Report on Billing Practices, the Industrial Conservation Initiative (ICI) and other matters

Submitted to the Minister of Energy, Northern Development and Mines and the Associate Minister of Energy

February 28, 2020

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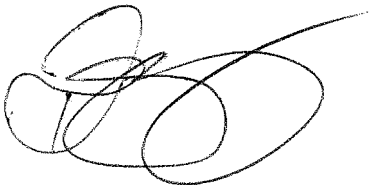
Message from Peter Gregg, President and CEO

I am pleased to present the IESO's Report on Billing Practices, the Industrial Conservation Initiative (ICI) and other matters to the Minister of Energy, Northern Development and Mines and the Associate Minister of Energy.

The IESO is proud to work at the heart of Ontario's power system, and continuously looks for opportunities to enhance our processes and tools, and find other efficiencies in our work with market participants, stakeholders and customers.

In response to the request letter, the IESO undertook a number of reviews to determine ways to incorporate feedback from the Ministry's consultation on industrial electricity pricing. The IESO assembled project teams to assess options and make recommendations in each of the four review areas, informed by stakeholders.

Thank you for sharing the findings of the Ministry's consultation with the IESO. We look forward to discussing the findings and recommendations of this report with you.



Peter Gregg
President and CEO

Introduction

In early 2019, the Ministry of Energy, Northern Development and Mines (ENDM or the Ministry) conducted an industrial electricity pricing consultation focused on the industrial electricity pricing framework, program design, the cost of running the electricity system and burden reduction issues. Two key themes that emerged from industrial consumers related to regulatory burden and electricity cost-certainty. More specifically, issues were raised related to information reporting, peak demand management, billing complexity, customer service, and Global Adjustment (GA) fluctuations.

Based on the feedback received during this consultation, on November 6, 2019, the Ministry asked the Independent Electricity System Operator (IESO) to review and report back on four initiatives[1]:

1. Review its current bill presentment activities and processes to identify ways that electricity bills can be improved, with a particular focus on simplification, while still providing the information required under Market Rules to all market participants;

2. Review its customer service processes, with a particular focus on market participants that operate load facilities, in order to identify areas where IESO can improve its customer service activities, processes and practices;

3. Review its current GA estimation processes, in order to determine where there is the potential to improve the manner by which IESO calculates its current estimation of GA or eliminate the estimation process; and

4. Review its peak demand data publication processes in order to determine where there is potential for improvement and to provide an assessment of the implications of using real-time data for Peak Demand Factor determination.

This report presents the review findings starting with the actions used by the IESO to undertake the reviews, the feedback collected from relevant stakeholders, as well as the presentation and analysis of options in each of these areas. Each review concludes with a recommendation from the IESO.

[1] See Appendix A for the November 6, 2019 request letter from the Minister of Energy, Northern Development and Mines and the Associate Minister of Energy on Billing Practices, Industrial Conservation Initiative (ICI) and other matters.

Review Findings

REVIEW #1 – SIMPLIFYING CUSTOMER INVOICES

For this initiative, the Ministry asked the IESO to review its current bill presentment activities and processes to identify ways that electricity bills can be improved, with a particular focus on simplification, while still providing the information required under IESO Market Rules to all market participants.

Current Context

The IESO oversees, reconciles and invoices approximately $18 billion in transactions from the IESO-administered market, related services, programs and electricity charges. Settling the market is a complex multi-step process that applies requirements, specifications, formulas, and other variables as defined in the Market Rules. The IESO must also adhere to Canadian excise tax rules and other non-IESO protocols surrounding proper invoicing within Canada.

As part of the settlements process, the IESO is responsible for settling and invoicing market participants for their activities. Invoices are designed to generally suit the needs for all market participant types which includes generators, transmitters, local distribution companies, industrial consumers, traders, extra-provincial consumers, and other entities. Furthermore, the IESO provides regular training sessions and billing information to assist market participants in understanding the IESO invoices.

Market Rules define the settlement process and require the IESO to publish monthly invoices and to include line items according to the specified format including charge types and other requirements. Market participants access various IESO settlement statements, collateral reports, and invoices electronically through a secure IESO portal.

The IESO's current settlement processes and invoices are designed with direct input from market participants and are set to meet a number of needs, including:

- Providing market participants with the reasonable and sufficient information they need to make business decisions and manage electricity input costs, and support the effectiveness of their financial controls such as reconciliation and verification of payments
- Meeting regulatory and legal requirements including the Market Rules, Measurement Canada and Canada Revenue Agency
- Ensuring transparency in charges
- Providing best practices in customer service

Research

The IESO undertook the following activities for this review:

- Developed guiding principles which were used in the formulation of three options – enhance reference resources related to billing, add supplementary bill information, and modify the IESO invoice
- Engaged stakeholders through a public webinar held on December 13, 2019, with approximately 50 participants, and established a dedicated IESO Bill Presentment Review engagement webpage for the project

- Solicited feedback from stakeholders on the three options, market participant implementation considerations, or any matters regarding the review (10 written responses were received from generators, loads and distributors)
- Conducted a jurisdictional scan sample of other North American electricity system operators' invoice formats and information provision processes

Engagement Summary

Stakeholders depend on the detailed information available in the IESO invoice for making business decisions. They supported measures to enhance information value and understanding of the invoice for making business decisions whether through enhanced resources and training or by adding information to supplement the invoice. Stakeholders opposed changes that would impact their tools and processes and which would impose implementation costs with relatively little benefit. Further stakeholder feedback on each option is provided below.

Review of Options

Prior to the development of options, the IESO developed a series of guiding principles to assist in the formulation of options, including:

- Address the stated policy objective to reduce complexity or simplify IESO invoices (e.g., through presentment changes or methods to improve the understanding of invoices)
- Minimize implementation burden to market participants and the IESO, such as the need for tools (e.g., Application Programming Interface) and material process changes, and to leverage existing processes where possible
- Maintain compliance with Market Rules, market manuals and legislative requirements (e.g., Canada Revenue Agency)
- Maintain information value (e.g., market participants depend on information conveyed in IESO invoices for making energy management decisions and managing input costs)

The IESO reviewed three options to improve customer billing, with a particular focus on simplification. Table 1 provides a summary of the options considered. A more detailed explanation of each option as well as feedback from stakeholders is provided following the table.

Table 1 – Simplifying Customer Invoices
High-Level Summary of the Reviewed Options

Option	Description	Analysis	Implementation Considerations
Option #1 **Enhance reference resources related to billing – no changes to the IESO invoice**	Improve resources to enhance understandability of the invoices, including: • Provide enhanced training by adding a new module within the existing Commercial Reconciliation course • Publish a new "Quick Takes" resource guide – a high-level	• Avoids implementation burden and impact on the IESO and market participant tools and processes • Maintains compliance with market rules, market manuals and legislative requirements	• Relies on market participants to be proactive in enhancing their understanding of the IESO invoice. Some market participants may not take advantage of these new IESO resources

	summary of the billing training workbook • Enhance awareness of new market participant training resources on the website and through the IESO weekly Bulletin	• Stakeholders supported this option	which may contribute to ongoing issues
Option #2 **Add a supplementary bill – no changes to the IESO invoice**	Develop a supplementary condensed, or summarized bill information, in addition to the formal IESO invoice as part of the Market Renewal Program (MRP) and Replacement of Settlement Systems (RSS) project	• Minimizes implementation burden and impact on the IESO and market participant tools and processes • Maintains compliance with market rules, market manuals and legislative requirements • This new resource could reduce complexity, enhance transparency and enable market participants to better understand their invoices • The jurisdictional scan found that most system operators offer a supplementary/ summary invoice in addition to the formal invoice • Stakeholders supported this option	• An opportunity exists to introduce a supplementary bill in conjunction with the work being undertaken on the Market Renewal Program (MRP) and the Replacement of Settlement Systems (RSS) project, both of which will eventually change the IESO invoice details • Implementing this option in conjunction with the upcoming MRP/RSS work will reduce duplicated efforts
Option #3 **Modify the IESO invoice**	Implement changes to simplify the invoice	• Significant, resource-intensive project for both the IESO and market participants • Requires changes to the IESO market rules, market manuals, IESO tools and processes • Requires changes to participants' tools and processes (i.e., automated machine reading tools) • Most stakeholders opposed this option	• Significant impact on the stakeholders' internal systems and processes in that changes will be needed to maintain compatibility with financial systems • There is likely little benefit for stakeholders plus substantial costs to the IESO for implementation

Option #1 – Enhance reference resources related to billing – no changes to the IESO invoice

For this option, the IESO has identified enhancements to its Marketplace Training online resources to improve the understandability of invoices, informed by stakeholder feedback and good practices identified through the jurisdictional scan.

The billing-related reference resources currently provided by the IESO include:

- A simplified settlement process on the IESO website
- Guide to IESO Charges
- Reference guide to key settlement and payment dates by trading day
- Public in-person Commercial Reconciliation training
- Training materials for settlement statements and invoices
- Customer representatives assigned to each market participant, including support to assist participants to reconcile their settlement statements and monthly invoices (as further discussed in Review #2)

New resources and initiatives to be introduced with this option include:

- Provide enhanced training by adding a new module on "Understanding the IESO Invoice" within the existing Commercial Reconciliation training course. The enhanced module will improve participants' understanding of the IESO invoice through this instructor-led, hands-on workshop.
- Publish a new "Quick Takes" resource guide on "Understanding the IESO invoice." The IESO's "Quick Takes" guides are generally 5 – 10 page summaries that distill key information from the more detailed training manuals and workbooks. This new "Quick Takes" will be introduced as a high-level guide to complement the Settlement Statements and Invoices Workbook. Samples of the IESO's current "Quick Takes" resources can be found here.
- Enhance awareness of the availability of training resources on the IESO website and weekly Bulletin.

The option to enhance resources was well supported by stakeholders since it helps achieve the goals of the review while avoiding the implementation burden associated with changing the invoice. A stakeholder noted that this option would mainly benefit new market participants, but there would be no real gain for experienced market participants who already understand how the IESO settlement processes work.

By avoiding changes to the IESO invoice, this option avoids implementation burden on the IESO and on market participants. It also maintains compliance with market rules, market manuals and legislative requirements, while helping to meet the objective of improving the understandability of invoices.

This option requires market participants to be proactive in enhancing their own understanding of IESO invoices. As a result, some market participants may not take advantage of these new IESO resources which may result in ongoing issues related to understanding.

Option #2 – Add a supplementary bill – no changes to the IESO invoice

In this option, the IESO would develop supplementary condensed or summarized bill information that would be provided along with the formal invoice. This option would provide improved, new quantitative information for market participants to better understand their invoices, reduce complexity, and improve invoice transparency. This supplementary information would include 12-month rolling information, which could be used to monitor trends and seasonality.

This option was well supported by stakeholders since it helps achieve the goals of the review and avoids the implementation burden associated with changing the invoice. Some stakeholders supported Options #1 and #2, but preferred adding supplementary bill information and provided examples for IESO consideration. The IESO would make the supplementary bill available on the IESO reporting site in the same location where market participants retrieve their final monthly invoices.

From an implementation perspective, an opportunity exists to introduce a supplementary bill in conjunction with the work being undertaken on the Market Renewal Program (MRP) and the Replacement of Settlement Systems (RSS) project, both of which will eventually change and impact the IESO invoice details. Engagement with market participants on the RSS will be undertaken, and implementation is targeted to coincide with the launch of MRP in 2023. Implementing Option #2 in conjunction with the upcoming MRP/RSS work will prevent duplication of efforts.

Option #3 – Modify the IESO invoice

In this option, the IESO would implement changes to simplify the invoice. Changing the invoice is likely to be a resource-intensive project for the IESO and market participants in a number of ways:

- Requires changes to market rules and manuals, a process involving the IESO working with all market participants, as well as the involvement of the Technical Panel and the IESO Board of Directors
- Requires changes to IESO tools and processes
- Requires participants to change their tools and processes to suit a new invoice format due to the fact that market participants pull IESO invoices electronically into their own system and tools (financial systems, energy management etc.)
- Reduces information value and transparency for market participants to use in making business decisions and for their financial controls

The majority of stakeholders opposed this option for the following reasons:

- Stakeholders would incur a significant impact with their internal systems since changes will be needed to maintain compatibility with financial systems
- Most stakeholders prefer the IESO's current invoice format and detail; changing the invoice format to make it simpler will reduce its effectiveness in the context of their own financial controls and could impact their confidence in the effectiveness of the IESO's settlement processes and controls

There is likely little benefit that would result for stakeholders as well as significant costs to the IESO for implementation.

IESO Recommendation

The IESO recommends Option #1, enhancing the reference resources related to billing and building awareness of the available resources through the IESO Website and weekly Bulletin. Implementation of Option #2 will be considered as part of the Market Renewal Program (MRP) and Replacement of Settlement Systems (RSS) work to be completed in conjunction with the launch of Market Renewal in 2023.

REVIEW #2 – CUSTOMER SERVICE REVIEW

For this initiative, the Ministry asked the IESO to review its customer service processes, with a particular focus on market participants that operate load facilities, in order to identify areas where IESO can improve its customer service activities, processes and practices.

Current Context

The IESO provides a range of customer services to support effective participation in the IESO-administered markets. This includes assisting market participants with:

- Connecting new or modified facilities to Ontario's power system
- Reconciling settlement statements and monthly invoices
- Providing support with inquiries and resolving issues, such as navigating IESO systems and tools

Connecting new or modified facilities to Ontario's power system
The process to connect a new facility, or to modify an existing facility, involves up to six stages, with information provided on each of these stages on the IESO website. The entire process can take from a few months for small modifications to existing facilities, to more than three years for major modifications or to connect new facilities. The IESO has recently launched an updated "Connecting to Ontario's power system" webpage to help organizations navigate the facility connection process. The IESO has also recently streamlined its Record Equipment process to improve efficiency.

Reconcile settlement statements and monthly invoices
Customer service support is provided to market participants to assist in reconciling their settlement statements and monthly invoices, including assistance from IESO Customer Relations staff and Account Managers, customer-specific and public in-person training, and online reference materials and guides (as mentioned in Review #1). The recommended option for Review #1 includes enhancing the reference resources related to billing and building awareness of the available resources.

Providing support on inquiries and resolving issues
In 2019, the IESO Customer Relations team responded to 6,927 inquiries from market participants to either provide support with an inquiry or resolve an issue. Market participants also have the support of an Account Manager to help them navigate the IESO's various programs and initiatives. Annually, the IESO measures overall customer satisfaction through its Stakeholder Satisfaction Survey. The 2019 survey results indicated that the assistance from IESO Customer Relations is well utilized and was rated as very effective by survey respondents.

Research

The IESO undertook the following activities for this review:

- Articulated the IESO processes that are part of the customer service experience
- Held one-on-one meetings with market participants that operate load facilities to better understand their needs, including transmission-connected and embedded customers from across all sectors (e.g., mining, pulp/paper, automotive, steel, storage, petrochemical, property management, information technology, cement, etc.). The IESO invited 20 participants and met with 12 customers.

- Determined two key areas of focus for this review given the significant volume of customer interactions – the connection process and general inquiries

Review of Options

During the one-on-one meetings, participant feedback spanned several focus areas – communications, timelines, transparency, training, interactions, and system tools. These themes also align with observations and lessons learned through Connections Process case studies completed jointly by the IESO, Hydro One and Ontario Mining Association in November 2019 in support of the Ontario government's mining sector red tape reduction efforts.

Overall, feedback was generally positive with many customers indicating satisfaction with the level of support they receive from the IESO, citing the responsiveness of their Account Manager, along with information received through the IESO weekly Bulletin updates and the IESO's Regional Forums. The outage planning process was also identified as being timely and easy to navigate.

Participants identified a number of areas that could potentially improve the overall customer experience, including:

- More frequent interaction with the IESO to raise awareness about IESO programs/initiatives
- More transparency in processes (e.g., the connection process)
- Additional training on the tools such as Online IESO and the market registration process – some noted that navigating the IESO's processes and tools/systems can be challenging when not accessed frequently because electricity is not a core part of their day-to-day business activities

Recently launched improvements and those currently in progress

The IESO's customer service processes are continually evolving to respond to customer feedback and ensure their needs are being met. A key example is the introduction of a number of customer service enhancements in 2019 to address customer feedback, including:

- Changes to the IESO's corporate website to provide customers with additional insights and transparency into the Connection Process (e.g., completing connection assessment, registering new or modified equipment, commissioning of equipment and completing performance validation). The IESO launched an updated "Connecting to Ontario's power system" webpage and process diagram in December 2019 describing every stage of the process including timelines and requirements for each phase from intention to connect to bringing the facility into service.
- New online metering forms were implemented in May 2019 allowing customers to directly change roles for their resources rather than requiring the IESO to administer the changes

A full listing of the recently launched customer service improvements, or those currently underway, is provided in Table 2. These improvements have been grouped into the focus areas discussed by stakeholders during the one-on-one meetings – communication, timelines, transparency, training, interactions, and system tools.

Table 2 – IESO Customer Service Improvements Recently Introduced or Currently in Progress

Area	Stakeholder Feedback	Action	Status
Communication	Have earlier discussions on new projects and connection requirements	The IESO encourages earlier discussions on potential new projects and connection requirements through its regional planning process and pre-application / pre-project meetings when customers identify upcoming projects in need of grid connection. This was included as part of the updated Connection Process on the IESO website.	Completed
	Provide a list of IESO email addresses for specific functions (e.g., metering, registration)	IESO Customer Relations is available as the first point of contact and will re-direct inquiries as required. With respect to connection assessments, this information is included at the relevant steps of the Connection Process.	Completed
Timelines	Connection assessment timelines are unclear and there is no clarity about what is required during each step of the process	The IESO has posted timelines and requirements for each step of the Connection Process on the IESO website, including descriptions of common information needs and responsibilities to ensure assessments can be completed in a timely fashion.	Completed
Transparency	Clarify treatment of storage in the connection process and clarify the different parameters for different storage sizes	The Connection Process applies to all new or modified grid connections. Market Rule amendments to clarify performance requirements for inverter-based resources (which includes storage) were introduced in mid-2019 and a market participant review is expected to be completed by the end of 2020.	In Progress *(End of 2020 - subject to stakeholder and market participant review and Market Rule amendments)*
	Need to clarify compliance responsibilities for new or modified facilities	IESO staff now proactively work with owners of new or modified facilities to identify reliability compliance requirements specific to their facilities and to ensure they understand Market Rule obligations	Completed
Interactions	Implement regular standing meetings – especially for new or non-routine items (e.g., System Impact Assessment process)	The IESO has implemented this as part of the recent Connection Process enhancements	Completed

	Enhance collaboration between the IESO and Hydro One to improve the System and Connection Impact Assessment processes	The IESO has enhanced the Connection Process section of the website to provide additional clarity on the interaction between the parties; application forms are currently being reviewed to ensure the data being requested is common for both parties	Completed *(application form review to be completed by Q4 2020)*
	The IESO should attend Hydro One's Sarnia Area Reliability Oversight Committee (SAROC) meetings to provide insights into IESO priorities and activities	The IESO has been added as a standing agenda item at Hydro One's SAROC meetings	Completed
System Tools	Tools are not intuitive (e.g., online registration form)	The IESO initiated a Market Registration three-party review redesign in December 2019; currently awaiting a software change to replace the manual process	In Progress *(Online IESO project will be considered for prioritization among other projects and resource constraints by the end of Q2 2020)*
		The IESO is adding Record Equipment entry/exit criteria for clarity and efficiency; criteria will help clarify the required registration data and specific targets for the completion of the registration stage	In Progress *(Q2 2020)*

In addition to these initiatives, the IESO has developed options to further improve the customer service experience based on the feedback from the interviewed participants. Table 3 describes these options, organized by focus area, and includes any implementation considerations.

Table 3 – Customer Service Enhancements
Summary of the Reviewed Options

Option	Description	Implementation Considerations
Enhance Timelines	Timelines are longer than anticipated and may not align with a typical business cycle	The IESO will continue to monitor and encourage feedback on the customer experience after the enhancements to the Connection Process to identify areas for additional improvement.
Enhance Training	Introduce training on the Market Registration process	The IESO is developing enhancements to existing marketplace training and participant resources on the Market Registration process, as well as the use and navigation of IESO portal/Online IESO. These enhancements are expected to be introduced in 2020.
	Introduce training on how to navigate IESO portal/Online IESO	Same as above.
Enhance System Tools	Tools are not intuitive (e.g., online registration form)	The IESO has identified a project that will enhance online IESO self-service features and allow customers to make changes to their accounts more efficiently. The Online IESO project will be considered for prioritization among other projects and resource constraints by the end of Q2 2020.

IESO Recommendation

The IESO discussed a total of 14 customer service improvement opportunities at the one-on-one meetings with market participants that operate load facilities. Of these, seven service improvements were recently completed, and an additional three customer service enhancement projects are currently in the process of being implemented in 2020, pending the outcome of project prioritizations.

Four new opportunities were also identified to improve the customer service experience and the IESO is targeting completion of these initiatives in 2020. The IESO will continue the dialogue with customers to ensure continuous improvements are incorporated into the IESO's customer service practices and processes.

REVIEW #3 – GA ESTIMATION

For this initiative, the Ministry asked the IESO to review its current GA estimation processes, in order to determine where there is the potential to improve the manner by which IESO calculates its current estimation of GA or eliminate the estimation process.

Current Context

The Global Adjustment (GA) was established by the Ontario government in 2005 to cover the cost of providing adequate generating capacity (building new infrastructure and maintaining existing resources) and to provide conservation and demand management programs for Ontario.

All Ontario electricity customers pay for the GA. It is incorporated into time-of-use rates and is not visible as a line item on the electricity bills of small customers of local distribution companies (LDCs). For mid-sized and large businesses, as well as residential and business consumers on retail contracts, the GA appears as a separate line on their electricity bill.

The GA is set monthly to reflect the following:

- The differences between the wholesale market price for electricity, known as the Hourly Ontario Energy Price (HOEP) and:
  - Regulated rates for Ontario Power Generation's nuclear and hydroelectric generating stations
  - Payments for building or refurbishing infrastructure such as gas-fired and renewable facilities and other nuclear, as well as the contracted rates paid to a number of generators across the province
- The cost of delivering conservation and demand management programs

Over time, the GA has become a significant portion of the final bill for Class B consumers[2], defined as customers with a peak demand of 50 kilowatts (kW) up to five megawatts (MW) who typically pay the GA through their regular billing cycle with their LDC. Consumers, especially business customers, will tend to take into account the significant impact of the GA charge in their business planning.

GA Volatility

The GA varies from month to month, responding to changes in HOEP compared to contract prices. Generally speaking, when HOEP is lower, the GA is higher to cover additional costs for the items referenced above.

Since the introduction of the GA in 2005, the number of contracts being settled every year has increased, which has generally caused the GA to rise as well. Several factors have had an impact on the rising amount of the GA, including the number of contracted resources, their production levels and market prices. These changes make forecasting the GA rates an inherently imprecise "best effort" exercise, subject to subsequent true-ups.

These trends in GA values have impacted electricity customers in the province, with some customers expressing concern over the volatility and fluctuations of the GA. Both the Ministry, through its 2019

[2] Class A consumers, defined as customers that participate in the Industrial Conservation Initiative (ICI), can reduce their global adjustment costs by reducing their consumption during system peaks.

consultations on industrial pricing, and the IESO have heard concerns regarding both the broader issues of GA volatility and the impact on customer bills. In its review of its GA estimation practices, the IESO considered feedback from both customers and LDCs.

One reason for the volatility is that a number of LDCs, using a third-party settlement provider, have been providing embedded generation figures with a one-month delay. In July 2019, the OEB published an Accounting Guidance that informed LDCs that they should not have any lag in reporting their embedded generation amounts to the IESO[3]. Moving forward, the IESO has created a new communication process to be shared internally that would identify any issues with embedded generation submissions on a monthly basis in order to flag any potential issues that may impact GA estimation. Even with this one-time adjustment being effectively dealt with, it illustrates the effects of the various incidental GA costs occurring throughout the year and their affect on the Actual Rate and the 1st Estimate.

Additional Context

The IESO currently publishes three values for the Class B GA rates – a 1st Estimate, a 2nd Estimate, and an Actual value for each month. The three Class B GA rates are published by the IESO throughout the month and are used by LDCs for customer billing. Each LDC chooses which rate – 1st Estimate, 2nd Estimate or Actual – they consistently use to bill their Class B customers. The rate used by LDCs to bill their customers does not affect the overall amount paid for GA over time.

1st Estimate
The 1st GA Estimate for the upcoming month is published on the last business day of the preceding month. For example, the 1st Estimate for April is published at the end of March. The 1st GA Estimate is primarily used by LDCs for billing purposes − and for many customers it is the value they will see on their bill. Timing of the 1st Estimate precludes the inclusion of any current month actual Ontario demand or GA costs.

The 1st Estimate for a given month comprises three components:

- An estimate of the GA costs based on the prior and historical monthly GA costs
- An estimate of Ontario demand for the given month, and
- A true-up accounting for the difference between the previous month's 1st and 2nd Estimate and the Actual rate

2nd Estimate
The 2nd Estimate for a given month is published on the last business day of that month. For example, the 2nd Estimate for April is published at the end of April. The 2nd GA Estimate is primarily used by LDCs for month-end purposes including projecting the IESO invoice and preliminary settlements with customers, although some LDCs also use the 2nd Estimate in customer billing.

The 2nd GA Estimate is a separate calculation based on:

[3] This OEB Accounting Guidance from July 2019 also resulted in a number of LDCs submitting two-months worth of embedded generation in August 2019, producing an atypical spike in the Actual Rate for August 2019, which in turn resulted in a spike in the 1st Estimate for September 2019 and a spike in the 1st Estimate true-up in October 2019.

- Actual GA costs and demand information for the current month and available at the time it is published (21 – 24 days)
- An estimate for GA and demand for the remaining days of the current month, and
- A true-up accounting for the difference between the previous month's 2nd Estimate and the Actual rate

Actual Rate
The Actual GA Rate, based on actual electricity demand and GA costs, is published on the 10th business day of each month for the preceding month[4]. For example, the Actual GA Rate for April is published on the 10th business day of May. The Actual Rate is what the IESO charges LDCs on their invoice and it is used for final settlement and true-up with customers.

Research

The IESO undertook the following activities for this review:

- Engaged with representatives from several large LDCs to discuss GA estimate issues and considered feedback from LDCs and other customers in the development of options
- Developed and analyzed three options - eliminating the GA estimates, improving the GA estimates and/or smoothing the GA estimates

Engagement Summary

As a first step, the IESO discussed GA estimate issues with representatives from several large Ontario LDCs. Several common themes emerged from these discussions which helped shape the IESO's approach for the review. These themes are:

Use of GA Estimates and Actuals
LDCs vary in their use of the estimates and actuals for billing and this needs to be considered with any proposed changes. As mentioned previously, the 1st GA Estimate is broadly used by LDCs for directly billing customers, while the 2nd GA Estimate is typically used for month-end purposes, although some LDCs also use the 2nd Estimate in customer billing. The GA Actual is what the IESO charges LDCs on their invoice and it is used for final settlement and true-up with customers.

Volatility
Deviations between the 1st and 2nd GA Estimates and the GA Actuals may lead to large differentials between the total of the LDC bills to customers and the amount billed to an LDC by the IESO in a given month. The high month-to-month volatility of the 1st and 2nd GA Estimates leads to large month-to-month swings in non-RPP (Regulated Price Plan) customer bills. LDC customers have commented that it is hard to budget for electricity costs that change so significantly month-to-month.

Discussion of Eliminating GA Estimates
All LDCs expressed concern about eliminating GA estimates in their entirety since LDCs cannot wait to issue bills until the current month GA Actuals are available, therefore some form of GA estimates is required for billing. Another concern expressed by the LDCs is that their billing and settlement systems, and associated accounts, are designed to support billing cycles based on the IESO's published GA

[4] As per O. Reg. 429/04, s.10(2) and O.Reg. 398/10, s.3.

estimates. As a result, any significant change could trigger the need for a large upgrade to the existing LDC billing and settlement systems.

Review of Options

The IESO reviewed three options to improve GA estimates to balance the needs of LDCs and loads. Table 4 provides a high-level summary of the different options considered as part of the review, as well as an analysis of the options and implementation considerations. A more detailed explanation of each option is provided following the table.

Table 4 – GA Estimation
High-Level Summary of the Reviewed Options

Option	Description	Analysis	Implementation Considerations
Option #1: Eliminate the GA Estimates	LDCs could bill their customers by using the Actual GA Rate from the previous month	• Results in an up-to-two-month delayed Actual GA rate being used by LDCs to bill their customers • Allocated Quantity of Energy Withdrawn (AQEW) charges for the electricity consumed will not correspond to the associated GA costs (additional information provided further in this review) • Would not eliminate the discrepancy in GA collections by LDCs and the Actual Rate billed to LDCs by the IESO • Would not address the Actual Rate month-to-month volatility concerns of LDC customers	• Requires a change to O. Reg. 429/04 • LDCs indicated this change would impact their billing and settlement systems (system change or upgrade required) • This option will have cash flow implications for LDCs, i.e., cost of borrowing • This option would require broad engagement with LDCs in order to be implemented
Option #2: Improve the GA Estimates	• Alternative models would be used for the 1st Estimate – through proposed AQEW and GA cost estimates • The AQEW for the upcoming month would be based on the average AQEW in that month over the prior six years • The GA costs would be estimated based on a	• Removes the heavy dependence of the 1st Estimate on the last month's AQEW and therefore reduces the volatility in the 1st Estimate Rate • Takes into account the most recent trend in the scale and timing of GA costs in the current year, thereby increasing the forecast accuracy and precision • Applying this proposed estimation method historically shows that the 1st Estimate Rate is 40% less volatile • The average deviation from the Actual GA Rate for the new 1st	• No change to LDC processes • This would be a medium-sized IESO project with an estimated implementation time-frame of six months (all internal to the IESO) • A new IESO settlements process is required to maintain historical adjusted GA costs for use in GA cost estimation • Criteria would need to be defined for balancing reduction in the GA estimate

	few of the most recent years	Estimate is comparable with the average deviation for the current 1st Estimate	rate volatility and closeness to the Actual GA Rate
Option #3: Smooth the GA Estimates	• Update the rate less frequently • The GA rate would be updated on a quarterly basis instead of monthly, or by using a running average of the past years' Actuals as the current rate	• Would reduce volatility and provide LDCs and their customers more certainty on a month-to-month basis – the level of change would depend on the methodology by which the rate is set • This option would only address the GA Rate, not the commodity rate	• Requires introduction of an RPP-like Class B rate for non-RPP customers • The IESO would need to create and maintain a new variance account for the variance in GA costs, which would require a change in either O. Reg. 429/04 or the OEB Act • GA variance may be quite large (i.e., $250+ million per month), therefore the Ontario Financing Authority would have to significantly increase the IESO's line of credit commitment • Setting the GA rate quarterly would require the IESO to ensure that the rate is reasonable for the period covered – i.e., setting a GA rate too low will cause the IESO to potentially borrow a substantial amount; setting the GA rate too high will result in a sizable over-collection from LDC customers • Development of an estimation model for the quarterly rate would require six months; regulatory changes would be in addition to this time

Option #1 - Eliminate the GA Estimates

If the GA Estimation model is changed to eliminate the 1st and 2nd GA Estimates, LDCs could bill their customers based on the most recent Actual GA Rate from the previous month.

Analysis of this option indicates that this approach would result in an up-to-two-month delayed Actual GA Rate being used for billing purposes. AQEW charges for the electricity consumed would also not

correspond to the associated GA costs. A drawback of this solution is that it would neither eliminate the differences in GA collections by LDCs and current period GA payment by LDCs to the IESO, nor address the month-to-month volatility concerns of LDC customers.

From an implementation perspective, eliminating the GA estimates would require a change to O. Reg. 429/04. This option would also have the most impact on LDCs as it would require a change or upgrade of their billing and settlement systems. This option would also have cash flow implications for the LDCs such as the cost of borrowing. As a result of these impacts, the implementation of this option would require extensive consultation with the LDCs.

Option #2 – Improve the GA Estimate

To improve the GA Estimate, alternative models were assessed for the 1st Estimate. One approach is to modify the current 1st Estimate forecasts of the next month's GA Allocated Quantity of Energy Withdrawn (AQEW) and GA costs in a way that would make these rates closer to the Actual Rate and/or reduce its volatility[5].

Prior to reviewing possible changes to the 1st GA estimate model, the current model is presented below.

Current 1st GA Estimate Model

The IESO forecasts the Ontario electricity demand for the upcoming month based on the previous month's demand estimates and the anticipated load change from the previous month to the upcoming month. The anticipated Allocated Quantity of Energy Withdrawn (AQEW) change is based on the average AQEW change from the previous month to the upcoming month that occurred during the previous seven years:

$$AQEW\ 1st\ Estimate = AQEW\ 2nd\ Estimate\ (current\ month) + \\ + Average\ over\ past\ 7\ yrs\ [AQEW\ (next\ month) - AQEW\ (current\ month)]$$

The GA costs for the upcoming month are based on the estimate of the GA costs for the current month (i.e., the 2nd Estimate's GA costs from the current month):

$$GA\ Costs\ 1st\ Estimate\ (next\ month) = GA\ Costs\ 2nd\ Estimate\ (current\ month)$$

Due to the high month-to-month variability of GA costs and Ontario demand, this methodology can sometimes result in fluctuations or swings in the 1st Estimate from month-to-month.

The 1st Estimate is based on the most up-to-date data that is available at the time the 1st Estimate is published. However, since the Total GA costs for the 1st Estimate are based on the total GA costs of the 2nd Estimate, there is a chance that any forecast error from the 2nd Estimate will propagate and potentially exacerbate the forecast error in the 1st Estimate.

[5] See Appendix B for a backgrounder on the seasonal dynamics in inputs to the commodity and GA rates.

For the purpose of achieving improvements in the forecast precision and reducing its volatility, the IESO has developed a new proposed 1st GA estimation model. Analysis of AQEW and GA costs has determined that changes in GA costs are lagging by a month, on average, to the changes in Ontario electricity demand. Under these circumstances, it may be beneficial to utilize historical averages for future predictions of GA costs that would correspond more closely to the Ontario demand that results in these GA costs. This is shown in the new proposed 1st GA Estimate model shown below and in Figure 1.

Proposed 1st GA Estimate Model

AQEW for the upcoming month would be based on the average AQEW in that month over the prior six years.

$$AQEW\ 1st\ Estimate = Average\ AQEW\ (next\ month\ over\ past\ 6\ yrs)$$

This model eliminates the heavy dependence of the 1st Estimate on the last month's AQEW and therefore reduces the swings in the 1st Estimate Rate.

The GA costs for the upcoming month would be based on the average demand in that month over the previous three years, multiplied by a ratio of average GA costs in the prior four months (where the most recent month uses 2nd Estimate of GA costs, the other three months use the already available Actual GA costs) to the average GA costs in the same prior four months over the previous three years.

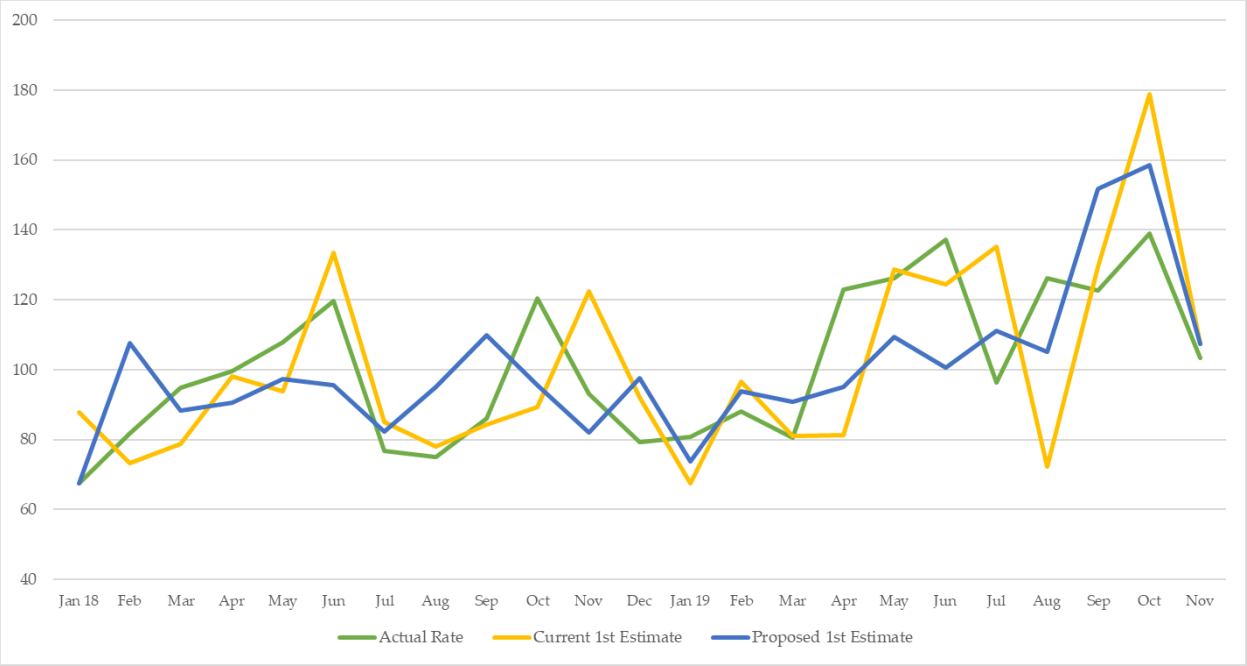
$$GA\ Costs\ 1st\ Estimate = \\ = Average\ GA\ Costs\ (next\ month\ over\ past\ 3\ yrs) \times \frac{Average\ GA\ Costs\ (prior\ 4\ months)}{Average\ GA\ Costs\ (prior\ 4\ months\ over\ past\ 3\ yrs)}$$

This model estimates GA costs based on the most recent few years and takes into account the most recent trend in the scale and the timing of GA costs in the current year, therefore increasing the forecast precision.

As illustrated in Figure 1, the new proposed 1st Estimate Rate has much less volatility than the current 1st Estimate Rate and is somewhat closer to the Actual GA Rate. With the evaluation criteria for the proposed 1st estimate model[6], the volatility of the new 1st Estimate Rate is 40 per cent lower than the volatility of the current 1st Estimate. The average deviation from the Actual GA Rate for the new 1st Estimate is comparable with the average deviation for the current 1st Estimate.

[6] See Appendix C for the evaluation criteria used for the proposed 1st Estimate model.

Figure 1 – Proposed 1st Estimate versus Current 1st Estimate and the Actual Rate



As the proposed new 1st Estimate uses the historical GA cost data (instead of the most recent 2nd Estimate) to predict the next month's GA costs, an additional process would be required to keep track of similar one-off GA costs and use the adjusted historical GA costs in the future GA cost estimations.

Overall, this model eliminates the heavy dependence of the 1st Estimate on the last month's AQEW and therefore reduces the volatility in the 1st Estimate Rate. It takes into account the most recent trend in the scale and timing of the GA costs in the current year, resulting in increased forecast precision. This reduced volatility will likely result in a corresponding reduction in customer complaints. These preliminary results suggest there are other, as-yet untapped, options available for improving the 1st Estimate to achieve better GA rate forecast and reduce volatility of the 1st Estimate Rate.

From an implementation perspective, improving the 1st Estimate with the proposed model would take approximately six months to complete. Key activities would include the development of a new settlements process to maintain historically adjusted GA costs for use in GA cost estimation, as well as defining criteria for balancing reduction in the GA estimate rate volatility and closeness to the Actual GA rate. There would be no changes to LDC processes with this option.

Option #3 - Smooth the GA Estimates

Another option for reducing volatility in the GA estimates is to smooth the 1st and 2nd GA Estimates at the IESO level by updating the GA Rate on a quarterly instead of a monthly basis, or by using a running average of the past years Actuals as the current rate.

This approach would dampen volatility and provide LDCs and their customers much more certainty on the GA on a month-to-month basis. This approach would only address the GA Rate, not the commodity

rate[7]. To do so otherwise, would distort or weaken market signals, such as through the introduction of an RPP-like Class B rate for all non-RPP customers.

From an implementation perspective, this approach would require:

- The IESO to create and maintain a new variance account for the variance in GA costs, which could require a change in O. Reg. 429/04 or the OEB Act
- A significant increase in the IESO's line of credit commitment with the Ontario Financing Authority due to the large GA variance, i.e., $250M per month

In order to update the GA rate on a quarterly instead of monthly basis, the IESO would need to ensure that the new quarterly rate is reasonable for the period covered. Setting the GA Rate too low would cause the IESO to potentially borrow a substantial amount, and setting the GA rate too high will result in a substantial over-collection from LDC customers. The IESO would require approximately six months to create an estimation model for the development of a quarterly rate.

IESO Recommendation

The IESO recommends Option #2, improving the GA estimates through the use of an alternative model for the 1st Estimate.

[7] See Appendix D for considerations on the effect of smoothing the commodity rate.

REVIEW #4 – ICI-RELATED REPORTING AND MEASUREMENT

For this initiative, the Ministry asked the IESO to review its peak demand data publication processes in order to determine where there is potential for improvement and to provide an assessment of the implications of using real-time data for Peak Demand Factor determination.

Current Context

The Industrial Conservation Initiative (ICI) is a form of demand response that allows participating customers to manage their Global Adjustment (GA) costs by reducing demand during peak periods. All requirements related to the ICI can be found in Ontario Regulation 429/04.

Customers that participate in ICI, referred to as Class A, are allocated their portion of GA costs based on the percentage of their consumption contribution (referred to as their Peak Demand Factor) to the top five Ontario system peaks (peak hours) over the 12-month base period from May 1st to April 30th. For example, if an ICI participant is assessed to contribute one per cent of Ontario's top five system peaks during the base period, it will be charged one per cent of the total GA costs throughout the applicable adjustment period.

Feedback from the Ministry's April 2019 consultation on industrial electricity prices showed that ICI participants spend significant time and resources managing their loads to reduce their consumption during peak periods. It also indicated they rely on the information published on the IESO's website, such as the Peak Tracker, to make informed business decisions. In particular, participants identified two areas of concern with respect to the timeliness and access to information.

Participants shared that IESO reporting informs their financial planning, investments, and even how they operate their facility in real-time. Some also suggested that it would improve their business' operating efficiency if they were given more information, or access to adjusted information, that is used for billing. Participants provided specific comments about improving the reporting of peak forecasting and suggested that the IESO improve the accuracy of hourly peak demand forecasts published on the IESO website. Some stakeholders thought the current forecast updates were too irregular and that last-minute forecast updates influence the consumption decisions of ICI participants.

Participants suggested that receiving more information, or access to adjusted information, that is used for billing would improve their business's operating efficiency. Many also commented that the IESO should use Ontario demand data, which is available in real-time, to determine GA charges for ICI participants rather than the final, adjusted data (referred to as adjusted AQEW – Allocated Quantity of Energy Withdrawn) that is available with a lag of several days, that the IESO currently uses.

Research

The IESO undertook the following activities for this review:

- Engaged with the Association of Major Power Consumers in Ontario (AMPCO) Board of Directors, as well as the organization's broader membership to gain additional insight and understanding on some of the reporting concerns and to solicit feedback on two proposed options

- Assessed ways to improve the current ICI methodology through the use of real-time Ontario Demand data for Peak Demand Factor determination
- Reviewed the IESO's peak data forecasting and publishing processes, however no recommendations or options are being presented at this time[8]

Review of Options

The IESO developed and reviewed two options to improve the current ICI methodology. Table 5 provides a high-level summary of the different options considered as part of the review, as well as an analysis of the options and implementation considerations. A more detailed explanation of each option is provided after the table.

Table 5 – ICI-related Data and Reporting
High-Level Summary of the Reviewed Options

Option	Description	Analysis	Implementation Considerations
Option #1 Publish and provide access to adjusted AQEW data sooner	Expand the data sets to provide adjusted AQEW data sooner, as per the following schedule: • 'Initial' adjusted AQEW data published 7 calendar days after the trade day • 'Preliminary' adjusted AQEW data published 10 business days after the trade day • 'Final' adjusted AQEW data published 20 business days after the trade day (as is being done currently) All three data sets would be produced and published as part of the IESO's settlement processes and the ICI peak hour would continue to be determined on the basis of the 'Final' adjusted AQEW data as per the current practice	• The quality of the 'Initial' and 'Preliminary' data will be different than that of the 'Final' data since it is dependent on meter data processes and participants' effectiveness in responding to meter trouble issues • As a result, the earlier data should only be used as a means of early indication and not confirmation of the peak hour and its ranking • Final determination is still 20 business days after the trade day • Stakeholders have indicated that even with the different quality in the data, it would still be valuable as it provides some visibility and indication of the status of the peak hour	• Publishing the 'Initial' and 'Preliminary' adjusted AQEW data set is a relatively small project • Changes are limited to updates to the IESO internal reporting processes and several IESO web pages • Implementation would be managed by the IESO Change Management and Baseline processes • The IESO is proceeding with this option, and will conduct additional engagement with stakeholders to better understand how the new data sets should be presented on the IESO website • Working towards a May 1, 2020 implementation date for the 2020 – 2021 base period

[8] The IESO currently publishes the latest and most up-to-date Ontario demand forecast, among other information, that is being used to plan and operate Ontario's power system. The IESO's current forecasting methods provide the most accurate forecast and can be adjusted in real-time in order to maintain reliability while providing transparent market signals to market participants and stakeholders. The IESO continuously monitors its demand forecasts and periodically makes enhancements to the model as system conditions change and evolve.

Option #2 Use Ontario demand data to determine ICI peak hour	Use Ontario Demand data, which is available in real-time, to determine the peak day and hour. Adjusted AQEW will still need to be used to determine the system peak value for the peak day and hour ICI participants have indicated that the current 20-business-day lag in publishing peak hour data impacts their ability to make informed decisions regarding the operation of their facility in real time The Peak Demand Factor is used to establish a charge and must therefore align with federal protocols. For this reason, using adjusted AQEW values to determine the five Ontario system peak quantities and the establishment of the Peak Demand Factor must be maintained	• Eliminates or reduces the 20-day business lag associated with the current methodology • The relationship between adjusted AQEW and Ontario Demand shows the profiles are closely aligned, but not exact • Analysis is limited to understanding the implications of using Ontario Demand to declare peak hour and the coincident adjusted AQEW method to support the ICI program – detailed assessment is required	• Requires changes to O. Reg. 429/04 • Requires development of new IESO internal reporting and publication processes and changes to the IESO website • ICI participants would need to make adjustments to the tools they use to support the ICI program • Implementation would need to start at the beginning of the base period on May 1st, and, given the more detailed assessment required and the scope of change needed, the earliest implementation would be May 1, 2021, if the regulatory changes were in place

Option #1 – Publish and provide access to adjusted AQEW data sooner

The ICI program is based on the top five Ontario system peak hours during the base period which runs from May 1 to April 30. ICI 'peak hours'[9] are determined by the IESO using adjusted AQEW data. AQEW data is revenue-quality meter data that is derived from registered wholesale meters and adjusted AQEW data is defined as the total energy withdrawn by market participants net of the Sir Adam Beck Pump Generating Station, Fort Frances Power Corporation and ancillary services[10]. Adjusted AQEW data is produced as part of the IESO's market settlement processes and is published in accordance with the Physical Market Settlement Schedule timelines for 'Final' settlement statements. The 'Final' adjusted AQEW data is published 20 business days after the trade day and only the highest peak hour of the day is used.

In looking for opportunities to provide ICI participants with access to adjusted AQEW data sooner, the IESO considered the introduction of two additional adjusted AQEW data points. Publication of the three adjusted AQEW data points would include:

[9] As defined in O. Reg. 429/04, s.5(1).
[10] As per O. Reg. 429/04, s.5(2).

- 'Initial' adjusted AQEW data published 7 calendar days after the trade day
- 'Preliminary' adjusted AQEW data published 10 business days after the trade day
- 'Final' adjusted AQEW data published 20 business days after the trade day (as is being done today)

All three data sets would be produced and published as part of the IESO's settlement processes and the ICI peak hour would continue to be determined on the basis of the 'Final' adjusted AQEW data, as per the current practice.

While publishing adjusted AQEW data sooner would address stakeholder's comments regarding access to billing data, it is important to note that there is a difference in the quality of the 'Initial' and 'Preliminary' data, as compared to 'Final' data, which is the data that is used to determine the ICI peak hour.

For this assessment, the IESO reviewed the five historical base periods from 2014 – 2019 and compared the 10 highest peak hours based on 'Initial' and 'Preliminary' adjusted AQEW data to the 'Final' adjusted AQEW data[11]. The broader data set was intentionally used to provide a better understanding of the relationship between the individual peaks and any misalignment that occurs across data sets[12].

This option was discussed with AMPCO's Board of Directors and the organization's broader membership, who understood that the quality of 'Initial' and 'Preliminary' data improves throughout the settlement process and the quality of the data is largely outside of the IESO's control. AMPCO indicated that publication of this information is still valuable as it provides some visibility and indication of the status of the peak hour. From the discussions, AMPCO understood that the use of the 'Initial' and 'Preliminary' adjusted AQEW data is to be used at the consumer's own risk.

From an implementation perspective, publishing the 'Initial' and 'Preliminary' adjusted AQEW data set is a relatively small project and the changes are limited to updates to IESO internal reporting processes and the Peak Tracker and Demand Power Data IESO webpages. As with any Technical Interface changes to the public reports site, the implementation would be managed through the IESO Change Management and Baseline processes.

Based on the analysis and stakeholder feedback, the IESO has decided to proceed with this option. The IESO will undertake additional engagement with stakeholders to better understand how 'Initial' and 'Preliminary' adjusted AQEW should be presented on the IESO website with the goal of a May 1, 2020 implementation date for the 2020 – 2021 base period.

Option #2 – Use Ontario Demand data to determine ICI peak hour

ICI participants have indicated that the current 20-business-day lag in publishing peak hour data impacts their ability to make informed decisions regarding the operation of their facilities in real-time. Recommendations have been made that the IESO consider using Ontario Demand data, which is available in real-time, to determine the peak day and hour. AQEW will still need to be used to determine the charge for that hour.

[11] See Appendix E for the detailed data observations for Option #1.
[12] See Appendix F for the data analysis of Option #1.

As noted in Option #1, a peak hour is determined using adjusted AQEW data[13]. Publication of peak hour data includes confirmation of the day, hour, adjusted AQEW value and ranking. While Option #1 could potentially improve the identification of a peak hour, its final determination is still 20 business days after the trade day. Option #2 considers the implications of using Ontario Demand data to determine peak hours, which would eliminate or reduce the 20-business-day lag associated with the current methodology.

Ontario Demand data is published every hour after the hour and is based on the real-time Constrained Totals Report[14] using dispatch schedules and not measured values.

Each ICI participant's Peak Demand Factor is the ratio of its consumption contribution to the top five Ontario system peak hours during the applicable base period. From the IESO's perspective, the Peak Demand Factor must be based on a legal unit of measure (MWh) as it is used to establish a charge and therefore must align with federal protocols, specifically Measurement Canada and the *Electricity and Gas Inspection Act*. For this reason, using adjusted AQEW values to determine the five Ontario system peak quantities and the establishment of the Peak Demand Factor, must be maintained.

It may however, be possible to use the combination of Ontario Demand data and adjusted AQEW data to identify the peak hour. This would be achieved by using Ontario Demand values to identify the peak day attributes (i.e., the day, hour and ranking) and using the adjusted AQEW value coincident with the Ontario Demand peak day attributes to establish the Ontario system peak value. While this method continues to use adjusted AQEW data, the identification and declaration of a peak hour is solely based on Ontario Demand data and therefore could be declared as early as the next day.

As part of the analysis of this option, it is understood that Ontario Demand values and adjusted AQEW values are two distinctively different representations. Ontario Demand is based on dispatch schedules used to supply Ontario loads while the adjusted AQEW is the actual measured system load[15]. Although the two representations are different, they are interrelated and therefore warrant consideration.

To assess the viability of this option, the IESO reviewed seven historical base periods from 2012 – 2019 and compared the Ontario Demand peak day attributes with coincident adjusted AQEW data (the proposed method) to the adjusted AQEW peak hours (current method)[16][17].

From an implementation perspective, in addition to the need for a detailed impact assessment, implementation of this option would require regulatory amendments to O. Reg. 429/04 as the proposed method deviates from the definition of peak hours and net volume of electricity withdrawn from the IESO-controlled grid[18].

Implementation would also require development of new internal reporting and publication processes and changes to the IESO corporate website, in particular the Peak Tracker and Demand Power Data web

[13] In accordance with O. Reg. 429/04 s.5.
[14] See Appendix G for the Ontario Demand Report.
[15] As defined in O. Reg. 429/04.
[16] See Appendix H for the detailed data observations for Option #2.
[17] See Appendix I for the data analysis of Option #2.
[18] As referenced in O. Reg. 429/04 s.5(1) and 5(2).

pages. Verification and publication of ICI peak day attributes would be done no later than 48 hours after the trade day as this time will be needed in the event issues arise with the publication of Ontario Demand, where an overriding process exists to ensure that ICI peak day publication is delivered as per established timelines. An estimated nine-month lead time is required to implement these changes into IESO processes and systems. Additional lead time will also be needed for the marketplace that supports ICI participants and consumers to enable them to make adjustments to the tools they currently use to support the ICI program.

A key consideration in implementation of this change is that it would need to be in place at the start of the base period, which is always May 1. Given the effort and scope of change needed for this initiative, the earliest implementation date would be May 1, 2021, and would also be dependent on the implementation of the required regulation changes.

IESO Recommendation

The IESO is proceeding with the implementation of Option #1 on May 1, 2020 for the 2020 – 2021 base period. This project will introduce changes to current IESO reporting functions, but does not introduce any changes to the current construct of the ICI program or regulation. This is a relatively small project that will yield immediate benefit to ICI participants.

Conclusion

The IESO has gained valuable insight from the Ministry's industrial electricity pricing consultations and through the reviews conducted for this report.

As a result, a number of enhancements have been identified, with some already implemented, or scheduled for implementation shortly, including many customer service improvements as well as enhancements to the IESO reporting functions related to the ICI.

The report provides recommendations in each of the four review areas and the IESO looks forward to discussing these with the Ministry.