

Rethinking Energy



METERING, COMMUNICATIONS AND IMPLEMENTATION

Case Study | The Region of Peel Experience Implementing a
Real-Time Metering System



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Presentation | Outline

- Introduction to the Region of Peel
- Why Real-Time Metering?
- What Should You Meter?
- Who is Responsible for Metering?
- Where Should Meters be Installed?
- When Should Meters be Installed?
- How did Peel Region Implement its Real-Time Metering?

Profile | Region of Peel

Canadian Municipal Government

Cities of Mississauga,
Brampton and the Town
of Caledon

Annual energy budget in
excess of \$45 m. CDN
with electrical consumption
of 345 m. kWh's and
16 m. m³ of natural gas
annually



Profile Region of Peel

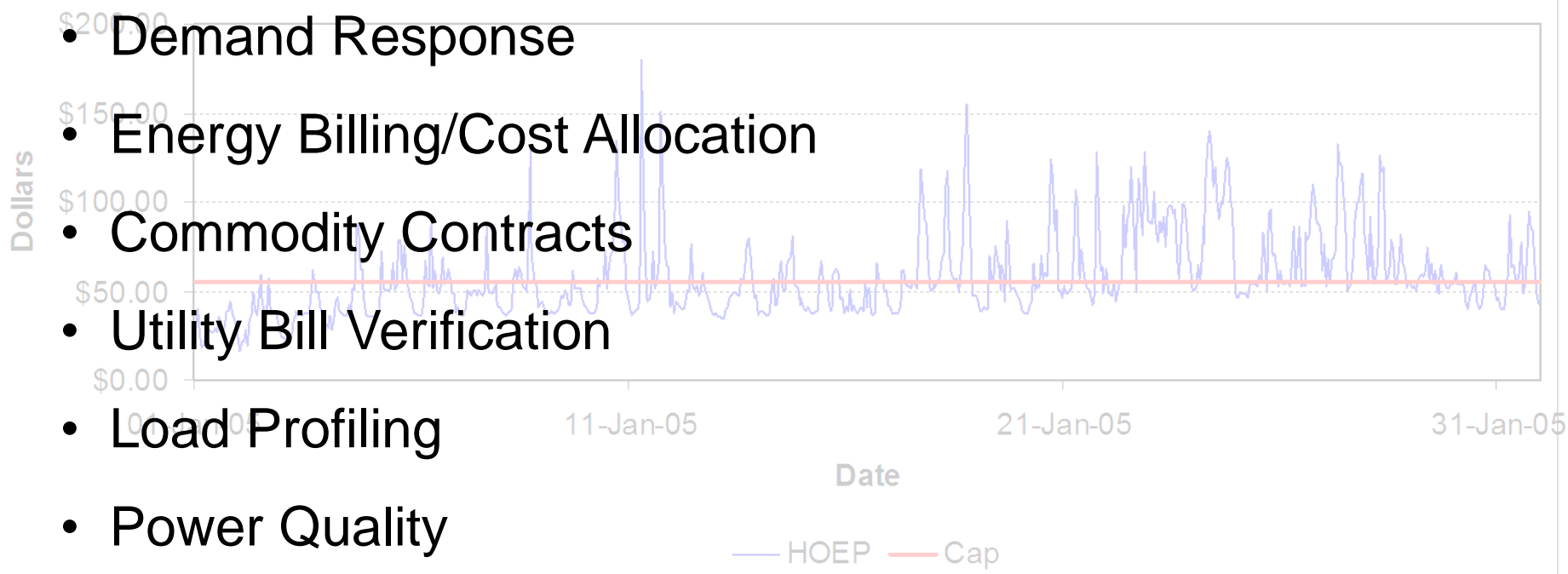
Corporate Energy is responsible for the purchase and management of electricity and natural gas consumed by:

- Corporate Office Facilities
- Police/Ambulance
- Social Services/Day Care
- Regionally Owned Apartment Buildings/Townhouse Complexes
- Public Works Facilities (Including Water/Waste Water Treatment)
- Health Services (Including Long-Term Care Centres)

Why Real Time Metering?

Six Key Factors for Metering

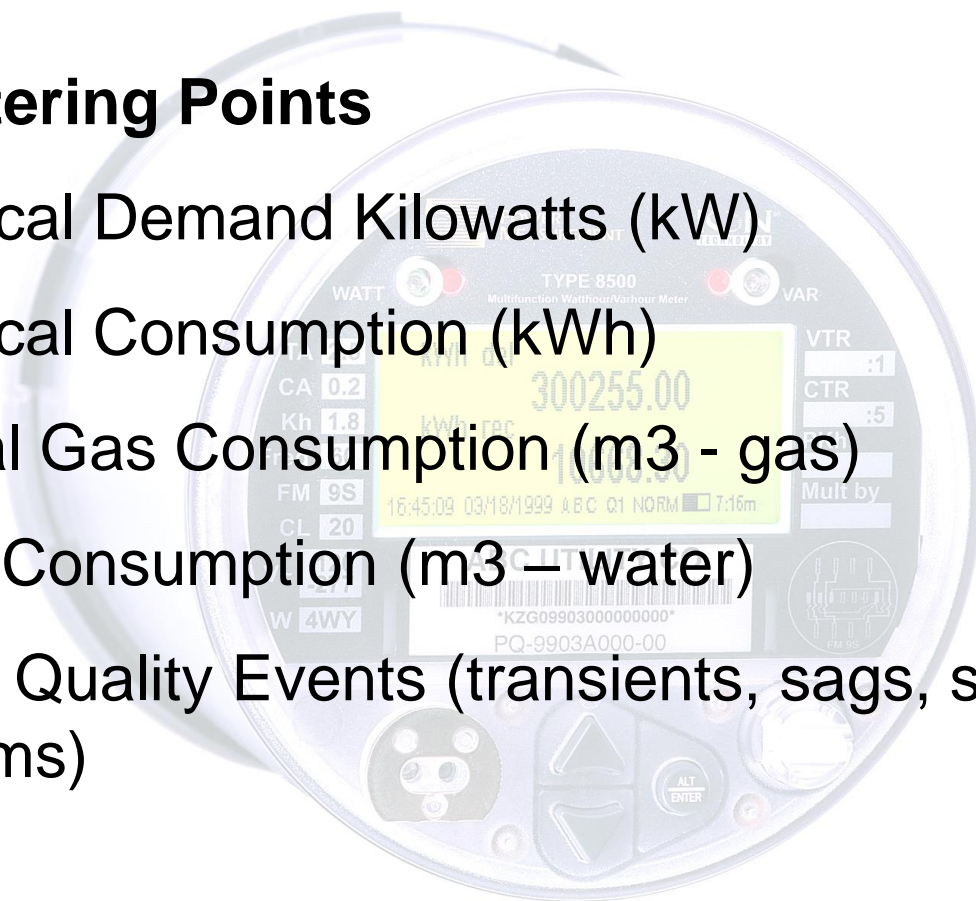
- Demand Response
- Energy Billing/Cost Allocation
- Commodity Contracts
- Utility Bill Verification
- Load Profiling
- Power Quality



What Should You Meter?

Key Metering Points

- Electrical Demand Kilowatts (kW)
- Electrical Consumption (kWh)
- Natural Gas Consumption (m³ - gas)
- Water Consumption (m³ - water)
- Power Quality Events (transients, sags, swells, waveforms)



Who is Responsible for Metering?

Questions

- Who is using software for real-time data collection?
- Who has more than 10 meters connected?
- Who has more than 50 meters connected?
- Who has more than 100 meters connected?
- Who is responsible for looking after your metering and software?

Where Should Meters Be Installed?

All Meters are installed at the main service for Electricity, Natural Gas and Water

- Demand Response
- Energy Billing/Cost Allocation
- Commodity Contracts
- Utility Bill Verification
- Load Profiling
- Power Quality

When Should Meters Be Installed?

Three main factors that influence when meters are installed at Peel Region

- Fiscal Year and Budgeting Process
- New Construction
- Weather

How did Peel Region Implement its Real Time Metering?

Six Key Factors to Successful Metering

1. Equipment
2. Information Technology (IT)
3. Communications
4. Local Distribution Companies
5. Software
6. Documentation and Process Mapping

How did Peel Region Implement its Real Time Metering?

Six Key Factors

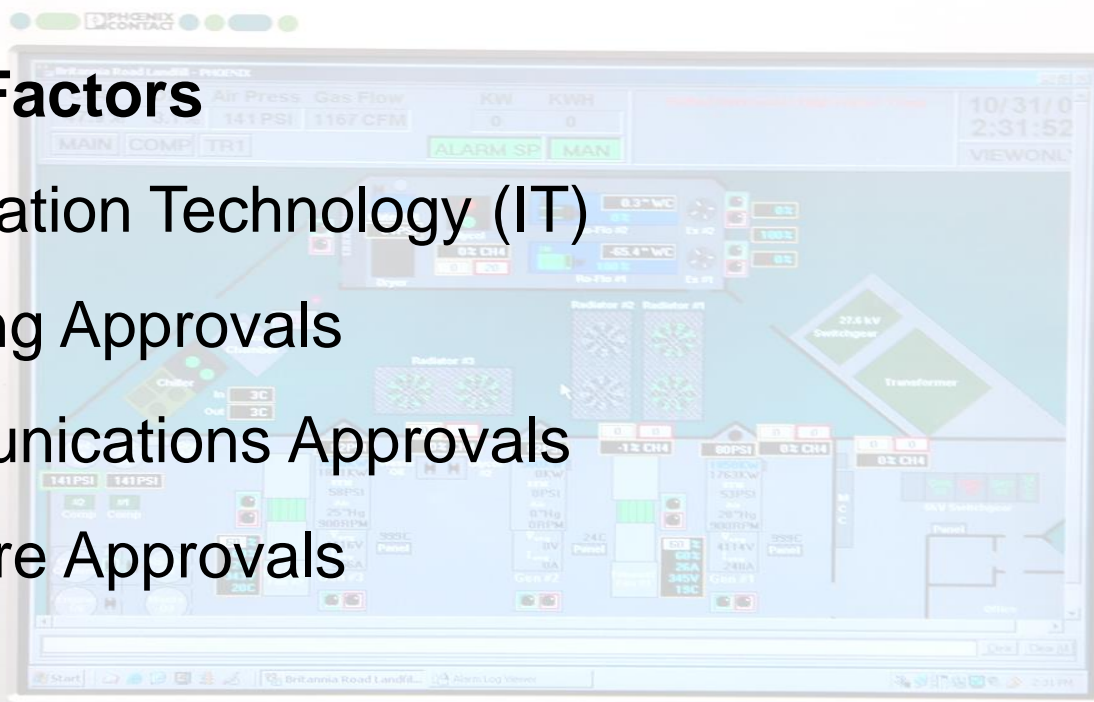
1. Equipment
 - Types of Metering (Electricity, Natural Gas, Water)
 - Revenue Approvals

How did Peel Region Implement its Real Time Metering?

Six Key Factors

2. Information Technology (IT)

- Metering Approvals
- Communications Approvals
- Software Approvals

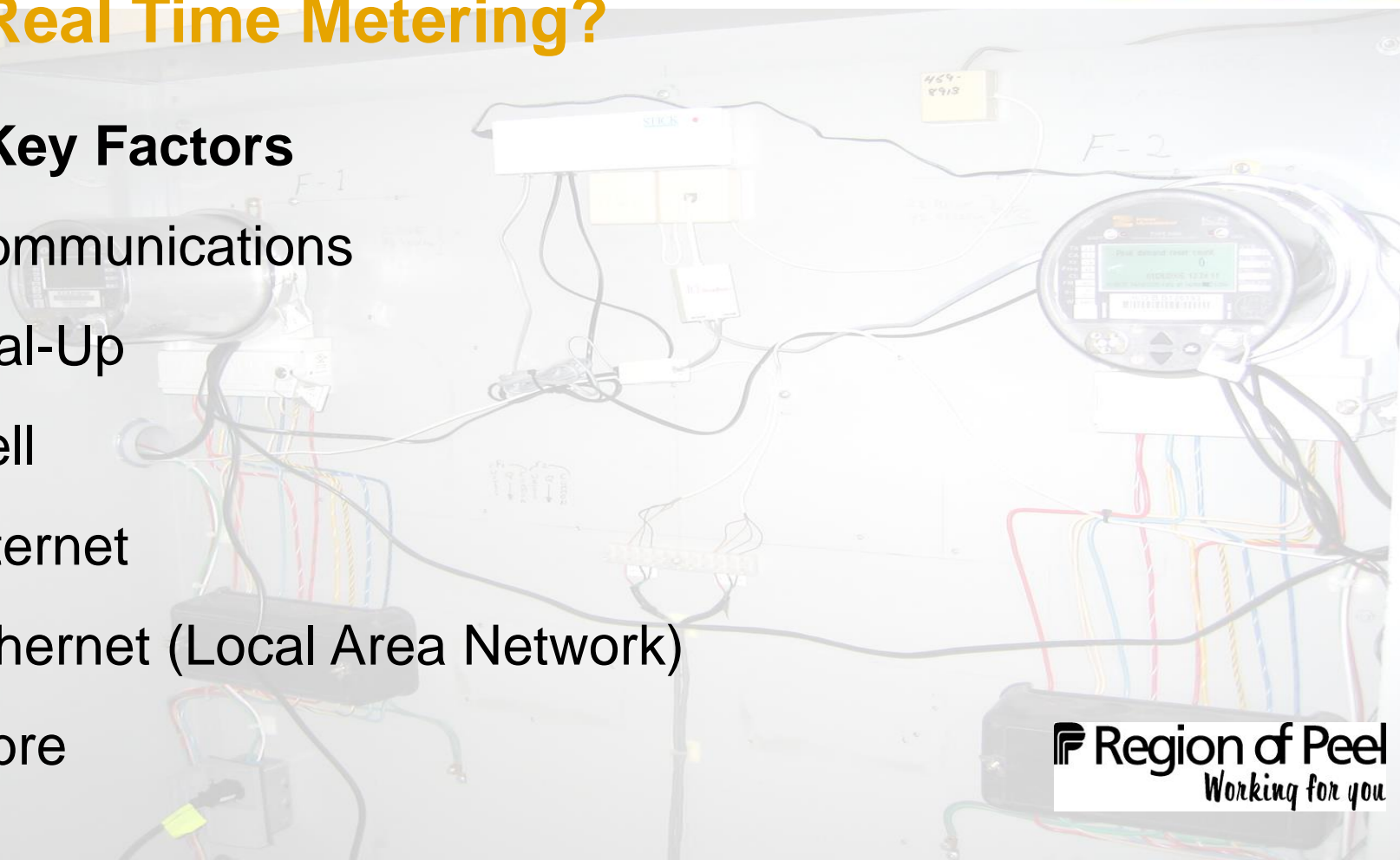


How did Peel Region Implement its Real Time Metering?

Six Key Factors

3. Communications

- Dial-Up
- Cell
- Internet
- Ethernet (Local Area Network)
- Fibre



How did Peel Region Implement its Real Time Metering?

Six Key Factors

4. Local Distribution Companies (Electricity, Natural Gas)
 - Metering Approval
 - Installation Agreements
 - Installation of Metering
 - Access to Data

How did Peel Region Implement its Real Time Metering?

Six Key Factors

5. Software

- Research
- Purchase
- Installation

How did Peel Region Implement its Real Time Metering?

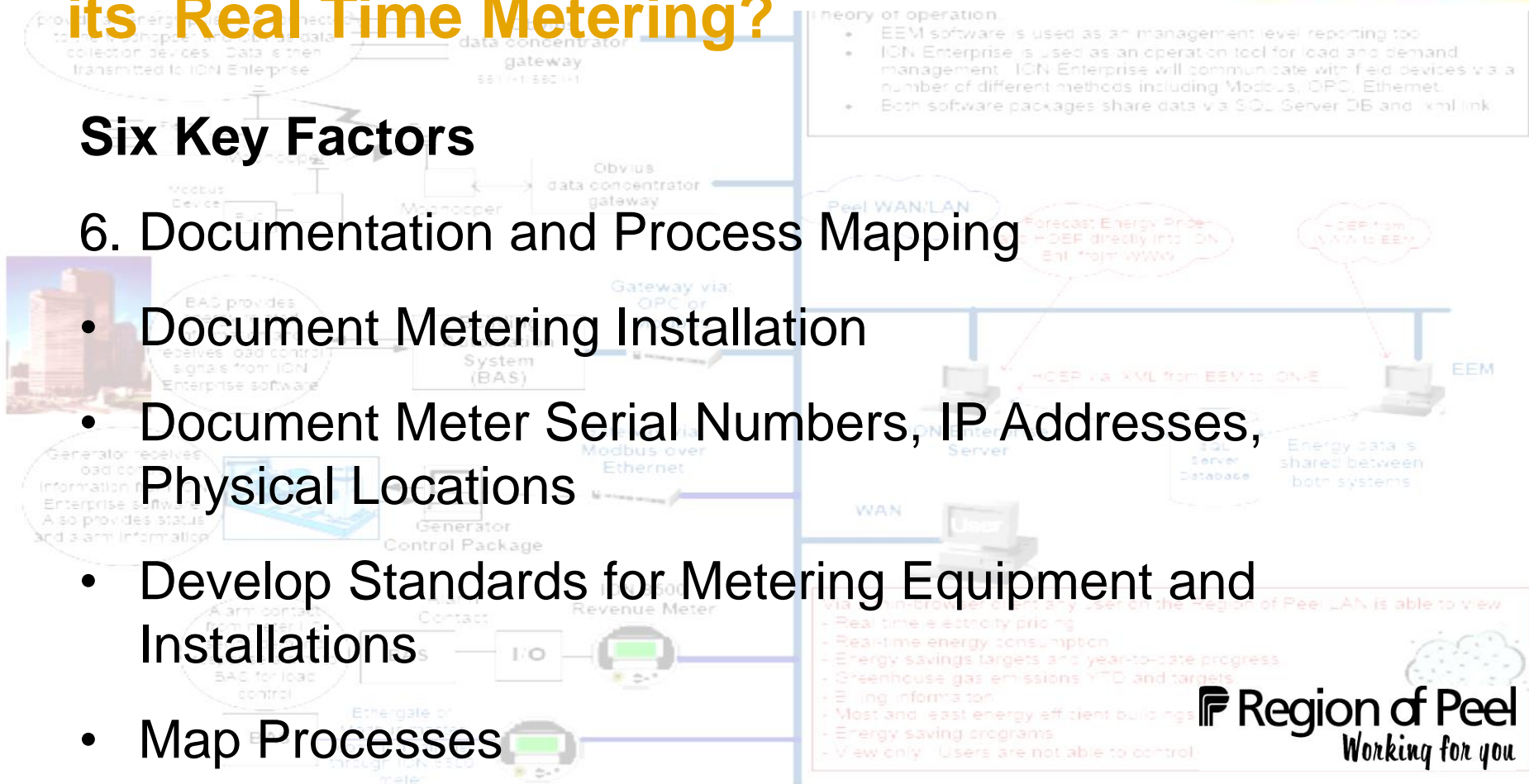
Six Key Factors

6. Documentation and Process Mapping

- Document Metering Installation
- Document Meter Serial Numbers, IP Addresses, Physical Locations
- Develop Standards for Metering Equipment and Installations
- Map Processes

Theory of operation:

- EEM software is used as an management level reporting tool
- ION Enterprise is used as an operation tool for load and demand management. ION Enterprise will communicate with field devices via a number of different methods including Modbus, OPC, Ethernet.
- Both software packages share data via SQL Server DB and xml link.



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THANK YOU

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