

2016 Prudential Framework Report

Report Date: October 6, 2016

OVERVIEW

In order to participate in the IESO-administered market(s), market participants (MPs) must meet and maintain certain credit requirements, including providing collateral support as necessary. The IESO's full credit requirements, market rules and credit processes are collectively referred to as the IESO's Prudential Framework.¹

The Prudential Framework is designed to provide cost-effective credit risk mitigation for the IESO's wholesale electricity market. It is intended to balance (i) fairness to all MPs, (ii) the overall estimated cost to MPs of providing collateral and (iii) the estimated costs and risk of payment of default levies.²

In 2007, the IESO conducted its first formal Prudential Framework review. This report summarizes the fourth formal Prudential Framework review, conducted in 2016.

The 2016 review has culminated into three main conclusions as follows:

- a) Surety Bonds – these are not an acceptable form of collateral for the IESO.
- b) Stakeholders' feedback and concepts – the IESO thanks and respects all feedback received. After careful review as detailed in this report, the IESO does not have any recommended changes to the Prudential Framework.
- c) Minor recommended market rules changes – the IESO has recommended to: a) cease the requirement to pay interest to those grandfathered MPs who have posted cash as collateral, and b) similar to non-LDCs, update the Demand Response prudential requirement reduction section to include LDCs.

The above conclusions are supported by the analysis summarised in this report.

¹ The Market Rules, specifically Chapter 2, provide complete details on prudential requirements.

² As explained in the Market Rules, Chapter 2, default levies allocate any amounts not recoverable from a defaulting market participant(s) to all remaining IESO market participants.

Table of Contents

2.....	Overview
4.....	The 2016 Prudential Review
5.....	Defaults Experience
7.....	Review of the Acceptable Forms of Collateral
9.....	Considerations from Stakeholders' Feedback in 2016
16.....	Demand Response Prudential
17.....	Recommended Minor Market Rule Change

The 2016 Prudential Review

Objective

When a MP has a payment default(s),³ the IESO takes available and increasing measures/steps to recover the outstanding obligation from the defaulting MP, including if necessary the draw on any collateral posted with the IESO. In the event that the IESO is not able to recover the full outstanding obligation even with a full draw on collateral, the IESO will issue a default levy to all remaining non-defaulting MPs for the remaining obligation of the defaulting MP.

The objective of the 2016 prudential review is to assess whether the current Prudential Framework appropriately balances (i) fairness to all MPs, (ii) the overall estimated cost to MPs of providing collateral and (iii) the estimated costs and risk of the payment of default levies.

2016 Approach

The IESO is conducting a stakeholder engagement initiative of the Prudential Framework. MPs were invited to provide comments and feedback to the IESO, which have been summarized in this report.

Scope

The scope of 2016 prudential review was communicated to stakeholders and includes all aspect of the Prudential Framework for the real-time wholesale market and the Demand Response (capacity) auction/market. The Transmission Rights market prudential framework/process has been excluded.

³ Example: does not pay IESO invoices or margin calls as due.

Defaults Experience

In general, the IESO experiences the following three types (or severities) of payment defaults:

- a) defaults that are administrative in nature and are cured quickly within a few days
- b) defaults that involve significant delays in payment and requires IESO action(s)/effort(s) to resolve but are ultimately cured without drawing upon the MP's collateral
- c) defaults that involve non-payment from the MP. Therefore, a draw on the MP's collateral by the IESO is needed, which may include issuance of a default levy if all collateral is exhausted.

The first two default types (a) and (b) take time and effort to address but are resolved in due course. The last type (c) is the most serious since these types of defaults generally lead to serious and lengthy credit risk actions by the IESO.

The following historical experience summarizes the IESO's defaults involving ((c) type above) non-payment by a MP and a draw on collateral:

- Between the IESO's market opening (May 2002) and 2007, the IESO experienced four defaults and no default levies.
- From 2008 to early 2013, there were twelve defaults (likely impacted by the global financial crisis that began in late 2008) including three default levies.
- From mid-2013 to mid-2016, there were four defaults and no default levies.

As supported by Table 1 below, the IESO utilizes corporate default rates to model expected default rates (as explained in detail in the 2013 prudential review report). The IESO is content that the current expected default rates are generally aligned with those established during the 2013 review/default modelling and, therefore, no action on default expectations are recommended for 2016. The peaks and troughs of credit cycles are difficult to forecast, which is why the IESO utilizes long-term trends to assess future default expectations. In addition, different industries are likely to incur different or asymmetrical credit cycles/risks, which likely do not align with other industries' experiences.

In addition, the current historically low-interest rate environment, perpetuated by central banks globally, has been utilized in part to mitigate economic recessions, and there does not seem to be an expectation that interest rates will rise in the short term or rise in a rapid manner. Moody's expects, in general, default rates to rise in 2016 primarily driven by softening

commodity prices, widening credit spreads against government treasuries and slowing benefits of the wide use of monetary policies of central banks.⁴

Table 1

Credit Rating	Probability of Default	
	2013	2016
AAA	0.00%	0.00%
AA-, AA, AA+	0.04%	0.04%
A-, A, A+	0.32%	0.28%
BBB-, BBB, BBB+	0.33%	0.28%
BB-, BB, BB+	1.33%	1.21%
B+, B, B-	3.63%	3.32%

Source: Moody’s equivalent rating (annual volume-weighted corporate bond default rates by letter rating, 1994-2012 / 2015)

Since 2007, the IESO has taken stakeholder feedback into consideration in its Prudential Framework reviews. And, since 2007 the IESO has materially reduced the levels of collateral required by MPs. In 2013, overall collateral reductions were estimated to be at least approximately \$200 million.⁵ Each reduction in collateral levels likely raises the expected risk/burden that MPs will pay for default levies. As such, the IESO is careful to examine the levels of collateral, and the IESO believes it has designed a Prudential Framework that takes into account the MPs’ credits risks and expected default rates, which endure over a complete credit cycle.

⁴ Source: Moody’s : February 29, 2016, credit report: Corporate Default and Recovery Rates, 1920-2015

⁵ MPs may have chosen to increase trading limits instead of lowering collateral. Ontario Energy Board electricity pricing updates will impact any future collateral levels.

Review of the Acceptable Forms of Collateral

During the 2013 Prudential Framework review, the IESO analyzed many alternative forms of collateral and concluded that acceptable forms are: a) letters of credit from sufficient credit-rated financial institutions b) parental guarantees from sufficient credit-rated entities, and/or c) Government of Canada Treasury Bills. In addition, the IESO expressed a willingness to explore further whether a structure/form for the surety bond would be able to meet the IESO's requirements.

Surety Bond

Since the 2013 prudential review, the IESO investigated and concluded that surety bonds are not an acceptable form that would meet the IESO's requirements. The IESO engaged external legal counsel and investigated other electricity system operators' use or lack thereof of surety bond forms.

Based on the following main reasons, the IESO has decided that surety bonds are not acceptable to the IESO:

- In essence, a surety bond product is primarily a three-party agreement/structure (e.g., the MP, the IESO, the insurer/underwriter), which adds to the structure's complexity for when the IESO would seek payment on demand. The insurer/MP may have material mitigating defenses to their avail that may delay or even cease any payment to the IESO.
- In 2013, the California Independent System Operator (CAISO) had stopped accepting surety bonds as a result of significant delays and/or lack of payments it experienced by market participants/insurer.
- The New York Independent System Operator (NYISO) currently accepts surety bonds and has established a uniquely tailored surety bond agreement that tries to emulate the characteristics of a typical bank's letter of credit. However, currently no market participant has utilized the NYISO surety bond form despite being available for many years. This NYISO experience also reinforces the IESO's assumption that while a surety bond form may be tailored to function like a letter of credit, the market place is likely to price this tailored surety bond as similar to a letter of credit pricing, thereby eroding a key advantage that a surety bond has over a letter of credit form.
- Only NYISO and Electric Reliability Council of Texas accept surety bonds, while the remaining Canada and U.S.A. system operators do not accept surety bonds.⁶

⁶ CAISO memorandum October 25, 2012: "Decision on Credit and Financial Tariff Enhancements"

- Some of the advantages and disadvantages of surety bonds relative to a bank's letter of credit may likely be the result of the current regulatory environment in which banks and insurers are restricted by statute(s) on which forms of collateral may be issued by each.

Considerations from Stakeholders' Feedback in 2016

In July 2016, the IESO requested stakeholders to provide feedback on the Prudential Framework. Each feedback (as originally submitted to the IESO) is posted for review on the IESO's website and each is addressed in this report.

Three stakeholders made submissions:

- Enwin Utilities
- the MEARIE Group
- Electricity Distributors Association (consisted of a letter in support of the MEARIE Group submission).

Enwin Utilities Feedback:

Summary of feedback:

- *Has the IESO given any thought to providing methodology as it relates to good payment history reductions, which would allow for complete reduction of maximum net exposure, or at least reduction closer in line with that enjoyed via credit rating? Currently there exists a fairly significant gap between the reduction benefits presented under each option, with the largest being the inability through utilization of good payment history for full maximum net exposure reduction. Maybe a combination of the two criteria could be used in order to achieve maximum reduction benefits?*

IESO's Response:

The IESO thanks Enwin Utilities for its feedback.

The IESO has utilized Good Payment History (GPH) for over a decade, and GPH has been reviewed in each prudential review report since 2007.

For MPs with a recognized independent third-party credit rating, the IESO currently utilizes their credit rating over and above any GPH to determine any collateral requirements. For MPs that are not rated, the IESO uses GPH levels as a proxy for creditworthiness.

Most U.S.A. electricity system operators use some structure of in-house credit assessments to determine participants' creditworthiness; as such, GPH is likely a small component of their overall assessments. The IESO does not use any in-house credit assessments and, therefore, GPH is a large component for determining creditworthiness.

Compared to the forward-looking in-house credit assessment framework or third-party credit ratings (e.g., Moody's, DBRS), GPH is entirely backward-looking. For this reason, it is not necessarily as good at predicting/forecasting when a company may enter into financial difficulty. An in-house credit assessment framework would increase the IESO's administration costs by an estimated \$300,000 to \$400,000 per year, plus up to \$150,000 in one-time costs for general setup and training. In addition, MPs would assume a greater administrative burden due to increased requirements to provide regular (e.g., quarterly, annual) credit-related information (both quantitative and qualitative) to the IESO. In the end, the individual assessments of MPs in an in-house credit assessment framework may or may not reduce the amount of prudential support required by each MP.

Overall, the IESO continues to support the current GPH process utilized in the existing Prudential Framework and does not recommend any changes to GPH. The following summarizes the IESO's rationale for its response to Enwin Utilities' feedback.

- The IESO's GPH has been part of the Prudential Framework for over a decade and has been assessed and reviewed by the IESO and third parties in prior Prudential Framework review reports.
- If a MP has a recognized third-party credit rating, the credit rating must be utilized over any GPH. For those MPs with no credit rating, the GPH provides the IESO with a proxy for creditworthiness, albeit not at the same levels as afforded to credit-rated entities.
- The IESO has acknowledged that GPH is not a strong indicator of future credit worthiness since an entity can reasonably continue to maintain a good payment history even though they could be experiencing significant financial difficulties. GPH is entirely a backward-looking indicator. However, the IESO continues to support that the cost of maintaining GPH is less than the cost of introducing an in-house credit assessment/underwriting function (which is also not perfect in predicting future creditworthiness).
- Many credit underwriters will use GPH as one factor along with many other factors to determine an entity's creditworthiness. The IESO uses GPH but does not seek other mandatory requirements/inputs.
- The IESO does not support a framework where GPH collateral reductions should be similar to any third-party credit rating reductions. This would ignore the inherently greater credit risks that the backward-looking GPH has over the more robust, forward-looking credit ratings process.
- As part of the concluding 2013 prudential review findings and default model, the IESO increased GPH reduction levels. These GPH level increases provided larger reductions

to MPs over their previous GPH levels. In addition, given their lower overall credit risk profiles, LDCs received higher GPH reductions versus non-LDCs.

- MPs and/or LDCs have the option to obtain a third-party credit rating (e.g., DBRS, Moody's), which may provide them with lower or zero IESO collateral requirements than would otherwise be the case with just GPH. In addition, a credit rating may afford the MP/LDC with additional benefits that go beyond the IESO, such as lower collateral requirements for other vendors and improved pricing with vendors' products (e.g., negotiating lower banking fees). For example, one LDC was receiving GPH but decided to obtain a credit rating. The LDC's new credit rating enabled it to post zero collateral with the IESO, thus saving bank credit fees and also allowed the LDC to enjoy non-IESO credit/pricing benefits.

MEARIE Group:

Summary of feedback:

- *The original full submission by the MEARIE Group and supporting letter from the Electricity Distributors Association can be retrieved from the IESO's stakeholder website.*
- *The feedback suggests that LDCs' lower credit risk profile (versus non-LDCs) and LDCs' cost structures are inadequately recognized by the IESO. For this reason, the IESO should amend the Prudential Framework to provide more benefit to the LDCs.*
- *In general, based on communications between the IESO and the MEARIE Group, the MEARIE Group's recommendation is to establish a pool or pools (MEARIE Pool) of LDCs. All the LDCs within the MEARIE Pool would determine their effective IESO prudential requirements, and the largest single LDC exposure would determine how much collateral would be provided to the IESO. In essence, the MEARIE Pool proposes to replace each individual LDC prudential requirement with only one requirement, based on the largest single LDC exposure of the whole pool. For example, if the IESO's current population of approximately 70 LDCs were to join into one pool, the IESO would only receive one letter of credit based on just the largest single exposure of all 70 LDCs.*

IESO's Response:

The IESO thanks the MEARIE Group and the Electricity Distributors Association for their feedback.

The concept of pooling risks/costs is a common method utilized by many industries when trying to improve risks and/or costs. The MEARIE Pool concept seeks to find a better solution

for LDCs that participate in the IESO market but does not cover non-LDCs. During the 2013 prudential review, the IESO considered a “Default Pool” concept in which all MPs (including LDCs and non-LDCs) were expected to have cost savings and reduced collateral; however the feedback received in 2013 did not support any further action on the Default Pool concept.

Overall, after assessing the merits, the IESO does not support the MEARIE Group’s concept and believes that this concept in general is not aligned with the Prudential Framework’s primary objectives. In addition, the IESO believes that adopting such a concept would produce an over-burden (e.g., push) of the Prudential Framework’s costs/risks towards non-LDCs and to those LDCs that may not join the MEARIE Pool. The following summarizes the IESO’s rationale for its response.

- The current Prudential Framework already recognizes that LDCs have a lower credit risk profile versus non-LDCs. Therefore, LDCs already have lower collateral requirements. For example, a credit-rated LDC with an “A” rating can receive 95-percent collateral reduction (versus 90 percent for non-LDCs), or a LDC with a six-year GPH reduction can receive up to \$14 million in collateral reductions (versus up to \$12 million for non-LDCs). In addition, LDCs can receive a further prudential reduction based on 60 percent of the value of collateral held from their customers, and the price basis for computation of prudential support is lower for LDCs than for other non-LDCs. Therefore, LDCs already receive IESO recognition for their lower credit risk profile.
- LDCs are not exempt from entering into court creditor protection. For many appropriate reasons, court creditor protection may be utilized by a LDC to help mitigate unmanageable financial obligations, including absolving those pre-filing⁷ IESO obligation amounts. The MEARIE Pool concept argues that the probability of more than one LDC seeking court creditor protection at the same (similar) time is almost zero, and, therefore, the MEARIE Pool’s one single letter of credit posting should be expected to cover for payment defaults. The IESO believes that LDCs, similar to many other businesses, can endure a large number of variables that may impair a LDC’s solvency. The IESO envisions reasonable potential variables that can impair a LDC such as, for example, internal financial mismanagement, holding illiquid assets and/or being unable to manage liquidity (e.g., asset-backed commercial paper during 2007, misspending or overspending), large LDC customer(s) defaults that may burden the LDC’s receivables and costly weather related events (e.g., ice-storms) that places stress on the LDC’s spending. Therefore, the IESO believes that LDCs will act in a manner consistent with most other businesses, that is, to seek court creditor protection as necessary. Further, the

⁷ Pre-filing refers to creditor amounts that would be at serious risk for default during court creditor protection.

IESO believes the potential for more than one LDC entering into court creditor protection during the same time is significantly higher than MEARIE Pool's expectation.

- The IESO believes that LDCs may carry some uniquely higher credit risks than non-LDCs. For example, LDCs do not typically ramp down electricity consumption during financial distress and, therefore, any court creditor protection pre-filing amounts may be higher than non-LDCs experience. The higher pre-filing amounts could dictate that a higher collateral requirement may be warranted. In general, when a non-LDC is facing financial distress, it's likely to take reasonable measures to curtail costs (slow production, reduce electricity consumption, lower use of resources/utilities), whereas LDCs will have to continue at normal levels to service their customers' needs. This unique risk is already factored into the IESO's current Prudential Framework and represents another key reason why the IESO supports individual LDC profiles rather than the MEARIE Pool concept.
- Currently, the IESO permits each LDC to choose its own IESO trading limit level, which ultimately impacts its total level of collateral posted. A minimum level must be met; however, each LDC is free to choose/set a level above the minimum level that best suits its individual liquidity needs. In some cases, one LDC may prefer a low trading level and another LDC would prefer a higher trading level. The MEARIE Pool will effectively eliminate or deteriorate each LDC's individual trading level process. For example, LDCs within the MEARIE Pool may be unfairly sheltered by the pool structure to choose a significantly higher IESO trading limit than they would normally without the pool structure (e.g., which increases the LDC credit risk in the IESO market) so that no margin calls are issued. The MEARIE Pool concept would envision posting only the highest single LDC risk exposure, which leaves all remaining LDCs within the pool to potentially increase their IESO trading limit/credit risk. The concern is that the MEARIE Pool may permit unwanted LDC activity, which may increase the IESO's credit risk exposure with each individual LDC.
- The IESO would likely lose or significantly lower its ability to impose more stringent prudential requirements on any single LDC during times of defaults/compliance matters. For example, the current market rules permit the IESO to act when LDCs/MPs are not compliant with the market rules, including increasing prudential requirements. Non-compliance with market rules can extend beyond just payment or collateral defaults. With a MEARIE Pool concept in place, the potential for obtaining higher/stringent collateral for any single LDC within the MEARIE Pool is not likely available.
- If the MEARIE Pool concept is adopted by the IESO, the IESO would have to invest in a) new/updated prudential tools/systems to segregate and monitor the LDCs, b) new market rules specific for LDCs, and c) new IESO resource constraints to deal with LDC

compliant/default matters. Any new tools and new resources will be paid via the IESO's administration fee, which in turn is shared and paid by both LDCs and non-LDCs. There is a concern that the IESO's investment and resourcing for the MEARIE Pool concept would not benefit non-LDCs that are also paying the IESO fees.

- Assume one or more LDCs defaults in payment. If the MEARIE Pool concept is adopted by the IESO, and should the IESO not receive enough collateral when drawing upon the single MEARIE Pool collateral, thereby, all remaining MPs including non-LDCs would pay for the deficiency default amount. Non-LDCs may view this as unfair as the MEARIE Pool is benefitting by off-loading the MEARIE Pool's credit risk onto all non-LDCs. Instead, under the current Prudential Framework, each individual MP (LDC and non-LDC) is assessed individually.
- As discussed with MEARIE, the MEARIE Pool may not permit all LDCs to join the pool. Each LDC (based on yet to-be-determined criteria for membership) will need to apply to MEARIE for membership in the MEARIE Pool. This implies that the MEARIE Pool may accept one LDC into the pool and yet not accept another. This could be viewed as unfair and/or off-loading the assumed higher credit risks back to the IESO and towards non-LDCs. The current IESO Prudential Framework treats all MPs with a consistent level of collateral requirements.
- Since the MEARIE Pool only applies to LDCs, would the IESO permit the same pooling concept to non-LDCs? As noted earlier in this report, the IESO recognizes that non-LDCs have a higher credit risk profile than LDCs, and non-LDCs seek court creditor protection more often than LDCs. Therefore, the IESO would not feel comfortable extending a similar pooling concept to all non-LDCs since the highest single credit amount for a non-LDC pool would not likely be acceptable to the IESO. Individual credit assessment for non-LDCs is the best method for the IESO. Permitting the MEARIE Pool could be viewed as treating non-LDCs materially unfavourably in the IESO market, since no pooling would be permitted for non-LDCs.
- Some LDCs have expressed their dissatisfaction for their individual cost of obtaining collateral for the IESO, and, therefore, the MEARIE Pool concept may be appealing since it may lower their overall costs. The IESO would highlight that LDCs could seek another alternative than the MEARIE Pool to potentially lower costs. For example, recently one LDC in the IESO market decided to obtain a third-party credit rating. The LDC's new credit rating afforded it to post zero collateral with the IESO, thus saving them bank credit fees and financial capital constraints. While the LDC pays for an annual credit rating, it likely also allows the LDC to enjoy non-IESO credit/pricing benefits such as lower vendor costs/other credit-related fees.
- Based on discussions with U.S.A. and Canadian electricity system operators, the IESO notes that no other system operator holds collateral based on a pooled vs. individual

basis, as there can be too many legal issues/defenses and uncertainties with this type of structure.

In total, the reasons listed above provide sufficient rationale for the IESO to not recommend the MEARIE Pool concept.

Demand Response Prudential

During 2015, the IESO held stakeholder initiatives to establish the IESO's first Demand Response (DR) prudential framework for the DR auction/market. The first auction was held in December 2015, and the first market commitment period started in May 2016.

The IESO is satisfied with the current DR prudential framework and further expects to revisit the DR prudential requirements within the next few years to determine if any changes are recommended.

The IESO has one minor recommendation as follows.

Recommendation: Update Chapter 2 section 5B.5 (Reductions in Demand Response Prudential Support Obligations) for LDCs' participation in Demand Response program.

Background:

This is a minor recommended change to the market rules in order to align with other market rules and/or clarify the rules.

Rationale:

The IESO currently permits all MPs (non-LDCs and LDCs) to participate in DR programs subject to meeting the DR requirements including posting prudential support.

Recommended Minor Market Rule Change

The IESO has conducted an internal review of the current market rules. As part of the 2016 Prudential Framework review, the IESO recommends the following change to the market rules.

1. Recommendation: Eliminate the requirement that the IESO pay interest on prudential cash deposits.

Background:

In 2004, the IESO ceased accepting cash deposits as prudential support and grandfathered those MPs with \$200,000 or less in deposits. This action was primarily based on the multiple legal defenses that could arise by accepting cash as collateral for the IESO.

Currently, only two MPs have cash deposits for a total of approximately \$142,000. One of the remaining two has the bulk share of approximately \$140,000 posted, and this MP has not transacted in the IESO market since 2002.

Rationale:

Given the very small amount on deposit, and given that the IESO is not meant to provide banking-like services, the IESO recommends eliminating the payment of interest on cash deposits. The two MPs can continue to maintain their cash collateral but will no longer receive any applicable interest on their amount.

End of Report