



The Green Button Initiative

white house inspired.
industry led.

In response to the Obama Administration's call to action, 150+utilities and service providers commit to provide 60+ million homes and businesses with their own energy usage information in the consensus industry standard Green Button format

www.greenbuttondata.org



John Teeter, Presidential Innovation Fellow, NIST, john.teeter@nist.gov

Matt Theall, Presidential Innovation Fellow, DoE, Matthew.Theall@Hq.Doe.Gov



US Federal Government Interest in Data Access

- Open Data Initiatives

- Making government information resources more publicly accessible in “computer-readable” form and encouraging its use by entrepreneurs as fuel for the creation of new products, services, and jobs
- Project Open Data: <http://project-open-data.github.io>
- Examples: Federal Register 2.0, Data.gov, Health Data Initiative, ...

- My Data Initiatives

- Empowering consumers with secure access to their own personal health, energy, and education data
- Blue Button (health info), Green Button (energy), Education, ...



US Federal Government Commitment



Climate Action Plan

“The Administration will leverage the ‘Green Button’ standard – which aggregates energy data in a secure, easy to use format – within federal facilities to increase their ability to manage energy consumption, reduce greenhouse gas emissions, and meet sustainability goals.” The President’s Climate Action Plan, June 25, 2013

Presidential Memorandum (to all Federal agencies)

“Sec. 3. Building Performance and Energy Management .. each agency shall: ... incorporate Green Button into reporting, data analytics and automation, and processes, in consultation with local utilities ...” [...] Presidential Memorandum on Federal Leadership in Energy Management, December 5, 2013

Department of Energy American Energy Data Challenge

Challenge 2: Apps for Energy II (Jan-Mar2014), \$100,000 total prizes, focus on best use of DOE APIs, best use of customer Green Button data, and best app addressing the “killer ideas” in Challenge 2. Details at <http://energychallenge.energy.gov>





Green Button Download My Data & Connect My Data Now Rolling Out



Green Button Download My Data

A customer visits their utility web portal, they can simply login and download their Green Button Data as an XML-formatted file.



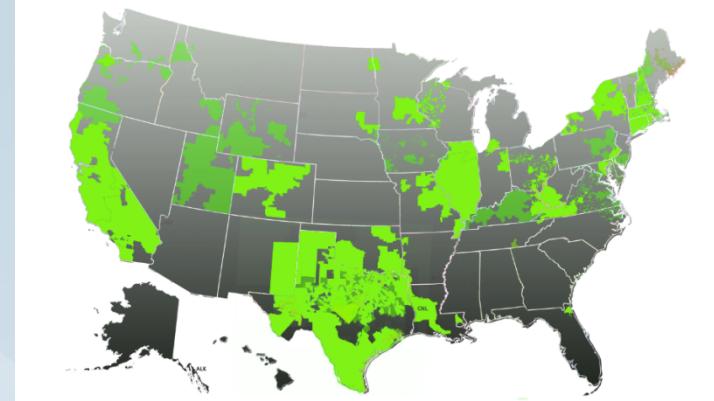
Green Button Connect My Data

This powerful model allows a consumer to authorize a third-party service provider to receive direct access to their Green Button Data - no need to repeatedly login to their utility and download files. These authorizations are valid for an agreed upon time and can be revoked at anytime by the consumer.

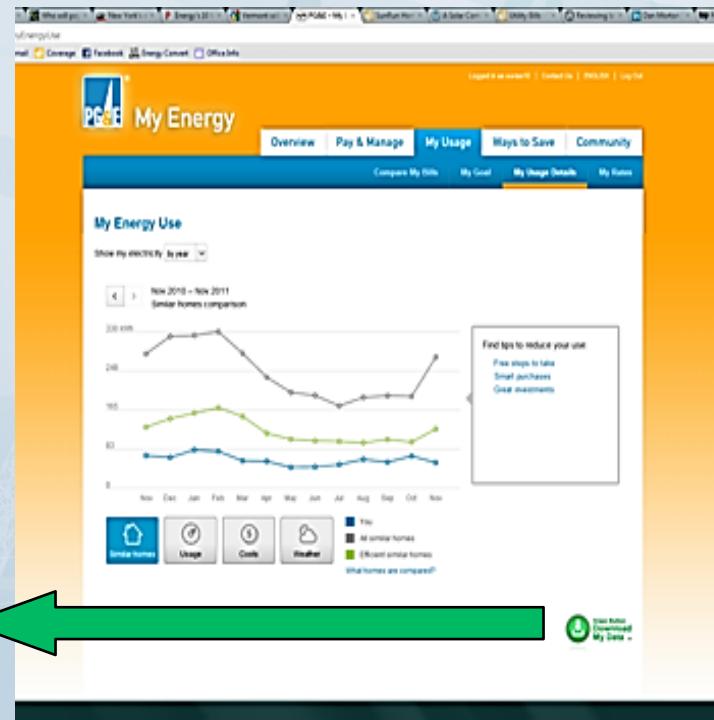


Green Button Initiative

- Enables electronic consumer access to energy data and supports development of ecosystem (apps)
- US: Available to 42+ million customers now and 59+ million in the future based on utility commitments CANADA: 2.6 million+
- Result of collaboration among White House, NIST, DOE, state regulators, utilities, vendors, SGIP, and North American Energy Standards Board
- Green Button Download My Data and Green Button Connect My Data



Map of US Green Button Commitments



Green Button
Connect
My Data

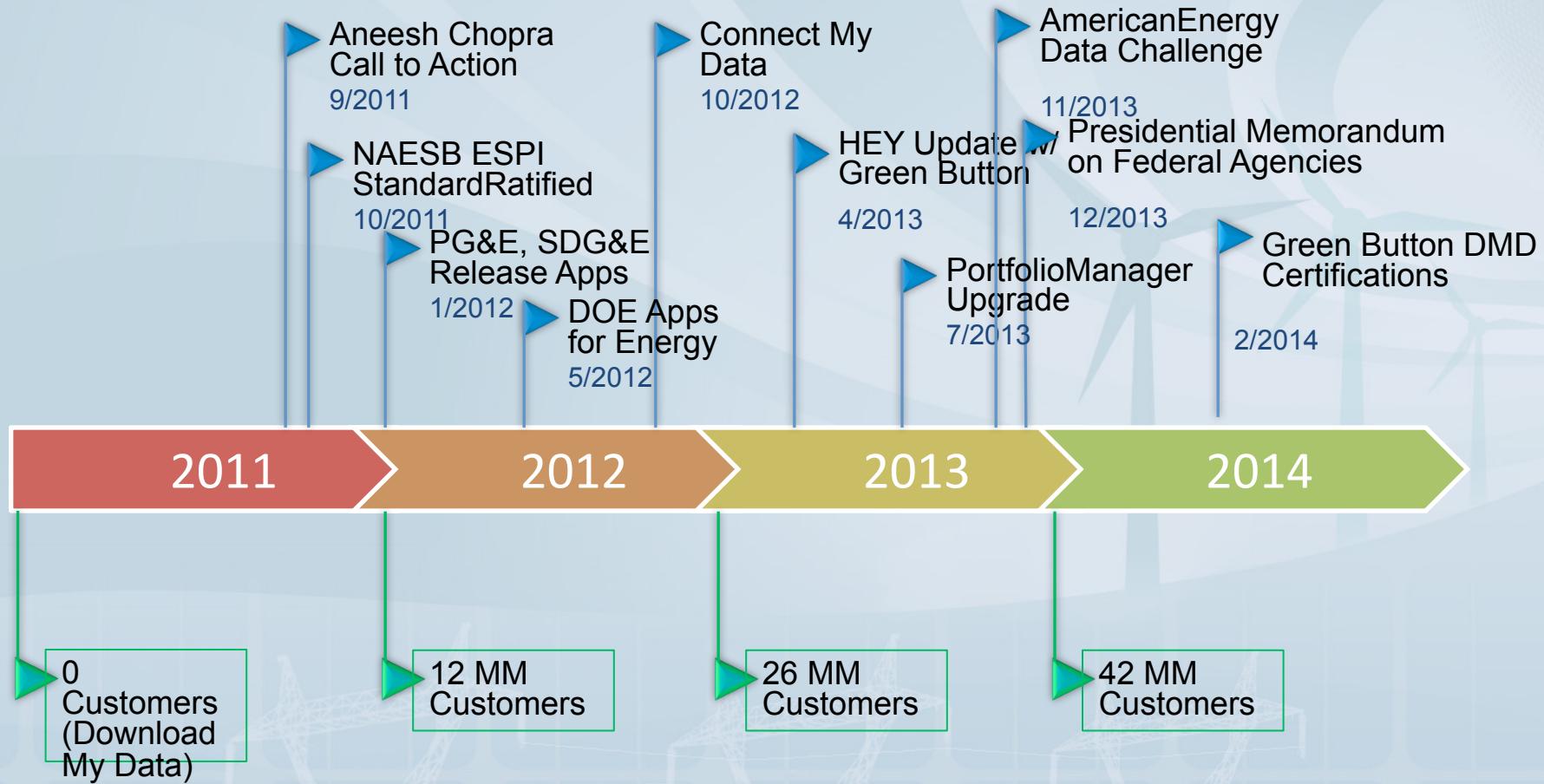


Green Button
Download
My Data





Green Button Evolution





Green Button for America team

- U.S. Federal Government: OSTP (White House), NIST, DOE (Energy), + others
 - Presidential Innovation Fellows: John Teeter (NIST), Matt Theall (DOE), Charles Worthington (DOE)
- Goals:
 - Grow (x2) Green Button ecosystem (utilities and vendors commitments and implementations, address challenges, ...)
 - Improve Green Button data consistency (testing and certification, interaction and support for implementers, ...)
 - Leverage Green Button in Federal facilities as part of federal government response to climate action plan
- Future:
 - Continued Federal government support and encouragement to enable industry to become driving force to develop ecosystem
 - Increased consumer engagement after foundation is secure



“Solar companies are also eager for consumer data because understanding a homeowner's electricity use is key to the sales process.” – San Jose Mercury News



Example use case: solar PV proposal

Courtesy of Matt Theall, Green Button Presidential Innovation Fellow (DOE)

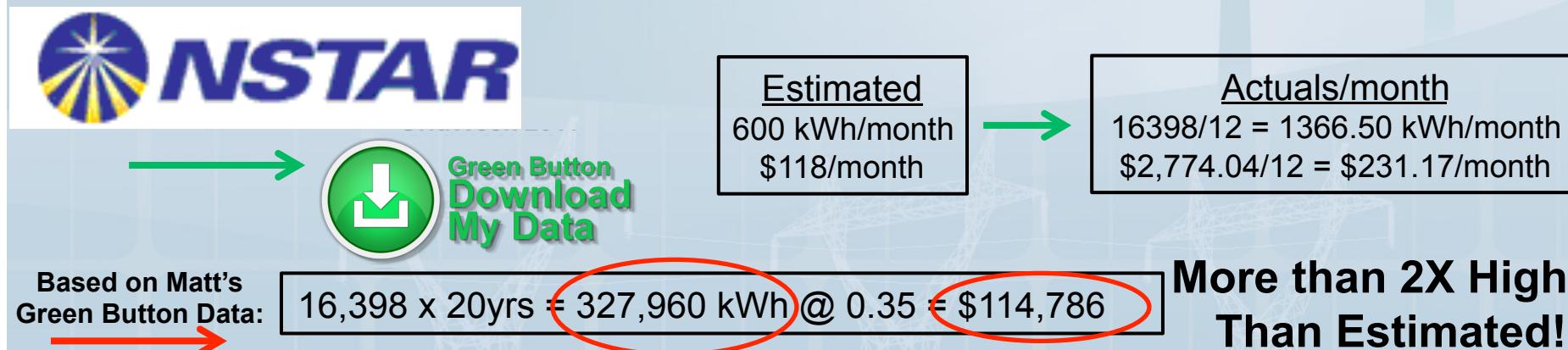
RE: PV Proposal

Dear Matt,

PV quote based on state average annual electricity consumption **(Green Button data not available yet)**

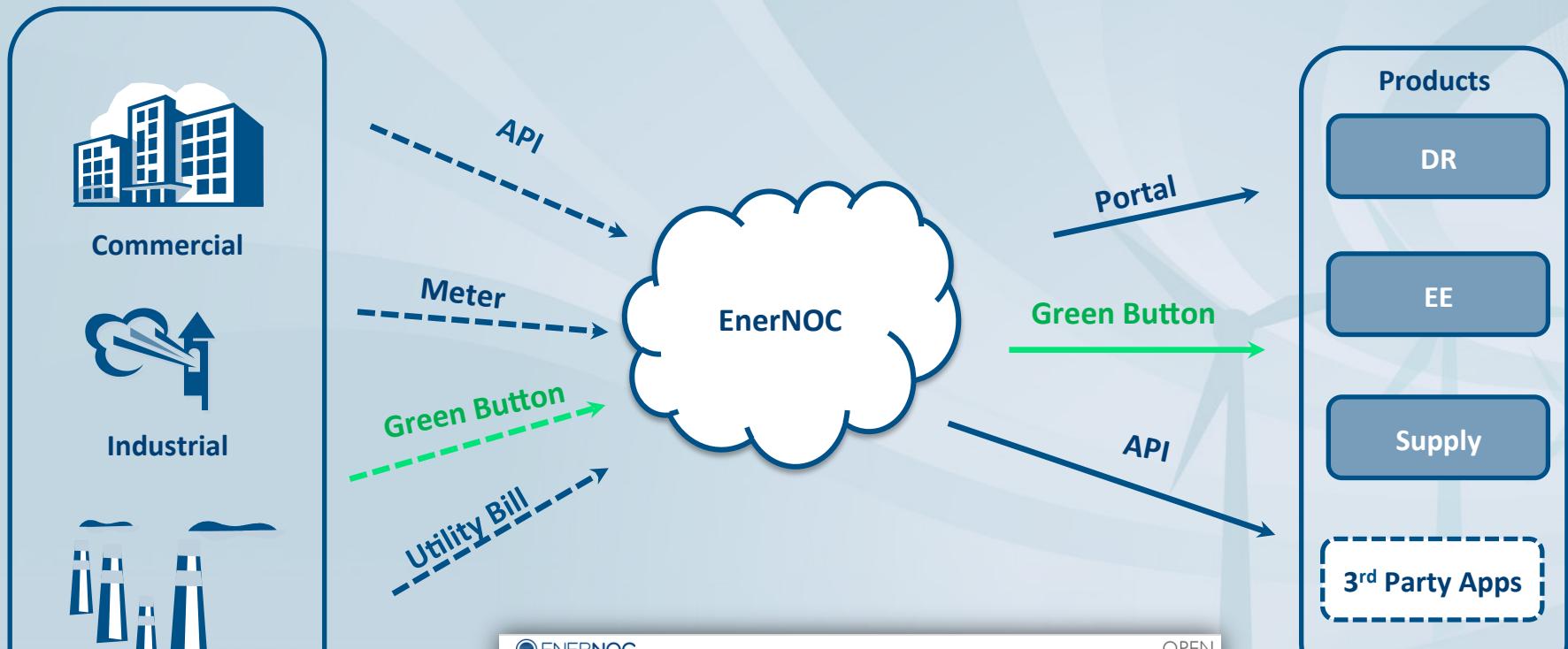
In lieu of an electric bill, we have used the state average annual residential electrical consumption- 7,200 kWh. As a monthly average, this would equate to 600 kWh at a cost of \$118/ month. Estimated 20 year total would be 144,000 kWh at a cost of \$50,323* (\$0.35 per kWh). Installing solar has the potential to cut this cost by 66%.

The 6.62 kW system we are proposing is comprised of (27) SunPower 245 Watt module with estimated production equal to 94% of your current annual electrical load. The system array gross dimensions are approximately 23' by 29'. See Google Earth photo rendering for the actual layout.





Third party vendor implementation: EnerNOC



ENERNOC

Home Code Data Blog Careers

OPEN

Search

Data

Open data to facilitate research and development

GreenButton is a standard data format for utility customers to download their meter data. This has the potential to give millions of consumers access to details about their energy use, and for third-parties to securely consume and build applications based on customer data. We want to support GreenButton as a vendor-neutral exchange format for bulk energy data.

We want to facilitate secure access and exchange of energy data. We're starting by providing samples of anonymized data for research, integration testing and hackathons!

2012 Commercial Energy Consumption Data

5-minute electricity consumption for 100 anonymized commercial and industrial sites. Metadata includes randomized lat/long, facility square footage and industry. In GreenButton and CSV formats.

- Full Download (CSV, GreenButton XML and metadata) - 156 MB
- CSV Only (including metadata) - 67 MB
- GreenButton XML Only (including metadata) - 86 MB
- View metadata

Latest Tweets

That's a lot of brain power showing on the wall at @GreentownLabs #cleanweb lcolyUEATGU 19m

Grid Intelligence - final Data Jam pitch - making traffic lights more efficient! #cleanweb 24m

Crowd Comfort - crowd sourced building intelligence 29m #cleanweb

Paddleboard cost of travel comparison app pitched 37m at #cleanweb Data Jam lcol05djsESBGF

Follow @enernoc_open

GitHub Repos

remoht.us Home automation demo using AppEngine, Raspberry Pi and Arduino. The hipster nerd InfraCloud

oadr2-ven OpenADR2 Open Reference Implementation





Green Button Connect My Data In Washington DC Governmental Services



Green Button
Connect
My Data

Providing 15 Minute Interval Data for 700 Buildings in Washington

Local Utility (PEPCO)
Providing first in the Nation deployment with Green Button Connect My Data inside!



The District of Columbia is saving money, saving energy and creating one of the greenest cities in the world.

Transparency

Build Smart DC is a public, visual record of building energy use in the District. Established with a core of publicly-managed facilities, the platform is expanding to provide building performance and energy efficiency project data on the broadest possible swath of buildings in Washington, DC.

Efficiency

From building management system optimization to improved HVAC and lighting scheduling, Build Smart DC captures and highlights the significant savings achieved through no- and low-cost improvements to building energy management.

Accountability





Green Button Supports Innovation in New Applications

Insight: entrepreneur-created web portals analyze energy usage and provide actionable tips;

Heating and Cooling: customized heating and cooling activities for savings and comfort;

Education: community and student energy efficiency competitions;

Retrofits: improved decision-support tools to facilitate energy efficiency retrofits;

Verification: measurement of energy efficiency investments;

Real Estate: provide energy costs for tenants and/or new home purchasers; and

Solar: optimize the size and cost-effectiveness of rooftop solar panels.



www.greenbuttondata.org

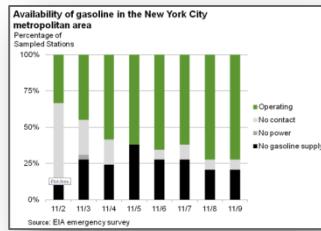


Department of Energy: American Energy Data Challenge

Challenge One

Energy Ideas Contest

Nov 6 - Dec 13 '13



Focus:

- *High value data sets*
- *Killer ideas*

Challenge Two

Apps for Energy II

Jan - Mar '14



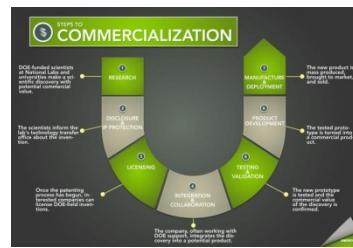
Focus:

- *Best use of specific DOE APIs, best use of customer Green Button data, and best app that uses one of the “killer ideas” identified in Challenge One*

Challenge Three

Energy Data by Design

Apr - Jun '14



Focus:

- *Improving the clarity and discoverability of energy information*

Challenge Four

American Energy Challenge

Jul - Oct '14



Focus:

- *Building bold ideas for reimagining America’s energy infrastructure*



Information for YOU!
Thank You