

GREEN BUTTON CONSULTATIONS

FINAL REPORT



Submitted to: **ONTARIO MINISTRY OF ENERGY**
Conservation and Energy Efficiency Branch

Prepared by:



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TABLE OF CONTENTS

INTRODUCTION	1
OVERVIEW OF STAKEHOLDER CONSULTATIONS	2
STAGE ONE CONSULTATIONS.....	2
STAGE TWO CONSULTATIONS.....	2
SUMMARY OF INPUT AND FEEDBACK.....	8
APPLICABLE UTILITIES AND CUSTOMERS.....	9
IMPLEMENTATION TYPE.....	11
REGISTRATION PLATFORM.....	12
CERTIFICATION.....	14
IMPLEMENTATION SCHEDULE	17
MANAGEMENT OF THE STANDARD.....	19
ADDITIONAL FEEDBACK (MISCELLANEOUS).....	20
OVERALL TAKEAWAY.....	21
CONCLUSION	22
APPENDIX A: CONSULTATION WORKBOOK.....	23
APPENDIX B: STAKEHOLDER CONSULTATION FEEDBACK AND INPUT.....	36
APPENDIX C: SUMMARY OF WRITTEN SUBMISSIONS	44
APPLICABLE UTILITIES AND CUSTOMERS.....	44
IMPLEMENTATION TYPE.....	53
REGISTRATION PLATFORM.....	59
CERTIFICATION.....	63
IMPLEMENTATION SCHEDULE	68
MANAGEMENT OF THE STANDARD.....	73
ADDITIONAL COMMENTS (MISCELLANEOUS).....	79

INTRODUCTION

Ontario's Ministry of Energy has hired Dunsky Energy Consulting to support its efforts in developing policy recommendations for the potential implementation of Green Button for electricity, natural gas and water utilities in Ontario. Specifically, our team is supporting Ontario's efforts by conducting a cost-benefit analysis and facilitating stakeholder consultations on various potential implementation scenarios. The Ministry is taking on an exciting leadership role in this area, as no jurisdiction has attempted a quantified cost-benefit analysis of the Green Button standard to date.

As part of the project, two sets of consultations were conducted. The first set of consultations was designed to identify potential costs and benefits of a Green Button implementation, and the second set was designed to receive feedback from stakeholders on the Ministry's draft policy proposals.

This report is focused on the results of the Stage Two Stakeholder Consultations. Specifically, it includes the following:

- Summary of Workshop consultations and written submissions;
- Common themes and key insights; and
- Detailed summaries of stakeholder input.

OVERVIEW OF STAKEHOLDER CONSULTATIONS

STAGE ONE CONSULTATIONS

An important part of the Green Button consultation and cost-benefit analysis work was to ensure stakeholder input and feedback were received for consideration in the Ministry's policy proposals. This consideration was addressed in two sets of consultations. The first set of consultations, held in April 2016 were designed to obtain feedback from stakeholders on categories and magnitudes of potential benefits. Stakeholder groups included:

- **Utilities:** Electricity, Natural Gas, and Water
- **Customer Groups:** Commercial and Industrial, Institutional, Residential
- **Government and Public Sector:** Government Departments, the IESO, the OEB, and various associations
- **Third-Party Service Providers:** Consultants, Application Developers, Hosted Solution Providers, Renewables Vendors

STAGE TWO CONSULTATIONS

During the second phase of Dunsky's work, and in collaboration and partnership with the Ministry and MaRS Discovery District, our team held five consultation policy workshops with stakeholders in four locations across Ontario: Ottawa, Sudbury, London, and two sessions in Toronto.

Each workshop followed a similar format:

1. The Ministry provided an overview of the policy context behind the project and an overview of Green Button for those attendees not familiar with it.
2. MaRS presented the results of the Ontario Green Button pilots.
3. Dunsky presented an overview and results of the Cost-Benefit Analysis.
4. The Ministry presented its draft policy proposal.
5. Presenters answered questions from the floor to ensure all attendees understood the Green Button concept, analysis results and policy proposals.
6. Attendees were organized into groups facilitated by one of the Green Button team members from either the Ministry, MaRS, or Dunsky. The groups discussed each policy proposal and provided initial input and feedback and then presented some of their thoughts to the larger group. To assist with these discussions, stakeholders were provided workbooks to complete before, during and/or after the workshop, and the facilitators used them to guide the groups. A copy of the workbook is provided in Appendix A.

While the original intention was to have online attendees form a group and discuss the proposals, logistics (specifically, not having a separate, quiet space to host the discussion), made this impractical, and online attendees elected to forego the discussion and submit their feedback in written form alone.

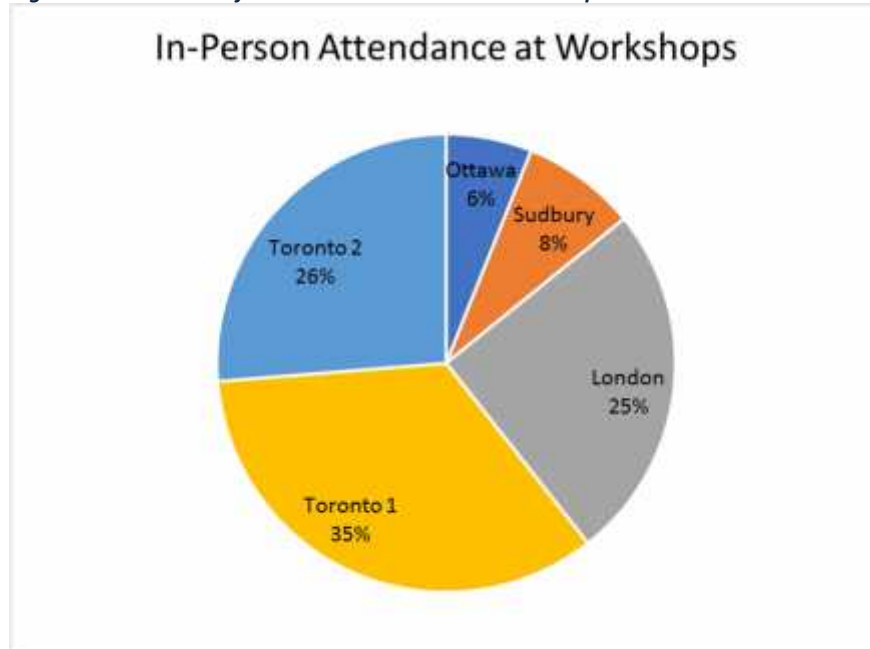
Workshops were intended to solicit input on the Ministry's Green Button Implementation policy proposals, which are outlined as follows and for which greater detail was presented during the workshops and included in the information package provided to stakeholders:

Figure 1. Overview of Green Button Implementation Policy Proposals

Utility and Customer Type	<ul style="list-style-type: none"> •All electricity, natural gas and water utilities (with metering infrastructure) and unit sub-metering companies to implement both DMD and CMD for residential, commercial, institutional and industrial customers.
Implementation Type	<ul style="list-style-type: none"> •Implement through a Single Integrated (Hosted) platform.
Solution Provider and Utility Registration	<ul style="list-style-type: none"> •Support registration through a single platform for solution providers and utilities.
Certification	<ul style="list-style-type: none"> •Certification for utility Green Button implementations. •Allow optional certification for Green Button solution providers.
Phase-in and Timing	<ul style="list-style-type: none"> •Phase in utility implementations to achieve high-value benefits first.
Implementation and Maintenance	<ul style="list-style-type: none"> •Have the Ontario Green Button standard managed by one entity. •The entity will support roll-out and implementation activities.

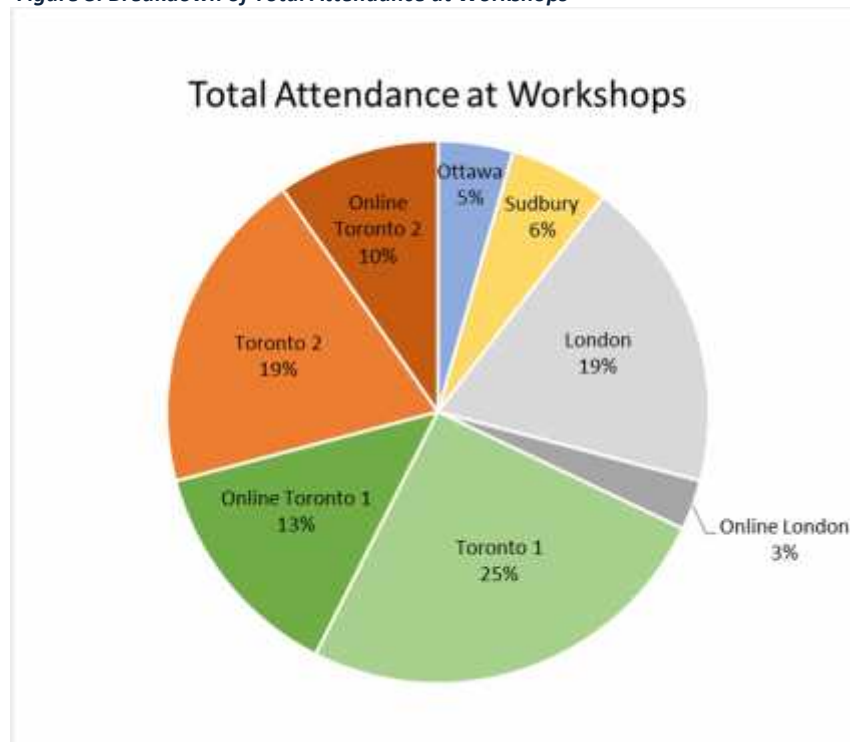
Attendance at these sessions was highest in London and Toronto, but representation was provided at all locations as highlighted in figure 2:

Figure 2. Breakdown of In-Person Attendance at Workshops¹



Additional attendance was captured through online opportunities in London and Toronto²:

Figure 3. Breakdown of Total Attendance at Workshops



¹ All numbers and percentages provided are related to organizational representation. Multiple representatives from one organization are not captured.

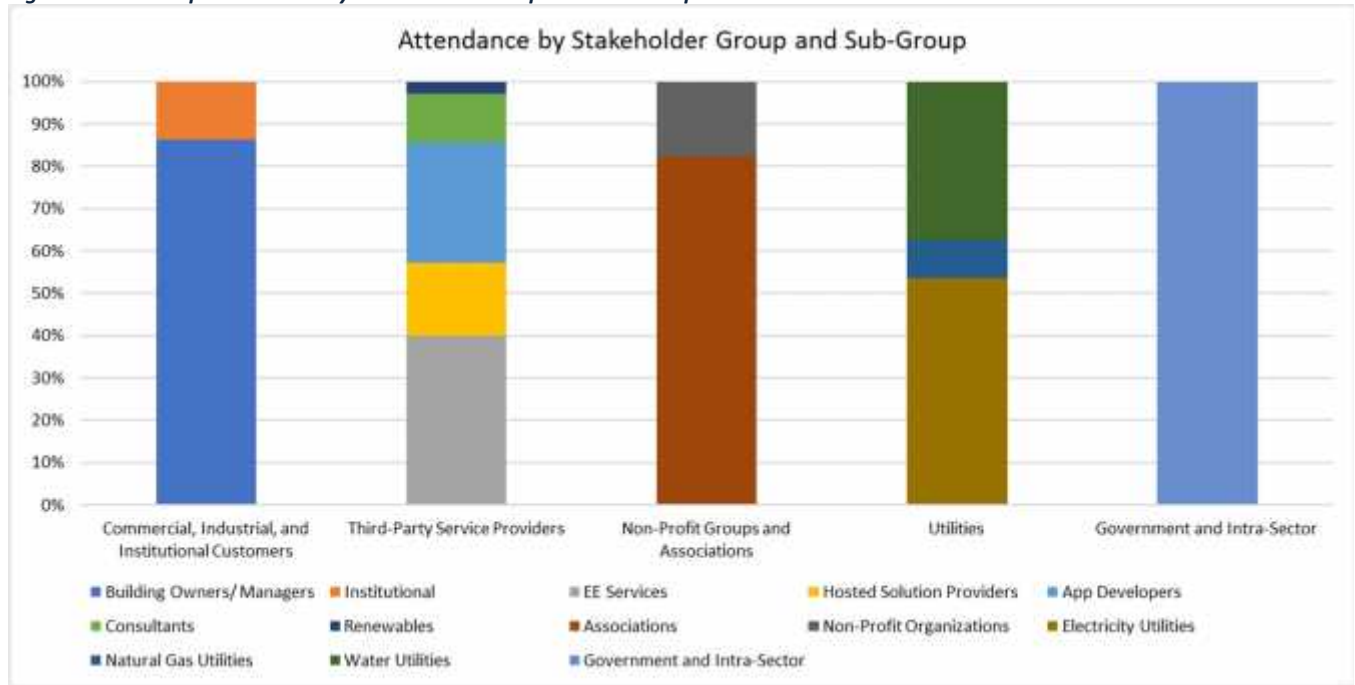
² Not all online attendees identified themselves, so online numbers are smaller than actual attendance.

A wide variety of stakeholders attended the workshops, including:

- Electricity, natural gas and water utilities;
- Commercial, industrial, and institutional customers;
- Government and public sector representatives;
- Third-party service providers;
- Universities; and
- Non-profit groups and associations.

The make-up of the workshops by stakeholder group and sub-group is highlighted below³:

Figure 4. Workshop attendance by Stakeholder Group and Sub-Group



Overall, all stakeholder groups and sub-groups provided input in some form or another, with many groups providing several forms of feedback and engaging in multiple ways, as highlighted in Table 1.

³For all stakeholder group and sub-group numbers and percentages, the sum of attendees may exceed the total number of attendees because stakeholders are recorded for each group they represented (e.g. utilities that offer both electricity and water services are included under both utility types, some energy efficiency service providers are also non-profit groups, etc.) and for each session they attended.

Table 1. Overview of Stakeholder Engagement in Stage Two Consultations

Stakeholder Group	Stakeholder Sub-Group	Number of in-person attendees at sessions	Number of online attendees at sessions	Number of Written Submissions
Utilities	Electricity	21	9	12
	Natural Gas	5	0	1
	Water	14	7	2
Commercial, industrial, and institutional customers	Building owners/managers	20	5	1
	Institutional customers	4	0	0
Third-party service providers	Hosted solution providers	5	1	2
	Application developers	7	3	8
	Energy Efficiency Service Providers (hands-on)	11	3	6
	Consultants (strategic advice)	2	2	1
	Renewables	0	1	0
Non-profit groups and associations	Non-profit organizations	3	0	1
	Associations	10	4	6
Government and intra-sector representatives		8	4	3

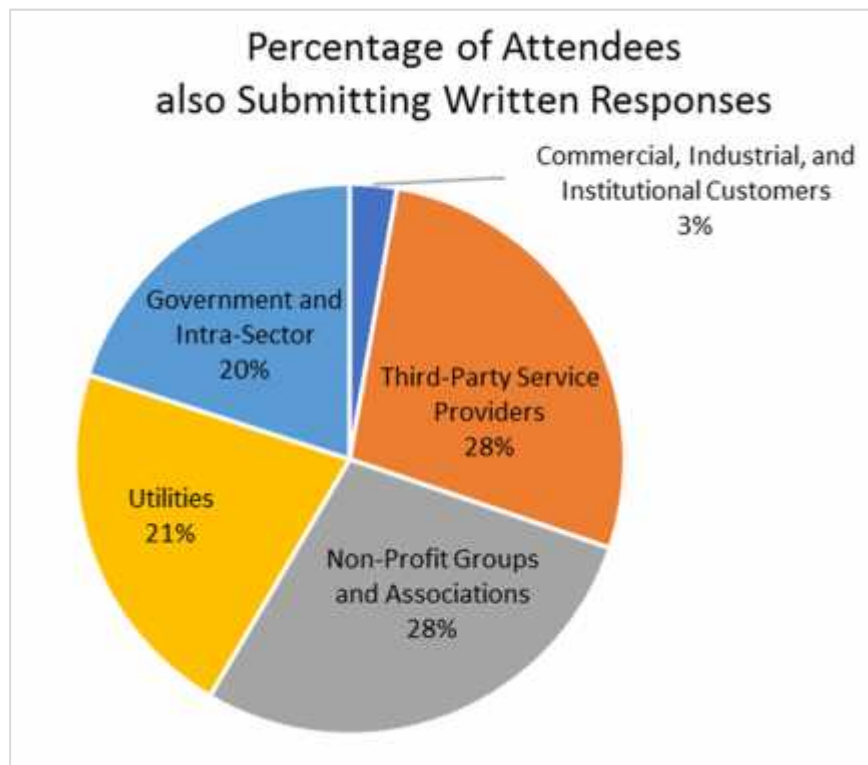
The most popular form of engagement was in-person at the workshops, followed by written submissions and online attendance. As indicated in the table above, some stakeholders engaged in multiple ways and have been recorded in all relevant engagement formats.

Figure 5. Form of Engagement by Stakeholders



127 unique organizations provided input into the Ministry's policy proposals, providing a wide range of perspectives and feedback. Overall, 29 percent of stakeholders who attended a workshop (either in person or online) submitted written feedback. The percentage of stakeholders, by stakeholder group, who attended the in-person workshops and also submitted written responses is provided below:

Figure 6. Percentage of Workshop Attendees who also Submitted Written Responses



One stakeholder group that did not have the same level of representation as others is renewable energy service providers. One representative attended the workshop online, but no additional engagement was noted despite invitations throughout the consultation and workshop process.

After each workshop, attendees were provided with 2-3 weeks to submit written feedback on the policy proposals. This ensured that representatives were able to consider the implications and impacts of each proposal as well as solicit feedback and input from others in their organizations.

SUMMARY OF INPUT AND FEEDBACK

In this section, we provide an overview of the key themes and insights arising out of the stakeholder consultations. The themes and insights included in this report are a result of two forms of feedback:

- **Comments made during stakeholder consultations**, primarily during small-group discussions. In these discussions, which were facilitated by a member of either the Ministry, MaRS, or Dunsky, individual comments were recorded as well as group consensus input.⁴
- **Written comments provided after the workshops via the workbook**: Many of these comments include consolidated feedback from organizations, as representatives were able to discuss the options with colleagues. In addition, several of them were completed by attendees prior to the consultations or by those unable to attend the workshop. It is important to note, that these individuals may not have interpreted the questions in the same manner as those attending who were able to ask questions of the presenters or group facilitators.

We note that this section outlines **frequent or consensus-based responses**; it does not include all responses, including minority dissenting opinions. However, a summary of all the input received, delineated by response format (in-person workshop or written submission) is provided in the appendices:

- Appendix B includes a summary of the input received during the stakeholder consultations and is organized by proposal and location.
- Appendix C includes a summary of the input received by individual stakeholders in their written submissions.

In the graphs throughout this section, the categories are defined as follows:

- **Support**: The response indicates agreement with the proposal. In most cases, support is for the proposal as it is written, but some respondents provide clear support with caveats (these are provided in the detailed appendices).
- **Opposition**: The respondent does not agree with the proposal.
- **Response not applicable**: The response does not answer the question. In several cases, respondents provided an overview of their services or repeated answers to prior questions.
- **Combination of support and opposition**: The response includes explanations on parts of the proposal with which the respondent agrees and with which the respondent disagrees.
- **No clear support or opposition**: It is unclear whether or not the respondent is in support of or in opposition to the proposal.
- **Neutral/Agnostic**: The response indicates a “lack of opposition” or specifically mentions the respondent has no comment (as opposed to simply not answering).

⁴ We note that some of these responses may not be representative of individual organizations’ actual perspectives if it was a result of larger group influence.

APPLICABLE UTILITIES AND CUSTOMERS

In response to the proposal that **all electricity, natural gas and water utilities (with metering infrastructure) and unit sub-metering companies be required to implement both DMD and CMD for residential, commercial, institutional and industrial customers**, the key themes were as follows:

- **Green Button benefits would arise from an implementation across all utility types:** In general, respondents agreed that the greatest benefits would be seen through an implementation across electricity utilities. Several responses also indicated an equal level of benefits from an implementation across either natural gas or natural gas and water utilities, but not all respondents agreed on this. Regardless of the anticipated level of benefits, almost all responses indicated there was at least some benefit in implementing across all utility types, as shown in figures 7 and 8 below. We note that it is not appropriate to combine the responses for written and in-person feedback, since the in-person workshop submissions were the result of facilitated group discussion, in which similar responses were not necessarily recorded multiple times and in which dissenting perspectives may not have been voiced. We are, however, providing those results for information purposes.

Figure 7. Workshop Responses to Mandatory Green Button Implementation Proposal as Recorded

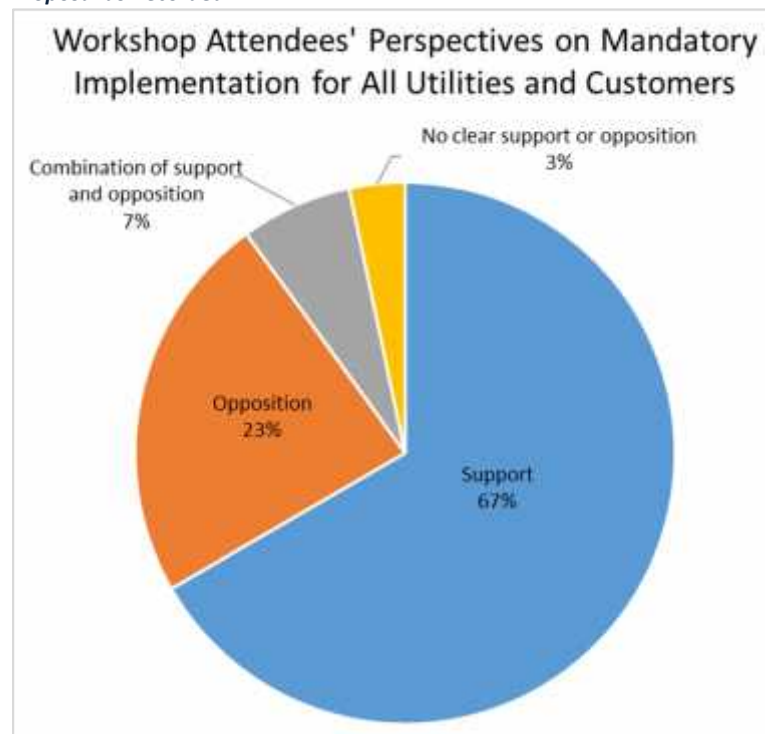
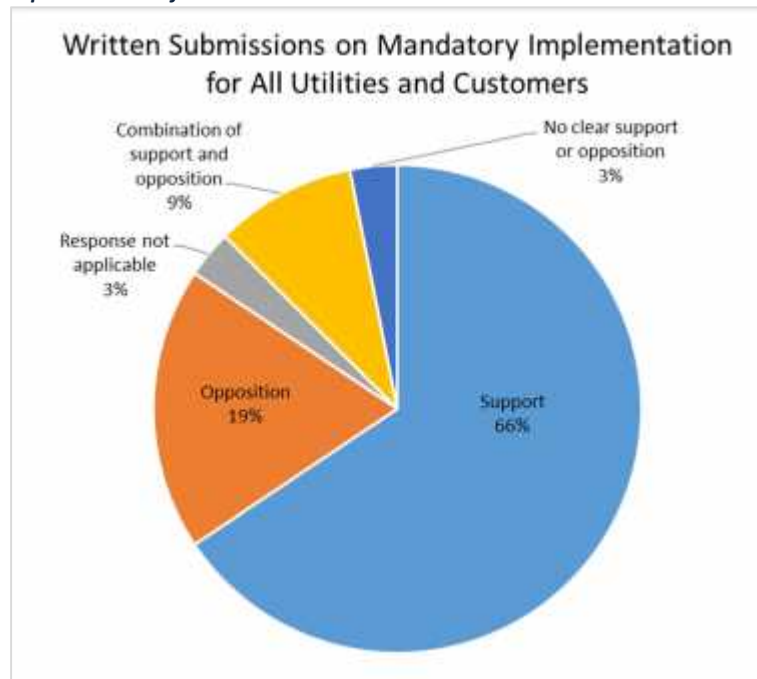


Figure 8. Written Responses to Proposal on Mandatory Green Button Implementation for all Utilities and Customers



- **Green Button would provide benefits to all customers:** Green Button makes data access easy and cost-effective for large companies and consultants/service providers who assist them with data analysis and energy efficiency projects. While the greatest benefits would be seen by these groups, all customer groups would see benefits. We note that 2 of 32 written responses indicated they did not see the value for residential customers and 1 focused exclusively on the benefits to commercial customers, but the most common response was the one indicated above.
- **Perspectives from utilities:**
 - **A Green Button implementation would duplicate existing utility efforts:** Several electricity and natural gas utility representatives (four written submissions and additional verbal discussions as noted by facilitators) stated that customers interested in their data already have access to it (particularly if they have smart meters) and that Green Button would not provide additional value.
 - **There is concern about lack of uptake in the pilots:** In their written feedback, four of eleven utilities highlighted the lack of uptake in the Green Button pilot and lack of demand (in the Residential sector specifically) for consumption data, citing it as a potential concern that a larger implementation would not be beneficial.

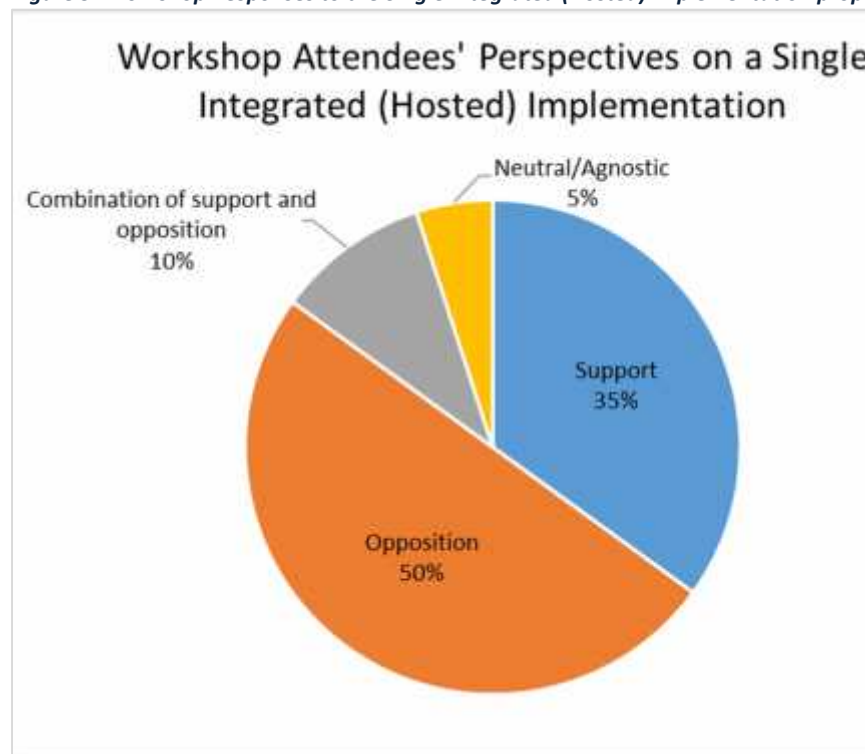
- **Perspective from customers:**
 - **A Green Button implementation would be more beneficial than existing utility efforts:** Customers and their consultants/service providers (all customer or consultant written responses and groups in every workshop) indicated their data is not always easy to obtain from the utilities, and it is not standardized across utilities.

IMPLEMENTATION TYPE

In response to the proposal that a **Single Integrated (Hosted) Implementation type should be implemented** (meaning that only one platform would be developed for each utility type, leading to three platforms in total), we observed the following key themes, which were differentiated by format of response:

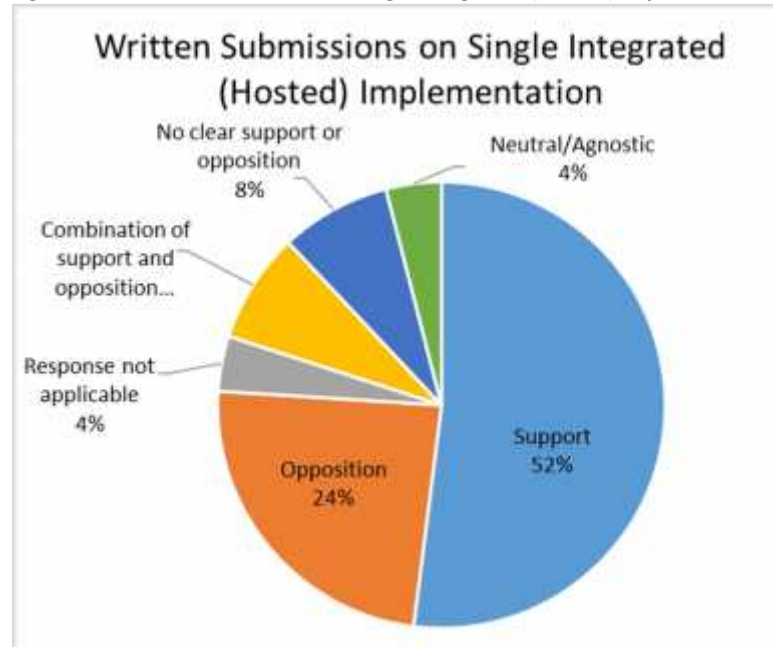
- **A Multi-Integrated (Hosted) Implementation would be preferable:** A majority of responses **from the in-person consultations** indicated that representatives believe that a Single Integrated (Hosted) implementation would lead to greater risk and fewer benefits (see figure 9 below). Examples of these risks and reduced benefits include:
 - The potential for the single provider to cease operations;
 - Increased costs over time due to a monopoly scenario;
 - Lack of competition, leading to stifling of creativity and innovation; and
 - Reduced service for smaller or more remote utilities (i.e. a focus on large utilities).

Figure 9. Workshop Responses to the Single Integrated (Hosted) Implementation proposal



- **A Single Integrated (Hosted) Implementation may be preferable:** The written submissions contained a wide divergence of opinion on the implementation type, with most preferring either a Single Integrated or a Multi-Integrated (Hosted) solution. However, over half of written submissions indicated agreement with the Ministry’s proposal for a Single Integrated (Hosted) implementation (see figure 10). This feedback was different than the in-person workshops as noted above.⁵

Figure 10. Written Submissions on Single Integrated (Hosted) Implementation



REGISTRATION PLATFORM

In response to the proposal that **registration for solution providers and utilities be provided through a single platform**, we note that there was **general support on the part of respondents**. 77 percent of the recorded perspectives at the workshops indicated support, with an additional 16 percent either not indicating clear support or opposition, or providing a combination of support and opposition. Similarly, 74 percent of written responses indicated support, with an additional 13 percent of responses neutral, agnostic, or not applicable to the question.

⁵ We note that several respondents may have misunderstood the question, as they used terms such as “single interface” and “single data custodian for utility data”, which is not what the question was asking. These responses that indicate misunderstanding have been removed from the figure above. They made up 17 percent of the original responses, which would have put support at 43 percent and opposition at 20 percent.

Figure 11. Workshop Responses to Single Platform Registration Proposal

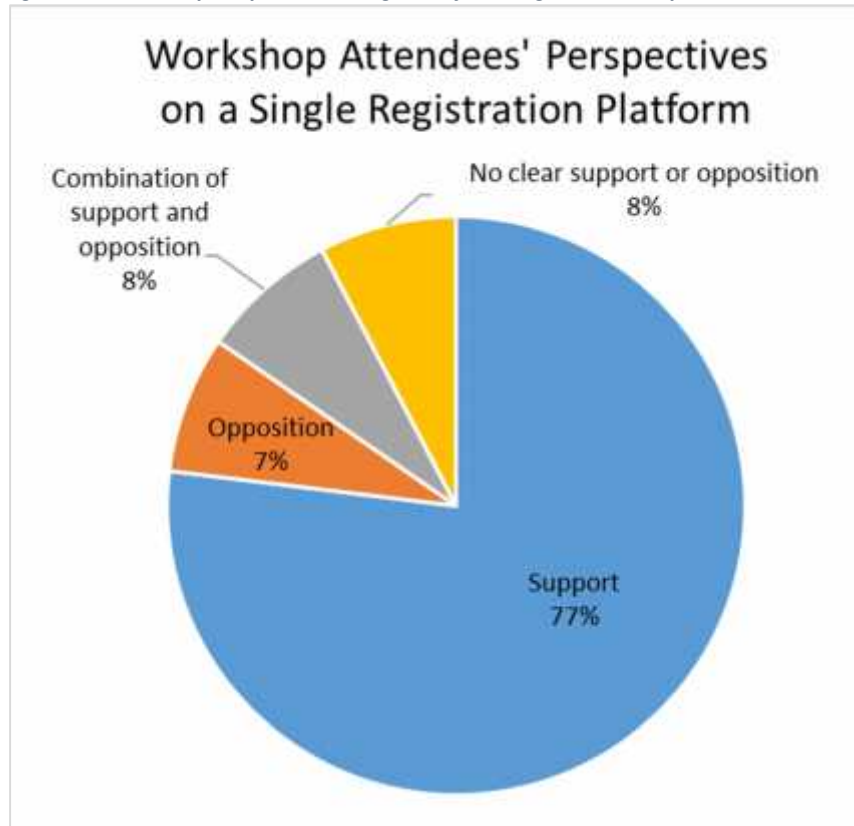
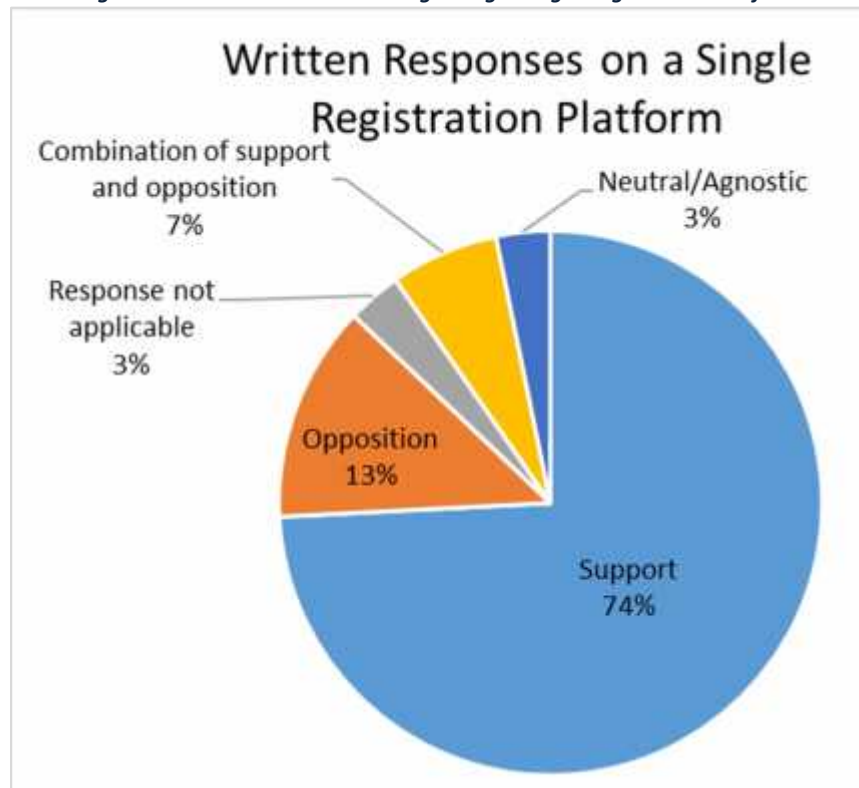


Figure 12. Written Submissions Regarding a Single Registration Platform



CERTIFICATION

In response to the proposal that **certification be required for utility Green Button implementations**, we note that there was **general consensus that this made sense**. The only three written responses to disagree with it were from energy efficiency service providers and a hosted solution provider who did not see the value and/or expected increased costs for doing so. Utilities generally supported certification. While most did not indicate why, the ones that did indicated it would provide greater consumer confidence, is best practice, or would ensure adherence to the Green Button standard.

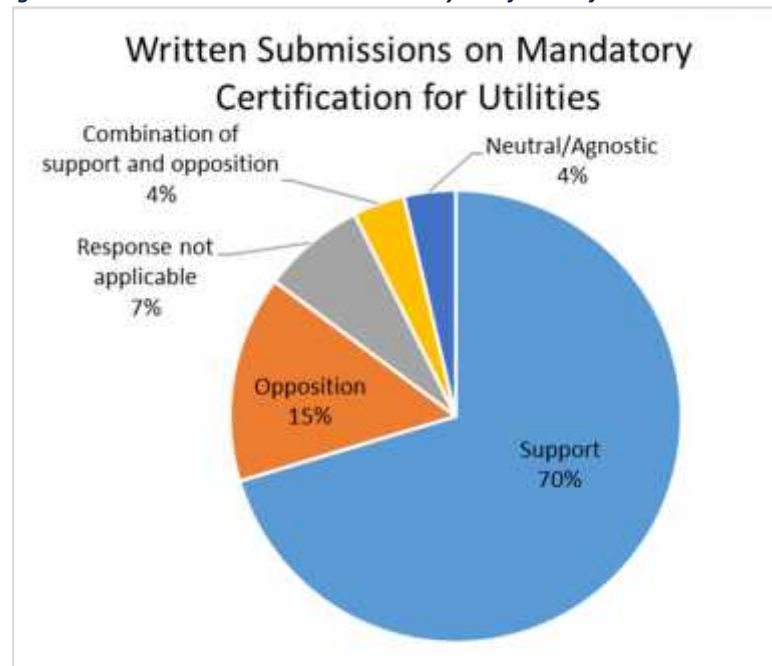
In response to the proposal that **optional certification be available for Green Button solution providers**, the following key themes, while in opposition to each other, were brought forward:

- **Support for mandatory utility certification:** 92 percent (12 of 13) of recorded workshop responses and 70 percent (19 of 27) of written responses supported the Ministry's proposal that utility certification should be mandatory

Figure 13. Workshop Responses Regarding Mandatory Utility Certification



Figure 14. Written Submissions on Mandatory Certification for Utilities



- Certification for solution providers should be required:** The majority of responses indicated opposition to optional certification for solution providers, with 52 percent of in-person feedback and 41 percent of written feedback disagreeing with the proposal. While 41 percent is not a majority, only 37 percent of written responses supported the proposal, with 24 percent of recorded workshop responses supported it. Those who opposed the proposal believe that certification should be required for solution providers. Reasons included the importance of certification for applications in general, so that applications that do not conform to the standard could be removed and/or blacklisted. Examples of the concern about problematic or poor-performance applications include utilities being blamed and that a lack of certification could encourage unethical behaviour on the part of solution providers.

Of those who did support the proposal, several mentioned that mandatory certification could be a barrier to entry for solution providers, and several third-party solution providers and associations indicated they have not seen required certification elsewhere.

In the workshop feedback, there was general concern about privacy issues, and many respondents suggested making privacy certification required. However, we note there appeared to be lack of understanding about the privacy requirements addressed through the Green Button standard, which follows Privacy by Design principles. In addition to this lack of awareness, there was also concern about customers' lack of education/awareness of what information they provide to application providers. Of the 37 percent of written responses that supported mandatory certification for solution providers, over half (7 of 10) specifically referenced privacy certification.

Figure 15. Workshop Responses Regarding Optional Solution Provider Certification

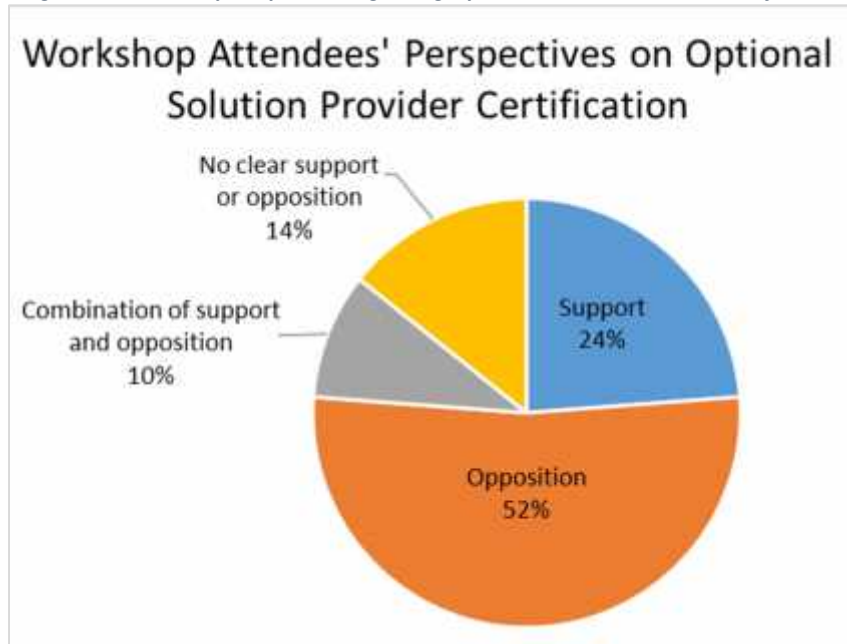
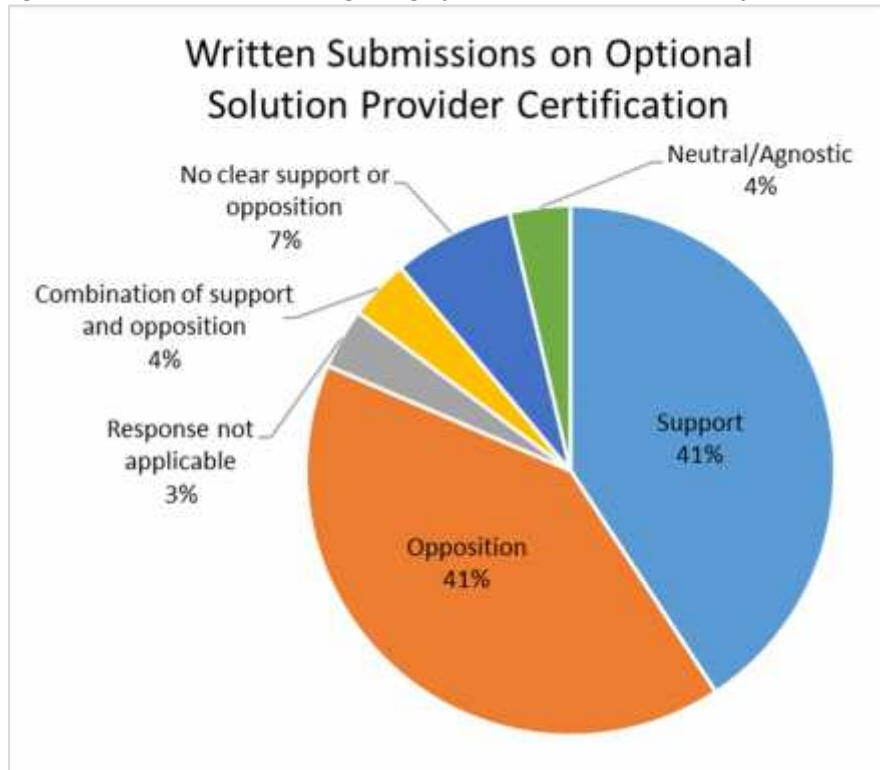


Figure 16. Written Submissions Regarding Optional Solution Provider Certification



IMPLEMENTATION SCHEDULE

In response to the proposal that **there should be phase-in approach to the implementations (as indicated in the table below), designed to achieve high-value benefits first**, there was a wide variety of opinions. We have outlined the most common responses below.

Table 2. Proposed Green Button Implementation Schedule

Proposed Schedule							
Utility Type	Utility Size	Number of Utilities	GB CMD Implementation Year				
			1	2	3	4	5
Electricity	Large	7	■				
	Medium	21	■				
	Small	44		■	■		
Natural Gas	Large	2	■				
	Small	1	■				
Water	Large	39	■				
	Medium	91		■	■		
	Small	~380				■	■

- **Agreement with the proposal:** Many responses (10 of 28 written and half of the recorded workshop comments) indicated agreement with the proposal, suggesting that it made sense to focus on large and medium utilities first.
- **Begin implementation with smaller utilities:** A number of responses (3 of the recorded workshop comments and 3 written responses) focused on the importance of beginning implementation with small utilities, since they were likely to face more (or different) issues than larger utilities, and an earlier start would allow greater time to fix them. An additional 4 written responses indicated support for all utility types beginning implementation at the same time.
- **Do not prescribe a specific implementation schedule:** Several (7 of 28 written and 5 of 28 in-person) responses indicated reasons why exclusions to a timetable should be allowed or why guidelines, rather than a prescriptive approach, should be adopted:
 - Timelines should recognize other LDC implementation requirements;
 - Timelines should allow utilities to coordinate with other infrastructure or IT upgrades;
 - Some smaller utilities can, and would want to, implement earlier.⁶

In general, opposition to the proposed implementation schedule was approximately half in both types of feedback. However, the reasons for the lack of agreement varied widely (see figures 17 and 18 on the following page).

⁶ This response indicates a lack of knowledge that the timelines presented are “latest” dates, not “required” dates, and that earlier implementation would be possible.

Figure 17. Breakdown of Opposition to Proposed Timeline in Recorded Workshop Responses

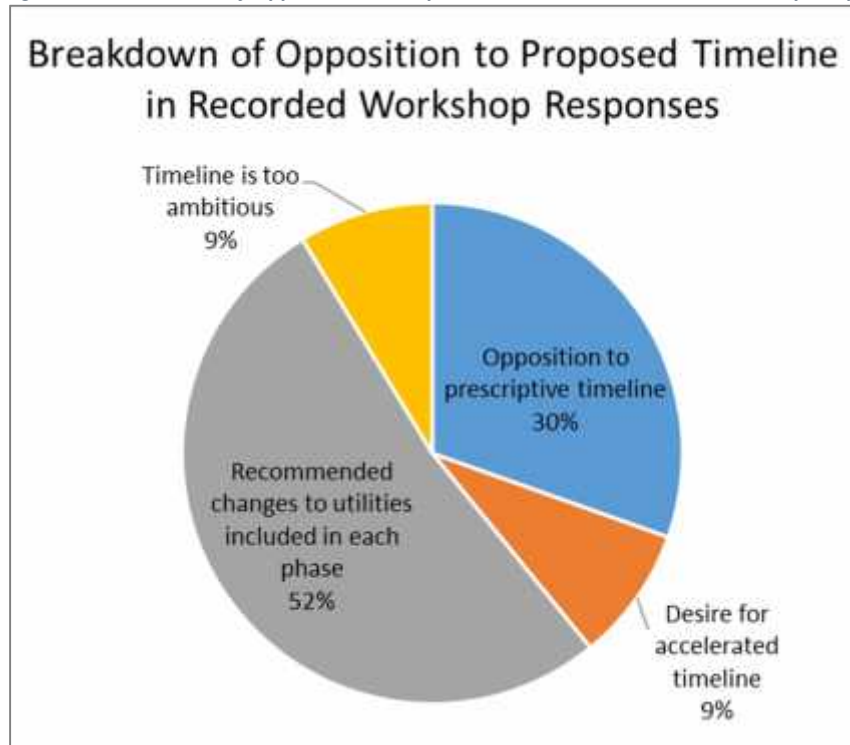
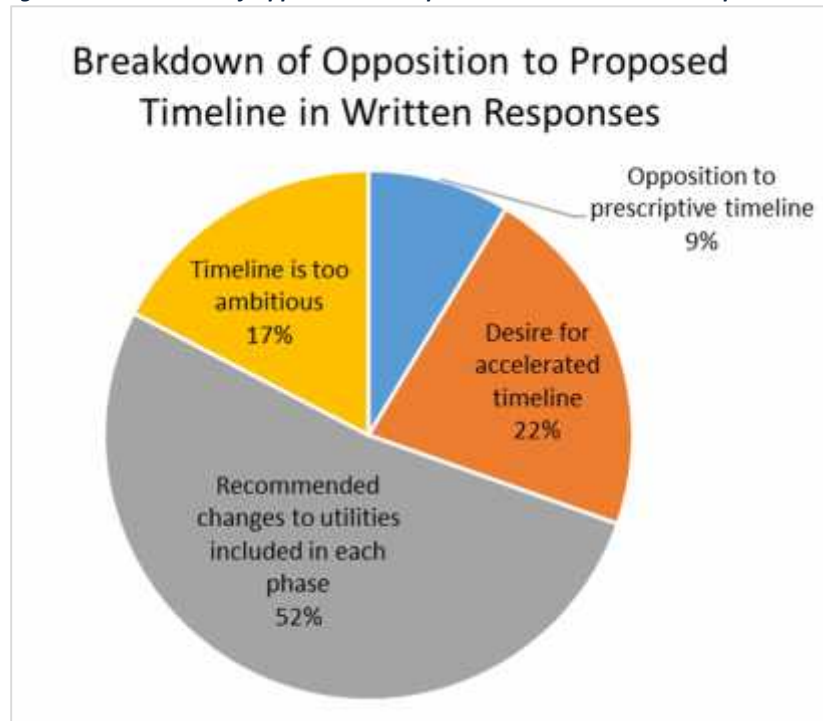


Figure 18. Breakdown of Opposition to Proposed Timeline in Written Responses



MANAGEMENT OF THE STANDARD

Regarding the proposal that the **Ontario Green Button standard be managed by one entity**, there was **general support (75 percent of recorded workshop responses and 69% of written submissions) for the Ministry's proposal**.

In terms of the specific entity, there was a wide range of responses, some of which were conflicting:

- The most frequent suggestion was the **Independent Electricity System Operation (IESO)**, with slightly fewer suggestions for the **Ontario Energy Board (OEB)**. The next most frequent suggestions for a specific entity were for the **Ministry of Energy**.
- There were also many suggestions (61 percent of workshop recorded responses) for different types of **independent entities** that focused on IT services, project management, or auditing, although specific suggestions were not provided more than once.
- Several responses indicated that the entity should not be Government-based, due to lack of expertise or the potential for delays.

A breakdown of these suggestions is provided in figures 19 and 20 below.

Figure 19. Recommendations for Implementation and Maintenance Entities (Recorded Workshop Responses)

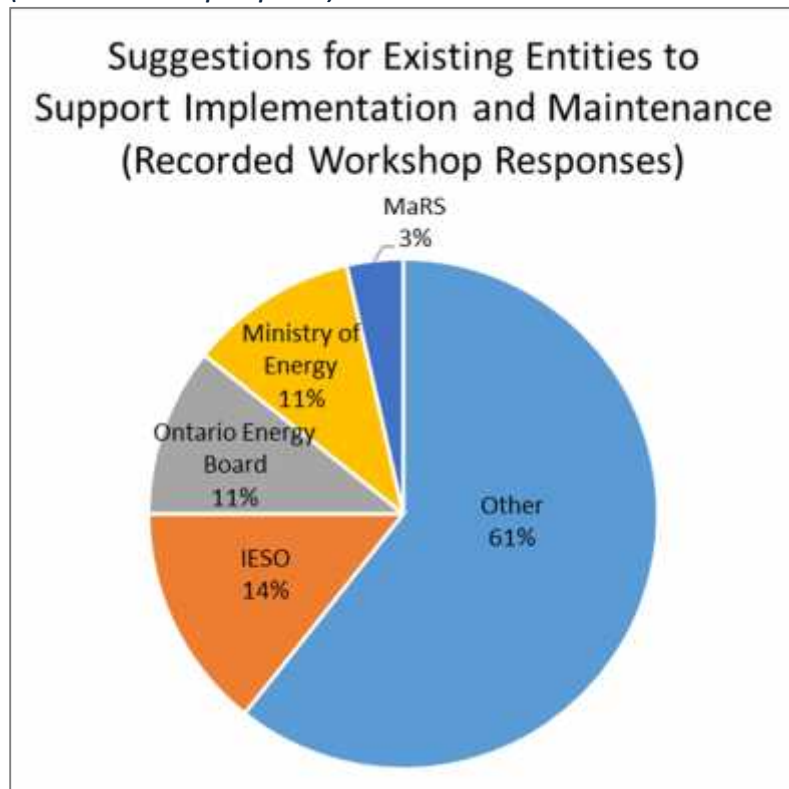
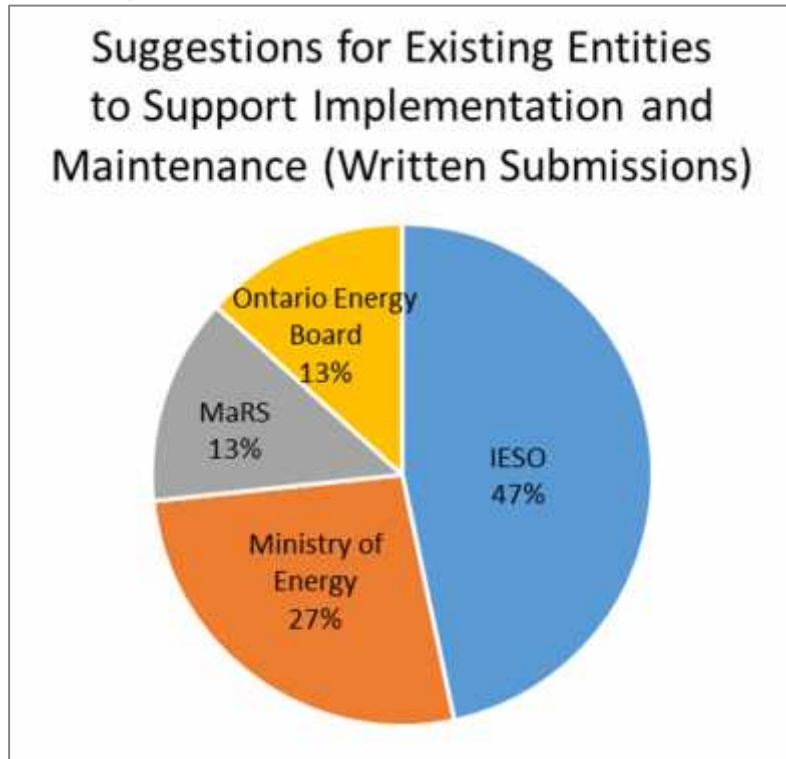


Figure 20. Suggestions for Implementation and Maintenance Entities (Written Submissions)



ADDITIONAL FEEDBACK (MISCELLANEOUS)

In addition to soliciting input on the Ministry’s policy proposals, respondents were also invited to provide additional comments. As with the specific proposals, the most frequent comments are highlighted here, and a more complete list of comments is provided in Appendix B.

- Funding for a Green Button implementation:** This question/response was by far the most common additional input provided. A large number of respondents asked questions about how a Green Button implementation would be paid for or funded.

Some respondents simply asked the question “who will pay?”, while others provided a range of responses about options or recommendations, including a user-pay system, the cap and trade fund, the Climate Change Action Plan Greenhouse Gas Reduction Account, etc. Some respondents took the opposite approach and indicated funds should *not* come from rates or taxes.

A related topic was a concern expressed by several utilities that Residential customers should not be expected to pay for a Green Button implementation when the Commercial/Industrial sector is expected to see the bulk of the benefits.

- **Utilities desire resource or logistical support if an implementation is mandated:** There was repeated concern on the part of utilities that they would be required to implement Green Button but will not be provided support or assistance in doing so. Examples of specific concerns include the workload required, the additional resources required to address customer complaints with solution providers or Green Button data in general, and the potential for being blamed for problems unrelated to the utilities' role.
- **Security of data is a concern:** Multiple respondents indicated that security issues must be closely examined and addressed as part of a Green Button implementation.
- Less frequent, but still recurring, comments, included the following:
 - Several utilities do not agree that Green Button should be a mandated option. In general, these respondents were not averse to providing utility data to customers; however, they believed that alternatives should be allowed or explored.
 - A Green Button implementation should align with other policy and regulatory requirements, such as the OEB Renewed Regulatory Framework, the Climate Change Action Plan, etc.
 - Education for both utilities and customers on the benefits of Green Button will be key to its successful implementation.

OVERALL TAKEAWAY

In general, stakeholder feedback from both the in-person consultations and the written submissions was thorough, responsive, and engaged. This is noteworthy, as it demonstrates both the interest in the proposals on the part of stakeholders as well as the Ministry and MaRS' efforts to ensure high levels of engagement.

While, as with the vast majority of proposals that require change, there were diverging views on the value and benefits of a mandated Green Button implementation, there appears to be general support for a mandated Green Button implementation in Ontario.

At a more granular level, organizations' responses to the proposal tend to vary by sector; for example, utilities are more likely to disagree with a mandated implementation, while customers and third-party service providers are supportive. Even within the utilities' responses, however, there were many that support a Green Button implementation, although they may differ in their views on roll-out or implementation type.

CONCLUSION

The stakeholder workshops were well-attended, and 29 percent of attendees submitted follow-up written responses (additional details are provided in figures 4 and 5), in addition to responses received by organizations unable to attend the workshops. Overall, the feedback received was thorough, responsive, and engaged, reflecting the interest that surrounds this topic.

This report highlights the results of the feedback received. As with most stakeholder feedback, there is a divergence of opinion on the value of Green Button and on the specific policy proposals presented by the Ministry. However, it appears there is general support for a mandated implementation and for much of the Ministry's proposal. The most widespread disagreement is with the proposal to have a Single Integrated (Hosted) Implementation, as many responses argue that there is increased risk, the potential for higher costs, and reduced benefits from such a scenario. These respondents tend to favour a Multi-Integrated approach.

Dunsky Energy Consulting looks forward to seeing what the future of Green Button in Ontario holds, and is pleased to present this report to assist the Ministry in determining its course of action.

APPENDIX A: CONSULTATION WORKBOOK

Ontario's Green Button Initiative

Consultation Session by the Ontario Ministry of Energy

Facilitated by Dunsky Energy Consulting

Policy Workshop Discussion Workbook



Thank you for participating in today's discussion on Ontario's Green Button Initiative. The Ontario Ministry of Energy is exploring implementing Green Button in Ontario for electricity, natural gas, and water. As part of the process, we would like to gather your feedback on a draft policy proposal.

We are distributing this workbook to provide you with an opportunity to submit your input. We will collect these workbooks at the end of the session so please write as clearly as possible. There are also extra blank pages in the back of the workbook for including any additional suggestions.

Following the in-person sessions, we encourage the submission of written responses from your organizations.

Please send written responses to feedback.to.cee@ontario.ca by August 12, 2016.

Background: What is Green Button?

Traditionally, energy and water data have not been easily accessible to consumers or to energy and water solution providers due to a lack of standardization. As a result, collecting, cleaning and compiling this data can be time and resource intensive. Opportunity exists to better employ energy and water data for the benefit of the consumer, the utility, and society at large.



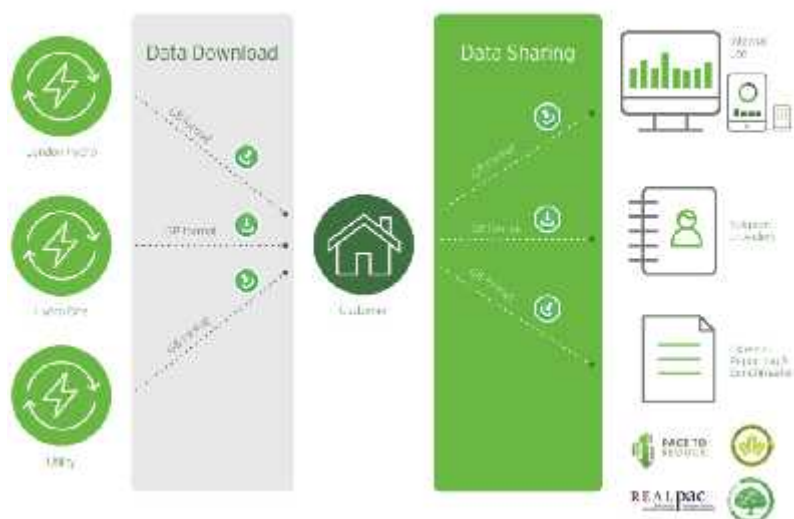
Originally developed by the U.S. energy industry, the Green Button (“GB”) standard was created to address this opportunity and provide utility customers with secure access to and ability to share their utility (i.e., electricity, natural gas and water) consumption data in a user-friendly format.

The Green Button standard consists of technical standard schema and implementation guidelines that provide:

- (1) A standardized format for the collection of electricity, natural gas and water data;
- (2) A common interface for the exchange of this data; and
- (3) A method to securely authorize solution provider access to customer usage information.

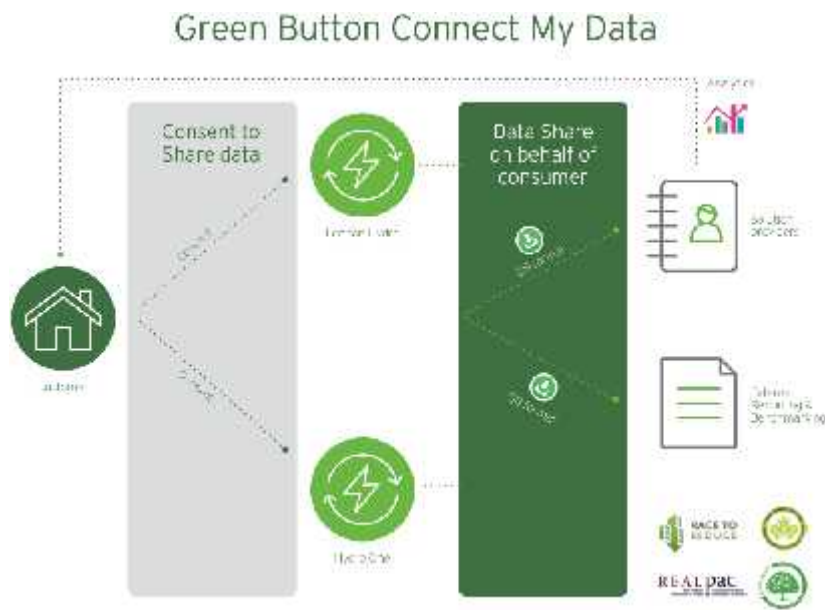
The first phase of Green Button involves implementing Green Button Download My Data (“DMD”), which allows customers to access their consumption data through their utility’s customer website. Utilities can adopt DMD by using a consistent Green Button XML format across all utility websites. This allows consumers to view and download their historical usage data for further analysis.

Green Button Download My Data



The second phase of Green Button is Connect My Data (“CMD”). CMD enables utility customers to automate the secure transfer of their electricity, natural gas or water usage data to authorized solution providers through a process that prioritizes customer consent and control. CMD capability allows customers to automatically transfer their consumption data to solutions, avoiding the need to log into their utility website to download a file each time data is required.

More significantly, CMD improves the ability of solution providers to access and analyze customer utility data, which in turn can help customers better manage and understand their electricity, natural gas and water consumption and act upon energy efficiency and conservation opportunities.



The use of a common standard for utility data through CMD creates a dynamic environment for consumer engagement and lays the foundation for solution provider participation in energy and water management. GB CMD capability thereby enables a wide variety of innovative services to help consumers understand and manage their utility consumption more efficiently.

1. Discussion: Utility and Customer Types

What are your thoughts on the draft proposal to require all electricity, natural gas and water utilities (who have metering infrastructure in place) and unit sub-metering companies to implement both DMD and CMD for residential, commercial, institutional and industrial customers?

2. Discussion: Implementation Type

What are your thoughts on the draft proposal to require a single integrated (hosted) implementation (i.e., a hosted Software as a Service (SaaS) provider could implement Green Button for electricity, natural gas and water with one implementation platform for each utility type)?

3. Discussion: Solution Provider and Utility Registration

What are your thoughts on the draft proposal to require utility and application registration through a single platform (i.e., allow solution providers to connect with utilities through a single platform rather than separately registering with each utility to offer their services province-wide)?

4. Discussion: Certification

What are your thoughts on the draft proposal to require a formal Green Button certification and seal for utilities with optional certification and seal for solution provider technical certification and solution provider privacy certification?

5. Discussion: Phase-In and Timing

What are your thoughts on the draft proposal to phase-in implementations starting with Ontario's large and medium electricity and natural gas utilities, followed by the province's small electricity utilities and water utilities?

6. Discussion: Implementation and Maintenance

What are your thoughts on the draft proposal that a single entity (to be determined) would support implementation and maintenance activities?

What existing entity might be best positioned to support implementation and maintenance activities? Why?

Other thoughts?

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Thank you for your participation today!

Your input is valuable for understanding the considerations for implementing Green Button from a variety of perspectives. If we have follow-up questions regarding any of your answers, are we able to contact you?

If yes, please provide your phone number email address (optional):

Name:

Title:

Company:

Email:

Phone:

If you, or anyone else in your organization, has any further feedback, please send it to feedback.to.cee@ontario.ca by August 12, 2016.

APPENDIX B: STAKEHOLDER CONSULTATION FEEDBACK AND INPUT

The following table summarizes group input by policy proposal and location. Comments made by multiple groups in a single location are written in bold to indicate multiple responses (comments repeated across locations are not highlighted but are contained in the main text of this report).

Proposal	Ottawa	Sudbury	London	Toronto
GB Implementation for all metered utilities and customers	<ul style="list-style-type: none"> Implementation for all metered utilities would make it easy and cost-effective for large companies to access their data Customers need the data (for all utilities) and need it soon It is less important for water utilities because there are not enough data reads Useful for residential and industrial All metering should be Green Button compatible Generation data should be included All smart-metered customers can currently access their data The nature of issues being discussed in the consultations do not lend themselves to a top-down, blanket, mandatory solution, so other options should be given a chance, through a pilot, to demonstrate their effectiveness (e.g. Opower, Bidgley). Some utilities are already doing similar activities Do not need to mandate: make it voluntary and let the market address the issue Commercial and Industrial customers are a small portion of customers, and they 	<ul style="list-style-type: none"> No meters for water consumption, so just leads to more cost and regulation Focus on larger customers, since it benefits them Focus on most populous areas (but recognize that customers in smaller areas will also want access to their data) Make it voluntary for water utilities A standard is good, but does it need to be Green Button? 	<ul style="list-style-type: none"> Implementation for all metered utilities would make it easy and cost-effective for large companies to access their data “A big deal” for small businesses Does not make sense for residential customers Should not have to install submeters Have to include natural gas and water but want more granular data Customers already have the data Agree if data is up-to-date (so water and natural gas is less beneficial): suggest mandatory for hydro and offer pilot for water and natural gas 	<ul style="list-style-type: none"> Agree with the proposal Need to make sure standard is in place first for water billing info (currency and interval of data important to make water data beneficial) Customers need the information from all three to benchmark Allow water to integrate voluntarily Electricity and natural gas for sure, and water would be nice For utilities that currently offer data, there is not a large incremental value right now Include submetering companies Water is important, but creates challenges, particularly for small utilities Prioritize Green Button for customers subject to Ontario’s Large Building Energy and Water Reporting and Benchmarking initiative Green Button Download My Data and Connect My Data together is key Including natural gas is key because of high greenhouse gas emissions from gas Commercial and Industrial is important, but also useful for residential

Proposal	Ottawa	Sudbury	London	Toronto
	are concerned about costs, not access to data			
Single Integrated (Hosted) Implementation	<ul style="list-style-type: none"> • Agree with the proposal • From a customer standpoint, there is no preference • Competition is positive if it does not cost more: <ul style="list-style-type: none"> ○ Can lead to lower costs ○ Provides flexibility to utilities ○ No desire for a monopoly • Software as a Solution model is preferable 	<ul style="list-style-type: none"> • Concern with single provider: <ul style="list-style-type: none"> ○ What if the one provider ceases to exist? ○ Balance costs of a monopoly ○ Inhibits service (e.g. smaller towns get ignored) • Competition is better 	<ul style="list-style-type: none"> • Agree with the proposal • Hosted solution makes sense, but competition is better • Need standards across utilities • Multi-integrated is too big – not good for customer relationships • Consider a collaborative region/municipal option • Leverage existing third parties (e.g. Savage Data, Jomar, Utilismart) 	<ul style="list-style-type: none"> • Agree with the proposal <ul style="list-style-type: none"> ○ Multiple providers creates complication: with one party responsible, simple is better • Could be slower, but could find efficiencies • Puts eggs in one basket • Ministry of Energy needs to have an oversight role to avoid gaming (particularly if company is also a solution provider), so dealing with one company/platform is easier • Collaboration between demand-side management/ conservation and demand management would affect the number of platforms • The value is in standardization and not how it is provided • Multi-integrated is a better option <ul style="list-style-type: none"> ○ Single integrated may raise concerns about fairness and competition ○ Single integrated creates vulnerability if provider fails or becomes less competitive • Main issue with Multi-Integrated is difficulty for service providers • If Multi-Integrated is implemented, needs to be same from a user perspective • Are there potential limits to using SaaS for utilities? • Need to consider privacy and where the server is located

Proposal	Ottawa	Sudbury	London	Toronto
Single Platform Registration for Solution Providers and Utilities	<ul style="list-style-type: none"> • Agree with the proposal • Consider impact on electricity utilities, who will receive questions • Implement API-based registration 	<ul style="list-style-type: none"> • Agree with the proposal • Are there cost barriers to registration? • Yes, and if there is a single integrated implementation, they should do it 	<ul style="list-style-type: none"> • Agree with the proposal • This would be an added cost to the system: voluntary would allow solution providers to register when they think they have an advantage <ul style="list-style-type: none"> ○ BUT: more products would come to Ontario, would open up the market, like the idea of a provincial registration, which would remove barriers • Customers want a one-stop shop – is there a central clearing place to register? • Security concerns • Do not put up barriers to developers or users for the app 	<ul style="list-style-type: none"> • Agree with the proposal • Single testing environment for app developers • Provides good value • Fairness for service providers is key • Think through the details – theory does not translate into practice • Utility politics can play a big role – they may protest a single platform
Required Certification for Utilities	<ul style="list-style-type: none"> • Agree with the proposal • Suggest a jurisdiction-specific add-on • Need clarity on who does what 	<ul style="list-style-type: none"> • Agree with the proposal • Do not want to charge too much for Green Button, but not a huge barrier • Costs should go towards certification 	<ul style="list-style-type: none"> • Agree with the proposal • Does not make sense for utilities – “can we fail and not participate?” 	<ul style="list-style-type: none"> • Agree with the proposal • Need a test bed to test/ evaluate utilities’ implementation

Proposal	Ottawa	Sudbury	London	Toronto
<p>Optional Certification for Solution Providers</p>	<ul style="list-style-type: none"> • Agree with the proposal • No value in technical certification, but value for privacy certification (but difficult to pay for) 	<ul style="list-style-type: none"> • Agree with the proposal • Look at privacy certification more closely 	<ul style="list-style-type: none"> • Should be required (if they do not do a good job, utilities would be blamed; could lead to unethical behaviour by contractors) • Privacy certification should be required • Need standardization and certification of the back-end service provider 	<ul style="list-style-type: none"> • Agree with the proposal: mandatory certification could be a barrier to entry • Should be required • Privacy of data and liability is a concern: <ul style="list-style-type: none"> ○ If an app is not certified, it will generate calls to utilities ○ Need to examine whether personal information is being shared ○ Need to make sure customers are aware of what it means to share data • Single entity should “blacklist” bad apps. This is especially important for water • See if apps can certify without acting as a barrier – developers will expect this • Want to certify here and then access U.S. market • Want application program interface (API) supported in the U.S. • Underwriters Laboratory (UL) certification can be costly • Make sure apps follow privacy and specific terms and conditions • Need to know what solution providers are doing with the data and how it is being stored • If a solution provider is not certified, we want to make sure the app works • Consider charging solution providers to register/ certify • Customers use their banking data online, so less of a concern for utility data • Need to find a way to minimize work that the entity would spend on solution providers

Proposal	Ottawa	Sudbury	London	Toronto
<p>Phased-In Implementation</p>	<ul style="list-style-type: none"> • Agree with the proposal • Agree with the proposal, but timelines need to recognize other electricity utility implementation requirements • Start with largest utilities first • Need lead time • Begin with small utilities: want to understand their issues early on so they can begin addressing them (i.e., some water utilities do not have full-time resources) • Do not hold back utilities that want to move forward 	<ul style="list-style-type: none"> • Agree with the proposal • Also consider market capacity in phase-in considerations 	<ul style="list-style-type: none"> • Agree with the proposal • Not fair for small gas utilities to be in the first phase • Bring smaller electricity utilities up earlier • Spread out water implementation • Implement electricity first and then consider gas and water as pilots and learn from those (because the infrastructure isn't there yet). 	<ul style="list-style-type: none"> • Agree with the proposal • Begin with large and medium utilities • Give small utilities “a push” • Some utilities will wait to implement – no timeline • Allow entity to decide who goes first – specifying large first is too prescriptive • Some smaller utilities can move faster – implement the fastest way • Phase in water later • Start date should be faster than 2018/19 • Look at time-of-use implementation – give options for different dates without specifying who should implement when (give some parameters but not be too prescriptive) • Utilities would like more time, but some may do it earlier • Exemptions to timeline required for utilities undergoing mergers or infrastructure changes • Five years seems long – shorter would help implement climate change actions • Need to ensure consistent action across the province • Move up electricity and smaller utilities (to work out bugs earlier) • Timelines should not be based on size: <ul style="list-style-type: none"> ○ Base schedule on computer information system type and integrate at once ○ Need to coordinate with other utility initiatives (e.g. net metering, Ontario’s Large Building Energy and Water Reporting and Benchmarking rollout) ○ Consider rollout based on billing system provider or customer type ○ Ambitious ○ Consider including rollout to Residential and Commercial and Industrial at the same time

APPENDIX B: STAKEHOLDER CONSULTATIONS FEEDBACK AND INPUT

Proposal	Ottawa	Sudbury	London	Toronto
GB Standard Managed by One Entity	<ul style="list-style-type: none"> • Some competition is positive to drive efficiencies, so perhaps multiple parties • Depends on regulation • Do not take away the role of existing players • Concern about long-term changes to the standard: who will manage the transition plan for new versions of the standard? 	<ul style="list-style-type: none"> • Agree with the proposal 	<ul style="list-style-type: none"> • Agree with the proposal • Do not centralize procurement – just let the market do it 	<ul style="list-style-type: none"> • Agree with the proposal • May become a procurement disadvantage • Disagree – no cost savings
Potential Entities to Manage	<ul style="list-style-type: none"> • IESO (Independent Electricity System Operator) • Should not be a commercial entity • MaRS • Accredited professionals (e.g. LEED certification model) • Consulting firms 	<ul style="list-style-type: none"> • IESO (Independent Electricity System Operator) • Green Button Working Group • Ontario Energy Board • Ministry of Energy 	<ul style="list-style-type: none"> • Ontario Energy Board • Ministry of Energy • IESO (Independent Electricity System Operator) (but would maybe extend their reach) • Consider banking association model • Not government 	<ul style="list-style-type: none"> • External agency • Not Ministry or Ontario Energy Board (will take too long) or Green Bank (not proper expertise) – develop a specialized option like a GB agency with government oversight • Ministry of Energy • Natural Resources Canada • Get single integrator to do it (e.g. IBM) • Auditing entity to ensure Green Button is implemented properly • Project management company • IESO (Independent Electricity System Operator) • Should be a Canadian company, governed by Canadian rules (grow Ontario jobs) • Ontario Energy Board (but not its core function) • Energent • BOMA (Building Owners and Management Association) • Canada-wide body with utility representation • Any large information technology company • Need a competitive procurement process • Concern with private entity

Proposal	Ottawa	Sudbury	London	Toronto
Other Comments	<ul style="list-style-type: none"> • Where will funding come from? Mixture of suggestions: <ul style="list-style-type: none"> ○ Should not come from taxes ○ Should not come from rates ○ User pays preferable • Can utilities play a role in advising customers on registration? • Green Button implementation must be consistent with other policy and regulatory objectives, particularly Ontario Energy Board Renewed Regulatory Framework • Caution the Ministry against “hitching cart to one wagon” that may quickly become obsolete • Consider how implementation can be done in a way that allows electricity utilities to retain flexibility (e.g. principle-, outcomes-based approach) and existing solutions and options (e.g. Hydro Ottawa MyHydroLink) • Consider impact on customer experience (may bring more people between electricity utilities and customers, which may be problematic) • Related savings need to go to the electricity utilities • There will be lost revenues to the electricity utilities • Need education for customers to ensure buy-in • Consider opportunities for research and job creation 	<ul style="list-style-type: none"> • Look at the costs for updating the EBT (Electronic Business Transaction)hub • Consider costs of upkeep to the standard • Consider user pay • Consider adding Green Button to the EBT (Electronic Business Transaction) hub to avoid duplicating work • Ensure utilities understand the benefits of improved information technology • Provide utilities with support and legwork so they do not have to do it all themselves 	<ul style="list-style-type: none"> • Desire to use the data to drive utility conservation and demand management programs • Need a way to monitor • Issues with pricing of electricity • Security is important • Where will the funding come from? 	<ul style="list-style-type: none"> • How will it be paid for? • Cost is important – a few cents a month is okay • Makes economic sense • Should not just be available on website – should be on app stores, watches, etc. as well • Need entity to negotiate with utilities to implement • Allow utilities to offer services beyond basic standard (i.e. to tweak) • Issue tracking system in apps can help address poor apps (central entity could track complaints) • Need to ensure if a customer moves, the data stream is cut off • Discussion of adding weather data to the standard, but also that the standard should not be “burdened” – let app developers address • Will take IT work on utility side – need more funding (federal infrastructure fund?) • Utilities can’t take on more projects; undergoing major upgrades • Concerns about privacy (don’t have the ability to control who customers send their data to) • Utilities will need support dealing with solution providers – potentially make a call centre available • What if a customer is unhappy with the services provided? • Communication is key • Take into account benefits with carbon/ GHG reporting • How do you make sure utilities don’t put unreasonable costs to meet the requirement? • Keep Green Button as operational costs, not capital costs • The proposals are not leveraging existing systems and implementations • Need some customers that support all three services • Large customers should not subsidize small customers

<p>Other Comments (cont'd)</p>	<ul style="list-style-type: none"> • Need a disclaimer on risk analysis, limitations, description of private information that is being shared 		<ul style="list-style-type: none"> • Fixed costs of development should not be captured by forced early adopters • Cost-benefit assumptions not accurate • Customer journey needs to be as simple as possible • Changes to preliminary data could undermine customer trust • How will Orange Button come into this? • Province should have more ambitious goal than 2% uptake for the residential sector • Many residential customers do not have online accounts, which could be a barrier • Connectivity with Portfolio Manager will be important • Would like billing data to be included • Issue with billing data potentially driving additional questions • Green Button is positive because it meets a lot of customer engagement objectives • Consider security issues (e.g. cyber security) and address risks • Initiative will help reduce emissions • Customers need to see the benefit (cost savings/ benefits need to be communicated)
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APPENDIX C: SUMMARY OF WRITTEN SUBMISSIONS

In this section, we provide a summary of all responses submitted via written feedback. Responses have been edited to maintain anonymity as well as for clarity, grammar, and brevity, provided our team could do so without changing the intent of the submission. To our knowledge no alteration of intent or tone has been made. We have organized them by question and stakeholder group, and each row is from a different respondent.

APPLICABLE UTILITIES AND CUSTOMERS

Stakeholder Group	GB Implementation for all metered utilities and customers
Utilities	<ul style="list-style-type: none"> Green Button Download My Data/Connect My Data is a good concept ahead of its time for the residential consumer, and on time for the commercial and large commercial. Since implementing Download My Data, and promoting the capability, we have received very little activity from our customers. The XML format is not recognized by applications most residential customers have access to. We additionally implemented the ability to download the data in CSV format for import into a spread sheet like Excel. This function gets some activity (less than 100 customers). Consumer focus is on rates and many consumers have already taken measures to conserve, improve usage patterns and replace high consumption devices with more energy efficient choices. “Low hanging fruit has been picked.” Customers seem to feel that efforts to reduce consumption are met with increased rates. Requiring all electricity utilities to implement Download My Data/Connect My Data will not result in lowering rates to the consumer, nor will it encourage conservation. Consumers aren’t interested in the data. It will be an additional cost with little return. Energy/water consumption data is not something the average consumer (residential or commercial) is interested in as it’s not enticing enough to drive demand once it is made available. It is not a social media like subject, and likely won’t get mass interest to generate the value of the effort.
	<ul style="list-style-type: none"> Support a standard format for all utilities to implement Download My Data and Connect My Data for all customers. However, as pointed out in the Cost Benefit Analysis created by Dunskey, the primary users of electricity consumption data are expected to be in the commercial and industrial sectors.
	<ul style="list-style-type: none"> The process for sharing the data should be enhanced to provide increased efficiency and accuracy.

Stakeholder Group	GB Implementation for all metered utilities and customers
Utilities	<ul style="list-style-type: none"> • We urge the Ministry to continue to review the business case for offering both Download My Data (DMD) and Connect My Data (CMD) for all classes of customers at this time. • Many local distribution companies (LDCs) are already moving toward data engagement solutions through their 2015-2020 conservation and demand management (CDM) programs. <ul style="list-style-type: none"> ○ Customers may view this overlap unfavourably or be confused by the relatively similar offerings. Moreover, service offerings leveraging Green Button that compete with LDC programs could make it more challenging to achieve CDM targets for the 2016 to 2020 period. • If MoE does move forward with mandatory DMD and CMD offerings, we suggest electricity ratepayers should not be solely responsible for the costs of its implementation. <p>The Dunskey analysis indicated that Green Button benefits are predicated on generating economies of scale by extending coverage to gas and water. Given the breadth of the necessary benefits, it is our view that most, if not all, of the costs of Green Button (including LDCs' implementation costs) should not flow through to customers' bills.</p>
	<ul style="list-style-type: none"> • We offer both Connect My Data (CMD) and Download My Data (DMD) services to all of our 1.4M customers today at little to no additional cost. Therefore, as we reviewed the draft proposal, and cost benefit analysis material we are seeing minor benefits to our customers and additional cost to our utility. • This is supported based on: <ol style="list-style-type: none"> 1. We offer self-serve downloaded data at no cost to us or the customer today. 2. We offer the ability for a third party to access data us with minimal effort (a signed waiver) 3. We offer programs that enable our customers to realize lower energy costs through lower energy usage. • We believe that if we are offering this to one customer we should offer it to all customers (residential, commercial, etc.). <p>We have no opinion when it comes to implementing across all utilities.</p>

Stakeholder Group	GB Implementation for all metered utilities and customers
Utilities	<ul style="list-style-type: none"> • Download My Data (DMD): <ul style="list-style-type: none"> ○ As we indicated in the phase 1 survey, we are currently testing Green Button – Download My Data within our Time-of-Use portal. We have approximately 30% of our customers enrolled in the portal and feel that adding the Download My Data feature within that portal would provide enhanced features for customers wishing to do more with their data. ○ Our portal has simple easy to view graphs including weather information, alerts and bill comparison features that help customers better understand their energy use. ○ We have another web portal that provides data to our large interval metered customers (commercial and industrial). We currently have no plans to roll out green button to these customers. This group of customers tends to have more sophisticated energy monitoring needs and many already utilize energy managers to assist them in analyzing their data. Consumption is a very small part of the bill for these customers, their focus tends to be demand, power factor and power quality – items that would not be available through a Green Button app. ○ The cost benefit analysis presentation at the workshop demonstrated that 85% of the benefit was in the commercial and industrial (C&I) sector. Was this analysis completed in comparison to data already available to these customers or under the assumption that they had no existing tools? • Connect My Data (CMD): <ul style="list-style-type: none"> ○ We are concerned about the proposal to mandate CMD. We worked closely with our provider in developing a robust portal for customers to view their energy consumption and launched the portal even before Time-of-Use pricing was in place to educate our customers. With CMD enabled, once the customer provides the necessary permissions, they would no longer have a need to access our website; their only conduit to their energy information would be through third party applications. ○ We are concerned that we would lose this important communications channel with our customers. We are also concerned that we would no longer have any control over or visibility into the information and messaging being provided to our customers. ○ This would be challenging for customer service staff to be able to assist with inquiries. It also raises concerns about the accuracy and nature of information being conveyed by the third parties. • Water & Gas Consumption: <ul style="list-style-type: none"> ○ We are not sure of the benefit of including water and gas data in Green Button. Our municipality bills bi-monthly – customers would only have access to 6 readings per year. Even with monthly billing for gas, the granularity of data in comparison to energy data may not provide customer benefit for the cost of implementation.

<p>Utilities</p>	<ul style="list-style-type: none"> • Our priority is customer experience and expanding customer value • Support initiative to increase customer access to their data but Green Button is only ONE tool in the toolkit. • Unclear whether or not proposal for mandatory Green Button is based on customer demand, is rooted in a robust business case, and is designed so as to avoid adverse unintended consequences • There is an insufficient basis of experience and experimentation to justify proceeding with a province-wide mandate for implementation at this time: <ol style="list-style-type: none"> 1. Limited pilots and limited customer uptake in the companies that did take part in the pilot program: Only 1 of 10 original companies piloting Green Button Download My Data opted to continue with fulsome multi-phase piloting of Connect My Data. 2. Ministry did not demonstrate clear, compelling indicators or research showing robust customer demand for Green Button-enabled services. 3. We saw limited value from Green Button for its customers during the pilot period. During the 6 month pilot period not a single one of our customers accessed the Download My Data option available through our portal. Experience has shown that we have been consistently able to meet customer requests for consumption data without [needing to offer] Connect My Data. 4. Green Button cost-benefit analysis showed that the vast majority of benefits from Green Button implementation are expected in the commercial and industrial sector suggesting a need to tailor potential solutions to this subset of customers. <ol style="list-style-type: none"> a. A mismatch exists- the commercial/industrial customers who will be the main beneficiaries do not currently belong to the platform used for processing, storing and managing all provincial smart meter data meter data management repository (MDM/R). b. Unclear whether commercial and industrial customers would be comfortable with the costs that would be incurred in building out functionality in utilities’ data operations systems to enable Green Button for them, or whether an alternative, more personalized solution may be preferable 5. There are already efforts underway in Ontario’s electricity sector to pursue new tools for enhancing and personalizing customer management and control of energy use. <ol style="list-style-type: none"> a. Local distribution companies (LDCs) are partnering with service providers (i.e. Opower and Bidgely) which offer demand side management, energy efficiency and monitoring services which already have shown great promise b. Mandatory Green Button implementation will unnecessarily supplant these expanding LDC service provider partnerships c. In lieu of mandates, we encourage the government to incentivize LDCs and service providers to pursue opportunities for deploying solutions which are optimally-suited to meeting customers’ unique needs 6. If the Ministry of Energy proceeds with mandatory Green Button implementation, we request that sufficient flexibility be granted to LDCs to undertake implementation in a way that will complement sustained use of existing tools such as our current online customer and account management portal <ol style="list-style-type: none"> a. We are reluctant to risk undermining or displacing our customized portal, and its track record of proven effectiveness, with an alternative system. • A province-wide mandate will generate confusion and duplicative options for customers who are already familiar with their own utility’s data offerings, and/or who may not be comfortable with incurring additional costs for an option they do not intend to utilize.
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Stakeholder Group	GB Implementation for all metered utilities and customers
Utilities	<ul style="list-style-type: none"> Commercial customers should be given the ability to monitor, access and share their consumption data (with approved third party service providers) in an easy to use, online format, accessible with the click of a button.
	<ul style="list-style-type: none"> We support all utilities being required to provide Download My Data and Connect My Data to all customers (residential, commercial, institutional, and industrial). We anticipate that this will drive energy efficiency programs and ease administrative burden of municipalities in reporting requirements under Green Energy Act. Ideally real-time data will be available through Green Button. Electricity and natural gas should be able to implement Download My Data and Connect My Data within 3-5 years. More challenging for smaller water utilities- due to less advanced metering and billing systems: <ul style="list-style-type: none"> Upgrading their systems to meet Green Button standards will be significant funding burden for municipalities. If a water utility meets standard, then they should be required to implement Green Button at the outset. Water utilities currently without capability to meet Green Button program requirements should be required to implement Green Button as part of future upgrades to their systems. Province should establish a compliance date that is reasonable to allow municipalities to plan and allocate funding for required infrastructure needs.
	<ul style="list-style-type: none"> Good approach. The introduction of third party energy experts to assist customers is also a good move. BUT, because both electricity and gas utilities have rather aggressive conservation targets, the Ministry should attempt to allow savings from implementation of Download My Data and Connect My Data to be applied against CDM / DSM targets. Also must consider that not all meters permit live data and are read manually.
	<ul style="list-style-type: none"> Fully support implementation of Green Button. The metered data should be available with 24 to 48 hours after actual usage to be beneficial for any energy management initiatives.
	<ul style="list-style-type: none"> Cost/benefit analysis is supportive of moving forward but we have concerns regarding the actual implementation: <ul style="list-style-type: none"> Is Green Button currently suitable for all utilities and all customer classes? <ul style="list-style-type: none"> Insufficient empirical evidence to support wide-spread customer use of either the Download My Data or Connect My Data initiatives. I.e. Large industrial and commercial interest but little uptake in residential sector. Is data standardization even necessary? Most utilities already have some form of DMD and/or CMD in place. <ul style="list-style-type: none"> Is there a need to standardize when customers that want the data are already being supported by their utilities? A “one-size-fits-all” approach may not be suitable, particularly for the medium or smaller utilities. A better solution would be to focus only on those utilities and customers where interest in the Green Button Initiative can be readily identified as cost effective.

Stakeholder Group	GB Implementation for all metered utilities and customers
Utilities	<ul style="list-style-type: none"> • Beneficial to all customer classes and a great stimulus to third party software developers to provide enhanced applications/analysis driven with standardized data from Connect My Data. • There may also be value in this technology being applied to district energy services (e.g. steam), which can be an important component of energy usage in urban centres • Our vision of Green Button is as a component in an open data ecosystem. • While the business case for implementing Green Button for water services may seem marginal, implementing in conjunction with electricity and gas may yield additional benefits through the enablement of third party applications that can make a more holistic analysis of consumer resource usage. • Integrating multiple utilities data will allow Green Button to become an information enabler and key component in Green Building Certification Programs (http://www.greenbuildingcanada.ca/green-building-guide/green-building-certifications-ratingsystems-canada/).
	<ul style="list-style-type: none"> • Provision of data to customers important • Standardization is important/required • Most analysis needed to ensure use of existing systems • Need to balance costs • If residential won't pay for it, then don't change through rates • If In-Home Displays (IHDs) didn't yield energy savings or have persistence why will this? • Full support for providing to non-Residential • Standard and verification from the utility
Utilities	<ul style="list-style-type: none"> • Support Green Button] conditionally based on the assumption that it will be funded through the Climate Change Action Plan (CCAP) Greenhouse Gas Reduction Account (GGRA) • Research undertaken by Dunsky Energy Consulting clearly indicates that the Green Button program does not pass the cost-benefit test for water, and reduces the cost benefit compared to the electricity and gas only option significantly. • Therefore, CCAP funding should be directed to other more beneficial initiatives <p>• We have been a supporter of the Green Button initiative through our participation in the Green Button DMD and CMD Standard development work, implementation of GB DMD for residential customers and our current initiative to provide General Service >50 customers with the option of downloading their data in the Green Button format.</p>
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> • Download My Data and Connect My Data provide standardized data feeds that third parties can access without individual nuances / roadblocks that could be created by incumbents. • Absolutely necessary • Customers need simple way to share data with data-driven services otherwise advanced meter infrastructure will not reach its full potential

Stakeholder Group	GB Implementation for all metered utilities and customers
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> In principal, support proposal to require all utilities with metering structures in place to implement Download My Data and Connect My Data. Due to high costs for small water utilities to become Green Button ready, need to further examine business case for including small to medium sized water utilities. Implementation for small to medium water utilities should be over a longer period of time.
	<ul style="list-style-type: none"> Green Button is a requirement to integrate with the Internet of Things and prepare for rapid innovation. Consider electronic bill data delivery The statistics you provided on user groups was potentially misleading, as your focus was strictly on the customer using the data for reporting and standard energy management. It looks like there was no research that considered pressures from other markets, technologies and trends external to the energy market. The 2% uptake on residential seemed low. It showed that there was a lack of knowledge on what this energy data can be used for (including calculations for GHG and Cap & Trade analysis/ Internet of Things/ innovation / Green management / Green Finance management, etc.). More details available on request.
	<ul style="list-style-type: none"> We support the general idea behind Green Button Connect in that there should be a centralized repository of customer data that can be accessed by customers and Third-Party Service Providers. The data exchange process should be electronic and automated. BUT... Should not be a blocker when it comes to customers enrolling in market based programs. As an enrollment tool, Green Button Connect is an impractical and friction-inducing vehicle. If customers must go through Green Button Connect in order to register them for a program, aggregators lose significant numbers of interested customers. <ul style="list-style-type: none"> Many customers don't have an online account and don't want one The aggregator should be able to access the customer data, through Green Button Connect, without requiring the customer to interface with the Green Button Connect portal.
Third-Party Service Providers (Consultants)	<ul style="list-style-type: none"> Green Button should be implemented as soon as possible.
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> Agree with proposal that all electricity, natural gas and water utilities and unit sub-metering companies adopt both Green Button standards for commercial customers. The process for sharing the data should be enhanced to provide increased efficiency and accuracy. Commercial customers should be given the ability to monitor, access and share their consumption data (with approved third party service providers) in an easy-to-use, online format, accessible with the click of a button.

Stakeholder Group	GB Implementation for all metered utilities and customers
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> • Potential to help solution providers maximize opportunities for customer engagement and provide new offering • I believe the proposal to have all the utilities implement both Download My Data and Connect My Data is a good first step towards real time utility management in addition to this day after historic data. It will facilitate the Energy Star benchmarking that is also coming. • If this data is used daily it could allow for service providers to see anomalies as soon as possible and investigate these usage patterns. In addition, the building should have building automation and fault detection that is coming down significantly in costs and with wireless and mesh networks makes it economic for existing buildings to upgrade. • It will be expensive <ul style="list-style-type: none"> ○ Residential probably won't do it because of cost ○ Electricity- most of the province has interval or smart metering, so little estimation is done ○ Natural Gas & Water- use a lot of estimates in their billing which skews volumes • All components of the invoice need to be tracked, not just volume • Money better spend on installing pulse or interval based metered for natural gas and water
Third-Party Service Providers (Hosted Solution Providers)	<ul style="list-style-type: none"> • The proposal is a positive development • Green Button will greatly streamline IT implementation for local distribution companies by consolidating data access and transfer protocols around a single, unified province-wide standard. • Particularly within the commercial and institutional sector, where our software focuses, there are numerous customer benefits. • Would support our ability to aggregate data for building benchmarking purposes and for input into energy tracking software, such as EnergyStar Portfolio Manager. Implementing the Green Button Connect platform in particular will reduce the time and effort required to release this data to customers on an ongoing basis. • Given that we have supported the Green Button standard in its Software-as-a-Service (SaaS) platform since at least 2012, we are well prepared to implement services
Building Owners/ Manager	<ul style="list-style-type: none"> • I love it. This would save my company more than \$400,000 in utility metering private investment
Non-Profit Groups and Associations (Associations)	<ul style="list-style-type: none"> • Our members who are large electrical consumers already have programs/systems in place to access utility data and have mature energy management programs in place. • Ministry needs to ensure that existing arrangements and programs with utilities are not inadvertently impacted when the Green Button initiative moves forward. • The costs of implementing and maintaining should be borne by the targeted groups – residential, institutional and commercial (small and medium) - who may benefit from access to the data and not by large industrial electricity/energy users. • Ministry should communicate the expected timelines of implementing Green Button.

Stakeholder Group	GB Implementation for all metered utilities and customers
<p>Non-Profit Groups and Associations (Associations)</p>	<ul style="list-style-type: none"> • Support proposal to require all utilities to implement Green Button for residential, commercial, and industrial • Ontario will soon implement a province-wide energy and water reporting and disclosure framework • Green Button-enabled data transfers will make it easier for landlords and building owners to accurately monitor energy and water consumption and demand patterns. • Will also help commercial and institutional property owners understand their assets’ energy demands, and then mitigate those demands over time • Will contribute to the enhancement of transparency in Ontario’s energy conservation objectives over time.
<p>Government and Intra-Sector</p>	<ul style="list-style-type: none"> • From the RETScreen perspective, the more utilities which implement Green Button Download My Data and/or Connect My Data, the easier it will be for them to use the software.
<p>Government and Intra-Sector</p>	<ul style="list-style-type: none"> • Great idea. Particularly happy water utilities are included. • We collect annual water use data for certain water users outlined within O. Reg. 450/07, and use this data to compute water charge amounts for invoicing and recovery purposes. • Currently we receive this data individually from each municipality or Water Works Owner in an Excel format. This is an extensive task to have several hundred Water Works Owners provide their Excel reports by the deadline, with accurate data in the predefined file format, and to complete a quality assurance/control process on the data. • Green Button would simplify our process, and the data would also be more accurate as it would be coming directly from the water utilities. • Would also like data available in csv format so it can easily be consumed by open data source • Download My Data function, would allow the regulated community to more easily be able to report their annual water volumes and confirm the accuracy of these volumes. • If we are an “External Reporting and Benchmarking” entity, and our regulated community was able to “Connect My Data” so that our unit may have access, our current processes under O. Reg. 450/07 would be made more efficient and data made more accurate.
<p>Unidentified Respondent</p>	<ul style="list-style-type: none"> • May be helpful but on a minor level.

IMPLEMENTATION TYPE

Stakeholder Group	Single Integrated (Hosted) Implementation
Utilities	<ul style="list-style-type: none"> • A single interface is the more cost effective approach for adoption by the many electricity utilities currently not offering Download My or Connect My Data.
	<ul style="list-style-type: none"> • A single interface would be beneficial to consumers.
	<ul style="list-style-type: none"> • The suggestion that a single integrated implementation if more cost effective does not align with our experience when implementing Green Button. Our organization’s cost for implementing a hosted Green Button Download My Data (DMD) solution was \$2,000. Our vendors have provided a high-level quote to implement Green Button Connect My Data (CMD) in the \$10,000 to \$20,000 range. In the event a single large entity is selected, the majority of the development costs above would still be incurred in order to facilitate customer authentication to the Green Button Software-as-a-Service (SaaS) provider at the Utility Web Portal. • Additionally, the following benefits of Green Button would be lost should a single centralised provider be selected. <ul style="list-style-type: none"> ○ Ability to leverage existing infrastructure ○ Opportunity to create Green Jobs in Ontario and export the expertise to outside jurisdictions • The 10-year Benefit /Cost Ratios for Green Button DMD/CMD prepared by Dunsky (slide 20) suggests that the difference between Single-integrated solution and a Multi-Integrated Solution is so small, as to make either option cost effective. • An approach might be for the Ministry or the Ontario Energy Board to provide guidelines on allowable cost recovery and let market forces dictate the most effective solution, whether Multi-Integrated Hosted, Non-Integrated Hosted or Utility Hosted.
	<ul style="list-style-type: none"> • A centralized service is not required - we have already invested in putting the functionality in place - this would be a redundant investment • Local electrical distribution companies are already prepared to leverage their existing investments at a minimal cost to the customers. This would allow us to continue to be custodian of our customers’ data and avoid breach of privacy issues by moving data to a repository we no longer control access to.
	<ul style="list-style-type: none"> • We are not opposed to the requirement of a single integrated (hosted) implementation.
	<ul style="list-style-type: none"> • The most cost-effective implementation strategy should be taken. • Based on preliminary internal analysis, the proposed Implementation type is the optimal approach given the other Ministry proposals.
	<ul style="list-style-type: none"> • A single integrated hosted site may appear to be the best solution, but there are a host of questions and issues that have not been addressed by this proposal. • When considering long term maintenance, we believe a separate platform for each energy type (common format for natural gas different than for electricity and water) should be considered.
	<ul style="list-style-type: none"> • SaaS model is preferable if Green Button becomes mandatory

Stakeholder Group	Single Integrated (Hosted) Implementation
Utilities	<ul style="list-style-type: none"> • Support one implementation platform for each utility type. • Common platform delivered by a single provider should streamline process and achieve economies of scale. • Software solution should be open source (not proprietary) and should collaborate with stakeholders in the tendering process • Open source enables more than one vendor to deliver the project and perform updates
	<ul style="list-style-type: none"> • Combining 3 utilities could provide shared cost savings. • Platform must be consistent for each utility type (not specialized to that utility). • Water could be more challenging to implement.
	<ul style="list-style-type: none"> • Decision to use Software as a Service (SaaS) or some other software solution should be left to the end user. • We would also require billing information line item by line item.
	<ul style="list-style-type: none"> • The single integrated (hosted) option may be the lower cost option, but it also creates a monopoly where there is little incentive to provide good service, innovation, or be cost effective. • The In-House option provides more flexibility and promotes competition, but it is more expensive to implement and more prone to complications should define the Green Button requirements for the service providers, but leave the choice of the provider to the utility. The benefit will be more innovation and cost effective services as service providers compete for business.
	<ul style="list-style-type: none"> • An implementation model should NOT be prescribed; rather, the Ministry should let the marketplace determine number of platforms and utility type per platform • The key role for the Ministry should be to provide a governance model to ensure compliance to the standard and influence the evolution of the standard • To facilitate this approach, the Ministry (potentially in conjunction with MaRS) should issue an RFP to select Vendors of Record) to provide Green Button Software as a Service platform(s) that support the business case. • A multiple integrated implementation approach would be preferable. This model would create a competitive market of Green Button data custodian providers that should ultimately ensure reasonable costs over the long term as well as allowing local distribution companies to retain a level of control over their expenditure and service provision. • A risk with consolidating on a single vendor is that it becomes incredibly difficult to move away from the vendor as the entry cost of future competition becomes significantly higher for alternatives, to the point that even with service charge increases from the incumbent vendor, the business case for a competitive alternative can be difficult to justify. • The best and most cost-effective platform for each utility may vary depending on their internal systems and it is possible that synergies between utilities exist across the boundaries of small/medium/large categories. A multiple integrated approach would provide more flexibility for such economies and operational considerations. • Utilities typically have two main sets of data that require integration to enable Green Button services; customer master data (typically from a computer information system) and meter data (typically from operational data store or meter data management repository (MDM/R) platforms).

Stakeholder Group	Single Integrated (Hosted) Implementation
Utilities	<ul style="list-style-type: none"> We have seen from prior initiatives that attempting to align a single platform to the needs of all utilities vastly increases implementation complexity for all involved and utility integrations must absorb the added costs of complexity beyond the needs of the specific implementation Creating an artificial monopoly prevents the ability of competitive market forces to drive costs down over time. In selecting a single provider of platform services, competition will effectively be eliminated from the Ontario market and the single provider will be put into a position where regardless of contractual terms, their tenure effectively becomes indefinite. This approach may also necessitate a regulatory approach to management of privacy where the government assumes liability rather than allowing utilities to manage privacy and security through contractual commitments.
	<ul style="list-style-type: none"> Do not support a single integrated host as the sole option. Electricity utilities should be given the flexibility to choose the best solution for their situation and customers.
	<ul style="list-style-type: none"> Duplication with the meter data management repository (MDM/R), meter data access platform (MDAP) and third-party access still to be developed Similar access to the Ontario Electricity Support Program or EBT (electronic business transaction hub) for customer validation Reducing customer and utility burden – barrier to entry at a single source Multi-site assistance with one access Privacy implications Multi-hosted system has negligible change in benefits and costs Utilities should be guaranteed access through choice and customer permission Much more difficult to implement for water – maybe regional procurement
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> Implementation will ONLY be successful if it is implemented by an independent party that does not have a prior stake in ensuring that data asymmetry exists. All incumbents benefit from data asymmetry; one of the highest barriers to entry for new companies is to ensure data asymmetry exists.
	<ul style="list-style-type: none"> Support the standardization of the Green Button Connect implementation and a single, independent provider Third parties should not be required to sign an agreement with each utility to access the data.
	<ul style="list-style-type: none"> Strongly support a single “data custodian” for utility data across the province Any system established that requires too much effort on the part of the consumer, or the application developer, to simply access information will damage the prospects of these businesses.
	<ul style="list-style-type: none"> Single integrated host is best option, multi-integrated host is second best option <ul style="list-style-type: none"> Lowest cost option, Ensures consistency of implementation Shares costs and resources across utilities

Stakeholder Group	Single Integrated (Hosted) Implementation
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> ○ Supports rapid rollout ● LDCs should not develop or procure their own Green Button platforms due to potential for markedly different implementations. ● Single Implementation should not mean ‘a Single System / Vendor’ approach. This approach focuses on a single point of failure which has resulted in multiple issues and escalating costs in Ontario in the past. ● EBT HUB (electronic business transaction hub) – This single vendor approach was considered at first. The original system chosen did not make it to market and ended in lawsuits. ● MDM/R (meter data management repository) – This single vendor approach took years to unravel, as the system did not meet the needs when put into production and the costs escalated greatly. ● Single Entity should deal and work with users, vendors and utilities. ● A flexible implementation process that accommodates multiple technologies will be required to meet timelines / needs. <ul style="list-style-type: none"> ○ This entity should be responsible for integrating systems, testing, processes, and buildout, as well as providing common parts and a set of integrated solution that will meet the needs of the market, today and tomorrow. ● For example: There are multiple systems today that can meet today’s Green Button needs, but they come in different forms or are used for different purposes. None of these systems have been proven to meet the needs of multiple Utilities, computer information systems, Operational Data Stores, and billing processes, but an integrated solution “set” will achieve the market needs quickly and cost effectively. More Details on this topic available on request.
Third-Party Service Providers (Consultants)	<ul style="list-style-type: none"> ● Data shows the Single Integrated (hosted) implementation has a slight advantage although a Multi-Integrated (hosted) implementation may offer more variety.
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> ● Green Button proposal should consider implementing Green Button standard through a single and integrated platform for each utility type hosted by a secure and regulated service provider. ● Implementing non-integrated or locally hosted Green Button platform would be challenging and very costly to rate payers considering that Ontario has over 500 utilities (electricity, gas and water combined) and their tendencies to keep customer data local to each utility. ● A single and integrated platform for each utility type hosted by a secure and regulated service provider would not only permit access and sharing consistent across Ontario but would also offer greater scalability and cost efficiency. ● Single and integrated platform would also alleviate the burden on local/regional utilities having to continuously keep their systems updated to support Green Button.
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> ● Service providers are already developing systems to pull customer invoice data from a utility website ● Only makes sense if residential is the big driver.

Stakeholder Group	Single Integrated (Hosted) Implementation
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> • Hosted SaaS platform serving multiple utilities is a good idea. Favour approaches that minimizes overall integration effort of 3rd-party application and solution providers. • While the single hosted option appears to be more cost effective, the procurement of that host should clearly limit what they can subsequently do so as a service provider so that competition in the services that benefit the customers in different ways is not limited by this giant entity.
Third-Party Service Providers (Hosted Solution Providers)	<ul style="list-style-type: none"> • Single implementation ensures consistency of service across the province • Electricity and other utilities can be assured that the information technology infrastructure behind the Green Button implementation does not go quickly out of date or lack interoperability across utilities. <ul style="list-style-type: none"> ○ Through the Software-as-a-Service model, updates can be pushed to all utilities and customers simultaneously, ensuring that every utility customer has the latest version. • Single implementation relieves some of the burden from utilities' IT departments. • Enables utilities to “white-label” Green Button data sharing portals, so that they retain their brand identity with customers. • Utilities may choose to offer additional value-added services, such as basic data interpretation/analytics for customers, which can improve the value proposition for customers.
Building Owners/ Manager	<ul style="list-style-type: none"> • A single hosted implementation is preferable. • The IT costs associated with reviewing an external network connection is several thousand dollars in internal IT project management costs. • We are very focused on strategically limiting our technology architecture schematic. Too many systems would preclude us from taking advantage of the data.
Non-Profit Groups and Associations (Associations)	<ul style="list-style-type: none"> • Single integrated implementation is the most effective way to implement Green Button • Single integrated implementation should keep costs low and be the most efficient way to organize the service
Government and Intra-Sector	<ul style="list-style-type: none"> • Seems cost-effective • With only 3 platforms (one for each utility), ensures one standard format • One solution also ensures one service provider which can ensure consistency • Other implementation types are not as strong of an idea as there would be greater development costs (i.e. more platforms more development cost) • The “Non-Integrated Hosted” and “Host implementation” types are also less strong ideas, due to the extremely high number of implementation platforms (500+).

Stakeholder Group	Single Integrated (Hosted) Implementation
Government and Intra-Sector	<ul style="list-style-type: none"> • The more standardized the implementation is, the easier it will be for end-users to understand and be able to use Green Button in the software. • Implementing Green Button with Ontario utilities will be much easier if there is a single provider.
Unidentified Respondent	<ul style="list-style-type: none"> • Competition leads to creativity and reduces potential for restriction.

REGISTRATION PLATFORM

Stakeholder Group	Single Registration Platform for Solution Providers and Utilities
Utilities	<ul style="list-style-type: none"> This would simplify the process for the solution provider, and reduce ongoing maintenance costs. Service providers would need to have a successful business model driven by need and desire at the consumer level to pay this in addition to their high rates for this service. If there is critical mass on the demand/need, then the costs for implementation could be passed onto the service providers as an access fee.
	<ul style="list-style-type: none"> Support a single platform that would allow solution providers to connect with utilities through a single platform rather than separately registering with each utility. Customers should have the ability to choose whether they wish to register province-wide or locally and with specific utilities.
	<ul style="list-style-type: none"> We are not clear on the benefits of this approach if the Multi-Integrated option is selected as adding an application registration entity seems to add complexity and cost for minimal value. As per Dunsky’s analysis it is assumed that for the Multi Integrated option that there would be 5 implementation platforms. It does not seem unreasonable to ask solution providers to register with the 5 platforms to gain access to Ontario’s market, especially if it reduces the complexity of adding another layer to the GB ecosystem.
	<ul style="list-style-type: none"> A single platform for registration doesn’t represent the priorities of the customer (the rate payers) rather, it is a need of the service providers. Single platform would be a redundant cost.
	<ul style="list-style-type: none"> We are not opposed to allowing solutions providers to connect with utilities through a single platform.
	<ul style="list-style-type: none"> Who would bear the cost of a single solution provider? Would this be yet another cost passed on to ratepayers? The energy app providers seem to be similar to energy retailers. There is already a process for energy retailers to enroll with individual LDCs [local distribution companies] in the province. If the app providers register directly with utilities, then all maintenance activities would remain the responsibility of the individual providers rather than becoming a centralized activity that would require effort from all utilities, app providers and the central agency. Centralized registration appears to be an option that would simplify the process for both app providers and LDCs [local distribution companies] but this could be separate from the technical data sharing.
	<ul style="list-style-type: none"> The most cost-effective implementation strategy should be taken. Based on preliminary internal analysis, the proposed Implementation type is the optimal approach given the other Ministry proposals.
	<ul style="list-style-type: none"> We support a single platform for service provider registration. We are unsure what the Utilities will be registering, so cannot comment on this. We believe the customer is going to the utility to register or approve the data being shared.

Stakeholder Group	Single Registration Platform for Solution Providers and Utilities
Utilities	<ul style="list-style-type: none"> • If the Ministry of Energy proceeds with mandatory Green Button implementation, the most simple and efficient approach is registration through a single platform. • Necessary privacy requirements and customer validation concerns must be addressed with this approach
	<ul style="list-style-type: none"> • Support single platform registration. • Simplifies the analysis for the province and users • Registration process should NOT be onerous in order to maximize participation • End user should have full control over who can access their data via the system, what it can be used for and have the ability to grant or revoke permissions at any time.
	<ul style="list-style-type: none"> • For customers that have multiple utilities this makes sense to have a single point of registration
	<ul style="list-style-type: none"> • Solution providers should register with each utility. Initially this may be more expensive, but it eliminates the heftier costs associated with a centralized agency. • Registration platform should remain consistent across both utilities and service providers.
	<ul style="list-style-type: none"> • Although implementation province-wide is proposed on a limited number of platforms, each organization should remain isolated within those platforms to ensure security and privacy of data as well as the variation of integration points to utility systems for authorizations. As such, there will still be a burden of endpoint discovery for third party applications and a registration/directory platform can simplify this process. • Our proposed model provides a lightweight directory service that contains metadata for data custodians and third parties. This solution could also support implementation of an automated certification process and customer reviews/ratings for third party applications, independent of the data custodian platform implementation. • Directory services approach provides flexibility for cross-regional platform integrations. It allows for easier adoption and implementation of solutions from other regions of Canada and US.
	<ul style="list-style-type: none"> • Support a single registration platform. • Will help facilitate easier registration by solution providers and allows for some control over the number and types of solution providers that want to access our market.
	<ul style="list-style-type: none"> • Supportive – creates consistency against standards and reduces labour burden. • Utilities should have option about having their own specifications or signing on to credentials of provincial registration. • Not having a single standard registration platform might mean companies don't look to integrate with small or mid-sized utilities, limiting the available options
	Third-Party Service Providers (App Developers)

Stakeholder Group	Single Registration Platform for Solution Providers and Utilities
<p>Third-Party Service Providers (App Developers)</p>	<ul style="list-style-type: none"> • Single registration platform will help facilitate registration by solution providers and reduce costs for utilities because they won't need to support solution provider registration. • We strongly support the proposal to provide a single sign-on for all Ontario utilities. We believe this is the only viable way to provide access to GB services to all Ontario residents. It is unlikely any software vendor would be able to integrate with 591 individual utilities. We're also quite excited to see water included. • Strongly encourage including 2 features: <ul style="list-style-type: none"> ○ Create demo accounts for integrators for testing purposes. Most of us will not have access to utility accounts in the Ontario area and ideally we would test our integration by going through the same process as a customer. Making the vendor integration process as straightforward as possible and independent from "hand-holding" by the GBC provider will greatly streamline the process and get more vendors on board more quickly. ○ Set some minimal level of qualification for vendors to be included on the site. • Qualifications should not be onerous; the goal is to make sure services are being offered by legitimate providers. Minor things like demonstrating: they have a website, they have been in business for a certain period of time, they have signed on to the Data Security pledge, provide contact information, and perhaps others. Vendors should not be able to splash up an app without some level of vetting. • Smart Meter Texas as a successful example of such a platform. • Needs to be an open, transparent marketplace which is the key to driving innovation • Data is the top priority
<p>Third-Party Service Providers (Energy Efficiency Services)</p>	<ul style="list-style-type: none"> • The draft proposal should require/allow utility and application service providers to register to offer their services through a single platform rather than registering separately with each utility. • We support a single point of registration. • E.g.: We would register once with a neutral 3rd party – perhaps in care of the Ministry of Energy or Ministry of Environment or newly created Ministry of Conservation – and then, when we contact a new utility – they can see us on the registered and therefore would be forced to provide the information we need. • Another benefit to the above is having everything documented in one location regardless of the jurisdiction of our client • Strongly support the requirement of a single platform. • Makes it possible for service providers to integrate all utilities and service territories in their programs, without going through the lengthy hassle of registering with each utility and signing separate agreements for the data. • Simplifies the process of pulling measurement and verification and settlement data, especially for large aggregations of small resources that stretch across the Province. • Service providers already figured out a way to get info easily so why do we need this expensive system?

Stakeholder Group	Single Registration Platform for Solution Providers and Utilities
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> • Need more detail about what will be required of solution providers and what the implications for third party solution providers may be from a financial, legal and IT systems perspective. • We see the cost efficiency benefit of a single platform solution but what was presented does not provide full details about what may prevent solution providers from completing the registration process. This is of particular concern to our company since it may then limit our access to customer data. • The Ministry of Energy should continue to offer solutions providers opportunities and forums to provide input into the single platform registration and Software-as-a-Service selection processes.
Third-Party Service Providers (Hosted Solution Providers)	<ul style="list-style-type: none"> • This would be beneficial for those offering portfolio services and would cover the province. • A single platform for registration is preferable. • Multiple registrations will be time-consuming and redundant
Non-Profit Groups and Associations (Associations)	<ul style="list-style-type: none"> • Agree with single platform for solution providers to register; it is efficient • Should contribute to greater uptake of the standard
Government and Intra-Sector	<ul style="list-style-type: none"> • Agree with single platform registration • Fluctuating or multiple registration procedures are not preferred by public customers or regulated communities. • Convenient for stakeholders
Unidentified Respondent	<ul style="list-style-type: none"> • Doesn't matter from a customer perspective

CERTIFICATION

Stakeholder Group	Required Certification for Utilities/Optional Certification for Solution Providers
Utilities	<ul style="list-style-type: none"> This would simplify the process for the solution provider, and reduce ongoing maintenance costs.
	<ul style="list-style-type: none"> Technical and privacy certification and seal should be required for both utilities and solution providers. Technical Certification: <ul style="list-style-type: none"> Provides customers with assurance that solution providers will not alter the data they are granted access to. Emergence of broad range Green Button solutions may trigger sharing of info between solutions. Privacy Certification: <ul style="list-style-type: none"> Solution providers should be required to certify that their applications follow the Privacy by Design approach introduced by the Privacy Commissioner of Ontario as well as best practices in cyber-security.
	<ul style="list-style-type: none"> It seems prudent to have an Ontario GB Test system so that GB Solution provider(s) can test their code to ensure that we have uniform development. A UL type certification will add cost and may act as a barrier to solution providers, reducing innovation in the sector. Solution provider privacy certification seems justifiable especially in a Security by Design Environment.
	<ul style="list-style-type: none"> Standardized certification requirements should support best practices. Approach to certification should be practical and cost effective.
	<ul style="list-style-type: none"> We are unable to provide feedback with respect to formal Green Button certification and seal for solutions provider as we do not know what is involved in said certification and seal process.
	<ul style="list-style-type: none"> We understand the need for the utility certification that the data is in the correct format and the translation of the data is consistent, and support this. Solution providers must be knowledgeable in our area of business and accurately represent the data and our programs. Solution providers should go through a Certification process, or have a code of conduct put in place to ensure they are meeting standards such as marketing practices, security, and privacy. Will we incur additional costs as a result of being associated with other service providers? Our customers will rely on us for advice, to resolve issues, and to manage complaints. In addition to ensuring that the translation of data is consistent amongst the utilities, we would want to ensure that the solution providers are knowledgeable in our area of business and are accurately representing the data and our programs.
	<ul style="list-style-type: none"> Makes sense since that all data is to be treated as confidential. When dealing with privacy concerns need to be mindful of community energy projects and work to create a solution that will not be so restrictive that future energy opportunities could be foregone.

Stakeholder Group	Required Certification for Utilities/Optional Certification for Solution Providers
Utilities	<ul style="list-style-type: none"> • Certification of the third-party apps would be critical to ensure that they are legitimate and that they are ensuring the security and privacy of our customer’s information. Requiring LDCs [local distribution companies] to certify seems burdensome; however, providing the Green Button logo and branding for LDCs to utilize would be helpful and would allow LDCs [local distribution companies] to assist in promoting the service to their customers.
	<ul style="list-style-type: none"> • We are supportive of utility certification provided utilities have the ability to decide how Download My Data and Connect My Data are implemented. • We are also supportive of not requiring certification for service or registration providers. • See it as an additional cost that provides little value in the end. • Concern that utility certification will be construed as utility expertise when it comes to how the data is utilized or on the technical capabilities of a particular service. <ul style="list-style-type: none"> ○ Could increase the administrative burden on utilities • Clear distinctions would have to be made to ensure utilities are only certifying they are in compliance with a standard, while services providers are the experts when it comes to their service offerings.
	<ul style="list-style-type: none"> • A certification process for utilities should be a mandatory requirement. • Additionally, we should consider the value of a certification validation step for Ontario data custodians. As with many standards, Energy Services Provider Interface/Green Button provides a framework, but the data provided by a utility within that framework can vary significantly. Given the market commonality across Ontario, defining a ‘minimum required capability’ guidance document would be valuable to help reduce potential variations across Ontario, thereby reducing the possible scenarios that a third-party application may need to handle if targeting specifically the Ontario market. A supplemental Ontario certification process then may be useful to validate compliance with the minimum specification. • An Ontario-specific certification validation process would be a potential function to be managed independently of the platform implementations as part of a directory service or registration platform. • The Green Button Alliance promotes third party certification to increase global Green Button adoption via an “app” store business model. • We believe an optional privacy certification process (which would be a validation of the privacy policies and practices of a third party in cases where a third-party application retains data on the third-party servers) would offer assurance to more risk-averse consumers without raising the barrier to entry beyond the reach of individual developers or small organizations that may not have the resources to support a privacy certification.
	<ul style="list-style-type: none"> • Support utility and third party privacy certification. • Certification provides confidence that all parties meet the Green Button standard. • Privacy certification provides the utility additional confidence that the personal data that the utility administers on its customers’ behalf, will be handled securely throughout the entire process from utility to third-party vendor to customer.

Stakeholder Group	Required Certification for Utilities/Optional Certification for Solution Providers
Utilities	<ul style="list-style-type: none"> • If the Ministry proceeds with mandatory Green Button implementation, we agree that formal certification should be required. For purposes of consumer protection and privacy, certification should apply to solution providers as well.
	<ul style="list-style-type: none"> • Should require all utilities and solution providers participating in program go through a Green Button certification process administered by a third party.
	<ul style="list-style-type: none"> • We support the requirement for utility certification and seal to ensure consistency with the Green Button standard.
	<ul style="list-style-type: none"> • Certification is a good idea. • More important to seek certification and seal for solution providers as they don't face regulatory authority scrutiny. <ul style="list-style-type: none"> ○ A process needs to be in place so if the solution provider cannot maintain pre-determined standards, this certification could be cancelled. • Solution providers must be reputable and demonstrate that they can protect customer information/ data and that their systems are error free.
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> • Certification should be required. • Certification process should not be onerous. • See the original Ontario Energy Board Electronic Business Transaction (EBT) hub documents for examples. That market had 3 Hubs, and multiple computer information systems all working together. • Certification process should be created and evaluated by the market and a “sandbox” needs to be available for off production testing. • Certification of data and standards will change, so there needs to be a procedure to manage more than one process.
	<ul style="list-style-type: none"> • Important that the utilities (or the single, province-wide system) demonstrate strict adherence to the standard as verified by an independent testing authority. <ul style="list-style-type: none"> ○ Certification provides a useful accountability tool ○ Sends an encouraging signal to the marketplace that Green Button is being consistently applied, reducing perceived barriers to entry for businesses ○ Encourage testing and certification on a regular interval, i.e. 1/year, or whenever updates to the standard are released. • We support an optional or voluntary certification for third-party service companies.
	<ul style="list-style-type: none"> • We support the option for utilities to obtain certification from the Green Button Alliance as the utilities comply with the standard ensuring interoperability • Do not believe solution providers should be required to obtain certification and have not seen this required in other markets.
Third-Party Service Providers (Consultants)	<ul style="list-style-type: none"> • Certification to a standard is important and if it could be on both ends (utility and solution provider such as my company), that would be great.

Stakeholder Group	Required Certification for Utilities/Optional Certification for Solution Providers
<p>Third-Party Service Providers (Energy Efficiency Services)</p>	<ul style="list-style-type: none"> • We do not see any value in certification as a utility customer since compliance is expected to be neither voluntary nor optional for utilities. • All utilities must be held to the same standard so that what data is collected, how it is shared and presented are consistent across Ontario. <ul style="list-style-type: none"> ◦ Do not create an environment where different utilities could interpret the Green Button standard differently • The Ministry of Energy should create a special working group or a committee consisting of representatives from utilities, customers, and energy service providers to discuss and agree on the interpretation of the Green Button standard. • The group could be tasked with drafting the format and defining the content for utility bills so that customer bills across Ontario will have the same format and content. • The draft proposal should require/allow a formal Green Button certification and seal for service providers, ensuring customers that these service providers have met all the technical and privacy requirements to provide Green Button solutions <hr/> <ul style="list-style-type: none"> • Support technical and privacy certification- provides confidence for all parties involved. <hr/> <ul style="list-style-type: none"> • Unless it can be grand-fathered, this is a lot of paperwork when existing contracts with customers already cover this. <hr/> <ul style="list-style-type: none"> • Prefer optional Green Button certification for solution providers but would like to learn more about the requirements for technical and privacy certification. <hr/> <ul style="list-style-type: none"> • I suggest that we see how certification is accepted by the other jurisdictions using Green Button. The United States may have significantly different perspective as the utility business models differ and are changing rapidly in the Smart Grid. • Issues of privacy should be handled and now the United States has promoted Data Guard as a principle approach so hopefully we will follow or ensure cross border exchanges.
<p>Third-Party Service Providers (Hosted Solution Providers)</p>	<ul style="list-style-type: none"> • A formal certification for utilities does not seem necessary as long as they are providing data through a Green Button compliant platform. <ul style="list-style-type: none"> ◦ The proof of compliance would be self-evident. ◦ Possible that a small number of commercial customers would see Green Button certification as a positive indicator of a utility’s data practices and be more likely to work with certain utilities if certifications or seals are available. • Solution providers should be expected to keep high levels of customer privacy and agree to Terms and Conditions for Green Button data use. • Privacy certification could be optional, though some solution providers and customers may see such a certification as a “mark of excellence.”
<p>Government and Intra-Sector</p>	<ul style="list-style-type: none"> • Formal certification for the utilities is a good idea. • Optional certification and seal for solution providers is a good idea. • Will likely increase the number of providers willing to enter the market, in turn increasing the public access to solutions to help reduce consumption of the three utilities.

Stakeholder Group	Required Certification for Utilities/Optional Certification for Solution Providers
Government and Intra-Sector	<ul style="list-style-type: none"> Security, especially in corporate environments, requires the coordination of many people including IT staff at the company. Some external certification can, in some cases, allay any concerns and/or allow for the energy program to move forward.
Unidentified Respondent	<ul style="list-style-type: none"> Agree with the proposal to require certification for utilities with optional certification for third parties.

IMPLEMENTATION SCHEDULE

Stakeholder Group	Phased-In Implementation
Utilities	<ul style="list-style-type: none"> Implementation for large utilities first makes sense because it would engage the largest population in the shortest time.
	<ul style="list-style-type: none"> Support the concept of phasing in implementation to achieve high value benefits first. However, should consider both the technical capabilities and size of the utility.
	<ul style="list-style-type: none"> Electrical Utilities: <ul style="list-style-type: none"> With the Dunsky assumption of only 2% residential customer penetration, we wonder if the focus should be on deployment by customer class instead of by utility size. This could start with Interval-metered customers and move to GS>50 customers as their meters are moved to interval-like meters. Gas and Water Utilities: <ul style="list-style-type: none"> We do not have any advice on this.
	<ul style="list-style-type: none"> There are two considerations for which the Ministry could consider staggering its implementation of Green Button. <ol style="list-style-type: none"> Download My Data versus Connect My Data: Consider an earlier implementation of Download My Data, whereas mandating Connect My Data could be staggered based on utilities' conservation and demand management program offerings to ensure that those potential risks are mitigated or avoided. Customer Class: The Phase-In of Connect My Data could further be structured along the lines of customer class. <ol style="list-style-type: none"> Connect My Data is more likely to benefit certain customer classes ahead of others, those could be prioritized. If benefits to other classes are less likely to accrue until following the current conservation and demand management period, the Ministry could consider staggering implementation until that time. Timelines need to be communicated long in advance. There are currently multiple other initiatives ongoing in the sector that can or will have capital and operational implications on our customer care systems and staff, and we submit that this context be taken into account for the preferred Phase-In and Timing approach.
<ul style="list-style-type: none"> No concerns with the phased in approach. BUT, concerned with the expectation that this would be ready within the first year. <ol style="list-style-type: none"> 2 billing systems would require modifications. One of our billing systems is currently undergoing a replacement that will not be completed until the end of 2017. Any work required could jeopardize the implementation date and/or increase the risk to the project. Until we understand the magnitude of the cost and the cost recovery method, there is a possibility that the Ontario Energy Board might need to be involved. Security reviews would need to be completed with a solid understanding of the hosted environment, single authentication process, and the data that is being shared between all parties involved. 	

Stakeholder Group	Phased-In Implementation
Utilities	<ul style="list-style-type: none"> • A phased approach certainly makes sense. This should begin after more analysis has been conducted on the current Hydro One and London Hydro pilots to understand customer uptake and analyze if there truly is any quantifiable energy savings as a result of Green Button. • As well, not all larger commercial customers have smart or interval meters installed yet and these meters will not be fully implemented across the province until 2020.
	<ul style="list-style-type: none"> • We are not opposed to this phase-in implementation plan.
	<ul style="list-style-type: none"> • Phase implementation strategy will allow larger utilities to cover a large part of the population to verify if Green Button is needed/wanted by customers • By large utilities going first would streamline process for smaller utilities
	<ul style="list-style-type: none"> • Local distribution companies (LDCs) will need an adequate runway and lead-time to integrate the standard and to modify the business processes and systems for customer engagement and energy data provision that would be applicable to Green Button. • Implementation timelines would need to recognize other customer engagement and billing requirements, as well as conservation programs, which LDCs are obligated to fulfill pursuant to other provincial statutes and regulations. • Phased-in implementation should focus first on those utility customers who currently have no access to their energy data, as opposed to starting with customers who already have options at their disposal. Likewise, under a mandatory implementation approach, the scope should cover all sources of metered energy data (i.e. utilities and sub-metering companies).
	<ul style="list-style-type: none"> • Include large and med sized water utilities with electricity and gas in phase 1 of implementation. • Small water utilities may not have required infrastructure in place yet. • Implementation should be expedited across all utilities (2 years for large and medium utilities and 5 years for all remaining utilities) • Ministry should offer funding to smaller utilities in incentive them into participating in phase 1
	<ul style="list-style-type: none"> • Water- best to phase by size. • Electricity “LDCs” are better to implement all at once -we are already in the habit of making changes to our systems and processes to meet the consistent requirement changes by regulatory authorities. • The proposed phase-in target dates are a bit aggressive
	<ul style="list-style-type: none"> • Implementation may be best handled on a voluntary basis. This way a utility could implement, regardless of their size, once it has had adequate time to plan and prepare from both a financial and a regulatory perspective. • Regardless of when Green Button is implemented, why do smaller utilities require more time to implement when the systems and methodology for implementation should be similar from utility to utility. • Are there different requirements based on the size of the utility? • Still many unknowns with respect to changes that will be required for a utility to accommodate the Green Button initiative. • We do not adequately understand the reasoning behind the implementation and timing requirements

Stakeholder Group	Phased-In Implementation
Utilities	<ul style="list-style-type: none"> All utilities should introduce Green Button at same time. Why penalize a company residing in an area served by a smaller utility? Focusing on the implementation of large and medium electricity and natural gas utilities could achieve relatively quick wins for a wide scale implementation. Important to begin working with smaller utilities early in the process to allow time for necessary services to be procured, outsourcing vendors to be engaged and to establish natural groupings of utilities with like-systems that may be able to implement in parallel. This will avoid an adoption drop-off in between implementation of different size groups. Allowing utilities to align Green Button integration with their existing technology programs will help to ensure the program gets an appropriate level of commitment and allow utilities to better manage their internal cost allocation towards the implementation. Look at how the rollout of smart metering and time-of-use pricing was conducted.
	<ul style="list-style-type: none"> All gas and electric utilities should begin implementation at the same time. Customers across Ontario should expect the same service levels from all local distribution companies, regardless of size. January 2018 start date to allow adequate time for program implementation.
	<ul style="list-style-type: none"> Mandating water and gas data before requiring them to have monthly reads and/or smart meter infrastructure is not useful. Electric utilities should move first as data is available already.
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> Time is of the essence- move quickly Jan 2018 start date is too late Ideally all utilities implement at same time
	<ul style="list-style-type: none"> Prefer to have the entire province adopt and implement Connect My Data through a single, uniform platform tomorrow. But due to cost restraints of implementation, having the smaller utilities move forward on a somewhat slower timetable is a reasonable trade-off. Could be extra costs to service providers of geographic fragmentation because marketing efforts in one region might be irrelevant if the utility is not supported. Consideration for timelines needs to be focused on a utility’s system readiness, not size or type. Proposed timeline misses other timelines (key government targets) set by the Government as a whole. The market can’t wait. Proposed method is too stringent and will cause delays. Large utilities may not be ready, but some small or medium sized utilities may be more advanced and ready sooner.
Third-Party Service Providers (Consultants)	<ul style="list-style-type: none"> Implement ASAP There needs to be an increase in energy and resource usage visibility and utilities across the board People are going broke with rising electricity and water prices yet few understand the power of conservation. Smart meters cost too much and, most were installed after the Green Energy Act passed in 2009 yet they need to be replaced for Net Metering at a cost of nearly \$700.

Stakeholder Group	Phased-In Implementation
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> • In favor of proposed approach but would like implementation accelerated if possible • I believe the sooner we start the better. There are only a few gas companies and the local distribution companies should also be standardizing with the smart meter finalization. • The draft proposal should aim to phase-in Green Button implementations starting with Ontario’s Coalition of Large Distributors and water utilities of large Ontario cities, and mandating compliance by December 2017 – aligned with the end of Year 2 of Ontario’s Large Building Energy and Water Reporting and Benchmarking implementation. • The implementation schedule for the Green Button standard should closely follow that of the Energy and Water Reporting and Benchmarking regulation, otherwise there will be a significant gap in the market place and customers are likely to explore alternate means to make reporting easier. This could also lead to local utilities developing and offering their own solutions to meet their customer needs, minimizing the value of Green Button. • The transition to web-based, digitally available information is moving too slowly. While it makes sense to phase-in implementation we think it is critical that the Coalition of Large Distributors (CLD) (including the two major gas distributors) should be mandated to become Green Button Download My Data and Connect My Data compliant by the end of Year 2 of the Energy and Water Reporting and Benchmarking implementation (December 2017). This requirement should also be extended to water utilities of large Ontario cities. • Should start with small utilities because they do not have the expertise and money to complete this and therefore would benefit more. • Large utilities have expertise and money so don’t need the help
Third-Party Service Providers (Hosted Solution Providers)	<ul style="list-style-type: none"> • Will provide the smaller utilities with an ability to learn from best practices during the large utility implementation.
Non-Profit Groups and Associations (Associations)	<ul style="list-style-type: none"> • Proposed phased implementation calendar will be effective in achieving real benefits for the commercial real estate industry. • The Province’s energy reporting and disclosure framework is staged to come into effect over multiple years, with the largest real estate reporting energy date first, following by smaller properties over a series of years. • The proposed multi-year phase in of the Green Button program should be better integrated with the proposed phase-in timeline of the energy reporting and disclosure requirements. • This process will also build industry and ministerial understanding of the challenges associated with Green Button – which will be useful as the Ministry of Energy expands Green Button to smaller utilities.
Government and Intra-Sector	<ul style="list-style-type: none"> • Targeting large and medium utilities first allows rapid uptake of Green Button features in RETScreen (Renewable Energy Project Analysis Software).

Stakeholder Group	Phased-In Implementation
Government and Intra-Sector	<ul style="list-style-type: none"> • Phasing-in medium and large water utilities earlier in the process will be the best course of action. With a large number of medium utilities (covering ~17% of total water utilities), having these utilities join Green Button as soon as possible will be more beneficial. • Phasing smaller water utilities in last allows them more time to adopt the technology required to track and comply with Green Button.
Unidentified Respondent	<ul style="list-style-type: none"> • No preference from a customer perspective, but electricity first, then gas and water slowly to see if it is applicable

MANAGEMENT OF THE STANDARD

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Utilities	<ul style="list-style-type: none"> • Under the heading of economies of scale in “big data” this approach has proven successful, but to fully leverage, we would need to look at other related ventures to look at consolidating and reducing overall costs. This is assuming that a business/value model is established for the Download My Data and Connect My Data. • Services currently under this would likely be the meter data management repository (MDM/R), and Ontario Electricity Support Program, as both relate to the energy consumer. • The provider(s) currently operating the back end for these could implement the solution and components could be shared, reused, and not reinvented. • Management should be independent as opposed to ministry driven with controlled cost, profit and expansion controlled by a regulator to keep costs from escalating
	<ul style="list-style-type: none"> • The Independent Electricity System Operator (IESO)’s central Meter Data Management and Repository (MDM/R) provides a common platform for processing, storing and managing all electricity consumption data for residential and small businesses with smart meters in the province. • Consider expanding the existing platform to include commercial and industrial electricity consumption data. The MDM/R could then act as a portal for the new entity to obtain electricity data, eliminating the need to have two data repositories for electricity consumption data. • In this model, the IESO would support maintenance activities. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • The chosen entity should be one that is able to support the initiative both in the short-term and the long-term.
	<ul style="list-style-type: none"> • There is value if the entity that supports a Green Button Test Environment also supported organizations testing their software against the Test Environment. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Existing vendors that provide Operational Data and web services to LDC’s are best positioned to provide implementation and maintenance activities. Leveraging existing infrastructure should minimize costs and maximize value.
	<ul style="list-style-type: none"> • If this means the implementation and maintenance of Green Button 2.0 (not the Green Button delivery systems) then we support a single entity strategy <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • A new entity is not necessary- we believe that the IESO maintains the standard by which Wholesale Meter Points are registered, maintained, and accessed for data

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Utilities	<ul style="list-style-type: none"> We are not opposed to a single entity supporting Green Button implementation and maintenance activities as long as they have a proven track record and is thoroughly vetted. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> This can be left up to the discretion of the Independent Electricity System Operator (IESO) post necessary research.
	<ul style="list-style-type: none"> In anticipation that the phase-in will take multiple years and the Green Button standard will evolve over time, we agree that the preferred approach is to have a designated entity to support the project and act as a centralized resource to assist all stakeholders. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> MaRS through the Ministry of Energy has sponsored the Green Button project from the beginning, and developed the necessary relationship with the U.S. Department of Energy; this might be the sensible first alternative In keeping with the recommendation that this project be aligned with Bill 135, the Ministry of Energy should retain the role as government entity responsible for MaRS/ Green Button direction, and Green Button implementation and maintenance.
	<ul style="list-style-type: none"> We have no concerns with a single entity supporting the implementation and maintenance activities, but do want to ensure that the single entity has a broad view of all utility sources, and has the end use customers’ needs in mind.
	<p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> The IESO has already cultivated experience and expertise in providing services and overseeing programs which involve managing large pools of data and engaging with a large roster of stakeholders. For example: <ul style="list-style-type: none"> The IESO served as the Smart Metering Entity operating the meter data management repository (MDM/R), and administered programs like the Conservation Fund. The IESO is also standing-up an MDM/R Data Mart, which will enable local distribution companies to retrieve large volumes of data to support value-added data services. The IESO’s status as an independent, non-commercial entity is critical. Any managing entity should not be commercial to avoid perception of conflict of interest
	<ul style="list-style-type: none"> Support single entity for implementation and maintenance. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> Ontario Energy Board- positioned to manage the process given their established relationships and experience with both gas and electric. Should establish a utility working group with equal representation across all utility sectors and small and large utilities across the province.

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Utilities	<ul style="list-style-type: none"> • Acceptable if the use of a single entity can provide costs savings and improved benefits for our Customers <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Not comfortable with the Independent Electricity System Operator (IESO)] because it’s only involved with electricity, not gas or water • London Hydro has the resources and expertise to provide needed support. • Need to identify who will have ownership of the source code- might need to keep this ownership away from the support entity (could ownership be Ministry of Energy?)
	<ul style="list-style-type: none"> • A single entity solution is not ideal • A multi-entity solution offers a competitive environment, promoting efficiency and cost effectiveness • Utilities should be responsible for their systems, while service providers should be responsible for maintaining their offered solutions <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • The Ontario Energy Board or IESO may be well positioned to ensure utilities implement and certify to a specific standard
	<ul style="list-style-type: none"> • Initiative requires coordination across all utilities and should not be left to committees • A private entity couldn’t take the role without government support <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • MaRS was the Project Manager for the Ontario Green Button standard and Pilot and they demonstrated that it was more than a full-time position. • MaRS acquitted themselves well in the activities mentioned above.
	<ul style="list-style-type: none"> • Need to establish an owner for the Green Button standard in Ontario, which would provide ownership of the Ontario specific guidelines for implementation as well as managing the incorporation of ongoing standards evolution over time. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Green Button Alliance already exists and is focused not upon any particular utility but upon the promotion of a “standards” based platform that is equally adept serving the gas and water utilities already. They have an international representation upon their board. • Ministry should take on the role of long-term management of the standard’s scope and logistics of roll-out as this closely aligns with Provincial energy policy.

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Utilities	<p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Would not want to see a brand new entity created – already concerned about upcoming the Climate Change Action Plan “Green Bank” proposal. • Stakeholder advisory committee. • Independent Electricity System Operator (IESO) – already managing data systems, communications, forecast planning, well-integrated with gas.
	<ul style="list-style-type: none"> • The Province already has a single hub for data transfer from the electric utilities and the electrical suppliers for the billing of electricity, why not use this hub for all utility data including all line item billing data. <p><i>Potential Entities:</i> Existing hub for transfer</p>
Third-Party Service Providers (App Developers)	<ul style="list-style-type: none"> • We support having a single, completely independent entity to support implementation and maintenance activities. • Will be more cost effective if there is to be scale across the Province and all of its utilities.
	<ul style="list-style-type: none"> • A single entity in control assures consistent implementation. • Could take advantage of existing products that are available for implementing Connect My Data systems cost-effectively. <ul style="list-style-type: none"> ○ For example, Texas hired IBM to develop their custom portal, guided by a bureaucratic but well-meaning stakeholder process and it was a total failure in cost (\$80 million) and functionality. • Note recent implementations of GB [Green Button] elsewhere in United States quoted at least \$2 million for a single large utility.
	<ul style="list-style-type: none"> • Support single entity to implement and maintain the standard. • Needs to be a set of global maintenance windows for all and version control of standards, so parties can make changes without affecting the energy user or other market players. • There will come a time when this information will be used in external processes that affect the financials of Green Button users. When it does, Implementation and Maintenance will be key drivers in ensuring the market’s inability to react doesn’t cause financial distress others. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Government Entities - The only viable entity would be the IESO, as they have IT expertise and have strong change management controls. • Global Integrators will not work- Ontario-specific expertise is here, not from outside Ontario in a global integrator. Their cost structure is extremely high and they typically try to push the risk and all cost overruns onto the party paying for the project. • Utility – Other utilities will strongly protest this and they don’t have enough expertise • A Hybrid Government / Private Entity parties (Subject Matter Experts) from multiple areas to help guide the process.

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Third-Party Service Providers (Consultants)	<ul style="list-style-type: none"> Single entity would ensure no finger pointing <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> Ideally an entity that is concerned with resource management, one that is biased in-favour of Renewable Energy. Avoid the Independent Electricity System Operator (IESO).
Third-Party Service Providers (Energy Efficiency Services)	<ul style="list-style-type: none"> The draft proposal should indicate that the entire process of implementation, support and maintenance of Green Button standard be managed by either the Ministry of Energy or by another single service provider thoroughly vetted and approved by the Ministry of Energy with adequate oversight and governance <hr/> <ul style="list-style-type: none"> In favour of approaches that may minimize the overall integration effort of third party applications and solution providers. <hr/> <ul style="list-style-type: none"> One entity may be more cost-effective; however, it also means a non-competitive situation unless there is a five-year review and others can take over. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> Given the work on the Smart meter data, it may be beneficial to use them again if the additional Green Button builds on existing proven capabilities as long as the costs are not going to be too much to justify for the benefits we the customers and tax payers expect to receive. <hr/> <ul style="list-style-type: none"> Support single entity to support implementation and maintenance <ul style="list-style-type: none"> Entity must be experienced and intimately familiar with complete Ontario energy landscape Entity should have extensive knowledge in software architecture relating to database structures, storing and managing very large data sets and robust performant access to that data. Entity should also understand how techniques are applied to energy data <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> IESO Rodan Energy and operating affiliate Energent have experience in Ontario with metering and meter data management for a large number of local distribution companies and power generators Rodan’s operation in Alberta provide extensive metering systems and meter data management for utilities and municipalities including water. <hr/> <ul style="list-style-type: none"> Avoid the IESO

Stakeholder Group	Managed by One Entity/Suggestions for the Entity
Third-Party Service Providers (Hosted Solution Providers)	<ul style="list-style-type: none"> • From a cost-efficiency standpoint, it makes sense to procure one entity to support implementation and maintenance. • If this entity is a private business, it should be subject to regular competition from other providers via a periodic request for proposal or other competitive bidding process. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • The Independent Electric System Operator - similar entities have been chosen to manage Green Button implementation in other jurisdictions such as Texas
Non-Profit Groups and Associations (Associations)	<ul style="list-style-type: none"> • The Ministry of Energy should be the ultimate manager of the Green Button standard in Ontario. • The Ministry has been the major policy lead on Ontario’s energy files so it makes sense they manage this component as well • The Ministry of Energy also has the capacity to implement a robust certification system, manage industry consultations and ongoing outreach and capacity building, as well as interface with Green Button policy contributors in other jurisdictions such as the U.S. • The Ministry of Energy should activate a single entity to support maintenance and implementation of the standard in Ontario. <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Ministry of Energy
Government and Intra-Sector	<ul style="list-style-type: none"> • Stakeholders would appreciate asking questions etc. to one single entity.
Unidentified Respondent	<ul style="list-style-type: none"> • May be worthwhile <p><i>Potential Entities:</i></p> <ul style="list-style-type: none"> • Institute of Electrical and Electronics Engineers (IEEE), Multispeak, Canadian Banking Association

ADDITIONAL COMMENTS (MISCELLANEOUS)

Stakeholder Group	Additional Input
Utilities	<ul style="list-style-type: none"> • PROPOSED ALTERNATIVE ACTION – Expanded local distribution company (LDC)-Customer-Solution Provider Collaboration This proposal is informed by two key take-aways from the July 2016 consultation workshops hosted by the Ministry of Energy: <ol style="list-style-type: none"> 1. piloted implementation of Green Button by Ontario LDCs appears to have been quite limited to date; and 2. Green Button benefits are projected to be highest for commercial and industrial customers. • PLAN - <ol style="list-style-type: none"> 1. The Ministry of Energy convenes a working group comprised of the largest LDCs in each sector, select large commercial and industrial customers, major solutions providers, and the Green Button Alliance. 2. Working group engages in a more focused pilot program to address energy data needs of large customers: <ol style="list-style-type: none"> a. Give timeline for completion (i.e. 2 years). b. Mandate user-pay model which would enable economies of scale to cascade down to smaller and residential customers as participation in the program expands. <p>OTHER COMMENTS:</p> <ul style="list-style-type: none"> • The most important question is “who pays?” <ul style="list-style-type: none"> ○ We strongly support a “user pay” model because different classes of customers are reportedly requesting the service, and are set to benefit in very different ways and measures from the service. ○ Implementation costs should reside with those who will benefit, and should not be allocated based on the number of customers within a specific class. ○ Must incorporate the upfront cost associated with LDCs integrating Connect My Data into their data operating systems as well as the ongoing costs to support the functionality of Green Button into the overall Green Button price tag ○ Many customers will contact their LDCs with questions regarding the services offered by the 3rd party solution providers which means increased support costs for LDCs as well. ○ Under current Green Button plan proposal, it appears that most of these costs will ultimately be imposed upon residential customers despite the Ministry of Energy’s pilot results which found little willingness to pay on the part of these customers. • There is also currently limited conservation and demand management programming available to residential customers, therefore analysis needs to be done to determine whether or not residential customers will achieve more in energy savings than the costs associated with Green Button implementation. • Consistency with Other Provincial Policy: <ol style="list-style-type: none"> 1. There are already a number of energy, environmental, conservation etc. requirements LDCs must fulfill in the province. Green Button must not work at cross-purpose with the goals and broader policy of Ontario’s regulatory landscape

Stakeholder Group	Additional Input
Utilities (cont'd)	<ul style="list-style-type: none"> 2. Attentiveness to Green Button’s impact on specific policy programs is also warranted and the Ministry of Energy should explore whether any synergies can be yielded – and duplication avoided – between IESO initiatives and the Ministry of Energy’s goals. 3. For example, the IESO is currently designing a new conservation and demand management program intended to deliver energy savings for Multi-Distributor Consumers as well as undertaking a separate effort to implement third party access to residential customers’ meter data management repository (MDM/R) data, pursuant to a directive from the Ontario Energy Board (OEB). • Consistency with the Regulatory Framework for Ontario local distribution companies (LDCs) <ul style="list-style-type: none"> 1. The OEB’s Renewed Regulatory Framework for Electricity (RRFE) should be used to guide the Ministry of Energy’s approach to Green Button implementation. The RRFE is a performance-based regulatory framework, which is premised on achieving outcomes and results, as opposed to focusing on inputs and process in a prescriptive manner. 2. Better outcomes can be achieved by setting goals and granting incentives to LDCs to achieve them, rather than by prescribing an inflexible approach. 3. In lieu of a mandate, the Ministry of Energy should establish an over-arching objective – e.g. “by the end of 2020, Ontarians will have access to their utility data in a standardized format” – and put incentives in place to facilitate collaboration between LDCs, solution providers, and interested customer • Risk of Green Button Obsolescence- companies need to maintain adequate flexibility to adopt new technologies and tools, as today’s solutions can quickly become outdated but the Ministry of Energy proposed course of action seems to be what Green Button offers at this moment in time.
Utilities	<ul style="list-style-type: none"> • May be merit in assessing whether a “user pay” model should be implemented so that the users of the Green Button data pay for the collection, processing and storage of that data. This will reduce cross subsidization between rate classes if there is a greater uptake in the services in the industrial and commercial sectors. • As a utility that has championed low cost Green Button solutions for our customers, we continue to support the Green Button initiative. Should the government’s decision be to utilise a single service provider, we would appreciate an indication of this direction as early as possible so that we can reallocate resources currently committed to implementing Green Button for our GS>50 customers • Most LDCs in the province already have tools in place to provide energy information to their customers online. Implementing another level of data analysis appears to be a duplication of efforts already undertaken across the province. There would need to be considerable investment in customer education to encourage customers to sign up for yet another tool to access their energy data. • If this becomes a mandated program, then their needs to be a mechanism for LDCs to count potential energy savings from Green Button as part of their conservation and demand management targets.

Stakeholder Group	Additional Input
Utilities	<ul style="list-style-type: none"> • Is Green Button wanted or needed? • Not a priority to our customers - LDCs were previously mandated to install smart meters and provide data via Customer Facing Presentment tools and despite extensive promotion of these changes, customer uptake was low. • There is no need to create a single entity to deploy Green Button represents duplicate effort and investment already undertaken – Will result in rate payers paying for something they already have. • Most local electricity distributors have already deployed online Web Presentment 24X7 solutions to their Customers based on the earlier time-of-use Province wide mandate. These investments can be wisely leveraged to provide full Green Button Download My Data/Connect My Data through minimal incremental cost.
	<ul style="list-style-type: none"> • Questions: <ol style="list-style-type: none"> 1. What is the competitive advantage of the Green Button certification and seal for a solutions provider? 2. Is it anticipated that there will be a cost for solution providers to participate in the Green Button program? If so, please disclose what they are.
	<ul style="list-style-type: none"> • Additional concerns need to be addressed. I.e Security, privacy, utility costs relating to the set up and maintenance, expectations and impacts to educate customers, impacts to customer care to manage the expected increased volume of phone calls related to Green Button, roles and responsibilities of the utilities vs the host.
	<ul style="list-style-type: none"> • In order to be fully supportive of the Green Button Initiative, utilities would need firm confirmation from the Ontario Energy Board that all costs associated with the roll out of this initiative would be recoverable through the IRM and/or rate application process. • The current draft policy appears to be prescriptive. It may be more beneficial to offer a principle-base process where a specific goal is expressed and utilities are permitted to achieve the required results through different approaches. This could help to ensure existing infrastructure is not stranded
	<ul style="list-style-type: none"> • Water consumption data should be on equal footing with need for electricity and gas data. • Province’s water supply is under growing pressure due to population growth, urbanization, climate change. The data is crucial to water conservation programs
	<ul style="list-style-type: none"> • Concern that “solution providers” are in fact qualified, or have the appropriate expertise, to provide needed information to customers. <ul style="list-style-type: none"> ○ If the solution provider provides poor service it could reflect badly on utilities. • Need assurance that solution providers are capable and that problems with their service or product that they are first to be contacted by the customer. • The single entity overseeing these solution providers need to monitor and interact with customers when the customer is not satisfied.

Stakeholder Group	Additional Input
Utilities	<p>Vendor of Record (VoR) Concept / Rationale</p> <ul style="list-style-type: none"> • A Green Button Platform Vendor of Record program would prequalify, in an open competitive procurement process, multiple vendors that would be capable of providing Green Button solutions to all utility type and sizes. The approved vendors would have standard terms and conditions, pre-negotiated pricing and would deliver solutions compliant to the Green Button standard • A secondary stage procurement process would allow specific utilities to get quotes from multiple VoR vendors incenting Vendors to offer value added services to win the business. Ultimately the utility is ensured of getting the best value for money. • Vendor of Record (VoR) arrangements would provide utilities “best of breed” options for Single Integrated e.g. VoR partners could be selected based on their ability and cost effectiveness to implement based on specific Utility size, type or in-house computer information or outage management systems. • The VoR agreements would be refreshed on a regular basis (typically 3 years) to ensure competitive pricing and to leverage emerging innovative technology solutions / pricing as well as: <ul style="list-style-type: none"> ○ Capturing new vendors ○ Allows existing vendors to add / enhance existing services / products • The Vendor of Record program is a standard and recommended way of conducting business with Ontario Ministries. As an example, Ministry of Government and Consumer Services Ontario has existing VoR arrangements for information and information technology solutions / consulting services typically refreshed every 3 years. IT Service categories include the following: <ul style="list-style-type: none"> ○ Business Analysis & Planning ○ Architecture ○ Solutions Development ○ Testing & Quality Assurance (QA) • Systems Integration/Deployment & Operations
	<ul style="list-style-type: none"> • Should be funded through the Climate Change Action Plan Greenhouse Reduction Account.
	<ul style="list-style-type: none"> • We wish to reemphasize our position on funding and alignment with conservation and demand management targets.
	<ul style="list-style-type: none"> • The decision is based around funding: 1) cap and trade 2) rates • Has implications on what moves ahead
	<ul style="list-style-type: none"> • Have the energy billing information made available at the same time line item by line item. • Beneficial to have an electronic string of data available for entry into Energy Management software or Accounts Payable systems. This data when available should not impact the Accounts Payable function from the utility.

Stakeholder Group	Additional Input
<p>Utilities</p>	<ul style="list-style-type: none"> • Enabling an effortless customer experience is just as important as the underlying technical standard for data transmission. Green Button Connect My Data includes more than moving meter data from point “A” to point “B”; it is an entire process that includes customer authentication, authorization and a user experience. <ul style="list-style-type: none"> ○ Some third-party-centric systems are evolving around Connect My Data to further simplify the customer authorization process in the United States, in part because of the poor track record of websites like Smart Meter Texas. Encourage the Ministry to take advantage of those efforts, such as California’s “click-through” process. • Consumers expect simple, one-click ability to do almost anything <ul style="list-style-type: none"> ○ We should strive to provide a “one-click” customer experience with CMD [Connect My Data] so that the system meets customer expectations and is similar to other widely-used websites with which customers are familiar i.e. Amazon ○ EnergyHub recently published a paper sharing their success rate with enrolling customers in an energy-saving program ranged from over 40 percent of their thermostat customers to less than 3 percent, depending on the number of activities, responses, or clicks, required for the consumer to sign up. The 3 percent result involved a California process in which consumers had to provide several separate authorizations to the utility, in order to enable a consumer to sign up for a service. There was also a considerable delay of several days or weeks between a consumer expressing interest in participating and being approved by the utility. ○ In response to this experience, the California Public Utility Commission recently decided that each utility there should work with third-party providers to assure that a consumer can sign up for an energy efficiency or demand response related services entirely on the third-party provider’s website with a single “click-through” process. Stakeholders are currently working to implement the Commission’s directive. We appreciate that there are challenges to be solved in customer authentication, but the Commission determined that a streamlined approach is workable and satisfies California’s laws that aggressively protect consumer privacy. ○ Some U.S. states with retail energy competition have adopted another approach to streamline customer authorization process: <ul style="list-style-type: none"> ▪ Energy brokers and competitive suppliers can sign up a customer (and receive the customer’s usage history) in what is referred to as a “warrant” process. Under this approach a government-licensed company is directly responsible for obtaining a customer’s authorization. The licensed company is responsible for maintaining a record of customer approvals, which it must produce if audited by the regulatory agency. The third-party competitive supplier simply warrants to the utility that it has the permission of a customer or group of customers in order to access meter data instantly via an electronic process. The customer is typically identified with only an account number. ▪ This warrant process does subject the company to government oversight, where breaches are remedied with fines or license suspension. From the customer’s perspective, however, this is just as simple as the click-through process

Stakeholder Group	Additional Input
<p>Third-Party Service Providers (App Developers)</p>	<ul style="list-style-type: none"> • Create demo accounts for integrators for testing purposes. <ul style="list-style-type: none"> ○ Most of us will not have access to utility accounts in the Ontario area and ideally we would test our integration by going through the same process as a customer. Making the vendor integration process as straightforward as possible and independent from “hand-holding” by the Green Button Connect provider will greatly streamline the process and get more vendors on board more quickly. • Set some minimal level of qualification for vendors to be included on the site. • Qualifications should not be onerous; the goal is to make sure services are being offered by legitimate providers. Minor things like demonstrating they have a website, they have been in business for a certain period of time, signed on to the Data Security pledge, provide contact information. <hr/> <ul style="list-style-type: none"> • The Ministry of Energy is doing a good job with the evaluation but if real results are not achieved with an aggressive agenda, the market changes will fail. • Using the proposed phase-in and timing is too inflexible and not aggressive enough for the Utilities that are more advanced and ready to move sooner. • Too many external changes that will move ahead with or without the Ministry of Energy. • Latest research says that global change is coming quicker than your timeline. • You need to think outside the box to ensure the Green Button market works with Ontario’s extremely unique qualities.
<p>Third-Party Service Providers (Consultants)</p>	<ul style="list-style-type: none"> • Standards are important. • Look to United States for input and support... the DoE is a good bunch with amazing resources. • Do not give the Independent Electricity System Operation (IESO) any say on Green Button – force compliance. • Do not ask the Electrical Safety Authority (ESA) for input – for compliance (if there are no underwriters’ laboratory (UL) issues there can be no ESA issues). I say this because it’s the ESA that forces renewable energy generators to have physical disconnect switch when every inverter on the market must meet a stringent UL 1741 Anti Islanding specification. • Force all utilities to comply. • Public utilities are not supposed to be money making enterprises; utilities that have excess cash should be forced to relinquish some/all of those proceeds into a common slush fund to cover expenses incurred in this (and other much needed energy management and conservation systems). The current system is broken and Green Button could be an excellent first step towards fixing the system. • If implemented, the Ministry of Energy must take a commanding position and enforce strict timelines especially for utilities. • Regarding the dilemma of the small water utilities crying foul, there is a simple solution: any utility employee earning over \$50k per year relinquishes 1% of their pay and any payout of any utility employee’s contract must include 5% garnish to Green Button fund.

Stakeholder Group	Additional Input
<p>Third-Party Service Providers (Energy Efficiency Services)</p>	<ul style="list-style-type: none"> • The Ministry of Energy must work with Natural Resources Canada to enable Energy Star Portfolio Manager to become Green Button compliant and integrate ‘Connect My Data’ to support Ontario’s Large Building Energy and Water Reporting and Benchmarking Initiative. <ul style="list-style-type: none"> ○ In order for Green Button to fully support the Energy and Water Reporting and Benchmarking reporting process, the Energy Star Portfolio Manager (ESPM) also has to become Green Button compliant. In the U.S. the Environmental Protection Agency (EPA) is actively exploring opportunities of Energy Star Portfolio Manager supporting Connect My Data. Ontario should do the same by collaborating with Natural Resources Canada (NRCan). • All privacy concerns raised by various utilities in relation to Green Button have already been addressed by using the ‘Privacy-by-Design’ standard and compliance with the Global Privacy Standard to instill trust and confidence. • We believe easy access to utility consumption data through Green Button would not only make it effortless for property managers and landlords to comply with EWRB regulation, but also the availability of real-time interval data would lead to greater understanding and management of energy use and subsequently impact the overall efficiency of the building and help drive down costs.
	<ul style="list-style-type: none"> • All data from utility invoices should be available. • Money would be better spent in standardizing the protocol on: <ul style="list-style-type: none"> ○ how each utility should provide customer’s data on their website; ○ assisting smaller utilities in setting up their systems. • For natural gas and water in implementing interval or pulse metering systems.
	<ul style="list-style-type: none"> • If Green Button doesn't deal with peak and demand then it is not as valuable as many think. • Reporting benefits to the Carbon Disclosure Project and GRI should be considered. With a Cap and Trade program we need the best data and also making sure this effort helps set up reasonable capabilities for offsets to be traded.
<p>Third-Party Service Providers (Energy Efficiency Services)</p>	<ul style="list-style-type: none"> • Overall positive about Green Button initiative • Customers own their data and should dictate who can access it • As a solution provider company, they focus on customer experience – so, would like to ensure that solution providers have more control over the customer experience related to the Connect My Data consent process <ul style="list-style-type: none"> ○ i.e. allow users to give their Connect My Data consent within solution providers’ mobile apps rather than forcing users to navigate separately to the utility portal, which may impede adoption. • Need more clarity around the utility registration and Connect My Data customer consent process

Stakeholder Group	Additional Input
<p>Government and Intra-Sector</p>	<ul style="list-style-type: none"> • General service (non-residential) electricity customers larger than 50 kW demand (i.e. businesses, institutions) are not part of the Regulated Price Plan and the smart metering initiative. In 2014, the Ontario Energy Board amended the Distribution System Code to require that electric utilities bill these customers using MIST (interval) meters, to be phased in, with all such customers being billed using interval meters by 2020. However, there are no requirements in place for how, if at all, the data collected from utility interval meters is provided to customers. Many customers still likely receive a bill showing only two data points – their overall consumption and peak demand in the billing period – and may or may not have an easy way to obtain the more detailed interval meter data from their utility. • The presentation from Dunsky Energy Consulting at the Green Button policy workshop notes that 85% of the benefits from Green Button are expected to come from the commercial and institutional sector. The primary reason given is that “Green Button provides customers with timelier and easier access to data so that they are more likely to undertake EE [energy efficiency] actions”. • We believe that the Green Button Initiative would be much more valuable in helping this class of customers use their data to manage their energy use if electric utilities are required to provide the interval meter data used for billing to customers, as part of the Green Button initiative. We encourage the Ministry of Energy to examine this proposal as it works to finalize the implementation of Ontario’s Green Button Initiative. <hr/> <ul style="list-style-type: none"> • General service (non-residential) electricity customers larger than 50 kW demand are not part of the Regulated Price Plan and the smart metering initiative. In 2014, the Ontario Energy Board amended the Distribution System Code to require that electric utilities bill these customers using MIST (Metering Inside the Settlements Timeframe) (interval) meters, to be phased in, with all such customers being billed using interval meters by 2020. However, there are no requirements in place for how, if at all, the data collected from utility interval meters is provided to customers. • The Dunsky presentation noted that 85% of the benefits from Green Button are expected to come from the commercial and institutional sector. • We believe that the Green Button Initiative would be much more valuable in helping this class of customers use their data to manage their energy use if electric utilities are required to provide the interval meter data used for billing to customers, as part of the Green Button initiative.
<p>Unidentified Respondent</p>	<ul style="list-style-type: none"> • Are market prices/costs also stored as Green Button data? • How have we used Connect My Data? • How does changing a website on the customer side affect Connect My Data? Wouldn’t the data ultimately be collected by the local distribution company? • How will Green Button be paid for?

