PECO Demand Response Management System

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About PECO

Based in Philadelphia, PECO is an electric and natural gas utility subsidiary of Exelon Corporation, the nation’s largest competitive energy provider. PECO is the largest electric and natural gas utility in Pennsylvania, serving approximately 1.6 million electric customers and over 500,000 natural gas customers in southeastern Pennsylvania.
Direct Load Control – PECO Smart AC Saver

- Demand response program for residential (DCU) and small commercial customers (PCT).

- VHF low frequency one way paging signals sent to remotely manage central AC systems.

- Currently employ 50% cycling strategy 15 minutes on 15 off during called events.

- Participants receive a $10 monthly bill credit per device during the four summer months (June – September).
Current Program Status

82,000 residential switches installed – representing nearly 75,000 customers

3,400 small commercial thermostats installed – representing nearly 2,150 customers
Program Design

Current Configuration
DRMS - IntelliSOURCE

- Fully integrated work order management system
- Supports daily customer data exchanges with PECO systems
- Call Center, Customer Care and Ticketing
- Claims process and procedures
- Event Dispatching
- Event related service calls
- Installation/Removals and service process
- Inventory management
Customer Propensity Modelling
System Load Forecasting
DR Load Potential Forecasting
  • Telemetry Based
  • AMI Based
  • M&V Based
Real Time Event Performance
Measurement and Verification
BYOD Measurement and Verification
Home Thermodynamics
Thermostat Schedule Optimization
Energy Efficiency Optimization
Tip Personalization
Tip Effectiveness Reporting
IntelliSOURCE - Control

- Communication, Protocol, Device, Vendor Agnostic
- System of Record for Programs, Customers and Devices
- Multiple Load Program Aggregation
- All Customer Classes
- Residential
- Small Business
- Mid-Large C&I
- All Program Types
- Cycling Control
- Temperature Set Back
- Price Response
- Notification
- Program Modeling
- Load Forecasting
- Event Management
- Targeted, Hierarchical Dispatch
- Override Management
- Baseline Calculations
- Settlement and Payments
- Incentive Tracking and Payments
Near Term Opportunities

2-Way Communications and Analytics
- Incorporation of big data machine learning analytics.
- Embracing communications recurrent across all industries such distributed always on IP devices and prevailing WiFi and Cellular communications
- Enabling DR as an operational resource

Bring-Bring-Your-Own-Device
- While maintaining the utility brand and distilling predictable reliable

Convergence of DR, EE and Engagement
- Harnessing EE and Consumer Engagement from Demand Response assets
DRMS to DERMS

IntelliSOURCE DRMS
A key operational system for utilities whom execute, aggregate and optimize DR programs

IntelliSOURCE DERMS
A Foundational Piece of the Modern Distributed Bi-Directional Grid

DRMS and DERMS Convergence

Diagram Source: Utility Dive

Whole Premise as a Dynamic Resource

Supply Following Fleet of Connected Appliances

Voltage and Frequency Regulation via Smart Inverters

Diagram Source: Utility Dive