**Parks and Environment Committee - My comments for 2014.PE29.2 on August 15, 2014 Parks and Environment Committee**

**From:** Caroline Bordeaux <cbordeaux@marsdd.com>
**To:** "pec@toronto.ca" <pec@toronto.ca>
**Date:** 08/11/2014 9:22 AM
**Subject:** My comments for 2014.PE29.2 on August 15, 2014 Parks and Environment Committee
**CC:** Sasha Sud <ssud@marsdd.com>, Joe Greenwood <jgreenwood@marsdd.com>
**Attachments:** 2014-08-11 City Hall_ERR_Green Button Memo.pdf

To the City Clerk:

Please add my comments to the agenda for the August 15, 2014 Parks and Environment Committee meeting on item 2014.PE29.2, Update - Energy Reporting Requirement for Large Buildings

I understand that my comments and the personal information in this email will form part of the public record and that my name will be listed as a correspondent on agendas and minutes of City Council or its committees. Also, I understand that agendas and minutes are posted online and my name may be indexed by search engines like Google.

Comments:

Dear Councillors,

We are writing you today to inform you of how the Green Button initiative can contribute to the successful and efficient implementation of the Energy Reporting Requirement policy in Toronto.

Please find attached a cover letter signed by Ilse Treurnicht, CEO of MaRS Discovery District along with a technical memo.

We remain at the Committee's disposal for any questions regarding Green Button.

Regards,

Caroline Bordeaux
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August 8th, 2014

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Dear Councillors,

We are writing you today to inform you of how the Green Button initiative can contribute to the successful and efficient implementation of the Energy Reporting Requirement (ERR) policy in Toronto.

International experiences have demonstrated that ERR policies lead to energy savings by allowing progress tracking and benchmarking. One of the largest barriers to ERR implementation is the effort and challenges faced by building owners and managers to access, interpret and convert utility data into a consistent reporting format.

Offering easy access to energy use data and an automated data collection process is key to a successful implementation. Green Button can solve this challenge by automatically enabling the electricity data access for Toronto businesses as it is already accepted as an existing, secure and standardized data access protocol for sharing electricity usage information.

The Green Button initiative was launched in November 2012 by the Ontario Ministry of Energy and MaRS Discovery District and 60% of the Province has adopted the first phase of standard adoption. MaRS has also been working closely with other jurisdictions in Canada such as British Columbia to discuss potential rollout, and the US (Whitehouse and Department of Energy) to further develop the standard and share best practices.

We have been actively collaborating with key industry stakeholders involved in energy reporting and conservation such as the Building Owners and Managers Association Toronto Chapter and Toronto Atmospheric Fund to jointly increase awareness about the Green Button standard and drive its commercial sector adoption.

Green Button makes electricity reporting easier and more cost-effective as it can provide Toronto businesses and residential customers with innovative solutions that can leverage efficiencies enabled through the provision of customer electricity consumption data in a standardized and automated way.

Should the City decide to move forward with an Energy Reporting Requirement policy, we would recommend getting in touch with Toronto Hydro to implement Green Button Connect My Data. MaRS can help the City coordinate this implementation in a smooth manner, drawing from our experience in current pilots with London Hydro and Hydro One.

In the meantime, we remain at your entire disposal for any further questions regarding Green Button.

Best regards,

Ilse Treurnicht
CEO
MaRS Discovery District

**From: MaRS Discovery District, Data Catalyst**
**To: Toronto City Hall**
August 8th, 2014

# ENERGY REPORTING REQUIREMENT FOR LARGE COMMERCIAL BUILDINGS IN TORONTO
# –
# HOW CAN GREEN BUTTON HELP?

## 1. Objectives

The purpose of this note is to inform the City of Toronto of how the Green Button (GB) Initiative can contribute to the Energy Reporting Requirement (ERR) discussion as it facilitates electricity data collection for customers (residential and commercial).

## 2. Background – The benefits of ERR policies

### 2.1 What is Energy Reporting Requirement?

The City of Toronto is discussing the opportunity to implement an energy reporting requirement for owners and managers of large commercial and multi-residential buildings in Toronto. A feasibility study on energy reporting requirement will be presented to the City of Toronto on August 15th 2014.

**ERR is a policy that requires owners and/or managers of buildings to measure and report their energy use on an on-going basis to a third-party.**
Some jurisdictions in the US and many countries around the world have implemented forms of ERR over the past decade, including energy reporting and benchmarking requirement in New-York (LL84) and mandatory building labeling in the European Union. International experiences have demonstrated that ERR leads to energy savings, as it allows building owners and managers to better track their progress over time, to compare their performance against a group of peers and plan medium to long term energy efficiency investment plans.

The City of Toronto has set up some ambitious greenhouse gas (GHG) emissions targets with a 30% reduction by 2020 and 80% by 2050 (1990 baseline). The built environment is a major contributor in terms of GHG emissions (50% in 2010) and implementing ERR measures could help achieve the City's GHG targets.


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## 2.2 Why ERR can be challenging to implement?

As stated in Toronto Atmospheric Fund's 2014 Background Report, complying with an energy reporting requirement policy can be time consuming for building owners and managers. Usually, they would have to spend considerable effort trying to gather data internally, collecting energy bills or going back to utility providers as not all real estate companies have a centralized energy database.
Once the data is collected, it often has to be "cleansed" to ensure accuracy (units, reporting period...). It gets even more complex and cumbersome when dealing with multiple electricity providers and gas as well.

Once this preliminary work is completed, building owners and managers have to send or input their data to a third-party database. This process can be time-consuming as well, depending on the size of property managers' portfolio. The database administrator then has to verify and aggregate the collected data.

This is why data collection is often cited as a major barrier to implementation of any energy reporting requirement. As mentioned in the report, one of the lessons learned from international experimentation is that successful ERR deployment depends on simple and standardized access to energy use data and an automated data collection process:

> *"The need for building owners to have easy access to whole building energy use data"*
>
> *"The need to make data collection and data entry as automated as possible"*
>
> "The Energy Reporting Requirement – A Background Report" February 2014 – page 8.

## 3. What is Green Button?

### 3.1 A North-America wide initiative

GB is a North American initiative being adopted by many utilities as part of an ongoing effort to provide their customers with better access to their electricity usage information.

In the US, the Green Button standard was developed by the National Institute of Standards and Technology (NIST) and is administered by North American Energy Standards Board (NAESB). The adoption of the standard is being pushed through a recent Presidential Memorandum[i] which requires all Federal Agencies (commercial buildings) to use Green Button standard to report on energy consumption and ultimately increase their ability to manage energy consumption and reduce greenhouse gas emissions.

35 US utilities and electricity suppliers have signed on to the initiative. In total, these commitments ensure that 43 million homes and businesses will be able to securely access their own energy information in a standard format.

See: http://greenbuttondata.org/

### 3.2 Green Button Download My Data

The Green Button standard is designed to provide utility customers (both residential and commercial) with automated, standardized and secure access to their electricity data, using a common industry technical standard.


Today, 60% of Ontario utilities provide access to Green Button enabled data, including Toronto Hydro (see http://greenbuttondata.ca/ for full list of participants). Customers can download their electricity data on their computer, using the participating utilities online portal (account section) and select various reporting periods (daily, weekly and monthly). Data is exported in a standard XML file format thus can be easily exported to other applications, tools and software.

➔ Green Button makes electricity reporting easier and more cost-effective as it provides Toronto businesses and residential customers with an existing solution to access and share their electricity data in a standardized and automated way.

➔ Building owners and managers can download their electricity data at no cost and easily share that data with a third-party databases to meet reporting initiatives such as ERR.

### 3.3 Green Button Connect My Data

The second phase of Green Button is "Connect My Data", which allows utility customers to automate the secure transfer of their own energy usage data to authorized third parties (e.g. software or web based applications, or "apps"), based on customer consent and authorization.

The City could collect the building data in its database using the Green Button Connect My Data standard, which would allow a building owner to report their energy consumption to the city by authorizing their utility (using an app) to provide their data directly to the city as per the building owners authorization. The building owner can always change this authorization and is always in a position to determine when and how much of their information is available to the city.

Green Button Connect My Data is currently being implemented with two utilities, Hydro One and London Hydro and a selection of four application developers that will address both residential and commercial sectors. More applications will be added to these implementation in the coming few months.

## 4. Green Button in Ontario

In November 2012, the **Ontario Ministry of Energy** launched the Green Button initiative[ii] with MaRS Discovery District. Led by the Ministry of Energy and MaRS Discovery District, a working group was formed with the Information and Privacy Commissioner of Ontario and representatives from the energy sector to adopt and implement the "Green Button data standard", a common format for customers to securely access and share their data from their electric utilities.

In early 2013, the **Ontario Energy Board** (OEB) in its Supplemental Report on Smart Grid[iii] has required all local distribution companies to investigate options for facilitating customer access to consumption data in an electronic format. The option should be aimed at providing a more user-friendly approach, which allows customers to use, analyze and share their data in an electronic format.

> *"This will involve working towards providing access to hourly billing quality data to customers, and to any third party authorized by the customer [...]."*
>
> *"Supplemental Report on Smart Grid" OEB, Feb. 2013 – page.11*

**Ontario's Long Term Energy Plan** (LTEP)[iv] also identified the need to provide customers with more choices to better understand and manage their energy consumption. The LTEP recognizes that Green Button can play a major role in energy conservation:

> *"The government believes that smart meter data can be used in ways that go beyond supporting customer billing. While respecting the principles of privacy and security, new value-added services and applications for consumers could be developed by enabling better access and analysis of electricity consumption data. This type of data is essential to designing efficient and effective programs to further benefit consumers. "*
>
> *"Ontario's Long Term Energy Plan" Dec. 2013 – page.81*

> *"The Green Button Initiative will give consumers access to their energy data and the ability to connect to mobile and web-based applications so they can analyze and manage their energy use".*
>
> *"Ontario's Long Term Energy Plan" Dec. 2013 – page.7*

In parallel, the **Office of the Ontario's Information and Privacy Commissioner** published several reports[v] and guidelines on how the concept of Privacy by Design can be applied in customer energy usage data-enabled solutions and how customer privacy can be protected.

## 5. How can Green Button Connect My Data contribute to a successful ERR policy in Toronto?

As previously described, Green Button standard makes electricity reporting easier and more cost-effective as it provides Toronto commercial customers with an existing solution to access and share their electricity data in a standardized and automated way. Building owners and managers can download their electricity data at no cost and easily share that data with a third-party database.

Because Green Button uses a common technical standard, it will ensure that all data shared by building owners is consistent (units, interval) and can be easily aggregated for analysis and review.

➔ Below is the recommended 3-step approach that the City of Toronto could take to connect with Green Button:

I. **Implement GB Download My Data for large commercial customers**
Work with Toronto Hydro to enable Green Button Download My Data standard to large commercial buildings, using interval data.

Resource: *Guidance on the consistent Ontario adoption of the Energy Service Provider Interface (ESPI) schema. V1.1*

II. **Implement GB Connect My Data for large commercial customers**
Wok with Toronto Hydro to develop a Green Button Connect My Data "connector" to provide customers with the opportunity to share their electricity data with a third-party database.

Resource: *Green Button Reference Architecture*

III. **Build a GB Connect My Data interface for Toronto's ERR database***
Build a Green Button Connect My Data interface for building owners and managers to authorize the automatic transfer of their electricity data to the ERR database.

*Green Button can in theory be connected to any type of energy reporting database. MaRS is working closely with Natural Resources Canada to make the Canadian version of the Energy Star Portfolio Manager tool compatible with Green Button. The Environmental Protection Agency (EPA) has already engaged a similar process with the US version of the tool.


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## 6. Ancillary benefits

### 6.1 Support voluntary reporting initiatives and environmental certifications

Green Button standard can help buildings owners and managers fulfill their various voluntary commitments towards energy reporting (Portfolio Manager, Race to Reduce) and environmental certifications (BOMA BESt, LEED) by providing an easier and more standardized access to their electricity data.

It could also lead to greater participation in these programs as the data collection barrier is removed, resulting in greater energy conservation and environmental achievements in Toronto.

### 6.2 Residential customer appeal

The 6-month Energy Apps for Ontario Challenge launched by the Ministry of Energy and MaRS Discovery District successfully demonstrated customer appeal for innovative and interactive tools to manage their electricity usage.

The Challenge resulted in 30 apps submitted, showcasing a diversity of consumer engagement approaches: text message-based notification, reports, energy tips using engaging or funny visual cues...

When Green Button Connect My Data standard is rolled out for Toronto Hydro it could be used to fulfill the ERR reporting obligation as well as provide the following benefits:

- Improve citizens' understanding of electricity consumption patterns and strengthen Toronto's energy conservation culture;
- Empower residential customers to take control over their electricity usage;
- Help reduce citizens' energy consumption and costs;
- Contribute to Toronto's GHG emissions targets.

See: http://energyappsontario.challengepost.com/

[i] Expanded "Green Button" will reach federal agencies and more American consumers
http://www.whitehouse.gov/blog/2013/12/05/expanded-green-button-will-reach-federal-agencies-and-more-american-energy-consumers

[ii] Ontario to Enable Cutting Edge Conservation Initiative
http://news.ontario.ca/mei/en/2012/11/ontario-to-enable-cutting-edge-conservation-initiative.html

[iii] Ontario Energy Board, Supplemental Report on Smart Grid. February 11, 2013.
www.ontarioenergybaord.ca/oeb/industry

[iv] Ontario's Long-Term Energy Plan. December 2013
http://news.ontario.ca/mei/en/2013/12/ontario-releases-long-term-energy-plan-1.html

[v] Privacy by Design and Third Party Access to Customer Energy Usage Data. June 2013
http://www.ipc.on.ca/English/Resources/Discussion-Papers/Discussion-Papers-Summary/?id=1267

Privacy by Design: Fundamentals for Smart Grid App Developers
http://www.ipc.on.ca/English/Resources/Discussion-Papers/Discussion-Papers-Summary/?id=1321