



London Hydro
111 Horton Street
P.O. Box 2700
London, ON
N6A 4H6

March 2, 2018

Ms. Kirstin Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

**Re: Section 71.4 Green Button Application
EB-2018-0118**

Dear Ms. Walli:

Please find enclosed London Hydro's application for the deployment of Green Button services pursuant to section 71(4) of the *Ontario Energy Board Act, 1998* as amended.

London Hydro through this application is applying to carry on business activities other than the distribution of electricity. More specifically, London Hydro Inc. is seeking an Order or Orders authorizing it to:

- a) expand the scope of the existing Green Button platform and related software services ("GB Services") that it currently offers to its distribution customers,
- b) expand the scope of the existing GB Services that it currently provides to other regulated electricity distributors in Ontario and directly to customers other than its own distribution customers in Ontario,
- c) provide expanded GB Services to non-electricity utilities and customers in Ontario,
- d) provide expanded GB Services to customers outside of Ontario, and
- e) provide Green Button Directory Services to facilitate open and authorized access to GB Services related data between customers, third parties and data custodians.



The basis for this Application is more fully described in the following documentation. The Application is supported by written evidence that may be amended from time to time, prior to the Board's decision on this Application.

The complete application was submitted today via the Board's web portal in PDF form. Further, two hardcopies of the Application will be sent to the Board via courier.

If you have any further questions, please do not hesitate to contact us.

Yours Truly,

A handwritten signature in black ink that reads "M Benum".

Martin Benum
Director of Regulatory Affairs
London Hydro
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email: benumm@londonhydro.com



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Green Button Application

The Applicant, London Hydro Inc. (“London Hydro” or the “Company”), is an Ontario corporation with its head office in the City of London. It carries on the business of distributing electricity within the London area.

London Hydro hereby applies to the Ontario Energy Board (the “OEB” or the “Board”), pursuant to section 71(4) of the *Ontario Energy Board Act, 1998* as amended (the “Act”), for an Order or Orders authorizing the Company to carry on business activities other than the distribution of electricity.

1. London Hydro Inc. is seeking an Order or Orders authorizing it to:
 - a) expand the scope of the existing Green Button platform and related software services (“GB Services”) that it currently offers to its distribution customers,
 - b) expand the scope of the existing GB Services that it currently provides to other regulated electricity distributors in Ontario and directly to customers other than its own distribution customers in Ontario,
 - c) provide expanded GB Services to non-electricity utilities and customers in Ontario,
 - d) provide expanded GB Services to customers outside of Ontario, and
 - e) provide Green Button Directory Services to facilitate open and authorized access to GB Services related data between customers, third parties and data custodians¹.

¹ Utilities that have Green Button repositories



1 2. London Hydro further applies to the Board pursuant to the provisions of the Act
2 and the Board's Rules of Practice and Procedure for such final and interim
3 Orders and directions as may be necessary in relation to the Application and the
4 proper conduct of this proceeding.

5
6 3. London Hydro requests that a copy of all documents filed with the Board by each
7 party to this proceeding be served on the Applicant and the Applicant's counsel.

8
9 4. London Hydro respectfully requests that this Application be processed by way of
10 written hearing.

11
12 As detailed below, London Hydro already provides GB Services to its own distribution
13 customers and to other customers, including other electricity distributors, in Ontario.
14 This application is required, it appears to London Hydro, in order to obtain authorization
15 to expand the scope of the Company's GB Services to include services relating to
16 utilities other than electricity, to expand the customer base to whom the Company
17 provides expanded GB Services to include non-electricity utilities and customers as well
18 as customers outside of Ontario, and to provide Green Button Directory Services to
19 enable customers/service providers/utilities of all kinds to access and share utility
20 related data.

21
22 **Expanded GB Services-London Hydro Distribution Customers**

23
24 London Hydro Inc. already provides GB Services to its own distribution customers, as
25 detailed in its last Cost of Service Application EB-2016-0091, as a component of its
26 distribution service:

27
28 *London Hydro has committed to providing its customers with software choices to help*
29 *them manage their energy consumption. This commitment is achieved primarily through*



1 *the 'Green Button' standard and applications that are built upon and enabled by this*
2 *standard. The Green Button Standard, as integrated within the existing London Hydro IT*
3 *architecture (MyLondonHydro), ties into its Customer Engagement Strategy by helping*
4 *customers manage their energy consumption in a proactive way before they receive*
5 *their monthly bill.*²

6
7 As a component of the requirement that it bill its customers for electricity, and as a suite
8 of services related to electricity conservation, the efficient use of electricity, and
9 electricity load management that London Hydro is authorized to provide in accordance
10 with section 71(2) of the OEB Act, London Hydro did not require specific authorization
11 from the Board before providing the existing GB Services to its customers.

12 However, London Hydro wishes to begin providing expanded GB Services to its own
13 distribution customers, services related to other utilities such as natural gas and water.
14 It appears to London Hydro that providing such services would not, strictly speaking, fall
15 within the scope of the services it is allowed to implicitly provide to its customers as their
16 distributor of electricity, nor is London Hydro Inc. explicitly permitted to provide non-
17 electricity related services under section 71(2). Accordingly, it appears to London Hydro
18 Inc., it requires specific authorization of the OEB to expand the current scope of GB
19 Services it provides to its own customers; the nature of the expansion of services is as
20 detailed in Schedule 5 Introduction items 1 to 7.

21
22 **Expanded GB Services-Other Ontario Electricity Utilities and Customers**

23
24 London Hydro Inc. already provides GB Services to other Ontario electricity utilities and
25 customers, as noted in its last Cost of Service Application EB-2016-0091:

26

² EB-2016-0091, Exhibit 4, Tab 1, Schedule 5, page 160.



1 *London Hydro has deployed its Green Button Platform as a “Software as a Service” to*
2 *two other utilities in Ontario, Festival and Whitby Hydro.*³

3

4 As a suite of services related to electricity conservation, the efficient use of electricity,
5 and electricity load management that London Hydro is authorized to provide in
6 accordance with section 71(2) of the OEB Act, London Hydro did not require specific
7 authorization from the Board before providing the existing GB Services other Ontario
8 utilities and customers.

9

10 However, London Hydro wishes to begin providing expanded GB Services to other
11 Ontario utilities and customers, services related to other utilities such as natural gas and
12 water. It appears to London Hydro Inc. that it is not explicitly permitted to provide non-
13 electricity related services under section 71(2). Accordingly, it appears to London Hydro
14 Inc., it requires specific authorization of the OEB to expand the current scope of GB
15 Services that it provides to other Ontario electricity utilities and customers; the nature of
16 the expanded GB Services is as detailed in Schedule 5 Introduction items 1 to 7.

17

18 **Expanded GB Services- Non-Electricity Utilities and Customers in Ontario**

19

20 London Hydro does not currently provide GB Services to utilities and non-London Hydro
21 customers in Ontario that are not related to electricity, as it appears to London Hydro
22 that it is not explicitly permitted to provide non-electricity related services under section
23 71(2). Accordingly, it appears to London Hydro Inc., it requires specific authorization of
24 the OEB to provide expanded GB Services to Non-Electricity utilities and customers; the
25 nature of the expanded GB Services to be provided is as detailed in Schedule 5
26 Introduction items 1 to 7.

27

³ EB-2016-0091, Exhibit 4, Tab 1, Schedule 5, page 163.



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1 **Expanded GB Services-Utilities and Customers Outside of Ontario**

2
3 London Hydro does not currently provide GB Services to utilities or customers outside
4 of Ontario in any capacity, as it appears to London Hydro that it is not explicitly
5 permitted to provide services outside of Ontario under section 71(2). Accordingly, it
6 appears to London Hydro Inc., it requires specific authorization from the OEB to provide
7 expanded GB Services to utilities or customers outside of Ontario; the nature of the
8 expanded GB Services to be provided is as detailed in Schedule 5 Introduction items 1
9 to 7.

10

11 **Green Button Directory Services**

12

13 London Hydro does not currently provide Green Button Directory Services. While it is
14 likely that providing Green Button Directory Services, which involves providing access to
15 data collected from GB Services amongst customers, utilities and 3rd parties, would be
16 authorized under section 71(2) of the OEB Act insofar as it relates to electricity related
17 data from customers in Ontario and involving utilities and 3rd parties in Ontario, London
18 Hydro is seeking authorization under section 71(4) of the OEB Act to provide Green
19 Button Directory Services in conjunction with the expanded Green Button Services it
20 wishes to provide, and to provide those services both inside and outside of Ontario.

21

22 **Benefits of Authorizing London Hydro to provided Expanded GB Services and Green**
23 **Button Directory Services Both Inside and Outside of Ontario**

24

25 London Hydro's distribution customers already benefit from GB Services insofar as
26 those service enhance a customer's ability to manage their use of electricity; allowing
27 London Hydro to expand its GB Services to include other utilities will increase the
28 usefulness of GB Services to its customers, as well as the usefulness of the GB



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1 Services to the other customers and utilities in Ontario that take the service from
2 London Hydro.

3
4 Allowing London Hydro to provide expanded GB Services outside of Ontario will be of
5 benefit to London Hydro's distribution customers and to the other customers in Ontario
6 that take service from London Hydro, as the cost to provide expanded GB Services
7 should decrease as the cost of the assets used to provide the service are recovered
8 over a larger customer base. Additionally, establishing a larger market for expanded
9 Green Button Services will benefit London Hydro's distribution customers directly,
10 based on an eventual sharing of the net profits from providing the service outside of
11 London Hydro's distribution customer base.

12
13 Lastly, the value of the proposed Green Button Directory Services is largely dependent
14 on the ability of London Hydro to amass utility and 3rd party participation; the more
15 customers that London Hydro is permitted to provide expanded GB Services to, the
16 more useful and valuable Green Button Directory Services will be to its users.

17
18 **Accounting for the Costs of Expanded GB Services and Green Button Directory Services**

19
20 At the present time London Hydro is proposing to bear all the incremental costs
21 associated with expanded Green Button Services and Green Button Directory Services,
22 during what it describes as the "incubation period", the time between the present and,
23 approximately, the end of London Hydro's current IRM period. During that period all
24 incremental costs related to expanded Green Button Services and Green Button
25 Directory Services will be "ring-fenced" by London Hydro in accordance with the
26 requirements of section 72 of the Act.

27
28 During the incubation period London Hydro forecasts only modest net profits from the
29 provision of expanded GB Services and Green Button Directory Services, and very



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1 limited, if any, income from new customers outside of Ontario. Accordingly it is London
2 Hydro's proposal to, in conjunction with its bearing the full risk of the incremental costs
3 of the new service levels during the incubation period, and consistent with London
4 Hydro's current status as an electric LDC regulated under 4th Generation IRM, to retain
5 any net income (and bear any net loss) during the incubation period. London Hydro will
6 apply for an appropriate, longer term treatment of the costs and revenues from
7 expanded Green Button Services and Green Button Directory Services as part of its
8 next Cost of Service Application.

9

10

11

12 March 2, 2018

A handwritten signature in blue ink that reads "Sharma".

13

14 Vinay Sharma

15 CEO



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1 **APPLICANT CONTACT INFORMATION**

2 **THE APPLICANT'S ADDRESS FOR SERVICE:**

3 London Hydro Inc.
4 111 Horton Street
5 London, Ontario
6 N6A 4H6

7 Email: regulatory@londonhydro.com

8 **CONTACTS:**

9 *President and CEO*

10 Mr. Vinay Sharma
11 Telephone: 519-661-5800 x 5404
12 Email: sharmav@londonhydro.com

13 14 *Primary Application Contact* 15 *Director of Regulatory Affairs*

16 Mr. Martin Benum
17 Telephone: 519-661-5800 x 5750
18 Email: benumm@londonhydro.com



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1 **LEGAL REPRESENTATION**

2 Michael Buonaguro

3 Barrister and Solicitor

4 24 Humber Trail

5 Toronto Ontario

6 M6S 4C1

7

8 Phone: (416) 767-1666

9 Fax: (416) 767-1666

10

11 Email: mrb@mrb-law.com



1 Introduction

2

3 The current scope of London Hydro's business activities in the GB area has been
4 developing and providing GB services (platform, apps) to our own distribution
5 customers as part of their distribution service. In addition London Hydro is providing GB
6 services to other regulated electricity LDC's in Ontario pursuant to s. 71(2) of the OEB
7 Act, and has also provided GB services to individual customers in Ontario that are not
8 served by LH's distribution system, again pursuant to s. 71(2) of the OEB Act.

9

10 London Hydro has been a pioneer and a leader in the development and implementation
11 of Green Button ("GB") standards, platforms and applications for several years. These
12 developments have been in concert with multiple parties in Ontario, Canada and the
13 United States. Through what is appropriately characterized as the development period
14 starting in 2013, London Hydro has designed and developed software (as well as
15 expertise) to convert utility data into GB standard, GB platform (data warehouse),
16 Download My Data (DMD), Connect My Data (CMD), and has developed GB
17 applications for the use and benefit of its customers. These applications and data
18 stores have been implemented using "cloud" technologies and tools. Unlike the SME
19 MDM/r, which only encapsulates smart meter data, London Hydro's GB platform
20 captures data from all meter types including smart meters, interval meters and demand
21 meters.

22

23 London Hydro's initial GB development was partially funded by the Government of
24 Ontario (Ministry of Energy)¹. The balance of London Hydro's development costs
25 incurred to date were captured in the last cost of service application and are being
26 recovered from our current customers, who have in turn directly benefitted from access

¹ [MaRS Green Button "Connect My Data" Pilot](#)



1 to GB services as a component of the distribution service provided to them by London
2 Hydro. London Hydro's GB platform, complete with DMD and CMD, has been
3 developed for the benefit London Hydro customers. Various customer facing GB apps
4 have been made available to our residential, commercial and industrial ("C&I")
5 customers. Examples of these services include applications such as Homebeat
6 (residential), EventAssist (commercial), and MyIDC (C&I). MyIDC has been a very
7 successful application for C&I and as such 20 meter points outside of London Hydro are
8 using MyIDC. Additionally the GB platform is now being leveraged to deploy the OEB
9 approved Critical Peak Price pilot project for the residential customers of London Hydro.
10 Our Trickl application supporting this project is deployed using the GB standard.

11

12 Going forward, London Hydro is proposing to establish an incubation period wherein
13 London Hydro can explore the viability of providing expanded GB services to others; it is
14 the expansion of services and the proposed customer base that requires the
15 authorization of the OEB. London Hydro intends to commercially offer the GB platform
16 and applications to other utilities and customers as a "Software as a Service" ("SaaS").
17 The highlights of London Hydro's proposed offerings are as follow:

18

- 19 1. GB Platform – London Hydro would provide services to convert a utility's data into
20 GB standard, store the converted data in a cloud data store and provide tools for its
21 open access including the DMD and CMD applications, including the "Test Lab". The
22 "Test Lab" is for testing GB schema and can be used by an entity as a standalone
23 service. To date 25 entities, mostly government and universities, have used our
24 "Test Lab" to seek GB compliance. The GB platform is offered as a Software as a
25 Service (SaaS). A utility with GB standard data is thus referred to a "data
26 custodian", and is a prerequisite for "open utility" paradigm. It is anticipated that the
27 GB Platform regulation will be proclaimed by the Government of Ontario by July
28 2018 requiring all Ontario distribution utilities (natural gas and electricity) to have GB



1 compliant platforms in production by July 2020.²

2

3 London Hydro's GB Platform SaaS is fully Green Button compliant and is currently
4 UL certified for DMD and will be shortly for CMD. A similar level of service will be
5 made available to all Ontario utilities.

6

7 2. MyIDC – This is a GB application that London Hydro intends to provide to the C&I
8 customers of utilities. This application is again SaaS and has many analytical
9 features. It is designed for the benefit of the end C&I customers; as such, utilities
10 can purchase MyIDC from London Hydro to provide it to their end customers or,
11 alternatively, end customers can buy it from London Hydro, since MyIDC is a
12 standalone application that only requires open access to GB data.

13

14 3. As part of the above, London Hydro will provide the necessary Application Program
15 Interfaces (API's) and various data extraction tools for CIS systems as well as for
16 MDM/r.

17

18 4. The above described services will, to London Hydro's knowledge, be the first of their
19 nature offered to Ontario utilities.

20

21 5. These services will be offered to utilities outside of Ontario, depending upon the
22 regulatory requirements in various jurisdictions.

23

24 6. London Hydro is also seeking to establish GB Directory Services - a "cloud"
25 infrastructure - to facilitate electronic interconnection and open access of information
26 between customers, energy service providers (as well as agencies/universities) and
27 data custodians (utilities).

² [Regulatory Proposal for Province-Wide Implementation of Green Button](#)



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7. All GB platform services, apps and software include a set of cyber security tools and facilities for “cloud” based applications.

The financial pro-forma presented later in this application has been carried out on our best estimates for Ontario only GB opportunities. Though London Hydro is seeking approval to offer the same services outside of Ontario, it is challenging to estimate the market potential and thus to develop a financial pro-forma for the market outside of Ontario. Moreover, London Hydro’s prime focus will be first on the Ontario market because of the anticipated regulatory requirements impacting all Ontario natural gas and electricity utilities and in light of London Hydro’s existing knowledge and familiarity with the Ontario market and systems.

The above product and service offering will leverage London Hydro’s existing platform, applications and expertise as developed to date. It is London Hydro’s intent to perform these activities between now and our next cost of service application, currently scheduled for May 1, 2022 rates. During this incubation period, London Hydro proposes to ring fence its accounting for capturing incremental costs and revenues from delivery of GB platform services. This would include, but not be limited to, items such as marketing, legal, incremental development, operational and maintenance costs and related overheads. London Hydro intends to identify these as “Non-rate regulated items and other adjustments” when completing our annual 2.1.5.6 b ROE reporting. The intent of this action is to place all the risk of the proposed business activities onto the shareholder between now and the next Cost of Service application, with any net revenues or losses generated during the IRM period accruing to the shareholder.

Closer to the submission date of London Hydro’s 2022 cost of service application, London Hydro expects to be in a position to review its experience and determine the future viability.



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Development Period	Incubation Period	2022 COS Application
<p data-bbox="256 443 553 520">London Hydro development of GB services for London Hydro customers</p> <p data-bbox="256 548 548 703">London Hydro Customers benefit from access to the GB Services and the net income from the two utilities already taking the service at the time rates were set for 2017</p> <p data-bbox="256 730 544 831">All costs captured in 2017 revenue requirement and being recovered from current customers</p>	<p data-bbox="678 443 976 546">London Hydro development of GB services for external customers utilizing IP from development period</p> <p data-bbox="678 573 971 728">Ring fenced accounting for incremental costs incurred for external customer pursuits utilizing cost allocation methodology for extracting costs</p> <p data-bbox="678 756 984 858">Determination of revenue sharing methodology for 2022 COS application based on past experience and future potential</p>	<p data-bbox="1109 449 1325 707">Closer to the submission date of London Hydro's 2022 cost of service application, London Hydro expects to be in a position to review its experience and determine the future viability.</p>



1 Special Circumstances Application

2

3 London Hydro is making this application under special circumstances in that London
4 Hydro intends to further promote and explore GB technological innovation beyond
5 London Hydro. The GB platform has allowed London Hydro to present a new
6 opportunity for its customers to efficiently access and benefit from their own
7 consumption data. London Hydro welcomes the opportunity to make available similar
8 benefits to the customers of other utilities in Ontario in an expedited manner and on a
9 very cost effective basis.

10

11 Firstly, the GB platform is a very economically developed technology; as demonstrated
12 in the pro-forma section of this report, the costs are of a modest order. Moreover, this
13 application places the potential downside risks onto our shareholders during the
14 proposed incubation period, shielding London Hydro's customers from any negative
15 financial exposure.

16

17 London Hydro has prepared a pro-forma financial forecast, discussed later in this
18 application, which indicates that this venture is expected to have moderate downside
19 risks or upside benefits over the incubation term. London Hydro also outlines in the
20 description of the ring fenced accounting proposal how annual reporting to the OEB will
21 provide the financial results. London Hydro believes that from a potential market
22 development point of view, the proposed incubation period and the proposed
23 risk/reward from this opportunity follows a logical business innovation practice and
24 reflects the intent of the OEB's incentive ratemaking process.

25

26 The GB platform and ensuing "open utility" paradigm is intended to promote the creation
27 and strengthening of business opportunities for energy marketers, customers,



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1 researchers and academics alike. London Hydro’s desire is to aid in the universal and
2 standardized deployment of the GB platform and to demonstrate its application for the
3 benefit of utilities, customers, energy service providers as well as government agencies,
4 researchers and academics. Through the proposed Directory Services, discussed in
5 Appendix A, London Hydro is further proposing to provide open and easy access to GB
6 data between customers, data custodians (utilities) and other market participants,
7 thereby facilitating the development of growth opportunities for all and the promotion of
8 “open utilities”.

9
10 In anticipation of proclamation of Green Button regulations, London Hydro is making this
11 application with the primary intent to facilitate the implementation of a certified GB
12 platform throughout Ontario in a timely manner. Given our past experience, an existing
13 UL certified GB platform and set of tools, expertise, various interfaces, and a GB
14 application “Test Lab”, London Hydro would be able to promptly and most economically
15 implement a similar system for other utilities and be a key enabler of the future GB
16 market in Ontario. London Hydro strongly believes that GB will allow the utility
17 (electricity, natural gas and water) industry to become more innovative, and engender a
18 greater potential for economic development for the province¹, especially when GB
19 standards are implemented across all utilities in North America. To date, California and
20 New York have adopted GB regulations, with Ontario expected to follow this year, and it
21 is anticipated that other jurisdictions will follow suit in the future.

¹ As noted in the 2017 Ontario LTEP; “The government intends to fund international demonstration projects to help Ontario’s innovative energy companies diversify to foreign markets.”



1 Range of Possibilities

2

3 The GB platform is more than simple data storage. Its design crosses multiple
4 industries. The Green Button Standard is able to record and report on all time series
5 data types. London Hydro has created various applications that have allowed our
6 customers to access and download their own data for presentation, analysis of usage
7 patterns and determination of utility costs. It can be a conservation tool for individual
8 customers and, when combined with big data analytics, it can determine target areas for
9 wide scale energy conservation potential. Currently, the Ontario Ministry of Energy is in
10 the process of implementing the annual “Large Building Energy and Water Reporting
11 and Benchmarking (EWRB)” initiative. The GB platform can be a key technology in the
12 efficient collection and standardization of the multiple energy and water reporting
13 requirements under the EWRB initiative. At London Hydro, we are learning and
14 regularly deploying new uses of GB platform for the benefit of our customers, utility
15 system maintenance and financial reporting. There is a very large range of possibilities
16 for the GB platform to assist in a myriad of opportunities in the efficient use of utilities.
17 The GB platform, albeit a structured data set, compliments the unstructured big data set
18 and associated analytics to enable further energy conservation, utility efficiency and
19 performance in the future. Our initial objective is to facilitate the prompt adoption of the
20 standard and deployment of GB platform across Ontario. It is too early to fully recognize
21 the ultimate value of GB standard and its enabling of the “open utility” paradigm. Once
22 open access is well established, London Hydro envisions profound opportunities for
23 innovating customer oriented solutions by utilities, energy companies and others.



1 Unique Merits of London Hydro's GB Platform

2

3 The GB standard and initiative is designed to continuously evolve and work with
4 industry stakeholders to support existing utilities and energy service providers with their
5 current and future consumer engagement needs. By definition, data standards evolve
6 as market needs change. They are designed to enable reusability of data elements and
7 their metadata with the goal of ensuring consistency and code unity across the industry.
8 During the initial phase London Hydro proposes to concentrate and promote its
9 currently available GB platform, service and expertise primarily to Ontario utilities and
10 customers. For markets outside of Ontario the potential scope for services may be
11 similar; however, at this time it is challenging to estimate opportunities outside of
12 Ontario.

13

14 Recently, the Ministry of Energy released its "Regulatory Proposal for Province-Wide
15 Implementation of GB" EBR Registry Number: 013-1874. The Ontario Ministry of
16 Energy (ENERGY) is considering proposing a regulation to require electricity and
17 natural gas utilities to implement GB standard, Download-My-Data (DMD) and Connect-
18 My-Data (CMD) by July 1, 2020. The proposed regulation would come into force on July
19 1, 2018, pending passage of the proposed enabling legislative amendments and
20 approval of the regulation.

21

22 To implement GB, the utilities would be required to procure or develop a software
23 platform and obtain the certification. As described before, London Hydro has already
24 developed a GB Platform, DMD, and CMD systems for electricity, natural gas and water
25 data¹. London Hydro GB platform services are in production and are deployed using
26 cloud technologies. London Hydro has also provided the GB platform complete with

¹ GB standard is universal for any time series data. A system designed and developed for electricity is equally suitable for gas and water.



1 DMD, CMD as “Software as a Service” to two other Ontario LDCs. As part of this
2 service to two utilities and for London Hydro’s own use, London Hydro has developed
3 data adapters for three different CIS systems used in Ontario. This will help London
4 Hydro to fast track integration efforts for other utilities.

5
6 London Hydro has also set up a “Test Lab”, which has been used by 25 third party
7 vendors to test their GB applications and services to date. Currently, London Hydro is
8 awaiting readiness of the certification of our “Test Lab” by the Green Button Alliance
9 (GBA)². The ANSI³ audit, which is a prerequisite to enable Underwriters’ Laboratories
10 (UL) to carry out the test, has been completed. Our next step is training of staff on the
11 test platform before scheduling tests for certification of the “Test Lab”. It is anticipated
12 that London Hydro’s “Test Lab” will soon be UL certified to test and certify the GB
13 platform implementation for other utilities. Additionally, such a systemic “Test Lab” can
14 further aid in the expedited testing of GB platform for other utilities.

15
16 In January 2016 London Hydro also became the first utility in the world to receive UL
17 certification for its GB Platform and DMD (for natural gas, electricity and water). This
18 certification affirms the security and accuracy of London Hydro GB platform and the
19 data. Furthermore, we have completed all required pre-tests for CMD certification and
20 are in the process of scheduling our official certification test date.

21
22 London Hydro is in the best position to assist in deploying GB platform for the Ontario
23 market immediately. This would assist the Ministry of Energy, the OEB and the Ontario
24 electricity utilities in successfully implementing the GB standards in a timely manner by
25 July 2020.

² GBA is association of utilities, governments, and energy companies for the promotion and upkeep of Green Button Standards for utilities.

³ American National Standards Institute



1 **Pro-forma Financial Forecast**

2

3 As stated previously, London Hydro proposes to provide Ontario utilities two key
4 products, the GB Platform (c/w DMD and CMD) and MyIDC Application on SaaS basis.

5

6 The GB Platform is a turnkey solution offering data conversion, cloud data warehousing,
7 associated tools (API's, DMD, CMD) and the associated maintenance service. This is
8 similar to the existing services that London Hydro has been successfully providing to
9 Festival Hydro and Whitby Hydro.

10

11 To forecast the potential Ontario market opportunity, London Hydro reviewed the 2016
12 OEB Electricity Yearbook and defined the potential market segments for electrical
13 utilities. London Hydro has sized the utilities in accordance with total customer counts,
14 from which three (3) potential market size cases were determined: best case, expected
15 case, and worst case. These estimates are perhaps modest; however, since it is a
16 competitive offering, and many utilities might choose to design and develop their own
17 GB system, these are our best estimates of the market. On the basis of these three
18 cases of potential market size, London Hydro has performed the financial analysis to
19 illustrate bounds of downside risk and upside benefit from the delivery of our GB
20 platform service.



1 Table 1: Ontario Utility Market Estimates

Utility Size Category	# of Customers	GB Platform			
		Utilities Total Ont	Best Case	Expected	Worse
XSmall	< 10K	17	8	4	2
Small	< 30K	11	5	3	1
Medium	< 100K	28	10	5	1
Large	< 500K	3	1	1	1
XLarge	> 500K	3	1	0	0
Total		62	25	13	5
Market Penetration			40.3%	21.0%	8.1%

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London Hydro is also intending to offer MyIDC application for C&I customers. This application provides timely and historical graphical and numerical load data. This application has been found to be of immense benefits by London Hydro's C&I customers. London Hydro anticipates providing the MyIDC application to the utilities that procure our GB platform (these are identified as MyIDC utilities in Table 2). It is anticipated that these utilities would offer the application to their C&I customers. Under the provisioning of MyIDC to utilities, it is assumed that the client utility will undertake much of the customer engagement within its franchise service area.

There is also the potential for London Hydro to market MyIDC directly to C&I customers, especially those that have multiple locations throughout the province and/or are served by utilities not procuring London Hydro's GB platform (these are identified as "MyIDC end user" in the table below). Since MyIDC is a standalone customer focused application and is of greatest value to the C&I customers, its revenue is based on the potential number of customers who procure the application either through their utility or directly from London Hydro.



1 London Hydro has again made some estimated market potential and categorized it in
 2 best case, expected case and worst case, which are then used to determine the pro-
 3 forma results for the MyIDC application.

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Table 2: Market size estimates for MyIDC

Utility Size Category	# of Customers	IDC Utility				
		Utilities Total Ont	Total # of C&I Customers	Best Case	Expected	Worse
XSmall	< 10K	17	867	408	204	102
Small	< 30K	11	1,221	555	333	111
Medium	< 100K	28	14,028	2,505	1,503	501
Large	< 500K	3	5,958	1,986	1,986	1,986
XLarge	> 500K	3	33,927	0	0	0
Total		62	56,001	5,454	4,026	2,700
Market Penetration				9.7%	7.2%	4.8%

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Utility Size Category	# of Customers	IDC End User				
		Avg # of C&I Customers	Total # of C&I Customers	Best Case	Expected	Worse
XSmall	< 10K	51	867	102	26	13
Small	< 30K	111	1,221	139	35	17
Medium	< 100K	501	14,028	626	157	39
Large	< 500K	1,986	5,958	248	62	16
XLarge	> 500K	11,309	33,927	1,696	424	106
Total			56,001	2,811	704	191
Market Penetration				5.0%	1.3%	0.3%

7
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9 Another variable in the pro-forma analysis is the timing of realizing these markets. In
 10 light of the anticipated GB regulations in Ontario, London Hydro projects that the
 11 majority of GB platform implementation would be clustered in the latter part of 2018 and
 12 throughout 2019, culminating in completion by July 2020. Thereafter, the new GB
 13 platform implementation will come to an end; nevertheless, London Hydro would
 14 continue to provide recurring maintenance and updates of SaaS to its customers.
 15 Though London Hydro would continue to offer GB platform services to the market, the
 16 Ontario market potential is projected to be nil or little.



1 On the other hand, MyIDC application sales are projected to be gradual and more
 2 uniform over the years and would continue past 2020.

3
 4 Given the market estimates and the assumption of implementation timeline, the
 5 following tables illustrate the projected financial results for best case (Table 3), expected
 6 case (Table 4) and worst case (Table 5). London Hydro is not expecting this market to
 7 be hugely profitable nor is it presumed to be in risk of large losses as shown in the
 8 tables below.

10 Table 3: Pro-Forma for the Best Case

CURRENTLY RUNNING: BEST CASE SCENARIO								
Green Button Platform & External Apps								
Income Statement								
			<i>Projected</i>					
			2018F	2019	2020	2021	2022	2023
Revenue								
Revenue	(C\$ 000's)		0	3,452	2,104	1,961	1,988	2,017
Total Costs	(C\$ 000's)		302	2,613	1,611	1,435	1,454	1,473
Depreciation	(C\$ 000's)		18	39	47	54	62	52
Interest Expense/ (Income)	(C\$ 000's)		12	14	2	0	0	0
Total Income Taxes	(C\$ 000's)		(88)	208	118	125	125	130
Net Income	(C\$ 000's)		(244)	578	327	347	347	361

13 Table 4: Pro-Forma for the Expected Case

CURRENTLY RUNNING: EXPECTED CASE SCENARIO								
Green Button Platform & External Apps								
Income Statement								
			<i>Projected</i>					
			2018F	2019	2020	2021	2022	2023
Revenue								
Revenue	(C\$ 000's)		0	1,681	1,021	896	909	921
Total Costs	(C\$ 000's)		302	1,332	852	700	709	718
Depreciation	(C\$ 000's)		18	39	47	54	62	52
Interest Expense/ (Income)	(C\$ 000's)		12	20	12	5	1	0
Total Income Taxes	(C\$ 000's)		(88)	77	29	36	36	40
Net Income	(C\$ 000's)		(244)	213	81	100	100	111



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Table 5: Pro-Forma for the Worst Case

CURRENTLY RUNNING: WORST CASE SCENARIO									
Green Button Platform & External Apps									
Income Statement									
<i>Projected</i>									
			<u>2018F</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	
Revenue									
Revenue	(C\$ 000's)		0	777	490	420	425	431	
Total Costs	(C\$ 000's)		302	692	478	363	368	372	
Depreciation	(C\$ 000's)		18	39	47	54	62	52	
Interest Expense/ (Income)	(C\$ 000's)		12	25	27	28	28	29	
Total Income Taxes	(C\$ 000's)		(88)	5	(16)	(7)	(9)	(6)	
Net Income	(C\$ 000's)		(244)	15	(45)	(19)	(24)	(16)	

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4 London Hydro has reviewed the above opportunity with its Board of Directors (BoD),
 5 who have approved proceeding with the proposed service offerings. The BoD
 6 understands that London Hydro is making an application in this regard to the OEB.

7



1 Ring Fenced Accounting

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3 For the purpose of clarity, London Hydro wishes to expand on an explanation of the
4 concept of ring fenced accounting and how it will be applied. To achieve this is to draw
5 a similar parallel to the current practice for accounting for renewable generation revenue
6 and expenses and its subsequent impact on annual ROE reporting requirements under
7 RRR 2.1.5.6. Currently, London Hydro is allowed under section 71(3) a)¹ of the OEB Act
8 to own and operate renewable energy generation facilities that do not exceed 10
9 megawatts. London Hydro has installed 11 FIT/MicroFIT generation projects. The
10 capital assets, annual revenue, OM&A, and depreciation expenses, etc. are included in
11 the financial accounting of London Hydro Inc. For purposes of the presentation of the
12 annual RRR 2.1.5.6 to the OEB, the annual values are removed from the audited
13 financial statements using the OEB reporting model. This is done to ensure that the
14 reported financial results reflect the distribution business ROE only, from which the +/-
15 3% OEB dead band test is based upon.

16

17 London Hydro proposes to use the same reporting structure to handle the
18 aforementioned GB platform services. While the reporting structure will be similar, the
19 capturing of costs is somewhat more complex. London Hydro will develop a model that
20 will allow for the dissemination of GB platform services revenue and expenses from the
21 normal distribution business.

22

¹ 71 Restriction on business activity

Exception

(3) Despite subsection (1), a distributor may own and operate,

- (a) a renewable energy generation facility that does not exceed 10 megawatts or such other capacity as may be prescribed by regulation and that meets any criteria that may be prescribed by the regulations;



1 **Risks/Rewards**

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3 **Initial Period**

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5 During what has been referred to as the incubation period, London Hydro's shareholder
6 will bear the risk as to the success or failure in the deployment of London Hydro's GB
7 platform services. This is consistent with the OEB's 4th Generation IRM regime,
8 wherein, during the four year IRM period, the shareholders of the utility bear the entire
9 risk of renting the IP assets. Due to the fact that London Hydro is proposing ring fenced
10 accounting, the franchised electricity customers of London Hydro are protected from
11 any downside risk. Also during this period, the London Hydro customers continue to
12 benefit from existing as well as any future enhancement of GB assets.

13

14 **Growth Period**

15

16 London Hydro is hopeful that its offering of GB Services during the incubation period will
17 be successful. Obviously, London Hydro is equally keen on promoting the GB platform
18 to other utilities and customers outside of Ontario, since we have seen in its infancy the
19 benefits that the GB platform can provide not only to utilities' customers, but to the
20 energy industry as a whole. As previously noted the above pro-forma projections do not
21 demonstrate the risk/reward associated with the market potential outside of Ontario;
22 however, this potential is relatively far in the future and likely more moderate than the
23 immediate Ontario based potential. Nevertheless, the cost/revenue of any such
24 opportunities will be accounted for in the same ring-fenced accounting mechanism and
25 reported to the OEB on annual basis together with the Ontario market activities.

26



File Number: EB-2018-0118

Exhibit: 1

Tab: 1

Schedule: 11

Page: 2 of 2

Date Filed: March 2, 2018

1 London Hydro currently intends to be filing a cost of service application for rates
2 effective May 1, 2022. It will be at this juncture that London Hydro will be in position to
3 make a decision as to the next step for GB services. It is anticipated that the rate
4 application process would conduct a review to ensure an appropriate sharing of any
5 future benefits from expanded GB Services between London Hydro's customers and the
6 shareholder. In the meanwhile, during the interim IRM period, any net loss or gain from
7 the above proposed venture would accrue to London Hydro's shareholders.

8

9



File Number: EB-2018-0118

Exhibit: 1

Tab: 1

Schedule: 11

Date Filed: March 2, 2018

Appendix 1 of 1

Appendix 1

Briefing Note on London Hydro Green Button

List of Abbreviations and Definitions

Please note that the following was prepared prior to the above application and included for background information only

App(s)	Application(s)
CMD	Connect My Data: allows a consumer to authorize a third-party service provider to receive direct access to their Green Button Data.
DC(s)	Data Custodian(s): utilities that convert their customer utility data (electricity, water, gas, steam) into the standard using the GB schema.
DMD	Download My Data: Green Button can be used to provide a customer with whatever energy usage data the utility has available.
DoE	U.S. Department of Energy
DS(s)	Directory Service(s): provides a global connection for energy companies to have open access to all utility data (i.e. data custodians).
ESPI	Energy Services Provider Interface
GBA	Green Button Alliance: comprised of leading utilities, governmental departments and agencies, solution providers, and affiliate organizations that collaborate to advance the Green Button initiative to enable consumers around the world to access and share their energy and water usage data for managing their consumption. ¹
GB	Green Button: an industry standard to provide utility customers with easy and secure access to their energy usage information for electricity, natural gas, and water usage.

¹ Source: <http://www.greenbuttonalliance.org/assets/docs/Collateral/gba%20green%20button%20brochure%202017.pdf>

IoT	Internet of Things
MOE	Ontario Ministry of Energy
NIST	U.S. National Institute of Standards and Technology
PG&E	Pacific Gas & Electric
PUC	Public Utilities Commission
RPP	Regulated Price Plan
SaaS	Software as a Service: provides an electronic process for interconnecting DCs (i.e. utilities), customers and energy companies/agencies.
SCE	Southern California Edison
SDG&E	San Diego Gas & Electric
SGIP	Smart Grid Interoperability Panel
UL	Underwriters' Laboratories of Canada

Background

The GB initiative is an industry-led effort that responds to a 2012 White House call-to-action to provide utility customers with easy and secure access to their energy usage information in a consumer-friendly and computer-friendly format for electricity, natural gas, and water usage.

London Hydro has been playing an active role on GB since it was promoted in Ontario in late 2012. London Hydro is also a founding member of the GBA organization with 25 members including PG&E, SCE, Exelon, SDG&E, NIST, DoE, Ontario MOE and

MaRS. The goal of the GBA is to promote global adoption of GB, growth of the energy ecosystem and evolution / certification of the GB standard.

GB is an open standard created by NIST, U.S. Department of Commerce, for all utility data including electricity, water, natural gas and steam. NIST provides leadership and support that has accelerated and will continue to accelerate the development and ongoing evolution of the technical standards that serve as the foundation for GB. GB is based on a common technical standard – ESPI – developed in collaboration with the SGIP and working groups. Utilities can convert their customer utility data (electricity, water, gas, steam) into the standard using the GB schema and offer it to their customers in two formats: (1) GB Download My Data and (2) GB Connect My Data. Such utilities are called DCs².

GB Download My Data:

In this version, the customer clicks the GB DMD icon on the secure utility website and downloads the XML file to their computer. GB can be used to provide whatever energy usage data a utility has available. For example, data could be hourly interval data (typically available a day afterward) or monthly data (available for a monthly billing period).

GB Connect My Data:

This powerful model allows a consumer to authorize a 3rd party service provider to receive direct access to their GB data, i.e. it eliminates the requirement that consumers repeatedly login to their utility and download files. These authorizations are valid for an agreed-upon period of time and can be revoked at any time by the consumer.

Ideation for the GB standard, DMD and CMD is to allow customers access to their energy consumption data either directly through DMD, or through powerful 3rd party apps through CMD.

² It is assumed and strongly recommended that the database for all DCs is warehoused in the cloud. This is recommended because a cloud-stored database can be electronically interconnected through a GB platform.

Armed with this energy usage information, consumers can use a growing array of new web and smartphone tools to understand their consumption behaviour, make more informed energy decisions, shift or reduce their overall consumption, manage in-home IoT devices, or verify that energy-efficiency retrofit investments (i.e. LED lighting, more efficient HVAC equipment) are performing as promised.

Customers can then leverage data analytics for energy management, account management, energy conservation initiatives and demand management. If all utilities were to deploy the GB standard, then there is an inherent efficiency for entrepreneurial app developers to create new analytical tools and energy management programs on a universal basis rather than customized designs for each and every utility. Such a standard-based application could provide the most economical way of developing energy apps and unleash the entrepreneurial capabilities of both utility and non-utility entities and, perhaps, become an engine for economic development.

From the DCs point of view, a GB environment is made up of GB standard utility data, DMD and CMD facilities. However, in order to expand the true value of GB, two elements are further required: (1) an online infrastructure to electronically validate, certify and provide universal access to all DCs, and (2) development of functionally-rich consumer and data analytic apps to extract meaningful results/actions from in order to achieve energy conservation or demand management goals or other energy related objectives.

Current Status of GB

1. Many utilities have already established their role as a DC along with having implemented DMD and CMD facilities. However, apps are few and far between, especially the functionally-rich, meaningful apps valued by customers. And, furthermore, the required online GB platform to interconnect DCs in order to provide universal access to GB data and to validate/certify GB standards does not yet exist.

2. All California utilities have converted their utility data into the GB standard. PG&E reports having approximately 100 GB applications for use by its customers.

3. The majority of Ontario electrical utilities have converted their utility data into the GB standard. As well, those that have adopted the GB standard have deployed DMD facilities. Only London Hydro, Festival Hydro and Whitby Hydro have deployed the CMD facilities in the cloud with DMD being certified by UL.

4. New York is the second U.S. jurisdiction which has adopted the GB standard.

5. Both California and New York are rapidly progressing to create an interconnected GB environment among their respective utilities. The California PUC has already mandated utilities to create an integrated DMD as well as CMD facility by the end of 2017.

6. It is anticipated that the Ontario MOE would mandate similar requirements in Ontario as the next update to the Long-Term Energy Plan, which is planned for this fall, will be referencing London Hydro's GB use cases³.

7. GB Apps

The basic premise of the GB standard is to provide open access to utility data so that entrepreneurs and a larger group of creative people can develop and provide apps to customers for energy management, data analytics, account management, future billing as well as other capabilities.

From London Hydro's point of view, its GB apps are extremely popular with its customers. London Hydro's customers in London have often requested the use of

³ Page 99: https://files.ontario.ca/books/ltep2017_0.pdf

these apps for their other facilities, outside of London Hydro's service area. In essence, London Hydro sees this as an opportunity to offer these apps to customers globally.

London Hydro's Development

1. With the help of the MOE, London Hydro was an early adopter of the GB standard and has deployed the following capabilities:
 - a) GB standard data conversion for electricity and water, i.e. London Hydro is a DC of electricity and water. These data warehouses are stored in the cloud (i.e. Amazon and Google).
 - b) London Hydro has DMD as well as CMD facilities developed for both electricity and water.
 - c) London Hydro has also created a GB standard environment for gas and steam.
 - d) London Hydro has three GB applications which are being used extensively by its customers.
 - e) London Hydro has established a test system for testing GB schema as well as for certifying GB applications.
 - f) Along with California utilities and NIST, London Hydro is a founding member of the GBA – a global entity to promote GB standard and GB applications. The MOE and the Advanced Energy Centre of MaRS are also members of the GBA.
 - g) UL is also a member of the GBA and has taken over the responsibility of certification of GB standard compliance. Presently, UL has developed capabilities to certify GB standard deployment as well as DMD compliance. London Hydro assisted UL in creating a system for such compliance. As such, London Hydro's GB deployment as well as DMD was first to be certified by UL. Presently, UL is working on creating a testing standard for CMD compliance.
 - h) Having recognized the absence of online GB infrastructure as described above, London Hydro developed SaaS for a DS system which provides an electronic process for interconnecting DCs (i.e. utilities), customers and energy companies and/or agencies.

- i) The DS system provides a global connection for energy companies to have open access to all utility data (i.e. DCs). In this manner, customers and energy companies can download as well as, upon proper authorization from respective customers, use CMD facilities to report, analyze, segment, aggregate, consolidate, and slice and dice data in any manner and develop various apps.
- j) Using the DS system, energy companies can develop innovative solutions for and provision apps to customers globally without any barriers from utilities.
- k) On behalf of energy companies, London Hydro's DS SaaS is designed to host all GB compliant apps for customers to download (i.e. purchase) for their use – just like the app store.
- l) The DS system is an enabling platform to facilitate the online interconnection of GB DCs. In and of itself, the DS system may not be a revenue generator; however, by taking a leadership role and establishing it, London Hydro would be providing strategic direction for the market.

Provisioning of GB Services for Respective Jurisdictions

- 1. California
 - a) California PUC has mandated an electronic exchange environment for GB standard and applications by the end of 2017.
 - b) The proposal has been submitted to the GBA who will be responsible for administering it for the California market as well as submitting the compliance requirements to the California PUC.
 - c) London Hydro's DS system will initially be installed by London Hydro and costs will be recovered overtime through subscription fees from DCs (i.e. utilities) and any other fees from non-utility entities for giving them access to DCs. As stated earlier, London Hydro is establishing the DS system for facilitating the proliferation of GB services, and not as a revenue generator. The fees are only to recover the costs of development and management of the system.

- d) The proposal submitted to the GBA is to run it for five years, subject to renewal, depending upon market conditions in the future.
- e) The London Hydro powered DS system will have the facility for ensuring GB compliance for all 3rd party apps.
- f) The London Hydro powered DS system will also have authentication and cyber security tools.

2. New York

- a) New York PUC also regulated the GB requirement and open access system for all utilities.
- b) London Hydro has not made any direct representation to New York utilities; however, through the GBA, the London Hydro powered DS system could be used for New York utilities, as the DS system is based upon the GB standard in the cloud and is, therefore, scalable.

3. Ontario

- a) To date, utilities have deployed the GB standard and DMD on a voluntary basis.
- b) The MOE is anticipated to promote the GB standard and deploy the GB open environment for all Ontario utilities in the future.
- c) London Hydro has been working closely with the MOE on GB development and, as such, is promoting a DS based environment for open access using cloud technologies.
- d) The MOE has expressed their initial thoughts to have an electronic open access environment which is unique to Ontario – i.e. “Ontario flavour”. Although it is not obvious at this time what the unique Ontario requirements would be, it is London Hydro’s view that a truly open standard-based system is in essence universal. Hence, Ontario development should not be that unique and different from California and/or New York.
- e) Ontario’s needs can be fulfilled by a California-like DS proposal made by London Hydro. In London Hydro’s view, it should be compliant and interoperable with California and New York markets. Such a global and standard-based system in the cloud would

give opportunities for non-utility entities to develop apps for a larger market, ultimately lowering the costs of such apps for end-consumers.

Regulatory Issues for London Hydro

From the above discussion, it is obvious that London Hydro has developed a significant number of products and services for the GB standard as well as for the DS system to facilitate the interconnection of GB DCs, customers and apps developers. London Hydro, being a fully regulated entity, wishes to seek regulatory approval for the provisioning of its GB services for use in various jurisdictions in and outside of Ontario and outside of Canada.

GB services are currently in an embryonic stage. From London Hydro's perspective, the development of GB services has been successful primarily due to the synergistic approach between London Hydro and its customers, immensely facilitated by London Hydro's access to smart meter data. Furthermore, the development of GB was partially funded by the MOE and London Hydro's customers and shareholder.

These developments, especially the DS environment, are seminal and its adoption by the market (i.e. utilities and customers) is anticipated to be gradual. Thus, London Hydro believes that a continued synergistic approach between London Hydro and its customers is paramount for further development and enrichment of GB services, at least until a level of maturity has been achieved in the marketplace. Therefore, London Hydro strongly advocates for the provisioning of these services, at least until our 2022 cost of service application, from within London Hydro under section 71.4 of the OEB Act.

1. It is anticipated that London Hydro can establish a GB DS SaaS for Ontario within the bounds of its regulated utility business. It can also market various GB apps directly to Ontario utilities and customers, again within the bounds of its regulated utility business.

2. For provisioning similar services to entities in California, New York and outside of Ontario, London Hydro can do so through affiliates or under a special permission from the OEB predicated on the legislation of section 71.4 of the OEB Act.

3. As stated above, GB expertise resides within London Hydro and a synergistic approach between London Hydro and its customers is imperative for its continued development. In London Hydro's view, at least in the initial stages of GB systems and market development, it is essential that such synergistic approach be continued for the maintenance and enhancement of the GB standard systems and applications.

4. In light of the recent legislation of section 71.4 of the OEB Act, London Hydro would like to pursue the provisioning of GB services to jurisdictions in and outside of Ontario through a "fenced accounting" method within the regulated entity. By provisioning such services within London Hydro, customers and shareholders will, in some proportion, receive the benefits of such initiatives.

As per London Hydro's Cost of Service rate application cycle, the next application will be submitted in September/October 2021. It is anticipated that the market for GB services would also become markedly significant around the same time. In this way, the revenue and net rewards, if any, from GB services could be recognized in the revenue requirements for 2022, thus, benefiting London Hydro customers. In between rate filing years, the shareholder will assume and risk and receive benefits from additional growth, if any. Presently, London Hydro's gross revenue from some of the GB services provisioned for two utilities in Ontario is only \$80K/year. In essence, it shows that revenues from GB services would accrue gradually as the market embraces the standard and value-add apps are developed for customers. We anticipate this timeframe to be five to seven years. Thus, at this time, London Hydro proposes to continue to develop GB systems within the corporation and pursue any and all opportunities under section 71.4 of the OEB Act.

Summary

1. The above highlights the emerging issue of the GB systems for utilities.
2. London Hydro has established itself as a pioneer and leader in provisioning GB systems. Therefore, London Hydro would like to seek the OEB's approval for deploying these systems in all jurisdictions in and outside of Ontario and Canada where smart meters are deployed and utilities have adopted the GB standard.
3. London Hydro developed GB systems for use by any granular set of meter data, i.e. 5 minutes, 20 minutes, hourly or monthly meter data, obtained through standard meters, smart meters or interval meters.
4. London Hydro developed GB systems are designed for all utilities including electricity, gas, water, and steam.
5. This is a significant value-added service which is co-funded by the MOE and London Hydro. London Hydro would like to provide this service to other utilities and customers in all regulatory jurisdictions.
6. London Hydro is leveraging GB as part of OEB's RPP pilot that is underway.