National Renewable Energy Laboratory
Innovation for Our Energy Future

OpenEI | OPENENERGYINFO (OpenEI.org)

NREL/PIX 17613

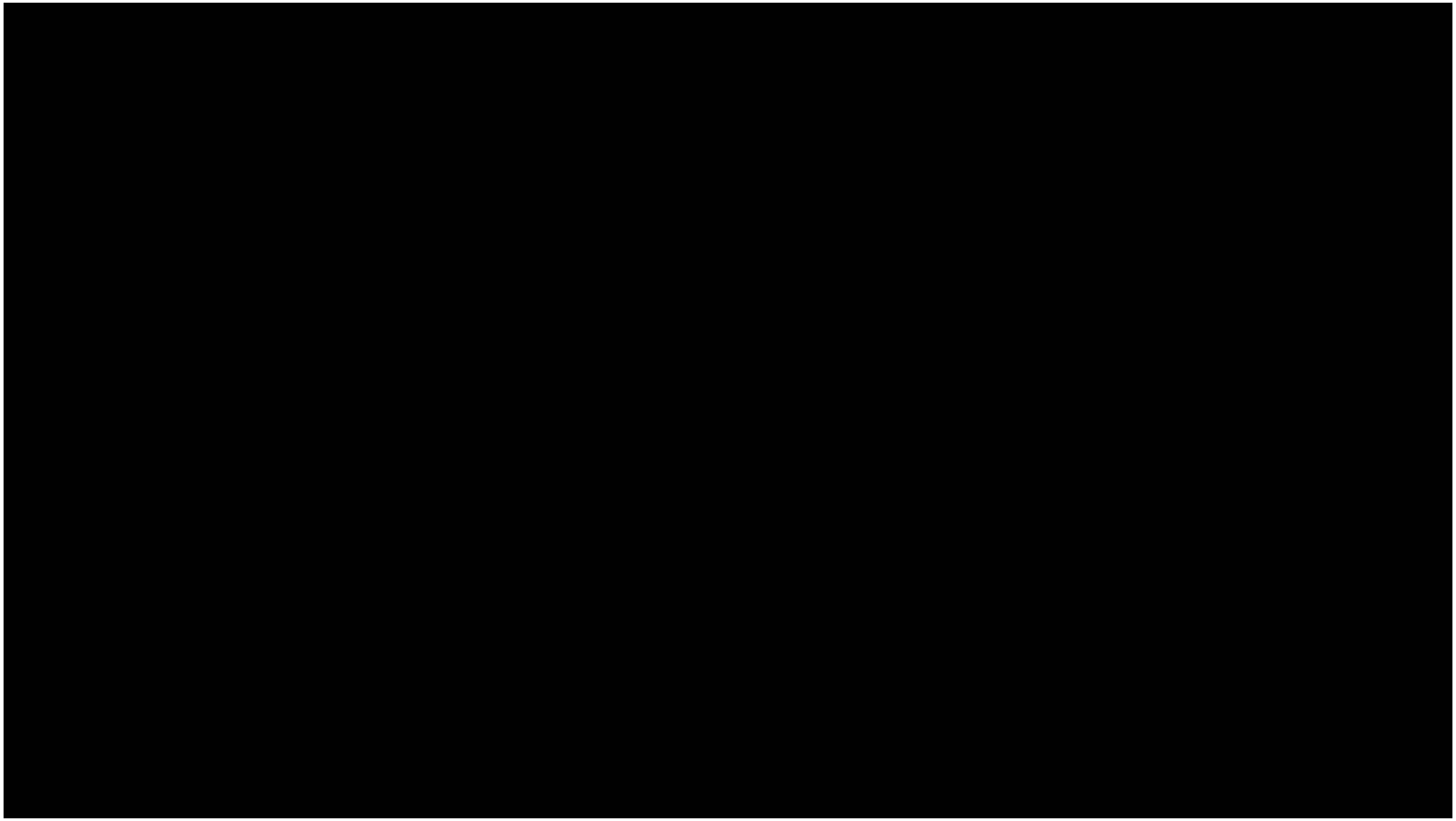
Debbie Brodt-Giles
Open Government Summit
January 25, 2012

Open Energy Information - Facilitating access, use, and contribution of worldwide energy data and information

Overview

- Opportunity for shared energy information
- Strategic direction
- Alignment with the White House Open Government Initiative
- Collaborative approach
- Linked open data standards
- Features and unique attributes
- Statistics
- OpenEI data in action

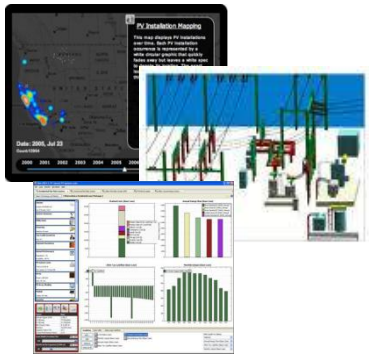
Video



How can we share and leverage the world's vast energy digital assets to make better decisions?

The Collaboration Challenge

SILO Data



SILO Tools & Models

SILO Knowledge

Digital Tsunami Emerging

Integrated Tools & Models

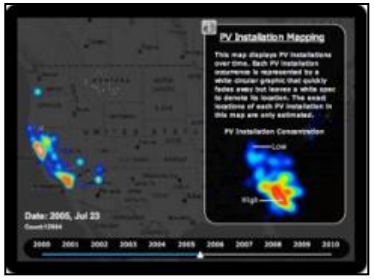
Collective Intelligence

We tend to gravitate to familiar SILOS.

What type of data are we talking about?

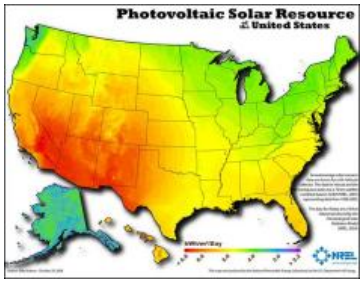
Energy Data

Energy Tools



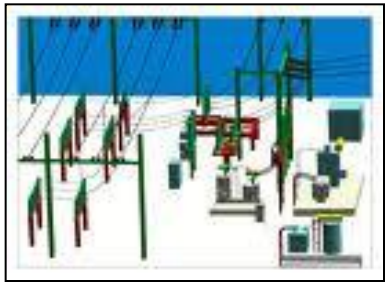
Energy Docs

Energy Maps



Education

Energy Models



Published collective intelligence of the community

OpenEI Strategy

Catalyze the collection of the world's energy information to advance the adoption of renewable energy, fuel innovation and better inform energy decisions of policy makers, researchers, investors, and consumers

Linked Open Data for Improved access to energy-related information

Easy, legal, & scalable data sharing and ratings

Community support for contributions and collaboration

Assessments of information quality & provenance

Services for application development & derived data knowledge

Crowdsourced Dataset Generation

Open Government Initiative

Government should be transparent.

Transparency promotes accountability and provides information for citizens about what their Government is doing. **Information maintained by the Federal Government is a national asset.** My Administration will take appropriate action, consistent with law and policy, to **disclose information rapidly in forms that the public can readily find and use**. Executive departments and agencies should harness new technologies to **put information about their operations and decisions online and readily available to the public**. Executive departments and agencies should also **solicit public feedback to identify information of greatest use** to the public.

Government should be participatory.

Public engagement enhances the Government's effectiveness and improves the quality of its decisions. **Knowledge is widely dispersed in society**, and public officials benefit from having access to that dispersed knowledge. Executive departments and agencies should **offer Americans increased opportunities to participate** in policymaking and to provide their Government with the **benefits of their collective expertise and information**. Executive departments and agencies should also **solicit public input** on how we can increase and improve opportunities for public participation in Government.

Government should be collaborative.

Collaboration actively **engages Americans in the work** of their Government. Executive departments and agencies should **use innovative tools, methods, and systems to cooperate among themselves**, across all levels of Government, and with nonprofit organizations, businesses, and individuals in the private sector. Executive departments and agencies should **solicit public feedback to assess and improve their level of collaboration** and to **identify new opportunities for cooperation.**

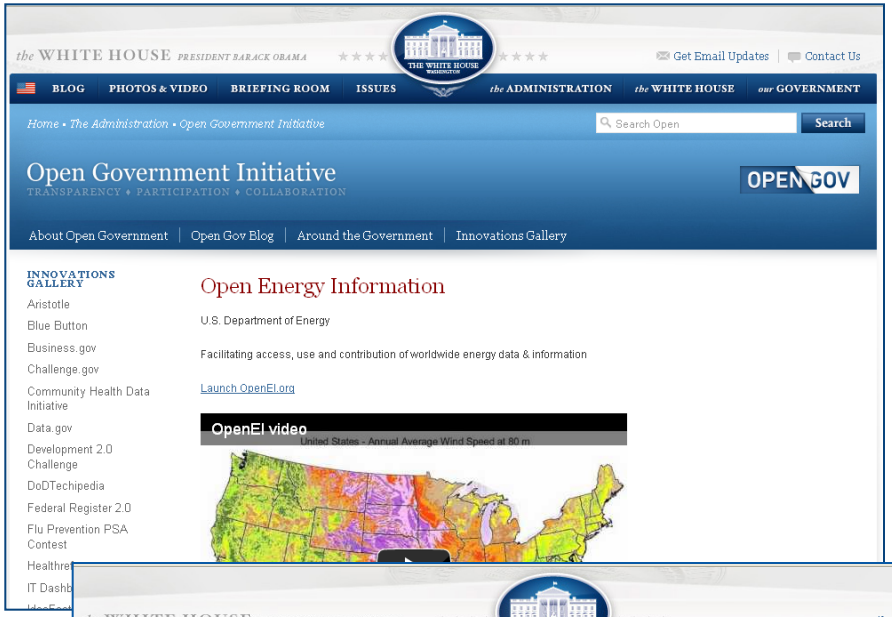
Source: White House Memorandum on Transparency and Open Government, January 29, 2009

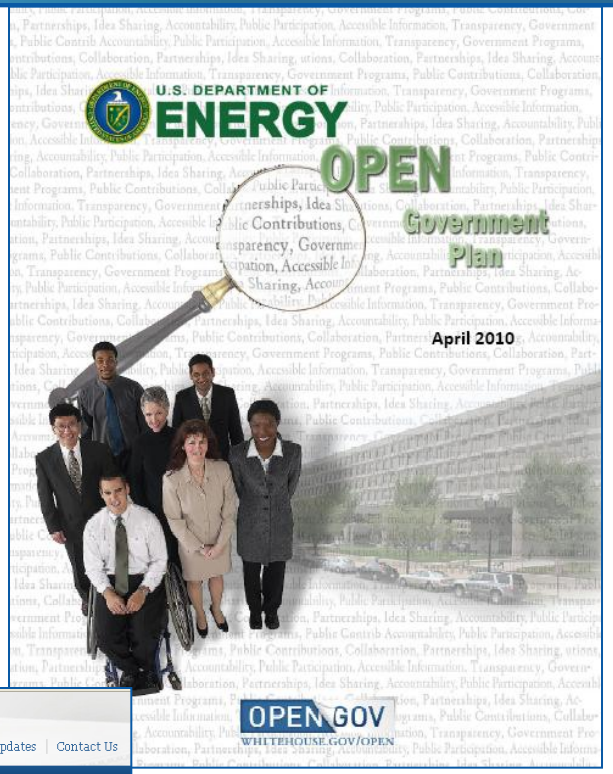
Open Government Initiative

DOE issued **press release** to launch OpenEI as its Open Government Initiative (12/09)

Featured on **White House Innovations Gallery** (1/11)

Recognized by the White House as a **Flagship Open Government Initiative** (4/10)





DOE releases **Open Government Plan**, which highlights OpenEI (4/10)

Notable Quotes

"This information platform will allow people across the globe to benefit from the Department of Energy's clean energy data and technical resources. The true potential of this tool will grow with the public's participation – as they add new data and share their expertise – to ensure that all communities have access to the information they need to broadly deploy the clean energy resources of the future."

Dr. Steven Chu, Secretary of Energy
http://energy.gov/news2009/8381.htm

"Wow ... Energy linked data portal"

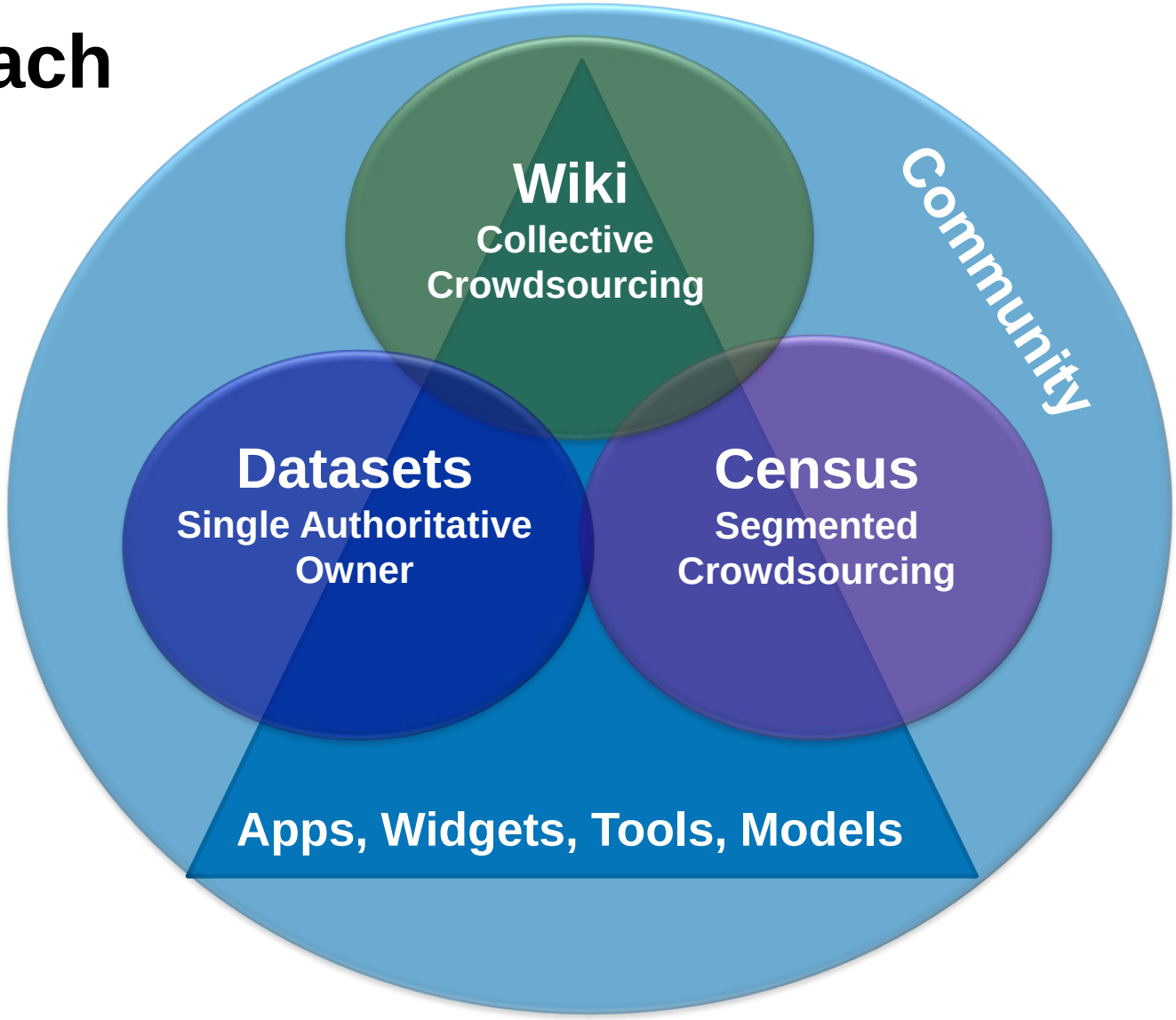
Tim Berners-Lee, Inventor of the World Wide Web
http://twitter.com/timberners_lee/status/7062198463

"Love that DOE is doing OpenEI.org"

Tim O'Reilly, Web 2.0 Pioneer and Founder of O'Reilly Media
http://twitter.com/timoreilly/status/11792155576

	Collective *"The Wiki Way"*	Segmented *"The Census Model"*	Authoritative *"Single Owner"*
Create	World	Varies	World
Read	World	Varies	World
Update	World	Owner	Owner
Delete	World	Owner	Owner
Granularity	Element	Element	Item
Examples			

Collaboration Approach

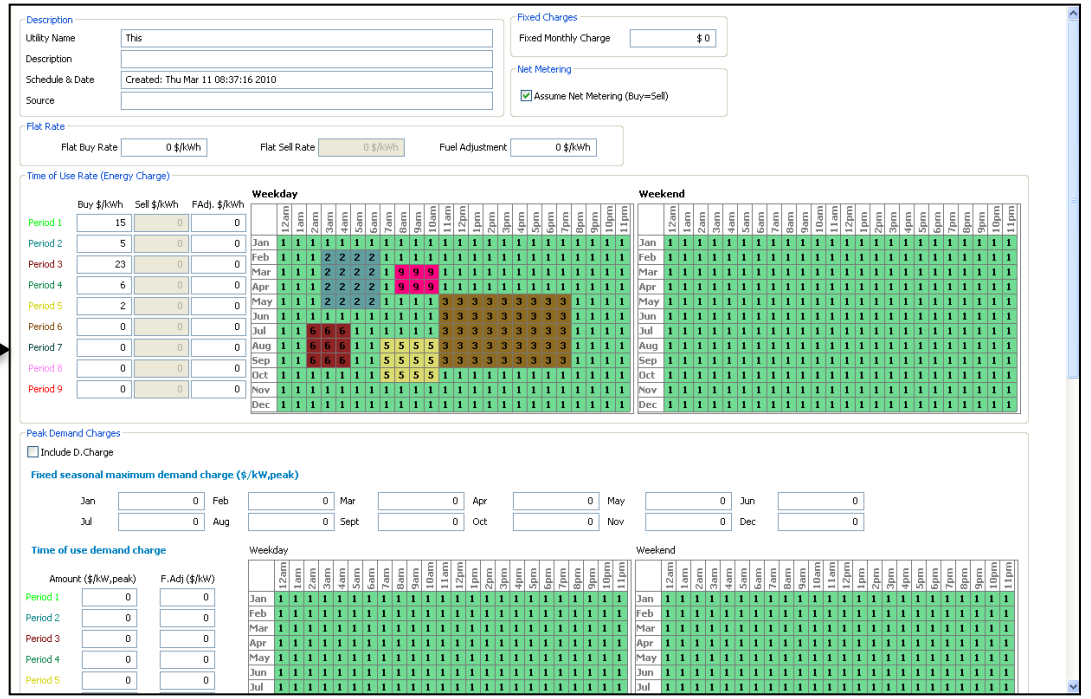


Assembling New Data via "Crowdsourcing"

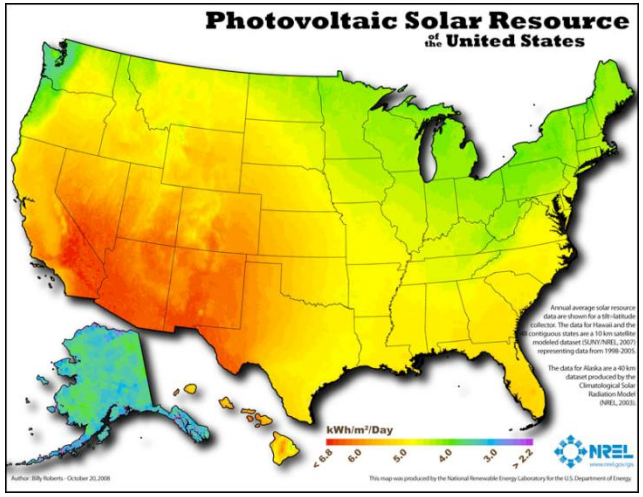
"**Does EIA publish electric utility rate, tariff, and demand charge data?**
No, EIA does not collect or publish data on electricity rates, or tariffs, for the sale or purchase of electricity, or on demand charges for electricity service, nor does EIA publish retail electricity rates or prices for peak or off-peak periods (sometimes referred to as time-of-use-rates)."

EIA Frequently Asked Questions
http://www.eia.doe.gov/tools/faqs/faq.cfm?id=20&t=3

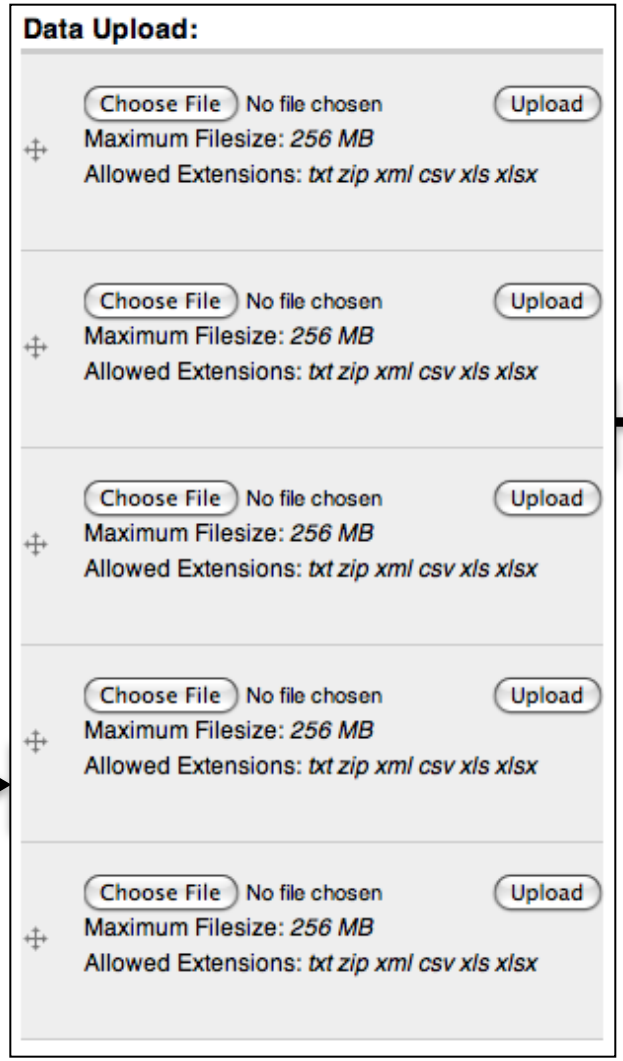
Response: Crowdsourced Data Entry

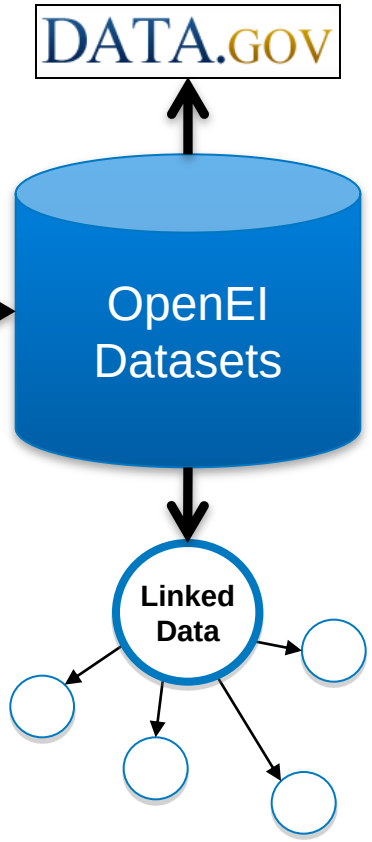


Leveraging and Linking Existing Data



Name	Size	Last Modified
SUNY_098052455.csv.gz	572 KB	3/5/07 12:00:00 AM
SUNY_098052465.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052475.csv.gz	571 KB	3/5/07 12:00:00 AM
SUNY_098052485.csv.gz	569 KB	3/5/07 12:00:00 AM
SUNY_098052495.csv.gz	569 KB	3/5/07 12:00:00 AM
SUNY_098052505.csv.gz	568 KB	3/5/07 12:00:00 AM
SUNY_098052515.csv.gz	569 KB	3/5/07 12:00:00 AM
SUNY_098052525.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052535.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052545.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052555.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052565.csv.gz	571 KB	3/5/07 12:00:00 AM
SUNY_098052575.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052585.csv.gz	570 KB	3/5/07 12:00:00 AM
SUNY_098052595.csv.gz	570 KB	3/5/07 12:00:00 AM





What is Linked Open Data?

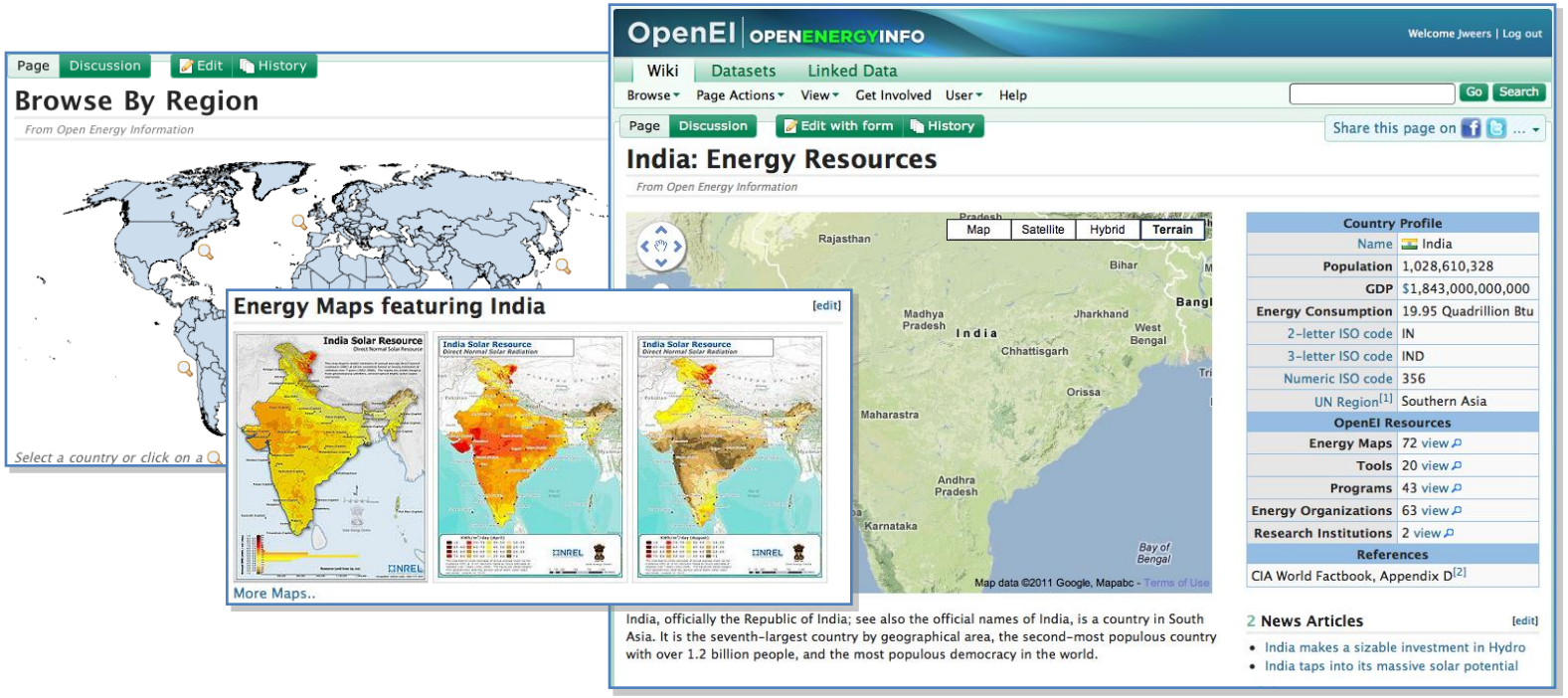
Typical Websites Without Linked Open Data

With Linked Open Data

Linked Open Data on OpenEI

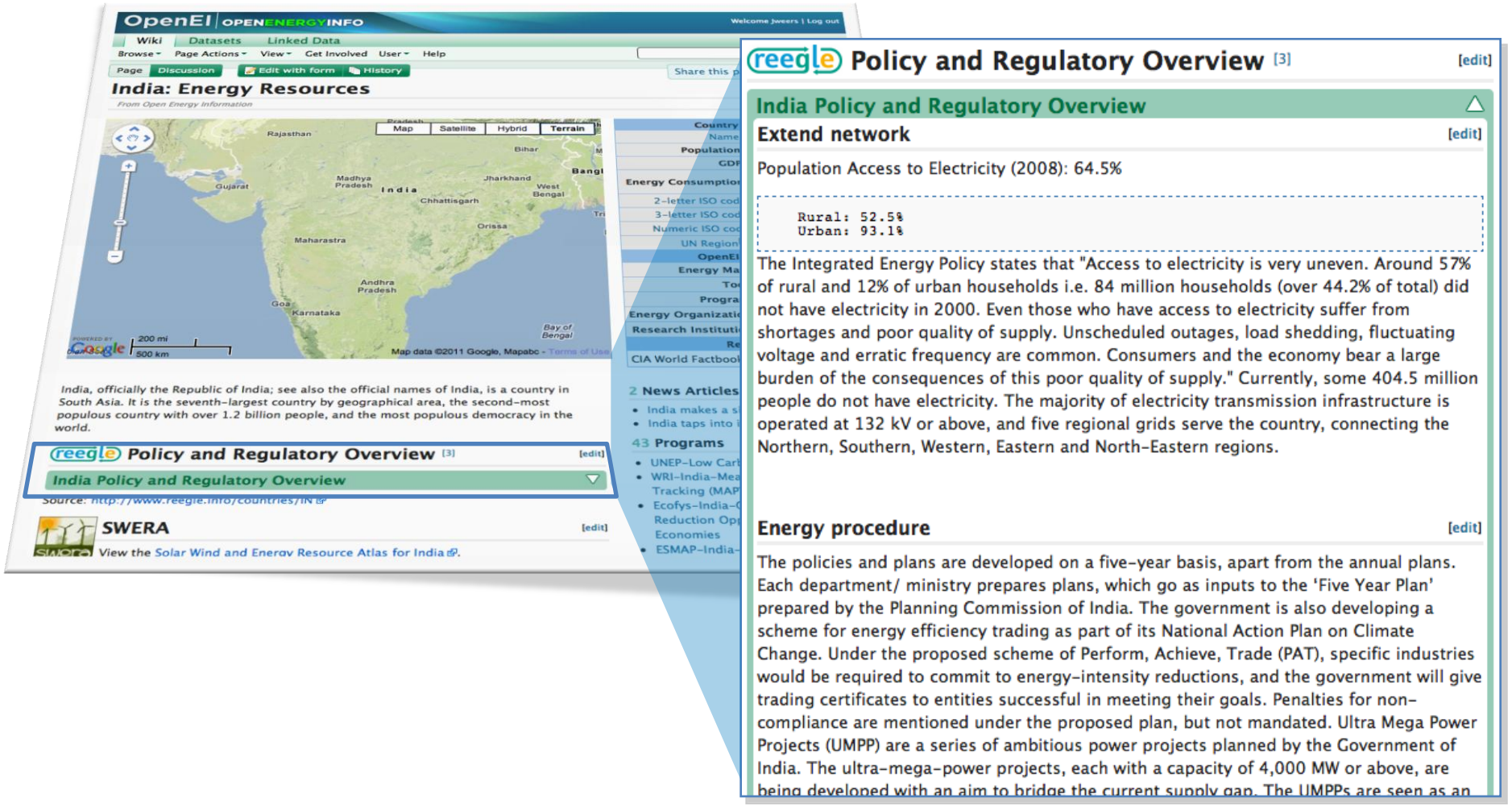
- more than 55,000 content pages
- more than 600 downloadable datasets
- regional gateways on a variety of energy-related topics

Check out our Country Pages to see linked open data in action!

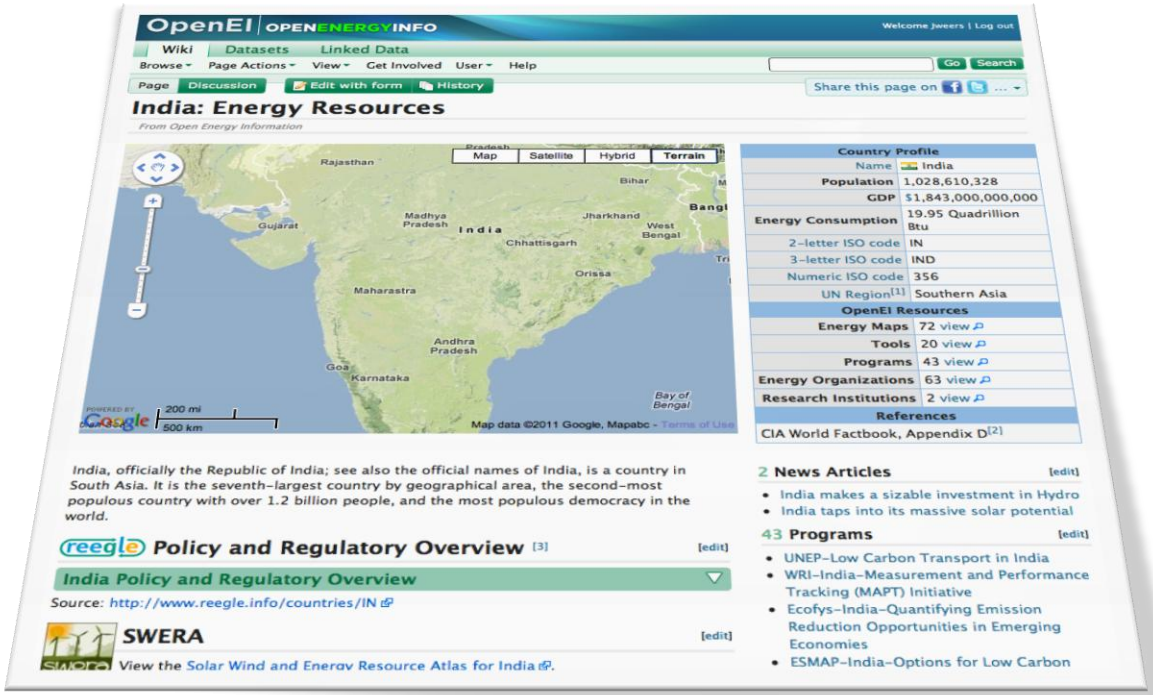


Featured LOD Functionality

Reegle Policy and Regulatory Overview



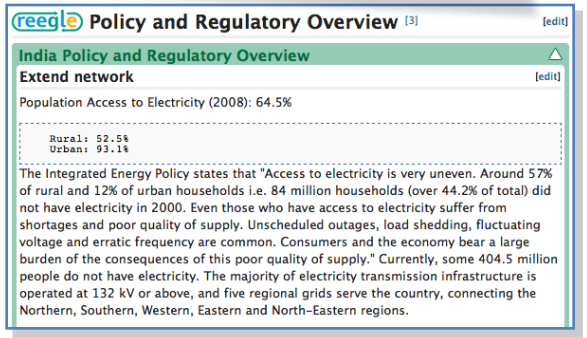
Behind The Scenes, LOD at Work



reegle profiles are consumed in real time using SPARQL

use of semantic concepts allows the correct profile to be pulled

SPARQL



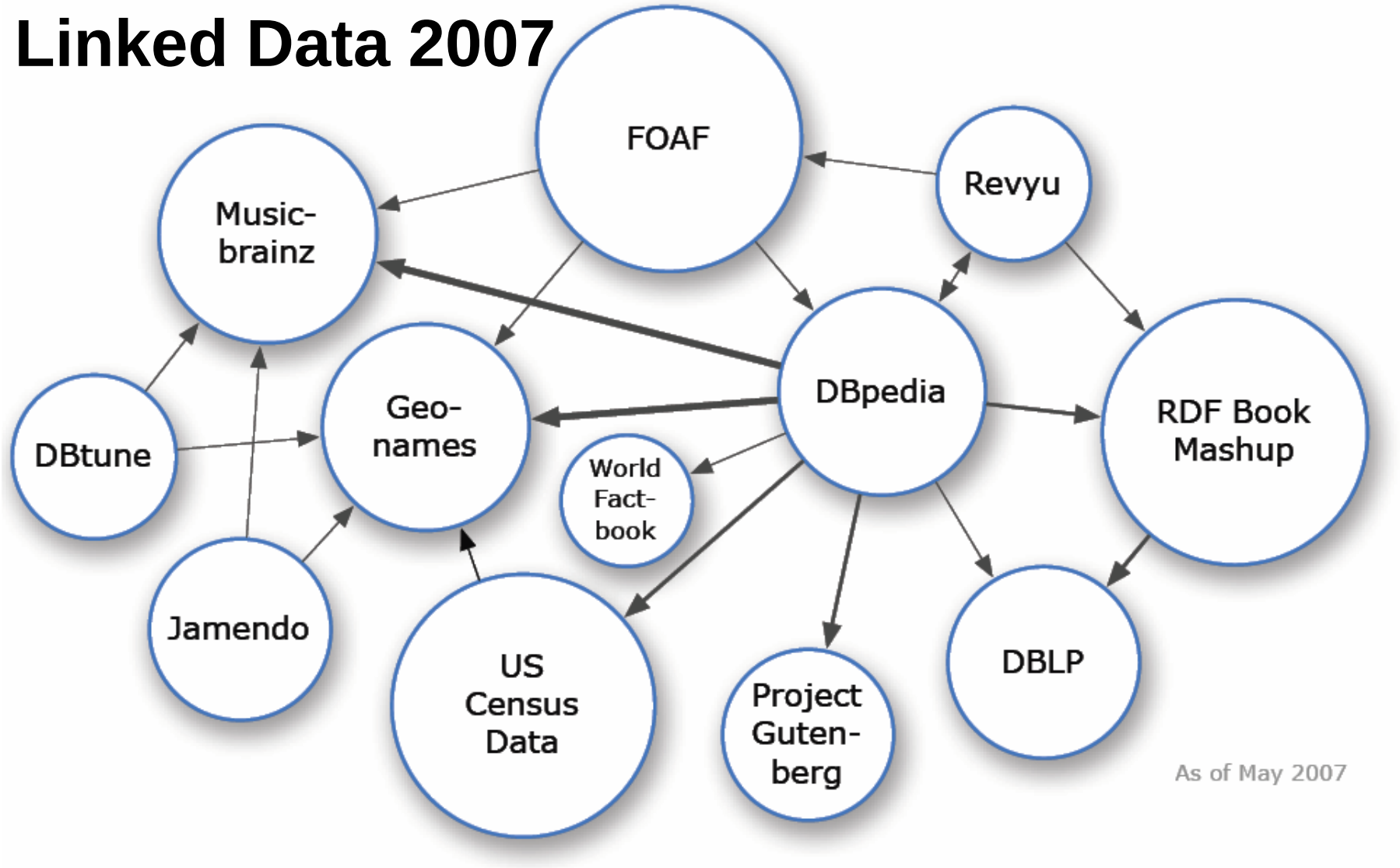
reegle DATA

SPARQL Endpoint

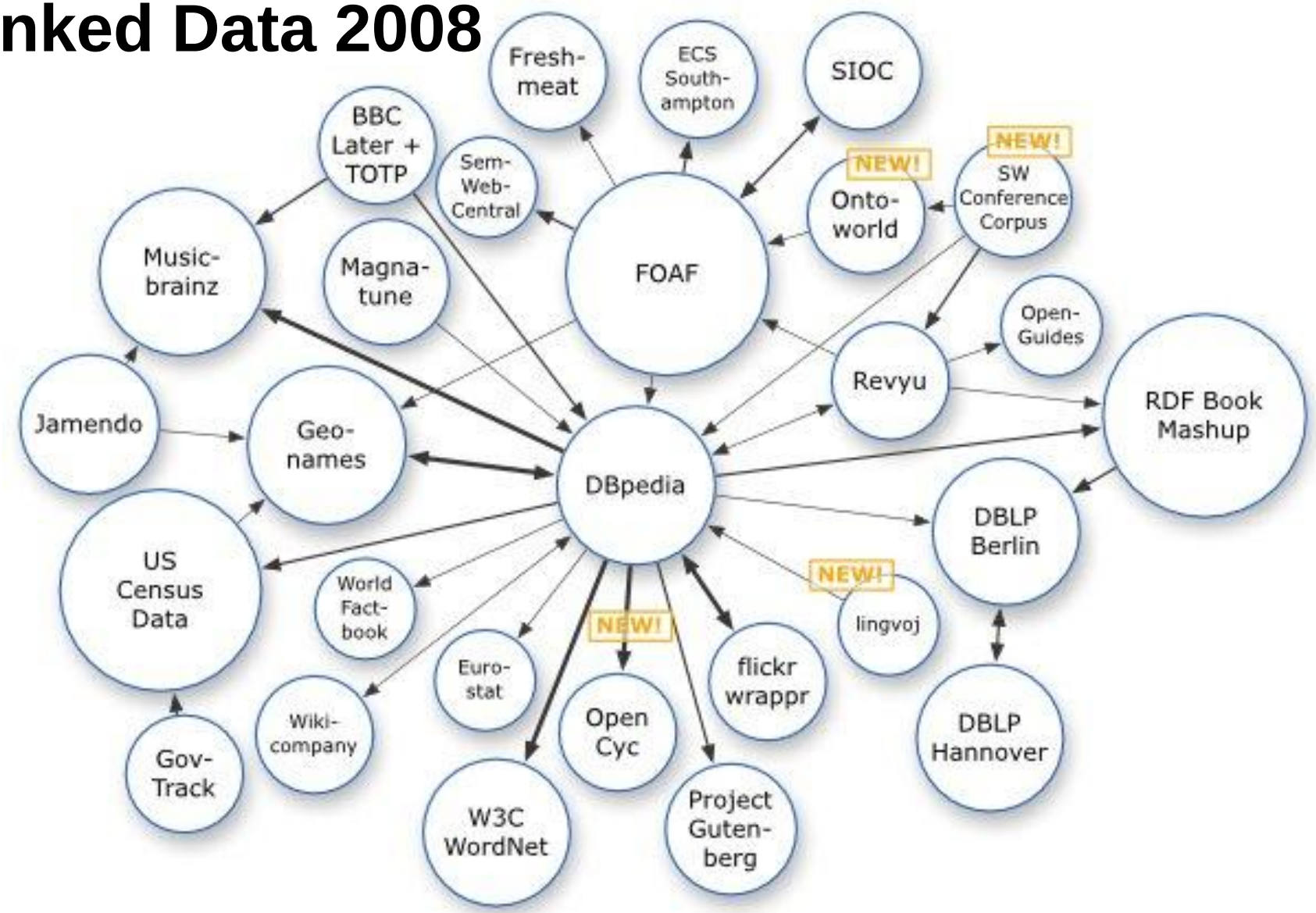
Print page

Contact reegle

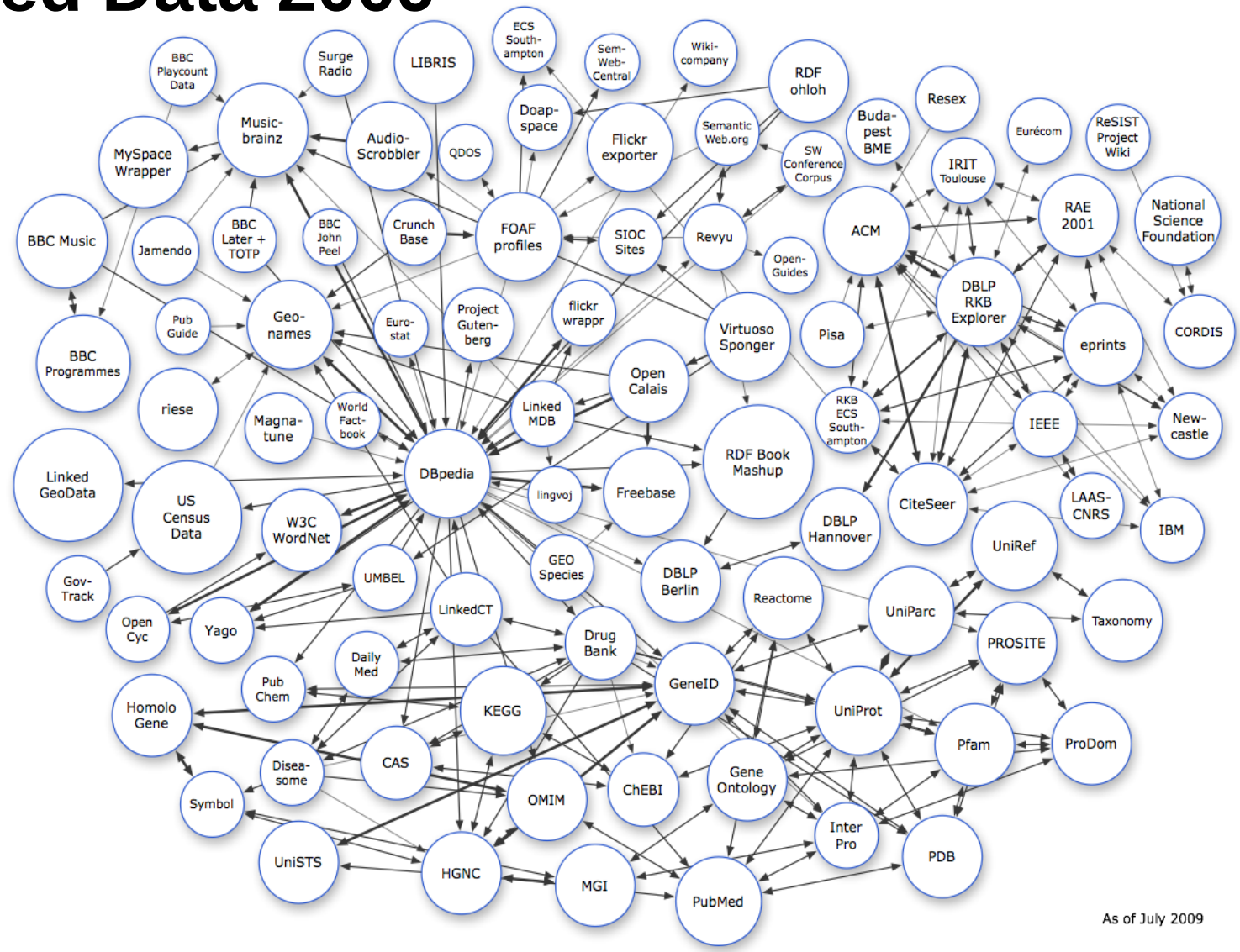
Linked Data 2007



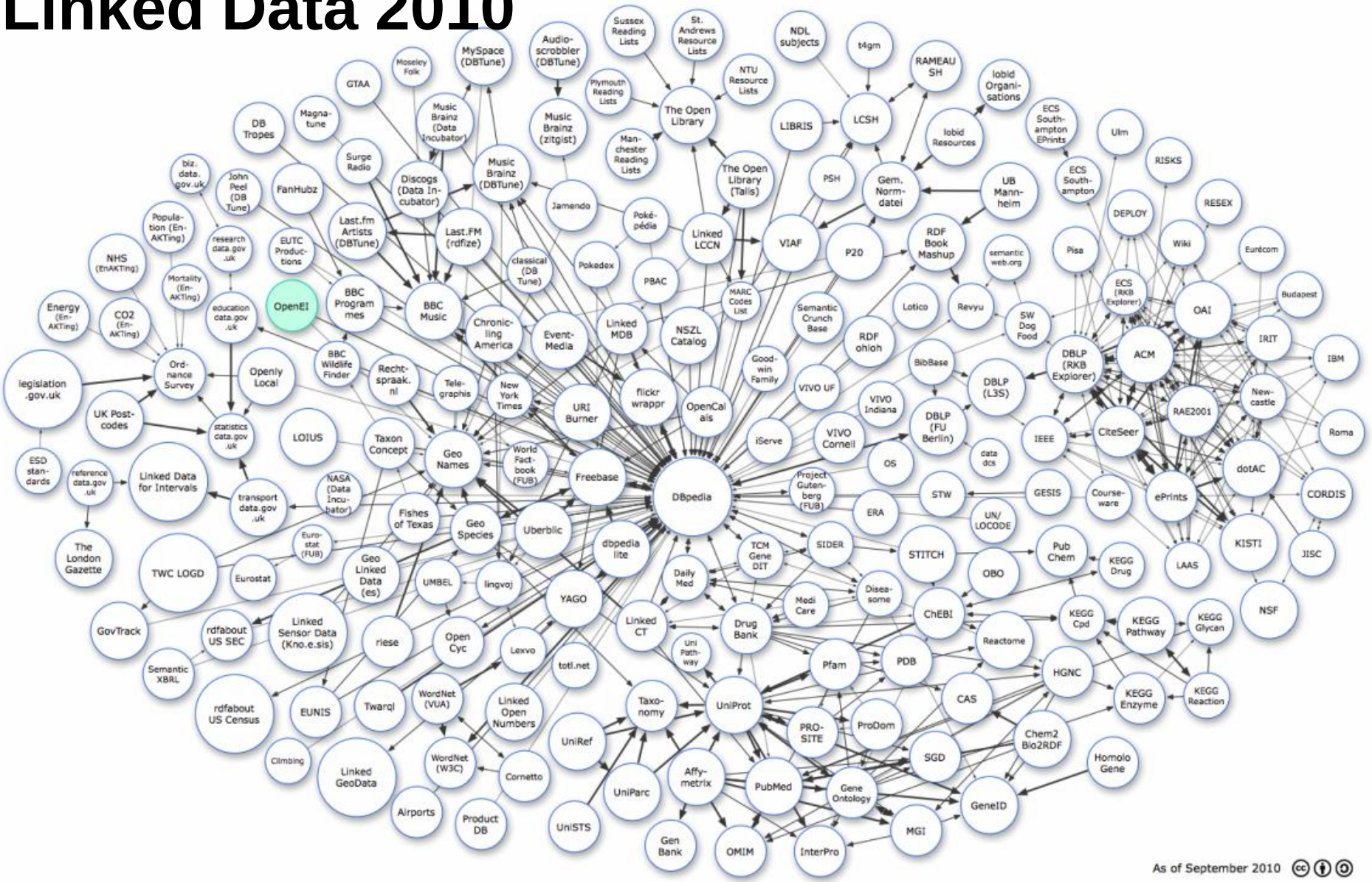
Linked Data 2008



Linked Data 2009



Linked Data 2010



Unique Attributes

Publicly accessible text and information
http://openei.org/wiki/Gateway:Solar

Easy formats to read and sort
http://openei.org/wiki/List_of_Companies_in_Solar_Sector

Visual mapping of data
http://openei.org/wiki/Map_of_Solar_Power_Plants

Geographic boundary analysis
http://openei.org/wiki/California's_12th_congressional_district

Collaborative, forms-based authoring
http://openei.org/w/index.php?title=Advanced_Energy&action=formedit

Facility to link external information
http://openei.org/wiki/Wyoming

Ability to track changes
http://openei.org/w/index.php?title=Main_Page&action=history

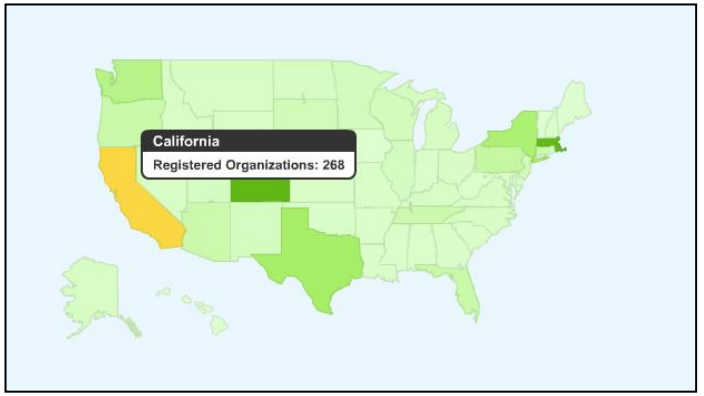
Downloadable spreadsheets of information
http://openei.org/wiki/List_of_Companies_in_Solar_Sector

Machine-readable data services
http://openei.org/sparql


Companies in the Solar sector:

Download CSV

Company	Address	Place	Zip	Product	Website	Region
1st Light Energy, Inc.	3224 McHenrry Ave Suite F	Modesto, California	953650		http://1stlightenergy.com	Southern CA Area
21-Century Silicon, Inc.	1681 Firman Drive, Suite 103	Richardson, Texas	75081-1881	Solar Grade Silicon >99.9999% purity	http://www.21-CenturySilicon.com	Texas Area
4th Day Energy	38886 River Belle	Tollhouse, California	93667	Solar electric systems	http://www.4thdayenergy.com	Southern CA Area
A1 Sun, Inc.		Berkeley, California	94707	solar energy systems	http://www.a1suninc.com/home.chtml	Bay Area
A10 Power	775 E. Blithedale Ave., #125	Mill Valley, California	94941	Solar Financing and Integration	http://www.a10power.com	Bay Area
ABC Solar, Inc.	24454 Hawthorne Blvd	Torrance, California	90505	Solar power systems, products	http://www.abcsolar.com/	Southern CA Area
AC Solar Inc	P.O. Box 128	Florence, Colorado	81226	Solar and wind sales for residential	http://www.acsolar.com/	Rockies Area
ACME solar works	20738 Brown Lane	Summerdale, Alabama	36580	Solar power systems, products	http://www.acmesolarworks.net/	
AEE Solar	1155 Redway Drive PO Box 339	Redway, California	95560		http://www.aeesolar.com/	Bay Area



- ✓Transparent
- ✓Participatory
- ✓Collaborative