“A New Way of Doing Business”

Joel Westvold, Director - AMI
Portland General Electric
Portland, Oregon, USA
PGE’s AMI Vision

PGE will construct, own and operate a two-way advanced metering network that provides a communications and control platform to support:

- Valued customer services
- Operational efficiencies & savings
- Collection and use of interval data
Where Have We Been?

- Working with AMR/AMI since mid-1990s
- 6,700 automated meters in field today from various pilots and technology tests
- Our Meter Data Consolidator (MDC) has been operational since 2001
  - Currently processing over 500,000 automated reads per day plus 930,000 monthly manual reads
  - Scalability tested to over 7 million reads/day
Where Are We Now?

- Signed contracts with AMI Vendor (Sensus) and Contract Meter Installer (CMI) (Wellington Energy)
- Developing internal IT systems and business processes to support AMI
- Board approval for project funding
Where Are We Now?

- OPUC approval of with AMI tariff request
  - Covers accelerated depreciation of existing metering systems plus recovery of AMI costs less O&M savings
    - Took effect June 1, 2008
    - 1% average rate increase over 31-month tariff period
    - Thereafter, downward influence on rates due to annual O&M savings
Our System Today

Interval Data for 1,100 Probed Meters

MV-90
300 Meters

In te r v a ls

Phone Line

Web Front End

MDC

Meter Data Consolidator

Reading & Interval Data

Itron P+4
800K Meters

Van Reads

Manual Reads

Itron

Interval Data for 1,100 Probed Meters

MV-90
300 Meters

In te r v a ls

RF Mesh Network

PGR Mesh Network

Powerline Carrier

RF Mesh Network

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Banner CIS

Interface 73

Complex Billing

PBS

Meter Shop

OPUC Reporting

Load Research

SAS

Direct Access

Forecasting

Excelergy

Settlement

ESS

System Planning

OSI-PI

E-Manager

SiEnergy

Custom Exports

Custom Exports

Customer Data Requests

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Where Are We Headed?

- System Acceptance Testing –
  - June 2008–December 2008
- Full Deployment -
  - January 2009-August 2010
- Business Process (Re)Design
  - Ongoing through mid-2010
- Customer & System-Related Benefits –
  - Ongoing
Our Proposed AMI System

- Our technology choice – Sensus Metering
  - Tower-based wireless network
  - FCC-licensed RF spectrum
  - Advanced digital meters with “under glass” comm. modules & remote disconnect relays

- Two-way fixed network
  - Allows validation of all communications
  - Enables *ad-hoc* polling of meters
  - Enables remote firmware modifications/upgrades
Our Proposed AMI System

**AMI System**
- Solid-state Digital AMI Meters
- Wireless RF
- Tower
- Data Backhaul to PGE

**Fixed Network**

**Host System**

**PGE System**
- Servers, Software & Databases (RNI)
- Meter Data Consolidator (Est. 2001)

**PGE’s Enterprise Systems:**
- Banner CIS
- Complex Billing
- Load Research
- PowerTrack
- Direct Access (SB 1149)
- System Planning
- E-Manager
- Outage Management
- Energy Recovery
- Demand Response
- Service Link
- Others

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Our Goal
As the Customer Sees It

- Energy usage information for customers.
- Faster response to billing & usage inquiries and to open/close account transactions.
- Fewer estimated bills.
- More accurate bills.
- Enhanced service options, such as customer-selected due date.
- Lower rates over the long term due to increased operational efficiencies.
AMI Business Case

- **Project costs**
  - $144.2 million (includes contingency)
  - $132.2 million in capital outlay

- **Financial results**
  - Positive Net Present Value (NPV): + $34 million
  - Annual O&M savings: + $18 million (2011)
AMI Business Case

- Labor and Loadings: 60%
- Unaccounted for Energy: 20%
- Late Fees: 9%
- Power Cost Savings: 8%
- Non-Labor Costs: 3%

Power Cost Savings 8%
Non-Labor Costs 3%
Unaccounted for Energy 20%
Late Fees 9%
Labor and Loadings 60%
Core Project Team

- BRUCE CARPENTER  
  GENERAL MANAGER

- JOEL WESTVOLD  
  AMI DIRECTOR

- ADMIN. ASST.  
  Sheri Pettit

- PROJECT CONTROLS  
  Melissa Swenson

- FINANCE/SCHEDULING  
  Karen Havran

- BUSINESS PROCESS  
  Melissa Swenson

- COMMUNICATIONS  
  Dean Smith

- TEST PLANNING  
  Rosemary Lown

- SYSTEM BENEFITS  
  Don McCormick

- PMs from  
  Business Functions

- SYSTEM BENEFITS  
  Don McCormick

- MOC  
  Joan Amero/Bob Buck

- TECHNOLOGY P.M.  
  Conrad Eustis

- IT  
  Eric Spack

- Tower Build  
  Jerry Donovan

- DEPLOYMENT  
  Tom Gallegos

- UTC TEAM  
  Chris Cook

- TECHNICAL SUPPORT  
  Frank Drischell

- Planner/Scheduler  
  Jessi Marcoff

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System Rollout

- **Stage 1**: System Acceptance Testing (SATs)
  - About 16,000 meters; up to 5 RF towers
  - 5-7 months of end-to-end testing & analysis

- **Stage 2**: Full Deployment
  - Additional 835,000 meters and ~45 RF towers
    - Existing radio towers or PGE facilities
    - Maximum deployment rate 45-50K meters/month over a 20-month period
      - $\pm$ 2,500 meter exchanges per day performed by the CMI
  - New service installs and routine meter exchanges handled by PGE Meter Services

- **Stage 3**: System Optimization
SAT Test Areas

Rural Area
(about 3,000 meters)

Urban Area (includes portion of downtown Portland)
(about 13,000 meters)
Field Deployment - Wellington

- Beaverton: Jan 09 – Sep 09
- Tualatin: Sep 09 – Oct 09
- Woodburn: Jun 09 – Dec 09
- Salem: Apr 09 – Dec 09
- Oregon City: Dec 09 – May 2010
- Gresham: Feb 2010 – Aug 2010
- Sheridan: Sep 09 – Dec 09
- Portland: Sep 09 – Mar 2010

Combined
Core Business Process Activity

- Automated meter exchange (AME)
- On-cycle billing
- Lost revenue protection
- Routine meter exchange (routine MX)
- Connects (remote disconnect/reconnect & move-in/move-out)
- Work orders
- Customer-selected due date
- Meter reader re-design
Communications

- Internal parties
  - Personnel directly impacted by project
    - Direct support and information to assist them in future career planning (Managing Organizational Change project)
  - Other impacted organizations
    - Accurate and timely information on meter replacement and business process redesign timing and impact
Communications cont.

• PGE executive team
  - Accurate and timely information on project status (budget and schedule) and risk mitigation activities

• General employee groups
  - Information on overall project timing and progress and potential opportunities for use of AMI derived information
Communications

- **External Parties**
  - OPUC and other Intervener groups
    - Accurate information on the status of deployment and our progress in meeting specific deliverables, including both timing and money saved
  - **Customers**
    - Accurate and timely information on meter replacement timing and impact, energy usage, and cost savings opportunities
  - **Media/general public**
    - Accurate information on overall project timing and progress
Managing Organizational Change

- Working with affected employee groups
  - Monthly meetings & communications
  - Conducting workgroup assessments
  - Establishing Employee Transition Team
- Working with managers & supervisors
  - Change management training
Managing Organizational Change

- Working with affected employees
  - Developing individual transition plans for non-bargaining unit employees facing loss of employment
  - Reminding represented employees to be familiar with their contract provisions and talking with union reps
  - Providing support resources for impacted employees

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More Information

AMI Project Office

Joel Westvold, AMI Director
Email: joel.westvold@pgn.com
Phone: 503-464-7583