The role of environmental framing in socio-political acceptance of smart grid: The case of British Columbia, Canada

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Acceptance of Smart Grid Technologies

Various "smart grid" technologies can help achieve a region's environmental and climate mitigation goals by facilitating:

- the deployment of renewable energy sources,
- transportation electrification,
- energy conservation, and
- load-shifting of electricity use.

Examples of smart grid technology include: smart meters, real-time consumer feedback, time-of-use pricing, feed-in tariffs for renewables, and vehicle-to-grid (V2G) integration. We explore sociopolitical acceptance of smart grid deployment in British Columbia, Canada—a low carbon electricity-based region where smart grid deployment has been mandated as part of climate change legislation. In this region, smart meter deployment proved controversial in 2010-2014.

In this study we examine how the framing of smart grid environmental benefits may be associated with three components of socio-political acceptance:

- citizens (or the public),
- media, and
- key stakeholders.

SPEED Framework

To identify smart grid frames used by citizens, media and key stakeholders, we use the Socio-political Evaluation of Energy Deployment (SPEED) framework. SPEED categorizes six frames as benefits or risks: technological, economic, political, cultural, health and safety, and environmental.

Methods and Data Collection

In the spirit of triangulation, we used three methods to explore the influence of framing on the acceptance of smart grid technologies by different groups:

1. A media analysis of newspaper articles (2007-2012);
2. Interviews with key stakeholders (gov’t, utilities); and
3. A 2013 survey of Canadian citizens (n = 2930).

Component #1: Citizen Framing

Overall citizen acceptance of one smart grid technology (smart meters) is relatively low in British Columbia, but acceptance increases with environmental frames—respondents’ acceptance doubles when smart meters are described according to positive frames, namely environmental benefits without installation costs or mandatory enrolment.

Table 1: Examples of stakeholder perceptions of smart grid benefits in order of frequency of mentions (all interviews)

Media and Stakeholder Framing

Media in British Columbia focus more on economic frames of smart grid deployment (e.g. reducing electricity costs) than environmental frames (e.g. climate abatement).

Main Conclusions

1. The deployment of smart grid technologies may play an important role in GHG abatement.
2. The pro-environmental frame is largely missing from socio-political discourse (citizens, media and key stakeholders), while inclusion of this and other positive, constructive frames could be important to building socio-political acceptance.
3. A clearly communicated vision of how smart grid can contribute to climate change mitigation could serve to increase citizen acceptance in British Columbia, and also likely in other regions.

Citations: