RCP PAPER NO.	:	**EMC/RCP/142/2024/CP97**
SUBJECT	:	**REVIEW OF THE FORMS OF CREDIT SUPPORT IN SINGAPORE WHOLESALE ELECTRICITY MARKET**
FOR	:	**DISCUSSION**
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DATE OF MEETING	:	**18 JULY 2024**

Executive Summary

This paper provides an updated analysis of the forms of credit support in the Singapore Wholesale Electricity Market (SWEM) since the last review in 2011. The objective of this review is to enhance credit risk management in the SWEM, by accepting not only "good" credit support forms that can mitigate default risks effectively, but also a variety of such "good" credit support forms for risk diversification.

Under the Market Rules, EMC currently accepts bankers' guarantees (BGs) and standby letters of credits (LCs), cash deposits and Singapore government treasury bills (T-Bills) as credit support. From the updated environment scan, other jurisdictions also accept unsecured credit limit, corporate guarantees and insurance bonds as credit support.

After assessing the current and potential credit support forms based on their effectiveness in mitigating credit risks for the market, i.e. their risks and liquidity, the paper outlines a proposal to enable retaining and/or accepting "good" credit support forms that are less liquid than payout within 1 business day (BD), to diversify risk exposure for the market.

EMC consulted the industry on the above. EMC did not receive strong industry interest in the new forms of credit support and the tiered credit support arrangement. EMC also found that Treasury Bills require more than 1 BD to payout, rendering it unfit for purpose without the tiered credit support arrangement to accommodate less liquid forms of credit support.

Therefore, EMC recommends that the RCP:

1. Not support introducing corporate guarantees, insurance bonds, and a tiered credit support arrangement at this time; and
2. Support removing treasury bills as an allowable form of credit support.

The RCP discussed the concept paper at its 142nd meeting. The RCP unanimously supported EMC's recommendation to not introduce corporate guarantees, insurance bonds, and a tiered credit support arrangement at this time. The RCP by majority vote supported EMC's recommendation to remove treasury bills as an allowable form of credit support.

1. Introduction

At the 137th RCP Meeting, the RCP unanimously supported EMC's recommendation to prioritise Proposal 3 arising from CP94 "Holistic Review of the Current Prudential Requirements". Proposal 3 pertains to a review of the forms of credit support, specifically with regards to introducing insurance bonds as a form of credit support and mandating the mix of credit support forms, such as requiring a percentage of a Market Participant's (MP) credit support value[1] (CSV) to be provided in cash.

It is worth noting that the last time the forms of credit support was reviewed was in 2011 by CP31 "New Forms of Collateral", which eventually recommended no change to the then-existing forms of credit support. This paper hence provides an updated analysis of the forms of credit support in the Singapore Wholesale Electricity Market (SWEM).

2. Background

2.1. Significance of Credit Support Forms

The fundamental rationale of credit support is for credit risk management in the SWEM. Therefore, the guiding principle is for EMC to accept not only "good" forms that can mitigate credit risks effectively, but also a variety of these "good" forms for diversification of risks.

"Good" forms of credit support are characterised by low risk and high liquidity, which minimise losses and allow prompt payment to creditors in the event of a default. Firstly, the low risk of credit support forms is pertinent to minimise a double default event, such as EMC not being able to draw on a defaulting MP's credit support because it was issued by another defaulting entity. Secondly, the high liquidity of credit support forms is necessary for EMC to promptly receive payments from claiming on a defaulting MP's credit support to pay creditors on time. In SWEM's context, the rules provide for only 1 business day (BD) for payments received from debtors to be made out to creditors.

Accepting a variety of "good" credit support forms seeks to diversify risks for the market, by not over-relying on a single form of credit support or counterparty. At the same time, it provides MPs with more options in putting up the form(s) of credit support most suitable to their financial or operational needs, especially with the additional collateral requirements arising from the recently introduced Performance Bond regime[2]. This potentially enhances operational flexibility for MPs.

While it would have been more comprehensive to review the forms of collateral in the SWEM in totality, this paper examines the forms of collateral for credit support only, and not for performance bonds. This is because performance bonds have been very recently introduced by EMA, and a review would be timelier when any issues surface after more time has lapsed.

2.2. Credit Support Forms Accepted in the SWEM & Other Jurisdictions

The SWEM currently accepts the following forms of credit support:

- Bankers' Guarantees (BGs) and Standby Letters of Credit (LCs)
- Cash Deposits
- Singapore Government Treasury Bills (T-bills)

The detailed criteria for each form of credit support are set out in Annex 1.

[1] An MP's CSV refers to the minimum amount of credit support to be put up by the MP in the SWEM, and is required to cover normal trading exposure over 38 days for MPs, and 33 days for Market Support Services Licensee (MSSL).

[2] For more information on the Performance Bonds regime, please refer to materials on EMA's Enhancements to the Regulatory Regime for Retailers that can be found here: https://www.ema.gov.sg/partnerships/consultations/2023/enhancements-to-the-regulatory-regime-for-electricity-retailers

To understand the relevance of current and potential forms of credit support, we conducted an updated environment scan. Table 1 summarises the forms of credit support accepted in the SWEM and 10 other jurisdictions[3].

Table 1: Forms of Credit Support Accepted in the SWEM & Other Jurisdictions

Jurisdiction	Unsecured Credit Limit	Cash Deposits	BGs and/or LCs	Corporate Guarantees	Surety Bonds	T-Bills
SWEM		✓	Both			✓
CAISO	✓	✓	LC	✓		
ISONE	✓	✓	LC			
NYISO	✓	✓	LC		✓	
PJM	✓	✓	LC	✓	✓	
MISO	✓	✓	LC	✓		
SPP	✓	✓	LC	✓	✓	
AEMO (WEM)		✓	BG			
AEMO (NEM)	✓		Both	✓		
NZX	✓	✓	Both	✓	✓	
IESO	✓		Both	✓		✓

With regards to the current forms of credit support accepted by the SWEM:

- **BGs and/or LCs** in general are accepted in all markets, with requirements of a minimum credit rating for issuers and adherence to a template for the written obligation, like SWEM. To mitigate concentration risk in counterparties, ISONE has an additional measure of capping LCs issued by a single bank to any one entity at US$100M, and to a group of affiliated entities at US$150M.

- **Cash deposits** are widely accepted in most markets. However, IESO, 1 of the only 2 markets that do not accept cash deposits, had a rule change in 2004 to accept cash deposits only from legacy participants before 2004 for amounts less than CA$200K. This was attributed to the risk of an MP's bankruptcy or insolvency forcing IESO to return the cash deposits to the bankrupt or insolvent MP and its creditors. Several other markets, (AEMO (WEM), NZX, MISO and SPP) share the same concern, and thus require a security deed or agreement from MPs who put up cash deposits to secure first priority interest of the market operators in the cash deposits.

- **T-bills** are only accepted in 1 other market, IESO, in the form of Canadian Government T-Bills.

[3] The 10 jurisdictions studied are 6 Independent System Operators (ISOs) in the US, namely California ISO (CAISO), ISO New England (ISONE), New York ISO (NYISO), Pennsylvania-Jersey-Maryland Interconnection (PJM), Midcontinent ISO (MISO) and Southwest Power Pool, and 4 markets outside of the U.S., namely Australian Energy Market Operator (AEMO) for Wholesale Electricity Market (WEM) for Western Australia and National Electricity Market (NEM) for the rest of Australia, New Zealand's Exchange (NZX) and Independent Electricity System Operator (IESO) for Ontario, Canada.

As for the potential forms of credit support accepted by the markets studied:

- **Unsecured credit limits** are used in all markets except AEMO (WEM). These markets extend a maximum amount of credit to MPs without requiring credit support. The limits are granted based on stringent credit assessments of the MPs, and of their parent companies as well if such parent companies have provided corporate guarantees to guarantee the financial obligations of them participating in the market.

- **Corporate Guarantees** are accepted in majority of the markets. The guarantor is a third-party corporation, other than a bank, securing the obligations of an MP. However, most of such markets (CAISO, PJM, MISO and SPP) accept corporate guarantees only from the parent companies of MPs for the sole purpose of the MPs obtaining unsecured credit limits based on their parent companies' financial strength and creditworthiness. As for the remainder of such markets (AEMO (NEM), NZX and IESO), they have requirements of a minimum credit rating for guarantors and adherence to a template for the written obligation.

- **Surety Bonds**, also known as insurance bonds, are accepted in minority of the markets, with requirements of a minimum credit rating for sureties and adherence to a template for the written obligation. To mitigate concentration risk in counterparties, PJM and SPP cap surety bonds issued by a single surety at US$50M in total, and to any one participant at US$10M.

2.3. Current Utilisation of Credit Support Forms in the SWEM

While the SWEM accepts a variety of credit support forms, SBLCs and T-bills have never been utilised by the MPs. Among the remaining acceptable credit support forms, BGs are much more commonly used at 99.3%[4] of total credit support held by EMC, as compared to cash deposits at 0.7%.

3. Analysis

In our review of the credit support forms in the SWEM, we assess the current and potential credit support forms based on their effectiveness in mitigating credit risks for the market, i.e. their risks and liquidity. We also explore a proposal to enable retaining and/or accepting "good" credit support forms that are slightly less liquid, to diversify risk exposure for the market.

3.1. Assessment of Current Credit Support Forms

3.1.1. BGs and SBLCs

BGs and SBLCs[5] are financial instruments issued by banks to guarantee a market participant's obligations. These instruments are widely used in international trade and financial transactions to provide a highly secured and robust protection against default risk. However, they can be costly to MPs due to bank fees, and the reliance on the creditworthiness of the issuing banks introduces a secondary layer of risk to the market.

This risk is currently managed by the minimum credit rating requirement of "A" or better by Standard & Poor's (S&P) imposed on the issuing financial institution, while their high liquidity is enforced by the requirement for the financial institution to payout within 1 BD in their

[4] Data as of 24 May 2024

[5] RC350 "Templates for BGs and SBLCs" in 2018 clarified that the acceptable form of credit support in the SWEM is not any LC, but SBLC, and also introduced a SBLC template. This is because SBLC is more appropriate given that the issuing bank will pay the beneficiary if the applicant defaults on his duties or obligations), as compared to any LC where the issuing bank will pay the beneficiary upon his fulfilment of certain duties and obligations.

templates[6]. Empirically, there has been no issue with drawing down on BGs (5 instances from DBS) so far.

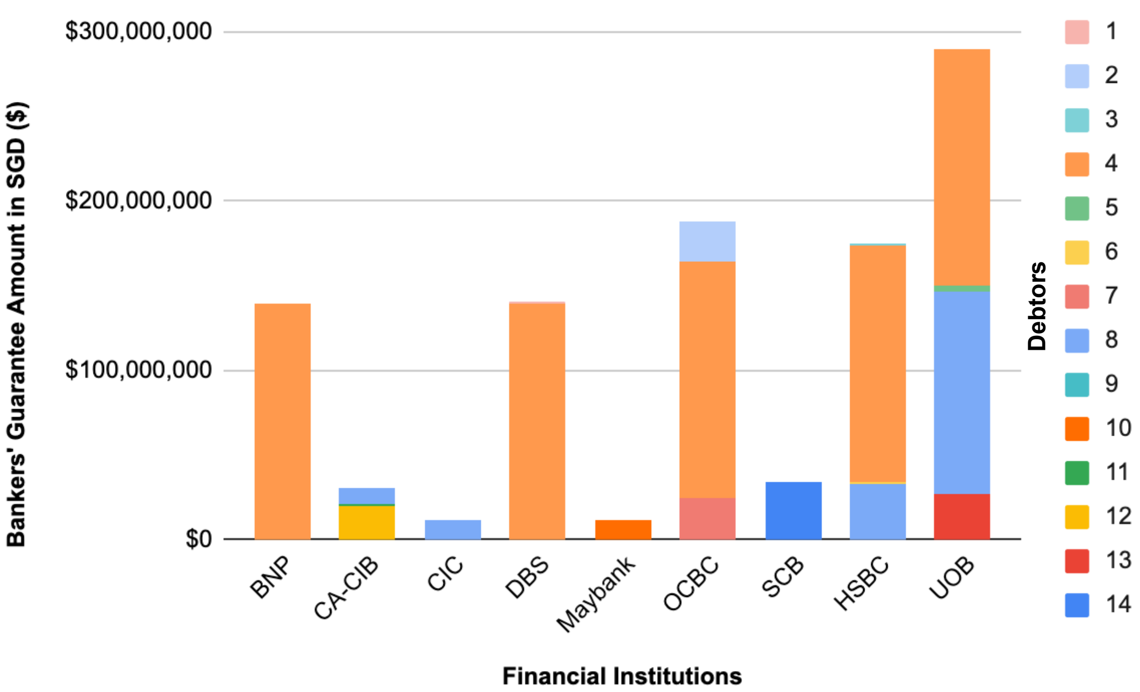
Concern with Concentration Risk

Given how BGs dominate the credit support held by EMC, we may still be concerned about the concentration risks in the counterparties issuing them.

This concern was last raised in 2009[7], where EMC sought to disqualify BGs issued by the SWEM's clearing bank to address the concentration risks in the clearing bank. However, the diversification benefit was determined to be limited, when the largest concentration risk stems from MSSL drawing its entire BG amount (80% by value of all BGs held by EMC then) from the same bank. The RCP decided instead to closely monitor the BG concentration and ratings of the BG-issuing banks (via the RCP's bi-monthly monitoring list). From our environment scan, ISONE mitigates this risk by having a US$100M cap on amount issued by a single bank to any one MP.

To reassess this risk, we study the current distribution of BG amounts across the various counterparties[4], as summarised in Figure 1.

Figure 1: Distribution of BG Amounts across Financial Institutions



As seen in Figure 1, UOB has issued the highest amount of BGs at 28.2% of total credit support held by EMC, followed by OCBC at 18.3%, then HSBC at 17.0%. Counterparty risk of credit support in the SWEM manifests only if **both the MP and the credit support issuer** default. MSSL, which is the largest debtor in the SWEM owing to its role as the retailer of last resort, has already diversified its counterparty risk by drawing its BG amount (68.5% by value of all BGs held by EMC) from 5 different banks equally.

[6] In the templates, the issuing bank is required to accept and honour EMC's written demand a) on or before 3pm of the same day in respect of any demand received on or before 12pm on any banking day, or b) on or before 11am of the next banking day in respect of any demand received after 12pm but on or before 5pm.
[7] RC285 "Disqualification of Banker's Guarantees issued by the SWEM Clearing Bank as Credit Support"

While it may seem prudent to introduce a measure like ISONE to cap the amount of credit support issued by a single counterparty to any one MP, doing so may limit flexibility and increase costs for MPs (especially MSSL). That it is already in the MP's interests to diversify their own counterparty risk also makes implementing such measures less pressing. Furthermore, there is little room for further diversification if the acceptable forms of credit support remain the same.

Therefore, the SWEM should continue to closely monitor the BG concentration and ratings of the BG-issuing banks, and consider accepting new forms of credit support in section 3.2 of the paper, if there is interest from the industry in providing them.

3.1.2. Cash Deposits and T-Bills

Cash deposits is a highly liquid form of collateral, by ensuring immediate access to funds in the event of a default, offering a straightforward and effective risk mitigation mechanism. Treasury bills, on the other hand, are short-term government securities that can be used as collateral. They are also highly liquid and carry minimal risk, backed by the credit of the government. They are easily transferable and can be quickly liquidated to cover defaults.

Mitigation of Insolvency Risk

From the environment scan in section 2.2, we learnt about the risk of insolvency of MP potentially impacting EMC's ability to draw down on its cash deposits and T-bills.

In the SWEM, this risk is currently mitigated by clauses in the Market Rules, that have the effect of a contract between MPs and EMC. The clauses Chapter 2 sections 7.6.3.3a. and 7.6.3.3b state that the cash deposits shall constitute "unsubordinated obligations to pay EMC" and be accompanied by an assignment by the MP to EMC of all of the MP's "interest" in the cash deposits respectively. This is reinforced by a recent amendment to the Electricity Act to add section 94A to specify that where a winding up order has been made or a provisional liquidator has been appointed under the Insolvency, Restructuring and Dissolution Act 2018 (IRDA), EMC may draw down on the payment security or other security deposit for any services provided by it to the MP and that are not paid, despite section 133 of the IRDA.

Concern with Liquidity

As T-bills have never been utilised by MPs, we reached out to the SWEM's clearing bank to confirm the operational procedures for holding and liquidating T-bills. The bank confirmed that they no longer provide custodial services for EMC to hold the T-bills provided as credit support, and that T-bills require **<u>at least 3 BDs</u>** for the cash proceeds from their sale to be credited to a current account.

Therefore, T-bills can be retained in the SWEM provided:
i) EMC opens a custodian account with a bank other than the SWEM's clearing bank to hold the T-bills provided as credit support; and
ii) the proposed solution to accommodate credit support forms that are not as liquid as payout within 1 BD in section 3.3 of the paper is adopted.

3.2. Consideration of Potential Credit Support Forms

3.2.1. Unsecured Credit Limit

EMC does not recommend introducing unsecured credit limit into the SWEM due to the high credit risks involved. While it lowers search and transaction costs from sourcing for credit support for MPs, the lack of collateral backing the credit implies high credit risks.

3.2.2. Corporate Guarantees and Insurance Bonds

Corporate guarantees and insurance bonds offer an alternative to BGs and SBLCs, possibly lowering the costs of credit for MPs and freeing up liquidity for MPs, as they are separate from MPs' lines of credit with banks.

Mitigation of Counterparty Risk

However, the risk of a double default is high if corporate guarantees and insurance bonds are allowed to be issued by an MP's affiliated company. For instance, an MP may default on payment as its parent company and associated holding companies have filed for bankruptcy. In this instance, the guarantor or insurer would be unable to honour the corporate guarantee or insurance bond. To avoid wrong-way risk as described above, corporate guarantees and insurance bonds should not be issued by organisations affiliated to MPs. Guarantors and insurers should also meet predetermined credit ratings to minimise credit risk.

Concern with Liquidity

For corporate guarantees, their high liquidity can be ensured by the requirement for the guarantor to payout within 1 BD in the template agreement between EMC and the guarantor, similar to the templates for BGs and SBLCs. As for insurance bonds, we have been advised by an insurance broker that they take 3 - 5 BDs to execute payout upon the insurer's receipt of claim by EMC. The maximum time allowed between receipt of claim to payout can be similarly set out as part of the pre-determined terms and conditions for making claims on the bond in the template agreement between EMC and the insurer.

Therefore, there may be scope to introduce corporate guarantees and insurance bonds[8] as credit support in the SWEM provided, but not limited to:

i) they meet the following conditions:
   a. Guarantor / insurer should not have a direct or indirect legal or beneficial interest of 5% or more of the value of shares in the MP[9]
   b. Guarantee / bond must be issued by a guarantor/insurer that has a credit rating of "A" or above by S&P
   c. Guarantor / insurer must agree to a prescribed standard form of agreement issued by EMC
   d. Guarantor / insurer must be an entity incorporated in Singapore to minimise cross border risk when enforcing the guarantee / bond; and

ii) for insurance bonds, the proposed solution to accommodate credit support forms that are not as liquid as payout within 1 BD in section 3.3 of the paper is adopted.

3.3. Proposal to Mandate the Mix of Credit Support Forms

The original proposal for mandating the mix of credit support forms was to require a percentage of an MP's CSV to be provided in cash. This is because maintaining a portion of collateral in cash deposits guarantees immediate access to funds in case of defaults.

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[8] In the last review of credit support forms in 2011 by CP31,
- corporate guarantees that meet the stipulated conditions was already recommended to be allowed in the SWEM, but no feedback from any interested party to provide them was received
- insurance bonds was initially not considered, but counter-proposed by MSSL, but it was found not liquid enough to be drawn upon within 1 BD

[9] This is aligned with the threshold for legal or beneficial interest in a corporation, set in Market Rules Chapter 3 Section 2.7.3.4, for the purpose of appointment of members to the Rules Change Panel, Market Surveillance & Compliance Panel, Dispute Resolution Counsellor, and Dispute Resolution &Compensation Panel.

However, this may increase the concentration risk in the clearing bank[10], given that cash deposits are held with the clearing bank. Since BGs, SBLCs and cash are similarly low risk and high liquidity (as evidenced by no issues encountered in drawing down BGs and cash during past cases of default), we do not recommend favouring holding cash over BGs and SBLCs.

Possibility to Introduce Tiered Credit Support

Instead, if the industry shows strong interest and justifications in retaining T-bills and accepting insurance bonds as forms of credit support, there may be a workable solution to accommodate these credit support forms that are not as liquid as payout within 1BD.

Given that low-risk T-Bills and insurance bonds take more than 1BD to liquidate, it may be possible to accepted them as "Tier 2" credit support in the SWEM, subject to at least a percentage (hereafter referred to as "Liquidity Threshold") of an MP's CSV to be provided in the remaining more liquid credit support forms (BGs, SBLCs, cash deposits and potentially corporate guarantees) as "Tier 1" credit support. This idea allows for T-bills and insurance bonds to be retained and accepted respectively as credit support in the SWEM for the sake of risk diversification without compromising on the mitigation of credit risks. This impacts only MPs who prefer to use T-bills and insurance bonds as credit support.

For the setting of the Liquidity Threshold, it would be instructive to use the settlement, default remediation and suspension timeline to work out the minimum number of days of trading exposure the "Tier 1" credit support of an MP needs to cover. For example, with the following assumptions,

1. EMC triggers the liquidation of the entire "Tier 2" credit support of the MP upon the issuance of suspension order to the MP by 6 BDs after default;
2. EMC is expected to receive the cash proceeds from the liquidation of "Tier 2" credit support latest by 7 BDs after the trigger (3 BDs for T-bills or 5 BDs for insurance bonds, with 2 BDs as buffer);
3. "Tier 1" credit support needs to cover at least 13 BDs (6BDs + 7BDs), which translates to a maximum of 24 calendar days[11], before the remaining default amount can be met by cash proceeds from "Tier 2" credit support.

The Liquidity Threshold should be set as 24 days / 38 days = about 65% (for MPs) and 24 days / 33 days = about 75% (for MSSL).

Table 2: Proposed Solution

Tier	Criteria	Current Forms	Potential Forms
Tier 1	Can be liquidated within 1 BD	SBLCs / BGs, Cash Deposits	Corporate Guarantees
Tier 2	Can be liquidated within a few BDs	T-Bills	Insurance Bonds
Requirement: At least 65% (for MPs other than MSSL) or 75% (for MSSL) of an MP's CSV to be provided in the form of "Tier 1" credit support			

Table 2 outlines how the current and potential credit support forms are categorised into 2 different tiers for the proposed requirement.

[10] The SWEM's clearing bank has already issued the 2nd highest amount of BGs in the SWEM, as shown in section 3.1.1 of the paper.
[11] Based on the business days from 2021 to 2023

4. Consultation

To ensure the eventual proposal is workable for all parties, EMC sought industry views on the paper, specifically on:

1. Interest (and supporting reasons for) providing:
    a. T-bills, subject to the requirement outlined in the proposed solution in section 3.3 of the paper;
    b. corporate guarantees that meet the conditions stipulated in section 3.2.2 of the paper; and
    c. insurance bonds that meet the conditions stipulated in section 3.2.2 of the paper, subject to the requirement outlined in the proposed solution in section 3.3 of the paper.
2. The proposal to introduce tiered credit support to allow for the use of credit support instruments with varying levels of liquidity.

The concept paper was published for consultation on 20 June 2024. Comments were received from EMC Markets and Operations, Keppel Energy, Flo Energy, and PacificLight Power. The comments, organised by topic, can be found in Table 3.

Table 3: Summary of Industry Comments

Received from	Comment	EMC Response
General and Tiered Credit Support		
EMC Markets and Operations (MO)	If T-bills is to be retained as a form of credit support in SWEM, it is preferred to state clearly in the market rules how the exact dynamic value is determined. The value would determine the changes required as the risk exposure module would need to be enhanced. If new forms and tiered credit support is introduced, the risk exposure module needs to be enhanced and operational processes needs to be reviewed to support these additional requirements. Most importantly, the effort and cost estimation required to administer the above needs to be looked at to put cost/benefit in the right perspective. MO also concurs with the paper's recommendation not to consider Unsecured Credit Limit (UCL). EMC's view is that EMC is not equipped to manage this and the risks it introduces to the market. Providing unsecured credit limit to market participants pose financial risks to EMC and undermines	EMC agrees with MO that the implementation cost and effort estimates are important for the cost-benefit analysis of the proposals. It has been our intention to review the changes (rules, systems and operations) required, and include the cost and effort estimates in a subsequent paper, subject to the outcome of the discussion on this concept paper. EMC notes MO's comments on the Unsecured Credit Limit.

	our ability to discharge our market operator duties if EMC becomes insolvent arising from such financial exposures. Extending UCL not only requires thorough credit analysis, where the assumptions on which this is made may change at any time, it can also be seen as "moneylending" which may require compliance with the Moneylenders' Act and potentially a license administered by the Monetary Authority of Singapore. EMC opines that the high costs and risks as pointed out in the paper would outweigh any potential benefits, for instance from cost savings.	
Keppel Energy (Keppel)	In proposing other acceptable forms of Credit Support, Keppel recommends that prior consultation with EMA should be carried out as the acceptable forms of Credit Support outlined in this RCP differs from the ones specified in EMA's directed rule change for the Performance Bond Regime.	EMC would like to highlight that in the Rules Change process, the RCP will eventually submit rule changes for EMA's approval. We did not deem prior consultation with EMA necessary, because EMA has made clear before that credit support and performance bonds serve different purposes, although they both involve forms of collateral to safeguard against default events.
Flo Energy	Flo Energy would also encourage the EMA and EMC to reconsider their stances on being able to apply the excess PB towards credit support (or at least some portion of it) so that the coverage does not go to waste.	EMC notes Flo Energy's request. However, a review of any interaction between credit support and performance bonds is not within the scope of this paper.
PacificLight Power (PLP)	PLP is supportive of the intent of the paper to re-assess the different forms of credit support available to the market given that it has been 13 years since the last review was conducted and to ensure that the forms of credit support available to Singapore MPs are in line with global markets. Any form of additional credit support should not cause a dilution to the risk	EMC notes PLP's support for the intent of the paper, and agrees with the principle that the introduction of any new form of credit support should not compromise on the mitigation of credit risks in the market. EMC also notes PLP's view against the Tiered Credit Support arrangement.

	mitigation that the current forms of credit support provide to the market. Lastly, we do not support a tiered credit support system and would strongly advocate maintaining Tier 1 levels of credit support.	
T-Bills		
PLP	As noted in the paper, Singapore T-bills have not historically been used as a form of Credit support. Given their lack of use and that T-bills would now require at least 3 BDs for the cash proceeds from their sale to be credited to a current account, we would propose they are removed as an approved form of credit support.	EMC notes PLP's proposal to remove T-bills as a form of credit support.
CGs		
Keppel	The stringent criteria set by EMC could significantly decrease the chances of MPs securing a corporate guarantee (CG). Can the EMC confirm which are the companies or corporations that would qualify for CGs under the proposed eligibility criteria? Additionally, the introduction of CGs as a form of credit support may inadvertently introduce new risks to the market. How does EMC intend to enforce CGs if EMC is unable to recover the monies owned by the MPs from the guarantor. MPs should not bear the risk of under-recovery of credit due to failure to recover monies owned under CGs.	EMC notes Keppel's concerns about the feasibility and risks of CGs. The "stringent" conditions stipulated for CGs are not intended to limit their feasibility for MPs, but to pre-empt their risks, so that introducing them as a form of credit support in the SWEM does not compromise on the mitigation of credit risks in the market. Subject to the outcome of the discussion on this concept paper, EMC is open to working with the industry and relevant stakeholders to ensure that CGs are fit for purpose (i.e. low risk and high liquidity), and also feasible for MPs to secure as credit support.
Flo Energy	Accepting corporate guarantees would definitely make it much more efficient for an MP to provide credit support. (i) We recommend that the shareholding cap be removed. If a guarantor does "not have direct/indirect legal/beneficial interest of 5% or more of the value of the shares in the MP," this party would not have much incentive to provide said	EMC notes Flo Energy's conditional support for introducing CGs as a form of credit support. In response to Flo Energy's proposed conditions for CGs, (i) As explained in the paper, the shareholding cap is to mitigate wrong-way risk. Nevertheless, we agree that an

	guarantee, therefore making it more likely to cost more than a banker's guarantee, which would then not make it a feasible option for an MP anyway, ultimately defeating the purpose. Conversely, it would be in the interest of a financially strong corporate who owns a significant stake in the MP to be its corporate guarantor (or provide a guarantee through a related party incorporated in Singapore) if it results in preserving value for themselves in the form of cheaper credit support. This surplus would also benefit the MP's customers as a whole with lower cost to serve. (ii) As for establishing credit-worthiness, Flo Energy recommends that the EMA and EMC accept Investment Grade (~BBB) ratings for corporate guarantors. This is still on par with the most credit-worthy corporations in the world, without encroaching into unattractive/speculative territory.	overly onerous shareholding criteria may render CGs infeasible. While wholly removing it is not possible, the cap could be reviewed. (ii) Given that the current credit rating requirement for issuers of BGs and SBLCs is "A" or above by S&P, there is little justification for issuers of corporate guarantees to meet a lower credit rating requirement than that. Subject to the outcome of the discussion on this concept paper, EMC is open to working with the industry and relevant stakeholders to ensure that CGs are fit for purpose (i.e. low risk and high liquidity), and also feasible for MPs to secure as credit support.
PLP	We do not support the introduction of corporate guarantees as the risk of double default is high. Corporate guarantees are usually issued by parent companies, who may face financial constraints and bankruptcy risk that would render the corporate guarantee ineffective. It is also difficult to assess the impact on the parent's obligation under its other agreements with other parties if its subsidiary company, to whom a guarantee was issued, faces an event of default. In addition, unlike guarantees issued by banks, there is no guarantee that a corporate guarantee would be paid within 1 business day, leading to liquidity concerns.	EMC notes PLP's concerns about the risk and liquidity of CGs. We agree that the risk of double default is high if corporate guarantees were to be allowed to be issued by an MP's affiliated company e.g. parent company. For this reason, EMC requires that the guarantor should not be affiliated to the MP. We also agree that corporations may indeed have neither the same level of regulatory oversight as banks, nor a swift and standardised payment process for guarantees like banks, due to bureaucratic or operational issues (especially in smaller corporations). Therefore, our stipulated conditions for CGs are intended to address these risk and liquidity concerns. Subject to the outcome of the discussion on this concept paper, EMC will account for these concerns in any further study of the feasibility of CGs as acceptable credit support.

Insurance Bonds		
PLP	Insurance bonds/surety bonds are not widely used in other global markets and we would question its use in the Singapore market. However, PLP are agreeable to the introduction of insurance bonds so long as (i) the issuer is rated "A-" by a leading international rating agency, (ii) the bond format is aligned with the existing template of the BG format wording, and (iii) that the bond can be liquidated within 1 business day.	EMC notes PLP's conditional support for introducing insurance bonds as a form of credit support. In response to PLP's proposed conditions for insurance bonds, (i) Given that the current credit rating requirement for issuers of BGs and SBLCs is "A" or above by S&P, there is little justification for issuers of insurance bonds to meet a lower credit rating requirement than that. (ii) This is aligned with our condition for insurers to agree to a prescribed standard form of agreement issued by EMC. (iii) We were advised by an insurance broker that liquidation within 1 BD is not possible, which explains the need for the Tiered Credit Support arrangement.

5. Conclusion and Recommendation

This paper sought to review the forms of credit support in the SWEM, following the review last conducted in 2011. EMC had consulted the industry for their views as well.

On potential new forms of credit support – namely corporate guarantees and insurance bonds, EMC received industry views both for and against their introduction, but ultimately limited interest for such new forms. Similarly, the tiered credit support arrangement elicited limited industry interest.

Given the lack of strong industry support, which would be required to further implementation costs and effort, EMC does not recommend introducing the new forms of credit support and tiered credit support arrangement at this time. That said, EMC greatly appreciates constructive feedback on the criteria to render the proposed forms of credit support fit for purpose and feasible for MPs, which would be useful if this is to be reviewed again in the future.

Following that, given the finding that T-bills require up to 3 BDs for the cash payout to be credited to EMC's accounts, and the lack of interest for a tiered credit support arrangement, T-bills will not be fit for purpose as credit support in the current prudential regime. Moreover, the industry did not indicate any interest in retaining T-bills, nor was it ever used as credit support. Therefore, EMC recommends removing T-bills as an accepted form of credit support.

EMC therefore recommends that the RCP:

1. Not support introducing corporate guarantees, insurance bonds, and a tiered credit support arrangement at this time; and
2. Support removing treasury bills as an allowable form of credit support.

6. Decision at the 142nd RCP Meeting

The concept paper was discussed at the 142nd RCP meeting.

The RCP unanimously supported EMC's recommendation to not introduce corporate guarantees, insurance bonds, and a tiered credit support arrangement at this time.

The RCP by majority vote supported EMC's recommendation to remove T-bills as an allowable form of credit support.

The following RCP members **supported** EMC's recommendation to remove T-bills as an allowable form of credit support:

1. Mr. Henry Gan (Representative of EMC)
2. Mr. Calvin Quek (Representative of Generation Licensee)
3. Mr. Teo Chin Hau (Representative of Generation Licensee)
4. Ms. Koay Yi Jing (Representative of Generation Licensee)
5. Mr. Sherman Toh (Representative of Transmission Licensee)
6. Mr. Dallon Kay (Representative of Retail Electricity Licensee)
7. Mr. Andrew Tan (Representative of Retail Electricity Licensee)
8. Mr. Cheong Zhen Siong (Representative of Wholesale Electricity Trader)
9. Mr. Kevin Fong Chee Wai (Representative of the Market Support Services Licensee)
10. Mr. Fong Yeng Keong (Representative of Consumers of Electricity in Singapore)
11. Mr. Wong Yew Chung (Person experienced in Financial Matters in Singapore)

The following RCP members **did not support** EMC's recommendation to remove T-bills as an allowable form of credit support:

1. Mr. Soh Yap Choon (Representative of the PSO)
2. Dr. Toh Mun Heng (Representative of Consumers of Electricity in Singapore)

Annex 1: Forms of Credit Support Accepted in the SWEM

Chapter 2 sections 7.6.2 and 7.6.3 of the Market Rules stipulate the forms of credit support currently accepted in the SWEM. The criteria for each form of credit support are listed in the table below.

Form of Credit Support	Criteria / Requirements
Banker's Guarantee (BG)	- Issued by a financial institution that is rated "A" or better by Standard & Poor's (S&P) - An obligation in writing - Permit drawings or claims by the EMC and provide for payment by the guarantor on demand up to amount stated in the credit support - Governed by the laws of Singapore - Executed as a deed - Executed in the form set out in Appendix 2A of the Market Administration Market Manual (Part 1)
Standby Letter of Credit (SBLC)*	- Issued by a financial institution that is rated "A" or better by Standard & Poor's (S&P) - An obligation in writing - Enable partial draws and permit drawings or claims by the EMC on demand up to the amount stated in the credit support - Governed by the laws of Singapore - Name EMC as the beneficiary - Constitute valid and binding obligations to pay to the EMC amounts in accordance with the terms which relate to the obligations of the relevant MP under the rules - Valid for a term of at least one year or provide for automatic renewal, unless advised by the issuing financial institution to the EMC at least 38 days (or 33 days for MSSL) prior to the renewal date that the LC will not be renewed - Not include any conditions on the ability of EMC to draw or make claims thereon other than the condition that the EMC deliver a certificate of an officer of the EMC indicating that a specified amount is owing by the MP to the EMC and that, in accordance with these market rules, the EMC is entitled to payment of that specified amount as of the date of delivery of such certificate. - Executed in the form set out in Appendix 2B of the Market Administration Market Manual (Part 1)

Form of Credit Support	Criteria / Requirements
Cash Deposits	- Expressed in writing / reflected in a written instrument - Made with, or assigned to EMC, by or on behalf of the MP - Constitute valid and binding unsubordinated obligations to pay to the EMC amounts in accordance with its terms which relate to the obligation of the relevant MP under the market rules - Accompanied by an assignment by the MP to the EMC of all of the MP's present and future right, title and interest in and to such credit support as general and continuing security and as a pledge to secure all indebtedness, obligations and liabilities of any kind, direct or indirect, absolute or contingent, joint or several, of the MP to the EMC in respect of the MP's transactions in the real-time markets.
Singapore Government Treasury Bills*	- Permit drawings and claims by the EMC up to the full amount of the bills - Assigned to EMC, by or on behalf of the MP - Constitute valid and binding unsubordinated obligations to pay to the EMC amounts in accordance with its terms which relate to the obligation of the relevant MP under the market rules - Accompanied by an assignment by the MP to the EMC of all of the MP's present and future right, title and interest in and to such credit support as general and continuing security and as a pledge to secure all indebtedness, obligations and liabilities of any kind, direct or indirect, absolute or contingent, joint or several, of the MP to the EMC in respect of the MP's transactions in the real-time markets - Valued as cash at their current market value less 2% to account for potential eroding effects of interest rate increases

* Not accepted as collateral for Performance Bonds