INFORMATION TECHNOLOGY STRATEGY

Hydro Ottawa Limited's Information Technology Strategy can be found in Attachment B-1(E).

2015-2020
IM&IT Strategy

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EXECUTIVE SUMMARY

The Hydro Ottawa IM&IT Strategy for the period 2015-2020 is a foundational component and key enabler of the corporate Strategic Direction. Hydro Ottawa's continuing IM&IT vision is that information is accessible, when and where it is needed; is managed as a corporate asset; is reliable, accurate, and secure. "Accessing Anything, Anytime, Anywhere" remains the core mission of the IM&IT Strategy.

To position HO for "Accessing Anything, Anytime, Anywhere", key change strategies are proposed in the IM&IT domains of Business Solutions, Enterprise Architecture, Information Management, IT Security, and Infrastructure.

Consultations with HO's Divisions provide business requirements for new applications and for upgrades and additional functionality for existing applications. The effectiveness of the current Enterprise Resource Plan (ERP) solution in meeting HO's evolving business needs will be considered with a view to potential upgrade or replacement. The Customer Care & Billing (CC&B) system will be augmented with additional functionality. Legacy applications will be rationalized to simplify ongoing support and maintenance requirements. Contracts review will apply continued diligence on maintenance and support services in seeking most cost-effective maintenance programs as well as to identify areas where consolidation of licenses and services will reduce technology overhead.

The accelerating rate of technological change means that the speed of delivery must increase. The IT organization must become agile in its ability to respond and service the business constituent. Business Intelligence tools will be investigated where they can leverage existing data points to increase customer understanding, utilization rates and potential energy savings. The proposed Services Oriented Architecture (SOA) is one strategy that could enhance HO's agility to respond and adapt to the changing business requirements. Investigating and leveraging Software as a Solution (SaaS), Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) will, under the right conditions, successfully offset multiple infrastructure management and provisioning burdens, both one-time and reoccurring. Processes for delivery need to be revamped and where possible, map to a more agile, waterfall methodology.

The facility relocation will need to be considered as a requirement for a new LEED Certified[1] Data Centre emerges. As fit-up is required, it will need to take advantage of new generation of technologies, including network and database appliances, wireless communications, etc. Overall the technology footprint will be reduced and the support model simplified with fewer devices installed, and more advanced composite technologies requiring less configuration effort. Mobile computing capabilities will be leveraged.

IT Security will continue to be proactive in protecting HO's IM and IT assets and environments against attack from the ever-changing threat landscape.

In summary, the following IM&IT strategies will help to position HO to fulfil its corporate strategic objectives and deliver value across the entire customer experience, and the enterprise IM&IT vision of "Accessing Anything, Anytime, Anywhere":

- Cloud computing: Software as a Service[2] (SaaS)
- Security enhancement tools: continuous diagnostic monitoring, digital forensics
- Mobile workforce technologies and solutions
- Enterprise Resource Planning (ERP)
- Virtualization: servers, desktop, storage, applications, data centre
- Legacy applications modernization / renovation
- Business Intelligence (BI), Business Analytics (BA) applications, Big Data
- Disaster Recovery / Business Continuity
- Identity and access management,
- Networking: unified voice and data communications,
- Enhanced customer portals that deliver critical the information needed, and
- Multi-channel customer-service experience (through voice, data, email, chat and social media avenues).

[1] **LEED**, or Leadership in Energy & Environmental Design, is a green building **certification** program that recognizes best-in-class building strategies and practices.

[2] Software as a Service (SaaS) is a software distribution model in which applications are hosted by a vendor or service provider and made available to customers remotely as a Web-based service. SaaS is an increasingly prevalent delivery model as underlying technologies that support Web services and service-oriented architecture (SOA) mature. SaaS allows organizations to access business functionality at a cost typically less than the total cost of ownership of licensed applications. SaaS removes the need for organizations to handle the installation, set-up and often daily upkeep and maintenance.

INTRODUCTION

The over-arching theme of the IM&IT Strategy is “Accessing Anything, Anytime, Anywhere”, which encapsulates HO’s IM&IT vision of information that is accessible, when and where it is needed to support decision-making, ongoing business operations, customer interactions, regulatory compliance, and business sustainability.

This IM&IT Strategy for the period 2015-2020 has been prepared in anticipation of the 2016 Rate Application; its purpose is to provide functional direction and support to Hydro Ottawa (HO), its business planning and associated IM&IT opportunities and requirements while respecting and adapting to the ever changing landscape for technology.

“Accessing Anything, Anytime, Anywhere” remains the core direction of the IM&IT Strategy Update with added focus on enabling customer experience, efficiency and productivity. Prudent IT investment choices drawn from well-defined business cases will support financial and IT decisions. Where it makes sense, consideration should be given to leveraging untapped functionality from existing investment. The need for a more agile and flexible technical infrastructure will draw upon all available options both within the existing investment as well as through cloud computing options. Significant savings and increased efficiencies can be achieved through more these more agile computing capabilities.

The key principles that will guide the acquisition, development and use of IM&IT resources are as follows.

- HO’s business strategies and corporate priorities are the primary drivers for IM&IT initiatives.
- An enterprise architectural perspective will inform network and operational technology decision-making to reduce point-to-point interfaces, establish authoritative data sources, and to provide real-time data availability.
- Where feasible, HO will leverage existing systems and services before investing in new technology solutions.
- HO will leverage its significant investment in Oracle, Intergraph, and Microsoft by adhering to a “Best of Brand” strategy, where feasible and cost-effective to do so.
- Commercial-Off-the-Shelf (COTS) solutions will be implemented with limited customization in preference to custom-developed business applications, to reduce risks and costs, and to facilitate software supportability and upgrade paths.

- Cloud applications providing software, infrastructure and platform as services (Saas, IaaS, PaaS) will be considered where business, cost, resource and support considerations warrant.
- IM&IT solutions will be implemented as part of a process to redesign business models and processes to improve outcomes, productivity and efficiency.
- Upfront, rigorous and cyclical IT investment planning will serve as the cornerstone to all IT initiatives and will include strong business case rationale which identifies Total-Cost-of-Ownership, including business requirements, technology & integration considerations, support and ongoing management requirements, identified prior to the approval of IM&IT investments by any part of the organization and integrated into the overall Hydro Ottawa IMIT technology plan.
- Alignment with IT Security program is essential for all proposed IM&IT solutions, including code development, solution acquisition and integration into HO's environment.

The IM&IT Division will maintain the stewardship responsibility to ensure that HO's information and technology assets are managed efficiently, securely and cost-effectively throughout their lifecycle.

HYDRO OTTAWA BUSINESS CONTEXT

As the Local Distribution Company (LDC) for the Nation's Capital, HO is an essential service provider committed to the delivery of reliable, quality power in a secure and cost-efficient manner. The fundamental change in the behaviour of the electricity supply system, from a one-way flow of power from LDC to consumer, to two-way power flows necessitates much greater situational awareness and capability throughout the power system.

During December of 2013, Hydro Ottawa began the journey of looking at the current communications infrastructure, as well as current and future communications requirements centered on building a self-healing Smart Grid network infrastructure to better support operations and customers utilizing more
secure, reliable, and company-owned telecommunications infrastructure.

The resulting Telecommunications Strategy will introduce a company owned fibre optic based telecommunications system (ring) for the majority of Hydro Ottawa's substations and all of its corporate locations with microwave radio to outlying substations where fibre builds may be cost

prohibitive, particularly to those located in far reaching service areas. By having real-time information on conditions
at the edges of the distribution system, HO can ensure that the voltage is within mandated service standards while optimizing distribution system efficiency and identifying undersized or failing distribution equipment.

Advancing Smart Grid network infrastructure and telecommunications capabilities will in turn introduce associated infrastructure and communications needs from wide-area and field LAN sites as well as advance metering and SCADA systems. Beyond advancing communication protocols, tools to aggregate and analyze data and present information (e.g. Distribution Management System (DMS), Outage Management Systems (OMS), etc.) will be required and will need to be considered in the context of data management, authoritative sourcing and business intelligence.

HO continues to place primary focus on the customer, moving from a transactional service to a personal experience through better understanding of and response to growing customer demands and expectations with customer-enabled service offerings, personalized services, 24/7 accessibility, and a choice of channels for communication and interaction, including social media, and online self-service functionality. Multi-media, live/web-chat, pre-pay experiences and on-line surveys are only a few of the capabilities which must be enabled to appropriately engage and serve. Community partnerships, reputation and response to critical outages will require creative, capable internet and mobile solutions to enhance existing communication needs.

HO must be prepared to diversify and grow in all facets of its business, including generation, utility services, energy services, and distribution. HO is committed to environmental leadership in terms of renewable energy generation, energy consumption management, and the greening of its operations. This must occur within its IM&IT infrastructure and architectural framework, through server virtualization, outsourced managed services (printers) and ongoing reduction of technology “footprint” as can be achieved as well through the reduction of extensive customized applications and integrations to a more agile, plug-and-play capability.

HO must ensure that it has the organizational capacity and robust infrastructure to fulfill its business objectives and to meet the many challenges of a changing operational environment.

Efficient, lean operating capability, standardization and automation, formalized knowledge capture and transfer, and the ongoing preparation and support of the workforce with appropriate tools and technologies will be essential. Managing the Hydro Ottawa employee base with effective communication and self-serve solutions is crucial to effective and efficient performance. Hydro Ottawa must begin preparation for a more mobile workforce with technologies and solutions which enable needed information and business tools anywhere, anytime.

IM&IT SITUATIONAL ANALYSIS

The transformation and connectivity to large stores of information (big data) as well as social, mobile, cloud and analytics evolutions are changing the way we will live, work and interact. The industry will see a number of significant changes in the coming years. Smart Meters and Network Sensor information will become part of the way utilities will need to share and manage consumption and energy management. Traditional networks will be transformed to interact with a variety of systems and services in offering flexible, transparent, situation-aware services. With this, a significant increase in data sources, information flows and uses.

In 2010 Hydro Ottawa began putting in place foundational frameworks and establishing programs related to: IM&IT Governance, IT Security, Information Management, IM&IT Planning, and IM&IT Project Management. Substantial progress has been made.

In 2014, a formal Enterprise Architecture position was introduced to facilitate the move to a more homogenous alignment of technologies, to standardize on integration and middle-ware and link, as appropriate, needed shared services and information. An architectural framework and standard operating architecture (SOA) have been established and will now, through an Enterprise Service Bus (ESB) approach, facilitate ease of integration, reduce the proliferation of point-to-point and enable the orchestration of new services.

Existing Enterprise Resource Plan (ERP) COTS solutions have been heavily customized to meet HO's specific business needs, thereby adding further to the cost for point-to-point interfaces as well as the complexity of maintenance and support. There is considerable duplication of data through replicated databases. The absence of automated workflow processes coupled with hundreds of independent data sources results in data re-entry with its inherent error risks and productivity impacts. The ESB initiative will play a role in the reduction

of legacy solutions and point-to-point integrations, but more importantly in availing true, authoritative sources of information to be shared throughout the enterprise thereby reducing unnecessary duplication significantly. Net new solutions are being designed with the expectation that they will be "plugged into" an environment which is SOA enabled with an Enterprise Service Bus infrastructure in place. In the case of OMS and GMS, there is existing functionality which will be enabled to support metering services (Last Gasp, Meter Ping). The proposed Field Service Management workforce application houses automated processes which can be easily leveraged (out of the box capability) once the ESB infrastructure in place. New product releases expect this level of sophistication and the IT infrastructure must be positioned accordingly. Investment in the infrastructure will be needed to facilitate, where it makes sense, wireless, mobile, desktop productivity and personal computing /Bring-Your-Own- Device (BYOD) strategies.

The coming years will be significant for IT, specifically in preparing and adjusting to existing and future technology needs. The infrastructure will be strengthened, MPLS and Dark Fibre will extend communication capabilities, "green" data centers will lighten the cost/footprint of doing business; cloud or hybrid cloud solutions will be leveraged for flexibility and capability. Business Intelligence tools will support decisions. Back office systems will be replaced and upgraded to ensure we optimize process, execute effectively, standardize the model, reduce risk and improve business system capabilities.

IM&IT STRATEGIES 2014-2020

Business Solutions

HO operates and maintains a number of critical enterprise applications, including the JD Edwards Enterprise Resource Plan (ERP), Customer Care & Billing (CC&B) system, Outage Management System (OMS), Geographic Information System (GIS), SharePoint, MS-Exchange, and the HydroOttawa.com internet site. These critical applications must be treated as vital corporate assets and managed accordingly.

In addition to these widely used enterprise applications, there is a portfolio of over 40 business applications of varying age and technology platforms that are used by groups and individuals throughout the organization. Hydro Ottawa's direction for improving services and productivity, and reducing costs is through greater integration of applications and a focus on process

automation, which will be enabled by the deployment of an enterprise-wide service bus and alignment to Services Oriented Architecture services. HO currently has a mixed environment of on premise applications, outsourced application hosting and management, and cloud-based (SaaS) applications which is challenging for application integration and process automation. To leverage HO's extensive data assets, the introduction of Business Intelligence (BI) capabilities is desirable to support more effective strategic and tactical planning, operational insights and decision-making.

An Intranet Multi-Year Strategy was established in late fall to allow Hydro Ottawa to progress towards its corporate objective of Organizational Effectiveness and re-enforce the many positive aspects of its corporate Culture by embracing the strategic possibilities of Engagement, Collaboration, and Leadership on a new intranet.

The intranet strategic purpose is to improve organizational participation, contribute to the organizational effectiveness through cost savings and productivity gains by maximizing the use of intranet, promote cross-divisional collaboration/communication, celebrate and reinforce Hydro Ottawa's culture, and enact leadership through exemplary behaviors on the intranet.

Internal consultations at Hydro Ottawa indicate extensive business requirements for new applications and for upgrades and additional functionality for existing applications over the next six years. The Customer Care & Billing (CC&B) system will be upgraded with major new releases and new functionality for Customer Self-Serve (CSS). Legacy applications supporting the metering processes (i.e. Lodestar) will require rationalization. Upgrades and enhancements are anticipated to the Outage Management System (OMS), Outage Communications system, and to MyHydroLink; a replacement SCADA system is projected coincident with the relocation to new HO facilities. Within the business, Human Resources may require a number of new applications, potentially SaaS-based or outsourced, to provide functionality for Learning Management, Performance Management, Succession Planning, e-Recruitment / Talent Management, Workforce Analytics, Job Description Management, Contractor Management, Business Continuity and Emergency Preparedness, and e-Appraisal. Customer Service and Communications will look to the IM&IT vision and strategy for customer communications capability that provides a fully integrated, robust, multi-channel infrastructure that supports a broad mix of communications media including internet, voice, email, twitter, SMS text, instant messaging, web chat, fax and social media. This infrastructure will allow Hydro Ottawa

customers to communicate with the company how and when they_want to communicate. Additionally, there is a growing need to examine and draw upon the many data sources available with a view to leveraging business intelligence on energy usage, consumption, and customer experience and service value.

In the near term, efforts will be devoted to stabilizing the existing ERP environments. Longer term consideration of the ERP strategy will be essential and should take into account essential data needed from these enterprise applications to supply many emerging solutions and services.

Gartner predicted that mobile phones would overtake PCs as the most common web access device worldwide by 2013. With a large mobile workforce, and the growing prevalence of mobile devices, HO's business solutions must be web-based, designed to run on a myriad of devices, and be accessible anytime, anywhere.

A corporate strategy for future business application planning and acquisition / development is needed to ensure that these investments can be efficiently and cost-effectively implemented and maintained in HO's technology environment. Longer term IM&IT planning must consider the timing and coordination of major IM&IT projects to ensure that the required business resources are available and that the organization is not unduly stressed.

IM&IT Planning

All business sectors, groups and stakeholders must ensure advance, upfront identification of potential IT requirements, changes or additions to existing, new program needs or the potential retirement of existing function. This early notification step is paramount to the ongoing evolution of technology planning, tracking and management of IT investment as well as ensuring preparedness of the infrastructure in terms of enabling and supporting the business.

Interest in specific technologies or solutions will include thorough business case detail covering business need, potential solution considerations, customer/end user impact, one-time and reoccurring costs as well as infrastructure needs (be this hardware, licensing, maintenance, install, integration and support). The richness of planning detail is crucial and directly proportional to the results drawn from the IMIT organization.

Information Management

IM provides the framework for how corporate information is to be captured, stored, shared, transmitted and disposed of or securely retained across HO. Sound IM practices throughout the

organization are the foundation on which to build the capability to “Access Anything, Anytime, Anywhere”.

The March 2014 KPMG Audit of Information and Records Management rated the overall maturity of HO’s IM Program as bordering between Phase 2 “Reactive” and Phase 3 “Proactive” on the Gartner six-stage Electronic Information Management (EIM) maturity scale. This represents good progress from the previous KPMG Audit of HO’s Records Management practices in 2009 and serves now as the foundation from which to operate.

Attention will be needed on the classification, appropriate retention / storage and disposition of HO information and data, regardless of media (electronic or physical). The corporate move to new facilities in 2018 provides a significant opportunity to reduce the physical records footprint, working in accordance with records retention and disposition schedules to manage existing hardcopy and electronic transitory records.

Enterprise-wide SharePoint deployment will underpin enterprise search capabilities. More data than ever is collected in order to conduct business. Effective retention and disposition strategies for electronic information and data are required, as retention forever is not an option.

IT Security

The IT security program will continue to align HO practices with industry standards through the progressive rollout of capabilities and methods, ongoing effort to detect and protect against possible intrusion, replacement of legacy controls, and support for the migration to a mobile-centric infrastructure.

Mobile and remote computing practices will require associated security and management controls to allow authorized devices to connect and work seamlessly within Hydro Ottawa trusted environments. The protection and management of the mobile worker’s access to enterprise information sources will be achieved through the use of standard mobile device management capabilities.

With the increasing use of Cloud Computing, the potential tracking and responsiveness of the organization against infiltration and compromise due to malicious activity will be paramount. The development of a Security Information & Event Management (SIEM) monitoring,

interpretation and response strategy will need to be defined and draw on the good work already leveraged in the collection and aggregation of log file data. This needs to include SCADA and operating environments, particularly those leveraging analytical, historic physical security or asset management solutions.

The constant pressure to monitor external threats will remain the paramount security objective for all technology acquisitions, solutions, integrations, updates and access points.

Critical Infrastructure Protection will continue as a fundamental role of the Hydro Ottawa cyber program through the participation in industry and government programs for the energy sector and in the management of a corporate Cyber Security Incident Management plan as prescribed by Public Safety Canada and in the event response and mitigation measures be required.

Infrastructure

The technical infrastructure is the foundation on which the rest of the IT and OT environments operate. Built up over time, HO's technology infrastructure encompasses a mix of hardware, systems software, cabling, communications technologies, protocols, practices and disciplines. As the construction of a new HO Operations Centre and an Administration Building advance, infrastructure technologies upgrades and shared common structures will be leveraged in establishing a new Data Centre.

The relocation offers an opportunity to review and potentially "leapfrog" a technology generation, while positioning HO with a technology infrastructure that is less costly to operate and support. There will be a smaller Data Centre technology footprint with reduced energy consumption, fewer devices to support and maintain, and reduced depreciation expenses. The move to technology appliances – already fully integrated and configured – will reduce labour costs to configure and stand up new hardware and software. The new Data Centre will have the potential to host more systems in-house, reducing costs for outsourced hosting / facilities management services.

By carefully managing significant technology life cycle replacement initiatives in the 18-24 months prior to relocation to the new HO Administration Building, and a similar period post-relocation, an increased funding envelope will be needed for the procurement and implementation of new technologies for the new facilities.

The way in which individuals work has increasingly become mobile. Streamlined use of telecommunications devices (i.e. Smart Phones and Notebooks) will alter the way IT infrastructure will provision and handle voice and data services. There will be efficiency and cost savings benefits to moving to individual tele-computing capabilities with greater emphasis on mobile device management within a virtualized (secured) work session which is available remotely. This mobility factor will create opportunities to collapse a variety of individual technologies as well as associated maintenance functions, allowing a greater range of computing freedom for the mobile worker (inside the office, at home, in the field, while travelling) while at the same time, bringing greater economy of support effort. BYOD, improved laptop, tablet and other mobile computing devices will be introduced. Collaboration tools to support remote/different location meetings and identify management solutions to manage access and permissions become standard methods by which the infrastructure will transform anywhere, anytime.

Legacy applications will be rationalized to simplify ongoing support and maintenance requirements. Contracts review will apply continued diligence on maintenance and support services in seeking most cost-effective maintenance programs as well as identify areas where consolidation of licenses and services will reduce technology overhead.

Infrastructure Management will continue to work closely with Distribution Operations and support the Smart Grid initiatives, including the multi-year plan to build a new communications network.

MAKING IT HAPPEN

Considerable effort will be essential in terms of what needs to be done to transform HO's IM&IT environment to one in which "Accessing Anything, Anytime, Anywhere".

Recognizing that HO's business performance is dependent on complex technology systems, HO has demonstrated its commitment to invest in technology through the provision of Capital funding for major IM&IT and OT initiatives. While pressure continues to grow, the OM&A funding envelope will be maintained to operate within existing budgets. The implication of Total Cost of Ownership on all new IM&IT or OT initiatives will be evaluated in view of this budget pressure.

The accelerating rate of technological change means that the speed of delivery of solutions must increase. The IT organization must become agile in its ability to respond and service the business constituent. The proposed Services Oriented Architecture (SOA) is one strategy that could enhance HO's agility to respond and adapt to the changing business requirements. Investigating and leveraging Software as a Solution (Saas), Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) will, under the right conditions successfully offset multiple infrastructure management and provisioning burdens, both one-time and reoccurring. Processes for delivery need to be revamped and where possible, map to a more agile, waterfall methodology.

"Getting it right because we can't afford to get it wrong ..." continues to be the watchword for HO as the Local Distribution Company for the Nation's Capital. HO needs to remain proactive when securing the IT infrastructure and assets, SCADA systems, and protecting sensitive information. HO must layer security and privacy into all systems, new and old, housed, hosted or in the cloud, to protect HO's technology assets, and HO's and its customers' information.

Investment in emerging wireless capabilities, tablet and laptop technologies as well as smart-phone and personal computing devices will be critical in facilitating mobility and productivity. The changing demographic of Hydro Ottawa employee must be considered and integrated.

CRITICAL SUCCESS FACTORS

The following factors are regarded as critical for the successful implementation of the IM&IT Strategy Update 2014-2020:

1. An IM&IT funding model that considers the Total Cost of Ownership (TCO) of business solutions and technology investments, providing Capital funding for project implementation and working within commensurate OM&A for the ongoing operation, support and maintenance of the solution throughout its lifecycle.
2. An architecture-driven enterprise model of technologies, inter-connectivity, data flows, security and access to guide the evolution of HO's information and technology environments.
3. An effective enterprise technology planning and change management process including effective communications across the organization so that all HO employees are aware of the

technology direction of the company, project priorities, supporting policies and practices, and respective roles and responsibilities.

4. The availability of skilled IM&IT resources, including adequate bench strength to support and maintain as well as implement new IM&IT initiatives.

EXPECTED OUTCOMES

Implementation of the IM&IT Strategy Update 2014-2020 should result in the following outcomes:

1. HO will have more agility to respond to changes in its business environment and corporate priorities as a result of the adoption of a Services Oriented Architecture.
2. Productivity improvements across HO will result from increased workflow processing, mobile applications, real-time data, and enterprise search capabilities.
3. HO's business continuity and the reliability of distribution operations will be strengthened. Leveraging new technologies in conjunction with the relocation to new HO facilities will reduce the computing footprint and facilitate the move to a paperless environment.

A summary of the potential benefits of the proposed IM&IT initiatives follows:

IM&IT Strategies / Potential Benefits	Productivity	Efficiency	Cost Savings	"Greening"	Security	Customer Experience	Compliance
Service Oriented Architecture	✓	✓	✓		✓	✓	✓
Enterprise Service Bus	✓	✓	✓		✓	✓	✓
Reduction of Point-to-Point Interfaces	✓	✓	✓				
Process Re-engineering	✓	✓	✓			✓	
Paper Records Reduction (new facility)		✓	✓	✓			✓
Electronic Information Management	✓	✓	✓	✓	✓		✓
Enterprise Search	✓	✓					
Master Data Management		✓					✓
Information Security Classification		✓			✓	✓	✓
Information Classification & Retention		✓	✓				✓
Attack Surface Reduction					✓		
Security Information & Event Monitoring					✓		
Data Loss Prevention		✓			✓	✓	✓

Virtualization	✓	✓	✓	✓			
Mobile Device Management	✓	✓	✓				
Disaster Recovery	✓				✓		
Asset Management	✓		✓				
Next Generation Technology	✓		✓				
ERP Strategy		✓	✓				
Legacy Applications Rationalization	✓	✓	✓				
Mobile / Cloud Computing		✓		✓	✓		
Business Intelligence	✓	✓				✓	
Business Solutions	✓	✓	✓				

CIS TRANSITION PROJECT

1.0 INTRODUCTION

On 6 March, 2014, Hydro Ottawa seamlessly replaced its legacy Customer Information System (PeopleSoft® Customer Information System version 8.8) with Oracle's Customer Care and Billing (CC&B) version 2.3.1 system – a project which had been in the making since 2009, when Oracle announced CC&B was its flagship product and that PS CIS would be sunset. Hydro Ottawa achieved this objective well within industry standards and less than the benchmark of $85 US per customer; according to Gartner benchmark data on CIS implementations (refer to figure 1).

Figure 1 – Gartner Benchmark Data for CIS & Billing System Implementations[1]

Company Size*	Number of Customers	Total Cost Per Customer^
Small	< 500,000	$85
Medium	500,000 - 1.5 million	$65
Large	> 1.5 million	$42
High/low values (all)		**$27.50 / $174**

*Based on market research of 100 CIS and billing system implementations in the US for energy utilities
^US dollar amounts were not converted as during the Hydro Ottawa CIS Transition Project CDN $ was at par with US $

One year post go-live, Hydro Ottawa is extremely satisfied with the CC&B system as it continues to produce timely and accurate monthly bills for our customers in an efficient manner, positions Hydro Ottawa very well to maintain compliance with emerging OEB regulations, to deploy new customer self-serve options and to implement other initiatives to help customers reduce their electricity usage as indicated in Exhibit D-1-06 Customer Service Strategy. It should be noted that with the implementation of the CC&B system,

[1] Information from 13 March 2015 interview with Zarko Sumic, VP Distinguished Analyst of Gartner

Hydro Ottawa transitioned all its residential and small commercial customer from bi-monthly to monthly billing, a year in advance of the OEB amendment to the Distribution System code on the 15 April 2015 mandating monthly billing for all customer classes by the 31 December 2016.

The following sections describe why a new CIS was required, explain the sensible approach taken for the replacement, describe the fair and equitable vendor selection process and provide a high level over-view of the efficient and effective execution of the project.

Why Was a New CIS Required?

The Customer Information System (CIS) is a critical business system for Hydro Ottawa as this comprehensive system provides the capability required to meet the core business mandate of producing timely and accurate bills for more than 320,000 customers in our service area. In addition, various functional areas rely on the CIS to achieve their operational mandates in an expedient, cost-effective manner. Hydro Ottawa's existing CIS, PeopleSoft® CIS version 8.8 (PS CIS) was successfully implemented on the 7 September 2004. A change to the risk profile occurred in June 2009 pertaining to available support for this mission-critical business application. Oracle, the product vendor, no longer offered premier support for this particular product version and would only assist in maintaining the current version through sustaining support (refer to Figure 2 for the key features of each level of support) . Having a mission-critical business application which produces bills for our customers on sustaining support provides an increased risk of failure as time progresses and is not aligned with Hydro Ottawa's practice of remaining in premier support. In addition, Oracle announced the Customer Care & Billing (CC&B) would be its flagship product and that it was phasing out the PS CIS.

Figure 2 – Oracle Lifetime Support[2]

LIFETIME SUPPORT EXCLUSIVE BENEFITS

Key Feature	Premier Support	Extended Support	Sustaining Support
Major Product and Technology Releases	●	●	●
Technical Support	●	●	●
Access to Support Portal	●	●	●
Updates and Fixes	●	●	Pre-existing
Security Alerts	●	●	Pre-existing
Critical Patch Updates	●	●	
Tax, Legal, and Regulatory Updates	●	●	
Upgrade Scripts	●	●	Pre-existing
Certification with Existing third-party Products/versions	●	●	
Certification with most new third-party products/versions	●		
Certification with most new Oracle products	●	●	

Between 2007 and 2012 Hydro Ottawa modified its existing CIS to implement billing using data from smart meters, time of use billing and integration with the MDM/R as well as the Ontario Energy Board's new rules regarding customer service practices. However, in 2010 Hydro Ottawa recognized that delaying the replacement of the existing CIS could not wait any longer – as the ability of the current system to accommodate all these changes had been maximized and the risk of PS CIS failing was increasing with every year of being on sustaining support. In addition, through the preliminary work done by the CIS transition project – which was struck in October 2010 with the appointment of executive project sponsors, a project manager and the assignment of people to the project – it became apparent that the implementation of a new CIS would take approximately 18 to 36 months to execute[3].

[2] Information obtained from Oracle's website, www.oralce.com
[3] Information gathered during the draft of the request for proposal process conducted by Hydro Ottawa in July 2011.

Approach Taken for the Replacement

As described in the Hydro Ottawa's 2011 EDR application, from 2008 to 2011 Hydro Ottawa conducted a due diligence review of available options to consider and found that the industry standard anticipated the cost of a replacement to the PS CIS sister product CC&B to be less than the cost of implementing another CIS product such as SAP, Harris or Customer/1. The cost-effective and prudent decision was taken to replace Oracle's PeopleSoft CIS version 8.8 with Oracle's current product, CC&B version 2.3.1, in order to minimize product licensing costs as well as overall CIS transition project costs including data migration, enhancement and integration, reports development and training costs.

In 2011 Hydro Ottawa acquired Oracle's CC&B application software and in order to reduce development costs related to the implementation of CC&B at Hydro Ottawa, secured Oracle to upgrade to CC&B v2.3.1 the Custom Components for the Ontario Marketplace (CCOM). The custom components, which implemented the OEB regulations in effect as of December 2013, were created originally for two other Ontario local distribution companies (i.e., Toronto Hydro and Enersource). Even though the custom components were specifically developed within the context of the other systems in operation at those LDCs and those LDCs specific business processes, using these components as a starting point allowed Hydro Ottawa to focus on implementing new regulations, adopting our business processes to the base CC&B product and ensuring that the business efficiencies gained in the Hydro Ottawa's existing PS CIS were met by CC&B v2.3.1.

With the CC&B v2.3.1 software and the Custom Components for the Ontario Marketplace acquired, Hydro Ottawa turned to the task of finding a company to implement our new CIS via system integration services and to have the same company provide hosting services and managed services to run our new CC&B system once the CIS transition project was complete. It was determined that this was the most prudent approach to take to ensure that the vendor had a vested interest in performing the system integration services to the highest quality as the vendor would continue to be accountable for the operation of CC&B post go-live.

Request for Proposal for System Integrator and 10 year Hosting & Application Managed Services

Hydro Ottawa used a request for proposal (RFP) process to obtain the best market price for the system integration services (services required to implement the new CC&B) and the ongoing hosting services and managed services (services which provide the computing environment on which CC&B runs, technical, functional and operational support, completion of nightly batch operations, defect fixes and new functionality development) of Hydro Ottawa's new CIS. In addition, Hydro Ottawa decided that the proposal would request a 10 year, long term partnership with the vendor – as this would enable Hydro Ottawa to get a better price rather than a short duration partnership, as the upfront cost of setting up a hosted environment as per Hydro Ottawa's specifications and training support staff to provide managed services would be deferred over a longer period resulting in lower yearly maintenance costs.

During the request for proposal stage of the CIS transition project, Hydro Ottawa was actively involved in discussions with several other large Ontario LDCs to look for ways to work together on our respective CIS implementations in an effort to find cost savings for all LDC's involved. Taking into consideration the fact that some LDCs were on a different version of CC&B and the fact that the various LDCs CIS transition projects were not aligned, Hydro Ottawa determined that a joint request for proposal process with another Ontario LDC, was not attainable.

Hydro Ottawa hired a procurement advisory firm, PPI Consulting, an expert in the procurement of large IT systems, to ensure a comprehensive request for proposal was created, a fair process for procurement was followed and that an unbiased evaluation process was used to evaluate the proposals and determine the successful bidder.

As part of the process Hydro Ottawa sent out a draft of the request for proposal in July 2011 to four vendors, HP, IBM, CGI and Capgemini, to gain vendor insight into the quality of the request for proposal documentation. Specifically, Hydro Ottawa was

interested to determine if the scope of work was clearly defined and if there was sufficient information for the vendors to provide a fixed price. The vendors provided valuable insight in responding the questions and during the subsequent interview sessions. The vendors indicated that an 18 to 36 month implementation was a more typical timeframe for a CIS implementation, when asked if a 12 month implementation timeframe was reasonable and achievable.

In October 2011 Hydro Ottawa sent out the complete request for proposal to four vendors, HP, IBM, CGI and Capgemini, who were invited to submit a proposal. After the responses to the RFP were received, a dedicated Hydro Ottawa team of managers and supervisors, assisted by PPI Consulting, carried out an evaluation of each of the proposals in early 2012. The proposals were evaluated using a weighted decision model on the written proposal, the vendor interview and the financial proposal.

To maintain complete objectivity, the financial proposals were held confidential from the Hydro Ottawa proposal evaluation team until the evaluation of the written proposal and the vendor interviews were complete. The financial proposal once evaluated showed that the cost of the system integration services, including all Hydro Ottawa costs, was in the range of $23M to $25M.

The exploration of all the available options up to the vendor selection process including contraction negotiation with the successful bidder IBM Canada took 19 months and had a capital expenditure of $1.5M.

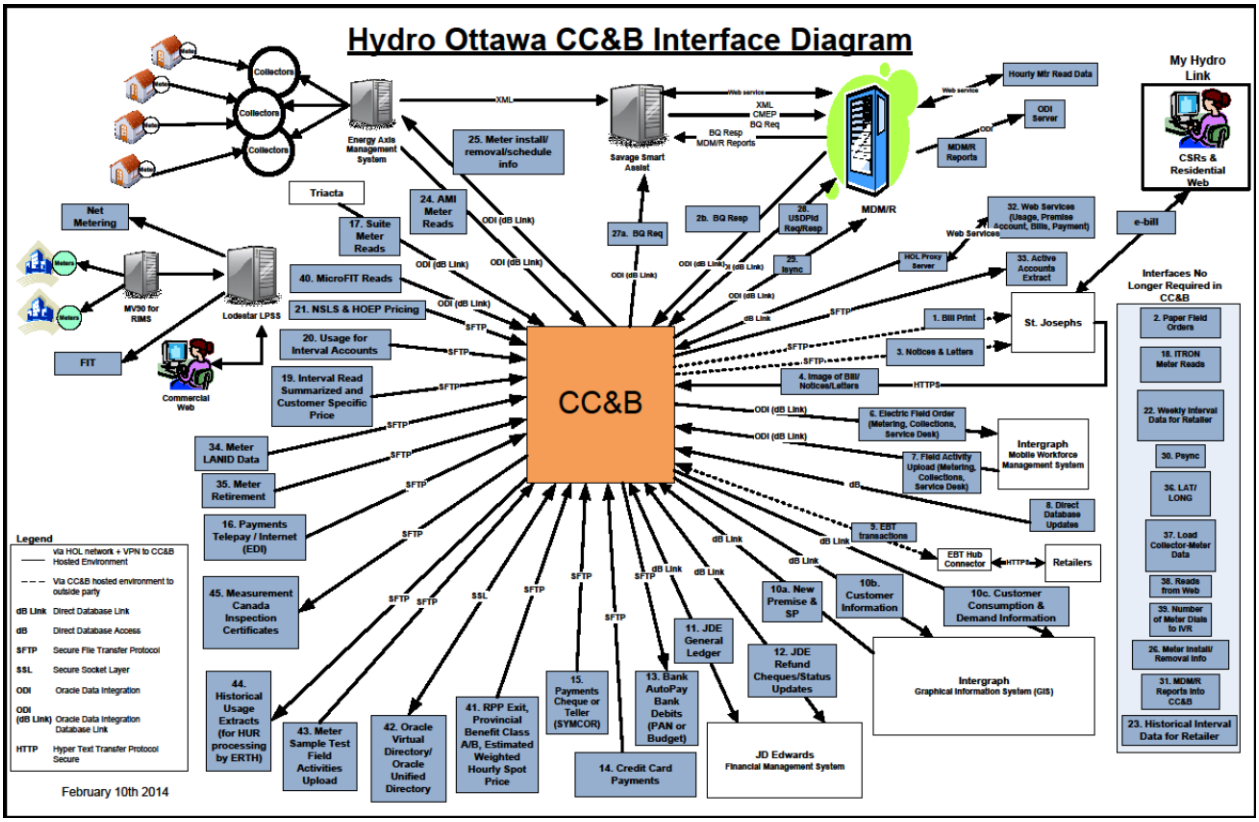
Execution of CIS Transition Project

The CIS transition project began on May 1st, 2012, once the contract with IBM Canada had been signed. The highly successful, 22 month project, involved a dedicated project team of key Hydro Ottawa and IBM Canada people (an average of 50 people and at the peak of the project more than 80 people) and many other technical and business contributors on an adhoc basis. The CIS transition project was delivered on time and according to a budget with a capital expenditure of $25.2M.

The CC&B solution delivered consisted of:

- 320,000 converted customer master records
- 2 years' worth of converted bills
- 100 custom reports
- 57 enhancements to CC&B
- A configured CC&B application, which integrated Custom Components for the Ontario Market place
- 35+ interfaces integrating with 10+ legacy systems (refer to Figure 3)
- computer based training for CC&B for Hydro Ottawa's 100+ staff
- disaster recovery, testing and reporting CC&B environments

Figure 3 – Hydro Ottawa CC&B Interface Diagram



The following items are of specific note, because they demonstrate Hydro Ottawa's ability to innovate, always keeping our customer in mind:

1. We did not change the customer account numbers with the new CC&B

Hydro Ottawa made the decision early on in the project to retain our customer's existing account numbers, service point numbers and premise numbers, even though Hydro Ottawa was initially told this was impossible and was rarely, if ever, achieved in other projects of a similar size and scope. We were able to achieve this feat through several careful adjustments to our data migration strategy and due to the fact we were transitioning to a sister product. This decision served to minimize the impact of the new system on the systems of external parties such as our retail customers and the provincial MDM/R. Most importantly, it made the transition to our new system virtually invisible to our customers.

2. We transitioned customers from bi-monthly to monthly billing

Hydro Ottawa decided to transition all of our customer's accounts to monthly billing with the go-live of CC&B. In PS CIS, residential and small commercial customers were billed bi-monthly and our larger commercial customers were billed monthly. Through survey and focus group research, we knew our residential and small commercial customers preferred monthly billing because their electricity bills would then align with most of their other bills. This decision also saved in enhancement costs, because the new CC&B system is standardized for monthly billing.

3. We developed innovative self-serve training

Instead of in-class training, we developed computer-based training leveraging Oracle's User Productivity Kit (UPK). This was especially useful since our Call Centre operations are located in Saint John, New Brunswick, which is 1,100 kilometers from Ottawa, Ontario where Hydro Ottawa is headquartered and this decision minimized our travel costs for training. We deployed the training modules four months in advance of the go-live date so that our employees could be trained gradually, enabling them to learn and retain their new knowledge and skills more easily. This online training system also provided managers and supervisors with regular reports on the completion of the modules by each employee and their test training scores. In this way, targeted coaching could be provided to those requiring it.

4. We adapted our business processes to the base CC&B product instead of creating enhancements to make CC&B work to Hydro Ottawa's existing business processes. For example, we:

- Changed our equal payment plan amount review cycle to be twice yearly instead of daily to reflect the new system.
- Automated our account confirmation process when a new account holder is not known, eliminating multiple manual steps. Now, the account is setup automatically in the name "The Occupant", a notification is sent to the premise to have them contact us to let us know who is now responsible, and if no

responsibility for the account is accepted, then the account proceeds to suspension of service.

- Automated our payment plan (a.k.a., budget billing) reconciliation process, which used to be a manual daily process. Now, the CC&B schedules quarterly reviews and a semi-annual reconciliation.

Together, Hydro Ottawa and IBM Canada delivered an innovative CC&B solution which our key stakeholders are very satisfied with and which meets the objectives of:

- Delivering timely and accurate customer bills;
- Modernizing an aging and unsupported Customer Information System;
- Transforming billing cycle and processes from once every two months to monthly billing to meet customer expectations;
- Providing better functionality to more efficiently implement evolving business and regulatory requirements;
- Providing a platform for deploying new customer self-service options.

Conclusion

On 6 March 2014, Hydro Ottawa went live with Oracle's Customer Care and Billing (CC&B) version 2.3.1 system, the mission-critical business application which produces timely and accurate bills for Hydro Ottawa's customers. It was the result of a very successful 22 month CIS transition project lead by Hydro Ottawa and executed with our chosen vendor, IBM Canada. The CIS transition project was delivered on time, on budget and within industry standards. Most importantly, CC&B was seamlessly deployed to our customers.

With its' new Customer Information System Hydro Ottawa is well poised to maintain compliance with emerging OEB regulations, to more to more efficiently implement evolving business requirements to help customers further reduce their electricity usage, and to deploy new customer self-service options with a modern and fully supported system. As indicated in in Exhibit B-1-03 IT Strategy 2015-2020 Hydro Ottawa will continue to invest in a prudent manner in CC&B.

There was a great deal of information and experience sharing between Hydro Ottawa and other local distribution companies in Ontario before, during and after this project. Hydro Ottawa gained valuable insights through these discussions and the lessons Hydro Ottawa learned through this project are being shared with other LDCs who are transitioning to CC&B. This has strengthened Hydro Ottawa's cross-LDC relationships and we fully expect that our collaboration with other large Ontario LDCs who are using CC&B to grow in the future. We will continue to looking for ways to reduce overall costs of modifying CC&B in the future by leveraging these collaborations.

ASSETS – PROPERTY PLANT AND EQUIPMENT CONTINUITY SCHEDULE

The tables in this exhibit provides Gross Assets continuity schedules by function for years from 2012 (last rebasing year) through to 2020 as presented in Hydro Ottawa Limited's ("Hydro Ottawa") Electricity Distribution Rate Application for 2016 (EB-2015-0004) based the Ontario Energy Boards minimum reporting groups. Exhibit D-3-1 provides continuity schedules for amortization and Appendix 2-B, Fixed Asset Continuity Schedules by Uniform System of Account ("USofA") for 2012 to 2013 Actuals and 2014 Forecast together with budgets for 2015 to 2020.

Hydro Ottawa's 2012 rate application was submitted under Modified International Financial Reporting Standards ("MIFRS") with a transition date of January 1, 2011 as directed by Ontario Energy Board (the "Board"). International Financial Reporting Standards ("IFRS") at that time did not contain standard governing rate-regulated activities. In May 2012, the International Accounting Standards Board ("IASB") decided to develop a project on Rate-regulated Activities. With this pending, the Canadian Accounting Standards Board allowed qualifying Rate Regulated entities to defer the adoption of IFRS to January 1, 2015. Hydro Ottawa Limited elected to take this deferral for financial reporting purposes while continuing to maintain MIFRS for regulatory purposes. The IASB has since issued interim standard *IFRS 14 - Regulatory Deferred Accounts* ("IFRS 14") which permits rate-regulated entities that have not yet transitioned to IFRS to use its existing RRA practices.

Due to the divergence of financial accounting standards for regulatory reporting and financial reporting purposes, Hydro Ottawa was required to maintain two sets of records for a period of time. Hydro Ottawa has made a one-time adjustment to the 2014 opening Gross Asset Net book value reported under MIFRS to align the two sets of records to avoid future administrative burden of maintaining two sets as well as enhance operational efficiency and reduce the burden on Hydro Ottawa's IT systems. This results in a Net Book Value increase of $502k under MIFRS to be depreciated over the applicable remaining useful lives as well as $195k increase under MIFRS to the cost of

Construction in progress. For fiscal year 2011, Hydro Ottawa had recorded different amount of overheads applied to capital projects and different depreciation amount under MIFRS and CGAAP. The one-time adjustment for rate-making purposes will result in a minor increase to rate base. Hydro Ottawa expects that any rate impact arising from the rate base increase will be offset by savings realized from eliminating duplicate sets of records. The other adjustment was to clear the accumulated depreciation and contributed capital balances to nil as seen in Table 3, column B below. The adjustment can be seen in detail in 2015 Filing Requirements Chapter 2 Appendices (tab: App.2-BA_FA Cont 2014). With the adoption of IFRS and early adoption of IFRS 14 as the accounting basis for financial reporting purposes on January 1, 2015, Hydro Ottawa's regulatory and financial reporting records are now aligned from an accounting standards basis. All table figures in this exhibit are presented in dollars.

Table 1: 2012 Fixed Assets

	2011 CIP (A)	2011 Ending Balance (B)	2012 Capital Expenditures (C)	2012 CIP (D)	2012 Disposals (E)	2012 Ending Balance =A+B+C-D+E
Land and Buildings	3,576,783	24,553,799	11,628,182	14,139,937	0	25,618,827
TS Primary Above 50	14,544,602	55,223,256	7,592,761	14,060,864	0	63,299,755
DS	7,908,381	44,563,372	8,824,014	10,065,470	0	51,230,296
Poles, Wires	5,181,591	235,652,383	45,139,204	13,209,864	(301,184)	272,462,130
Line Transformers	1,713,616	45,853,921	10,646,715	2,633,883	(204,591)	55,375,779
Services and Meters[1]	643,739	97,432,759	6,622,396	491,858	(35,554)	104,171,482
General Plant	490	36,118,077	248,836	8,386	0	36,359,018
Equipment	1,062,699	15,332,946	3,652,381	1,277,112	(5,545)	18,765,370
IT Assets	3,684,878	28,000,238	14,296,060	13,742,512	0	32,238,664
Other Distribution Assets	101,607	9,602,369	1,654,013	1,375,071	0	9,982,919
Gross Assets	**38,418,389**	**592,333,121**	**110,304,563**	**71,004,956**	**(546,874)**	**669,504,239**
Contributions and Grants	(5,484,667)	(21,049,858)	(23,539,871)	(6,833,595)	0	(43,240,801)
Amortization	0	(36,818,456)	(38,595,334)	0	44,281	(75,369,509)
Total	**32,933,722**	**534,464,807**	**48,169,358**	**64,171,361**	**(502,593)**	**550,893,929**

[1] Stranded Meters have been included here.

Table 2: 2013 Fixed Assets

	2012 CIP (A)	2012 Ending Balance (B)	2013 Capital Expenditures (C)	2013 CIP (D)	2013 Disposals (E)	2013 Ending Balance =A+B+C-D+E
Land and Buildings	14,139,937	25,618,827	13,965,050	279,187	0	53,444,628
TS Primary Above 50	14,060,864	63,299,755	10,658,729	9,678,617	0	78,340,731
DS	10,065,470	51,230,296	10,441,901	8,175,357	(819,212)	62,743,098
Poles, Wires	13,209,864	272,462,130	55,417,921	18,442,036	(1,450,262)	321,197,617
Line Transformers	2,633,883	55,375,779	9,794,504	2,454,063	(195,123)	65,154,980
Services and Meters[2]	491,858	104,171,482	6,136,798	761,454	(1,475,007)	108,563,678
General Plant	8,386	36,359,018	236,223	49,143	0	36,554,484
Equipment	1,277,112	18,765,370	4,015,745	1,979,775	(1,171)	22,077,281
IT Assets	13,742,512	32,238,664	16,764,643	26,671,494	0	36,074,324
Other Distribution Assets	1,375,071	9,982,919	6,643,713	7,323,201	0	10,678,502
Gross Assets	**71,004,956**	**669,504,239**	**134,075,229**	**75,814,327**	**(3,940,774)**	**794,829,323**
Contributions and Grants	(6,833,595)	(43,240,801)	(25,115,208)	(10,530,225)		(64,659,379)
Amortization	0	(75,369,509)	(39,798,292)	0	1,138,182	(114,029,619)
Total	**64,171,361**	**550,893,929**	**69,161,728**	**65,284,102**	**(2,802,592)**	**616,140,325**

[2] Stranded Meters have been included here.

Table 3: 2014 Fixed Assets

	2013 CIP[3] (A)	2013 Ending Balance[4] (B)	2014 Capital Expenditures (C)	2014 CIP (D)	2014 Disposals (E)	2014 Ending Balance =A+B+C-D+E
Land and Buildings	279,187	51,869,022	1,885,295	694,548	0	53,338,956
TS Primary Above 50	9,687,975	72,854,689	3,745,236	8,420,960	(2,870)	77,864,068
DS	8,189,580	54,066,400	14,715,828	14,596,902	(138,213)	62,236,694
Poles, Wires	18,472,443	252,125,738	61,706,774	26,153,771	(1,173,116)	304,978,068
Line Transformers	2,454,993	45,656,713	9,844,036	2,971,807	(124,321)	54,859,614
Services and Meters	739,788	75,121,923	6,022,160	634,008	(154,156)	81,095,707
General Plant	65,979	31,300,071	524,336	56,698	(1,531)	31,832,157
Equipment	1,977,593	15,099,294	1,934,910	359,156	(51,686)	18,600,955
IT Assets	26,818,276	10,397,474	12,765,875	2,076,697	(91,791)	47,813,136
Other Distribution Assets	7,324,079	8,151,484	16,925,227	15,999,272	(4,483)	16,397,035
Gross Assets	**76,009,893**	**616,642,806**	**130,069,675**	**71,963,817**	**(1,742,167)**	**749,016,390**
Contributions and Grants	(10,530,225)	0	(22,405,563)	(12,792,224)		(20,143,565)
Amortization	0	0	(36,517,006)		597,688	(35,919,318)
Total	**65,479,667**	**616,642,806**	**71,147,106**	**59,171,593**	**(1,144,479)**	**692,953,507**

[3] As described above CIP includes one-time increase to opening values of $195k
[4] As described above Property, plant and equipment includes one-time adjustment to opening cost of $502k, as well, opening Gross Asset values includes opening Amortization of $114,030k as required for the transition to IFRS

Table 4: 2015 Fixed Assets

	2014 CIP (A)	2014 Ending Balance (B)	2015 Capital Expenditures (C)	2015 CIP (D)	2015 Disposals (E)	2015 Ending Balance =A+B+C-D+E
Land and Buildings	694,548	53,338,956	2,313,153	1,136,081	0	55,210,576
TS Primary Above 50	8,420,960	77,864,068	1,646,063	911,635	0	87,019,457
DS	14,596,902	62,236,694	14,663,513	14,378,881	(153,346)	76,964,881
Poles, Wires	26,153,771	304,978,068	56,152,253	26,545,963	(1,199,260)	359,538,869
Line Transformers	2,971,807	54,859,614	12,439,831	2,937,729	(211,886)	67,121,637
Services and Meters	634,008	81,095,707	7,748,188	630,413	(150,377)	88,697,113
General Plant	56,698	31,832,157	492,174	56,620	0	32,324,409
Equipment	359,156	18,600,955	4,311,606	2,183,285	(48,184)	21,040,248
IT Assets	2,076,697	47,813,136	11,517,399	4,001,808	0	57,405,424
Other Distribution Assets	15,999,272	16,397,035	2,799,240	932,559	0	34,262,988
Gross Assets	**71,963,817**	**749,016,390**	**114,083,420**	**53,714,972**	**(1,763,053)**	**879,585,602**
Contributions and Grants	(12,792,224)	(20,143,565)	(25,432,188)	(12,792,224)		(45,575,753)
Amortization	0	(35,919,318)	(38,557,773)		1,013,053	(73,464,038)
Total	**59,171,593**	**692,953,507**	**50,093,459**	**40,922,748**	**(750,000)**	**760,545,811**

Table 5: 2016 Fixed Assets

	2015 CIP (A)	2015 Ending Balance (B)	2016 Capital Expenditures (C)	2016 CIP (D)	2016 Disposals (E)	2016 Ending Balance =A+B+C-D+E
Land and Buildings	1,136,081	55,210,576	2,313,110	1,468,702	0	57,191,065
TS Primary Above 50	911,635	87,019,457	1,634,612	2,044,213	0	87,521,491
DS	14,378,881	76,964,881	13,989,440	13,507,027	(153,346)	91,672,829
Poles, Wires	26,545,963	359,538,869	60,605,090	29,657,564	(1,199,260)	415,833,098
Line Transformers	2,937,729	67,121,637	10,588,683	2,937,667	(211,886)	77,498,496
Services and Meters	630,413	88,697,113	7,719,934	630,022	(150,377)	96,267,061
General Plant	56,620	32,324,409	1,249,580	56,506	0	33,574,103
Equipment	2,183,285	21,040,248	3,638,034	413,172	(48,184)	26,400,211
IT Assets	4,001,808	57,405,424	15,399,551	10,587,576	0	66,219,207
Other Distribution Assets	932,559	34,262,988	5,096,070	563,641	0	39,727,976
Gross Assets	**53,714,972**	**879,585,602**	**122,234,104**	**61,866,088**	**(1,763,053)**	**991,905,537**
Contributions and Grants	(12,792,224)	(45,575,753)	(25,701,824)	(12,792,224)		(71,277,577)
Amortization	0	(73,464,038)	(40,826,114)		1,013,053	(113,277,099)
Total	**40,922,748**	**760,545,811**	**55,706,166**	**49,073,864**	**(750,000)**	**807,350,861**

Table 6: 2017 Fixed Assets

	2016 CIP (A)	2016 Ending Balance (B)	2017 Capital Expenditures (C)	2017 CIP (D)	2017 Disposals (E)	2017 Ending Balance =A+B+C-D+E
Land and Buildings	1,468,702	57,191,065	4,530,791	3,803,818	0	59,386,740
TS Primary Above 50	2,044,213	87,521,491	9,831,305	8,605,201	0	90,791,808
DS	13,507,027	91,672,829	12,147,266	18,373,287	(153,346)	98,800,489
Poles, Wires	29,657,564	415,833,098	50,611,803	28,352,883	(1,199,260)	466,550,322
Line Transformers	2,937,667	77,498,496	11,309,359	2,978,335	(211,886)	88,555,301
Services and Meters	630,022	96,267,061	8,682,455	632,273	(150,377)	104,796,888
General Plant	56,506	33,574,103	434,236	56,430	0	34,008,415
Equipment	413,172	26,400,211	6,177,699	359,223	(48,184)	32,583,675
IT Assets	10,587,576	66,219,207	7,039,945	2,182,831	0	81,663,897
Other Distribution Assets	563,641	39,727,976	5,587,269	688,323	0	45,190,563
Gross Assets	**61,866,088**	**991,905,537**	**116,352,128**	**66,032,602**	**(1,763,053)**	**1,102,328,098**
Contributions and Grants	(12,792,224)	(71,277,577)	(25,296,257)	(12,792,224)		(96,573,834)
Amortization	0	(113,277,099)	(44,145,078)		1,013,053	(156,409,124)
Total	**49,073,864**	**807,350,861**	**46,910,793**	**53,240,378**	**(750,000)**	**849,345,140**

Table 7: 2018 Fixed Assets

	2017 CIP (A)	2017 Ending Balance (B)	2018 Capital Expenditures (C)	2018 CIP (D)	2018 Disposals (E)	2018 Ending Balance =A+B+C-D+E
Land and Buildings	3,803,818	59,386,740	3,818,909	4,667,976	0	62,341,491
TS Primary Above 50	8,605,201	90,791,808	6,978,261	13,502,607	0	92,872,663
DS	18,373,287	98,800,489	13,311,307	10,603,595	(153,346)	119,728,142
Poles, Wires	28,352,883	466,550,322	54,246,123	26,662,342	(1,199,260)	521,287,726
Line Transformers	2,978,335	88,555,301	11,767,301	3,000,508	(211,886)	100,088,543
Services and Meters	632,273	104,796,888	8,902,932	631,931	(150,377)	113,549,785
General Plant	56,430	34,008,415	123,299	56,423	0	34,131,721
Equipment	359,223	32,583,675	5,148,673	364,579	(48,184)	37,678,808
IT Assets	2,182,831	81,663,897	5,337,193	2,076,697	0	87,107,224
Other Distribution Assets	688,323	45,190,563	5,610,816	409,931	0	51,079,771
Gross Assets	**66,032,602**	**1,102,328,098**	**115,244,814**	**61,976,587**	**(1,763,053)**	**1,219,865,874**
Contributions and Grants	(12,792,224)	(96,573,834)	(25,075,051)	(12,792,224)		(121,648,885)
Amortization	0	(156,409,124)	(47,047,409)		1,013,053	(202,443,480)
Total	**53,240,378**	**849,345,140**	**43,122,354**	**49,184,363**	**(750,000)**	**895,773,509**

Table 8: 2019 Fixed Assets

	2018 CIP (A)	2018 Ending Balance (B)	2019 Capital Expenditures (C)	2019 CIP (D)	2019 Disposals (E)	2019 Ending Balance =A+B+C-D+E
Land and Buildings	4,667,976	62,341,491	4,595,372	8,516,169	0	63,088,670
TS Primary Above 50	13,502,607	92,872,663	9,332,947	22,539,204	0	93,169,013
DS	10,603,595	119,728,142	14,992,638	19,055,333	(153,346)	126,115,696
Poles, Wires	26,662,342	521,287,726	52,376,147	27,902,678	(1,199,260)	571,224,277
Line Transformers	3,000,508	100,088,543	11,519,979	3,062,596	(211,886)	111,334,548
Services and Meters	631,931	113,549,785	8,968,403	637,459	(150,377)	122,362,283
General Plant	56,423	34,131,721	248,568	56,464	0	34,380,248
Equipment	364,579	37,678,808	4,199,829	373,102	(48,184)	41,821,930
IT Assets	2,076,697	87,107,224	11,341,465	8,192,037	0	92,333,349
Other Distribution Assets	409,931	51,079,771	5,599,500	625,424	0	56,463,778
Gross Assets	**61,976,587**	**1,219,865,874**	**123,174,848**	**90,960,464**	**(1,763,053)**	**1,312,293,792**
Contributions and Grants	(12,792,224)	(121,648,885)	(25,576,549)	(12,792,224)		(147,225,434)
Amortization	0	(202,443,480)	(48,948,694)		1,013,053	(250,379,121)
Total	**49,184,363**	**895,773,509**	**48,649,605**	**78,168,240**	**(750,000)**	**914,689,237**

Table 9: 2020 Fixed Assets

	2019 CIP (A)	2019 Ending Balance (B)	2020 Capital Expenditures (C)	2020 CIP (D)	2020 Disposals (E)	2020 Ending Balance =A+B+C-D+E
Land and Buildings	8,516,169	63,088,670	4,887,979	6,199,103	0	70,293,715
TS Primary Above 50	22,539,204	93,169,013	10,017,547	13,145,810	0	112,579,954
DS	19,055,333	126,115,696	14,471,223	18,656,033	(153,346)	140,832,873
Poles, Wires	27,902,678	571,224,277	53,841,724	28,106,289	(1,199,260)	623,663,130
Line Transformers	3,062,596	111,334,548	11,821,423	3,031,585	(211,886)	122,975,096
Services and Meters	637,459	122,362,283	9,170,797	640,537	(150,377)	131,379,625
General Plant	56,464	34,380,248	177	56,509	0	34,380,380
Equipment	373,102	41,821,930	5,712,584	359,495	(48,184)	47,499,937
IT Assets	8,192,037	92,333,349	6,253,080	2,127,237	0	104,651,229
Other Distribution Assets	625,424	56,463,778	5,598,278	662,677	0	62,024,803
Gross Assets	**90,960,464**	**1,312,293,792**	**121,774,812**	**72,985,273**	**(1,763,053)**	**1,450,280,742**
Contributions and Grants	(12,792,224)	(147,225,434)	(26,088,080)	(12,792,224)		(173,313,514)
Amortization	0	(250,379,121)	(50,294,804)		1,013,053	(299,660,872)
Total	**78,168,240**	**914,689,237**	**45,391,928**	**60,193,049**	**(750,000)**	**977,306,356**

VARIANCE ANALYSIS ON GROSS ASSETS

Table 10 below shows Hydro Ottawa's gross asset additions. Refer to Appendix 2-BA Fixed Asset Continuity Schedule, gross assets additions are the sum of additions and disposals before depreciation and capital contributions. Table 11 below shows the Gross Asset year-over-year variance. The variance analysis is provided below the tables.

Table 10: Gross Asset Additions

$000s	2012 Approved	2012 Actual	2013 Actual	2014 Forecast	2015 Bridge	2016 Test	2017 Test	2018 Test	2019 Test	2020 Test
Land and Buildings	9,460	1,065	27,826	1,470	1,872	1,980	2,196	2,955	747	7,205
TS Primary Above 50	662	8,076	15,041	5,009	9,155	502	3,270	2,081	296	19,411
DS	10,433	6,667	11,513	8,170	14,728	14,708	7,128	20,928	6,388	14,717
Poles, Wires	34,391	36,810	48,735	52,852	54,561	56,294	50,717	54,737	49,937	52,439
Line Transformers	8,110	9,522	9,779	9,203	12,262	10,377	11,057	11,533	11,246	11,641
Services and Meters	11,788	6,739	4,392	5,974	7,601	7,570	8,530	8,753	8,812	9,017
General Plant	713	241	195	532	492	1,250	434	123	249	0
Equipment	3,422	3,432	3,312	3,502	2,439	5,360	6,183	5,095	4,143	5,678
IT Assets	7,569	4,238	3,836	37,416	9,592	8,814	15,445	5,443	5,226	12,318
Other Distribution Assets	1,781	381	696	8,246	17,866	5,465	5,463	5,889	5,384	5,561
Gross Asset Additions	**88,329**	**77,171**	**125,325**	**132,374**	**130,569**	**112,320**	**110,423**	**117,538**	**92,428**	**137,987**

Table 11: Gross Asset Year-over-Year Variance

$000s	12-Approved	13-12	14-13	15-14	16-15	17-16	18-17	19-18	20-19
Land and Buildings	(8,395)	26,761	(26,356)	402	109	215	759	(2,208)	6,458
TS Primary Above 50	7,414	6,964	(10,032)	4,146	(8,653)	2,768	(1,189)	(1,785)	19,115
DS	(3,766)	4,846	(3,343)	6,558	(20)	(7,580)	13,800	(14,540)	8,330
Poles, Wires	2,419	11,926	4,117	1,708	1,733	(5,577)	4,020	(4,801)	2,502
Line Transformers	1,412	257	(576)	3,059	(1,885)	680	476	(287)	395
Services and Meters	(5,049)	(2,347)	1,582	1,628	(31)	960	223	60	205
General Plant	(472)	(45)	337	(40)	757	(815)	(311)	125	(248)
Equipment	10	(121)	190	(1,062)	2,921	824	(1,088)	(952)	1,535
IT Assets	(3,331)	(403)	33,580	(27,823)	(779)	6,631	(10,001)	(217)	7,092
Other Distribution Assets	(1,400)	315	7,550	9,620	(12,401)	(2)	427	(505)	177
Gross Asset Additions	**(11,158)**	**48,154**	**7,048**	**(1,804)**	**(18,249)**	**(1,897)**	**7,115**	**(25,110)**	**45,559**

2012 Actual vs. 2012 Board Approved Budget:

In comparing the 2012 Actuals with 2012 Board Approved budget, the decrease in gross assets of $11.2 is primarily due to the following programs:

- The purchase of land for the Facilities Implementation Plan was included in the 2012 Board Approved additions. The acquisition started in 2012, but was only completed in 2013.
- The project to construct a new 230kV to 27kV Terry Fox Substation, located in south Kanata, was started in 2009. The building costs were included in the 2012 Board Approved additions; however the actual costs incurred were in 2013.
- Demand capital especially services related were lower than approved in 2012. They are customer demand driven.

2013 Actual vs. 2012 Actual:

The total gross assets additions in 2013 of $125M are an increase of $48M compared with 2012 actuals. This is primarily due to the following programs:

- The purchase of land for two new facilities was started in 2012, but transaction closed in 2013 for a total of $19M.
- The Terry Fox substation was completed in 2013, for a total of $22M including building cost and station equipment.
- Poles and Wires increased from 2012 by $12M, half of it was in Demand capital (residential and new commercial). The other half is in Sustainment, mainly the Cable Replacement Program and the Woodroffe UW 4kV System Voltage Conversion project.

2014 Forecast vs. 2013 Actual:

The total gross assets additions forecasted in 2014 of $132M are an increase of $7M compared with 2013 actuals. This is primarily an increase in IT assets offset by a decrease in land and buildings:

- IT assets increased by $34M, the most notable one was CC&B (Customer Care and Billing) system upgrade. The project started in late 2010, went live in Q1 2014, for a total cost of $26M.
- Land and Buildings decreased due to the completion of Terry Fox substation and the land purchase for the Facilities Implementation Plan in 2013.

Forecast 2015 Bridge Year vs. 2014 Forecast:

Total forecast gross assets additions in 2015 of $130M are a decrease of $1.8M compared with 2014 Forecast. This is primarily due to the timing of project completion.

- IT assets decreased from 2014 due to CC&B completed.
- Increase in Distribution Stations including Stations Transformer Replacement

Forecast 2016 Test Year vs. 2015 Bridge Year:

Total forecast gross assets additions in 2016 of $112M are a decrease of $18M compared with 2015 Bridge Year. This is primarily due to a decrease in the following programs:

- Other distribution assets decreased by $12M primarily explained by the HONI CCRA (Hydro One Connection and Cost Recovery Agreement) payments in 2015 for the Hawthorne and Cyrville stations.
- TS Primary Above 50 decreased by $9M due to the timing of the stations completion. 2015 projected a few large stations completion while the 2016 plan is to focus on the Poles and Wires.

Forecast 2017 Test Year vs. 2016 Test Year:

Total forecast gross assets additions in 2017 of $110M are a decrease of $2M compared with 2016. This is primarily due to the changes in the following programs:

- DS (Station Equipment) decreased by $7M and Poles and Wires decreased by $5M
- IT Assets increased by $6M primarily the JDE application upgrade to be completed in 2017.

Forecast 2018 Test Year vs. 2017 Test Year:

Total forecast gross assets additions in 2018 of $117M are an increase of $7M compared with 2017. This is primarily due to the changes in the following programs:

- DS (Station Equipment) increased by $14M largely explained by an increase in transformer replacement
- IT Assets decreased by $10M due to the completion of JDE upgrade and SCADA replacement in 2017.

Forecast 2019 Test Year vs. 2018 Test Year:

Total forecast gross assets additions in 2019 of $92M are a decrease of $25M compared with 2018. The capital spending is steady, but the completion of some major projects forecasted in 2020, including the following:

- Large multi-year station projects are expected to be ongoing and are planned to be complete in 2020

Forecast 2020 Test Year vs. 2019 Test Year:

Total forecast gross assets additions in 2020 of $138M are an increase of $45M compared with 2019. Several major projects started in previous years to be completed in 2020.

- A number of large multi-year station projects are to be completed in 2020.
- CC&B enhancement of $6M

WORKING CAPITAL REQUIREMENT

1.0 INTRODUCTION

This Exhibit provides a schedule of the Working Capital Requirement for the bridge year (2015) and the test years (2016 - 2020). For comparison purposes, the approved and actual Working Capital Requirement for the base year (2012) is also shown.

Table 1 – Allowance for Working Capital[1]

	2012 Approved $000	2012 Actual $000	2013 Actual $000	2014 Forecast $000	2015 Budget $000
Power Supply Expenses	685,303	709,935	768,079	763,312	851,135
OM&A Expenses	73,090	73,076	75,757	80,767	83,656
Total Expenses for Working Capital	758,393	783,011	843,836	844,079	934,791
Working Capital %	14.2	14.2	14.2	14.2	14.2
	107,692	111,188	119,825	119,859	132,740

	2016 Test $000	2017 Test $000	2018 Test $000	2019 Test $000	2020 Test $000
Power Supply Expenses	894,285	911,714	947,559	928,734	945,199
OM&A Expenses	87,106	89,932	92,850	95,863	98,974
Total Expenses for Working Capital	981,391	1,001,647	1,040,409	1,024,597	1,044,173
Working Capital %	14.2	14.2	14.2	14.2	14.2
	139,358	142,234	147,738	145,493	148,273

As part of Hydro Ottawa Limited's ("Hydro Ottawa") 2012 rate application, the Ontario Energy Board ("Board") approved a Working Capital Allowance percentage of 14.2. Hydro Ottawa submitted that it would implement monthly billing for all its customers in

[1] Totals may not match due to rounding

2013. As part of the decision and order the Board directed Hydro Ottawa to prepare a new lead-lag study for its next cost of service application.

In the first quarter of 2014 Hydro Ottawa implemented a new billing system. As part of this implementation Hydro Ottawa implemented monthly billing. Hydro Ottawa believes 12 months of stable monthly billing data is required to perform a new lead lag study. Hydro Ottawa is proposing to use data from July 2014 to June 2015 to complete its updated lead lag study. The new lead lag study will be submitted in September 2015 to be incorporated into final rates. Until the lead lag study is complete, Hydro Ottawa is using its 2012 Board approved rate of 14.2.

The Power Supply Expenses for 2016 to 2020 are calculated in the following manner:

The forecasted monthly purchased kWh and peak kW produced by the load forecasting model described in Exhibit C-1-1 were adjusted for the impact of Conservation and Demand Management activities. The monthly forecasted kWh purchases were multiplied by the monthly forecasted commodity price.

The commodity price for Regulated Price Plan customers ("RPP") was calculated by using the Regulated Price Plan Price Report[2]. The RPP rate of $94.96/MWh was multiplied by a yearly residential factor derived from Ontario's Long-Term Energy Plan[3] ("LTAP") to arrive at a yearly RPP commodity rate for 2016 through 2020. Please see table 2.

Table 2 - Estimated RPP Price 2016 to 2020 (kWh)

2015	2016	2017	2018	2019	2020
0.09496	0.09789	0.09965	0.10434	0.10375	0.10610

[2] Regulated Price Plan: Price Report November 1, 2014 to October 31, 2015, Ontario Energy Board, October 16, 2014
[3] Achieving Balance Ontario's Long-Term Energy Plan, December 3013

The commodity price for non-Regulated Price Plan customers ("non-RPP") was calculated using the Ontario Wholesale Electricity Market Price Forecast[4]. The quarterly rates provided in 'Table ES-1: HOEP Forecast' were used to calculate a 2015 calendar average rate of $20.84/MWh. This rate was multiplied by a commercial factor derived from LTAP to arrive at a yearly rate for 2016 through 2020. Please see table 3.

Table 3 - Estimated HOEP 2016 to 2020 (kWh)

2015	2016	2017	2018	2019	2020
0.02084	0.02174	0.02265	0.02378	0.02310	0.02355

The Wholesale Market Charge is determined from the total kWh purchased multiply by the average rate from 2015 of $0.0057 for all years.

The forecasted kW monthly coincident peak is multiplied by historic percentages for each transmission charge to establish the kWs for those charges. The results are then multiplied by the 2015 rates for all years.

The Global Adjustment is calculated using the Regulated Price Plan Price Report[5]. The Global Adjustment rate of $74.88/MWh was multiplied it by the commercial factor derived from LTAP to arrive at a yearly Global Adjustment rate for 2016 through 2020. Please see table 4. This forecasted rate is multiplied by the Non Regulated Purchase Plan loss adjusted kWh.

Table 4 - Estimated Global Adjustment 2016 to 2020 (kWh)

2015	2016	2017	2018	2019	2020
0.07488	0.07814	0.08139	0.08546	0.08302	0.08465

[4] Ontario Wholesale Electricity Market Price Forecast For the Period November 1, 2014 through April 30, 2016, Navigant Consulting Ltd., October 8, 2014
[5] Regulated Price Plan: Price Report November 1, 2014 to October 31, 2015, Ontario Energy Board, October 16, 2014

From January 1, 2016 to October 31, 2018, the Smart Metering Entity charge of $0.788/ Residential and General Service <50kW customer is included in the calculation of the Cost of Power.

Power Supply Expenses was adjusted to reflect the Low Voltage Switchgear credit which Hydro Ottawa receives as a result of owning the low voltage switchgear at certain stations.

Spreadsheets showing the calculation of the Power Supply Expenses for 2016 through 2020 are provided as attachment B-3(A) COP 2016-2020.

2016 Cost of Power

PURCHASED POWER

Power Purchases (kWh)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Total Load Forecast kWh	735,715,000	662,726,000	659,347,000	579,137,000	582,395,000	628,554,000	686,324,000	654,575,000	580,591,000	599,838,000	623,961,000	685,332,000	7,678,495,000

Power Purchased (kW)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Power Purchases - coincident peak (kW)	1,228,000	1,174,000	1,103,000	948,000	1,211,000	1,310,000	1,375,000	1,305,000	1,093,000	962,000	1,089,000	1,194,000	13,992,000

DEMAND CHARGES

kW Breakdown by Type

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Coincident System Peak	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Transmission Network Charge IMO	95.2%	95.5%	93.7%	97.7%	92.1%	88.9%	91.5%	94.5%	94.9%	93.5%	93.4%	90.1%
Transmission Transformation Charge IMO	80.9%	82.4%	80.0%	82.4%	77.2%	75.6%	76.4%	77.0%	78.6%	78.8%	76.4%	76.8%
Transmission Line Charge IMO	92.6%	93.5%	92.1%	94.7%	88.6%	88.9%	88.4%	91.5%	92.0%	93.4%	89.4%	89.2%
Transmission Network Charge HONI	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Transmission Transformation Charge HONI	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Transmission Line Charge HONI	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Transmission Network Charge IMO	1,168,853	1,121,670	1,033,670	925,900	1,115,107	1,165,070	1,258,029	1,233,213	1,037,521	899,538	1,017,083	1,076,022	13,051,675
Transmission Transformation Charge IMO	994,035	967,289	882,112	781,483	934,597	990,305	1,050,524	1,004,638	859,029	758,083	832,056	916,626	10,970,778
Transmission Line Charge IMO	1,136,940	1,098,119	1,016,059	897,807	1,073,462	1,163,938	1,215,967	1,193,539	1,005,264	898,249	973,896	1,064,975	12,738,213
Transmission Network Charge HONI	106,854	102,155	95,977	82,490	105,375	113,989	119,645	113,554	95,107	83,708	94,759	103,896	1,217,510
Transmission Transformation Charge HONI	73,431	70,202	65,957	56,688	72,415	78,335	82,222	78,036	65,359	57,525	65,119	71,398	836,686
Transmission Line Charge HONI	33,423	31,953	30,021	25,802	32,960	35,655	37,424	35,518	29,748	26,183	29,640	32,497	380,823

RATES

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Commodity Charge	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217	$0.0217
Transmission Network Charge IMO	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82
Transmission Transformation Charge IMO	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98
Transmission Line Charge IMO	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82
Transmission Network Charge HONI	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23
Transmission Transformation Charge HONI	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62
Transmission Line Charge HONI	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65
Wholesale Market Charge	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592
Smart Metering Entity Charge	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788

Cost of Power

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Commodity Charge without rebates	$15,994,444.10	$14,407,663.24	$14,334,203.78	$12,590,438.38	$12,661,267.30	$13,664,763.96	$14,920,683.76	$14,230,460.50	$12,622,048.34	$13,040,478.12	$13,564,912.14	$14,899,117.68	$166,930,481
rebates	$23,018,572.73	$21,064,698.07	$20,831,326.11	$17,261,951.96	$16,623,165.19	$18,232,833.01	$20,954,145.58	$20,338,536.32	$17,132,259.69	$17,425,585.63	$19,017,893.13	$21,321,638.16	$233,222,606
Commodity Charge with rebates	$39,013,016.83	$35,472,361.31	$35,165,529.89	$29,852,390.34	$29,284,432.49	$31,897,596.97	$35,874,829.34	$34,568,996.82	$29,754,308.03	$30,466,063.75	$32,582,805.27	$36,220,755.84	$400,153,087
Transmission Network Charge IMO	$4,465,019.91	$4,284,777.66	$3,948,618.47	$3,536,936.19	$4,259,707.75	$4,450,566.75	$4,805,669.75	$4,710,874.30	$3,963,331.57	$3,436,236.01	$3,885,257.94	$4,110,402.39	$49,857,399
Transmission Transformation Charge IMO	$1,968,189.92	$1,915,232.37	$1,746,581.29	$1,547,336.89	$1,850,501.49	$1,960,803.72	$2,080,038.27	$1,989,183.00	$1,700,877.83	$1,501,004.26	$1,647,470.98	$1,814,919.74	$21,722,140
Transmission Line Charge IMO	$932,290.62	$900,457.19	$833,168.21	$736,201.46	$880,238.45	$954,429.04	$997,092.91	$978,701.58	$824,316.62	$736,564.12	$798,594.68	$873,279.70	$10,445,335
Transmission Network Charge HONI	$345,138.54	$329,961.44	$310,006.36	$266,442.46	$340,360.57	$368,185.26	$386,453.99	$366,779.97	$307,195.79	$270,377.26	$306,071.56	$335,582.59	$3,932,556
Transmission Transformation Charge HONI	$118,958.72	$113,727.64	$106,849.73	$91,834.59	$117,311.90	$126,902.22	$133,198.90	$126,417.86	$105,881.01	$93,190.79	$105,493.53	$115,665.08	$1,355,432
Transmission Line Charge HONI	$21,724.77	$20,769.45	$19,513.37	$16,771.24	$21,424.02	$23,175.45	$24,325.38	$23,086.99	$19,336.46	$17,018.92	$19,265.70	$21,123.27	$247,535
Wholesale Market Charge	$4,355,432.80	$3,923,337.92	$3,903,334.24	$3,428,491.04	$3,447,778.40	$3,721,039.68	$4,063,038.08	$3,875,084.00	$3,437,098.72	$3,551,040.96	$3,693,849.12	$4,057,165.44	$45,456,690
LV Charges	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$455,000
Total	$51,257,689	$46,998,542	$46,071,518	$39,514,321	$40,239,672	$43,540,616	$48,402,563	$46,677,041	$40,150,263	$40,109,413	$43,076,725	$47,586,811	$533,625,173
Switchgear Credit	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$3,067,809

Cost of Power Summary

Commodity	$39,013,017	$35,472,361	$35,165,530	$29,852,390	$29,284,432	$31,897,597	$35,874,829	$34,568,997	$29,754,308	$30,466,064	$32,582,805	$36,220,756	$400,153,086.88
Transmission Network	$4,810,158	$4,614,739	$4,258,625	$3,803,379	$4,600,068	$4,818,752	$5,192,124	$5,077,654	$4,270,527	$3,706,613	$4,191,329	$4,445,985	$53,789,954.48
Transmission Connection	$2,785,513	$2,694,536	$2,450,462	$2,136,493	$2,613,825	$2,809,660	$2,979,005	$2,861,739	$2,394,761	$2,092,127	$2,315,174	$2,569,337	$30,702,632.34
Wholesale Market	$4,355,433	$3,923,338	$3,903,334	$3,428,491	$3,447,778	$3,721,040	$4,063,038	$3,875,084	$3,437,099	$3,551,041	$3,693,849	$4,057,165	$45,456,690.40
Smart Metering Entity Charge	$252,532	$252,661	$252,729	$252,820	$252,992	$253,336	$253,622	$253,907	$254,080	$254,635	$254,946	$255,206	$3,043,465.61
LV Charges	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$455,000.00
Total	$51,254,570	$46,995,552	$46,068,596	$39,511,490	$40,237,013	$43,538,301	$48,400,534	$46,675,297	$40,148,692	$40,108,397	$43,076,020	$47,586,366	$533,600,830
Global Adjustment Total	**$33,868,311**	**$30,170,852**	**$30,146,856**	**$27,542,105**	**$28,450,248**	**$30,405,383**	**$32,128,129**	**$30,279,375**	**$27,787,553**	**$28,990,526**	**$29,241,757**	**$31,673,562**	**$360,684,657**
Global Adjustment Class B Revenue 84%	$28,449,381	$25,343,515	$25,323,359	$23,135,368	$23,898,208	$25,540,522	$26,987,629	$25,434,675	$23,341,545	$24,352,042	$24,563,076	$26,605,792	$302,975,112
Global Adjustment Class A Revenue 16%	$5,418,930	$4,827,336	$4,823,497	$4,406,737	$4,552,040	$4,864,861	$5,140,501	$4,844,700	$4,446,009	$4,638,484	$4,678,681	$5,067,770	$57,709,545
TOTAL COST of POWER EXPENSE	$85,122,881	$77,166,404	$76,215,452	$67,053,595	$68,687,261	$73,943,684	$80,528,663	$76,954,673	$67,936,246	$69,098,923	$72,317,777	$79,259,928	$894,285,487

2017 Cost of Power

PURCHASED POWER

Power Purchases (kWh)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Total Load Forecast kWh	730,307,000	644,477,000	654,573,000	574,918,000	578,714,000	624,924,000	682,971,000	651,301,000	577,086,000	596,082,000	619,631,000	680,509,000	7,615,493,000

Power Purchased (kW)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Power Purchases - coincident peak (kW)	1,221,000	1,182,000	1,096,000	943,000	1,203,000	1,302,000	1,367,000	1,298,000	1,087,000	958,000	1,083,000	1,187,000	13,927,000

DEMAND CHARGES

kW Breakdown by Type

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Coincident System Peak	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Transmission Network Charge IMO	95.2%	95.5%	93.7%	97.7%	92.1%	88.9%	91.5%	94.5%	94.9%	93.5%	93.4%	90.1%
Transmission Transformation Charge IMO	80.9%	82.4%	80.0%	82.4%	77.2%	75.6%	76.4%	77.0%	78.6%	78.8%	76.4%	76.8%
Transmission Line Charge IMO	92.6%	93.5%	92.1%	94.7%	88.6%	88.9%	88.4%	91.5%	92.0%	93.4%	89.4%	89.2%
Transmission Network Charge HONI	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Transmission Transformation Charge HONI	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Transmission Line Charge HONI	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Transmission Network Charge IMO	1,162,191	1,129,313	1,027,110	921,016	1,107,740	1,157,955	1,250,709	1,226,598	1,031,826	895,798	1,011,479	1,069,713	12,991,449
Transmission Transformation Charge IMO	988,369	973,880	876,514	777,362	928,423	984,257	1,044,412	999,249	854,314	754,931	827,472	911,252	10,920,434
Transmission Line Charge IMO	1,130,459	1,105,601	1,009,611	893,071	1,066,370	1,156,830	1,208,892	1,187,136	999,746	894,514	968,530	1,058,732	12,679,492
Transmission Network Charge HONI	106,245	102,851	95,368	82,055	104,679	113,293	118,949	112,945	94,585	83,360	94,237	103,286	1,211,854
Transmission Transformation Charge HONI	73,013	70,681	65,538	56,389	71,936	77,856	81,743	77,617	65,000	57,286	64,761	70,980	832,800
Transmission Line Charge HONI	33,232	32,171	29,830	25,666	32,742	35,437	37,206	35,328	29,585	26,074	29,476	32,307	379,054

RATES

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Commodity Charge	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227	$0.0227
Transmission Network Charge IMO	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82
Transmission Transformation Charge IMO	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98
Transmission Line Charge IMO	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82
Transmission Network Charge HONI	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23
Transmission Transformation Charge HONI	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62
Transmission Line Charge HONI	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65
Wholesale Market Charge	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592
Smart Metering Entity Charge	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788

Cost of Power

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Commodity Charge without rebates	$16,541,453.55	$14,597,404.05	$14,826,078.45	$13,021,892.70	$13,107,872.10	$14,154,528.60	$15,469,293.15	$14,751,967.65	$13,070,997.90	$13,501,257.30	$14,034,642.15	$15,413,528.85	$172,490,916
rebates	$23,033,720.99	$20,893,673.55	$20,865,449.07	$17,289,899.61	$16,660,741.74	$18,309,996.46	$21,087,275.05	$20,465,452.46	$17,198,879.81	$17,466,565.30	$19,051,213.03	$21,344,320.96	$233,667,188
Commodity Charge with rebates	$39,575,174.54	$35,491,077.60	$35,691,527.52	$30,311,792.31	$29,768,613.84	$32,464,525.06	$36,556,568.20	$35,217,420.11	$30,269,877.71	$30,967,822.60	$33,085,855.18	$36,757,849.81	$406,158,104
Transmission Network Charge IMO	$4,439,567.84	$4,313,975.46	$3,923,559.24	$3,518,281.47	$4,231,567.65	$4,423,387.72	$4,777,709.49	$4,685,605.24	$3,941,574.95	$3,421,948.12	$3,863,851.56	$4,086,304.55	$49,627,333
Transmission Transformation Charge IMO	$1,956,970.60	$1,928,283.36	$1,735,496.91	$1,539,175.83	$1,838,276.87	$1,948,829.34	$2,067,936.23	$1,978,513.06	$1,691,540.89	$1,494,763.08	$1,638,394.00	$1,804,279.51	$21,622,460
Transmission Line Charge IMO	$926,976.26	$906,593.18	$827,880.65	$732,318.54	$874,423.50	$948,600.46	$991,291.65	$973,451.84	$819,791.55	$733,501.48	$794,194.71	$868,159.97	$10,397,184
Transmission Network Charge HONI	$343,171.14	$332,209.90	$308,038.96	$265,037.17	$338,112.11	$365,936.80	$384,205.53	$364,812.57	$305,509.44	$269,253.03	$304,385.21	$333,615.19	$3,914,287
Transmission Transformation Charge HONI	$118,280.62	$114,502.62	$106,171.63	$91,350.23	$116,536.93	$126,127.25	$132,423.92	$125,739.76	$105,299.78	$92,803.30	$104,912.30	$114,986.98	$1,349,135
Transmission Line Charge HONI	$21,600.93	$20,910.98	$19,389.54	$16,682.79	$21,282.49	$23,033.92	$24,183.85	$22,963.16	$19,230.32	$16,948.15	$19,159.55	$20,999.43	$246,385
Wholesale Market Charge	$4,323,417.44	$3,815,303.84	$3,875,072.16	$3,403,514.56	$3,425,986.88	$3,699,550.08	$4,043,188.32	$3,855,701.92	$3,416,349.12	$3,528,805.44	$3,668,215.52	$4,028,613.28	$45,083,719
LV Charges	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$455,000
Total	$51,743,076	$46,960,774	$46,525,053	$39,916,070	$40,652,717	$44,037,907	$49,015,424	$47,262,124	$40,607,090	$40,563,762	$43,516,885	$48,052,725	$538,853,607

Switchgear Credit	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$3,067,809

Cost of Power Summary

Commodity	$39,575,175	$35,491,078	$35,691,528	$30,311,792	$29,768,614	$32,464,525	$36,556,568	$35,217,420	$30,269,878	$30,967,823	$33,085,855	$36,757,850	$406,158,104.49
Transmission Network	$4,782,739	$4,646,185	$4,231,598	$3,783,319	$4,569,680	$4,789,325	$5,161,915	$5,050,418	$4,247,084	$3,691,201	$4,168,237	$4,419,920	$53,541,620.35
Transmission Connection	$2,768,178	$2,714,639	$2,433,288	$2,123,877	$2,594,869	$2,790,940	$2,960,185	$2,845,017	$2,380,212	$2,082,365	$2,301,010	$2,552,775	$30,547,354.88
Wholesale Market	$4,323,417	$3,815,304	$3,875,072	$3,403,515	$3,425,987	$3,699,550	$4,043,188	$3,855,702	$3,416,349	$3,528,805	$3,668,216	$4,028,613	$45,083,718.56
Smart Metering Entity Charge	$255,675	$255,819	$255,909	$256,020	$256,200	$256,531	$256,812	$257,091	$257,273	$257,789	$258,090	$258,351	$3,081,559.10
LV Charges	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$455,000.00
Total	$51,743,101	$46,960,942	$46,525,311	$39,916,438	$40,653,266	$44,038,788	$49,016,585	$47,263,565	$40,608,713	$40,565,900	$43,519,324	$48,055,425	$538,867,357
Global Adjustment Total	**$35,092,896**	**$30,370,680**	**$31,222,387**	**$28,518,855**	**$29,490,717**	**$31,508,688**	**$33,298,734**	**$31,378,540**	**$28,790,619**	**$30,053,303**	**$30,295,327**	**$32,826,323**	**$372,847,069**
Global Adjustment Class B Revenue 84%	$29,478,033	$25,511,371	$26,226,805	$23,955,838	$24,772,202	$26,467,298	$27,970,936	$26,357,974	$24,184,120	$25,244,774	$25,448,075	$27,574,111	$313,191,538
Global Adjustment Class A Revenue 16%	$5,614,863	$4,859,309	$4,995,582	$4,563,017	$4,718,515	$5,041,390	$5,327,797	$5,020,566	$4,606,499	$4,808,528	$4,847,252	$5,252,212	$59,655,531
TOTAL COST of POWER EXPENSE	$86,835,997	$77,331,621	$77,747,698	$68,435,294	$70,143,983	$75,547,476	$82,315,319	$78,642,105	$69,399,332	$70,619,202	$73,814,651	$80,881,748	$911,714,427

2018 Cost of Power

PURCHASED POWER

Power Purchases (kWh)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Total Load Forecast kWh	727,896,000	641,836,000	652,705,000	573,279,000	577,609,000	624,138,000	682,805,000	651,102,000	576,400,000	595,407,000	618,700,000	679,544,000	7,601,421,000

Power Purchased (kW)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Power Purchases - coincident peak (kW)	1,218,000	1,179,000	1,095,000	942,000	1,199,000	1,300,000	1,367,000	1,298,000	1,086,000	958,000	1,082,000	1,187,000	13,911,000

DEMAND CHARGES

kW Breakdown by Type

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Coincident System Peak	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Transmission Network Charge IMO	95.2%	95.5%	93.7%	97.7%	92.1%	88.9%	91.5%	94.5%	94.9%	93.5%	93.4%	90.1%
Transmission Transformation Charge IMO	80.9%	82.4%	80.0%	82.4%	77.2%	75.6%	76.4%	77.0%	78.6%	78.8%	76.4%	76.8%
Transmission Line Charge IMO	92.6%	93.5%	92.1%	94.7%	88.6%	88.9%	88.4%	91.5%	92.0%	93.4%	89.4%	89.2%
Transmission Network Charge HONI	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Transmission Transformation Charge HONI	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Transmission Line Charge HONI	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Transmission Network Charge IMO	1,159,335	1,126,447	1,026,173	920,039	1,104,057	1,156,176	1,250,709	1,226,598	1,030,877	895,798	1,010,546	1,069,713	12,976,468
Transmission Transformation Charge IMO	985,941	971,409	875,714	776,537	925,336	982,745	1,044,412	999,249	853,528	754,931	826,708	911,252	10,907,761
Transmission Line Charge IMO	1,127,681	1,102,795	1,008,689	892,124	1,062,824	1,155,053	1,208,892	1,187,136	998,826	894,514	967,636	1,058,732	12,664,904
Transmission Network Charge HONI	105,984	102,590	95,281	81,968	104,331	113,119	118,949	112,945	94,498	83,360	94,150	103,286	1,210,461
Transmission Transformation Charge HONI	72,833	70,501	65,478	56,329	71,697	77,737	81,743	77,617	64,940	57,286	64,701	70,980	831,843
Transmission Line Charge HONI	33,151	32,089	29,803	25,639	32,633	35,382	37,206	35,328	29,558	26,074	29,449	32,307	378,619

RATES

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Commodity Charge	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238	$0.0238
Transmission Network Charge IMO	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82
Transmission Transformation Charge IMO	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98
Transmission Line Charge IMO	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82
Transmission Network Charge HONI	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23
Transmission Transformation Charge HONI	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62
Transmission Line Charge HONI	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65
Wholesale Market Charge	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592
Smart Metering Entity Charge	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.788	$0.000	$0.000

Cost of Power

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Commodity Charge without rebates	$17,309,366.88	$15,262,860.08	$15,521,324.90	$13,632,574.62	$13,735,542.02	$14,842,001.64	$16,237,102.90	$15,483,205.56	$13,706,792.00	$14,158,778.46	$14,712,686.00	$16,159,556.32	$180,761,791
rebates	$24,059,600.53	$21,827,274.38	$21,809,013.69	$18,074,934.76	$17,429,870.00	$19,194,854.65	$22,140,081.68	$21,476,388.03	$18,014,101.26	$18,278,490.49	$19,933,298.75	$22,326,260.01	$244,564,168
Commodity Charge with rebates	$41,368,967.41	$37,090,134.46	$37,330,338.59	$31,707,509.38	$31,165,412.02	$34,036,856.29	$38,377,184.58	$36,959,593.59	$31,720,893.26	$32,437,268.95	$34,645,984.75	$38,485,816.33	$425,325,960
Transmission Network Charge IMO	$4,428,659.81	$4,303,026.29	$3,919,979.35	$3,514,550.52	$4,217,497.60	$4,416,592.96	$4,777,709.49	$4,685,605.24	$3,937,948.84	$3,421,948.12	$3,860,283.83	$4,086,304.55	$49,570,107
Transmission Transformation Charge IMO	$1,952,162.31	$1,923,389.24	$1,733,913.43	$1,537,543.62	$1,832,164.56	$1,945,835.75	$2,067,936.23	$1,978,513.06	$1,689,984.74	$1,494,763.08	$1,636,881.17	$1,804,279.51	$21,597,367
Transmission Line Charge IMO	$924,698.68	$904,292.18	$827,125.28	$731,541.96	$871,516.02	$947,143.32	$991,291.65	$973,451.84	$819,037.38	$733,501.48	$793,461.38	$868,159.97	$10,385,221
Transmission Network Charge HONI	$342,327.97	$331,366.73	$307,757.90	$264,756.11	$336,987.88	$365,374.68	$384,205.53	$364,812.57	$305,228.39	$269,253.03	$304,104.16	$333,615.19	$3,909,790
Transmission Transformation Charge HONI	$117,990.01	$114,212.00	$106,074.76	$91,253.35	$116,149.44	$125,933.50	$132,423.92	$125,739.76	$105,202.91	$92,803.30	$104,815.42	$114,986.98	$1,347,585
Transmission Line Charge HONI	$21,547.86	$20,857.90	$19,371.85	$16,665.09	$21,211.73	$22,998.54	$24,183.85	$22,963.16	$19,212.62	$16,948.15	$19,141.86	$20,999.43	$246,102
Wholesale Market Charge	$4,309,144.32	$3,799,669.12	$3,864,013.60	$3,393,811.68	$3,419,445.28	$3,694,896.96	$4,042,205.60	$3,854,523.84	$3,412,288.00	$3,524,809.44	$3,662,704.00	$4,022,900.48	$45,000,412
LV Charges	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$455,000
Total	$53,503,415	$48,524,865	$48,146,491	$41,295,548	$42,018,301	$45,593,549	$50,835,058	$49,003,120	$42,047,713	$42,029,212	$45,065,293	$49,774,979	$557,837,544
Switchgear Credit	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$3,067,809

Cost of Power Summary

Commodity	$41,368,967	$37,090,134	$37,330,339	$31,707,509	$31,165,412	$34,036,856	$38,377,185	$36,959,594	$31,720,893	$32,437,269	$34,645,985	$38,485,816	$425,325,959.61
Transmission Network	$4,770,988	$4,634,393	$4,227,737	$3,779,307	$4,554,485	$4,781,968	$5,161,915	$5,050,418	$4,243,177	$3,691,201	$4,164,388	$4,419,920	$53,479,896.75
Transmission Connection	$2,760,748	$2,707,101	$2,430,835	$2,121,353	$2,585,391	$2,786,260	$2,960,185	$2,845,017	$2,377,787	$2,082,365	$2,298,649	$2,552,775	$30,508,466.23
Wholesale Market	$4,309,144	$3,799,669	$3,864,014	$3,393,812	$3,419,445	$3,694,897	$4,042,206	$3,854,524	$3,412,288	$3,524,809	$3,662,704	$4,022,900	$45,000,412.32
Smart Metering Entity Charge	$258,791	$258,949	$259,060	$259,190	$259,378	$259,700	$259,977	$260,254	$260,445	$260,927	$0	$0	$2,596,668.82
LV Charges	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$455,000.00
Total	$53,506,555	$48,528,162	$48,149,900	$41,299,087	$42,022,029	$45,597,598	$50,839,384	$49,007,723	$42,052,507	$42,034,488	$44,809,642	$49,519,328	$557,366,404
Global Adjustment Total	**$36,683,359**	**$31,698,279**	**$32,646,802**	**$29,820,231**	**$30,872,456**	**$32,976,732**	**$34,867,253**	**$32,862,308**	**$30,150,150**	**$31,494,247**	**$31,729,684**	**$34,390,868**	**$390,192,370**
Global Adjustment Class B Revenue 84%	$30,814,022	$26,626,554	$27,423,313	$25,048,994	$25,932,863	$27,700,455	$29,288,492	$27,604,339	$25,326,126	$26,455,168	$26,652,935	$28,888,329	$327,761,591
Global Adjustment Class A Revenue 16%	$5,869,337	$5,071,725	$5,223,488	$4,771,237	$4,939,593	$5,276,277	$5,578,760	$5,257,969	$4,824,024	$5,039,080	$5,076,750	$5,502,539	$62,430,779
TOTAL COST of POWER EXPENSE	$90,189,915	$80,226,441	$80,796,702	$71,119,318	$72,894,484	$78,574,329	$85,706,636	$81,870,031	$72,202,657	$73,528,735	$76,539,327	$83,910,197	$947,558,773

2019 Cost of Power

PURCHASED POWER

Power Purchases (kWh)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Total Load Forecast kWh	727,774,000	641,153,000	652,535,000	572,937,000	577,531,000	624,283,000	683,487,000	651,533,000	576,105,000	595,051,000	618,075,000	679,007,000	7,599,471,000

Power Purchased (kW)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Power Purchases - coincident peak (kW)	1,219,000	1,179,000	1,095,000	943,000	1,198,000	1,300,000	1,368,000	1,298,000	1,086,000	959,000	1,082,000	1,186,000	13,913,000

DEMAND CHARGES

kW Breakdown by Type

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Coincident System Peak	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Transmission Network Charge IMO	95.2%	95.5%	93.7%	97.7%	92.1%	88.9%	91.5%	94.5%	94.9%	93.5%	93.4%	90.1%
Transmission Transformation Charge IMO	80.9%	82.4%	80.0%	82.4%	77.2%	75.6%	76.4%	77.0%	78.6%	78.8%	76.4%	76.8%
Transmission Line Charge IMO	92.6%	93.5%	92.1%	94.7%	88.6%	88.9%	88.4%	91.5%	92.0%	93.4%	89.4%	89.2%
Transmission Network Charge HONI	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Transmission Transformation Charge HONI	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Transmission Line Charge HONI	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Transmission Network Charge IMO	1,160,287	1,126,447	1,026,173	921,016	1,103,136	1,156,176	1,251,624	1,226,598	1,030,877	896,733	1,010,546	1,068,812	12,978,424
Transmission Transformation Charge IMO	986,750	971,409	875,714	777,362	924,564	982,745	1,045,176	999,249	853,528	755,719	826,708	910,485	10,909,407
Transmission Line Charge IMO	1,128,607	1,102,795	1,008,689	893,071	1,061,938	1,155,053	1,209,777	1,187,136	998,826	895,448	967,636	1,057,840	12,666,816
Transmission Network Charge HONI	106,071	102,590	95,281	82,055	104,244	113,119	119,036	112,945	94,498	83,447	94,150	103,199	1,210,635
Transmission Transformation Charge HONI	72,893	70,501	65,478	56,389	71,637	77,737	81,803	77,617	64,940	57,346	64,701	70,920	831,962
Transmission Line Charge HONI	33,178	32,089	29,803	25,666	32,606	35,382	37,233	35,328	29,558	26,101	29,449	32,280	378,673

RATES

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Commodity Charge	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231	$0.0231
Transmission Network Charge IMO	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82
Transmission Transformation Charge IMO	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98
Transmission Line Charge IMO	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82
Transmission Network Charge HONI	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23
Transmission Transformation Charge HONI	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62
Transmission Line Charge HONI	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65
Wholesale Market Charge	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592
Smart Metering Entity Charge	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000

Cost of Power

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Commodity Charge without rebates	$16,811,579.40	$14,810,634.30	$15,073,558.50	$13,234,844.70	$13,340,966.10	$14,420,937.30	$15,788,549.70	$15,050,412.30	$13,308,025.50	$13,745,678.10	$14,277,532.50	$15,685,061.70	$175,547,780
rebates	$24,104,250.27	$21,866,175.13	$21,848,920.98	$18,104,350.05	$17,460,710.40	$19,261,766.34	$22,245,669.07	$21,563,331.59	$18,050,007.68	$18,299,125.66	$19,954,802.46	$22,351,004.35	$245,110,114
Commodity Charge with rebates	$40,915,829.67	$36,676,809.43	$36,922,479.48	$31,339,194.75	$30,801,676.50	$33,682,703.64	$38,034,218.77	$36,613,743.89	$31,358,033.18	$32,044,803.76	$34,232,334.96	$38,036,066.05	$420,657,894
Transmission Network Charge IMO	$4,432,295.82	$4,303,026.29	$3,919,979.35	$3,518,281.47	$4,213,980.08	$4,416,592.96	$4,781,204.52	$4,685,605.24	$3,937,948.84	$3,425,520.09	$3,860,283.83	$4,082,862.00	$49,577,581
Transmission Transformation Charge IMO	$1,953,765.07	$1,923,389.24	$1,733,913.43	$1,539,175.83	$1,830,636.48	$1,945,835.75	$2,069,448.98	$1,978,513.06	$1,689,984.74	$1,496,323.37	$1,636,881.17	$1,802,759.48	$21,600,627
Transmission Line Charge IMO	$925,457.87	$904,292.18	$827,125.28	$732,318.54	$870,789.15	$947,143.32	$992,016.80	$973,451.84	$819,037.38	$734,267.14	$793,461.38	$867,428.58	$10,386,789
Transmission Network Charge HONI	$342,609.03	$331,366.73	$307,757.90	$265,037.17	$336,706.82	$365,374.68	$384,486.59	$364,812.57	$305,228.39	$269,534.09	$304,104.16	$333,334.13	$3,910,352
Transmission Transformation Charge HONI	$118,086.88	$114,212.00	$106,074.76	$91,350.23	$116,052.57	$125,933.50	$132,520.79	$125,739.76	$105,202.91	$92,900.18	$104,815.42	$114,890.10	$1,347,779
Transmission Line Charge HONI	$21,565.55	$20,857.90	$19,371.85	$16,682.79	$21,194.04	$22,998.54	$24,201.54	$22,963.16	$19,212.62	$16,965.84	$19,141.86	$20,981.74	$246,137
Wholesale Market Charge	$4,308,422.08	$3,795,625.76	$3,863,007.20	$3,391,787.04	$3,418,983.52	$3,695,755.36	$4,046,243.04	$3,857,075.36	$3,410,541.60	$3,522,701.92	$3,659,004.00	$4,019,721.44	$44,988,868
LV Charges	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$455,000
Total	$53,055,949	$48,107,496	$47,737,626	$40,931,744	$41,647,936	$45,240,254	$50,502,258	$48,659,822	$41,683,106	$41,640,933	$44,647,943	$49,315,960	$553,171,028

Switchgear Credit	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$3,067,809

Cost of Power Summary

Commodity	$40,915,830	$36,676,809	$36,922,479	$31,339,195	$30,801,676	$33,682,704	$38,034,219	$36,613,744	$31,358,033	$32,044,804	$34,232,335	$38,036,066	$420,657,894.09
Transmission Network	$4,774,905	$4,634,393	$4,227,737	$3,783,319	$4,550,687	$4,781,968	$5,165,691	$5,050,418	$4,243,177	$3,695,054	$4,164,388	$4,416,196	$53,487,932.76
Transmission Connection	$2,763,225	$2,707,101	$2,430,835	$2,123,877	$2,583,021	$2,786,260	$2,962,537	$2,845,017	$2,377,787	$2,084,806	$2,298,649	$2,550,409	$30,513,523.60
Wholesale Market	$4,308,422	$3,795,626	$3,863,007	$3,391,787	$3,418,984	$3,695,755	$4,046,243	$3,857,075	$3,410,542	$3,522,702	$3,659,004	$4,019,721	$44,988,868.32
Smart Metering Entity Charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0.00
LV Charges	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$455,000.00
Total	$52,800,298	$47,851,845	$47,481,975	$40,676,094	$41,392,285	$44,984,604	$50,246,607	$48,404,171	$41,427,456	$41,385,282	$44,392,293	$49,060,309	$550,103,219
Global Adjustment Total	**$35,609,279**	**$30,723,325**	**$31,686,041**	**$28,932,859**	**$29,974,600**	**$32,002,207**	**$33,847,093**	**$31,896,713**	**$29,250,736**	**$30,566,766**	**$30,774,258**	**$33,366,492**	**$378,630,369**
Global Adjustment Class B Revenue 84%	$29,911,794	$25,807,593	$26,616,274	$24,303,602	$25,178,664	$26,881,854	$28,431,558	$26,793,239	$24,570,619	$25,676,083	$25,850,377	$28,027,853	$318,049,510
Global Adjustment Class A Revenue 16%	$5,697,485	$4,915,732	$5,069,767	$4,629,258	$4,795,936	$5,120,353	$5,415,535	$5,103,474	$4,680,118	$4,890,683	$4,923,881	$5,338,639	$60,580,859
TOTAL COST of POWER EXPENSE	$88,409,577	$78,575,170	$79,168,016	$69,608,953	$71,366,885	$76,986,811	$84,093,700	$80,300,884	$70,678,192	$71,952,048	$75,166,551	$82,426,802	$928,733,588

2020 Cost of Power

PURCHASED POWER

Power Purchases (kWh)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Total Load Forecast kWh	726,496,000	652,834,000	651,265,000	571,531,000	576,394,000	623,536,000	683,354,000	651,147,000	574,967,000	593,847,000	616,712,000	677,787,000	7,599,870,000

Power Purchased (kW)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Power Purchases - coincident peak (kW)	1,217,000	1,162,000	1,094,000	941,000	1,195,000	1,298,000	1,368,000	1,297,000	1,084,000	958,000	1,080,000	1,185,000	13,879,000

DEMAND CHARGES

kW Breakdown by Type

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Coincident System Peak	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Transmission Network Charge IMO	95.2%	95.5%	93.7%	97.7%	92.1%	88.9%	91.5%	94.5%	94.9%	93.5%	93.4%	90.1%
Transmission Transformation Charge IMO	80.9%	82.4%	80.0%	82.4%	77.2%	75.6%	76.4%	77.0%	78.6%	78.8%	76.4%	76.8%
Transmission Line Charge IMO	92.6%	93.5%	92.1%	94.7%	88.6%	88.9%	88.4%	91.5%	92.0%	93.4%	89.4%	89.2%
Transmission Network Charge HONI	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Transmission Transformation Charge HONI	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Transmission Line Charge HONI	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Transmission Network Charge IMO	1,158,383	1,110,204	1,025,235	919,063	1,100,374	1,154,397	1,251,624	1,225,653	1,028,978	895,798	1,008,678	1,067,911	12,946,299
Transmission Transformation Charge IMO	985,131	957,402	874,914	775,713	922,249	981,233	1,045,176	998,479	851,956	754,931	825,180	909,717	10,882,081
Transmission Line Charge IMO	1,126,755	1,086,894	1,007,768	891,177	1,059,279	1,153,276	1,209,777	1,186,222	996,987	894,514	965,847	1,056,948	12,635,444
Transmission Network Charge HONI	105,897	101,111	95,194	81,881	103,983	112,945	119,036	112,858	94,324	83,360	93,976	103,112	1,207,677
Transmission Transformation Charge HONI	72,774	69,485	65,418	56,269	71,458	77,617	81,803	77,557	64,820	57,286	64,581	70,860	829,929
Transmission Line Charge HONI	33,123	31,626	29,776	25,611	32,525	35,328	37,233	35,301	29,503	26,074	29,395	32,252	377,748

RATES

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
Commodity Charge	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236	$0.0236
Transmission Network Charge IMO	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82	$3.82
Transmission Transformation Charge IMO	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98	$1.98
Transmission Line Charge IMO	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82	$0.82
Transmission Network Charge HONI	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23	$3.23
Transmission Transformation Charge HONI	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62	$1.62
Transmission Line Charge HONI	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65	$0.65
Wholesale Market Charge	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592	$0.00592
Smart Metering Entity Charge	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000

Cost of Power

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Commodity Charge without rebates	$17,108,980.80	$15,374,240.70	$15,337,290.75	$13,459,555.05	$13,574,078.70	$14,684,272.80	$16,092,986.70	$15,334,511.85	$13,540,472.85	$13,985,096.85	$14,523,567.60	$15,961,883.85	$178,976,939
rebates	$24,622,306.66	$22,535,272.16	$22,319,857.60	$18,483,476.88	$17,828,783.52	$19,713,778.15	$22,807,554.79	$22,091,682.54	$18,445,681.34	$18,682,988.30	$20,377,375.58	$22,830,728.17	$250,739,486
Commodity Charge with rebates	$41,731,287.46	$37,909,512.86	$37,657,148.35	$31,943,031.93	$31,402,862.22	$34,398,050.95	$38,900,541.49	$37,426,194.39	$31,986,154.19	$32,668,085.15	$34,900,943.18	$38,792,612.02	$429,716,424
Transmission Network Charge IMO	$4,425,023.80	$4,240,980.95	$3,916,399.46	$3,510,819.58	$4,203,427.55	$4,409,798.20	$4,781,204.52	$4,681,995.38	$3,930,696.63	$3,421,948.12	$3,853,148.37	$4,079,419.46	$49,454,862
Transmission Transformation Charge IMO	$1,950,559.55	$1,895,655.89	$1,732,329.94	$1,535,911.41	$1,826,052.25	$1,942,842.16	$2,069,448.98	$1,976,988.78	$1,686,872.43	$1,494,763.08	$1,633,855.51	$1,801,239.44	$21,546,519
Transmission Line Charge IMO	$923,939.49	$891,253.19	$826,369.92	$730,765.37	$868,608.54	$945,686.18	$992,016.80	$972,701.87	$817,529.02	$733,501.48	$791,994.72	$866,697.19	$10,361,064
Transmission Network Charge HONI	$342,046.91	$326,588.75	$307,476.85	$264,475.06	$335,863.65	$364,812.57	$384,486.59	$364,531.51	$304,666.27	$269,253.03	$303,542.04	$333,053.07	$3,900,796
Transmission Transformation Charge HONI	$117,893.13	$112,565.18	$105,977.89	$91,156.48	$115,761.95	$125,739.76	$132,520.79	$125,642.89	$105,009.17	$92,803.30	$104,621.68	$114,793.23	$1,344,485
Transmission Line Charge HONI	$21,530.17	$20,557.15	$19,354.15	$16,647.40	$21,140.96	$22,963.16	$24,201.54	$22,945.46	$19,177.24	$16,948.15	$19,106.48	$20,964.05	$245,536
Wholesale Market Charge	$4,300,856.32	$3,864,777.28	$3,855,488.80	$3,383,463.52	$3,412,252.48	$3,691,333.12	$4,045,455.68	$3,854,790.24	$3,403,804.64	$3,515,574.24	$3,650,935.04	$4,012,499.04	$44,991,230
LV Charges	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$37,916.67	$455,000
Total	$53,851,054	$49,299,808	$48,458,462	$41,514,187	$42,223,886	$45,939,143	$51,367,793	$49,463,707	$42,291,826	$42,250,793	$45,296,064	$50,059,194	$562,015,918

Switchgear Credit	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$255,650.75	-$3,067,809

Cost of Power Summary

Commodity	$41,731,287	$37,909,513	$37,657,148	$31,943,032	$31,402,862	$34,398,051	$38,900,541	$37,426,194	$31,986,154	$32,668,085	$34,900,943	$38,792,612	$429,716,424.18
Transmission Network	$4,767,071	$4,567,570	$4,223,876	$3,775,295	$4,539,291	$4,774,611	$5,165,691	$5,046,527	$4,235,363	$3,691,201	$4,156,690	$4,412,473	$53,355,658.33
Transmission Connection	$2,758,272	$2,664,381	$2,428,381	$2,118,830	$2,575,913	$2,781,580	$2,962,537	$2,842,628	$2,372,937	$2,082,365	$2,293,928	$2,548,043	$30,429,795.60
Wholesale Market	$4,300,856	$3,864,777	$3,855,489	$3,383,464	$3,412,252	$3,691,333	$4,045,456	$3,854,790	$3,403,805	$3,515,574	$3,650,935	$4,012,499	$44,991,230.40
Smart Metering Entity Charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0.00
LV Charges	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$37,917	$455,000.00
Total	$53,595,403	$49,044,157	$48,202,811	$41,258,537	$41,968,236	$45,683,492	$51,112,142	$49,208,056	$42,036,176	$41,995,142	$45,040,413	$49,803,543	$558,948,109
Global Adjustment Total	**$36,251,692**	**$32,157,722**	**$32,246,121**	**$29,430,623**	**$30,511,428**	**$32,569,447**	**$34,461,855**	**$32,469,831**	**$29,759,102**	**$31,113,838**	**$31,312,069**	**$33,966,665**	**$386,250,393**
Global Adjustment Class B Revenue 84%	$30,451,421	$27,012,486	$27,086,742	$24,721,723	$25,629,599	$27,358,336	$28,947,958	$27,274,658	$24,997,645	$26,135,624	$26,302,138	$28,531,999	$324,450,330
Global Adjustment Class A Revenue 16%	$5,800,271	$5,145,235	$5,159,379	$4,708,900	$4,881,828	$5,211,112	$5,513,897	$5,195,173	$4,761,456	$4,978,214	$5,009,931	$5,434,666	$61,800,063
TOTAL COST of POWER EXPENSE	$89,847,094	$81,201,879	$80,448,932	$70,689,160	$72,479,663	$78,252,939	$85,573,998	$81,677,888	$71,795,277	$73,108,981	$76,352,482	$83,770,208	$945,198,501

PROPOSED TREATMENT FOR RECOVERY OF STRANDED METERS

As part of Hydro Ottawa Limited's ("Hydro Ottawa") 2012 rate application it proposed to include the remaining balance of its stranded meters in its 2012 rate base, amortizing the balance over the period ending December 31, 2013. As part of the settlement agreement this approach to dispose of the balance of Stranded Meters was accepted. The remaining balance to be recovered was $5,974k, $2,987k for each year 2012 and 2013.

Hydro Ottawa's forecasted amount of residual net Stranded Meters, to the end of 2011, was not materially different from the actuals recorded ($72k forecasted, $68k actual). Hydro Ottawa is not seeking to true-up the difference. Therefore, Hydro Ottawa has not completed Appendix 2-S as these amounts were already dealt with in its 2012 rate application. For financial purposes, by the end of 2011, the net stranded meters costs were recorded in Uniform System of Accounts ("USofA") 1555 sub account stranded meters.

The approach taken to include the remaining balance of stranded meters in depreciation resulted in the continuation of the stranded meter recovery in 2014 and 2015, $2,987k per year. As a result, by the end of 2015 Hydro Ottawa will recover an additional $5,974k.

Hydro Ottawa proposes to return the over collection related to Stranded Meters to rate payers. Please see section I-8-1, Disposition of deferral and variance accounts, for Hydro Ottawa's proposed treatment to return the balance sitting in USofA account 1555 sub account stranded meters.

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Appendix 2-S
Stranded Meter Treatment

Not Applicable - Please Refer to Exhibit B-4-1

Year	Notes	Gross Asset Value	Accumulated Amortization	Contributed Capital (Net of Amortization)	Net Asset	Proceeds on Disposition	Residual Net Book Value
		(A)	(B)	(C)	(D) = (A) - (B) - (C)	(E)	(F) = (D) - (E)
2006					$ -		$ -
2007					$ -		$ -
2008					$ -		$ -
2009					$ -		$ -
2010					$ -		$ -
2011					$ -		$ -
2012					$ -		$ -
2013					$ -		$ -
2014	(1)				$ -		$ -

CAPITAL EXPENDITURES OVERVIEW

In accordance with the OEB's Chapter 2 and Chapter 5 Filing Requirements, Hydro Ottawa Limited ("HOL") has filed a consolidated Distribution System Plan ("DSP") as Appendix B, Tab 1, Schedule 2. The Capital Expenditure plan in Section 3 of the DSP as well as the Material Investments Plan (Attachment B-1(A)) both detail the system investment decisions which are made through the asset management and capital expenditure planning process. The DSP (B-1-2) further details investments by investment categories, HOL Capital Program and Budget Program for the historic years of 2011 through 2015 and the forecast years of 2016 through 2020.

See Appendices 2-AA and 2-AB for an overview of HOL's Capital Projects and Capital Expenditures Summary. For comprehensive explanatory notes and variance analyses of HOL's capital expenditures, refer to section 3.4 of the DSP (B-1-2).

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Appendix 2-AA
Capital Projects Table

Projects	2011	2012	2013	2014	2015 Bridge Year	2016 Test Year
Reporting Basis	**CGAAP**	**MIFRS**	**MIFRS**	**MIFRS**	**MIFRS**	**MIFRS**
SYSTEM ACCESS						
Plant Relocation	7,743	5,942	10,005	9,437	7,814	7,620
Residential	7,247	6,278	6,573	5,985	6,720	6,889
Commercial	9,159	11,892	10,634	9,342	12,279	13,423
System Expansion	3,276	1,675	5,710	10,144	3,727	3,479
Stations Embedded Generation	190	1,181	64	277	376	377
Infill & Upgrade (App. G)	3,081	2,731	3,178	2,857	3,075	3,160
Damage to Plant	826	798	1,349	840	1,120	1,148
Metering	112	370	160	130	163	167
Sub-Total	31,635	30,868	37,675	39,010	35,275	36,263
SYSTEM RENEWAL						
Stations Asset	5,097	8,475	9,154	14,493	17,200	16,338
Stations Refurbishment	2,046	1,067	906	825	679	597
Distribution Asset	20,502	19,698	18,992	21,263	21,756	23,683
Metering	122	385	488	416	412	415
Sub-Total	27,768	29,625	29,540	36,997	40,048	41,033
SYSTEM SERVICE						
Station Capacity	19,170	11,838	13,198	6,223	2,187	5,676
Distribution Enhancements	6,226	8,375	10,319	14,961	15,176	11,290
Automation	1,320	1,150	400	569	3,444	5,269
Sub-Total	26,716	21,362	23,917	21,753	20,806	22,235
GENERAL PLANT						
Buildings - Facilities	767	380	380	426	688	688
Customer Service	3,818	10,365	13,389	5,839	2,450	3,740
ERP System	950	933	478	329	1,547	5,043
Fleet Replacement	2,024	2,542	3,056	1,441	1,537	1,455
Info Serv & Tech New Initiatives	296	578	57	1,584	2,111	2,127
IT Life Cycle & Ongoing Enhanceme	1,122	2,440	3,076	2,821	1,970	1,424
Operations Initiatives	356	683	242	3,011	2,756	1,074
Tools Replacements	580	568	539	386	512	512
Hydro One Payments	0	1,116	6,358	2,453	2,347	4,575
Facilities Implementation Plan	302	7,586	12,909	453	4,933	25,262
Sub-Total	10,215	27,190	40,484	18,742	20,850	45,899
Miscellaneous						
Total	**96,333**	**109,046**	**131,615**	**116,503**	**116,979**	**145,429**
Less Renewable Generation Facility Assets and Other Non Rate-Regulated Utility Assets *(input as negative)*						
Total	**96,333**	**109,046**	**131,615**	**116,503**	**116,979**	**145,429**

Notes:

1 Please provide a breakdown of the major components of each capital project undertaken in each year. Please ensure that all projects below the materiality threshold are included in the miscellaneous line. Add more projects as required.

2 The applicant should group projects appropriately and avoid presentations that result in classification of significant components of the capital budget in the miscellaneous category.

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Appendix 2-AB
Table 2 - Capital Expenditure Summary from Chapter 5 Consolidated Distribution System Plan Filing Requirements

First year of Forecast Period: *2016*

CATEGORY	Historical Period (previous plan[1] & actual)															Forecast Period (planned)				
	2011			2012			2013			2014			2015			2016	2017	2018	2019	2020
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000 000		%	*$ '000 000*		%	*$ '000 000*		%	*$ '000 000*		%	*$ '000 000*		%	*$ '000 000*				
System Access	30.2	31.6	4.6%	34.5	30.9	-10.4%	36.9	37.7	2.2%	40.7	39.0	-4.2%	35.3		-100.0%	36.3	35.2	35.1	35.8	36.6
System Renewal	26.7	27.8	4.1%	27.4	29.6	8.0%	23.4	29.5	26.1%	32.8	37.0	12.8%	40.0		-100.0%	41.0	31.8	36.5	36.0	35.7
System Service	25.5	26.7	4.7%	21.5	21.4	-0.5%	25.1	23.9	-4.8%	23.1	21.8	-5.6%	20.8		-100.0%	22.2	34.0	29.5	30.5	33.3
General Plant	20.6	10.2	-50.5%	35.9	27.2	-24.2%	43.6	40.5	-7.1%	22.8	18.7	-18.0%	20.9		-100.0%	45.9	48.1	18.3	18.7	14.0
TOTAL EXPENDITURE	103.0	96.3	-6.5%	119.3	109.1	-8.5%	129.0	131.6	2.0%	119.4	116.5	-2.4%	117.0	-	-100.0%	145.4	149.1	119.4	121.0	119.6
System O&M	N/A	N/A	--	N/A	$ 24.9	--	N/A	$ 25.2	--	N/A	$ 27.1	--	$ 29.5	N/A	--	$ 30.9	N/A	N/A	N/A	N/A

Notes to the Table:
1. Historical "previous plan" data is not required unless a plan has previously been filed
2. Indicate the number of months of 'actual' data included in the last year of the Historical Period (normally a 'bridge' year):

Explanatory Notes on Variances (complete only if applicable)
Notes on shifts in forecast vs. historical budgets by category
See section 3.4 of the DSP (B-1-2)
Notes on year over year Plan vs. Actual variances for Total Expenditures
See section 3.4 of the DSP (B-1-2)
Notes on Plan vs. Actual variance trends for individual expenditure categories
See section 3.4 of the DSP (B-1-2)

CAPITALIZATION POLICY

Hydro Ottawa Limited's Capitalization Policy can be found in Attachment B-5(A) and more details are noted in Exhibit B-5-3.

HYDRO OTTAWA CORPORATE POLICY

Subject: Capitalization		
Category: Finance	**Policy Number**: POL-Fi-013.00	
Administrator: Director, Finance	**Owner:** Chief Finance Officer	**Approver:** President and CEO

1. PURPOSE

The purpose of this policy is to define the criteria used with respect to the capitalization of Hydro Ottawa assets.

2. SCOPE

This policy applies to Hydro Ottawa.

3. DEFINITIONS

Capital assets include tangible and intangible assets, exclusive of goodwill

Commissioned, in the context of this policy, is when a capital asset is placed into service or when the enhancement or betterment to an existing capital asset is complete

Directly Attributable Costs are costs that bring the asset to the location and condition intended for use and include direct labour, inventory, outside services, non-stock materials and specific burdens

Enhancement or Betterment is an expenditure that contributes towards improving an asset's productivity or output or useful life

Goodwill, as defined by IAS 38, is the difference between the purchase price of an asset and the net amount of the acquired asset and assumed liability

Grouped Assets are asset purchases that are pooled into a single capital asset category as, by their nature, it would be impractical to identify individual units. These grouped assets are managed as a single entity for the purposes of depreciation

Hydro Ottawa refers to Hydro Ottawa Holding Inc. and its affiliates

IAS refers to International Accounting Standards

IAS 16 refers to the International Accounting Standard titled Property, Plant and Equipment

IAS 23 refers to the International Accounting Standard titled Borrowing Costs

IAS 38 refers to the International Accounting Standard titled Intangible Assets

IASB refers to the International Accounting Standards Board

IFRS refers to International Financial Reporting Standards

Intangible Assets, as defined by IAS 38, are rights or non-physical resources, which provide a benefit or advantage to a business entity

OM&A refers to operating, maintenance and administrative expenses

PP&E refers to Property, Plant and Equipment or Tangible Assets

Readily Identifiable Assets are discrete capital assets that are easily identifiable, so the asset can be individually recorded and depreciated

Tangible Assets, as defined by IAS 16, include PP&E that are used on a continuing basis in the production or supply of goods and services and are not intended for sale in the ordinary course of business

4. POLICY DIRECTIVES

a) Hydro Ottawa will capitalize assets based on the standards established by the IASB under IAS 16 and IAS 38.

b) Capitalized assets are expected to provide future economic benefits for more than one year.

c) The amount capitalized is comprised of:
   i. The amount of consideration provided to acquire, construct or develop an asset;
   ii. Directly attributable costs necessary to commission the new asset; and
   iii. Borrowing costs, in accordance with IAS 23, to finance PP&E projects with a duration greater than six months and accumulated cost is in excess of $100,000.

d) The following cost allocation rates included in directly attributable costs are based on management's best estimates of the applicable cost allocation determinants:
   i. Direct Labour – The hourly rate recovers direct labour and benefits costs. It will be applied to all direct labour hours through timesheet reporting.
   ii. Vehicle and Equipment – Vehicle and equipment hourly rates capture the directly attributable costs associated with fleet usage. Individual rates will be developed for major vehicle classifications based on expected utilization. Charges will be accomplished through vehicles timesheet reporting.
   iii. Supervision Burden – The supervision burden rate recovers the directly attributable costs associated with the supervision of internal labour and outside services.
   iv. Engineering Burden – The engineering burden rate recovers the directly attributable engineering costs. It will be applied to Distribution Capital projects where applicable.
   v. Supply Chain Burden – The supply chain burden rate recovers the directly attributable procurement and warehouse costs.
   vi. These rates are reviewed and monitored on an annual basis. Material adjustments for over or under recoveries will also be recorded at the end of the fiscal year.

e) Subsequent enhancement or betterment costs which are incurred after the original asset is commissioned will be capitalized based on the same criteria as the initial capital investment.
f) The materiality value for capitalizing newly acquired readily identifiable assets or additions to existing assets will be $500.
g) The materiality value for capitalizing grouped assets will be $1,000.
h) Capital spares such as spare switchgear, transformers and meters, once commissioned will be accounted for as capital assets, prior to commissioning, these assets will be accounted for as inventory.
i) Depreciation of capital assets is based on the straight-line method in accordance with IAS 16 and 38. The useful lives of assets are reviewed annually.
j) Costs that are incurred to maintain the existing service potential of capital assets are considered repairs and will be expensed in the period in which they occur.
k) Customer contributions associated with PP&E projects will be treated as deferred revenue and amortized to income over the life of the assets to which they relate.
l) When assets are retired from service, the capital cost and accumulated depreciation will be removed from Hydro Ottawa's financial statements with any gain or loss (after salvage proceeds, if applicable) charged to OM&A in the period in which the decommissioning occurs.

5. RELATED POLICIES, PROCEDURES AND REFERENCE DOCUMENTS
Hydro Ottawa Code of Business Conduct

6 EXCLUSIONS
None

7 ADDITIONAL POLICY ELEMENTS
None

8 COMPLIANCE
Policy non-compliance must be promptly reported to the Policy Owner and may result in disciplinary action.

9 APPROVAL HISTORY

Revision	Release Date	Initial Release	Policy Owner Sign-off:	Approved by:
.00	January 2015	Supersedes Policy FIN5-001-02 published on January 1, 2008	Chief Financial Officer	President and CEO
Revision	**Revision Date**	**Description of Changes**	**Policy Owner Sign-off:**	**Approved by:**
			Chief Financial Officer	President and CEO

Scheduled Re-affirmation Date	Responsibility
January 2018	Chief Financial Officer

10. POLICY EXCEPTIONS

Exceptions to the above directives and/or changes to this policy must receive written pre-authorization from the President and Chief Executive Officer. For clarification on any aspect of this policy contact the Director, Finance.

CAPITALIZATION OF OVERHEAD

Prior to 2012, Hydro Ottawa capitalized costs including those that were administrative in nature (facilities, human resources, information technology, finance, regulatory and other corporate costs).

Effective January 1, 2012, Hydro Ottawa revised its capitalization methodology used to apply overhead costs to property, plant and equipment and intangible assets in accordance with IFRS IAS 16 which prohibits the capitalization of administration and other general overhead costs. The majority of the administrative burden was deemed to be disallowable except for some costs pertaining to the supply chain function. The engineering and supervision allocations were also analyzed to determine which amounts could no longer be capitalized. The amount of allocated costs was significantly reduced due to the fact that many of the costs that were capitalized prior to the revision of the policy are considered administrative or other general overhead, which are specifically disallowed or which cannot be considered directly attributable to a specific asset. The policy remains the same in the forecast year.

Hydro Ottawa applies overhead costs to capital through three separate burden rates: Supervision burden, Engineering burden and Supply Chain burden. The use of multiple burden rates allows overhead costs to be applied more precisely to the particular projects that are associated with the various types of overhead costs. Refer to Attachment B-5(A) for a copy of the capitalization policy.

As shown in Appendix 2-D, the overhead costs capitalized from 2012 to 2016 are steady and in the range of 25% to 27% including labour and fleet costs.

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Appendix 2-D
Overhead Expense

Applicants are to provide a breakdown of OM&A before capitalization in the below table. OM&A before capitalization may be broken down by cost center, program, drivers or another format best suited to focus on capitalized vs. uncapitalized OM&A.

OM&A Before Capitalization	**2012** Historical Year	**2013** Historical Year	**2014 Q2 Forecast** Historical Year	**2015** Bridge Year	**2016** Test Year
Collections, Acct & Activities	$ 2,937,418	$ 4,070,580	$ 3,649,114	$ 3,543,341	$ 4,059,282
Corporate Costs	$ 6,056,030	$ 6,575,378	$ 5,420,096	$ 5,015,524	$ 4,993,415
Customer & Community Relations	$ 7,716,112	$ 7,605,947	$ 8,220,736	$ 8,785,231	$ 9,084,617
Customer Billing	$ 9,176,802	$ 9,736,344	$ 10,664,787	$ 10,432,583	$ 10,511,497
Distribution Operations	$ 33,380,038	$ 34,860,050	$ 37,834,129	$ 39,785,778	$ 40,824,588
Engineering & Design	$ 10,863,198	$ 11,693,463	$ 12,451,538	$ 12,975,442	$ 13,677,111
Facilities	$ 5,518,926	$ 5,656,285	$ 5,794,592	$ 6,027,819	$ 6,108,573
Finance	$ 4,074,222	$ 3,988,437	$ 4,368,115	$ 4,517,544	$ 4,759,915
Human Resources & Training	$ 3,395,830	$ 3,675,121	$ 4,010,176	$ 4,051,662	$ 4,180,257
Information Mgt & Technology	$ 6,343,145	$ 6,717,794	$ 7,521,460	$ 7,500,528	$ 7,862,963
Metering	$ 2,712,295	$ 2,807,318	$ 2,846,087	$ 2,842,465	$ 2,956,322
Regulatory Affairs	$ 1,930,844	$ 1,967,875	$ 2,340,940	$ 2,505,096	$ 2,580,684
Safety, Environment & Bus Cont	$ 1,853,905	$ 2,334,564	$ 2,116,845	$ 1,952,732	$ 2,006,305
Supply Chain	$ 2,233,136	$ 1,985,925	$ 2,491,808	$ 2,498,434	$ 2,744,524
Total OM&A Before Capitalization (B)	$ 98,191,900	$ 103,675,081	$ 109,730,424	$ 112,434,180	$ 116,350,054

Applicants are to provide a breakdown of capitalized OM&A in the below table. Capitalized OM&A may be broken down using the categories listed in the table below if possible. Otherwise, applicants are to provide its own break down of capitalized OM&A.

Capitalized OM&A	**2012** Historical Year	**2013** Historical Year	**2014 Q2 Forecast** Historical Year	**2015** Bridge Year	**2016** Test Year	**Directly Attributable? (Y/N)**	**Explanation for Change in Overhead Capitalized**
Supply Chain	$ 1,127,115	$ 1,305,256	$ 1,301,156	$ 1,244,923	$ 1,452,331		
Supervision	$ 1,831,800	$ 2,157,288	$ 1,826,399	$ 2,034,276	$ 2,077,315		
Engineering	$ 1,996,465	$ 2,815,805	$ 2,843,934	$ 2,904,091	$ 2,997,522		
Fleet	$ 2,613,093	$ 2,593,457	$ 2,737,548	$ 2,627,424	$ 2,698,352		
Labour	$ 17,547,092	$ 19,046,118	$ 20,253,970	$ 19,967,657	$ 20,018,970		
Total Capitalized OM&A (A)	$ 25,115,566	$ 27,917,925	$ 28,963,007	$ 28,778,371	$ 29,244,490		

% of Capitalized OM&A (=A/B)	26%	27%	26%	26%	25%		

SERVICE QUALITY AND RELIABILITY PERFORMANCE

1.0 SERVICE QUALITY INDICATORS

Hydro Ottawa reports service quality indicators, which consist of service quality and service reliability metrics, to the Board on an annual basis. As shown in Appendix 2-G, Hydro Ottawa's Service Quality Requirements remain steadily above the OEB Minimum Standard for the years 2009 – 2013.

2.0 SERVICE RELIABILITY INDICATORS

Hydro Ottawa continuously assesses the distribution system's service reliability. Where gaps are found, the appropriate actions are identified to address these issues. Service reliability is integral to all work undertaken as part of system planning and asset management. The Reliability Plan does not supersede the importance of good Asset Management and System Capacity planning in the management of system reliability. Rather, it provides a platform for thorough review of system reliability and identifies planned works which are designed to directly impact system reliability.

Overall, since 2009, Hydro Ottawa's system SAIDI and SAIFI has been steadily increasing, due to the increase of storms with severe wind and rain as well as an increase in equipment failures. Moving forward, it is critical that investment levels for equipment replacement increase in order to storm harden the system and to get ahead of the curve of aging equipment.

Fundamental in Hydro Ottawa's approach to system reliability is the implementation of grid technologies. Ongoing targeted installation of automated devices is planned for the foreseeable future to improve system reliability and operation. Currently, targeted programs are the East 44kV automation, which will deploy automatic restoration to this sub-transmission loop that supplies 3% (or over 9,000) of Hydro Ottawa's customers. In addition, automation plans are being deployed in the quickly growing South Nepean/Barrhaven area, as well as targeted annual installation to address the Worst

Performing Feeders. Continued investment in the communication infrastructure will be essential to support current automation plans while maintaining the flexibility to integrate the technologies of tomorrow.

Overall, from 2009 through 2013, the three primary contributors to SAIFI and SAIDI were: Loss of Supply, Defective Equipment and Adverse Weather. These three contributors account for 60% of the overall SAIFI score and 62% of the overall SAIDI score.

2.1 Loss of Supply

The reliability and redundancy of system supply is continuously evaluated as part of the Capacity Planning exercise. The system operators are aware of plans for these circumstances and are able to expedite restoration and reduce the impact of the loss of any one supply. As well, the installation of remotely operable devices are considered when evaluating restoration and isolation scenarios to reduce the number of customers affected by a loss of supply and to quickly be able to resupply the affected region. Other work has been completed in order to reduce the reliance on any one transmission circuit: a second supply was connected to Marchwood MS in 2014, providing added redundancy to the West region, Terry Fox MTS was energized in 2013, connected to the 230kV M32S adding additional support to an area previously solely supplied by the 115kV circuit S7M. Hydro Ottawa is also currently working with the Ontario Power Authority, the Independent Electricity System Operator and Hydro One in an Integrated Regional Planning Process which began in 2011 and is tasked with reviewing the supply adequacy in the Ottawa area.

2.2 Defective Equipment

Annually, the secondary cause of Defective Equipment related outages are analyzed as part of the Annual Planning Report. Hydro Ottawa's asset replacement and refurbishment strategies are described annually as part of the Annual Planning Report (see Attachment B-1(B)), as well as in the Distribution System Plan (exhibit B-1-2). The Asset Management Plan (included within Attachment B-1(B)) was created to provide

strategic guidance on the replacement and investment forecasts, manage priorities and identify process gaps. The plan focuses on optimizing the lifecycle costs for each network asset group (including creation, operation, maintenance, renewal and disposal) to meet reliability service targets and future demand. Each year, the aim is to improve the plan by taking advantage of new information and changing technology. These innovations help to maintain the ranking as one of the most reliable and efficient electricity networks in the province of Ontario.

Large segments of Hydro Ottawa's system were constructed in the 1960s, 70s and 80s. As most assets have a lifespan on the order of 50 years, a considerable proportion of the system is approaching or has exceeded the anticipated end-of-life. The increased potential of failure poised by these aging assets will, without intervention, impact the organization's ability to guard worker and public safety, maintain system reliability and protect organizational strength in the future.

2.3 Adverse Weather

Continued enhancements are being made to the system to improve the withstand capabilities during storms and to reduce the impact of individual outages. There are three initiatives/programs which address this need:

- *Pole Replacement* – The conditions of poles is evaluated on an ongoing basis. From the condition assessment, a review is conducted to determine the areas which are in the poorest condition so they can be targeted for planned replacement. By eliminating poles in poor condition and upgrading the attached hardware, the ability of the system to operate through adverse weather without interruption is improved.
- *Vegetation Management* – Updates to the vegetation management program currently underway are anticipated to reduce tree contacts during wind storms. Changes to the program which are being implemented include targeted tree trimming cycle and clearance distance from lines based on tree species and their rate of growth. These changes have been determined based on an extensive system review which

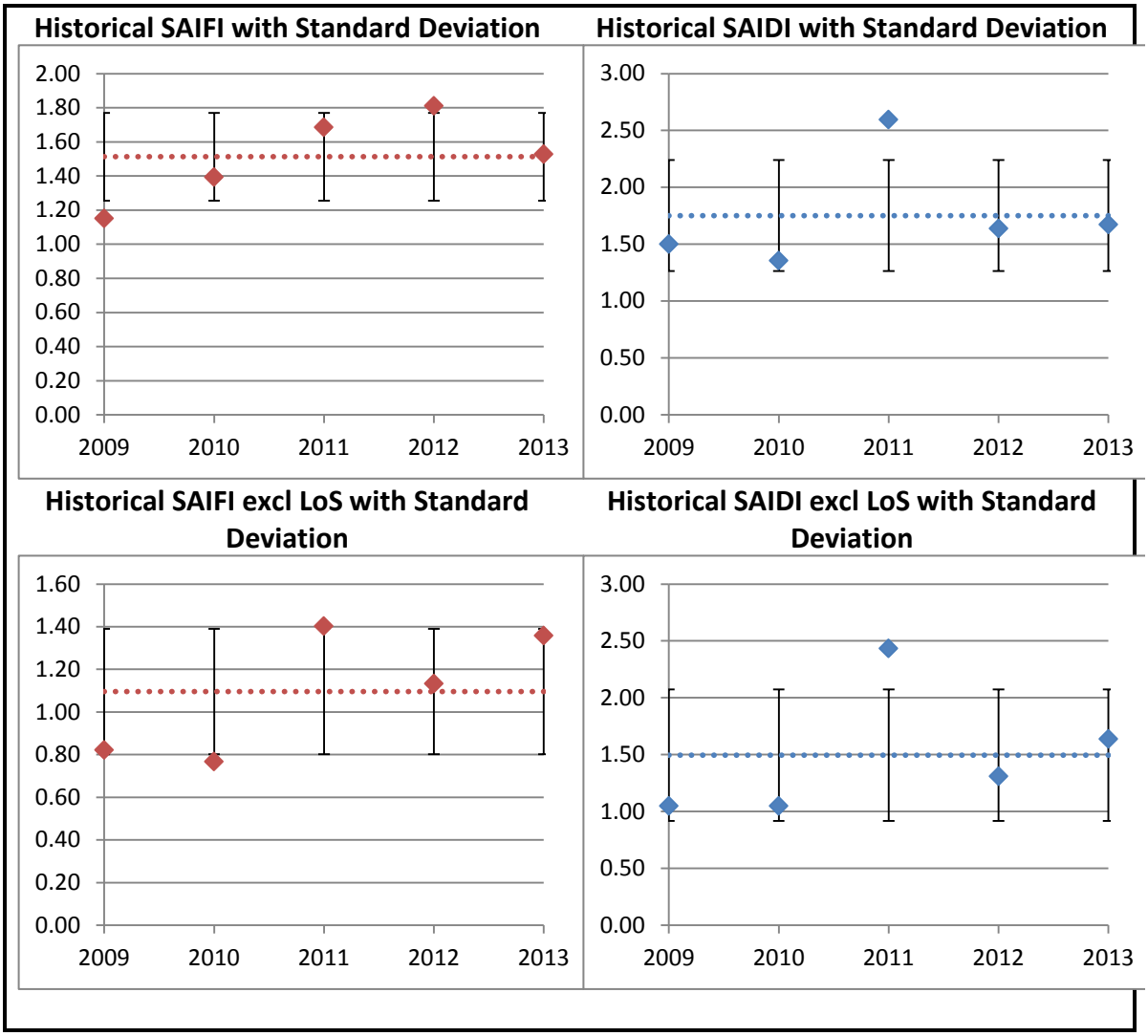
captured data on trees within proximity to all overhead spans within the service territory. Data collected included species so that growth rates could be considered for trim cycles and planned removal of Emerald Ash trees can be coordinated, as well as any locations with overhang. In addition, 'smart' tree removals are being considered. 'Smart' removals would target trees near overhead lines that either are near end of life and at risk of falling into the line or would require excess trimming (i.e. trimming would be required too frequently or would negatively impact the health of the tree) to maintain an appropriate clearance. Starting in 2014 and ending early 2015, HOL has hired contractors to remove all overhang across the system to eliminate the potential for branches falling onto the lines in the case of high winds or ice and snow loading.

- *System Protection* – Where appropriate, distribution reclosers are installed on the system. While these reclosers will not completely eliminate outages, they do sectionalize the distribution circuit, minimalizing the number of customer interruptions for a given fault. As well, where appropriate, a coordinate review is undertaken to ensure the appropriate size of fusing is in place and that the protection scheme operates as intended.

3.0 OUTLYING YEARS – SERVICE RELIABILITY INDICATORS

Comparing SAIFI and SAIDI performance by year to the 5-year averages, it can be seen that 2011 (SAIFI & SAIDI) and 2012 (SAIFI) show as outliers when you consider the standard deviation from the average:

Table 1



3.1 2011

System reliability in 2011 was defined by the storms experienced and HOL's response. Three major storms resulted in high levels of customer interruption and duration. Loss of service due to storms in 2011 was the equivalent to a 1.5 hour interruption to every Hydro Ottawa customer.

While the primary cause of system interruption in 2011, namely Adverse Weather, is outside the control of Hydro Ottawa, the ability to respond to such challenges is not. As a result of the experiences in 2011, in 2012 Hydro Ottawa undertook initiatives to improve future performance. These included updates to the emergency response organization and procedures, review of vegetation management planning, as well as ongoing commitment to asset replacement and automation; ultimately to storm harden the system and reduce restoration time. Further work is still being planned with the aim to storm harden the system, for example, the work planned to clear all tree overhang in 2014 and 2015 in described above.

The second leading cause of interruption in 2011 was Defective Equipment. Tree Contacts also had a measurable contribution to the SAIDI score in 2011. Collectively, Adverse Weather and Defective Equipment account for approximately 50% of the 2011 SAIFI and SAIDI scores.

3.2 2012

System reliability in 2012 continued to see degrading performance. Increasing interruption trends in Defective Equipment, Loss of Supply, Adverse Weather, and Foreign Interference were the main contributors to the performance of 2012.

Overall, since 2008 SAIDI has been steadily increasing, due to the increase of storms with severe wind and rain, but also due to the increase in scheduled work. Scheduled work causes SAIDI to increase due to outages planned in advance. Moving forward, it is anticipated that interruptions due to scheduled work will continue to grow based on the need described in the Annual Planning Report.

2012 fell outside the standard deviation for overall SAIFI due to the large contribution of Loss of Supply events. When looking at SAIFI excluding Loss of Supply, the 2012 performance falls within the standard deviation bands.

4.0 RELIABILITY COUNCIL AND SYSTEM ACTIVITY INVESTIGATION REPORTING CRITERIA

Hydro Ottawa works to continuously improve reliability measures. In response to reliability analysis and worst feeder performance reviews, in 2014 Hydro Ottawa initiated a cross-functional team known as the Reliability Council to discuss reliability concerns. The team is also tasked with identifying improvements and efficiencies that will improve overall reliability statistics. Issues and ideas related to storm response, system operability, circuit ties, tree trimming initiatives and intricacies of each voltage system in the service territory among other items are discussed and brought back to the team from all levels and areas of the organization.

The Asset Planning Group has also been engaged in producing System Activity Investigation Reports with the goal of providing clarity into issues with the configuration and operation of the distribution system. System Activity Investigation Reports provide insight into the root cause of an event, identifying issues with standard process and procedures, and provide recommendations to mitigate re-occurring events. The Asset Planning Group has developed a set of criteria to initiate System Activity Investigation Reports. These criteria will attempt to capture events that can lead to corrective actions to further better the system and operating procedures.

Any of the following criteria may initiate a System Activity Investigation Report:

- > 1000 Customers and > 1 Minute (unplanned)
- > 8 Hours and > 1 Customer
- Equipment/Protection mis-operation (HOL, HONI, or other)
- Incidents where equipment failure, protection mis-operation, or system operation have or are suspected to have caused or contributed to Health and Safety incidents (public or employee) or property damage
- Re-occurring incidents of supply quality falling outside tolerances for voltage, current, frequency and harmonic distortion as specified in ECG0008, that are suspected to have originated from the distribution system
- As circumstances require

These two initiatives, namely the Reliability Council and System Activity Investigation Reports, are but two of many internal initiatives which strive to complement Hydro Ottawa's already robust Distribution System planning, and ultimately optimize Hydro Ottawa's operational effectiveness and performance.

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Appendix 2-G
Service Reliability Indicators
2009 - 2013

Index	Includes outages caused by loss of supply					Excludes outages caused by loss of supply				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
SAIDI	1.500	1.360	2.600	1.640	1.670	1.050	1.050	2.440	1.310	1.640
SAIFI	1.150	1.390	1.690	1.810	1.530	0.820	0.770	1.400	1.130	1.360

5 Year Historical Average

SAIDI		1.754		1.498
SAIFI		1.514		1.096

SAIDI = System Average Interruption Duration Index

SAIFI = System Average Interruption Frequency Index

Indicator	OEB Minimum Standard	2009	2010	2011	2012	2013
Low Voltage Connections	90.0%	98.7%	100.0%	100.0%	100.0%	100.0%
High Voltage Connections	90.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Telephone Accessibility	65.0%	69.0%	82.1%	82.9%	82.5%	82.2%
Appointments Met	90.0%	99.3%	100.0%	97.3%	97.4%	97.4%
Written Response to Enquires	80.0%	99.8%	99.9%	99.9%	100.0%	99.3%
Emergency Urban Response	80.0%	95.3%	97.0%	81.6%	98.5%	97.6%
Emergency Rural Response	80.0%	N/A	N/A	N/A	N/A	N/A
Telephone Call Abandon Rate	10.0%	5.8%	2.6%	2.7%	1.8%	1.9%
Appointment Scheduling	90.0%	100.0%	100.0%	100.0%	99.8%	100.0%
Rescheduling a Missed Appointment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Reconnection Performance Standard	85.0%	N/A	N/A	100.0%	100.0%	100.0%