
INDEPENDENT ELECTRICITY SYSTEM OPERATOR

2018 Annual Report

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Message from the President & CEO



Transformation of Ontario's energy landscape continues to challenge existing and new players alike to anticipate and prepare for what's coming next.

Not surprisingly then, planning for an uncertain future has become an increasingly important part of our efforts to ensure the reliability of Ontario's power system. In this operating environment that means managing change on a 24/7 basis. At the most fundamental level, we are the grid operator and system planner – it's our job to continue to plan for and meet the province's electricity needs, even as the sector continues to evolve at an unprecedented rate.

From our vantage point, we are uniquely positioned to shape the future of the sector in ways that will benefit all Ontarians. As a purpose-driven organization, what we do goes beyond merely keeping the lights on. In practical terms, this means we're increasingly playing a leadership role in facilitating the work required to deliver broader value to consumers and the industry.

In 2018, this ranged from addressing cyber threats across the sector and facilitating innovation, to increasing transparency around planning to give stakeholders the information they need to make informed investment and operational decisions.

In keeping with efforts to reduce the cost of electricity for Ontarians, the IESO is committed to improving affordability by delivering the most cost-effective system for consumers. Our focus on cost-effectiveness is also the reason we are holding our revenue requirement flat this year. If approved by the Ontario Energy Board, our 2019 operating budget will remain unchanged for the third consecutive year.

When it comes to delivering value for every dollar spent, the Market Renewal Program (MRP) continued to be the IESO's primary focus in 2018. When fully implemented, it will allow the IESO to schedule, procure and dispatch resources to meet the province's growing reliability needs at the lowest cost, while creating a strong foundation for managing future change.

With transformation becoming the new normal, in 2018 the IESO developed a multi-year Innovation Roadmap that reflects potential changes, challenges and opportunities facing the sector through 2030. Driven by the need to improve the long-term reliability and cost-effectiveness of our electricity system, the Roadmap lays out our priorities, and focuses on how identifying and removing barriers to competition will translate into greater affordability for consumers.

Given the increasing interconnectedness of the system and our critical role in ensuring reliability, security is – and will remain – a priority for the IESO. Our leadership role in the area of cybersecurity is already being recognized within and beyond Ontario's borders.

In 2018, we continued to bring together sector counterparts, as well as the world's leading cybersecurity policy experts to share best practices in addressing existing and emerging cybersecurity issues. As the only system operator in North America with accountability for providing cybersecurity services to the broader electricity sector, the IESO also made significant progress in delivering on its expanded cybersecurity mandate.

There's no question that disruption will continue to characterize the industry for years to come. But the IESO and its sector partners have become accustomed to dealing effectively with uncertainty – and to working together in support of better outcomes for all Ontarians. In 2019, I have every confidence we will continue to achieve new performance benchmarks. We have a clear mandate, a strategy that will help us turn today's challenges into tomorrow's opportunities, and a commitment to continue to reliably and cost-effectively meet the province's energy needs.

A stylized, handwritten signature of Peter Gregg in black ink.

Peter Gregg
President & CEO

2018 Year in Review

The Year in Review highlights the vital goals the IESO accomplished in 2018 with respect to ensuring the reliability of the province's power system – providing an efficient and cost-effective supply of electricity when and where it is needed. Operating the grid 24 hours a day, 365 days a year and preparing for a reliable energy future is something we, at the IESO, never take for granted. It's why we have adopted a continuous improvement approach to assessing every aspect of our business, whether enhancing our engagement process to drive better outcomes, evolving our planning products, building a more stable and robust electricity marketplace, or paving the way for the integration of new technologies into our markets and operations. Our success in achieving our objectives doesn't happen by accident. It is driven by our talented and highly skilled workforce, and by our shared commitment to continue providing value to the 14.5 million Ontarians who depend on us for reliable and affordable power every day.

Purposeful engagement and active collaboration to achieve better outcomes

Engagement aimed at harnessing the ideas, opinions and expertise of sector partners has been a priority for the IESO since its inception. As the sector has evolved and matured in recent years, the IESO has broadened the scope of its engagement. In addition to traditional stakeholders (e.g., generators, transmitters, distributors, energy services companies and large consumers, among others), the IESO has come to focus more closely on a few other groups, including First Nations and Métis communities and organizations; municipal and community officials; and new market participants.

Motivated by recent programs, technology advancements and policy decisions, many new participants have entered the marketplace. Enabling them to play a role in the continued evolution of Ontario's electricity sector remains an IESO priority. Building understanding among stakeholders, communities and other engagement audiences is already enabling more effective and informed participation and resulting in better decisions.

In 2018, we hosted 133 formal engagement meetings, with more than 5,300 stakeholders in attendance. These events focused on many aspects of the IESO's business, from planning and operations to energy efficiency and innovation.

Complementing these meetings were a series of regional electricity forums that brought together a cross-section of community and business audiences representing municipalities, Indigenous communities, local distribution companies, energy services companies and associations to explore and provide input into key electricity matters. These events are intended to highlight local initiatives and provide a platform for discussions of how local needs and perspectives can factor into broader provincial electricity planning.

Building on the success of the inaugural Indigenous Community Energy Symposium, the IESO hosted a First Nations Energy Symposium in 2018. Representatives from First Nations communities and organizations across Ontario came together to learn about opportunities in the province's electricity sector; identify and overcome barriers to economic and social development; and share their experience, expertise and ideas related to energy matters.

The 2018 Electricity Summit, meanwhile, brought together experts and innovative thinkers from across North America for discussions of consumer behaviour, drivers of innovation, new solutions, including blockchain technology, and the evolving role of distributed energy resources.

In addition to these events, the IESO also engaged with more than 1,000 people through trade shows, conferences, forums, open houses, local advisory committee meetings and meetings with municipalities.

The IESO has expanded the scope of its engagement activities, introducing mediated discussions, focus groups, live polling and online engagement tools. Engagement opportunities are also being streamlined to ensure that the IESO can continue to benefit from shared perspectives while reducing the potential burden on stakeholders, many of whom will be involved in providing input on more than one initiative.

The 2018 stakeholder survey shows 70% of stakeholders feel the engagement process is meeting their expectations. And perceptions of IESO staff commitment to engagement remain strong and unchanged, with the majority of those surveyed rating staff as “very committed.”

A significant portion of the IESO’s engagement activity in 2018 related to the Market Renewal Program (MRP). From the outset, we recognized that success in creating a marketplace that better meets the needs of both the IESO and market participants would depend, in part, on broad support from stakeholders.

As work on the MRP moves beyond the finalization of high-level designs, the IESO will continue to provide opportunities for stakeholders to participate meaningfully, while taking into account how options under consideration will affect them.

These proactive efforts are not the only means through which the IESO engages with the people and organizations affected by its decisions and operations. The IESO also responded to more than 8,000 inbound customer inquiries and conducted over 160 in-person customer visits, helping large industrial, commercial and institutional customers with market and operational matters, as well as ensuring awareness of and participation in IESO programs.

Enhancing reliability and cost-effectiveness through planning

This is a pivotal time in the evolution of Ontario’s electricity system and markets, and decisions made today will have a major impact on the grid and costs of tomorrow. For this reason, the IESO is evolving its planning processes and products to support informed, collaborative decision-making.

As part of its broad mandate, the IESO identifies and plans for Ontario’s future electricity needs. This includes forecasting electricity demand and system needs for electricity services well in advance of when they might occur. This is a dynamic process. Driven by the need to enhance planning transparency, which includes sharing data, analysis and expertise, and to prepare for changing information requirements and obligations related to the MRP, the IESO focused on renewing its approach to planning and engagement in 2018.

As part of these efforts, the IESO held its first-ever Technical Planning Conference – a core event intended to bring together the many groups impacted by the IESO’s planning processes – to better understand the factors and assumptions that underpin our plans. Attracting more than 100 attendees, this conference enabled a range of important discussions of anticipated system needs for energy, capacity and ancillary services that support reliability.

This information enables stakeholders and communities to evaluate business and investment opportunities to guide their participation in the evolving markets. In addition to seeing the IESO’s completed assessments, some groups wanted to understand the data that was used to prepare them, as well as the IESO’s assumptions and methodologies to undertake their own risk and opportunity assessments.

The IESO released an updated 20-year planning outlook at the conference and committed to engaging with stakeholders and sharing updated outlooks on an annual basis, which will support their operational, investment and asset management decisions. The information contained in the annual planning outlook will be informed by the development of the IESO’s bulk planning process and coordinated with ongoing market development activities, including the incremental capacity auction (ICA).

In light of the shift to more competitive electricity markets through the MRP, and the rapid development and availability of new technologies and tools, bulk system planning processes must evolve to accommodate and support these changes. Through an engagement launched in 2018, the IESO will be seeking feedback from communities and stakeholders on the design of a formal integrated bulk system planning process.

In parallel, the IESO is also seeking feedback on lessons learned and findings from the previous cycle of regional planning and other initiatives, such as pilots and studies. As part of this engagement, the IESO will be reviewing potential barriers to implementing non-wires solutions in regional planning, as well as cost-effective, long-term approaches to replacing end-of-life transmission assets.

The evolution of the IESO's planning products – analyses, reports and other documents – began in earnest in 2018, but is expected to continue for several years as improvements are identified and implemented in phases. Going forward, the IESO will support two streams of IESO planning publications, one that ensures a viable operating plan and one that signals resource adequacy needs over the longer term through the annual planning outlook.

To support the first stream, the *18-Month Outlook* has been reimagined and relaunched as the *Reliability Outlook*, a quarterly report with an 18-month horizon that extends out 60 months biannually. This report presents Ontario's demand forecast and associated drivers, resource adequacy projections and the assumptions that inform them, as well as an assessment of operability and the province's transmission assets. The extended versions of the *Reliability Outlook* will be published every June and December, and will explore the factors that can impact resource adequacy and require the IESO to address associated reliability risks through outage management – which will become increasingly important as the IESO prepares for ongoing nuclear outages and refurbishments.

Energy efficiency: Reducing costs, delivering a critical resource

Since 2015, the IESO and local distribution companies have helped Ontario's residential and business consumers reduce electricity consumption by 6.1 TWh – or the equivalent of powering 660,000 homes for one year. Thanks to well-established conservation programs, which have led to measurable improvements in consumer awareness and behaviour in recent years, these savings are expected to yield long-term benefits – both by contributing to energy planning and reducing the need to invest in new generation.

Today, energy-efficiency programs do much more than reduce consumers' electricity bills and give businesses a competitive edge. At about two cents per kilowatt-hour, energy efficiency continues to be the province's most cost-effective resource, and its benefits are factored into system planning and decision-making, as well as reliability in terms of supply, transmission and distribution infrastructure. Going forward, the IESO will continue to explore how energy efficiency fits into local, regional and province-wide resource needs, and its role in meeting Ontario's future capacity and supply needs.

At the same time, as part of broader efforts to improve electricity affordability, the IESO is committed to finding innovative ways to provide energy solutions that help consumers control energy costs. To that end, we are working with our partners to move to an IESO-led delivery model – and to focus on the programs that have cost-effectively produced results by delivering a key resource to the supply mix, streamlining administration for customers, and lowering costs for consumers.

Enhancing future markets: driving reliability and affordability through market renewal

As market operator, ensuring open and competitive wholesale electricity markets is core to increasing efficiency and delivering reliability at the lowest cost to the province's consumers. To support a more efficient, stable marketplace, in 2017 the IESO formally launched the Market Renewal Program (MRP), a multi-year project that is anticipated to achieve savings of \$3.4 billion province-wide over a 10-year period.

The program was driven by the need to address existing inefficiencies with the outdated market design, while enabling the IESO to keep pace with sector-wide developments that have changed – and are continuing to change – the playing field for electricity markets. At a high level, market renewal will help ensure the IESO is maximizing value for consumers by improving how it supplies, schedules and prices electricity to meet Ontario's future needs.

The MRP comprises four initiatives: three in the energy stream – the single schedule market, day-ahead market and enhanced real-time unit commitment – and one in the capacity stream. The latter initiative, the ICA, will provide an open platform for resources to compete to meet resource adequacy needs, while giving the IESO the flexibility to reassess and adjust capacity requirements annually. Taken together, these four initiatives will create a competitive framework to meet system and market participant needs at lowest cost, and provide a strong foundation for adapting to future change.

Following months of regular engagement with stakeholders, the IESO met a 2018 corporate performance measure (CPM) with the release of high-level designs for each of the three initiatives in the energy stream. These documents serve as blueprints, summarizing the major design decisions the IESO is proposing to achieve the goals of each project, and providing a stepping-off point for the detailed design phase of the project.

Throughout 2018, work also continued on the high-level design for the ICA, which will provide a market-based approach to meeting Ontario's resource adequacy needs, beyond those currently delivered under contract or through rate regulation.

Based on a model already used in North America, the UK and Europe, capacity auctions provide flexibility for the system and a revenue commitment to suppliers to make required capacity available in the future.

Given the experiences and lessons learned in these jurisdictions, the benefits are clear. Capacity auctions create a competitive market for suppliers, delivering the most efficient outcomes, increasing the system's ability to adjust to changing supply-demand dynamics, and unlocking capacity from existing assets and the demand side.

With implementation of the ICA targeted for the end of 2022 – to meet needs for summer 2025 – the IESO is building on the design fundamentals of the ICA to inform a transitional capacity auction aimed at meeting near-term needs. This will provide an opportunity for generators whose contracts are expiring over the next few years, as well as imports and other resources, to participate alongside demand response (DR) in our electricity market and help meet emerging capacity needs.

To achieve this goal, at the end of 2019 the IESO will evolve the DR auction to obtain capacity for 2020 onward, providing an effective trial run for the ICA by allowing both the IESO and market participants to continue to learn and improve processes during the transition period.

Given the far-reaching impact of the MRP on Ontario's almost-\$19-billion electricity markets, the IESO is also committed to ongoing engagement and communications aimed at helping market participants and broader audiences, including consumers, understand the scope and value of the program.

The IESO is laying the foundation to examine the needs and opportunities for further market enhancements to ensure that our electricity markets can continue to deliver a reliable system cost-effectively. This work commenced with the MRP and will need to continue to ensure the IESO can adapt effectively to the changes that are taking place in the broader electricity sector.

As part of this comprehensive market development work, the IESO will continue to work with market participants and stakeholders. A key element of the IESO's engagement approach is the establishment of a Market Development Advisory Group (MDAG). The main objective of the MDAG is to support IESO efforts to evolve the Ontario electricity markets beyond the MRP, to cost-effectively ensure reliability in the near and longer term.

MACD: Strengthening market design

When it comes to promoting efficiency and competition in the wholesale sale and purchase of electricity and ancillary services, reforming Ontario's electricity markets is only one side of the equation. Fostering compliance with the market rules that govern the conduct of market participants is as important as identifying design opportunities to enhance market performance. That's the role of the enforcement unit of the IESO's Market Assessment and Compliance Division (MACD), which enables and enforces compliance with market rules. MACD proactively educates market participants, investigates potential breaches and enforces compliance with the rules, and through its market monitoring activities, identifies possible loopholes and inefficiencies in existing market rules, further enhancing strong market design.

In 2018, MACD was active in 20 significant investigations, audits and payment recoveries of matters in excess of \$200 million, as well as those of significant impact to reliability. In the previous three years, MACD has returned more than \$120 million to the market through enforcement actions.

As of December 31, 2018, the IESO was managing more than 33,700 electricity resource contracts, representing over 26,700 MW of capacity, with annual contract settlements in excess of \$7 billion. Ongoing administration of these contracts involves enforcing contract provisions, negotiating, finalizing and implementing amendments, and resolving commercial disputes, as well as building and maintaining models for calculating and issuing contract payments.

As an example, administration of the IESO's largest contract – the Amended and Restated Bruce Power Refurbishment Implementation Agreement, which represents approximately one-third of Ontario electricity system's total energy output – requires open-book oversight and extensive due diligence activities related to operations and life-extending refurbishments. Operational efficiencies identified since the agreement's execution in December 2015 will lead to \$200 million in savings between 2019 and 2021, benefitting the electricity system as a whole and reducing electricity costs for Ontario consumers.

Facilitating innovation to drive sector evolution and affordability

In an energy landscape characterized by dramatic change, electricity system operators around the world are exploring the role of innovation in translating disruption into value – and the IESO is no exception.

With advances in technology driving this transformation, in 2018 the IESO leveraged its position at the heart of the province's power system to facilitate dialogue aimed at identifying challenges and opportunities for energy-related innovation. The catalyst was simple and pragmatic – we need to understand the challenges and opportunities that emerging technologies, new business models and changing consumer needs pose for the electricity sector before taking action to address them.

With this in mind, the IESO is focused on enabling innovation that will drive both increased competition in IESO-administered electricity markets and more efficient and effective operations.

Innovation Roadmap: Identifying and acting on innovation priorities

This is where the IESO's Innovation Roadmap, a 2018 CPM, comes into play. Developed with input from over 200 stakeholders, the Roadmap articulates the IESO's role in monitoring and enabling innovation-related activities across the sector. It also explores how we will leverage internal expertise for the benefit of the province's consumers, all while taking a closer look at the IESO's own practices and processes with a view to building a culture of innovation.

Core to this work is the understanding that increasing competition means greater affordability for the province's consumers. That's why identifying and removing barriers to the competition of existing innovative solutions – owned by Ontario homes and businesses – is such a critical component of the IESO's innovation agenda.

The Roadmap also clarifies and prioritizes how the IESO's work and its programs, including the Grid Innovation Fund, will enable other stakeholders to move ahead with innovations that support the electricity system.

One area that continues to pose both a challenge and an opportunity for system operators, including the IESO, is the rapid growth of intermittent and distributed energy resources (DERs), like energy storage. The challenge lies in increasing visibility to distribution-connected storage for system planning and operational purposes. The opportunity lies in enabling Ontario-owned resources to compete in the IESO-administered markets, increasing competition and affordability for consumers. Going forward, the IESO will prepare for increases in customer- and LDC-led deployment of DERs, taking into consideration a number of factors, including the impact on supply and resource planning.

On a longer-term basis, the IESO is anticipating and preparing for scenarios related to the expected growth of DERs before 2030 – the end of the planning horizon for the current Roadmap. These include DERs being incorporated into LDC distribution system plans or micro-grids and participating in IESO-administered markets either individually or in aggregation. In both cases, integration into the grid increases cybersecurity risks, and the need for greater investments in this area.

As Ontario moves to a more competitive and technology-neutral approach to acquiring products and services, unlocking the value of new and existing resources has also emerged as a top innovation priority.

To that end, in 2018 the IESO struck an Energy Storage Advisory Group, which identified barriers to the fair competition of energy storage in the province's electricity markets. The resulting report – *Removing Obstacles for Storage Resources in Ontario* – outlined a series of recommendations for electricity market, regulatory and policy change aimed at establishing a level playing field for this increasingly important and versatile resource.

Enhancing the value of data: Smart Metering Entity Third-Party Access Implementation Plan

While technology is driving changes to grid operations, it's also facilitating new capabilities – through, for example, the “Internet of things” and smart meters – to collect, analyze and use data that support innovation. In 2018, in its role as the Smart Metering Entity (SME) for Ontario, the IESO met another CPM with the submission to the Ontario Energy Board of an implementation plan to make de-identified smart meter data available to approved third parties – an initiative that promises to yield benefits, both inside and outside the sector.

The implementation model is still under review; however, the IESO expects third-party access to the energy consumption data from Ontario's smart meters will help drive innovations in a number of areas, including energy efficiency, planning, and adequacy assessments, as well as commercial activity and research.

Establishing cybersecurity leadership

Another top priority is the need to address emerging cyber threats – an area where the organization made significant headway in 2018. In addition to expanding cyber threat management and detection capabilities that protect the corporate network, the IESO achieved a cybersecurity milestone with the establishment of a security operations centre to provide near-real-time cybersecurity situational awareness and 24/7 cybersecurity monitoring to improve incident detection and response.

In 2018, the IESO continued to deliver on its commitment to establish itself as a cybersecurity thought leader in Ontario and North America. In October, the organization held its fourth invitation-only executive briefing on cybersecurity, bringing together sector counterparts and some of the world's leading cybersecurity policy experts. This annual event complements the existing work of the IESO's Cybersecurity Forum, which was created to improve cybersecurity within the province's electricity sector by identifying emerging trends and collaborating on and sharing best practices to address them.

In addition to more fully engaging industry executives, the IESO made substantial progress in delivering on its new cybersecurity mandate. As the only system operator in North America to have its licence amended to include accountability for providing cybersecurity services to the broader electricity sector, the IESO is using its first-of-its-kind partnership with the Canadian Centre for Cyber Security and Canadian Cyber Threat Exchange to roll out a robust information-sharing capability. This includes an online portal that serves as a one-stop shop for cybersecurity information exchange with local distribution companies.

Management Report

Management's Responsibility for Financial Reporting

The accompanying financial statements of the Independent Electricity System Operator are the responsibility of management and have been prepared in accordance with Canadian public sector accounting standards. The significant accounting policies followed by the Independent Electricity System Operator are described in the Summary of Significant Accounting Policies contained in Note 2 in the financial statements. The preparation of financial statements necessarily involves the use of estimates based on management's judgment, particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods. The financial statements have been prepared within reasonable limits of materiality and in light of information available up to February 27, 2019.

Management maintained a system of internal controls designed to provide reasonable assurance that the assets were safeguarded and that reliable information was available on a timely basis. The system included formal policies and procedures and an organizational structure that provided for the appropriate delegation of authority and segregation of responsibilities.

These financial statements have been examined by the Auditor General of Ontario, an independent officer of the Legislative Assembly appointed by the Board of Directors. The auditor's responsibility is to express an opinion on whether the financial statements are fairly presented in accordance with generally accepted accounting principles in Canada. The Independent Auditor's Report, which follows, outlines the scope of their examination and their opinion.

INDEPENDENT ELECTRICITY SYSTEM OPERATOR

On behalf of management,



Peter Gregg

President and Chief Executive Officer
Toronto, Ontario
February 27, 2019



Barbara Anderson

Chief Financial Officer and Vice President,
Corporate Services
Toronto, Ontario
February 27, 2019

Independent Auditor's Report

To the Board of Directors of the Independent Electricity System Operator

Opinion

I have audited the financial statements of the Independent Electricity System Operator (IESO), which comprise the statement of financial position as at December 31, 2018, the statements of operations and accumulated deficit, remeasurement gains and losses, change in net debt and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the IESO as at December 31, 2018 and the results of its operations, remeasurement gains and losses, change in net debt and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

I conducted my audit in accordance with Canadian generally accepted auditing standards. My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I am independent of IESO in accordance with the ethical requirements that are relevant to my audit of the financial statements in Canada, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Other Matter

The financial statements of IESO for the year ended December 31, 2017, were audited by another auditor who expressed an unmodified opinion on those statements on March 27, 2018.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing IESO's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless management either intends to liquidate the IESO or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing IESO's financial reporting process.

Auditor's Responsibility for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the IESO's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on IESO's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause IESO to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.



Bonnie Lysyk, MBA, FCPA, FCA, LPA
Auditor General

February 27, 2019
Toronto, Ontario

Statement of Financial Position

As at (in thousands of Canadian dollars)

December 31, 2018

December 31, 2017

		(restated Note 3)
	\$	\$
FINANCIAL ASSETS		
Cash	156,124	64,214
Accounts receivable	111,257	41,429
Long-term investments (Note 4)	43,670	45,276
TOTAL FINANCIAL ASSETS	311,051	150,919
LIABILITIES		
Accounts payable and accrued liabilities (Note 5)	61,382	37,264
Debt (Note 7)	245,000	120,000
Accrued pension liability (Note 8)	30,566	33,882
Accrued liability for employee future benefits other than pension (Note 8)	131,524	122,877
TOTAL LIABILITIES	468,472	314,023
NET DEBT	(157,421)	(163,104)
NON-FINANCIAL ASSETS		
Net tangible capital assets (Note 9)	103,952	100,794
Prepaid expenses	6,234	6,809
TOTAL NON-FINANCIAL ASSETS	110,186	107,603
ACCUMULATED DEFICIT		
Accumulated deficit from operations	(54,804)	(65,985)
Accumulated remeasurement gains	7,569	10,484
ACCUMULATED DEFICIT (Note 6)	(47,235)	(55,501)
Contingencies (Note 15)		
See accompanying notes to financial statements		

On behalf of the Board:



Margaret Kelch
Chair
Toronto, Canada



Cynthia Chaplin
Director
Toronto, Canada

Statement of Operations and Accumulated Deficit

For the year ended December 31 (in thousands of Canadian dollars)	2018	2018	2017
	Budget \$	Actual \$	(restated Note 3) \$
IESO CORE OPERATIONS			
System fees	190,803	194,341	184,014
Other revenue	3,815	5,027	4,145
Interest and investment income	1,500	2,996	2,312
Core operation revenues	196,118	202,364	190,471
Core operation expenses (Note 11)	(196,118)	(197,153)	(187,558)
Core operations surplus before rebates	-	5,211	2,913
Rebates issued to market participants (Note 6)	-	-	(4,000)
Core operations surplus/(deficit)	-	5,211	(1,087)
OTHER GOVERNMENT PROGRAMS			
Government transfer	150,449	289,204	2,696
Government transfer expenses (Note 11)	(150,449)	(289,204)	(2,696)
Government transfer surplus/(deficit)	-	-	-
SMART METERING ENTITY			
Smart metering charge	34,915	34,542	47,278
Smart metering expenses (Note 11)	(31,824)	(28,433)	(24,716)
Smart metering entity surplus	3,091	6,109	22,562
MARKET SANCTIONS AND PAYMENT ADJUSTMENTS			
Market sanctions and payment adjustments	7,616	6,244	3,176
Customer education and market enforcement expenses (Note 11)	(7,922)	(6,383)	(3,261)
Market sanctions and payment adjustments deficit	(306)	(139)	(85)
SURPLUS	2,785	11,181	21,390
ACCUMULATED DEFICIT FROM OPERATIONS, BEGINNING OF PERIOD	(65,985)	(65,985)	(87,375)
ACCUMULATED DEFICIT FROM OPERATIONS, END OF PERIOD	(63,200)	(54,804)	(65,985)

See accompanying notes to financial statements

Statement of Remeasurement Gains and Losses

For the year ended December 31 (in thousands of Canadian dollars)

	2018	2017
		(restated Note 3)
	\$	\$
ACCUMULATED REMEASUREMENT GAINS, BEGINNING OF PERIOD	10,484	7,906
UNREALIZED GAINS/LOSSES ATTRIBUTABLE TO:		
Foreign exchange – other	579	456
Portfolio investments	(2,465)	2,599
AMOUNTS RECLASSIFIED TO THE STATEMENT OF OPERATIONS:		
Foreign exchange – other	(456)	(477)
Portfolio investments	(573)	–
NET REMEASUREMENT (LOSSES) GAINS FOR THE PERIOD	(2,915)	2,578
ACCUMULATED REMEASUREMENT GAINS, END OF PERIOD	7,569	10,484

See accompanying notes to financial statements

Statement of Change in Net Debt

For the year ended December 31 (in thousands of Canadian dollars)	2018	2018	2017
	Budget \$	Actual \$	(restated Note 3) \$
SURPLUS	2,785	11,181	21,390
CHANGE IN NON-FINANCIAL ASSETS			
Acquisition of tangible capital assets	(45,300)	(27,293)	(16,774)
Amortization of tangible capital assets	22,292	24,135	21,027
Change in prepaid expenses	-	575	(195)
TOTAL CHANGE IN NON-FINANCIAL ASSETS	(23,008)	(2,583)	4,058
NET REMEASUREMENT GAINS/LOSSES FOR THE PERIOD	-	(2,915)	2,578
CHANGE IN NET DEBT	(20,223)	5,683	28,026
NET DEBT, BEGINNING OF PERIOD	(163,104)	(163,104)	(191,130)
NET DEBT, END OF PERIOD	(183,327)	(157,421)	(163,104)

See accompanying notes to financial statements

Statement of Cash Flows

For the year ended December 31 (in thousands of Canadian dollars)

	2018	2017
		(restated Note 3)
	\$	\$
OPERATING TRANSACTIONS		
Change in accumulated surplus:		
Surplus	11,181	21,390
	11,181	21,390
Changes in non-cash items:		
Amortization	24,135	21,027
Unrealized foreign exchange gains/(losses) for the period	123	(21)
Pension expense	10,898	7,966
Other employee future benefits expense	11,206	11,167
Gain on disposal of long-term investments	(573)	-
	45,789	40,139
Changes in non-cash balances related to operations:		
Change in accounts payable and accrued liabilities	22,873	(230)
Change in accounts receivable	(69,828)	(16,235)
Change in rebates due to market participants	-	(12,551)
Change in prepaid expenses	575	(195)
	(46,380)	(29,211)
Other:		
Contribution to pension fund	(14,214)	(13,502)
Payment of employee future benefits	(2,559)	(2,636)
	(16,773)	(16,138)
Cash applied/provided by operating transactions	(6,183)	16,180
CAPITAL TRANSACTIONS		
Acquisition of tangible capital assets	(27,293)	(16,774)
Change in accounts payable and accrued liabilities related to tangible capital assets	1,245	(1,784)
Cash applied to capital transactions	(26,048)	(18,558)
INVESTING TRANSACTIONS		
Purchase of long-term investments	(1,697)	(2,322)
Proceeds on sale of long-term investments	838	-
Cash applied to investing transactions	(859)	(2,322)
FINANCING TRANSACTIONS		
Issuance of debt	125,000	30,000
Cash provided by financing transactions	125,000	30,000
INCREASE IN CASH	91,910	25,300
CASH - BEGINNING OF PERIOD	64,214	38,914
CASH - END OF PERIOD	156,124	64,214

See accompanying notes to financial statements

Notes to Financial Statements

1. NATURE OF OPERATIONS

The Independent Electricity System Operator (IESO) is a not-for-profit, non-taxable, corporation established pursuant to Part II of the *Electricity Act, 1998* (the Act). As set out in the Act, the IESO operates pursuant to a licence granted by the Ontario Energy Board (OEB).

The IESO operates the IESO administered markets and the OEB has regulatory oversight of electricity matters in Ontario. In addition, in 2007 the IESO was designated the Smart Metering Entity (SME) by Ontario statute. In its role as the SME, the IESO maintains and operates the province's smart metering data management / repository, the central hub for processing, storing and protecting electricity consumption data used for consumer billing by local distribution companies.

In 2018, the IESO's licence was amended to require the organization to provide and promote centralized cybersecurity information services in conjunction with licenced transmitters and distributors. Under the amendment, these services include providing situational awareness of potential threats that may affect the electricity sector, and developing an information exchange mechanism for sharing cybersecurity best practices to improve sector understanding of associated risks and solutions.

The objects of the IESO are contained in the Act and associated Ontario regulations. The IESO ensures the reliability of the province's power system on behalf of all Ontarians, leveraging its expertise and purposeful engagement to advance energy policy that cost effectively achieves this goal. As part of its mandate, the IESO operates Ontario's electricity grid in real-time, governs electricity markets, prepares for the future to ensure electricity will be available when and where it is needed and helps inform the decisions that will be critical to shaping the future of the sector.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

a) Basis of financial statement preparation

The accompanying financial statements have been prepared on a going-concern basis and in accordance with Canadian public sector accounting standards (PSAB) and reflect the following significant accounting policies.

These financial statements do not include the financial accounts and Government transfers for the IESO administered markets. A separate and distinct set of financial statements is maintained for the IESO administered markets. The IESO administered markets means the markets as prescribed by the *Electricity Act, 1998* and associated Ontario regulations.

b) Revenue recognition

System fees earned by the IESO are based on rates approved by the OEB for each megawatt of electricity withdrawn from the IESO controlled grid. System fees are recognized as revenue at the time the electricity is withdrawn. Rebates are recognized in the year in which the regulatory deferral account, before such rebates, exceeds regulated limits.

The SME's charge that is earned by the IESO is based on rates approved by the OEB for each installed smart meter in the province. Revenue is recognized in the year as it is earned.

Other revenue represents amounts that accrue to the IESO relating to investment income on funds passing through market settlement accounts, as well as application fees. Such revenue is recognized as it is earned.

Interest and investment income represents realized interest income and investment gains or losses on cash, cash equivalents, short-term investments and long-term investments.

Government transfers are recognized as revenues in the financial statements in the period in which the events giving rise to the transfer occur, providing the transfers are authorized, any eligibility criteria have been met and reasonable estimates of the amounts can be made.

Market sanctions represent funds received to offset payments disbursed related to penalties, damages, fines and payment adjustments arising from resolved settlement disputes. Such revenue is recognized as it is earned.

c) Financial instruments

The IESO records cash and cash equivalents, long-term investments and foreign currency exchange forward contracts at fair value. The cumulative change in fair value of these financial instruments is recorded in accumulated deficit as remeasurement gains and losses and is included in the value of the respective financial instrument shown in the statement of financial position and the statement of remeasurement gains and losses. Upon disposition of the financial instruments, the cumulative remeasurement gains and losses are reclassified to the statement of operations, and all other gains and losses associated with the disposition of the financial instrument are recorded in the statement of operations. Transaction costs are charged to operations as incurred.

Cash and cash equivalents comprise cash, term deposits and other short-term, highly rated investments with original maturity dates of less than 90 days.

The IESO records accounts receivable amounts due to and from market participants, accounts payable and debt at amortized cost.

d) Tangible capital assets

Tangible capital assets are recorded at cost, which includes all amounts directly attributable to the acquisition, construction, development or betterment of the asset. The IESO capitalizes applicable interest as part of the cost of tangible capital assets.

e) Assets under construction

Assets under construction generally relates to the costs of physical facilities, information technology hardware and software, and includes costs paid to vendors, internal and external labour, consultants and interest related to funds borrowed to finance the project. Costs relating to assets under construction are transferred to tangible capital assets when the asset under construction is deemed to be ready for use.

f) Amortization

The capital cost of tangible capital assets in service is amortized on a straight-line basis over their estimated service lives.

The estimated service lives, in years, from the date the assets were acquired are:

Class	Estimated Average Service Life 2018	Estimated Average Service Life 2017
Facilities	5 to 50	5 to 50
Market systems and applications	4 to 12	4 to 12
Information technology hardware and other assets	4 to 10	4 to 10
Meter data management/repository	10	10

Gains and losses on sales or premature retirements of tangible capital assets are charged to operations.

The estimated service lives of tangible capital assets are subject to periodic review. The effects of changes in the estimated lives are amortized on a prospective basis. The most recent review was completed in fiscal 2018.

g) Pension, other post-employment benefits and compensated absences

The IESO's post-employment benefit programs include pension, group life insurance, health care, long-term disability and workers' compensation benefits.

The IESO accrues obligations under pension and other post-employment benefit plans and the related costs, net of plan assets. Pension and other post-employment benefit expenses and obligations are determined annually by independent actuaries using the projected benefit method and management's best estimate of expected return on plan assets, salary escalation, retirement ages of employees, mortality and expected health-care costs. The discount rates utilized to value liabilities as at the measurement date of September 30 are based on the expected rate of return on plan assets for registered pension plan and the IESO's estimated cost of borrowing for the supplemental employee retirement and other post-employment benefit plans.

The expected return on plan assets is based on management's long-term best estimate using a market-related value of registered pension plan assets. The market-related value of plan assets is determined using the average value of assets over three years as at the measurement date of September 30.

Pension and other post-employment benefit expenses are recorded during the year in which employees render services. Pension and other post-employment benefit expenses consist of current service costs, interest expense on liabilities, expected return on plan assets and the cost of plan amendments in the period. Actuarial gains / (losses) arise from, among other things, the difference between the actual rate of return on plan assets for a period and the expected long-term rate of return on plan assets for that period or from changes in actuarial assumptions used to determine the accrued benefit obligations.

Actuarial gains / (losses) are amortized over the expected average remaining service life of the employees covered by the plan. The expected average remaining service life of employees covered by the pension plans is 14.5 years (2017 – 15 years) and other post-employment benefit plan is 16.7 years (2017 – 16.2 years).

The IESO sick pay benefits accumulate but do not vest. The IESO accrues sick pay benefits based on the expectation of future utilization and records the accrual within accounts payable and accrued liabilities.

h) Foreign currency exchange

Transactions denominated in foreign currencies are converted into Canadian dollars at the rate of exchange prevailing on the date of the transaction. Items on the statement of financial position denominated in foreign currency are converted to Canadian dollars at the rate of exchange as of the date of the financial statements. The cumulative unrealized foreign currency exchange gains and losses of items continuing to be recognized on the statement of financial position are recorded in accumulated deficit as remeasurement gains and losses and shown in the statement of financial position and the statement of remeasurement gains and losses. Upon settlement of the item denominated in a foreign currency, the cumulative remeasurement gains and losses are reclassified to the statement of operations, and all other gains and losses associated with the disposition of the financial instrument are recorded in the statement of operations.

i) Use of estimates

The preparation of the financial statements in conformity with Canadian public sector accounting standards requires management to make estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent assets and liabilities as at the date of the financial statements. The IESO's accounts that involve a greater degree of uncertainty include the carrying values of tangible capital assets, accrued pension liability and accrual for employee future benefits other than pensions. Actual results could differ from those estimates.

3. RESTATEMENT OF CORRESPONDING FIGURES

a) IESO Administered Markets Accounts

In 2016 and 2017, the IESO recorded amounts due from local distribution companies and amounts due to power generators, among others, as IESO administered markets assets and liabilities on the IESO statement of financial position. As of January 2018, the IESO removed these financial assets and obligations from the financial statements because the IESO is not a party to these financial transactions in the IESO administered markets. This adjustment has been applied retroactively and has decreased amounts previously recorded for markets accounts assets and liabilities. This change has no impact on the surplus, net debt or accumulated deficit of IESO.

b) Rate Regulated Assets

On January 1, 2011, the IESO recorded unrecovered PSAB transition items in accumulated deficit upon adoption of Canadian public sector accounting standards. Prior to 2017, the IESO also incurred certain costs pertaining to its role as the Smart Metering Entity pursuant to *Ontario Regulation 393/07* under the *Electricity Act, 1998* that were expensed as incurred.

In 2016 and 2017, the IESO incorrectly reversed its original accounting policy to expense these items and recognized two rate regulated assets on the IESO statement of financial position: 1) unrecovered PSAB transition items and 2) unrecovered smart metering expenses.

As of January 1, 2018, the IESO removed these rate regulated assets from the IESO financial statements. This adjustment has been applied retroactively and has decreased amounts previously recorded for regulatory assets and increased amounts previously reported for accumulated deficit in 2016 and 2017. As of December 31, 2017, the IESO recognized \$39,529 thousand as a rate regulated asset consisting of unrecovered PSAB transition items. A summary of the impact of this change to comparative figures for 2017 is shown in the table below.

c) Discount Rate Used for Non-Registered Pension and Other Employee Future Benefits Plans

The discount rate used to value the IESO's supplemental employee retirement and other post-employment benefit plans' liabilities previously was based on the expected rate of return on plan assets as at the measurement date. As of January 1, 2018 the discount rate utilized to value these unfunded liabilities is based on the IESO's estimated cost of borrowing as at the measurement date. The impact for this change is an increase of \$31,314 thousand in the deficit balance reported to accumulated deficit as at December 31, 2017.

d) Summary of Restatement of Comparative Figures

A detailed reconciliation of the IESO's restated statement of financial position as at December 31, 2017, as follows:

As of (in thousands of Canadian dollars)	December 31, 2017	December 31, 2017	December 31, 2017
	(as reported)	adjustments	(as restated)
	\$	\$	\$
FINANCIAL ASSETS			
Cash	64,214		64,214
Accounts receivable	41,429		41,429
Regulated assets	39,529	(39,529)	-
Long-term investments	45,276		45,276
Market accounts – assets	2,005,167	(2,005,167)	-
TOTAL FINANCIAL ASSETS	2,195,615	(2,044,696)	150,919
LIABILITIES			
Accounts payable and accrued liabilities	37,264		37,264
Rebates due to market participants	1,422	(1,422)	-
Debt	120,000		120,000
Accrued pension liability	29,229	4,653	33,882
Accrued liability for employee future benefits other than pension	96,216	26,661	122,877
Market accounts – liabilities	2,005,167	(2,005,167)	-
TOTAL LIABILITIES	2,289,298	(1,975,275)	314,023
NET DEBT	(93,683)	(69,421)	(163,104)
NON-FINANCIAL ASSETS			
Net tangible capital assets	100,794		100,794
Prepaid expenses	6,809		6,809
TOTAL NON-FINANCIAL ASSETS	107,603		107,603
ACCUMULATED SURPLUS/(DEFICIT)			
Accumulated surplus/(deficit) from operations	3,436	(69,421)	(65,985)
Accumulated remeasurement gains	10,484		10,484
ACCUMULATED SURPLUS/(DEFICIT)	13,920	(69,421)	(55,501)

A detailed reconciliation of the IESO's restated statement of operations for the year ended December 31, 2017, is as follows:

For the year ended (in thousands of Canadian dollars)	December 31, 2017	December 31, 2017	December 31, 2017
	(as reported)	adjustments	(as restated)
	\$	\$	\$
IESO CORE OPERATIONS			
System fees	180,102	3,912	184,014
Other revenue	4,145		4,145
Interest and investment income	2,312		2,312
Core operations revenues	186,559	3,912	190,471
Core operating expenses	(185,137)	(2,421)	(187,558)
Core operations annual surplus before rebates	1,422	1,491	2,913
Rebates due to market participants	(5,422)	1,422	(4,000)
Core operations deficit	(4,000)	2,913	(1,087)
OTHER GOVERNMENT PROGRAMS			
Government transfer	2,696		2,696
Government transfer expenses	(2,696)		(2,696)
Government transfer surplus	-		-
SMART METERING ENTITY			
Smart metering charge	25,655	21,623	47,278
Smart metering expenses	(24,716)		(24,716)
Smart metering entity surplus	939	21,623	22,562
MARKET SANCTIONS AND PAYMENT ADJUSTMENTS			
Market sanctions and payment adjustment	3,176		3,176
Customer education and market enforcement expenses	(3,261)		(3,261)
Market sanctions and payment adjustments deficit	(85)		(85)
(DEFICIT) / SURPLUS	(3,146)	24,536	21,390
ACCUMULATED SURPLUS / (DEFICIT) FROM OPERATIONS, BEGINNING OF PERIOD	6,582	(93,957)	(87,375)
ACCUMULATED SURPLUS / (DEFICIT) FROM OPERATIONS, END OF PERIOD	3,436	(69,421)	(65,985)

4. LONG-TERM INVESTMENTS

Long-term investments in a balanced portfolio of pooled funds are valued by the pooled funds manager based on published price quotations and amount to \$43,131 thousand (2017 – \$44,811 thousand). As at December 31, the market value allocation of these long-term investments was 61.3% equity securities and 38.7% debt securities (2017 – 62.8% and 37.2%, respectively). In addition to the balanced portfolio of pooled funds, the IESO has a long-term deposit with Canada Revenue Agency in the amount of \$539 thousand (2017 – \$465 thousand) pertaining to the Retirement Compensation Arrangements Trust (Note 8).

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Opening balance – pooled funds	44,811	39,972
Purchase of investments	1,623	2,240
Sale of Investments	(838)	-
Change in fair value	(2,465)	2,599
Sub-total – Balanced portfolio of pooled funds' closing balance	43,131	44,811
Canada Revenue Agency's Retirement Compensation Arrangements' amount	539	465
Total	43,670	45,276

Fair value measurements of long-term investments are categorized using a fair value hierarchy that reflects the significance of inputs used in determining the fair values.

- Level 1 : unadjusted quoted prices in active markets for identical assets or liabilities;
- Level 2 : inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly; and
- Level 3: inputs for assets and liabilities that are not based on observable market data.

There were no transfers from Level 1, Level 2, or Level 3 during fiscal 2018 or during 2017.

The following tables illustrate the classification of the long-term investments within the fair value hierarchy as at year-end:

Fair value as at December 31, 2018

(in thousands of Canadian dollars)	Level 1	Level 2	Level 3	Total
Cash Deposits – Canada Revenue Agency	539	-	-	539
TD Emerald Pooled Funds	-	43,131	-	43,131
	539	43,131	-	43,670

Fair value as at December 31, 2017

(in thousands of Canadian dollars)	Level 1	Level 2	Level 3	Total
Cash Deposits – Canada Revenue Agency	465	-	-	465
TD Emerald Pooled Funds	-	44,811	-	44,811
	465	44,811	-	45,276

5. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Relating to operations	58,588	35,715
Relating to tangible capital assets	2,794	1,549
Closing balance	61,382	37,264

6. REBATES DUE TO MARKET PARTICIPANTS AND ACCUMULATED DEFICIT

In 2018, the IESO recognized \$nil in rebates due to market participants of system fees (2017 – \$4,000 thousand). As at December 31, 2018, rebates due to market participants were \$nil (2017 – \$nil).

The IESO's regulatory deferral account balance is subject to OEB orders. During 2017 and 2018, and prior to the correction (see Note 3), the IESO received a decision and order by the OEB to maintain the regulatory deferral account to \$6,000 thousand.

As at December 31, the components of the accumulated deficit were as follows:

Total – Accumulated Deficit

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Regulatory deferral account (a)	(4,728)	(6,027)
Smart Metering Entity (b)	7,048	939
Accumulated market sanctions and payment adjustments (c)	502	641
Remeasurement gains	3,425	6,340
PSAB transition items (d)	(53,482)	(57,394)
Accumulated deficit – end of year	(47,235)	(55,501)

a) Regulatory Deferral Account – Accumulated Deficit

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Accumulated deficit – beginning of year	(6,027)	(1,028)
Revenues (before rebates due to market participants)	202,364	190,471
Rebates due to market participants	–	(4,000)
Core operation expenses	(197,153)	(187,558)
Recovery of PSAB transition items	(3,912)	(3,912)
Accumulated deficit – end of year	(4,728)	(6,027)

b) Smart Metering Entity Account – Accumulated Surplus

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Accumulated surplus / (deficit) – beginning of year	939	(21,623)
Smart metering charge	34,542	47,278
Smart metering expenses	(28,433)	(24,716)
Accumulated surplus – end of year	7,048	939

c) Market Sanctions and Payment Adjustments – Accumulated Surplus

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Accumulated surplus – beginning of year	641	726
Market sanctions and payment adjustments	6,244	3,176
Customer education and market enforcement expenses	(6,383)	(3,261)
Accumulated surplus – end of year	502	641

d) PSAB Transition Item – Accumulated Deficit

As at December 31 (in thousands of Canadian dollars)	2018	2017
	\$	\$
Accumulated deficit – beginning of year	(57,394)	(61,306)
Recovery of PSAB transition items	3,912	3,912
Accumulated deficit – end of year	(53,482)	(57,394)

Effective January 1, 2011, the IESO adopted Canadian public sector accounting standards (PSAB) with a transition date of January 1, 2010. The adoption of PSAB was accounted for by retroactive application with restatement of prior periods subject to the requirements in Section PS 2125, First-time Adoption by Government Organizations. The corresponding change to pension and other-post employment benefits resulted in previously unrecognized actuarial losses and past service costs of \$98,832 thousand at the date of transition being charged to the accumulated deficit. The IESO includes the annual amortization of the accumulated deficit resulting from the PSAB transition items in the IESO's annual expenditures reported to the OEB for recovery through system fees.

7. DEBT

Note payable to Ontario Electricity Financial Corporation (OEFC)

In April 2017, the IESO entered into a note payable with the OEFC. The note payable is unsecured, bears interest at a fixed rate of 1.767% per annum and is repayable in full on June 30, 2020. Interest accrues daily and is payable in arrears semi-annually in June and December of each year. As at December 31, 2018, the note payable to the OEFC was \$120,000 thousand (2017 - \$120,000 thousand). For the year ended December 31, 2018, the interest expense on the note payable was \$2,120 thousand (2017 - \$2,018 thousand).

Credit facility with OEFC

The IESO has an unsecured credit facility agreement with the OEFC, which will make available to the IESO an amount up to \$160,000 thousand. Advances and monthly rollover amounts are payable at a variable interest rate equal to the Province of Ontario's cost of borrowing for a 30-day term plus 0.50% per annum. The credit facility expires June 30, 2020. As at December 31, 2018, the credit facility payable to the OEFC was \$125,000 thousand (December 31, 2017 - \$nil).

For the year ended December 31, 2018, the interest expense on the credit facility was \$761 thousand (2017 - \$nil).

Retirement Compensation Arrangements Trust

In July 2013, the IESO established a Retirement Compensation Arrangements Trust to provide security for the IESO's obligations under the terms of the supplemental employee retirement plan for its employees. As at December 31, 2018, the IESO has provided the Retirement Compensation Arrangements' trustee with a bank letter of credit of \$33,205 thousand (2017 - \$33,141 thousand) the trustee can draw upon if the IESO is in default under the terms of this plan.

Workplace and Safety Insurance Board - Ontario

During 2018, the IESO provided the Workplace and Safety Insurance Board with a bank letter of credit of \$20 thousand (2017 - nil) for the IESO's obligation under the *Workplace Safety and Insurance Act*.

8. POST-EMPLOYMENT BENEFIT PLANS

The IESO provides pensions and other employee post-employment benefits, comprising group life insurance, long-term disability and group medical and dental plans, for the benefit of current and retired employees.

Pension plans

The IESO provides a contributory defined benefit, indexed, registered pension plan. In addition, the IESO provides certain non-registered defined benefit pensions through an unfunded, indexed, supplemental employee retirement plan.

Other employee future benefits

The group life insurance, long-term disability and group medical and dental benefits are provided through unfunded, non-registered defined benefit plans.

Summary of accrued benefit obligations and plan assets

(in thousands of Canadian dollars)	2018 Pension Benefits	2017 Pension Benefits	2018 Other Benefits	2017 Other Benefits
	\$	\$	\$	\$
Accrued benefit obligation	(577,467)	(553,504)	(140,074)	(129,547)
Fair value of plan assets	584,607	545,400	-	-
Funded status as of measurement date	7,140	(8,104)	(140,074)	(129,547)
Employer contribution/other benefits payments after measurement date	3,580	2,418	585	753
Deferred asset (gain) / loss	(9,618)	(7,813)	-	-
Unamortized actuarial (gain) / loss subject to amortization	(31,668)	(20,383)	7,965	5,917
Accrued liability recognized in the statement of financial position	(30,566)	(33,882)	(131,524)	(122,877)
Market related value of plan assets (as at September 30)	574,989	537,587	-	-

Registered pension plan assets

The one year actual return on registered pension plan's assets as at September 30, 2018 was 8.3% per annum (2017: 5.3% per annum).

As at the measurement date of September 30, the proportion of the fair value of registered pension plan assets held in each asset class was as follows:

	2018	2017
Canadian equity securities	17.1%	20.6%
Foreign equity securities	36.1%	38.0%
Canadian debt securities	32.0%	34.7%
Global infrastructure	7.1%	4.8%
Canadian real estate	6.7%	1.3%
Cash equivalents	0.6%	0.1%
Forward foreign exchange contracts	0.4%	0.5%
	100.0%	100.0%

Principal assumptions used to calculate benefit obligations at the end of the year are determined at that time and are as follows:

	2018 Registered Pension Benefits	2017 Registered Pension Benefits	2018 Supplemental Pension Benefits	2017 Supplemental Pension Benefits	2018 Other Benefits	2017 Other Benefits
Discount rate at the end of the period	5.50%	5.50%	4.00%	4.00%	4.00%	4.00%
Rate of compensation increase	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Rate of indexing	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

The assumed prescription drug inflation was 8.00% for 2017, grading down to an ultimate rate of 4.50% per year in 2030. Dental costs are assumed to increase by 4.00% per year.

Benefit costs and plan contributions for pension and other plans are summarized as follows:

(in thousands of Canadian dollars)	2018 Pension Benefits	2017 Pension Benefits	2018 Other Benefits	2017 Other Benefits
	\$	\$	\$	\$
Current service cost (employer)	11,442	10,107	5,503	5,743
Interest cost	30,317	29,181	5,349	4,456
Expected return on plan assets	(29,456)	(29,058)	-	-
Amortization of net actuarial (gain)/loss	(1,405)	(2,264)	354	968
Benefit cost	10,898	7,966	11,206	11,167

(in thousands of Canadian dollars) (as at September 30)	2018 Pension Benefits	2017 Pension Benefits	2018 Other Benefits	2017 Other Benefits
	\$	\$	\$	\$
Employer contribution/other benefit payments	13,052	13,500	2,727	2,472
Plan participants' contributions	7,468	6,253	-	-
Benefits paid	26,051	25,457	2,727	2,472

The most recent actuarial valuation of the IESO registered pension plan for regulatory funding purposes was completed as at January 1, 2017.

Principal assumptions used to calculate benefit costs for the year are determined at the beginning of the period and are as follows:

	2018 Registered Pension Benefits	2017 Registered Pension Benefits	2018 Supplemental Pension Benefits	2017 Supplemental Pension Benefits	2018 Other Benefits	2017 Other Benefits
Discount rate at the beginning of the period	5.50%	5.75%	4.00%	3.30%	4.00%	3.30%
Rate of compensation increase	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Rate of indexing	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

9. TANGIBLE CAPITAL ASSETS

Net tangible capital assets consist of the following:

Cost of Tangible Capital Assets

(in thousands of Canadian dollars)	As at December 31, 2017	Additions	Disposals	As at December 31, 2018
	\$	\$	\$	\$
Facilities	56,565	166	-	56,731
Market systems and applications	310,818	19,057	(46)	329,829
Information technology hardware and other assets	64,617	3,715	(20)	68,312
Meter data management/repository	37,817	7,819	-	45,636
Total cost	469,817	30,757	(66)	500,508

Accumulated Amortization

(in thousands of Canadian dollars)	As at December 31, 2017	Amortization Expense	Disposals	As at December 31, 2018
	\$	\$	\$	\$
Facilities	(25,956)	(1,455)	-	(27,411)
Market systems and applications	(275,680)	(13,978)	46	(289,612)
Information technology hardware and other assets	(57,115)	(4,183)	20	(61,278)
Meter data management/repository	(32,014)	(4,519)	-	(36,533)
Total accumulated amortization	(390,765)	(24,135)	66	(414,834)

Net Book Value

(in thousands of Canadian dollars)	As at December 31, 2017	As at December 31, 2018
	\$	\$
Facilities	30,609	29,320
Market systems and applications	35,138	40,217
Information technology hardware and other assets	7,502	7,034
Meter data management/repository	5,803	9,103
Total net book value	79,052	85,674
Assets under construction	21,742	18,278
Net tangible capital assets	100,794	103,952

In 2018, there were no adjustments to management's estimates of remaining asset service lives (2017 - \$nil). Interest capitalized to assets under construction during 2018 was \$254 thousand (2017 - \$408 thousand).

10. OTHER REVENUE

In its administration of the IESO administered markets, the IESO directs the investment of market funds in investments throughout the IESO administered markets settlement cycle. The IESO is entitled to receive the investment income and investment gains, net of investment losses earned on funds passing through the IESO administered markets settlement accounts. The IESO is not entitled to the principal on IESO administered markets investments.

The IESO recognized investment income earned in the settlement accounts of \$5,024 thousand in 2018 (2017 - \$3,441 thousand).

11. SEGMENT EXPENSES

Expenses by object for 2018 are comprised of the following:

(in thousands of Canadian dollars)	2018 Core Operations	2018 Other Government Programs	2018 Smart Metering Entity	2018 Market Sanctions & Payment Adjustments	2018 Total
	\$	\$	\$	\$	\$
Compensation and benefits	123,880	1,799	2,840	4,388	132,907
Professional and consulting	20,004	285,067	15,742	1,198	322,011
Operating and administration	36,418	1,424	5,283	797	43,922
Amortization	19,616	-	4,519	-	24,135
Interest	1,978	914	49	-	2,941
Foreign exchange gain	(386)	-	-	-	(386)
Less: Recoveries	(4,357)	-	-	-	(4,357)
Total Expenses	197,153	289,204	28,433	6,383	521,173

Expenses by object for 2017 are comprised of the following:

(in thousands of Canadian dollars)	2017 Core Operations	2017 Other Government Programs	2017 Smart Metering Entity	2017 Market Sanctions & Payment Adjustments	2017 Total
	\$	\$	\$	\$	\$
Compensation and benefits	116,923	212	2,803	2,151	122,089
Professional and consulting	19,516	2,445	14,209	407	36,577
Operating and administration	34,890	39	4,641	703	40,273
Amortization	18,204	-	2,825	-	21,029
Interest	1,887	-	238	-	2,125
Foreign exchange gain	(86)	-	-	-	(86)
Less: Recoveries	(3,776)	-	-	-	(3,776)
Total Expenses	187,558	2,696	24,716	3,261	218,231

12. RELATED PARTY TRANSACTIONS

The Province of Ontario controls the IESO by virtue of its ability to appoint the IESO's Board of Directors.

The OEFC, OEB, Hydro One, Ontario Power Generation, the Ministry of Energy, Northern Development and Mines, and the Ministry of the Environment, Conservation and Parks (MOECP) are related parties of the IESO through the common control of the Province of Ontario. Transactions between related parties and the IESO are outlined below.

All related party transactions were measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

a) The IESO holds a note payable and an unsecured credit facility agreement with the OEFC (Note 7). Interest payments made by the IESO in 2018 for the note payable were \$2,120 thousand (2017 - \$2,018 thousand) and for the credit facility were \$761 thousand (2017 - \$nil). As of December 31, 2018, the IESO had an accrued interest payable balance with the OEFC of \$225 thousand (2017 - \$nil).

b) Under the *Ontario Energy Board Act, 1998*, the IESO incurs registration and license fees. The total of the transactions with the OEB was \$1,648 thousand in 2018 (2017 - \$3,146 thousand).

c) The IESO performed connection and bulk electric system exception assessments for Hydro One in 2018, and invoiced Hydro One \$197 thousand (2017 - \$694 thousand). The IESO procures short circuit studies and protection impact assessments as part of connection assessments, approvals and meter services on IESO owned interconnected revenue meters from Hydro One. In 2018, the IESO incurred costs of \$139 thousand (2017 - \$184 thousand) for these services and as of December 31, 2018, had a net receivable balance with Hydro One of \$10 thousand (2017 - \$137 thousand).

d) The IESO manages the settlement of various government programs and government transfer payments in the IESO administered markets. During 2018 and 2017, the largest government program settled in the IESO administered markets was the Fair Hydro program, as set out in the *Ontario Fair Hydro Plan Act, 2017*. The IESO administered markets utilized debt facilities and transfers to the Fair Hydro Trust to settle the Fair Hydro program prior to the IESO administered markets entering into a transfer payment agreement during December 2018 with the Minister of Energy, Northern Development and Mines to settle the Fair Hydro program. No amounts have been recognized in these financial statements for the transactions that occurred in the IESO administered markets.

e) IESO performs connection assessment and approvals for Ontario Power Generation, delivers telecommunication services to market participants to connect to the real-time market systems and provides market-related training courses. In 2018, Ontario Power Generation was invoiced \$94 thousand (2017 - \$92 thousand) and as of December 31, 2018, the IESO had a net receivable balance with Ontario Power Generation of \$32 thousand (2017 - \$61 thousand).

f) IESO has entered into transfer payment agreements with the MOECP to design and deliver, directly or through contracted third parties, various programs funded through the Green Ontario Fund. For 2018, under these agreements, the IESO accrued or received amounts from MOECP of \$289,204 thousand (2017 - \$2,696 thousand) and as of December 31, 2018, the IESO had a net receivable balance with MOECP of \$69,199 thousand (2017 - \$4,101 thousand).

g) In connection with the transfer payment agreements with MOECP, the IESO contracted with a service provider to carry out the administration of the rebates programs and issue rebate cheques to eligible participants. A member of this service provider's key management personnel is a member on the IESO's Board of Directors. For 2018, the IESO accrued or paid amounts to this service provider of \$234,346 thousand (2017 - \$94 thousand) and as of December 31, 2018, the IESO had a net payable balance with this service provider of \$25,263 thousand (2017 - \$nil). Of these amounts, \$232,645 thousand (2017 - \$nil) pertained to rebates paid or payable to eligible participants and \$1,701 thousand (2017 - \$94 thousand) related to service fees paid to the service provider.

13. FINANCIAL RISK MANAGEMENT

The IESO is exposed to financial risks in the normal course of its business operations, including market risks resulting from volatilities in equity, debt and foreign currency exchange markets, as well as credit risk and liquidity risk. The nature of the financial risks and the IESO's strategy for managing these risks has not changed significantly from the prior year.

a) Market Risk

Market risk refers to the risk that the fair value or future cash flows of a financial instrument will fluctuate to cause changes in market prices. The IESO is primarily exposed to three types of market risk: currency risk, interest rate risk and equity risk. The IESO monitors its exposure to market risk fluctuations and may use financial instruments to manage these risks as it considers appropriate. The IESO does not use derivative instruments for trading or speculative purposes.

i) Currency Risk

The IESO conducts certain transactions in U.S. dollars, primarily related to vendors' payments, and maintains a U.S. dollar-denominated bank account. From time to time, the IESO may utilize forward purchase contracts to purchase U.S. dollars for delivery at a specified date in the future at a fixed exchange rate. In addition, the IESO utilizes U.S. dollar spot rate purchases in order to satisfy any current accounts. As at December 31, 2018 (2017 – nil), the IESO did not have any outstanding forward purchase contracts.

ii) Interest Rate Risk

The IESO is exposed to movements or changes in interest rates primarily through its short-term variable rate credit facility, cash equivalents' securities and long-term investments. Long-term investments include investments in a pooled Canadian bond fund. The potential impact to the securities' value had the prevailing interest rates changed by 25 basis points, assuming a parallel shift in the yield curve with all other variables held constant, is estimated at \$664 thousand as at December 31, 2018 (2017 – \$659 thousand).

iii) Equity Risk

The IESO is exposed to changes in equity prices through its long-term investments. Long-term investments include investments in pooled equity funds. A 30% change in the valuation of equities as at December 31, 2018, would have resulted in a change for the year of approximately \$7,927 thousand (2017 – \$8,440 thousand). The fair values of all financial instruments measured at fair value are derived from quoted prices (unadjusted) in active markets for identical assets.

b) Credit Risk

Credit risk refers to the risk that one party to a financial instrument may cause a financial loss for the other party by failing to meet its obligations under the terms of the financial instrument. The IESO is exposed directly to credit risk related to cash equivalents' securities and accounts receivable, and indirectly through its exposure to the long-term investments in a Canadian bond pooled fund. The IESO manages credit risk associated with cash equivalents' securities through an approved management policy that limits investments to primarily investment-grade investments with counterparty-specific limits. The accounts receivable balance as at December 31, 2018, included no material items past due and substantially all of the balance is expected to be collected within 60 days from December 31, 2018. The long-term Canadian bond pooled fund is comprised of primarily investment-grade securities.

c) Liquidity Risk

Liquidity risk refers to the risk that the IESO will encounter financial difficulty in meeting obligations associated with its financial liabilities when due. The IESO manages liquidity risk by forecasting cash flows to identify cash flows and financing requirements. Cash flows from operations, short-term investments, long-term investments and maintaining appropriate credit facilities help to reduce liquidity risk. The IESO's long-term investments are normally able to be redeemed within two business days; however, the investment manager of the pooled funds has the authority to require a redemption in-kind rather than cash and has the ability to suspend redemptions if deemed necessary.

14. COMMITMENTS

Operating commitments

The obligations of the IESO with respect to non-cancellable operating leases over the next five years are as follows:

As at December 31 (thousands of Canadian dollars)

	\$
2019	6,388
2020	5,542
2021	1,810
2022	700
2023	115

15. CONTINGENCIES

The IESO is subject to various claims, legal actions and investigations that arise in the normal course of business. While the final outcome of such matters cannot be predicted with certainty, management believes that the resolution of such claims, actions and investigations will not have a material impact on the IESO's financial position or results of operations.

16. CORRESPONDING FIGURES

Certain of the corresponding figures have been amended to reflect adjustments made in the current year. Other figures have been reclassified to conform with the current year's presentation.

17. CANCELLATION OF CONTRACTS

In 2018, under the directive from the Minister of Energy, Northern Development and Mines, the IESO exercised its termination rights under certain renewable energy contracts that had not yet reached an advanced stage in their development. In turn, the government introduced a legislative amendment to require the IESO to use government appropriations whereby the government will cover the costs of terminating the contracts. Determination of the amount ultimately payable by the government on behalf of the IESO is dependent on the settlement of costs related to the cancellation of these contracts. As at December 31, 2018, the actual amount of these costs is not yet determinable.

Executive Compensation at the IESO

Program Objectives

The IESO compensation program for executives was designed to attract, retain and motivate the calibre of executives required to support the achievement of the IESO's statutory mandate, business objectives and corporate vision. Accordingly, the compensation philosophy and programs were built on the following objectives:

- To focus executives on meeting the IESO's business objectives;
- To attract and retain qualified employees needed to carry out the IESO's mandate;
- To have the flexibility to reward results and demonstrated competencies; and
- To have compensation levels which are reasonable, responsible and in compliance with provincial regulations.

The philosophy underlying these objectives is that total compensation for executives should be adequate enough to attract and retain the skills and competencies necessary to carry out the IESO's mandate.

Program Governance

The IESO Board establishes the compensation objectives for the following year's program. It delegates the responsibility to thoroughly review the compensation objectives, policies and programs to the Human Resources and Governance Committee of the Board (HRGC), which makes recommendations to the full Board for approval.

The Board is composed of 10 independent, external Directors, appointed by the Minister of Energy, Northern Development and Mines, and the President and Chief Executive Officer of the IESO. Directors have broad experience in the electricity industry and public sector organizations, as well as significant experience dealing with human resource matters, including the setting and implementation of compensation policies and programs.

In carrying out its mandate, the Board has access to management's analysis and recommendations, as well as the recommendations of expert consultants in the compensation field. These programs are reviewed annually with regard to business needs, program objectives and design, industry compensation trends, internal compensation relativities, and external market relativities.

The Board also assesses risks associated with the establishment and implementation of compensation policies and programs. Each year, the Board presides over and approves the IESO's Business Plan. An important component of this process is consideration of, and the implementation of mitigating actions associated with, Enterprise Risk Management. This latter overarching process includes the assessment of all significant risks to the IESO, including risks associated with its compensation policies and programs.

In addition to the formal governance and oversight structure in place for compensation matters, the IESO discloses compensation levels annually for staff earning \$100,000 or more as part of its public sector salary disclosure. For the IESO, a further level of public review and assurance is provided through a statutorily required annual review of the IESO's expenditures, revenue requirements and fees. Information related to compensation matters, including executive/management compensation and market relativities, is subject to the Ontario Energy Board review. A range of small and large consumers, assisted by their legal and professional advisors, are represented in these public proceedings.

Market Comparisons

The IESO reviews the competitiveness of executive compensation levels in relation to a peer group of Canadian organizations and general industry companies every other year at a minimum. The objective is to compare IESO executive compensation levels to those in the marketplace, particularly in relation to the median of the market.

Prior to the amalgamation of the IESO with the Ontario Power Authority, the Ministry of Energy retained the Korn Ferry Hay Group, a global management consulting firm, to evaluate and market price the CEO position for the new organization. Subsequent to the CEO's appointment on January 1, 2015, the decision was made to adopt a similar approach to evaluate and market price all other executive roles using the Hay point system. The Hay job evaluation methodology continues to be used for the executive and management group.

The current comparator group was amended in 2018 from a hybrid of public and private sector employers to 19 Canadian public sector organizations. This change was required under the regulations in effect at that time under the *Broader Public Sector Executive Compensation Act, 2014* (the "2016 Executive Compensation Framework Regulation").

The comparator group represents a range of industries, core business activities and roles that are similar to the IESO: electricity, energy, asset management, financial services, infrastructure procurement, engineering and large-scale, complex IT functions. The list of organizations includes:

Alberta Electric System Operator	Oakville Hydro Corporation
Alectra Inc.	The Ontario Financing Authority
CPP Investment Board	Ontario Lottery and Gaming Corporation
CSA Group	Ontario Pension Board
Canada Deposit Insurance Corporation	Ontario Power Generation Inc.
Canada Lands Company CLC Limited	Ontario Teachers' Pension Plan Board
Deposit Insurance Corporation of Ontario	Toronto Hydro-Electric System Limited
Hydro One Inc.	Veridian Corporation
Hydro Ottawa Limited	Waterfront Toronto
Metrolinx	

The job evaluation was independently conducted by the Korn Ferry Hay Group using its point system and the following executive positions were covered by this review:

- President and Chief Executive Officer
- VP, Corporate Services and Chief Financial Officer
- VP, Planning, Acquisition and Operations, and Chief Operating Officer
- VP, Policy, Engagement and Innovation
- VP, Information and Technology Services and Chief Information Officer
- VP, Legal Resources and Corporate Governance
- VP, Human Resources

Note: The VP, Human Resources position was created following the development of the IESO's initial program under the 2016 Executive Compensation Framework Regulation.

The Hay Group evaluated the Vice-President positions based on the job documents and additional information gathered from the CEO. Based on the evaluation points, a new salary structure was developed, and executive positions were mapped into the new structure.

Using the market information from the above peer group, the maximums for each executive salary grade were determined as the market price point for comparison purposes.

The maximums of the new salary ranges were defined as the total direct cash compensation (annual base salaries plus annual short-term and long-term target incentive awards) of the target market's price point at the 50th percentile for each salary grade. The minimums and maximums of each salary range were calculated using typical salary range spreads at executive levels.

As part of the 2016 Executive Compensation Framework Regulation, the IESO posted its approved Executive Compensation Framework on its website in February 2018 and provided retroactive compensation increases in accordance with this Regulation. Subsequently, the IESO complied with the new 2018 Compensation Framework Regulation that came into effect on August 13, 2018, and required the IESO to freeze executive compensation effective that date. It is expected that the Ontario government will provide a revised executive compensation framework in 2019.

Program Description

The IESO program includes fixed and variable compensation, core and flex benefit plans, and pension provisions. IESO Human Resources staff members participate in and review results from various compensation surveys and monitor economic trends (such as inflation and unemployment rates) that impact compensation, as well as internal compensation relativities. Based on this data and IESO business priorities, Human Resources develops recommendations on compensation programs. External specialized compensation, benefit and pension consultants are used to ensure accurate, representative market compensation data is obtained and that current industry compensation trends are being utilized, as well as to provide insight and recommended adjustments to current programs.

Program Description – Fixed Compensation

Within the IESO salary ranges, individuals are assessed relative to an established competency model. This model consists of behavioural competencies, such as strategic agility, building effective teams, command skills, sizing up people, political savvy and managing vision and purpose. Assessments are based upon demonstrated competency. Each individual is awarded a fixed compensation level within their band based upon their assessed competency.

Program Description – Variable Compensation

To promote a results orientation in the executive team, the variable pay plan forms part of the total compensation of executives. The IESO Board annually establishes a robust set of performance measures, which are evaluated each year.

The IESO Board assesses corporate performance results and the CEO's individual performance results. Under the plan, having assessed the results against target, the Board has discretion in determining the final performance rating; however, in the past the Board has relied upon assessed results to award variable compensation.

The variable compensation award for the CEO and Vice-Presidents is capped at 10% of fixed compensation. The plan provides for awards at or below the capped amount depending on the performance results achieved. The 2018 annual award was paid on December 28, 2018.

Program Description – Group Benefits

The group benefit plan provides a core level of health and dental benefits, life insurance, disability coverage and vacation which can be adjusted by individual employees through a flexible component within the plan. The flexible element gives executives and all other non-represented employees the flexibility to adjust their benefits, including vacation, life insurance, and health coverage, to meet their individual/family needs.

Program Description – Pension Plan

A defined benefit pension plan provides annual retirement income calculated as 2% of pensionable earnings during the highest paid 60 consecutive months of service multiplied by years of service (36 months for the pension earned prior to January 1, 2017 by the former IESO executives), to a maximum of 35 years. The pension formula is integrated with the Canada Pension Plan (CPP) to provide a level income stream before and after age 65, when the IESO pension is reduced to reflect benefits from CPP. The Plan also has early retirement provisions, as well as commuted value, pension deferral and reciprocal transfer options.

The plan provides a maximum benefit of 70% of highest paid, pre-retirement pensionable earnings. As the Canada Revenue Agency limits the amount of pension payable from a registered plan, the IESO has a secured supplemental employee retirement plan (SERP) to provide required pension income to meet the commitments of the Plan above that payable from the registered plan.

The plan also provides several options, including member's life only or joint and survivor pensions, as well as pre-retirement death benefits to provide benefits to surviving spouses or beneficiaries.

Performance Measures & Impact on Compensation

The IESO establishes corporate performance measures relating to its business priorities during its annual business planning process. These are approved, monitored and assessed by the IESO Board of Directors each year. As outlined previously, the corporate results achieved each year impact each executive's variable pay.

For 2018, the Board assessed the corporate results and determined that the IESO met expectations. In addition to the corporate measures, each executive also had an individual set of measures and targets for the year which aligned with the corporate performance objectives and IESO's business priorities and these were similarly assessed. The Board assessed the results of the CEO's performance and the CEO assessed the performance of the Vice-Presidents which were also reviewed with the Board.

Other Considerations

Compensation decisions may at times be impacted by market factors – such as the recruitment of an executive with specialized skills/competencies or possessing unique talents within the industry. To this end, individual arrangements are sometimes established relating to terms of employment and the possibility of future termination.

Compensation Restraints

The IESO's executive compensation has been significantly impacted by the compensation restraint legislation in Ontario since 2010. The *Broader Public Sector Accountability Act* (BPSAA) imposed a general freeze on designated executives' salary, variable pay, benefits and perquisites subject to very limited exceptions. The BPSAA was superseded by the *Broader Public Sector Executive Compensation Act, 2014* (BPSECA). The 2016 *Executive Compensation Framework Regulation* under the BPSECA came into effect for the IESO in February 2018 and permitted retroactive compensation adjustments to September 1, 2017. Subsequent to this, the government repealed this Framework Regulation and replaced it with the *2018 Compensation Framework Regulation*, which imposed a compensation freeze on executive compensation at the levels in effect on August 13, 2018. It is expected that government's review of this compensation restraint will be completed in 2019.

Executive Compensation Statement

The 2018 Summary Compensation Table details the annual compensation for the year ended December 28, 2018 for the executives listed. Note: The figures reported as 2018 “Salary Paid” in the 2018 Public Sector Salary Disclosure for the executives include the 2018 earned variable compensation that was paid on December 28, 2018.

2018 SUMMARY COMPENSATION TABLE

Name & Position	Base Salary	Variable Pay ¹	Other Annual Compensation ²	Total Cash Compensation ³
Peter Gregg President & CEO	\$630,000	\$63,000	\$20,501	\$713,501
Kimberly Marshall Former VP, Corporate Services & CFO ⁴	\$274,655	\$6,443	\$0	\$281,098
Barbara Anderson VP, Corporate Services & CFO (Hired July 9) ⁵	\$130,481	\$12,729	\$209	\$143,419
Leonard Kula VP, Planning, Acquisition & Operations and COO ⁶	\$379,169	\$38,500	\$9,988	\$427,657
Terence Young VP, Policy Engagement & Innovation	\$339,189	\$27,080	\$22,336	\$388,605
Michael Lyle VP, Legal Resources & Corporate Governance	\$275,064	\$22,000	\$5,681	\$302,745

1. 2018 earned variable compensation is calculated on annualized base pay and was paid in December 2018.

2. Represents remaining flex benefit credits paid out at year end as taxable income.

3. These amounts will be reported as “Salary Paid” under the Annual Public Sector Salary Disclosure (PSSD).

4. Salary continuation effective May 1.

5. Barbara Anderson was hired as new CFO on July 9, 2018. Base and variable pay have been pro-rated.

6. Incentive pay based on December annualized base pay of \$385,000.

Executive Leadership Team, Board of Directors and Advisory Committees to the Board*

Executive Leadership Team

Peter Gregg
President and Chief Executive Officer

Barbara Anderson
Chief Financial Officer and
Vice-President, Corporate Services

Alex Foord
Chief Information Officer and
Vice-President, Information and
Technology Services

Leonard Kula
Chief Operating Officer and
Vice-President, Planning,
Acquisition and Operations

Michael Lyle
Vice-President, Legal Resources and
Corporate Governance

Robin Riddell
Vice-President, Human Resources

Terry Young
Vice-President, Policy, Engagement
and Innovation

Board of Directors

Timothy O'Neill
Chairman of the Board
*Retired from BMO Financial Group,
where he served as Executive
Vice-President and Chief Economist;
President of O'Neill Strategic Economics*

Peter Gregg
President and Chief Executive Officer,
Independent Electricity System
Operator

Cynthia Chaplin
Director
*Former Vice-Chair of the Ontario
Energy Board*

Murray Elston
Director
*Former Chair of the Electricity
Distribution Panel; former President
of the Canadian Nuclear Association;
former Ontario Minister of Health*

Susanna Han
Director
Chief Financial Officer, LiUNA Local 183

Christopher Henderson
Director
*President of Lumos Clean Energy
Advisors; Executive Director of the
Indigenous Clean Energy (ICE) Social
Enterprise; author of Aboriginal Power
(2013)*

Margaret Kelch
Director and Chair, Human Resources
and Governance Committee
*Director of the Board, DST Engineering
Group, Chair of the Human Resources
and Governance Committee; former
Board member, Nature Conservancy
of Canada, Chair of the Conservation
Committee; former Board member,
Electrical Safety Authority, Chair of the
Regulatory and Human Resources and
Governance Committees; former Board
member of Guelph Hydro; other various
board assignments*

Glenn Rainbird
Director
*Member, Board of Governors of the
Royal Military College of Canada and
the Board of Directors of VIA Rail
Canada Inc.; RCAF Honorary Colonel;
Officer of the Order of Canada; recipient
of the Queen Elizabeth II Diamond
Jubilee Medal*

Ersilia Serafini
Director
*President and CEO of Summerhill;
former Executive Director of the Clean
Air Foundation; former Vice-Chair of the
IESO's Stakeholder Advisory Committee*

Deborah S. Whale
Director
*Vice-President, Clovermead Farms
Inc.; Past Vice-President, Ontario
Farm Products Marketing Commission;
Vice-President, Grand River Raceway;
Livestock Research and Innovation
Corporation, Emerging and Critical
Issues Committee*

Carole Workman
Director and Chair, Audit Committee
*Former Chair of the Ottawa Hospital
Board of Directors; Board member of
Allstate Insurance of Canada; former
Director of Hydro Ottawa and several
other organizations*

* As of December 31, 2018

Stakeholder Advisory Committee

Brian Bentz (Chair)

President & Chief Executive Officer
Alectra
Representing: Distributors & Transmitters

John Beaucage

Principal
Counsel Public Affairs Inc.
Representing: Ontario Communities

Nicolas Bossé

Senior Vice-President
Governmental & Regulatory Affairs
Brookfield Renewable
Representing: Energy-related Businesses and Services

Darlene Bradley

Vice-President, Planning
Hydro One Networks Inc.
Representing: Distributors & Transmitters

David Butters

President & Chief Executive Officer
Association of Power Producers of Ontario
Representing: Generators

Judy Dezell

Director, Enterprise Centre at
Association of Municipalities of Ontario
Representing: Ontario Communities

Brandy Giannetta

Regional Director
The Canadian Wind Energy Association
Representing: Generators

Julie Girvan

Consumers Council of Canada
Representing: Consumers

Jim Hogan

President & Chief Executive Officer
Entegrus
Representing: Distributors and Transmitters

Rachel Ingram

Vice-President & General Counsel
Rodan Energy Solutions
Representing: Energy-related Businesses and Services

Frank Kallonen

President & Chief Executive Officer
Greater Sudbury Hydro
Representing: Transmitters and Distributors

Ted Leonard

Vice-President &
Chief Financial Officer
NRStor Inc.
Representing: Energy-related Businesses and Services

Paul Norris

President
Ontario Waterpower Association
Representing: Generators

Mark Passi

Manager, Energy
Glencore
Representing: Consumers

Mark Schembri

Vice-President, Supermarket
Systems & Store Maintenance
Loblaw Properties Limited
Representing: Consumers

James Scongack (Vice-Chair)

Vice-President, Corporate Affairs
Bruce Power
Representing: Generators

Hari Suthan

Chief Strategic Growth & Policy
Officer
Opus One Solutions
Representing: Energy-related Businesses and Services

Terry Young

Vice-President, Policy,
Engagement & Innovation
Independent Electricity System
Operator
Representing: IESO

Technical Panel

Michael Lyle (Chair)

Vice-President, Legal Resources
& Corporate Governance
Independent Electricity System
Operator
Representing: IESO

Robert Bieler

Representing: Consumers

Ron Collins

President & Chief Executive Officer
Sinopa Energy Inc.
Representing: Energy-related Businesses and Services

David Dent

Manager, Strategic &
Power Markets
Union Gas Limited
Representing: Natural Gas

David Forsyth

Energy Management Consultant
Association of Major Power
Consumers in Ontario
Representing: Consumers

Sarah Griffiths

Director, Regulatory Affairs
EnerNOC Ltd.
Representing: Other Market Participants

Robert Lake

Representing: Residential Consumers

Phil Lasek

Senior Electrical Engineer
Shell Canada Products
Representing: Market Participant Consumers

Sushil Samant

Director, Gas & Electricity Marketing
Northland Power
Representing: Market Participant Generators

Joe Saunders

Vice-President, Regulatory
Compliance & Asset Management
Burlington Hydro
Representing: Distributors

Jessica Savage

Director, Corporate &
Indigenous Relations
Independent Electricity System
Operator
Representing: IESO

Vlad Urukov

Director, Generation
Revenue & Planning
Ontario Power Generation
Representing: Generators

Julien Wu

Manager, Regulatory Affairs,
Quebec-Ontario
Brookfield Energy Marketing
Representing: Wholesalers

Technical Panel Secretariat

Jason Grbavac

John Rattray

Ontario Energy Board Liaison

David Brown

Senior Policy Advisor
Wholesale Power Policy,
Regulatory Policy Development
Ontario Energy Board

Independent Electricity

System Operator

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