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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
Ontario - Status

• 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

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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