

Data Accessibility Stakeholder Forum

Michigan Public Service Commission

March 5, 2019



Meeting Agenda

- Welcome
 - Pat Poli, Director, MPSC Energy Operations

- Overview of Data Privacy Tariffs, Billing Rule Amendments, U-18485
 - Patrick Hudson, Manager, MPSC Smart Grid Section

- Michigan Utility Data Privacy/Accessibility Overview
 - Phil Dennis, DTE Energy – Matt McRitchie & Shawn Hurd, Consumers Energy

- Green Button Overview
 - Jeremy Roberts, Executive Director, Green Button Alliance

- Best Practices: Customer Data Accessibility in Illinois
 - Kristin Munsch, Deputy Director, Citizens Utility Board of Illinois

- Data Portability: Timely Manner and Readily Accessible Format
 - Mission: data presentation from Patrick Hudson

- Next Steps Discussion and Wrap Up

Today's Focus

- ***What we will not be covering***

- Starting data privacy and data accessibility provisions from scratch
- Revamping the data privacy aspects of U-17102 & U-18485
- Mandates for “readily accessible format” of usage data

- ***What we will be covering***

- Clarification of the revised billing rules language
- Customer benefits of having easy access to usage data
- Ways we can collectively interpret the billing rules and subsequent tariffs that benefit everyone

Background

Case U-17102

- 2012 - Data privacy tariffs required from DTE and Consumers Energy
- Vermont Law School assisted the Commission and stakeholders with education and a model data privacy format
- DTE and Consumers Energy filed their data privacy tariffs, including provisions for customer usage data accessibility
- This marked the beginning of utility data privacy (and accessibility) policies available for Michigan utility customers



Background (cont.)

Billing Rule Modifications: Data Privacy Tariff Requirements for All Regulated Utilities

- 2017 - Consumer Standards and Billing Practices for Electric and Natural Gas Service were modified
- Required all regulated utilities to file new or revised data privacy tariffs
- R 460.153(2)(g): ***“Provide clear instructions regarding the method by which a customer and a third party, authorized by the customer, may obtain customer usage data in a timely manner and a readily accessible format from the utility.”***
- https://www.michigan.gov/mpsc/0,4639,7-159-16370_52012---,00.html



The screenshot shows the Michigan Public Service Commission (MPSC) website. The header includes the MPSC logo, the text 'Public Service Commission' and 'Department of Licensing and Regulatory Affairs', and navigation links for 'MPSC Home' and 'Contact Us'. A search bar is located on the right. The main content area is titled 'Laws, Administrative Rules, Guidelines & Decisions' and is divided into two sections: 'Laws' and 'General'. The 'Laws' section lists several items: 'Do Not Call List PA 612 of 2002', 'Gas Storage Laws', 'Michigan Constitution - 1963', 'Oil, Gas and Brine 483 MCL', 'Public Utilities Laws 460 MCL', and 'Telephone, Telegraph and Radio 484 MCL'. The 'General' section lists: 'Code of Conduct R 460.10101 - R 460.10113' and 'Consumer Standards and Billing Practices for Electric and Natural Gas Service R 460.101 - 1', which is further broken down into 'Consumer Standards and Billing Practices for Electrical and Gas Residential Service R 460.101 - 460.169 (Prior to December 11, 2017)' and 'Billing Practices Applicable to Non-Residential Electric and Gas Customers R 460.160 (Prior to December 11, 2017)'. A left sidebar contains a vertical menu with various navigation options.

Background (cont.)

Docket U-18485

- Order released on 12/20/17
- 2018 – The Commission directed regulated utilities to file either new or revised data privacy tariffs, including provisions for customer data accessibility
- Utilities filed tariffs
- Order released on 10/24/18 accepting most filed tariffs and directing staff to conduct a stakeholder forum to further discuss data accessibility issues and provide a report to Commissioners by 4/15/19
- Order released on 1/18/19 accepting the final utility filed tariff



Michigan Utilities Filed Tariffs

- DTE (revised from U-17102 filing)
- Consumers Energy (revised from U-17102 filing)
- Alpena Power Company
- Indiana Michigan Power Company
- Michigan Gas Utilities Corp
- Northern States Power
- Presque Isle Electric & Gas

Michigan Utilities Filed Tariffs (cont.)

- SEMCO Energy Gas Company
- Upper Michigan Energy Resources Corp
- Upper Peninsula Power Company (UPPCO)
- Wisconsin Electric Power Company

Goals of the Stakeholder Forum

Regarding customer data accessibility, the Commission seeks to create a general understanding with utilities, customers and other stakeholders of the terms referenced in R 460.153 (2)(g):

1. “Clear instructions” (when customers read the utility tariff or inquire with the utility’s customer service representatives, is it clear about how to obtain their usage data?)
2. “Timely manner” (what is considered timely response to customer usage data requests?)
3. “Readily accessible format” (what format works best for customers and their authorized third parties?)



Goals of the Stakeholder Forum

Also seeking clarification on the role of electronic signatures with customers who authorize third parties to have access to their customer data

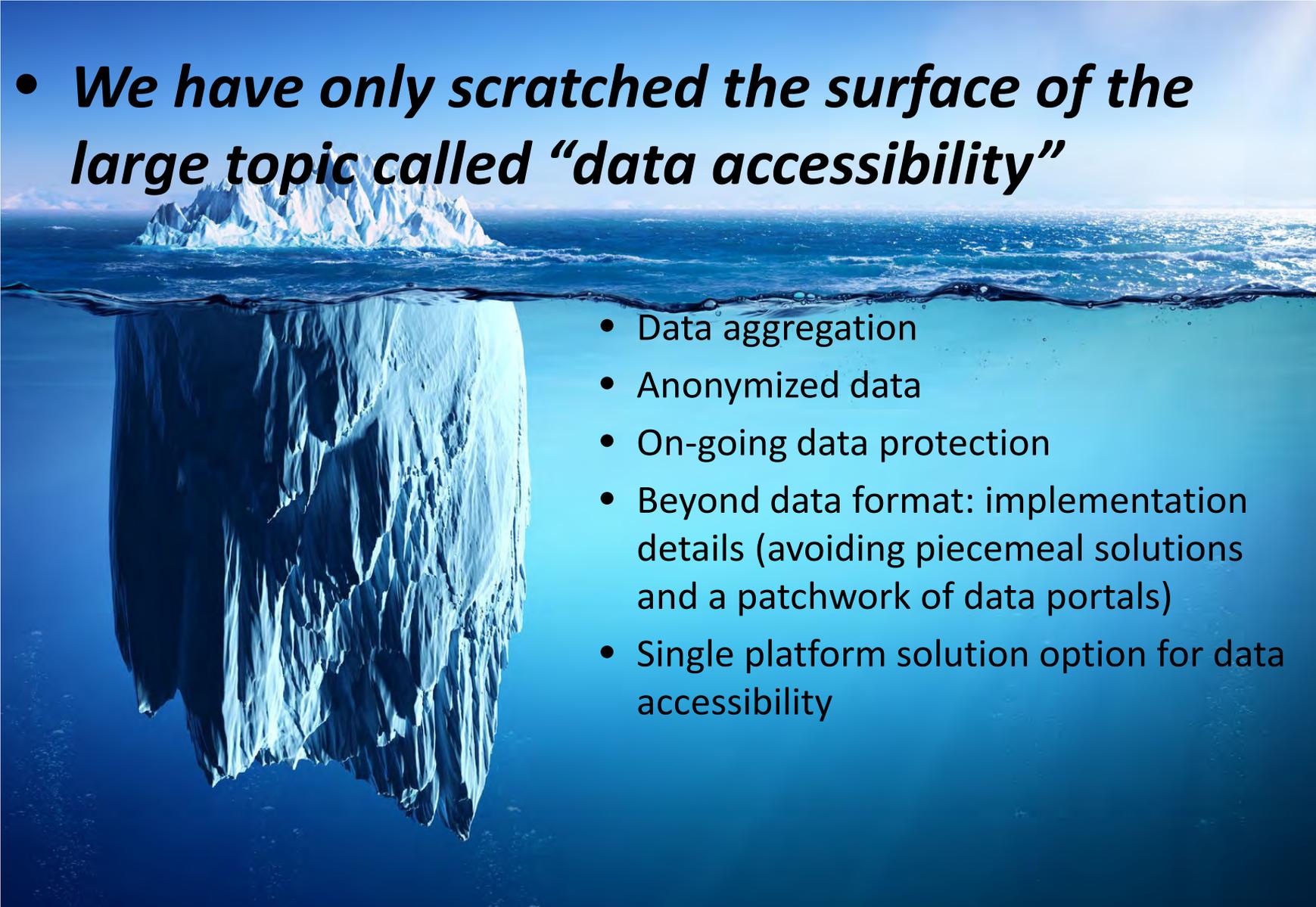
Goals of the Stakeholder Forum

Provide information including:

1. Overview of the data privacy/accessibility tariffs from the State's two largest investor owned utilities;
2. Information about a data accessibility standard tool, "Green Button" (both "Connect" and "Download my data" formats);
3. Data accessibility information from our neighboring Midwest state Illinois;
4. A national perspective of the Michigan billing rule language - "clear instructions" "timely manner" and "readily accessible format"; and
5. Identify the best path going forward for providing customers and their authorized third parties with energy usage data per the utilities' tariffs that have been filed.

With all that said.....

- *We have only scratched the surface of the large topic called “data accessibility”*

- 
- The image features a large iceberg floating in the ocean. The tip of the iceberg, which is visible above the water surface, represents the small portion of the data accessibility topic that has been explored. The much larger, submerged portion of the iceberg represents the vast, unexplored area of the topic. The water is a deep blue, and the sky is a lighter blue with some clouds.
- Data aggregation
 - Anonymized data
 - On-going data protection
 - Beyond data format: implementation details (avoiding piecemeal solutions and a patchwork of data portals)
 - Single platform solution option for data accessibility

Data Accessibility – Let's Get Started!

Michigan Public Service Commission

March 5, 2019





DTE Energy[®]

Data Accessibility Provisions in the Data Privacy Tariff

Phil Dennis

Manager, Regulatory Economics

March 5, 2019



The MPSC issued an order in December 2017 that required utilities to file data privacy tariffs in compliance with new Billing Practice Rules (BPR)



- Since November 2013, DTE Electric and DTE Gas have had in place tariff language associated with customer data privacy
- For the most part, DTE Electric and Gas privacy tariffs already complied with the BPR's
- However, Rule 53 (R 460.153) of the BPR did require DTE to make a few tariff modifications:
 - (1) ...Provide to each customer, upon request, a clear and concise statement of the customer's actual energy usage.....for each billing period during the last 12 months. A utility shall notify its customers at least once each year that a customer may request usage data
 - (g) Provide clear instructions regarding the method by which a customer and a third party, authorized by the customer, may obtain customer usage data in a timely manner and a readily accessible format from the utility
- DTE Electric and DTE Gas updated privacy tariffs were approved by the Commission on January 18, 2019

Side by side comparison shows the specific tariff language that was added or modified



BRP Requirement	“Old” Tariff	Revised Tariff
Provide to each customer, upon request, a clear and concise statement of the customer’s actual energy usage.....for each billing period during the last 12 months.	The customer has a right to know what Customer Account Information the Company maintains about the Customer.	The Company will provide to customers upon request, a clear and concise statement of the customer’s actual energy usage.....for each billing period during the last 12 months.
A utility shall notify its customers at least once each year that a customer may request usage data	N/A	The Company will notify customers at least once each year that customers may request energy usage
Provide clear instructions regarding the method by which a customer and a third party, authorized by the customer, may obtain customer usage data	Customers have the right to share their own Customer Account Information with third parties of their choice to obtain services or products provided by those third parties	The Company’s website (customer data privacy link at bottom of homepage) will provide clear instructions for customers on how to access 12 months of usage data and how to share usage data with third parties
Customer to obtain customer usage data in a timely manner	Company will make effort to respond in 30 business days of being contacted by the customer	Company will make effort to respond in 10 business days of being contacted by the customer
Customer usage data provided in a readily accessible format	N/A	Customer usage data will be delivered in comma delimited (csv), or xml format

While a few snap shots of DTE's web site provides customers information on data privacy...improvements are coming



A screenshot of the DTE Energy website homepage. The browser address bar shows "https://newlook.dteenergy.com/wps/wcm/connect/dte-web/home". The navigation menu includes "Billing & Payment", "Service & Price", "Outage & Safety", "Save Energy", "DTE Impact & News", and "About Us". The main content area features four large tiles: "Payment Center" with a "Pay Now >" link, "Start, Stop, Transfer Service" with a "Start Now >" link, "Outage Center" with a "Report Now >" link, and "Find a Career" with a "Start Searching >" link. Below these is a "Savings and Assistance" section with four smaller tiles: "Energy Savings" (Tax credits help keep winter bills down, "Your Savings >"), "Renewables & 24/7 Energy Sources" (Don't compete with one another...they complete each other, "Find Out How >"), "Want to Lower Your Bill?" (We're here to help. Take our free Home Energy Survey, "Start Survey >"), and "Experiencing an Issue?" (Try these options for a solution, "Start Here >"). The footer contains a list of links: "Newsroom", "Police/Fire", "Investors", "Builders", "Landlord", "Large Commercial and Industrial", "Supply Chain", "Municipalities", "Careers", "Site Map", "Terms & Conditions", "Online Privacy", "Customer Data Privacy" (circled in red), and "Contact Us". A "Back to top" button is in the bottom right corner. The copyright notice at the bottom reads "© 2019 DTE Energy. All rights reserved."

Data privacy tariff available for view or download, FAQ's provide high level answers to data privacy questions



The screenshot shows a web browser window displaying the DTE Energy website. The page title is "Customer Data Privacy Policy". The browser's address bar shows the URL: https://newlook.dteenergy.com/wps/wcm/connect/dte-web/quicklinks/footer/customer_data_privacy_policy. The website header includes the DTE Energy logo, navigation tabs for "Residential" and "Business", and links for "Sign In", "Help Center", and "Report a Problem". A secondary navigation bar contains links for "Billing & Payment", "Service & Price", "Outage & Safety", "Save Energy", "DTE Impact & News", and "About Us".

The main content area features a section titled "Customer Data Privacy Policy" with the following text:

Last Modified: February 19, 2019

Note: The responses to the following Frequently Asked Questions (FAQ's) are meant to provide a summary of DTE's Customer Data Privacy Policy in a quick and easy to understand format. See the links below for the specific rules and requirements of DTE's actual Customer Data Privacy Policy.

Below the note are two links, each with a document icon and a yellow arrow pointing to it:

- [DTE Electric Customer Data Privacy Tariff](#)
- [DTE Gas Customer Data Privacy Tariff](#)

Underneath the links is a list of five frequently asked questions, each with a dropdown arrow icon:

- What is the Customer Data Privacy Policy?
- What types of information does DTE collect?
- Can DTE disclose my information without my consent?
- What is DTE's policy regarding selling of my information?
- Do I have a right to know what information DTE maintains about me?

More FAQ's



A screenshot of a web browser displaying the DTE Energy website. The browser's address bar shows the URL: https://newlook.dteenergy.com/wps/wcm/connect/dte-web/quicklinks/footer/custom... The page has a blue header with the DTE Energy logo and navigation tabs for Billing & Payment, Service & Price, Outage & Safety, Save Energy, DTE Impact & News, and About Us. The main content area is a list of eight FAQ items, each with a dropdown arrow icon on the left. The footer is a blue bar with the DTE Energy logo and text: Careers | Supply Chain | Newsroom | Online Privacy | Police/Fire | Investors | Builders | Landlord | Large Commercial and Industrial | Municipalities | Site Map | Terms & Conditions | Customer Data Privacy | Contact Us. At the bottom center of the footer, it says © 2015 DTE Energy. All rights reserved. A "Back to top" button is visible in the bottom right corner of the page content area.

Each FAQ provides information regarding our privacy rules



A screenshot of a web browser displaying the DTE Energy website's FAQ page for Customer Data Privacy Policy. The browser's address bar shows the URL: https://newlook.dteenergy.com/wps/wcm/connect/dte-web/quicklinks/footer/custom... The page has a blue header with the DTE Energy logo and navigation tabs for Billing & Payment, Service & Price, Outage & Safety, Save Energy, DTE Impact & News, and About Us. The main content area includes a brief introduction to the privacy policy, two links for Electric and Gas Customer Data Privacy Tariffs, and a list of seven FAQ items. The fifth item, "Do I have a right to know what information DTE maintains about me?", is highlighted in a dark blue box. Below this item, the text reads: "Yes, except for proprietary data or that which is used for internal DTE business purposes only, you have a right to know what information DTE maintains about you. DTE will make a reasonable effort to respond to your request within 10 business days following receipt of your request." The other FAQ items are: "What is the Customer Data Privacy Policy?", "What types of information does DTE collect?", "Can DTE disclose my information without my consent?", "What is DTE's policy regarding selling of my information?", "Can I give my information to a third party?", "What happens if changes are made to the Privacy Policy?", and "Where can I obtain a copy of DTE's current Privacy Policy?". A "Back to top" button is visible in the bottom right corner of the page content.

Consent form will make it easier for customer data to be shared with a trusted third party



A screenshot of a web browser displaying the DTE Energy website. The browser's address bar shows the URL "https://newlook.dteenergy.com/wps/wcm/connect/dte-web/quicklinks/footer/custome...". The website's navigation menu includes "Billing & Payment", "Service & Price", "Outage & Safety", "Save Energy", "DTE Impact & News", and "About Us". A list of questions is displayed, with the third question, "Can I give my information to a third party?", highlighted in a dark blue box. Below this question, a paragraph of text explains the policy: "Yes, you may request that information be released to a third party of your choice. Once DTE obtains consent from you, DTE is not responsible for loss, theft, alteration, or misuse of the information by third parties or you after the information has been transferred to you or your designated third party." Other questions in the list include "What is DTE's policy regarding selling of my information?", "Do I have a right to know what information DTE maintains about me?", "What happens if changes are made to the Privacy Policy?", "Where can I obtain a copy of DTE's current Privacy Policy?", and "How can I access my electric and/or natural gas energy usage data?". The footer of the website features the DTE Energy logo and a list of links: "Careers", "Supply Chain", "Newsroom", "Online Privacy", "Police/Fire", "Investors", "Builders", "Landlord", "Large Commercial and Industrial", "Municipalities", "Site Map", "Terms & Conditions", "Customer Data Privacy", and "Contact Us". A copyright notice "© 2019 DTE Energy. All rights reserved." is visible at the bottom. A yellow callout box on the right side of the screenshot contains the text: "Note: Online consent form to be available in 2019".

Note: Online consent form to be available in 2019

This link will provide customer more information on how to obtain their energy usage

A screenshot of a web browser displaying the DTE Energy website. The browser's address bar shows the URL: https://newlook.dteenergy.com/wps/wcm/connect/dte-web/quicklinks/footer/custom... The page features a navigation menu with categories: Billing & Payment, Service & Price, Outage & Safety, Save Energy, DTE Impact & News, and About Us. Below the menu is a list of questions, each with a dropdown arrow icon. The question "How can I access my electric and/or natural gas energy usage data?" is highlighted in a dark blue background. Below this question, the text "Call our Customer Service Department at 800.477.4747 or visit [Your Energy Usage page.](#)" is displayed. The link "Your Energy Usage page." is circled in red, and a yellow arrow points to it from the right. The footer of the page includes the DTE Energy logo and a list of links: Careers, Supply Chain, Newsroom, Online Privacy, Police/Fire, Investors, Builders, Landlord, Large Commercial and Industrial, Municipalities, Site Map, Terms & Conditions, Customer Data Privacy, and Contact Us. A copyright notice "© 2015 DTE Energy. All rights reserved." is also present. A "Back to top" button is located in the bottom right corner.

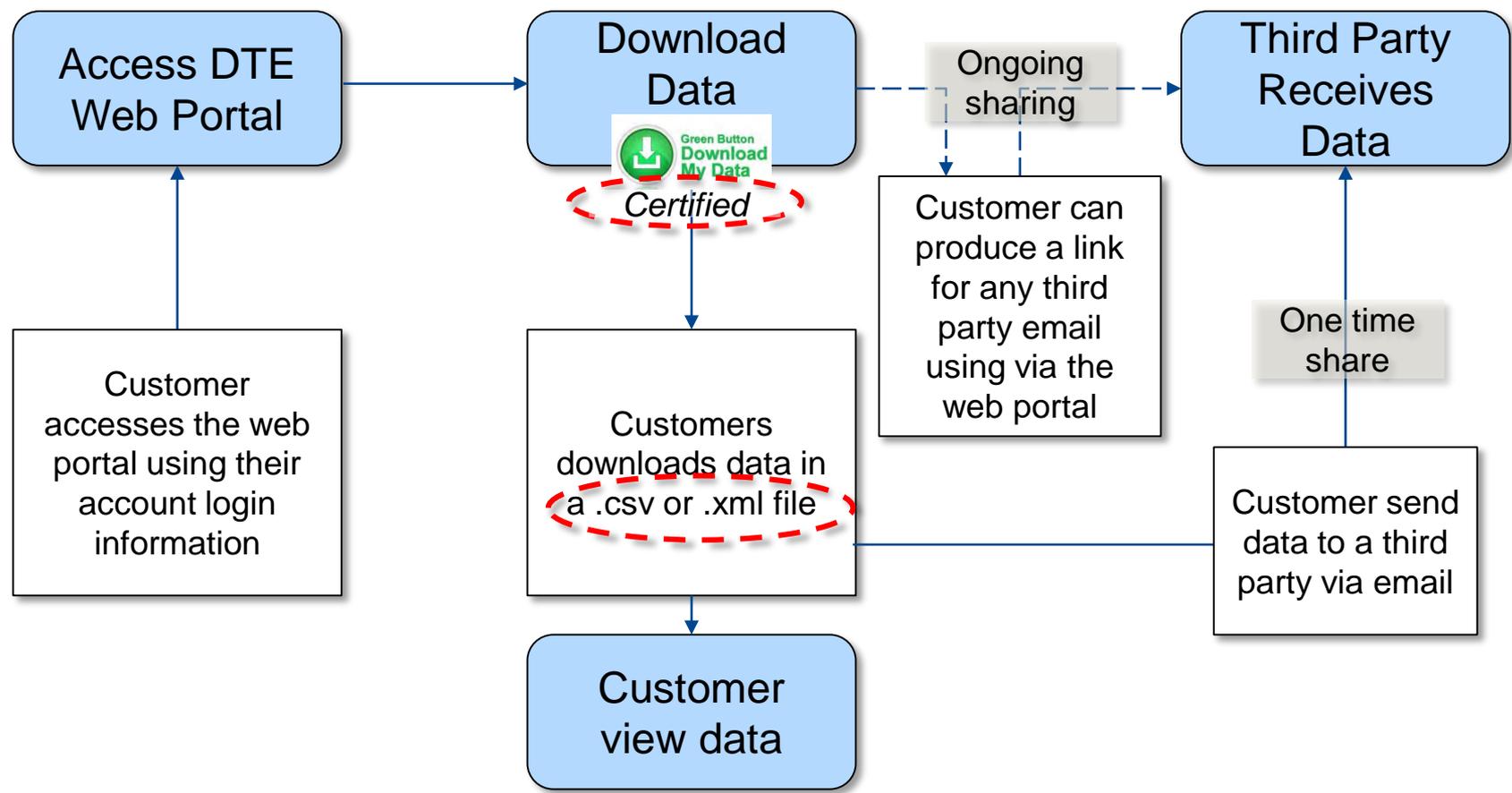
Beginning June 1, 2019, customers will have option to download usage data and set up ongoing sharing of data with others they trust



A screenshot of the DTE Energy website. The browser address bar shows the URL: https://newlook.dteenergy.com/wps/wcm/connect/dte-web/home/billing-and-paymer. The website header is blue with the DTE Energy logo on the left and navigation links for Residential and Business on the right. Below the header, there are several menu categories: Billing & Payment, Service & Price, Outage & Safety, Save Energy, DTE Impact & News, and About Us. The 'Billing & Payment' menu is expanded, showing options like AutoPay, BudgetWise Billing, Flexible Due Date, Reduced Billing Frequency, Understanding Your Bill, Your Energy Usage (highlighted in blue), and Bill Inserts. The main content area features a banner with images of smart meters and a line graph. Below the banner, there is text explaining that customers with advanced metering infrastructure (AMI) or automatic meter reading (AMR) can access their energy usage data. The text is organized into sections for Electric Customers, Natural Gas Customers, and Electric & Natural Gas Customers, each with a brief description of how to access their data. At the bottom of the page, there are social media icons for Twitter, Facebook, LinkedIn, and YouTube.

Note: Customer ability to download usage data available in June 2019

DTE will have a Green Button Download my Data solution as part of its self-service portal, which will provide data in either .csv or .xml format, and a formal certification



Key Takeaways and Future Enhancements

- Clear instructions for customer access to usage data:
 - Current State: Customers call 1-800 number
 - Future State: Green Button Download my data available June, 2019
- Customers sharing usage data with those they trust:
 - Current State: Customers call 1-800 number
 - Future State: Customer option to create link for on-going sharing, or provide to third party for one-time share
- Third party consent form:
 - Current State: Form not available online
 - Future State: Consent form available online
- A utility shall notify its customers at least once each year that a customer may request usage data:
 - Current State: Not provided
 - Future State: Will be provided along with annual description of available rates (R 460.149) expected in 3rd quarter 2019

Data Accessibility Provisions in the Data Privacy Tariff

March 2019

Consumers Energy

Count on Us®

Key Objectives - Tariffs

- Objective 1: Provide clear and precise instructions for customers to access their data
 - The tariff explicitly discloses that the customer can either obtain their data via our online portal, or contact us directly via telephone.

- Objective 2: Obtain authorization via Written Consent for secondary purposes
 - The tariff states written consent is a **requirement** for disclosing any information to a Third-party. The Company's website contains instructions for both Residential and Non-Residential customers on how to release their information to Third-parties at the following hyperlink:
<https://www.consumersenergy.com/privacy>.
The form indicates what level of access a Third-party can have on the account.

- Objective 3: Provide clear and precise instructions for customers to relinquish their information to third-parties
 - The tariff discloses the process that a customer can use to authorize Third-parties to access data and the response time for information to reach a third party was shortened from 15 business days to 10 business days.

- Protection of Customer Data is our paramount priority
 - Consumers Energy Privacy Policy updated in Oct. 2018
 - URL → <https://www.consumersenergy.com/privacy>

- Customer Assistance
 - Customers always have the option of calling our contact centers (residential & small business → 800-477-5050; business center → 800-805-0490) with questions or for assistance
 - Access the customer portal at www.consumersenergy.com and logging in to your account (or creating a new one)
 - Self service from website: URL → <https://www.consumersenergy.com/privacy>

- Mechanics
 - Timely
 - Data Format
 - Instructions included in the Consumers Energy Privacy Policy
URL → <https://www.consumersenergy.com/privacy>

Green Button Timeline

	2018						2019												
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Tariff Approved																			
Current IWP																			
New IWP																			
Green Button Download																			
Green Button Connect																			

Presently, customers access their usage data via Green Button Download



In Sep 2019, new Interval Web Portal will add Green Button Connect functionality for customers

- Green Button Connect is in development, working with our vendor and using Green Button standard as guidance



Green Button Alliance

Green Button®

05 March 2019

Michigan Public Service Commission
Lansing, Michigan



Standards compared to others

Standards:

- Allow a market to grow without technical barriers or discrimination.
- Allow anyone to suggest enhancements for the future.
- Prevent lock-in from lack of vendor options.
- Provide transparency to the innerworkings.
- Implementing the same standard allows for more app-provider competition.

Others:

- Immediate solution to a problem but may require 'unequitable' agreements.
- Enhancements are controlled by particular vendor(s).
- Changing vendors later may entail great costs and human resources.
- Code escrows may be needed to ensure longevity.
- Pressure on platform pricing may need to be jurisdiction mandated.



Green Button® standard

NAESB ESPI REQ.21 (aka "Green Button")

*North American Energy Standards Board,
Energy Services Provider Interface,
Retail Electric Quadrant, book 21*

- Green Button provides two methods for data transfer...
 - **Connect My Data®**
 - A way for a customer to authorize a Third Party to obtain Utility data for them.
 - **Download My Data®**
 - A way for a customer to login and download their data from a Utility.



What are GB CMD and GB DMD?

Green Button *Connect My Data*® ('GB CMD' or 'GBC') provides a set of standards for allowing the **secure, interoperable communications** of energy-usage (including billing energy data) and account information **between business entities**—*utilities* and *third parties*—quickly, repetitively, and in a standardized way.

Green Button *Download My Data*® ('GB DMD' or 'GB') provides a set of standards for allowing the **interoperable communications** of energy-usage and -billing information **through the use of files** obtained and shared *by a customer*.



What are GB CMD and GB DMD?

1. **Models (CMD & DMD)**: data formats/schemas for electricity, natural gas, and water data
 - a. “Energy Usage Information” (EUI) or “Customer Usage Data” (CUD)
 - kW, kWh, ...
 - b. “Retail Customer Information” or “Personally Identifiable Information” (PII)
 - account number, addresses, meter numbers, ...
2. **Architecture (CMD only)**: service-oriented, including message transfer
3. **Assurance (CMD & some DMD)**: authentication, privacy, & security



What are GB CMD and GB DMD?

1. **Models (CMD & DMD)**: data formats/schemas for electricity, natural gas, & water data
2. **Architecture (CMD only)**: service-oriented, including message transfer
 - a. *Registration* of Third-Parties with “Data Custodians” (*i.e.*, Utilities).
 - b. *Creation, modification, and revocation* of authorization for access.
 - c. *Access* by Third Parties to data they’ve been authorized to access.
3. **Assurance (CMD & some DMD)**: authentication, privacy, & security



What are GB CMD and GB DMD?

1. **Models (CMD & DMD)**: data formats/schemas for electricity, natural gas, & water data
2. **Architecture (CMD only)**: service-oriented, including message transfer
3. **Assurance (CMD & some DMD)**: authentication, privacy, & security
 - a. Mechanisms to *protect customer privacy* (CMD & DMD).
 - b. Mechanisms to *secure information in transit* (mostly CMD).
 - c. Mechanisms to *keep the customer in control...*
 - of their **authorization** (CMD) or their **account** (DMD).



What do CMD and DMD do for us?

CMD allows a third-party company to analyze continual (daily) data on behalf of a *mutual customer* of the utility and the third-party company **without the customer needing to manually and continually obtain the data.**

With **DMD**, the utility customer must login, download data, and then upload (to a third party) or otherwise handle the data for analysis. It's great for one-off or occasional data acquisition (for sizing a solar array or determining historical usage).



Green Button & existing utility systems

CMD APIs

Utilities simply create systems that *reformat* their current data into Green Button formats and make the data available through the Green Button application programming interfaces (APIs).

Real Time

Data only need be reformatted at the moment they are requested by a Third Party; on-the-fly.

Flexibility

Specifics and technical implementations of data storage are dependent on the back-end utility systems managing customer and metering data at a utility company; not dependent on Green Button itself.



Differences between CMD and others

1. **Data formats**
2. Authorizations
3. Transfer of data
4. Security of Transfers

Standardized data formats reduce the **cost** and **time** to *implement* and *support* solutions for both utilities and Third Parties.

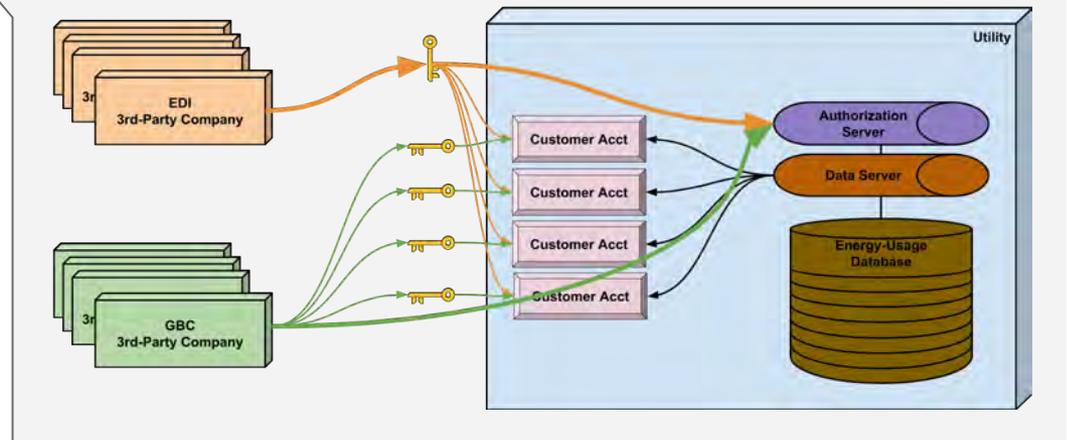
Green Button formats are **based on XML**, their fields and categories are **designed to be universal**, and there is a **testing program** to ensure adherence to the standard.

Customized data formats (specific to one vendor or specific to one state's or jurisdiction's requirements) require Third Parties do additional work to understand/read each format and each implementation in a different jurisdiction.

Differences between CMD and others

1. Data formats
2. **Authorizations**
3. Transfer of data
4. Security of Transfers

Green Button data requests require *proof of authorization* using unique, **OAuth 2.0 “access tokens,”** which convey *no Personally Identifiable Information*. Each utility controls the duration that an OAuth Access Token is viable.

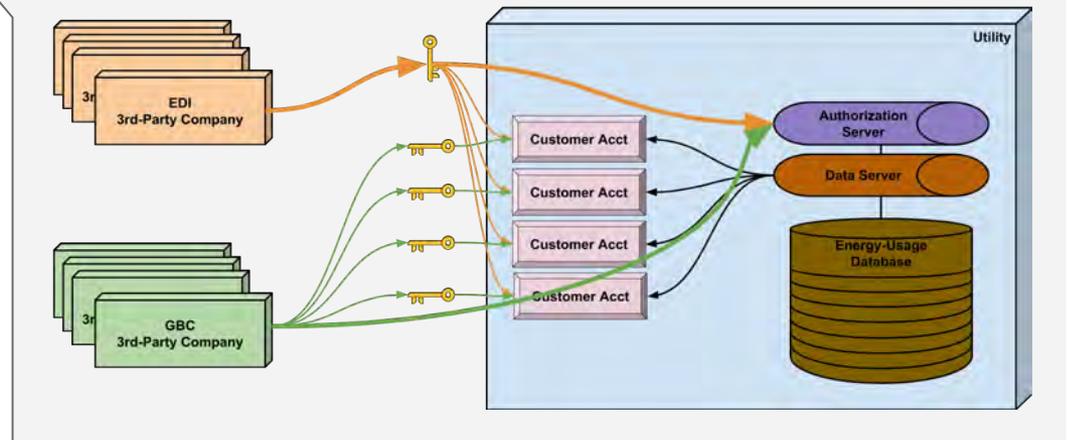


Differences between CMD and others

1. Data formats
- 2. Authorizations**
3. Transfer of data
4. Security of Transfers

EDI, for example, is great for sharing bulk data with vetted companies with a single 'key' because the companies are regulated or they must meet other strong requirements.

Green Button maintains separate 'keys' for each customer authorization—even during bulk transfers—reducing 'breach risk.'





Differences between CMD and others

1. Data formats
2. Authorizations
- 3. Transfer of data**
4. Security of Transfers

Other data-exchange formats allow transmission in multiple ways, including via Value Added Networks (VAN), File Transfer Protocol, AS2, *etc.* **CMD uses only HTTPS, just like browsers, for nationwide and off-the-shelf interoperability.**

GB CMD has *defined methods of transfer*, a *defined verifiable format for the data*, and *defined methods for expansions* (to carry additional information alongside the energy data). Since most other formats have no compliance testing available, implementers are able to make custom, non-interoperable formats and contents. Expansion within GB are standard XML.

Many formats provide CEUD and PII information; however, by placing CEUD & PII into **separate streams**, GB CMD delivers both of them with greater security and privacy. The data are **mapped** by the Third Party through the unique identifiers in the separate streams/files.

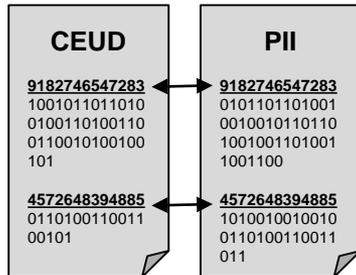
Other formats

XYZ

```
1001011011010
0100110100110
0110010100100
101
0101101101001
0010010110110
1001001101001
1001100

0110100110011
00101
1010010010010
0110100110011
011
```

Green Button





Differences between CMD and others

1. Data formats
2. Authorizations
3. Transfer of data
4. **Security of Transfers**

With GB, the transfer of data is **required to be encrypted** to meet TLS 1.2 and TLS 1.3 cybersecurity standards while data are in transit; with NIST -approved, FIPS 140-2, L1 cybersecurity suites.

<https://gbc.utility.com/>

Utilities must have **strong public key, HTTPS certificates** from Certificate Authorities that have been successfully audited according to the criteria of ETSI or WebTrust (no self-signed SSL certificates) for GB CMD.

Most other formats have no specific rules set by any authority and therefore, not-only is the data *format* custom, the *transfer security* is also custom.



Is it 'safe'?

Data in Transit...

CMD - data are secured in transit by:

- OAuth 2.0 authorization.
- TLS 1.2+ end-to-end encryption.
- HTTPS Web Certificates.

DMD - data are secured in transit by:

- the login-system requirements defined by the utility.

Data at Rest...

CMD - data are secured at rest by:

- the agreements/regulations of the utility and/or MPSC.
- Other models, like the U.S. DOE's *DataGuard Energy Privacy Program*.

DMD - data are secured at rest by:

- Whatever protections the individual customers have chosen to protect any other information on their PCs.



Is it 'safe'?

For Green Button data in transit:

... between the utility and the Third Party, it meets the Rule 53 secondary purposes because “**explicit customer consent** is required for the utility to release such data to any third party” and the data can be shared “**in a timely manner and a readily accessible format from the utility.**”

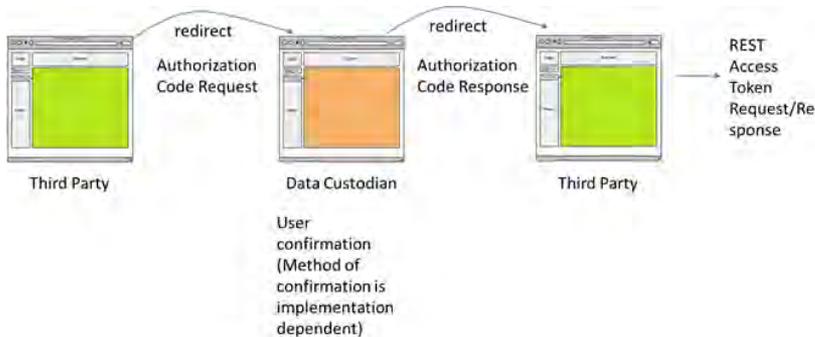
For Green Button data at rest:

... at the Third Party, “**the utility would not be responsible for any unauthorized release of such information by the third party.**”

(Case No. U-18485; emphasis added)

Associated security and cyber risks

1. **OAuth 2.0 insecure methods**
2. Authenticating a customer
3. Data storage & protection
4. Multiple server functions

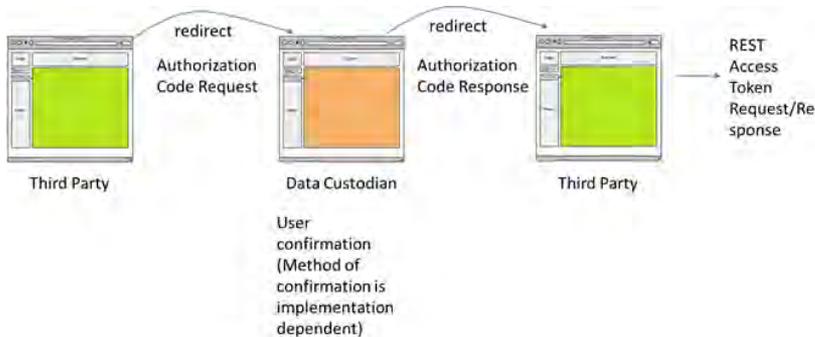


OAuth 2.0 Implicit and Resource Owner methods of creating OAuth tokens are insecure. Hence, **CMD does NOT allow:**

- *Implicit*, which has enabled several Cyber Security breaches.
- *Resource Owner*, which allows the use of User ID and Password for authorization of tokens.

Associated security and cyber risks

1. OAuth 2.0 insecure methods
- 2. Authenticating a customer**
3. Data storage & protection
4. Multiple server functions



*GB CMD does NOT define **how** a utility authenticates a Customer.*

However, the OAuth 2.0 method defined by CMD does **require** the utility to authenticate *both* the content of the **OAuth 2.0 request data elements** as well as their **Retail Customer** prior to the creation of an OAuth 2.0 token.



Associated security and cyber risks

1. OAuth 2.0 insecure methods
2. Authenticating a customer
3. **Data storage & protection**
4. Multiple server functions



www.DataGuardPrivacyProgram.org

CMD does not define how data are stored or protected when not being transferred.

However, the GBA highly recommends the implementation of the U.S. DOE's...

DataGuard

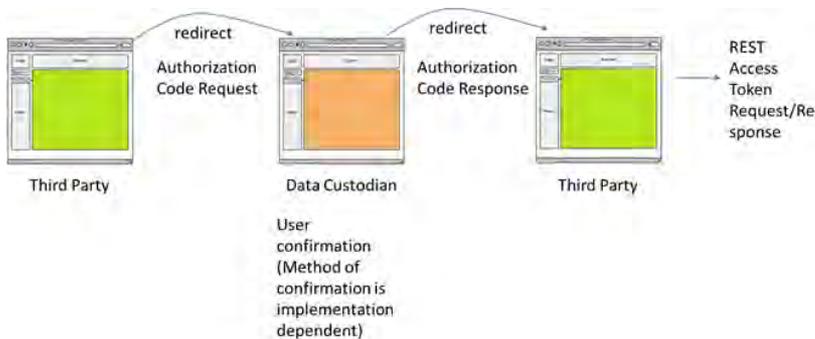
Energy Data Privacy Program

...as a template for addressing protection of data 'at rest' for Third Parties and

Utilities.

Associated security and cyber risks

1. OAuth 2.0 insecure methods
2. Authenticating a customer
3. Data storage & protection
4. **Multiple server functions**



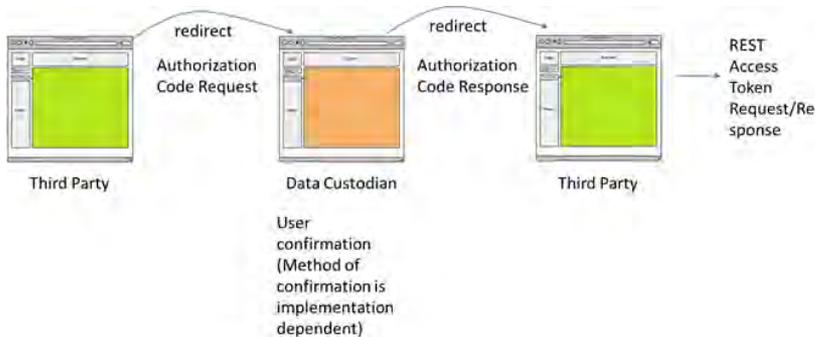
OAuth 2.0 requires utilities to implement both OAuth Authorization Server (AS) and Resource Server (RS) functions.

However, those two functions **can be combined** or **be physically separated** from each other.

...

Associated security and cyber risks

1. OAuth 2.0 insecure methods
2. Authenticating a customer
3. Data storage & protection
- 4. Multiple server functions**



AS: There are several commercially available products that can perform both **Customer authentication** and/or **OAuth 2.0 Authorization**; enabling utilities to perform a “buy vs. build” cost analysis.

RS: The RS represents the utility’s current data storage and does **not** add any additional data-storage requirements.



Who created the initial effort?

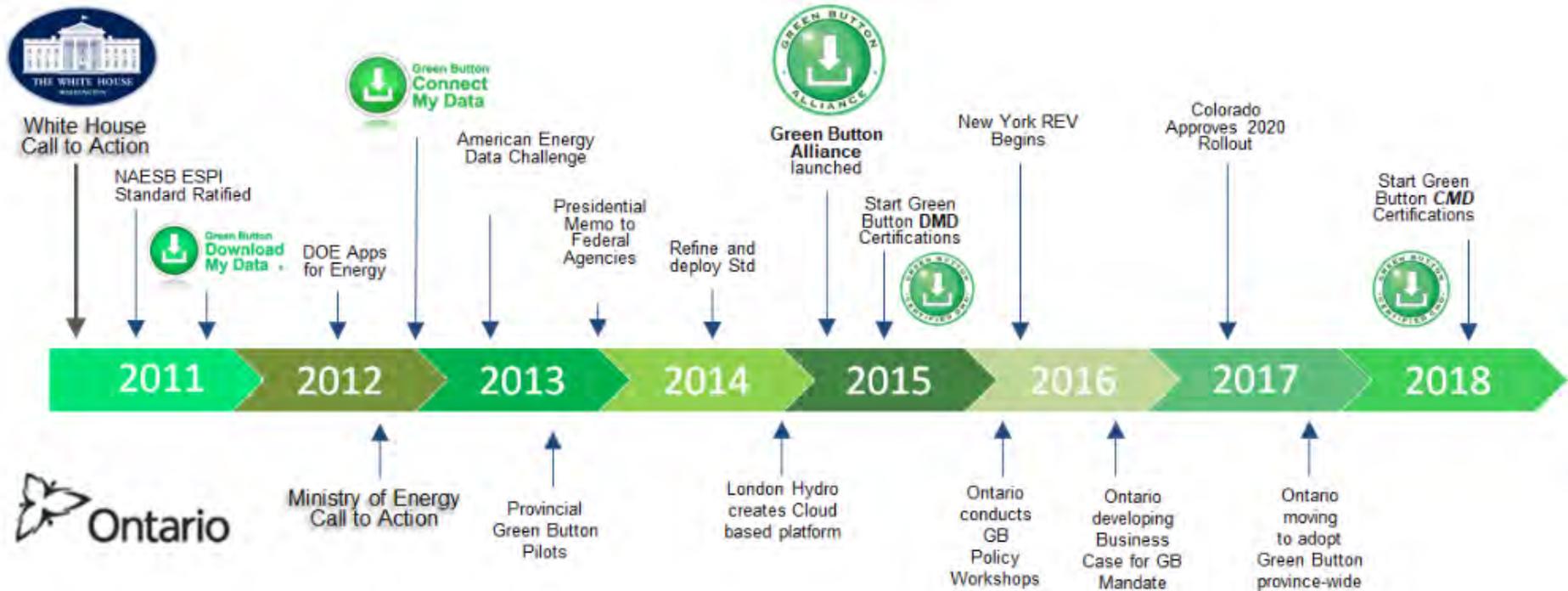
The Green Button effort was created with the support of

- the U.S. Department of Energy (DOE),
- the National Institute of Standards & Technology (NIST),
- the Smart Grid Interoperability Panel (SGIP),
- the Utility Communications Architecture International Users Group (UCAIug), and
- the White House.

The North American Energy Standards Board's *Energy Services Provider Interface* (NAESB ESPI REQ.21 standard) serves as the basis for Green Button technology by providing a model for business practices, use cases, and an XML schema for the standard.

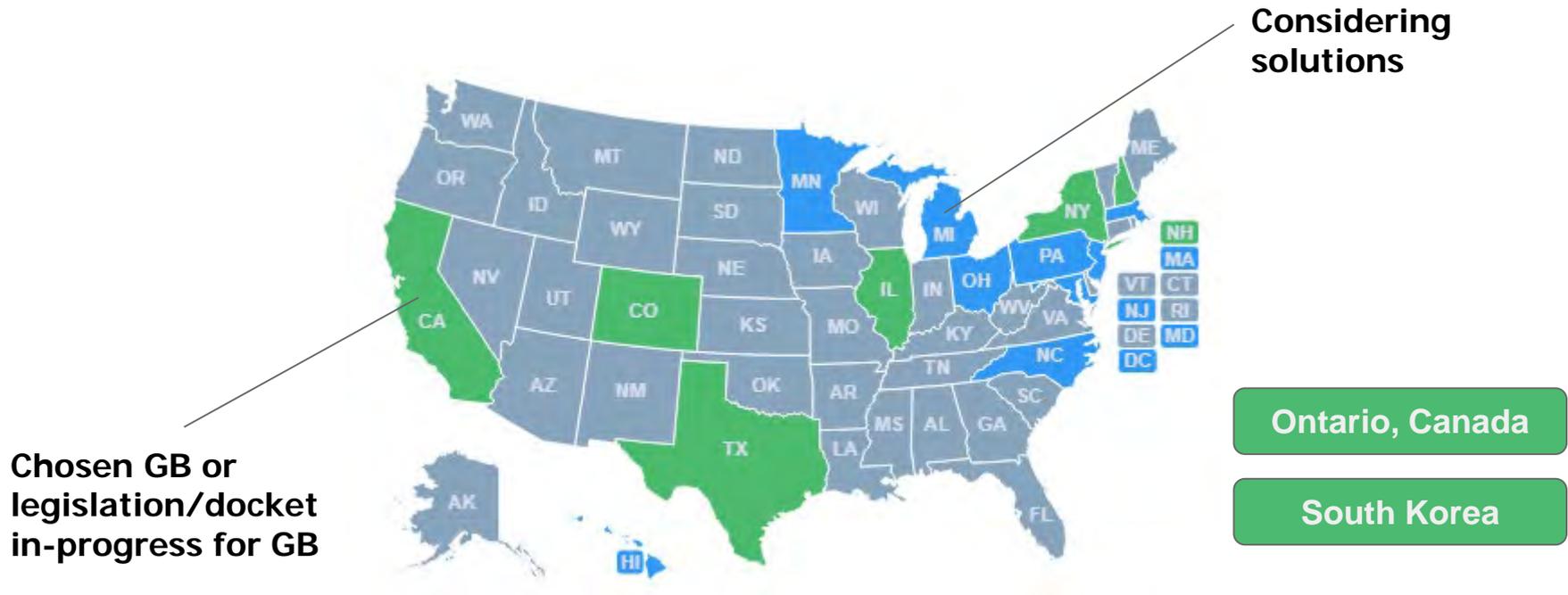


Timeline of the Green Button Initiative





Green Button & the PSCs...





Utilities in the Green Button Alliance





Who's on the 2019 Board of Directors?

1. **London Hydro** (*Chair*)
2. **UtilityAPI** [*elected*] (*Vice Chair*)
3. **Southern California Edison** (*Secretary, interim*)
4. **ENGIE** (*Treasurer*)
5. **Consolidated Edison Company of New York**
6. **Edison Electric Institute** [*elected*]
7. **Exelon Corporation**
8. **North American Energy Standards Board**
9. **OhmConnect** [*elected*]
10. **Ontario Ministry of Energy** [*invited, ex officio*]
11. **Pacific Gas & Electric**
12. **Union Gas Limited**
13. **U.S. Department of Energy** [*ex officio*]
14. **U.S. National Institute of Standards and Technology** [*ex officio*]

MPSC

Data Accessibility
Stakeholder Meeting

Thanks for Having Us



Jeremy J. Roberts

Executive Director & General Manager

Green Button Alliance

<https://www.GreenButtonAlliance.org>

/

info@greenbuttonalliance.org

+1 (215) 918-1026

CUSTOMER USAGE DATA: CHALLENGES AND OPPORTUNITIES

Kristin Munsch, Deputy Director
Jeff Zethmayr, Research Director
Citizens Utility Board



March 2019

The Balancing Act

- The Value Proposition for Customers
 - Basic Customer Needs
 - Explaining the Utility Bill
 - Energy Usage
 - New Opportunities from Utility Investments
 - Dynamic Pricing
 - Research
 - Energy Efficiency and Demand Response
- Where Customers Worry
 - Customer Privacy
 - Retail Choice Experience
 - Costs of Providing Data
 - Utility Information Technology Systems



The Illinois Regulatory Landscape

- **Statutory Constraints**
 - PUA 16-122: Municipal Aggregation Data Sharing
 - CFA 505/2FFF: Natural Gas Customer Data
 - PUA 16-108.5: AMI Investment Mandates (Cost/Benefit Requirement)
 - PUA 16-108.6: Security of Data from AMI
- **Regulatory Discussions**
 - 2009 ComEd AMI and Customer Applications Pilot
 - 2012 EIMA AMI Implementation Plans
- **Data Discussions:**
 - Types of Data
 - Value of Data
 - Protection of Data
 - Informed Customer Consent



Data Access Dockets

- **Anonymous Data Protocol**
 - CUB/EDF Anonymous Data Protocol
 - 30 Minute Household at ZIP+4 Level
 - Identification of PTR/NEM Customers
 - RES Access to Prospective Customer Data
 - ICC Docket No. 13-0506, *Investigation of Applicability of Sections 16-122 and 16-108.6 of the Public Utilities Act* (Jan. 2014)
- **RES Access to Current Customer Data for Non-billing Purposes**
 - Language and Uses
 - ICC Docket No. 14-0701, *Investigation of Standard Terms for Customer Authorization of Access to Interval Usage Data for Non-Billing Purposes* (Apr. 2015)
- **Customer Authorization Language**
 - Specific Language
 - Format
 - Purpose of Disclosure
 - Length of Time
 - ICC Docket No. 15-0073, *Investigation into the Customer Authorization Required for Access by Third Parties Other than RES to AMI Interval Meter Data* (March 2016)



Open Data Access Framework

- ICC Docket No. 14-0507, *CUB/EDF Petition for Proceeding to Adopt the Illinois Open Data Access Framework* (July 2017)
 - Purpose
 - Organizing Principles
 - Definitions
 - Types of Data
 - Data Format
 - Method of Delivery
 - Timeliness

Use of Usage Data

- New Data for Old Questions
 - Energy Usage and Data Set Matching
 - Modeling Rate Designs and Price Impacts
 - Confirming Intuitions (Price Effects)
 - Challenging Intuitions (Economic Actions)
- CUB/EDF Big Energy Data Project
 - Costs and Benefits of Real Time Pricing (Nov. 2017)
 - TOU Design and Impacts
 - Weather-normalized RTP
 - Electrical Vehicle Impacts

Kristin Munsch
Deputy Director
Illinois Citizens Utility Board
309 West Washington Street, Suite 800
Chicago, Illinois 60606
(312) 263-4282
kmunsch@citizensutilityboard.org

Energy Data Portability: “Timely manner” & “Readily accessible format”

Michael Murray, President
Mission:data Coalition



MISSION DATA

empowering energy savings



Consumers should have convenient access to the best available information about their energy usage and costs – and the ability to easily share that information directly with providers of their choice.



missiondata.io



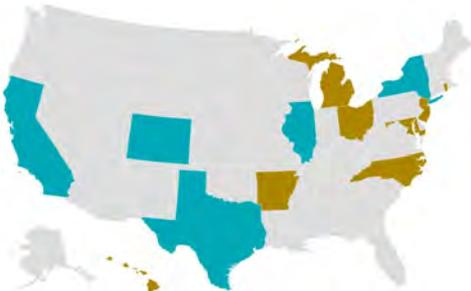
MISSION:DATA

empowering energy savings

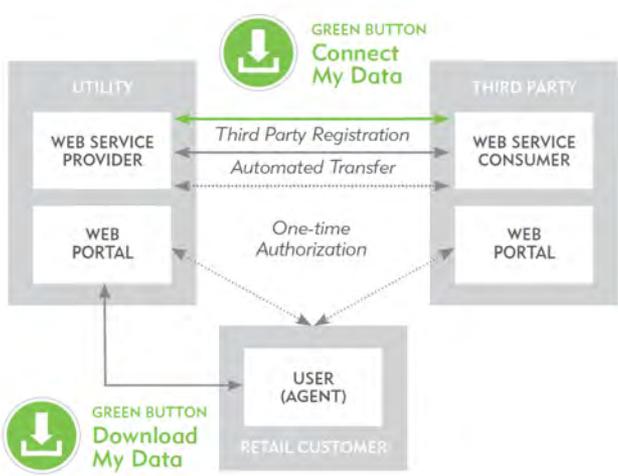
2014



2019



-  Data access policy in place
-  Under consideration



36+ million meters and growing...

“In a timely manner”

- In the modern digital world, “timely” = immediate
- Many utilities provide energy data to authorized third parties immediately upon request (example: PG&E)
- Human processing is costly and inefficient



The screenshot shows the PG&E 'Share My Data' interface. At the top, there is the PG&E logo and the text 'Share My Data' next to a user profile icon. Below this, it says 'DRP Company request data access and actions as follows:'. A list of services is displayed: Basic, Usage, Meter Reprogram, Billing, Program, PDP Disenroll Enrollment, and Account. A section titled 'Select all Service IDs for all Accounts' contains a list of account details for 'PACIFIC GAS & ELECTRIC COMPANY - Account # : 6762202003 - 77 Beale Account UUID: 3178515683'. Below this list is a link to 'Show data sharing and Service ID details'. The details section includes 'Access duration: Indefinite', a note about data requirements, and 'Terms and Conditions' with a link. At the bottom, there are 'Cancel' and 'SUBMIT' buttons.

Transfer within
60-90 seconds

“Readily accessible format”

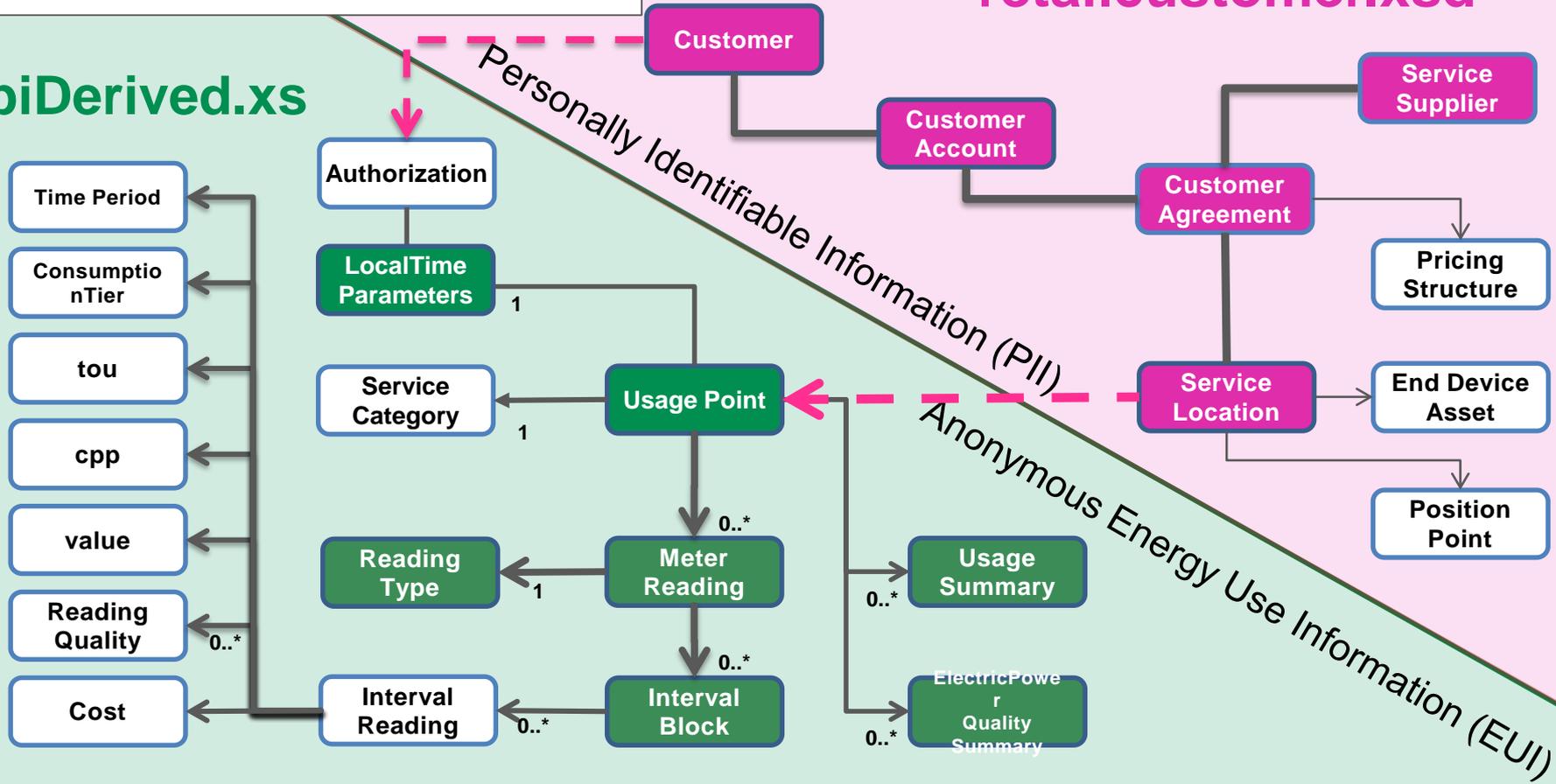
- Most consumers will not interact with their energy data directly. Instead, they will have service providers analyze it for them and provide value.
- To be readily accessible, data formats must be consistent and standardized across utilities. Inconsistent formats will break software tools, making them inaccessible.
- Green Button Connect is a standardized, machine-readable format and contains two elements: (i) energy usage data and (ii) customer data, such as account number and service address. Both should be available.
- Example: A multi-site commercial customer gives its facility managers a smartphone app to manage energy use. The user must have easy access to usage data for their specific site (i.e., address information must be provided).



Green Button Data Model

retailcustomer.xsd

espiDerived.xsd



Thank You!

Michael Murray, President
michael@missiondata.io
(510) 910-2281



www.missiondata.io



Data Accessibility Stakeholder Forum

Discussion / Next Steps