



Demand Response in Ontario

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Outline

- Electricity Sector in Canada and Ontario
- Ontario's electricity market
- Wholesale demand response
 - IESO programs and DR contract(s)
- Retail demand response
 - smart meters
 - the Regulated Price Plan
- Next steps

Electricity in Canada

- Canadian electric sector is provincially-based:
 - Minimal federal role
 - Mainly provincially-owned (except Alberta, Nova Scotia, PEI)
 - Cheap hydropower in some provinces (BC, Manitoba, Quebec, Newfoundland)
 - Markets in some jurisdictions (Alberta, New Brunswick, Ontario)

Electricity Market in Ontario

- A set of provincially-owned companies/agencies
 - Ontario Power Generation (70% of generation)
 - Hydro One (97% of transmission + 30% of distribution)
 - Independent Electricity System Operator
 - Ontario Power Authority
 - Responsible for planning, power plant procurement, conservation
- Other players
 - Municipally-owned distribution companies
 - Some private generators (mostly under contract to the province)
 - Ontario Energy Board
 - Regulate IESO, T&D
 - Policy development (when asked by government)

What happened to Ontario's Electricity Market

- Launched in May 2002
- But tight supply + hot summer led to 20% increase in retail price of electricity (and 30% increase in bills) for small consumers (default supply was market price)
- This led to certain political problems...

Source: EDA

'Gouged' customers shocked by power costs

Middle class feels pinch as fury rises over deregulation

■ **Eves promises action, A7**

son family of Aurora is contemplating cancelling the family vacation this year to make up for the rising cost of power

temporarily insulated, thanks to the decision to charge a steady 4.3 cents, but the price was to be adjusted at the end of next May to market average.

Toronto Hydro has now applied to the Ontario Energy

Tories told of hardship cases

Continued from A1

thestar.com

be made.
Simmons added the

Rising hydro bills could hurt hockey leagues

Power-cost revolt hits cabinet

Electricity Market today

- Smaller customers (about 50% of load) have been under regulated prices ever since – originally below cost, but since corrected.
- New government has taken action
 - Continued price regulation for smaller customers (RPP) for “stable prices”
 - Regulated prices for most of OPG’s generation
 - Actively acquiring new generating capacity (OPG investments, gas-fired generation, renewables, hydropower from Manitoba/Newfoundland) to compensate for planned closure of 7.5 GW of coal-fired capacity
 - Created Ontario Power Authority (OPA)
 - But has retained the wholesale market and has seen the light on demand response!

Wholesale Demand Response

- IESO programmes:
 - Dispatchable loads/demand side bidding (449 MW)
 - Hour Ahead Dispatchable Load (242 MW)
 - Emergency Demand Response (418 MW)
 - Transitional Demand Response (for loads under 5 MW, 58 MW)
- DR part of IESO customer education programs
- Recent government RfP for capacity included demand response:
 - CAD 350/MWh strike price (plus callable)
 - 10 MW contract awarded (grocery chain)
- OPA can “facilitate ... load management”

Retail Demand Response: Policy Background

- Government objective – manage electricity demand to:
 - make more efficient use of the current supply
 - reduce reliance on external sources
- “Smart meter” infrastructure needed for demand response:
 - 800,000 smart electricity meters by 2007
 - All Ontario customers by 2010 (about 4.5 million)
- Government asked OEB to develop a plan– considered several alternative options with stakeholders

Key Elements of Proposed Plan

1. Open interfaces
2. 2-way communication
3. Distributors responsible for meters and last mile
4. Capital and operating costs to be included in delivery rates
5. Large utilities first
6. Regulated Price Plan



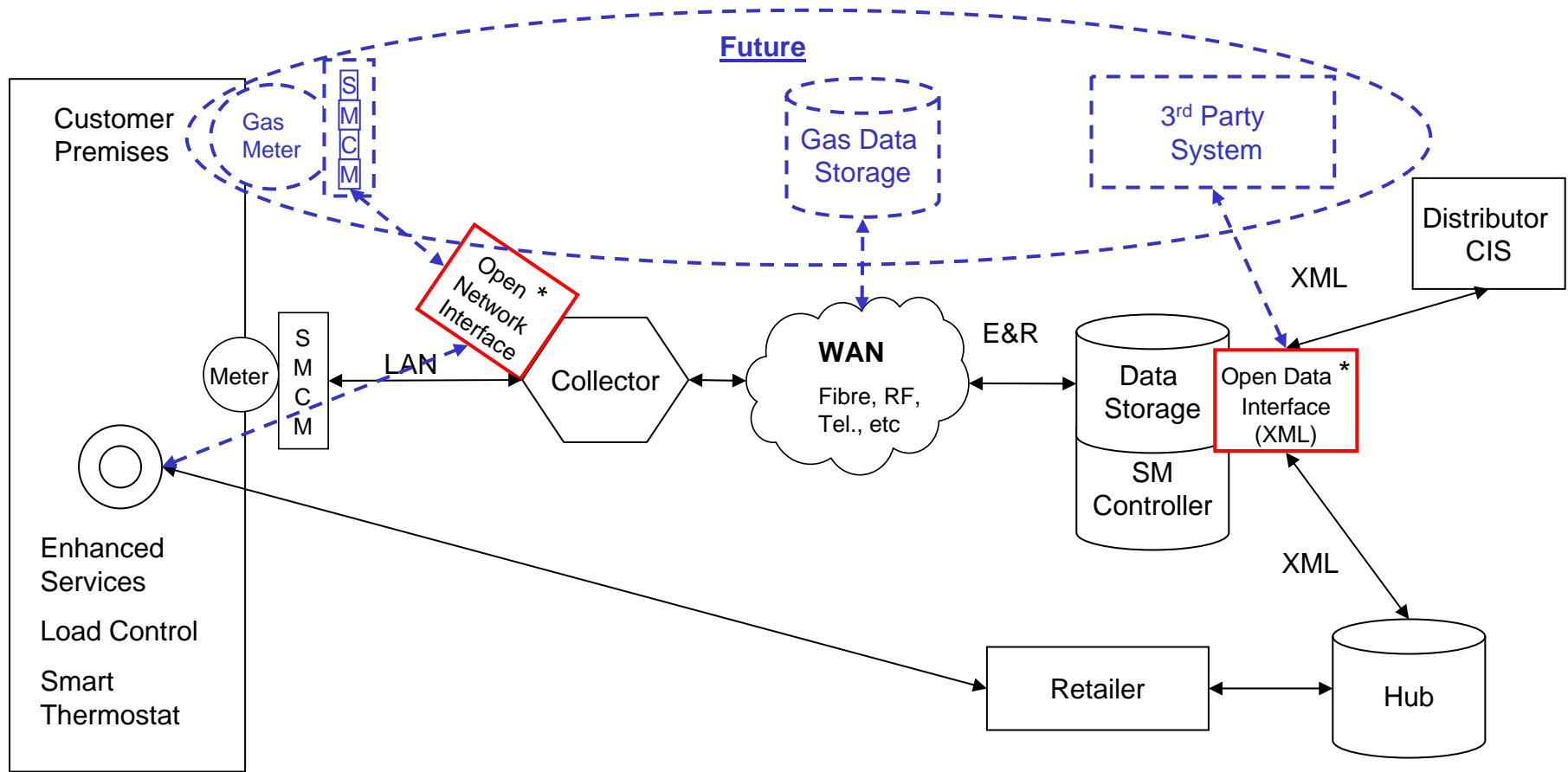
Proposed Smart Meter System

Key requirements

- Capable of two-way communication
- Hourly consumption data without the need to remove the meter or visit the site
- Daily feedback to customers
- Open communication and data standards



Two-way System with Open Access



Roles

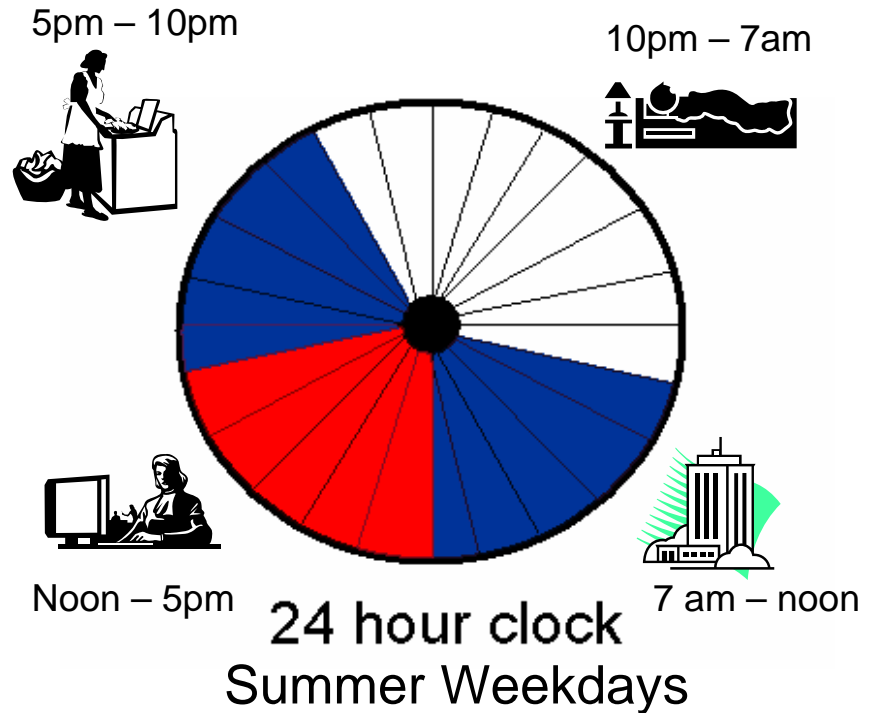
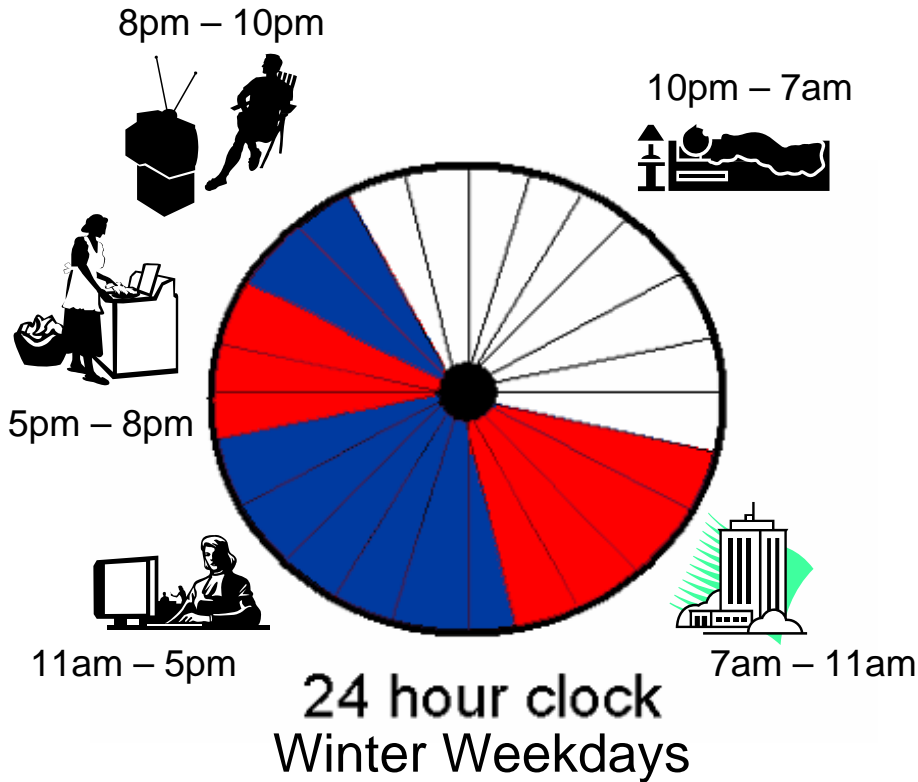
- **Ministry of Energy** retains responsibility for policy decisions
- **OEB** responsible for setting up a regulatory framework for meters (and Regulated Price Plan for small customers with smart meters)
- **Distributors** responsible for selecting appropriate system + installation, servicing and reading, load control services
- **Program Coordinator** to push for progress needed to meet provincial targets
- **IESO** to identify areas for priority installation; monitor power system and initiate formal critical peak calls
- **Meter Vendors** to complete Measurement Canada approval process and acquire appropriate licence permissions
- **Retailers** to provide competitive services

Cost

\$1 billion (est.) – \$3 or \$4 a month (capital and operating) per customer by 2010

- New Costs: To be included in delivery rates to customers in a particular rate class
- Multi-Utility Applications: Distributors to investigate mitigating smart meter costs by cooperating with water and gas utilities
- Stranded Costs: Equipment and systems displaced by smart metering

Time of Use RPP Pricing



Red = Peak pricing = 9.3¢

Blue = Mid-peak pricing = 6.5¢

White = Off-peak pricing = 2.9¢

All weekends = Off peak pricing

Challenges

- Economies of scale – 95 utilities / 95 solutions?
- Sub-metering
 - Multi-unit dwellings not separately metered
 - At discretion of building owners
 - Focus on customers with direct LDC relationship
- Competitive Retail Market

Customer Impact

- Electricity pricing that varies by time of use
- Daily access to consumption data
- Smart meter and RPP – incentive & ability to control energy costs by:
 - moving use to off-peak periods (i.e. running dishwasher at night)
 - lowering energy use during peak periods (i.e. setting air conditioning a few degrees warmer during the afternoon)
- Tools to understand energy use and the ability to change patterns
- Enabling technology, catalyst for change

Demand Response – current status

- Smart meter plan to Minister January 2005
 - Awaiting government announcement of “Plan B”
- Hydro One proceeding with series of pilot projects
- OEB looking at changes to RPP for 2006 (introduction of Critical Peak Pricing?)
- Demand response as contributor to resource adequacy
 - IESO has draft proposal for Resource Adequacy Market
- Ontario Power Authority role not yet clarified

Conclusions

- The situation is improving
 - Wholesale demand response already exists
 - Smart meters are moving ahead
 - TOU pricing implemented for small customers on smart meters (when they get them)
 - CPP is under development
 - Ontario Power Authority may “facilitate”
 - Prices are going up
- But political risk remains
 - Higher prices increases risks of political reaction
 - “Customers are paying over double for electricity this summer”
 - Capacity costs will be recovered outside the market, reducing market prices
 - Administered pricing with carrots rather than sticks is a lower risk approach
- OEB is in a good position to address these questions



Questions?

- Reports on smart meters and on the regulated price plan can be found at:

www.oeb.gov.on.ca