

Independent Electricity
System Operator
BUSINESS
PLAN
2014-2016

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Overview

The ongoing transformation of Ontario's electricity system, increasing operational complexity and evolving North American reliability standards are now converging and helping to define actions the Independent Electricity System Operator (IESO) needs to take over the next three years. The IESO's 2014-16 Business Plan outlines what is needed to address these challenges while balancing a number of stakeholder and customer priorities, including the need to move forward with changes in the Ontario electricity market while prudently managing costs that are passed on to customers.

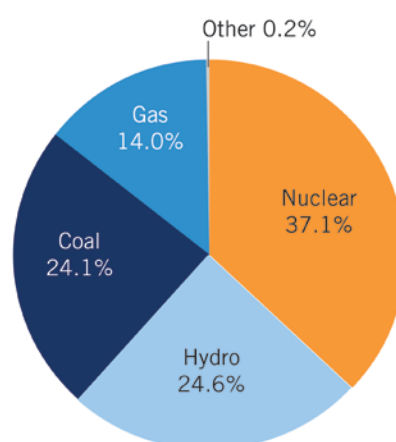
The next three years represent a turning point for the electricity sector – from what was a highly centralized system with a heavy reliance on fossil fuels to more sustainable and complex arrangements requiring increased operational information, adaptability and co-ordination with an increasing number of participants.

When the electricity market opened in 2002, only 20 generation companies were operating in the market – that has now grown to more than 70. The trading community has grown by 50 per cent while the number of Meter Service Providers with which the IESO coordinates operations has climbed from two to 14. By early 2014, the number of facilities that require direction from the IESO will have also risen from 93 in 2002 to 179, and will continue to grow. This has added to the complexity of managing system and market operations and significantly increased the demand for day-to-day IESO services such as training, outage management and data production.

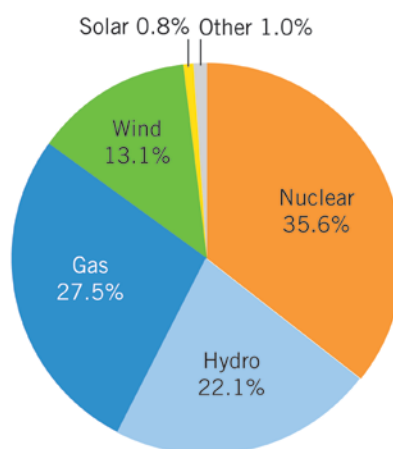
Yet the full impact of change within the sector has yet to be felt.

All coal-fired generating stations in southern Ontario are to shut down by the end of 2013, leaving the Thunder Bay Generating Station as the lone remaining coal facility. Then, by early 2015, approximately 5,000 megawatts (MW) of renewable wind and solar generation are expected to be connected to Ontario's bulk power system, an increase of more than 3000 MW from the current amount. And, as the end of the three-year business planning cycle approaches, attention will turn to refurbishing existing nuclear units.

Ontario Installed Capacity 2003



Ontario Installed Capacity 2015



Contributing to Ontario's Long-Term Energy Plan

The Ministry of Energy launched a review of the Long-Term Energy Plan (LTEP) in summer 2013, which included province-wide consultations on a variety of topics including the province's mix of energy sources such as wind, solar, nuclear, and conservation.

The IESO supported Ministry staff in the development of the preliminary consultation document and dedicated senior IESO staff to regional consultation meetings. As the consultations concluded, the IESO provided input and staff support to the Ministry in the development of the final plan. The IESO will also provide necessary support to ensure the reliable integration of recommendations arising from the LTEP.

With the contributions of both wind and solar generation continuing to climb and with wind energy output surpassing that of coal in 2012, the variability of the output from these resources also increases and can change quickly over short periods of time. For example, over the summer week when demand for electricity was at its highest for 2013, wind's contribution ranged from an hourly low of 14 MW to a high of 1,544 MW.

Contribution from these renewable resources, and increased output from refurbished nuclear units combined with reduced or flat growth in electricity demand, has also contributed to increased incidents of surplus baseload generation (SBG). SBG occurs when baseload resources like nuclear, certain types of hydro generation, wind and solar, exceed Ontario's domestic electricity demand. In the first seven months of the year, SBG conditions occurred in almost 3,900 hours of the year or over 66 per cent of the time. While much of this surplus electricity was accommodated by exports, there were also a number of occasions when the output of nuclear units was reduced to manage these conditions and on six separate occasions, a nuclear unit was shut down or kept offline because of the surplus.

Over the past few years the IESO anticipated and responded to these changes and invested in development and implementation of new tools and procedures to reliably integrate variable generation resources and more efficiently manage surplus in baseload generation. A new centralized forecasting model has been implemented, resulting in both day ahead and hourly ahead forecasts that are extremely reliable. In September 2013, the IESO also implemented new tools and market rules which allow for the five minute dispatch of wind and solar grid connected resources, reducing the output of these facilities for defined periods when surplus conditions exist or grid conditions warrant. Analysis done in support of this approach indicated potential annual savings to customers in excess of \$200 million.

The IESO has also invested in a number of other areas to manage the changing supply mix including developing energy modelling capability and a simulator to assist in operator training. Online limit capability is another area that required additional resources in the past few years but will now allow the IESO, transmitters and other participants to leverage maximum use of the transmission assets in the province resulting in projected annual savings of more than \$2 million for consumers. Most recently, the IESO used this capability during the July 2013 blackout in the Greater Toronto Area,

Stakeholder Advisory Committee

Since its inception in 2005, the IESO Stakeholder Advisory Committee (SAC) has provided the IESO with valuable guidance for the future direction of the IESO and its efforts to improve the market. In 2013, representation on the SAC was realigned to fall into four broad sectors -- Generators, Consumers, Conveyors and Electricity Service Providers -- reflecting the changing needs of the electricity sector.

Over the next three years, the SAC will continue to assist the IESO by identifying and providing insights on key priorities -- such as improving price signals, reducing barriers for increased participation in the electricity market and better aligning demand response and conservation and demand management (CDM) programs with system needs. Specifically, stakeholder input will be sought in the creation of a longer-term market development plan, including the prioritization of market initiatives in support of that plan. This effort will include an increased focus on demand response in the wholesale market, to not only understand the opportunities and barriers to DR, but also explore what mechanisms are needed to better integrate it.

In addition, the IESO Stakeholder Summit, which was first held in March 2013 will become an annual event. The feedback from this inaugural event was highly positive, pointing to a clear need for a broader venue to launch the year's advisory efforts and start the dialogue that will continue across the many different stakeholder engagement platforms.

significantly shortening restoration times as it had a more accurate and real-time view of transmission capabilities as the system was re-energized.

The increased variable nature of Ontario's supply mix along with the increase in volume, frequency and duration of SBG conditions will contribute to the complexity of operating the power system as system patterns, trends and flows vary away from historical norms. But the transformation of the sector will continue -- broadening to new players, innovations, influences and priorities. Given its leadership position in the sector, the IESO will need to anticipate and drive change -- promoting market efficiencies, strengthening relationships with an increasingly complex and interdependent network of participants on both the supply and demand side.

Reliability standards compliance

The 10th anniversary of the 2003 blackout that affected more than 50 million people in Ontario and the northeastern part of the United States was a reminder of the investment in strengthened reliability standards made over the past decade. New reliability standards continue to be introduced, standards that the IESO must adhere to - including the need to expand network modelling capability to meet new North American Electric Reliability Corporation (NERC) requirements for visibility over a wider area.

Cybersecurity concerns are also emerging, requiring the IESO to increase its focus on this area in order to raise its preparedness level and that of market participants to address these threats.

While the IESO has long used information technologies to monitor and operate the bulk power system, broader digitization throughout the sector is creating the potential for new vulnerabilities. As such, cybersecurity has rapidly developed into an essential component of power system reliability.

In its role as Reliability Co-ordinator for Ontario, the IESO is responsible for enforcing Critical Infrastructure Protection Standards set by the NERC and works closely with industry peers and government agencies to share information on cyber events and best practices. Cybersecurity is, however, an evolving issue. Both the nature of attacks and the defences used to stop cyberthreats change frequently, requiring a sustained and proactive cybersecurity effort.

Over the 2014-16 period, the IESO will need to add new resources – including staff and tools – to manage the evolving challenges posed by cybersecurity. New staff will deal with additional technical work, including threat and data analysis. The IESO will also invest more resources in advanced cybersecurity tools, including new vulnerability identification software.

Increased contribution from the demand side and other market efficiencies

New opportunities in Ontario's electricity market

The IESO is taking a major step forward to bring new technologies such as aggregated loads, flywheels and battery storage into the electricity market by integrating new suppliers of regulation service, a grid-balancing function traditionally provided by generators. By the end of 2014, three new participants will have joined the market and provide up to 10 megawatts of regulation service, allowing the IESO to gain experience with a broader range of technologies.

Ontario has made a significant investment in renewable generation and, as discussed, the IESO has been putting in place new tools, techniques and procedures to best capture the value of that investment. Over the past few years, the IESO has also been doing foundational work and analysis that will support the development of new initiatives that can more effectively and efficiently support Ontario's future supply mix. Over the next three years, the IESO intends to move forward with these initiatives including enabling increased participation and contribution from the demand side of the market.

In preparing the 2014-16 Business Plan, the IESO actively sought out the input of stakeholders. A number of stakeholder priorities were identified

through the Stakeholder Advisory Committee, including reducing the barriers to increased participation in Ontario's electricity market and better alignment of system needs with demand-side management programs. In a number of surrounding jurisdictions, demand-side resources are already making important contributions. In the PJM market in central and northeast U.S, more than 12,000 MW of demand response (DR) capability has already been introduced into the market. Similar potential exists in Ontario.

Demand response can help reduce peak demands, complement the variable nature of renewable resources like wind and solar while enabling customers to manage their electricity use and minimize their costs. Closer integration of this resource in Ontario's electricity market has the potential to result

in significant benefits to system planning, operational reliability and market efficiency while maximizing the benefit to ratepayers.

Capacity needs on Ontario's power system will fluctuate continually over the next few years as supply and demand conditions ebb and flow. This will become particularly apparent during the nuclear refurbishment period, expected later in the decade. At the same time, greater market integration of DR and other technologies offer transparent and cost-effective opportunities to provide greater flexibility for the system and meet capacity needs. As such, enabling the increased contribution from DR and other technologies through a market-based platform is a priority for the IESO.

The IESO is also responding to stakeholders' requests to clarify and move forward with future market development work. Following up on the recommendations from the Electricity Market Forum which comprised a number of stakeholders across the sector, the IESO is proceeding with analysis and review in a number of areas including the Hourly Ontario Energy Price, Global Adjustment, two-schedule pricing system and more frequent intertie scheduling. Once these various reviews are complete, the IESO will work with stakeholders to seek alignment on the broader goals for improving the market, review potential changes to understand the merits of each change, prioritize the initiatives over a five-year time period and establish a longer-term market development plan of initiatives for the Ontario electricity market.

Maintaining its focus on excellence in reliable and efficient operations will be a continued priority for the IESO over the next three years, as will the need to address recommendations arising from the government's Long-Term Energy Plan. At the same time, momentum must be maintained on the multi-year program to refresh or replace aging information technology infrastructure, systems that are at or nearing the end of their life cycles. An increased investment in training and development for new employees will also be essential given that almost a third of the current employees will be eligible for retirement by the end of 2016.

Beyond the resource integration initiatives that are already in place, the IESO is now working with stakeholders to make changes to optimize Ontario's considerable investments in the electricity sector, investments in renewable generation, conservation and demand management and in the electricity

OPA-IESO Coordination

The IESO continues to work with the Ontario Power Authority to help ensure a reliable and efficient supply of electricity now and in the future.

In partnership with the OPA, the IESO recently developed joint recommendations for a new integrated regional energy planning process, specifically looking at improving the way large energy projects are sited in the province. After a month of consultations and careful consideration of the feedback received from more than 1200 Ontarians, both agencies developed a set of 18 recommendations that will ensure that local communities are engaged in Ontario's electricity planning continuum.

The IESO and OPA worked closely together to address contract considerations associated with the dispatch of wind in Ontario's electricity market. The two agencies are also working together to ensure the most effective use of Demand Response resources in meeting Ontario's future electricity needs.

delivery system. These initiatives will provide cost-effective flexibility to manage constantly changing demand supply conditions.

Fee Proposal

Prudent financial management is a key priority for the IESO and it recognizes the need to effectively manage costs that are ultimately passed on to customers. The proposed fee for 2014 reflects that commitment, including a proposed \$1 million reduction from last year's OM&A budget of \$112.1 million.

The IESO's proposed revenue requirement to carry out the above work and continue to manage its ongoing day-to-day responsibilities in market and system operations is \$130 million or about \$2 million higher than the 2013 budget reflecting increased amortization costs associated with the investment in IT infrastructure.

The 2014 proposed budget is significantly lower than previous forecasts. Overall, the proposed total budget is \$11.8 million less than what was forecast in the 2012-14 Business Plan (which was the last multi-year plan developed by the IESO) with the proposed OM&A portion of the budget \$5.5 million lower.

The IESO is proposing to change its fee structure to also include energy volumes equal to the output from generation embedded in local distribution networks. Currently, those volumes are not included in the determination of the IESO fee because the fee is based on energy withdrawals net of embedded generation.

With the proposed move to a fee based on gross energy, which is a fairer method of allocation, the IESO is recommending a reduction in its fee from the current \$0.822 per megawatt hour (MWh) to \$0.803 per MWh. This would result in a fee that would be approximately 16 per cent less than the fee charged 12 years ago.

The change is consistent with the original intent that the IESO fee should be charged to all Ontario load, rather than just a portion.

Financial Overview

The IESO's fiscal management continues to be based on a simple objective – to demonstrate the continued attention to costs, recognizing its fees form part of the overall cost of electricity to the consumer.

The IESO operates two separately funded aspects of the business – wholesale operations and smart meter entity. The financial outlook related to the IESO usage fee is included below and the financial outlook related to the smart meter entity is included later in the document.

Financial Outlook Related to the IESO Usage Fee:

Projected 2013 Financial Results

The following table outlines the 2013 financial projections compared to the approved budgets for the year:

(\$ millions)	2013 Projected	2013 Budget	Projected Variance
Usage Fees	126.0	123.9	2.1
Market-related Investment Income	1.2	1.2	-
Cost Recovery for Services	2.0	2.7	(0.7)
Total Revenues	129.2	127.8	1.4
OM&A Costs	109.1	112.1	3.0
Amortization	14.7	14.7	-
Net Interest	0.6	1.0	0.4
Total Costs	124.4	127.8	3.4
Operating Surplus	4.8	-	4.8
Rebate to Market Participants	(4.8)	-	(4.8)
Accumulated Operating Surplus	5.0	5.0	-

The most recent projected 2013 financial results demonstrate the continued strong cost controls on the part of IESO management.

The usage fee revenues are a direct result of energy volumes within the province and exported to neighbouring jurisdictions. Due to higher than expected provincial volumes and exports, the energy volumes for 2013 are projected at 153.3 terawatt hour (TWh), some 1.1 TWh above the budgeted volumes of 152.2 TWh and do not include generation embedded within distribution systems.

The market-related investment income is interest earned on funds held by the IESO through the market settlement cycle and the projection of \$1.2 million is consistent with the budgeted amount. The reduced projection for cost recovery revenue for services reflects lower than planned Connection Assessment work and the expected slowdown in the feasibility study requests submitted by the Ontario Power Authority (OPA) for supply and transmission assessments, while the Regional Planning process is under review. These are somewhat offset by higher volume of work for the OPA related to demand response programs and higher than planned Technical Feasibility Exemption work.

On the cost side, the IESO has been effective in managing its work programs with operating costs projected to be \$3.0 million below the approved budget, largely the result of the higher than planned position vacancies as it has taken management longer than anticipated to fill all vacant positions in 2013. Amortization costs at \$14.7 million are projected to be on budget in 2013, as is the projected capital spending, at \$22.0 million.

Financial Outlook 2014-2016

The financial outlook for 2014 and beyond extends the message from 2013 – prudent cost management on the part of the IESO. Financial statements related to the IESO Usage Fee are included in Appendix 1.

The following table outlines the planned operating results over the planning period:

(\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Usage Fees	126.0	126.6	127.1	130.9
Cost Recovery for Services	2.0	2.0	2.1	2.1
Market-related Interest Income	1.2	1.3	2.7	3.8
Total Revenues	129.2	129.9	131.9	136.8
OM&A Costs	109.1	111.1	110.0	111.2
Amortization	14.7	17.7	20.1	23.2
Net Interest	0.6	1.1	1.8	2.4
Total Costs	124.4	129.9	131.9	136.8
Operating Surplus	4.8	-	-	-
Rebate to Market Participant	(4.8)	-	-	-
Accumulated Operating Surplus	5.0	5.0	5.0	5.0

Total Revenues

As noted earlier, the revenues IESO generates from usage fees are a factor of both energy volumes in terawatt hours (TWh) and the fee per megawatt hour (MWh).

In 2014, the IESO is proposing to change the methodology on which it levies its fee, such that the IESO charges its fee based on the gross load in the province plus exports, thereby adjusting for the growing amount of embedded generation within the province. This methodology does not result in the payment of additional IESO usage fees by consumers, rather it ensures all of the existing payments are paid to the IESO. Currently, Local Distribution Companies (LDCs) collect IESO usage fees from all of their customers¹ based on their total loads – but then only remit to the IESO based on the LDC net load which is reduced by embedded generation. The amount of embedded generation is expected to

¹ The IESO usage fee forms part of the Wholesale Service Charge paid by distribution customers based on their individual load.

continue to increase in materiality. The IESO believes the proposed change in methodology more fairly reflects the changing nature of the grid, including the need for the IESO to establish and maintain visibility of embedded generation and to forecast its impact on bulk system requirements. The IESO's proposed usage fee for 2014 of \$0.803 per MWh represents a 2.3% reduction from our current fee of \$0.822/MWh.

	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Outlook Demand Forecast (TWh)	141.4	141.0	137.3	134.4
Less: Transmission Line Losses (TWh)	(3.1)	(3.1)	(3.0)	(3.0)
Exports (TWh)	15.0	14.0	14.4	14.3
Total Energy Volumes (net TWh) ²	153.3	151.9	148.7	145.7
Embedded Generation (TWh)	n/a	5.7	7.0	7.6
Total Energy Volumes (gross TWh) ³	153.3	157.6	155.7	153.3
IESO Usage Fee (\$/MWh)	\$0.822	\$0.803	\$0.816	\$0.854
Total Usage Fee Revenue (million)	\$126.0	\$126.6	\$127.1	\$130.9

The above usage fees reflect a reduction from the 2013 fee for both 2014 and 2015, with an increase of 3.9% in 2016.

Cost recovery revenues are budgeted to remain relatively flat over the three year planning period. These revenues represent services that are provided at cost and there are corresponding costs within the operating costs for these services.

The interest income earned on other real-time market investments is projected to increase over the planning period primarily as a consequence of assumed increases in interest rates.

² Energy volume forecasts used in calculating the usage fee over the planning period are based on the 18-Month Outlook released May 2013.

³ Beginning in 2014 usage fees are based on total energy volumes inclusive of embedded generation

Total Costs

	2013 Projected	2014 Budget	2015 Plan	2016 Plan
OM&A Costs	109.1	111.1	110.0	111.2
Amortization	14.7	17.7	20.1	23.2
Interest (net)	0.6	1.1	1.8	2.4
Total Costs	124.4	129.9	131.9	136.8

Over the planning period, it is expected that total costs are expected to change annually by \$5.5 million, \$2.0 million and \$4.9 million respectively.

OM&A Costs

OM&A costs are budgeted to increase by \$2.0 million in 2014 and then remain largely flat in 2015 and 2016. These cost increases are largely the result of the lower projected staff costs in 2013 due to delays in hiring to budgeted levels in the first half of the year. In the second half of 2013, IESO management is committed to fill staff positions while recognizing that a consistent, ongoing level of vacancies will occur across the corporation. In addition, the IESO will continue to employ focused vendor management and competitive procurement processes to limit inflationary and other increases in computer support, maintenance and equipment costs and in telecommunication costs.

Staffing

In 2012, IESO management significantly limited hiring in order to provide flexibility for the anticipated merger with the OPA. However, the merger did not proceed, and IESO management is now hiring to 2013 budgeted levels in key areas including: support of renewable integration and market development, compliance activities and increased effort focused on refreshing/replacing existing information technology systems.

The total 2013 budgeted staff level for wholesale operations, including capital labour, is 467 and will decrease to 459 for 2014, with further slight decreases to 458 for 2015 and 456 for 2016. Changes in staffing levels over the planning period result from a reallocation of effort across the different business functions with the recognition of efficiencies being achieved in some of the ongoing processes. These staffing levels include regular and temporary staff for wholesale operations.

	2013		2014		2015		2016	
	Regular	Temp	Regular	Temp	Regular	Temp	Regular	Temp
Wholesale Operations	459	8	451	8	451	7	449	7
Total	459	8	451	8	451	7	449	7

Amortization

Amortization expense, driven by reinvestment in IT systems and infrastructure, continues to be the key driver in the year over year increases in total costs. Increases of \$2.7 million in 2015 and \$3.1 million in 2016 will bring amortization expense to \$23.2 million, reflecting the cost of renewing aging IT infrastructure. For comparison, this is less than half of the amortization cost ten years ago.

(\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Amortization	14.7	17.7	20.1	23.2

A summary of the capital spending over the 2013 – 2016 period is contained in the table below:

Project (\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Renewable Integration Initiative	3.3	-	-	-
Revenue Metering System Replacement	3.0	3.6	-	-
Energy Management System (EMS) Refresh	2.0	5.0	2.0	-
IESO Simulator	1.7	-	-	-
Registration Automation	1.0	0.6	-	-
Oracle 11g RAC Technical Refresh	0.8	0.6	-	-
Market Information Management Refresh	0.5	1.5	-	-
Tier 1 Storage Refresh	0.5	1.5		
Interchange Automation	-	2.0	1.0	-
Market Interface System Refresh	-	1.5	5.0	-
Outage Management Replacement	-	0.5	0.6	
Electrical System Upgrades	-	-	3.0	-
Market Improvements	-	-	4.0	7.0
Reliability Improvements	-	-	3.0	5.0
Information Security Enhancements	-	-	1.0	2.0
Settlements Replacement	-	-	-	6.0
Enterprise Cybersecurity Management Enhancements	-	-	-	1.0
NERC Tools Replacement	-	-	-	1.0
Total Capital Projects (totaling \$1M & above)	12.8	16.8	19.6	22.0
Other Capital Projects	9.2	7.2	4.4	1.7
Total Capital Projects	22.0	24.0	24.0	23.7

The IESO continues to have an ongoing need for reprioritization of initiatives it undertakes, and accordingly, the business planning process is not used as the mechanism for capital project approval. Rather, through business planning, an appropriate capital envelope is established for future years, with capital commitments approved individually on an ongoing basis. This practice is consistent with prior years. In addition, the IESO recognizes the need for robust disclosure and information about the projects for which this capital funding is currently intended to be utilized.

Detailed project descriptions are included in Appendix 2.

Interest Expense (net)

(\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Interest Expense (net)	0.6	1.1	1.8	2.4

Net interest expense is comprised of the following components:

(\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Interest on Debt	0.5	0.9	1.6	2.2
Financing Charges	0.3	0.3	0.3	0.4
Investment/Other Income	(0.1)	(0.1)	(0.1)	(0.1)
Capitalized Interest	(0.1)	-	-	(0.1)
Net Interest Expense	0.6	1.1	1.8	2.4

In May 2013, the IESO entered into a one-year note payable with Ontario Electricity Financial Corporation (OEFC) for \$78.2 million at a fixed interest rate of 1.62%. On April 30, 2013, the IESO entered into an unsecured \$110 million credit facility with OEFC. Advances under the credit facility are payable at a variable interest rate equal to Province of Ontario's cost of borrowing for a 30 day term plus 0.50% per annum. The facility expires April 30, 2014.

The interest on debt also reflects the following assumptions:

(\$ millions)	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Debt at end of year	\$33.0	\$52.6	\$64.3	\$71.1
Average Interest Rate	1.65%	1.87%	2.57%	2.80%

Increases in debt are shown on the Statement of Cash Flows in Appendix 1 and in 2014 are largely the result of increased capital spending in excess of amortization expense, as well as the expected payment of market participant rebates. In 2015 and 2016 the increase in debt is largely the result of pension contributions in excess of pension costs during those years.

Financial Outlook Related to the Smart Metering Entity:

The Meter Data Management/Repository (MDM/R) was placed in-service in February 2008. Further development and updates have continued and new functionality was released in 2009, 2011, and April 2012. The MDM/R system is actively processing smart meter data and producing time-of-use (TOU) and other billing quantities for customer invoices. The transition of customers to TOU rates is substantially completed with 4.47 million of 4.7 million customers on TOU rates. Most of the remaining customers are targeted to be transitioned in early 2014. By the end of June 2013, 69 LDCs have transitioned to the MDM/R interface, enabling them to receive register reads for billing and support with their compliance with Measurement Canada requirements. The IESO remains actively engaged with the remaining distributors to support their compliance with Measurement Canada requirements.

On March 28, 2013, the Ontario Energy Board issued its Decision and Order in the Smart Metering Charge proceeding (EB-2012-0100 and EB-2012-0211). The Board ordered that beginning May 1, 2013, the Smart Metering Entity (SME) will levy and collect from all Distributors identified in the Ontario Energy Board's annual Yearbook of Electricity Distributors, a monthly Smart Meter Charge in the amount of \$0.788, for each Residential and General Service <50kW Customer.

The SME costs incurred to date and projected costs are within the IESO Board authorized budget for Smart Metering and within the Revenue Requirement for the Smart Metering Charge. These are shown in the following table and reflected in the consolidated financial statements provided in Appendix 4.

All direct and/or incremental costs associated with MDM/R are charged separately from all other IESO costs that form part of the revenue requirements for the IESO usage fee.

(\$ millions)	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
SME Fees	-	30.1	45.2	45.2	45.2
Total Revenues	-	30.1	45.2	45.2	45.2
SME Program Costs	18.6	24.5	27.6	27.3	27.0
Amortization	3.6	3.7	3.9	3.9	3.9
Net Interest	1.5	1.8	1.8	3.0	3.1
Total Costs	23.7	30.0	33.3	34.2	34.0
Operating Surplus/(Deficit)	(23.7)	0.1	11.9	11.0	11.2
Accumulated (Deficit)	(82.4)	(82.3)	(70.4)	(59.4)	(48.2)

The revenue requirement assumptions and resulting Smart Metering Entity balance sheet are included in Appendix 3.

Market Enforcement Activities

The IESO's Market Assessment and Compliance Division has implemented a risk-based framework to assess the areas of market rules and conduct in need of an increased compliance and enforcement focus. Enforcement can result in financial penalties and payment adjustments which are held in the IESO Adjustment Account. The amounts that might be received pursuant to prospective actions cannot be estimated in advance of any given year, as it is difficult to project what enforcement activities may be required. Those enforcement costs that are reimbursed from the Adjustment Account are not included in the IESO's proposed usage fee.

Overall Financial Outlook:

The overall financial outlook of the IESO, including both wholesale operations and Smart Metering Entity activities, are presented in the consolidated financial statements in Appendix 4.

Appendix 1: IESO Usage Fee Financial Statements

Actual and Pro Forma Statement of Operations and Accumulated Surplus

For the Year Ended December 31

(in Millions of Canadian Dollars)

	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
REVENUES					
Usage fees	125.8	126.0	126.6	127.1	130.9
Market-related interest income	1.3	1.2	1.3	2.7	3.8
Cost recovery for services	2.7	2.0	2.0	2.1	2.1
Total Revenues	129.8	129.2	129.9	131.9	136.8
EXPENSES					
OM&A Costs	106.5	109.1	111.1	110.0	111.2
Amortization	13.0	14.7	17.7	20.1	23.2
Net Interest	0.8	0.6	1.1	1.8	2.4
Total Expenses	120.3	124.4	129.9	131.9	136.8
Operating Surplus/(Deficit)	9.5	4.8	-	-	-
Rebates to Market Participants	(9.5)	(4.8)	-	-	-
Accumulated Surplus - Usage fees	5.0	5.0	5.0	5.0	5.0
Market Sanctions & Payment Adjustments	1.1	2.5	-	-	-
Customer Education & Market Enforcement Expenses	(0.7)	(4.1)	-	-	-
Accumulated Market Sanctions & Payment Adjustments	1.4	(0.2)	(0.2)	(0.2)	(0.2)

Actual and Pro Forma Statement of Financial Position
For the Year Ended December 31
(in Millions of Canadian Dollars)

	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
ASSETS					
Current Assets					
Cash & cash equivalents	6.9	2.0	2.0	2.0	2.0
Accounts receivable	16.8	15.5	15.1	16.7	18.3
Short-term prepaid expenses	3.7	3.5	3.5	3.5	3.5
	27.4	21.0	20.6	22.2	23.8
Property & Equipment					
Property & equipment in service	344.1	359.0	382.8	404.8	426.8
Less: accumulated amortization	<u>(279.0)</u>	<u>(293.7)</u>	<u>(311.4)</u>	<u>(331.5)</u>	<u>(354.7)</u>
Net Book Value	65.1	65.3	71.4	73.3	72.1
Construction-in-progress	4.7	11.8	12.0	14.0	15.7
	69.8	77.1	83.4	87.3	87.8
Other Assets					
Long-term investments	27.7	29.9	31.8	33.8	36.0
TOTAL ASSETS	124.9	128.0	135.8	143.3	147.6
LIABILITIES					
Current Liabilities					
Accounts payable & accrued liabilities	17.6	17.7	17.7	17.8	17.8
Accrued interest	0.3	0.3	0.3	0.3	0.3
Rebates to market participants	13.1	17.9	-	-	-
	31.0	35.9	18.0	18.1	18.1
Debt	36.7	33.0	52.6	64.3	71.1
Accrued pension liability	41.6	35.6	32.3	18.7	6.9
Accrual for employee future benefits other than pension	69.3	74.2	79.4	84.8	90.5
TOTAL LIABILITIES	178.6	178.7	182.3	185.9	186.6
Accumulated Surplus - Usage Fees	5.0	5.0	5.0	5.0	5.0
Accumulated Pension Actuarial Losses	(60.1)	(55.5)	(51.3)	(47.4)	(43.8)
Accumulated Fines and Penalties	1.4	(0.2)	(0.2)	(0.2)	(0.2)
TOTAL LIABILITIES & ACCUMULATED SURPLUS	124.9	128.0	135.8	143.3	147.6

Actual and Pro Forma Statement of Cash Flows
For the Year Ended December 31
(in Millions of Canadian Dollars)

	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
OPERATING ACTIVITIES					
Change in rebates to market participants	9.6	4.8	(17.9)	-	-
PSAB transition items	5.8	4.6	4.2	3.9	3.6
Market sanctions and payment adjustments	1.1	2.5	-	-	-
Customer education & market enforcement costs	(1.1)	(4.1)	-	-	-
Amortization	13.0	14.7	17.7	20.1	23.2
Change in fair value long-term investment	(1.1)	(2.2)	(1.9)	(2.0)	(2.2)
Pension cost	12.0	10.8	10.7	10.4	9.8
Increase in accrual for employee future benefits	6.5	6.9	7.3	7.6	8.0
Pension plan contributions	(25.3)	(16.8)	(14.0)	(24.0)	(21.6)
Payment of employee future benefits	(1.7)	(2.0)	(2.1)	(2.2)	(2.3)
Other non-cash items related to operations	(3.4)	1.6	0.4	(1.5)	(1.6)
Cash Provided from Operations	15.8	20.8	4.4	12.3	16.9
INVESTING ACTIVITIES					
Purchase of long-term investments	(2.3)	-	-	-	-
Investment in property & equipment	(10.1)	(22.0)	(24.0)	(24.0)	(23.7)
Cash Used in Investing Activities	(12.4)	(22.0)	(24.0)	(24.0)	(23.7)
FINANCING ACTIVITIES					
Issue/(retirement) of debt	(2.1)	(3.7)	19.6	11.7	6.8
Cash Provided from Financing Activities	(2.1)	(3.7)	19.6	11.7	6.8
Net Change in Cash Flow	1.3	(4.9)	-	-	-
Cash and Cash Equivalents - Beginning of Year	5.6	6.9	2.0	2.0	2.0
Cash and Cash Equivalents - End of Year	6.9	2.0	2.0	2.0	2.0

Appendix 2: IESO Capital Projects

(in thousands of Canadian Dollars)

Project	2013 Projected	2014 Budget	2015 Plan	2016 Plan
Renewable Integration Initiative	3,268			
Revenue Metering System Replacement	2,950	3,600		
Energy Management System (EMS) Refresh	2,000	5,000	2,000	
IESO Simulator	1,736	20		
Registration Automation	1,033	600		
Oracle 11g RAC Technical Refresh	800	600		
Market Information Management Refresh	500	1,500		
Tier 1 Storage Refresh	500	1,500		
Interchange Automation		2,000	1,000	
Market Interface System Refresh		1,500	5,000	
Outage Management Replacement		500	600	
Electrical System Upgrades			3,000	
Market Improvements			4,000	7,000
Reliability Improvements			3,000	5,000
Information Security Enhancements			1,000	2,000
Settlements Replacement				6,000
Enterprise Cybersecurity Management Enhancements				1,000
NERC Tools Replacement				1,000
Total Capital Projects (totaling \$1M & above)	12,787	16,820	19,600	22,000
Other Capital Projects	9,213	7,135	4,350	1,650
Capital Funding Total	22,000	23,955	23,950	23,650

Capital Projects – Descriptions

Project	Description
Renewable Integration Initiative	Additional tools and services are required by the IESO to improve the forecasting of available energy from renewable sources and the impacts that those embedded resources will have on demand. This project includes new systems and changes to existing systems to implement the Renewable Integration design.
Revenue Metering System Replacement	The Revenue Metering Repository systems have not been upgraded from a technology perspective since market opening and are overdue for an upgrade or replacement. Major changes of this type also provide an opportunity to review the business processes that these systems support, and take advantage of tool changes that vendors have implemented to improve efficiency. This initiative encompasses: 1) Meter Registration 2) Meter Polling – MV90 3) Meter Calculation and Archiving – MVSTAR 4) Participant access to Meter Information – MVWEB 5) Meter Trouble Reporting – MTR 6) Meter Data Provisioning – interfaces with other IESO systems.
Energy Management System (EMS) Refresh	The Energy Management System (EMS) is a key system for managing and monitoring the IESO Controlled Grid (ICG). This system collects real-time information from the field, monitors that the system is being operated within defined limits and presents the information to the operators in the form of displays and messages. This system requires regular maintenance to ensure adequate vendor support and to remain in compliance with changing NERC standards. The EMS Refresh will also introduce functional improvements that the vendor has included in the latest release, such as visualization enhancements and integration capabilities. The improvements can be used to improve the user's experience and/or meet the business requirements identified in future projects.
IESO Simulator	The IESO Simulator initiative will provide system operators with a training environment that replicates the operational behaviour of the IESO Controlled Grid during normal and emergency conditions and allows a team of control room operators to respond to power system events in a coordinated manner. The use of a power system simulator will allow the IESO to better train its operators through a more effective training experience and ensure our compliance with NERC standard PER-005-1 Requirement 3.1 which comes into effect on April 1, 2014.
Registration Automation	The Registration Automation project will replace the IESO paper forms based solution for registering participants with an electronic forms solution. This project includes a complete review of the registration processes and the introduction of a Business Process Management solution to implement the new registration process.
Oracle 11 g RAC Technical Refresh	The IESO uses an Oracle Real Application Cluster (RAC) database for all its critical databases. The existing solution is at version 10 and runs on older HP Blade servers. The project will upgrade the Oracle RAC infrastructure to version 11, running on higher performance servers.

Capital Projects – Descriptions continued

Market Information Management Refresh	The Market Information Management (MIM) system supports Market Participant transaction submissions, including the submission of bids, offers, non-dispatchable schedules and physical bilateral contracts. MIM validates and stores these transactions and makes them available for downstream processing in the day-ahead, real-time and settlements timeframes. The MIM system technology has not been upgraded since market opening and the ability to maintain required service levels is becoming more challenging. It is necessary to undertake an upgrade or a replacement before its reliability is impacted.
Tier 1 Storage Refresh	The Tier 1 Storage Refresh initiative will refresh the primary storage arrays the IESO uses for both file systems and databases. This project will refresh the EMC DMX4 array to achieve improved performance and additional capacity to meet the needs of the business for the next four years.
Interchange Automation	This project will review processes and tools associated with managing interchange transactions. It will implement changes to allow us to better integrate with the evolving processes in neighbouring jurisdictions and allow us to continue to be compliant with evolving NERC standards.
Market Interface System Refresh	The Market Interface System (MIS) is a key system for managing the IESO Administered Markets (IAM). This system determines the dispatch schedules for the IAM. A refresh of the system is required to maintain reliability of the MIS and provision a solution that will support the recommended enhancements to the IAM.
Outage Management Replacement	The Outage Management solution is responsible for collecting and presenting outages that may impact the operation of the ICG or IAM. This solution provides interfaces that support both participant requirements and internal user requirements. This solution is nearing end of life and is due for replacement. In addition, discussions with other Independent System Operators and with our participants have identified opportunities for improving the processes and tools associated with managing outages.
Electrical System Upgrades	This initiative involves the replacement, upgrading, or refurbishment of various aspects of the Clarkson System Control Centre electrical system which has been in service for a number of years. The exact nature and extent of the replacement, upgrades, or refurbishment will be determined after an in-depth review.
Market Improvements	There are a number of market design reviews underway in areas such as capacity markets, real-time dispatch models (two-schedule system and HOEP review), generation cost guarantees, increasing the frequency of intertie transaction scheduling and demand side integration projects. The IESO will commence a stakeholder review in the fall of 2013 that will result in the selection, prioritization and sequencing of specific design implementation projects over a five year period. It is expected that implementation of one of the above initiatives could commence near the end of 2014 that may result in the need for capital projects.
Reliability Improvements	This is funding allocated for yet to be identified projects related improving the processes and solutions for managing reliability of the IESO Controlled Grid.
Information Security Enhancements	This is funding allocated for projects to improving the security posture of the IESO based on the changing threats and measures available to counteract those threats.
Settlements Replacement	Analysis activities related to reviewing the existing settlements process and replacing the supporting systems will begin in 2014 with implementation activities being initiated in 2016 for a 2017 delivery.
Enterprise Cybersecurity Management Enhancements	This project will replace the software and hardware currently used to monitor system logs for security events and perform security testing.
NERC Tools Replacement	This funding is allocated for yet to be identified projects related to NERC's change in policy with respect to the provisioning of tools that are used by NERC entities.

Appendix 3: Smart Metering Entity

Smart Metering Entity – Projected Balance Sheet

(\$ millions)	2012 Actual	2013 Projected	2014 Budget	2015 Plan	2016 Plan
ASSETS					
Property & Equipment	17.8	15.6	11.7	7.8	3.9
TOTAL ASSETS	17.8	15.6	11.7	7.8	3.9
LIABILITIES					
Accounts Payable & Accrued Liabilities	3.7	3.0	3.0	3.0	3.0
Debt	96.5	94.9	79.1	64.2	49.1
TOTAL LIABILITIES	100.2	97.9	82.1	67.2	52.1
Accumulated Deficit	(82.4)	(82.3)	(70.4)	(59.4)	(48.2)
TOTAL LIABILITIES & ACCUMULATED DEFICIT	17.8	15.6	11.7	7.8	3.9

Smart Metering Entity – Principle Assumptions Underpinning SME Revenue Requirement

- The period over which the costs were or will be incurred is from inception of the Smart Metering Initiative (July 2006) to December 31, 2017.
- The period of cost recovery is from May 1, 2003 to October 31, 2018 as per the Ontario Energy Board Decision and Order issued on March 28, 2013 in connection with the Smart Metering Charge proceeding (EB-2012-0100 and EB-2012-0211).
- The MDM/R asset is being amortized over a ten year period from when it went into operation, from March 1, 2008 to December 31, 2017.
- The service life is based on industry practice and is consistent with service lives used for comparable meter processing and database systems.
- There is no provision for costs associated with providing services for General Service ≥ 50 kW Customers.
- There is no provision for a rate of return in the revenue requirement.

Appendix 4: Consolidated Financial Statements

Actual and Pro Forma Consolidated Statement of Operations and Accumulated Surplus

For the Year Ended December 31

(in Millions of Canadian Dollars)

	2012 Actual	2013 Projected	2014 Budget	2015 Plan	2016 Plan
REVENUES					
Usage fees	125.8	126.0	126.6	127.1	130.9
SME fees	-	30.1	45.2	45.2	45.2
Market-related interest income	1.3	1.2	1.3	2.7	3.8
Cost recovery for services	2.7	2.0	2.0	2.1	2.1
Total Revenues	129.8	159.3	175.1	177.1	182.0
EXPENSES					
OM&A costs	125.1	133.6	138.7	137.3	138.2
Amortization	16.6	18.4	21.6	24.0	27.1
Net Interest	2.3	2.4	2.9	4.8	5.5
Total Expenses	144.0	154.4	163.2	166.1	170.8
Operating Surplus/(Deficit)	(14.2)	4.9	11.9	11.0	11.2
Rebates to Market Participants	(9.5)	(4.8)	-	-	-
Accumulated Surplus - Usage fees	5.0	5.0	5.0	5.0	5.0
Accumulated Deficit - SME fees	(82.4)	(82.3)	(70.4)	(59.4)	(48.2)
Accumulated Market Sanctions & Payment Adjustments	1.4	(0.2)	(0.2)	(0.2)	(0.2)

Actual and Pro Forma Consolidated Statement of Financial Position
For the Year Ended December 31
(in Millions of Canadian Dollars)

	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
ASSETS					
Current Assets					
Cash & cash equivalents	6.9	2.0	2.0	2.0	2.0
Accounts receivable	16.8	15.5	15.1	16.7	18.3
Short-term prepaid expenses	3.7	3.5	3.5	3.5	3.5
	27.4	21.0	20.6	22.2	23.8
Property & Equipment					
Property & equipment in service	375.3	391.8	415.6	437.6	459.6
Less: accumulated amortization	<u>(292.4)</u>	<u>(310.9)</u>	<u>(332.5)</u>	<u>(356.5)</u>	<u>(383.6)</u>
Net Book Value	82.9	80.9	83.1	81.1	76.0
Construction-in-progress	4.7	11.8	12.0	14.0	15.7
	87.6	92.7	95.1	95.1	91.7
Other Assets					
Long-term investments	27.7	29.9	31.8	33.8	36.0
	27.7	29.9	31.8	33.8	36.0
TOTAL ASSETS	142.7	143.6	147.5	151.1	151.5
LIABILITIES					
Current Liabilities					
Accounts payable & accrued liabilities	21.3	20.7	20.7	20.8	20.8
Accrued interest	0.3	0.3	0.3	0.3	0.3
Rebates to market participants	13.1	17.9	-	-	-
	34.7	38.9	21.0	21.1	21.1
Debt	133.2	127.9	131.7	128.5	120.2
Accrued pension liability	41.6	35.6	32.3	18.7	6.9
Accrual for employee future benefits other than pension	69.3	74.2	79.4	84.8	90.5
TOTAL LIABILITIES	278.8	276.6	264.4	253.1	238.7
Accumulated Surplus - Usage Fees	5.0	5.0	5.0	5.0	5.0
Accumulated PSAB transition items	(60.1)	(55.5)	(51.3)	(47.4)	(43.8)
Accumulated Deficit - SME Fees	(82.4)	(82.3)	(70.4)	(59.4)	(48.2)
Accumulated Market Sanctions & Payment Adjustments	1.4	(0.2)	(0.2)	(0.2)	(0.2)
TOTAL LIABILITIES & ACCUM. SURPLUS	142.7	143.6	147.5	151.1	151.5

Actual and Pro Forma Consolidated Statement of Cash Flows
For the Year Ended December 31
(in Millions of Canadian Dollars)

	2012	2013	2014	2015	2016
	Actual	Projected	Budget	Plan	Plan
OPERATING ACTIVITIES					
Operating surplus/(deficit) after rebates	(23.7)	0.1	11.9	11.0	11.2
Change in Rebates to Market Participants	9.6	4.8	(17.9)	-	-
PSAB transition items	5.8	4.6	4.2	3.9	3.6
Market sanctions and payment adjustments	1.1	2.5	-	-	-
Customer education & market enforcement costs	(0.7)	(4.1)	-	-	-
Amortization	16.6	18.4	21.6	24.0	27.1
Change in fair value long-term investment	(1.1)	(2.2)	(1.9)	(2.0)	(2.2)
Pension cost	12.0	10.8	10.7	10.4	9.8
Increase in accrual for employee future benefits	6.5	6.9	7.3	7.6	8.0
Pension plan contributions	(25.3)	(16.8)	(14.0)	(24.0)	(21.6)
Payment of employee future benefits	(1.7)	(2.0)	(2.1)	(2.2)	(2.3)
Other non-cash items related to operations	(2.2)	1.0	0.4	(1.5)	(1.6)
Cash Provided from Operations	(3.1)	24.0	20.2	27.2	32.0
INVESTING ACTIVITIES					
Purchase of long-term investments	(2.3)	-	-	-	-
Investment in property & equipment	(16.3)	(23.6)	(24.0)	(24.0)	(23.7)
Cash Used in Investing Activities	(18.6)	(23.6)	(24.0)	(24.0)	(23.7)
FINANCING ACTIVITIES					
Issue/(Retirement) of debt	23.0	(5.3)	3.8	(3.2)	(8.3)
Cash Provided from Financing Activities	23.0	(5.3)	3.8	(3.2)	(8.3)
Net Change in Cash Flow	1.3	(4.9)	-	-	-
Cash and Cash Equivalents – Beg. of Year	5.6	6.9	2.0	2.0	2.0
Cash and Cash Equivalents - End of Year	6.9	2.0	2.0	2.0	2.0

