

# Smart Grid Customer Privacy

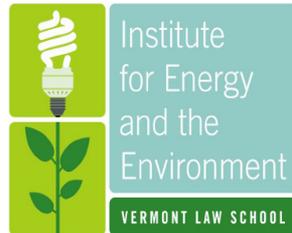
**TCIPG**  
**Consumer Acceptance of Smart Grid**  
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Institute for Energy and the Environment

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# Institute for Energy and the Environment

- The IEE is a national and international resource for energy law and policy.
- Our research team is selected from top students in the energy and environmental programs at VLS.
- In 2010 we initiated our Smart Grid Project funded by US DOE
  - Examining best practices in smart grid implementation through 6 utility case studies
  - Addressing the legal, regulatory, and policy challenges of smart grid implementation, including privacy concerns



Institute for Energy  
and the Environment

VERMONT LAW SCHOOL

# What are consumer perceptions?

Smart Grid Consumer Collaborative 2012

Consumer Pulse Research:

- About 1/2 of consumers (54%) say they have never heard of the smart grid and another 1/5<sup>th</sup> (21%) say they they have heard the term but don't know much about what it means
- Favorability 52% (+), 26% (+/-) 13% (-)



SmartGrid  
Consumer  
Collaborative

# The Privacy Challenge

“We . . . have the technology to record . . . energy consumption . . . every minute, second, microsecond, more or less live. From that we can infer how many people are in the house, what they do, whether they're upstairs, downstairs, do you have a dog, when do you habitually get up, when did you get up this morning, when do you have a shower: masses of private data.”

Martin Pollock, Siemens Energy

“Privacy Concerns Challenge Smart Grid Rollout,” Reuters (June 25, 2010).



# The Rest of the Story ....

“We think the regulator needs to send a strong signal to say that the data belongs to consumers and consumers alone. We believe that’s a blocker to people adopting the technology.”

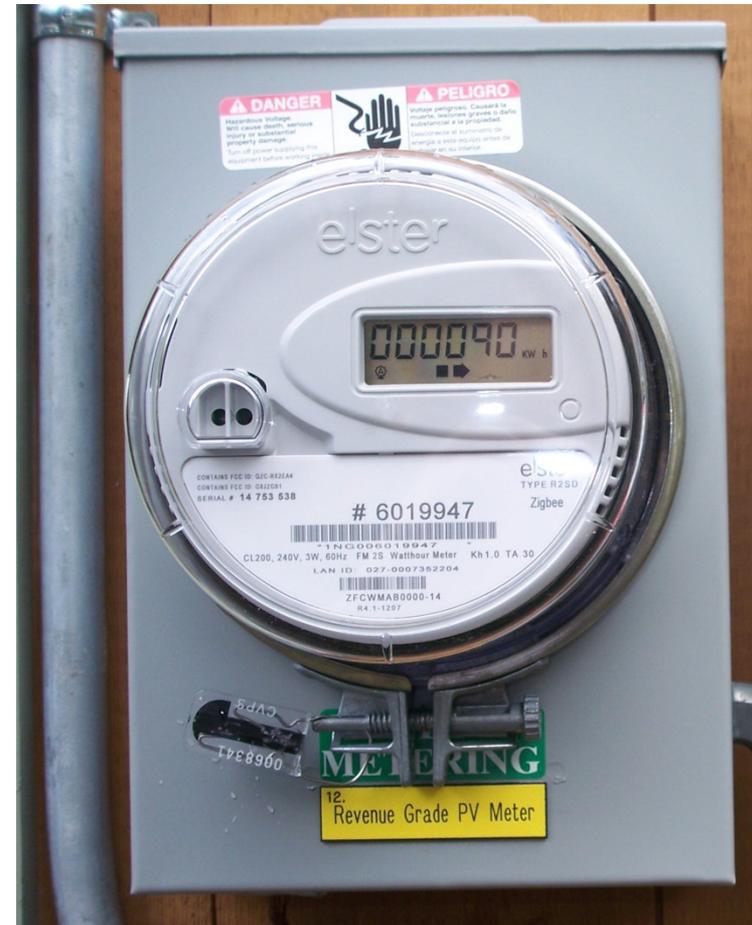


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# Privacy is Paramount for Public Acceptance

- Consumer concern about data security in other sectors
  - Examples from Epsilon, Facebook, Google, Nintendo, etc.
- State scrutiny of privacy implications
  - “It is the policy of the state to promote . . . smart grid functions . . . in a manner that is consistent with security and privacy.” Maine Smart Grid Policy Act.
  - Colorado Smart Grid Task Force tasked to review potential impacts to “consumer protection and privacy.”



# Privacy Principles Leading to a Model Utility Privacy Policy



# Privacy Principles for Utilities

1. Make privacy the default setting.
2. Provide complete privacy protection.
3. Know the law regarding public disclosure in your state.
4. Only store/provide access to necessary information.
5. Obtain written consent before disclosing to most third parties.
6. Educate customers about the implications of sharing data with third parties.
7. Notify customers when data is disclosed.
8. Develop a plan for contingencies.
9. Make your privacy policy accessible to customers.



“Numerous companies are already developing Web and smartphone applications and services for business and consumers that can use Green Button data to help consumers choose the most economical rate plan for their use patterns; deliver customized energy-efficiency tips; provide easy-to-use tools to size and finance rooftop solar panels; and conduct virtual energy audits that can cut costs for building owners and speed the initiation for retrofits. Developing innovative applications and services to help consumers understand and manage their energy use and understand the environmental impacts of that usage is a field ripe for American innovation.”

(source: [www.greenbuttondata.org](http://www.greenbuttondata.org))

# **www.voltstats.net**

## **How does the site work?**

The site interfaces with the webservice used by Onstar's mobile applications. Currently, the service is polled 2 times a day for updated vehicle information....

**What happens when I login to the site?**...the site communicates with the OnStar webservice to validate your account....The site stores your username, password, and a token received from the OnStar webservice. The password is hashed and salted with bcrypt making it virtually unrecoverable. The password is stored to allow you to login to the site to manage your account without talking to OnStar every time. When the site needs to poll your car, the token is used to authenticate with the webservice....

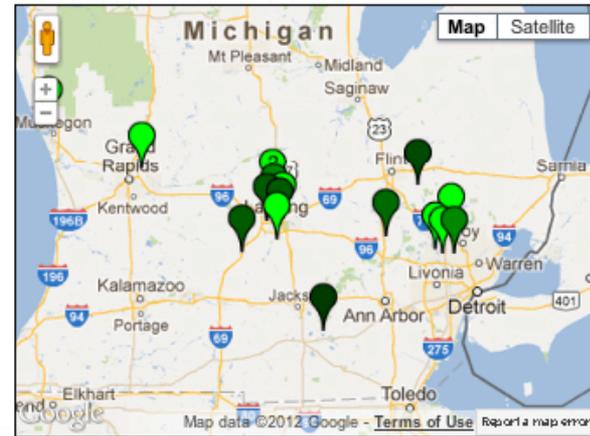
**It'd be cool to track X, can we do that?** Right now, I can only get data that you can see on your phone. We might be able to get data from other sources ([onstar.com/myvolt.com](http://onstar.com/myvolt.com)) in the future.

# Volt Stats

## Membership Groups:

### Michigan Capital City

#### Member Locations



Group Members

Monthly Totals

Daily Driving

Show  entries

Search:

	Serial #	Nickname	State	EV Miles	Total Miles	EV%	MPG	MPGe	MPGcs
1	<a href="#">2012-06866</a>	EREved	MI	10352.36	10470.71	98.9	1809.27	89.41	20.45
2	<a href="#">2011-02903</a>	Volt NMT	MI	6386.48	6547.06	97.5	1505.37	89.66	36.92
3	<a href="#">2012-14012</a>	Amazing Chev	MI	7344.41	7542.52	97.4	1158.43	88.24	30.43
4	<a href="#">2011-03945</a>	Brent's Volt	MI	17859.39	18536.24	96.3	834.78	86.52	30.48
5	<a href="#">2012-22022</a>	Volt	MI	2904.48	3136.20	92.6	486.89	83.25	35.97
6	<a href="#">2012-02019</a>	Sparky	MI	3388.10	3620.56	93.6	481.48	82.38	30.91
7	<a href="#">2012-00519</a>	Shocking!	MI	10875.82	11949.91	91.0	462.90	83.70	41.61
8	<a href="#">2012-13741</a>	Quiet As A Mouse	MI	5606.06	6180.26	90.7	325.30	77.95	30.22
9	<a href="#">2011-00974</a>	Volt 974	MI	17494.85	23255.37	75.2	138.78	65.38	34.38
10	<a href="#">2012-01439</a>	DanY's Volt	MI	6746.23	9123.26	73.9	137.37	65.65	35.79
11	<a href="#">2011-01586</a>	BATDOC	MI	11266.40	16465.55	68.4	115.49	62.44	36.47
12	<a href="#">2012-04384</a>	Red Streak	MI	5616.96	9348.27	60.1	100.67	61.00	40.18
13	<a href="#">2012-16664</a>	no-mo-gas	MI	4368.26	7477.44	58.4	91.73	58.20	38.14
14	<a href="#">2012-00261</a>	BlackBeauty	MI	6929.72	11626.27	59.6	91.26	57.58	36.87
15	<a href="#">2012-07622</a>	AC2DC	MI	7616.88	13354.82	57.0	84.68	55.74	36.38
16	<a href="#">2011-02200</a>	Kim's Volt	MI	9553.96	17020.28	56.1	83.27	55.42	36.53
17	<a href="#">2011-02054</a>	AmpOhm	MI	6389.04	13739.53	46.5	70.80	52.29	37.88

Showing 1 to 17 of 17 entries

First Previous 1 Next Last

## Details for Volt #2012-14012 (Amazing Chev):

### Car Information / Rankings

Location:	Lansing Charter Township, MI	
Last Updated:	9/8/2012 12:11:11 PM CST	
EV Miles:	7344.41	#481 / 70.7%
Total Miles:	7542.52	#700 / 57.4%
EV %:	97.4%	#83 / 95.0%
MPG:	1158.43	#57 / 96.6%
MPGe:	88.24	#53 / 96.8%
MPGcs:	30.43	#1357 / 17.3%
Tire Pressure:	38 PSI	
Group Membership(s):	<ul style="list-style-type: none"> <li>Michigan Capital City</li> </ul>	
Comments:	Plug It Not Pump It!	

### Achievements



It's not a hybrid if you don't use any gas!  
**Miles Driven Without Gas, Level 4**  
 1633.44 Miles, 100.00 Points  
 Recorded between 5/1/2012 and 6/8/2012

Mileage Graph

Reading History

Monthly Totals

Daily Driving

Achievement Status

#### Graph Options

Graph Type:

Moving Average:

Update

MPG History



# Voluntary Release to Third Parties

## Illinois AG Position

*“The People do not take issue with ComEd’s commitment to ensure that customer usage data is released only when the customer authorizes it. That being said, the devil is in the details. In any order ... the Commission should require that ComEd provide a report detailing information about the Green Button initiative and other instructions to ensure that ratepayers do not unwittingly authorize the access to personal information...”*

## The Illinois Commission

*“The AG ... raise a valid point regarding the need to adequately educate consumers regarding the authorization of access to personal information ... ComEd should work with stakeholders to ensure that customers are properly informed.”*

# Privacy Impact Assessment

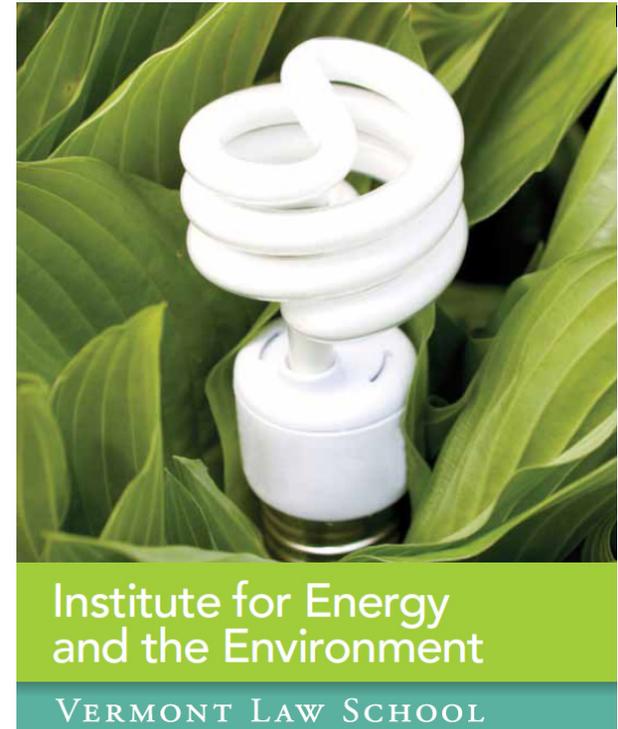
Utilities must conduct a PIA with the following goals:

- Determine whether the utility's information handling and use complies with legal, regulatory, and policy requirements regarding privacy;
- Determine the risks and effects of collecting, maintaining, and disseminating information in identifiable, or clear text, form in an electronic information system or groups of systems; and
- Examine and evaluate the protections and alternative processes for handling information to mitigate the identified potential privacy risks.
- The utilities information collection, storage, disclosure, and destruction procedures should be reviewed annually.

# The Way Forward

There are substantial operational and environmental benefits to achieving a smart grid:

- Comprehensive state and utility policies are necessary to protect consumer privacy
- Educating consumers on both the positive attributes and risks of third party release of data is essential to success
- Utilities and policymakers should be more proactive on emphasizing consumer benefits.



[www.vermontlaw.edu/smartgrid](http://www.vermontlaw.edu/smartgrid)

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