGX during 2nd FIS, as may be deemed beneficial to the market such as potentially enhancing the level of liquidity. The review will take place every 6 months and the Market Making Window will not exceed 3 hours.		EMA is proposing to expand the Market Making Window to 1 hour to allow more time for market participants to trade and react to business needs. EMA seeks views on how this may potentially impact the liquidity on the EFM.
Market Making Coverage and	The Market Making Coverage – the period within the Market Making Window where the Selected Applicant meet all its market making obligations – will be not less than 80% of the cumulative time of all Market Making Windows in a month (calculated separately for quarterly and monthly contracts).		No change. For avoidance of doubt, as per 1st FIS, market making coverage for each product is calculated separately. Whether each MM meets the MM coverage is based on the threshold for each individual product, not averaged together.		N.A.

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	**Monthly Base Load Electricity Futures**	**Quarterly Base Load Electricity Futures**	**Monthly Base Load Electricity Futures**	
Request-for-Quote (RFQ)	MMs will be required to respond to a Request-for-Quote (RFQ) when they are not quoting during the Market Making Window, with a Maximum Two-Way Price Making Spread of no more than 1.5 times the prevailing Maximum Two-Way Price Making Spread.		MMs will respond to a Request-for-Quote (RFQ) on a best effort basis when they are not quoting during the Market Making Window, with a Maximum Two-Way Price Making Spread of no more than 1.5 times the prevailing Maximum Two-Way Price Making Spread.		As RFQs are uncommon, a best effort basis requirement will provide more risk certainty for MMs.
Contract Size	Not larger than 0.5 MW over ½ hour per day (i.e. for each of the 48 half-hourly periods in a day) at the Uniform Singapore Energy Price (USEP) over the contract length		Not larger than 0.1 MW over ½ hour per day (i.e. for each of the 48 half-hourly periods in a day) at the Uniform Singapore Energy Price (USEP) over the contract length		EMA is proposing a smaller contract size to provide more suitable hedging coverage for participants who have smaller hedging needs e.g. independent retailers. When providing feedback on the impact of and demand for a smaller contract size, the industry may also consider alternative contract sizes e.g. 0.25 MW.
Contract Length	No longer than quarterly contracts with near term	No longer than monthly contracts with near term (prompt) month contract	No change		N.A.

Parameters	Existing Obligations for 1st FIS		Proposed Obligations for 2nd FIS		Rationale for Proposed Changes
	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	Quarterly Base Load Electricity Futures	Monthly Base Load Electricity Futures	
	(prompt) quarter contract[7]				
Safeguards	Safeguards to ensure orderly trading, e.g. position, daily, price, volume and concentration limits Phased net market making position limit shall be Clearing member's position limit for each MM.		No change		N.A.
Compliance	Submission of compliance report to the Authority on a quarterly basis, and whenever reasonably requested by the Authority.		No change		N.A.

[7] Trading of near term (prompt) quarter contract refers to the availability of the nearest quarter contract for trading within the quarter itself. For example, a trader should be able to trade an electricity futures contract for Q1 2019 (with maturity date 31 March 2019) within that quarter (e.g. on 2 March 2019).

Proposed Tender Parameters

2.8. The proposed tender parameters for the 2nd FIS will be largely similar to that of the 1st FIS.

2.9. **Uniform Price Auction**

2.9.1. Tender for market making services for the quarterly and monthly base load electricity futures contracts will be done via a uniform price auction where the awarded price will be based on the highest marginal bid among the selected Tenderer(s). EMA seeks feedback if this format or a pay-as-bid auction is likely to deliver the most competitive and efficient outcome.

2.9.2. EMA reserves the right to determine the number of Tenderers to be selected taking into account the bids by the respective Tenderers.

2.10. **Contract Tenure**

2.10.1. Each awarded Tenderer will provide market making services for the quarterly and monthly electricity futures contracts for a duration of 1.5 years from 1 February 2020 to 31 July 2021.

2.10.2. EMA reserves the right not to launch, or revise the dates of launch of the 2nd FIS.

2.11. **Eligibility to Participate in the Tender**

2.11.1. Each awarded Tenderer will be required to meet the criteria of the Tender Exercise which includes, but is not limited to, the ability to meet SGX's requirements for participation in the futures market as MMs.

2.11.2. Tenderers are not required to be holders of electricity licences issued by the EMA. This enables participation by a more diverse range of MMs, which may be useful in improving liquidity.

2.12. **Contractual Arrangements**

2.12.1. Based on the evaluation criteria that includes, but is not limited to, the price competitiveness of the Tenderers' respective bids and relevant track record, EMA may select one or more Tenderers to be awarded the contract to provide market making services. The awarded Tenderers will be required to enter into a Market Making Agreement ("MMA") with SGX to show that it is compliant with the associated market making obligations.

2.12.2. Any payment for the market making services will be based on fulfilment of the market making obligations for each monthly period. Failure to fulfil any of the associated market making obligations within the period will result in non-payment for that period.

3. Potential Impact of the Forward Capacity Market on the Electricity Futures Market

3.1. EMA has published the consultation paper on developing an FCM[8] to enhance the SWEM. The FCM aims to maintain resource adequacy by providing adequate incentives to existing and new resources, and maximise economic efficiency to minimise long-run costs to consumers. As set out in the consultation paper, EMA plans to conduct transitional 'interim' auctions from 2020, for delivery in 2021 till 2025. This period will overlap with that of FIS.

3.2. As the EFM is settled against the underlying SWEM, EMA seeks feedback on the potential impact of the FCM on the EFM, including not limited to the following areas:

3.2.1. What is the short-term impact of the FCM on the EFM? How will the FCM impact the futures contracts traded under the 1st FIS, which will extend up to 9 quarters after the end of the 1st FIS in Jan 2020?

3.2.2. What are some of the concerns the industry and potential MMs for the 2nd FIS have with regards to the impact of the FCM on the EFM?

3.2.3. As the FCM matures and we transit smoothly from the current energy-only market to an energy-plus-capacity market, will the futures market remain a useful avenue for the industry to hedge price risk in electricity contracts? Is there any impact on the long-term sustainability of the EFM? What are some of the other benefits important to the industry and consumers, e.g. transparent benchmark on future electricity prices, supporting entry of independent retailers?

[8] FCM consultation paper: https://www.ema.gov.sg/ConsultationDetails.aspx?con_sid=20190610AkFa3aH9d5bm

REQUEST FOR COMMENTS AND FEEDBACK

The EMA invites comments and feedback to Sections 2 and 3 of the consultation paper. Please submit your written responses via https://go.gov.sg/ema-fis by 15 July 2019. Anonymous submissions will not be considered.

QR code link to submit written responses:

For clarifications, please contact EMA Policy and Planning Department (PPD) at ema_policy@ema.gov.sg.

The EMA reserves the right to make public all or parts of any written submissions made in response to this consultation paper and to disclose the identity of the source. Any part of the submission, which is considered by respondents to be confidential, should be clearly marked. EMA will take this into account regarding the disclosure of the information submitted. EMA may also approach the respondents for clarification while the consultation is ongoing.