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Regulatory Framework Reform Planning Panel – Smart Grid

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Topics

- Smart Grid
 - Ontario Status
 - Rest of World and Smart Grid
 - The Opportunity
 - Key Messages

Ontario Status

- Ontario's biggest investment in Smart Grid has been Smart Meters
- Smart Meters are not the Smart Grid in themselves
- Smart Meters are a major building block for the Smart Grid
 - *New data and control capabilities never before available*
 - *Data is valuable but only if the data is turned into information and used to make change*
 - *Functionality only valuable if utilised*

Ontario Status - Background

- 2005 – Ontario Government mandates Smart Meters for TOU – first jurisdiction in the world to do so
 - Perfect application for TOU and addressing Ontario energy concerns
 - Minimalist specification (TOU only)
 - LDCs have no need to justify (no business case= no operational goals)
- History will show (is showing) this was the still the right approach

Rest of World?- Background

- After Ontario, nearly all North American Utilities launch Smart Meter/Smart Grid Programs, with Europe right behind
 - All have operational business case drivers, including;
 - Revenue Protection
 - Asset Management
 - Demand response
 - Loss reduction/system management
 - Outage reductions, Power quality
 - Reading costs
 - Typically once started, the business case is enhanced (ROI improved) as new opportunities develop and are realized with these networks

- Typical Smart Meter Business Case Drivers
 - Theft, Asset Management, Loss reduction/system Management, Reading costs, Outage reductions
 - Power Quality, Etc.
 - These drivers have enabled all Non-Ontario Utilities to justify Smart Meters on operational benefits alone (not necessarily TOU or DR)
 - What do all of the above drivers have in common for Ontario?
- They are all low hanging fruit for Ontario since Smart Meters and networks already exist! Further room for;
 - Enhanced customer experience
 - Operational savings
 - Improved reliability

Ontario Status

- Ontario has deployed over 4 million smart meters that are being read every day and bringing back hourly interval for billing (plus much more, i.e. voltage, outage, etc.)
 - Leading the world in data gathering and billing from that data
 - Entire Province covered with communication networks
 - The opportunity to leverage this data is better than any other jurisdiction
 - But Regulatory Models today are built on traditional capital and operational needs
- Change is needed now to begin the ROI on Smart Grid Opportunities

Ontario-Leveraging Investment

- To leverage the operational benefits of its Smart Meters and networks, Ontario LDCs need to invest in Smart Grid including people, devices, tools and applications such as;
 - Transformer monitoring (Revenue protection and Asset Management)
 - MDMs and Energy Management Systems
 - Distribution Automation Outage and loss reduction
 - Demand Response (In Home Displays, Load control)
- Wholesale change out and major investments are ***not*** required
 - The big investment (AMI) is already done
 - Implement Smart Grid on a targeted or replacement basis
 - Bootstrap returns from low hanging fruit

Ontario – Multi Utility (Water, gas)

- The Ontario Smart Meter Roll out contemplated multi-Utility but did nothing further to encourage this
 - Electric Utilities concerned about regulations – hesitant to engage water and gas Utilities
 - Overlapping systems a colossal waste of funds and technology to taxpayers, not to mention added RF, privacy and intrusion issues
 - Water Opportunity Act (Bill 72) defines the need to manage water loss – perfect application for leveraging electricity Smart Meter Networks

Regulations – Moving Ahead

- Ontario has a stated desire to be a leader in Smart Grid. e.g.(IESO) initiative, Green Energy Act
- A Major Smart Grid Investment has already been made in Smart Meters
 - Meter Data needs to be turned into information and used for decision making in future operational and investment decisions (Grid Modernization)
 - Smart Meter networks can be leveraged further for automation and Demand Response
 - Operations can be further enhanced
- Some further investments needed but with rapid ROI

Smart Grid Requires Long(er) Term Thinking

- Building a Smarter Grid require different investment mentality than status quo
 - Higher initial cost
 - Systems, equipment
 - Skilled resources
 - Longer term benefits
- Take advantage of replacement and growth opportunities to enable future benefits
- We are stuck with non Smart Grid investments a long time.....

Key Messages

- Ontario has enabled a standing opportunity with its Smart Meter infrastructure
 - Regulatory change needed to leverage and benefit from the operational opportunities
 - Need some investment and new thinking to realize these opportunities
 - Challenging paradigms and long term thinking AND planning are required
 - Wholesale change-out not required
- Encourage (force?) Multi-Utility sharing of networks – to everyone's benefit