

Smart Grid Overview USA

Grid2com

Philip Hunt, CEO

1. Government/Politics

2. Industry

3. Utilities

4. Public/Press

The story of Edison and Bell

Transport both to the beginning of the 21st century and review their technical fields...

Bell would be totally lost and unable to imagine how this technology came from his initial work.

Edison would be right at home and able to understand most all of the grid and how it works..

...but is this a fair comparison?

Compare - Rudolph Diesel and Joseph Lucas

Areas of interest

1. Government/Politics

2. Industry

3. Utilities

4. Public/Press

“Government” elements of SG

- The governing bodies
 - FERC
 - PUCs
- The standards/R&D bodies
 - NIST
 - DOE
- The stimulus package
 - Jobs and spending
- The political matters
 - States vs States vs Feds
- Examples sites – FERC, DOE, NIST

“Government” elements of SG

- WEB sites used in Presentation:
- Examples sites – FERC, DOE, NIST

<http://www.ferc.gov/>

<http://www.energy.gov/>

<http://www.nist.gov/smartgrid/>

Industry components of SG

- Standards & Research
- Metering companies – AMI is today's lead in to SG!
- Infrastructure Companies e.g. GE, ABB...
- Communications – wired - wireless
- Data storage / manipulation – Oracle etc
- SG integrators + SW vendors
- New entrants – chasing the \$\$
- \$\$\$ from Stimulus package
- Examples sites – *GE*, ABB (pdf)

Industry components of SG

WEB sites used in Presentation:

- <http://ge.ecomagination.com/smartgrid>
- <http://www.abb.com/smartgrid>
- Examples sites – *GE*, ABB (pdf)

Standards bodies

- NIST
- IEEE
- Gridwise
- Intelligrid
- EPRI
- Edison Electrical Institute
- Dozens more... :-) - zigbee
- Example sites – IEEE, EEI, Gridwise, Intelligrid

Standards bodies

WEB sites used in Presentation:

http://standards.ieee.org/announcements/intel_p2030.html

<http://www.eei.org/Pages/default.aspx>

<http://www.gridwise.org/>

- <http://intelligrid.epri.com/>
- Example sites – IEEE, EEI, Gridwise, Intelligrid

Utilities & SG

- Concerned -Who owns what and when?
- Justification? Already “pretty darn good”
- Regulatory environment e.g. conservation / decoupling
- Time of Use / growth / peak / future \$
- Future impact of growth in and TYPE of consumption e.g. PHEV
- Distributed & intermittent generation – all types – renewables
- Security
- Example sites – AEP, Nstar, FPL, PG&E

Utilities & SG

- <http://www.aep.com/>
- <http://www.nstar.com/business/>
- <http://www.fpl.com/>
- <http://www.pge.com/myhome/>
- Example sites – AEP, Nstar, FPL, PG&E

Public and Press view SG 2

Jobs++ especially state level interactions

Lower energy prices? Conservation? Carbon?

Could lead to faster Cap and trade for CO2 & TOU adoption
and better market dynamics at the retail level.

Example sites – Mass High tech, Smartgrid news, Wired

Public and Press view SG 2

<http://www.masshightech.com/>

<http://www.smartgridnews.com>

<http://www.wired.com/>

Example sites – Mass High tech, Smartgrid news, Wired

Capgemini

- Recent Survey of NARUC and CAMPUT

38 percent of respondents already have regulations that require an Automated Metering Infrastructure (AMI) deployment, an additional 7 percent reported that they are allowing deployments without regulations, while 22 percent report additional analysis is either underway or required.

48 percent of respondents favor the recent formation of the NARUC-Federal Energy Regulatory Commission (FERC) Smart Grid Collaborative, while an additional 31 percent felt more time is needed before they can judge. Eighteen states have already joined the Collaborative.

Overview

- Smart Grid in USA – is a vast field of government, standards, economic and engineering topics
- The public (and therefore press) are directly involved but also want it to work
- VC money is somewhat in a holding pattern waiting to follow stimulus money
- Last week I couldn't spell “smart grid” now...
- Bottlenecks – time money skills people technology...

“blind spots”

- UK not talking (much) about security (cyber)
- USA not talking (formally) about Manpower issues
- CO2 cap and trade
- The world recession and economic conditions will affect the next 5-7 years
- Wild cat oil...where will the rewards be made in PRIVATE innovation
- ATT, BT, FT – mobile -telecoms managed to open up – can power?

Questions ?

Immediate Future of Smart grid?

- absorb micro distributed renewable generation and PHEV loads
- happen slower than the press or VC's want it to
- happen as slow as the Utilities need it to be :-)
- CAN change everything about energy delivery for the better...
- And it WILL...but over a longer time-frame than thought of now.
- Entrance via Metering for retail

Public and Press view SG

- Highly critical of this “poor old grid” e.g. Wired Magazine
 - without real knowledge -site example
- “Danger Will Robinson”...cyber attack.
- Seen as USA leadership / pride (new “moon shot”) issue by some
 - Garage level invention along side massive R&D dollars – some outrageous claims
- Seen as a valid use of Stimulus money by Obama administration therefore heavily pushed