



Green Button: Spark Plug in the Engine of Innovation?

National Conference of Regulatory Attorneys

May 23, 2012

The Cloud Computing platform for Energy Internet

- Backed by leading European and US Venture Capital
- 35+ utility and ‘smart’ product providers
(in regulated and competitive markets)
- 200+ Employees
- Headquartered in Boulder, Colorado
(with offices in Boston, Melbourne, Australia, and San Francisco)

Multiple awards and recognitions, including:





One Platform. Every Connection.

- A cloud based platform for open, secure and scalable consumer engagement
- An integrated series of connected devices, applications and services for all users of the Energy Internet
- Agnostics to network, device and application



Three commitments:

1. **Utilities:** Green Button functionality native within the Connect Platform
2. **Developers:** Green Button API's for third-party applications
3. **Consumers:** A strong first experience through GreenButtonConnect.com



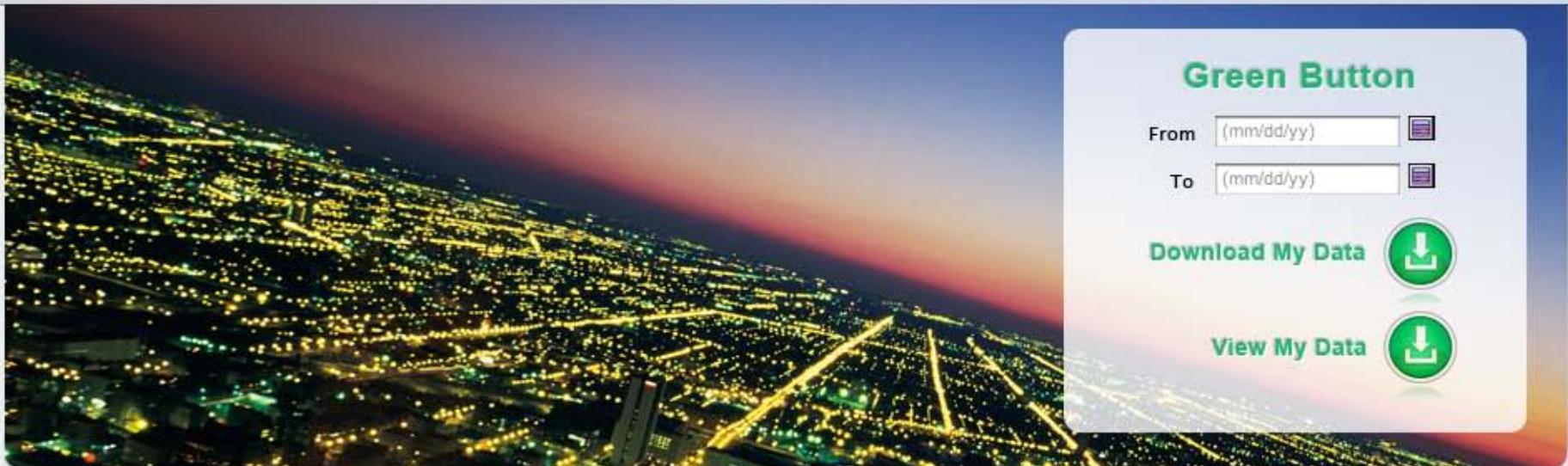
HOME

ABOUT US

OUTAGES

CONTACT US

MY ACCOUNT



Green Button

From

To

Download My Data



View My Data



Residential



- Pay Bill
- Customer Service
- Rebates
- Outages

Commercial



- Pay Bill
- Customer Service
- Rebates
- Outages

Environmental



- Environmental Commitment
- Smart Grid
- Electric Vehicles
- Renewable Energy

TE-NDRIL Connect™



Start developing for the Energy Internet with Tendrill Connect™ APIs

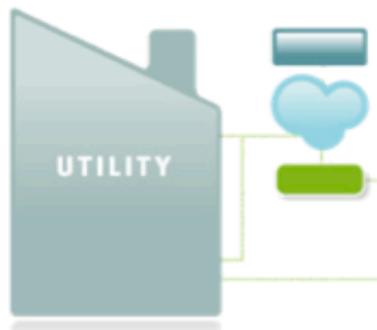
Create unique applications that monitor and control user data and devices

Get Started

Reasons to use Tendrill Connect™ APIs

Connect with the Energy Internet.

Gain first-time access to the Energy Internet, the world's largest marketplace. We've innovated an industry, so you can innovate the world.



Documentation

Access API documentation; test API calls with sample data



Community

Join discussions about our API, ask questions, and get answers



Blog

Follow the latest news, learn about upcoming events, and find out about new releases



Applications

Manage your Tendrill applications

Smarter ways to use your energy.



Understanding your energy data is one upload away.

It's your energy information. Get the most from it with a visit to the Green Button App Gallery.

Green Button apps help you understand how you're using energy today, find new ways to save, and participate in your energy community.

[Get Started](#)

Upload your energy information.

Easily upload information about your energy usage and costs. Get your Green Button file from your utility, then drag and drop it here.

Find valuable applications.

Once you've uploaded your information, get the most from it by visiting the Green Button App Gallery.

Live smarter, lowering your energy cost.

Get in the habit of using energy efficiently, and save money. There are several simple practices that can make a big difference.

A powerful platform for developers. Create game-changing applications powered by energy and device data. [Learn More](#)



www.GreenButtonConnect.com
dev.tendrilinc.com

STEP 1: Log In to Utility Website

The screenshot shows a web browser window displaying the Pacific Gas and Electric Company (PG&E) website. The browser's address bar shows the URL <http://www.pge.com/>. The page features a blue header with the PG&E logo on the left and navigation links for 'For My Home', 'For My Business', 'Business to Business', 'About', and 'English'. A search bar and a 'Log in' button are also present in the header. The main content area is dominated by a large banner for the Golden Gate Bridge's 75th Anniversary, with the text 'PG&E is proud to sponsor the Golden Gate Bridge 75th Anniversary' and a 'Learn more >>' link. To the right of the banner is a yellow login box with the heading 'Log in Manage My Energy'. It contains input fields for 'Username' and 'Password', a 'Remember username' checkbox, and a blue 'Login' button. Below the banner, there are three columns of links: 'For My Home' (SmartMeter™ Opt-Out, Mobile Bill Payment, Outage Map), 'For My Business' (Mobile Bill Payment, Rebates, Education and Safety), and 'About PG&E' (Careers, Community, Newsroom).

STEP 2: Download Green Button Data

The screenshot shows a web browser window with the address bar displaying `https://pge.opower.com/ei/app/myEnergyUse`. The browser's address bar includes navigation buttons, a search bar with the text "Google", and a list of bookmarks including "Tmail", "Gmail", "Cal", "Reader", "GNews", "Wiki", "Concur", "Y! Fin", "Y!Mail", "Sales", "WebEx", "Oil", "OakTrib", "Reverb", "Trulia-OAK", "Twitter", "CPUC", "30yr", and "LodiHomes". The browser tabs show "Michael Tyson's Punch House" and "PG&E - My Energy Use".

The main content area of the browser displays the "PG&E - My Energy Use" page. At the top, there is a navigation bar with months from "Apr" to "Apr". Below this, there are four main sections: "Similar homes" (with a group of people icon), "Usage" (with a gauge icon), "Costs" (with a stack of money icon), and "Weather" (with a cloud and sun icon). To the right of these sections is a legend with four items: "You" (blue square), "All similar homes" (grey square), "Efficient similar homes" (green square), and "You" (blue square). A "close X" button is located in the top right corner of the dialog box.

The "Export your data" dialog box is open in the center of the screen. It contains the following text and options:

- Export your data** (close X)
- For your review in a spreadsheet program (.csv file)
 - Export all bill totals
 - Export usage for a range of days:
 - Since your last bill: May 9, 2012 – Jun 7, 2012
- For developers and third parties (.xml file)
 - Export usage for specific days:
 - From: 04/21/2012
 - To: 05/21/2012

An "Export" button is located at the bottom right of the dialog box.

At the bottom of the browser window, there is a footer with the following text:

[For My Home](#) | [For My Business](#) | [About PG&E](#) | [Privacy](#) | [Disclosure](#) | [FAQ](#) | [Site Map](#) | [RSS](#)
"PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. © 2012 Pacific Gas and Electric Company. All rights reserved.
Runs on OPOWER | © 2012 OPOWER. All Rights Reserved.

STEP 3: Choose an App

The screenshot shows a web browser window displaying the OpenEI (Open Energy Information) website. The browser's address bar shows the URL <http://en.openei.org/apps/>. The page title is "Energy Information and Data | OpenEI.org (show all results)". The browser's tab bar includes "Cal", "Gmail", "Google Calendar", "Energy Information and Data |...", and "do quicktime movies work on...".

The OpenEI website header features the logo "OpenEI | OPENENERGYINFO" and a link to "View login status by clicking here". Below the header is a navigation menu with "Wiki", "Apps", "Datasets", and "Linked Data". A search bar is present with a "Go" button and a "Search" button.

The main content area is titled "OpenEI Apps" and displays search filters: "Find apps: 120 for the web", "21 for your mobile device", and "64 for your desktop". A search bar is located below the filters. A social media sharing bar includes "Share this page on" with icons for Facebook and Twitter.

A prominent green box on the left side of the page is titled "GREEN BUTTON APPS" and contains the following text: "View, Access, and Share Green Button Apps", "Use Green Button Apps to explore and share your energy use data!", and "If your energy provider displays the Green Button, click it to gain easy access to your energy use data." Below this box is a "Filter by app category" section with a scrollable list: "18 Featured", "39 Green Button Apps", "14 Community Generated", "13 Cleanweb Hackathon", "13 Boston", and "56 Challenge Generated".

The main grid of apps includes the following titles and thumbnails:

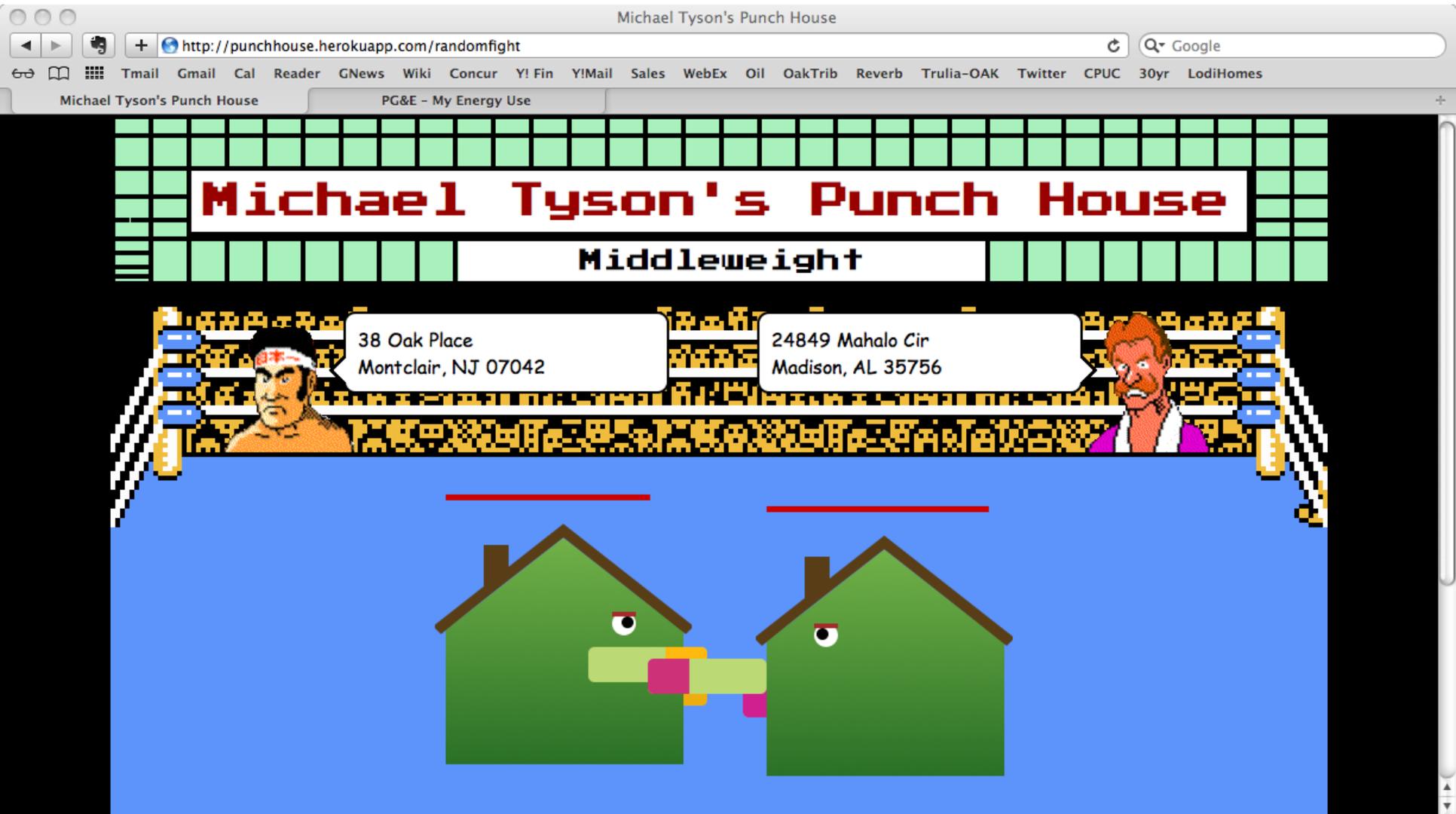
- ActiveGreenScore
- Advanced Process Engineering Co-
- AGI-32
- Agriculture and Land Use National
- AgrometShell
- Alternative Fueling Station Locator
- Alternative Fueling Station Locator - Mobile
- Applied Dynamic Analysis of the Global Economy
- Badema
- BCHP Screening Tool
- BioPower Atlas

STEP 4: Select App and Upload Data

The screenshot shows a web browser window with the address bar displaying `http://punchhouse.herokuapp.com/`. The browser's address bar includes navigation buttons, a search bar with the text "Google", and a list of open tabs: "Michael Tyson's Punch House", "PG&E - My Energy Use", and "Michael Tyson's Punch House". The browser's top menu bar includes "Tmail", "Gmail", "Cal", "Reader", "GNews", "Wiki", "Concur", "Y! Fin", "Y!Mail", "Sales", "WebEx", "Oil", "OakTrib", "Reverb", "Trulia-OAK", "Twitter", "CPUC", "30yr", and "LodiHomes".

The main content area of the browser displays a pixelated interface for "Michael Tyson's Punch House". At the top, the title "Michael Tyson's Punch House" is written in a red, pixelated font on a white background, set against a green grid pattern. Below the title is a yellow and black striped banner with a pixelated border. Underneath the banner is a blue background featuring a pixelated portrait of Michael Tyson on the left. To the right of the portrait is a white speech bubble containing the text: "Put your electricity usage to the test! Upload your [Green Button](#) energy data to see if you've got what it takes." Below the speech bubble are two buttons: "Upload Green Button Data" and "Show a random face-off". The "Upload Green Button Data" button contains a "Choose File" button and the text "no file selected". The "Show a random face-off" button is a light blue button with a purple link.

STEP 5: Play



STEP 5 (cont'd): Play



STEP 6: GAME OVER

