

Ontario Smart Grid Policy Development

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3 Pillars of Ontario's Smart Grid Policy Framework

1. Ministerial directive to the OEB following through from the GEGEA mandate re: smart grids.
2. Smart Grid Fund
3. Smart Grid Forum

2010 Ministerial Directive to OEB

- *Efficiency*
- *Customer Value*
- *Coordination*
- *Interoperability*
- *Security*
- *Privacy*
- *Safety*
- *Economic Development*
- *Environmental Benefits*
- *Reliability*

Ministerial Directive

■ Customer Control

- Data access
- Visibility of information
- Control of consumption
- Participation in renewable generation
- Customer choice
- Education

■ Power System Flexibility

- Promote distributed renewable generation
- Visibility of grid conditions
- Control and Automation
- Improve power quality

Ministerial Directive – Adaptive Infrastructure

- Flexibility
 - e.g. accommodate storage and electric vehicles
- Forward compatibility
 - Protect against technological lock-in
- Encourage innovation
- Maintain pulse on innovation

OEB Response

- "...no distinction will be made for regulatory purposes between "Smart grid" and more traditional investments undertaken by distributors and transmitters"
- "board will not approve expenditures that are not otherwise cost-effective, prudent long-term investments."

Smart Grid Fund

- \$50 Million administered by Ministry of Energy
- Focus on:
 - Consumer control, Power System Flexibility and Adaptive Infrastructure
 - Creating economic development opportunities
 - Reducing risk and uncertainty in developing, testing and evaluating smart grid technologies

Smart Grid Fund

■ 2 Rounds

- April 2011
- September 2013

■ Focus so far

- Home energy management systems and load control
- Information and communications systems for grid operation
- Microgrid management and integration
- Distributed generation integration
- Distribution automation
- Infrastructure for plug in vehicles

Smart Grid Forum - Reports

- 2009 – Focus on interoperability standards
- 2011 “Modernizing Ontario’s Electricity System: Next Steps”
 - Surveys to assess consumer interest in smart home technologies
 - Smart Grid economic development task force
 - Track electric vehicle registration
 - Framework to promote the deployment of energy storage
 - third party access to electricity consumers and their consumption information.
 - IPC and personal electricity consumption information
 - smart metering initiative
 - greater technological standardization

Smart Grid Forum

- December 2012 – Access to Consumer Data
- August 2013 – Progress assessment
 - Implementation of Smart meters and time of use pricing
 - Policy development

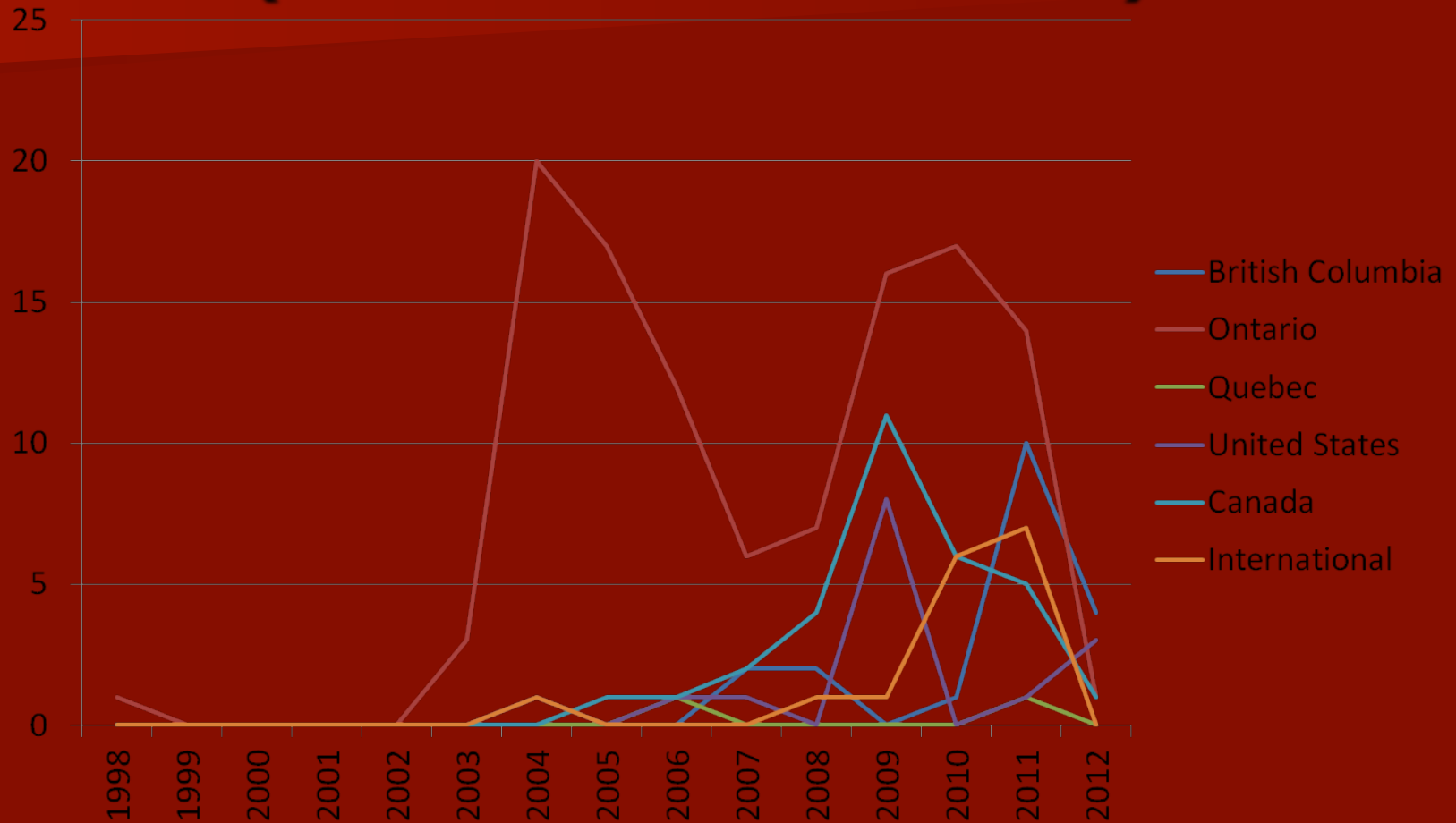
Smart Grid Forum Observations

- Smart Grid as Foundational and Enabling
 - SG represents a more distributed form of energy
 - Much larger role for private sector involvement and innovation
 - SG disrupts traditional institutional relationships
 - Role in GHG Mitigation and adaptation
 - Smart Energy Networks, more than electricity
 - Smart Grid is constantly evolving

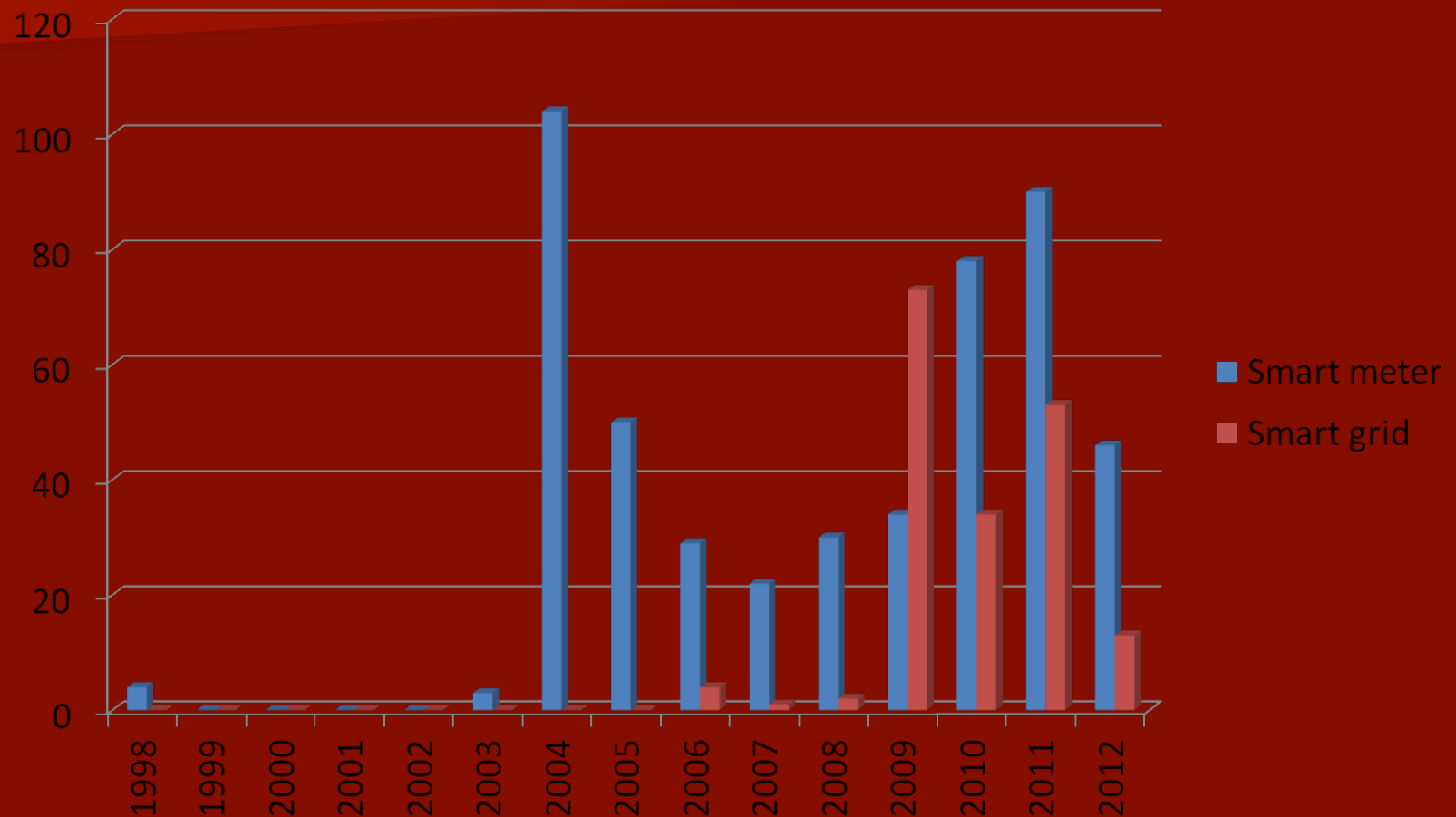
Success Metrics

- Customer use of smart meter information
- Customer use of smart grid (DSM, DG)
- Overall performance of smart grid
 - Outages, carbon content of electricity, T&D load factors, electric vehicle deployment
- Economic development
 - Job creation, exports, public and private investment

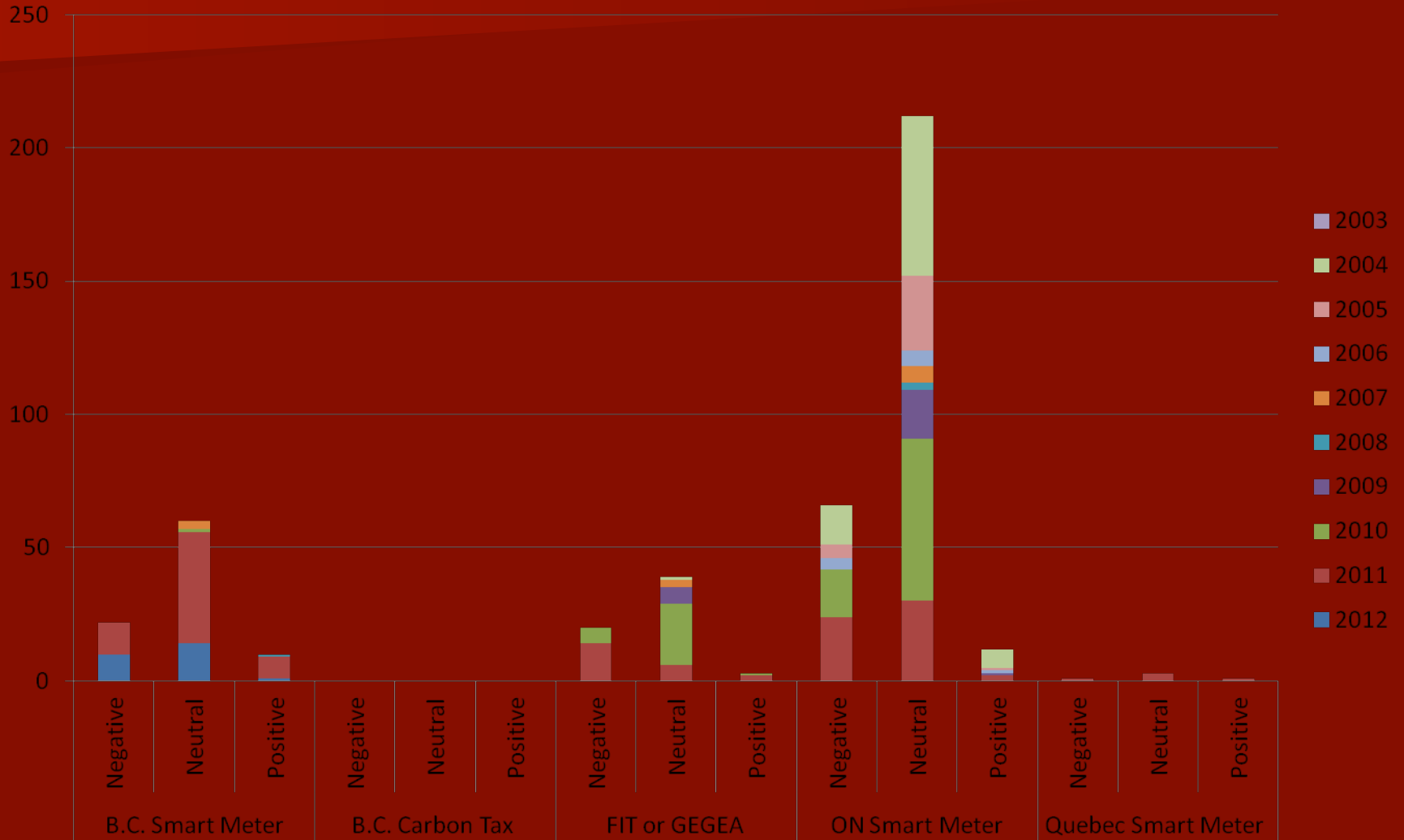
Media Analysis Regional Focus (Mallett et.al. 2013)



'Smart Grids' vs. 'Smart Meters'



Policies and Programs



Preliminary Conclusions

- Focus on smart meters over smart grid, Ontario
- Spike in smart grid interest in 2009 and smart meter interest in 2004, drop off in 2012
- Driving force is conservation
 - DSM-DR, energy efficiency, mandates & standards

Preliminary Conclusions

- Discourse centered around residential customers, provincial government, and utilities
- Framing
 - Benefits > risks (except for the small H&S and political frames)
 - Most risks associated with Liberal party and smart meter rollout

Question 1

- *What have been key drivers and goals behind Ontario's pursuit of a 'smart' electricity grid? What problems are we seeking to solve or opportunities do we hope to be able to pursue? Have original assumptions about the role and potential of a smart grid changed over time?*

Question 2

- *What is the state of the development of the province's policy framework around 'smart' grids? Do you regard it as comprehensive or complete? Are there significant gaps or barriers that need to be addressed? Are the roles and responsibilities of different actors in the process sufficiently well defined and articulated?*

Question 3

- *How well are 'smart' grids integrated with the province's overall approach to electricity system planning and development?*

Question 4

- *How do you envision smart grids changing the province's electricity system over the coming decade?*