Marke, Geoff

From: Jeremy J. Roberts <jroberts@greenbuttonalliance.org>
Sent: Tuesday, July 31, 2018 4:09 PM
To: Marke, Geoff
Subject: Re: Green Button inquiry

Hello again, Geoff:

Thanks for your patience with the delay. We're in the process of preparing for our launch of the CMD testing program and it's been an all-hands-on-deck process to get it ready to go. Look for an announcement soon.

To your bullet points:

- **This history of the Green Button**

  Although efforts to secure the stability of the electrical grid and enhance the transparency of energy usage began long before the White House got involved, in September 2011, U.S. Chief Technology Officer, Aneesh Chopra, set-forth a challenge to utilities across the country to develop "Green Button" so that consumers would be able to make better-informed decisions about their energy consumption. By standardizing on the data format, the industry—through third-party companies—could create innovative applications that might transform the way people use energy. This call-to-action was followed by the Ontario Ministry of Energy in 2012; making the Green Button ecosystem an international goal. To create the Green Button ecosystem, NIST, the U.S. DOE, and the Smart Grid Interoperability Panel (a group of industry experts spanning from trade associations, to vendors, to real estate owners) worked to create the foundational pieces of the ecosystem and it was made a part of the smart grid users group of the Utility Communications Architecture International Users Group (UCAIug) and then standardized through the North American Energy Standards Board (NAESB).

  To promote the efforts publically, move the ecosystem out of the government arms, and to have a group dedicated to developing a testing program for compliance, the non-profit Green Button Alliance was formed in 2015.

  Today, the Green Button Alliance is building on the foundation of technical activities to support the development, testing, and deployment of the Green Button standard and to facilitate its acceleration and widespread adoption across the natural gas and water markets in-addition-to the electricity markets using the same Green Button data format.

- **How the application is utilized for residential and commercial/industrial**

  The Green Button platform was designed to be able to handle simple, unidirectional, single-resource, single-meter residential needs all the way up to complex, bidirectional, multi-resource, multi-meter, multi-property commercial/industrial needs. A file or data stream can handle electricity, natural gas, water, and is flexible-enough to handle other resources as needed. Additional information, like timestamped weather information, can also be included in the files/streams.

  Through the use of granular, historic usage data, solar deployment and financing firms can use Green Button usage data to help a potential customer understand how-many solar panels, panel orientation

needs, and how much battery storage would be needed to meet the customer's goals of net-zero energy, peak shaving in time-of-use rate areas, pool cleaning, cheaply charging electric vehicles, or other personalized customer goals.

Although the above can be for residential, commercial, or industrial, it's finding most of its value in the residential space today. The commercial/industrial space will grow more as large, multi-location firms are enabled in the various geographies with the ability to obtain and compare all of their energy and water usage across their real estate portfolio to find where improvements can be made and what rate plans work best with their resource usage patterns.

- **Level of security for ratepayers and standardization for third party vendors that the button provides**

The GBA has partnered with the U.S. DOE's DataGuard Energy Data Privacy Program to encourage utilities and third-party companies to adopt their voluntary code of conduct. Utilities in many jurisdictions would already meet all the DataGuard requirements by following their states' regulations and getting their implementations certified to the Green Button standard.

While Green Button does not dictate security methods at the end points, and leaves that to state and federal regulators, the platform design does dictate security in how those data are transported; including TLS 1.2 -level encryption between utilities and their authorized third-party application providers. The design separates personally identifiable information (PII) from usage data, keeping each in its own file or stream and associating the data only by unique identifiers within each file/stream. Therefore, receiving a file of data via email would not reveal meter numbers, names, addresses, or account information. Having a file of personal information would not reveal any usage patterns or values.

Further, customers always remain firmly in-control of their data: Through *Download My Data*, the customer downloads and handles the files; and gives them only to firms and applications desired by the customer. Using *Connect My Data*, that sharing only takes-place as the customer dictates the type of resource (electricity, natural gas, and/or water) to be shared, the duration (for only a year or two, for example), and if offered, the amount of historical data and the resolution of the measured intervals -- fully retaining the ability to revoke their authorized sharing at any moment.

- **Current utilities/states that have deployed it and the different varieties of usage**

This is the tough one. There are many munis and coops that provide their communities with Green Button platforms and aren't even aware that they offer it because it's simply a part of the software platforms they utilize. Therefore, it's difficult to track those deployments. Larger utilities, investor-owned utilities, and others, can also be difficult to pinpoint because the offering isn't advertised outside their login pages, so only their own customers know of their Green Button platforms.

California and Illinois have mandated Green Button for their investor-owned utilities and New York and Texas have stated their plans for similar rollouts. One GBA member company has created a map of know deployments and the number of customers in those deployments:
http://bigdataenergyservices.com/rdPage.aspx?rdReport=OurMarkets

Some consumer-advocacy groups, like Mission:data, have done similar research:
http://www.missiondata.org/activities/

I hope this helps. Please let me know if there's more you need; I'd be happy to provide whatever information I can.

One last thing: if you are interested in receiving our monthly newsletters, you may find them to be quite valuable in keeping you up-to-speed on everything Green Button:

You can sign-up at this ConstantContact link and unscribribe anytime you want:
http://visitor.constantcontact.com/d.jsp?m=1122055619081&p=oi

Past newsletter can be viewed here, if you are interested in seeing what we share:
https://www.greenbuttonalliance.org/newsletters-archive

Best regards, Geoff,
- Jeremy

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On Mon, Jul 23, 2018 at 8:24 PM, Jeremy J. Roberts <jroberts@greenbuttonalliance.org> wrote:

> Hello, Geoff:
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> Please forgive me for the delay. I haven't forgotten about you; we've been a bit swamped with some of our staff our on vacation last week.
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> I hope to get you everything you need soon.
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> Many thanks,
> - Jeremy
>
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