

Public Utilities Commission of Ohio
Case No. 07-646-EL-UNC
Workshops Regarding Smart Meter
Deployment in Ohio

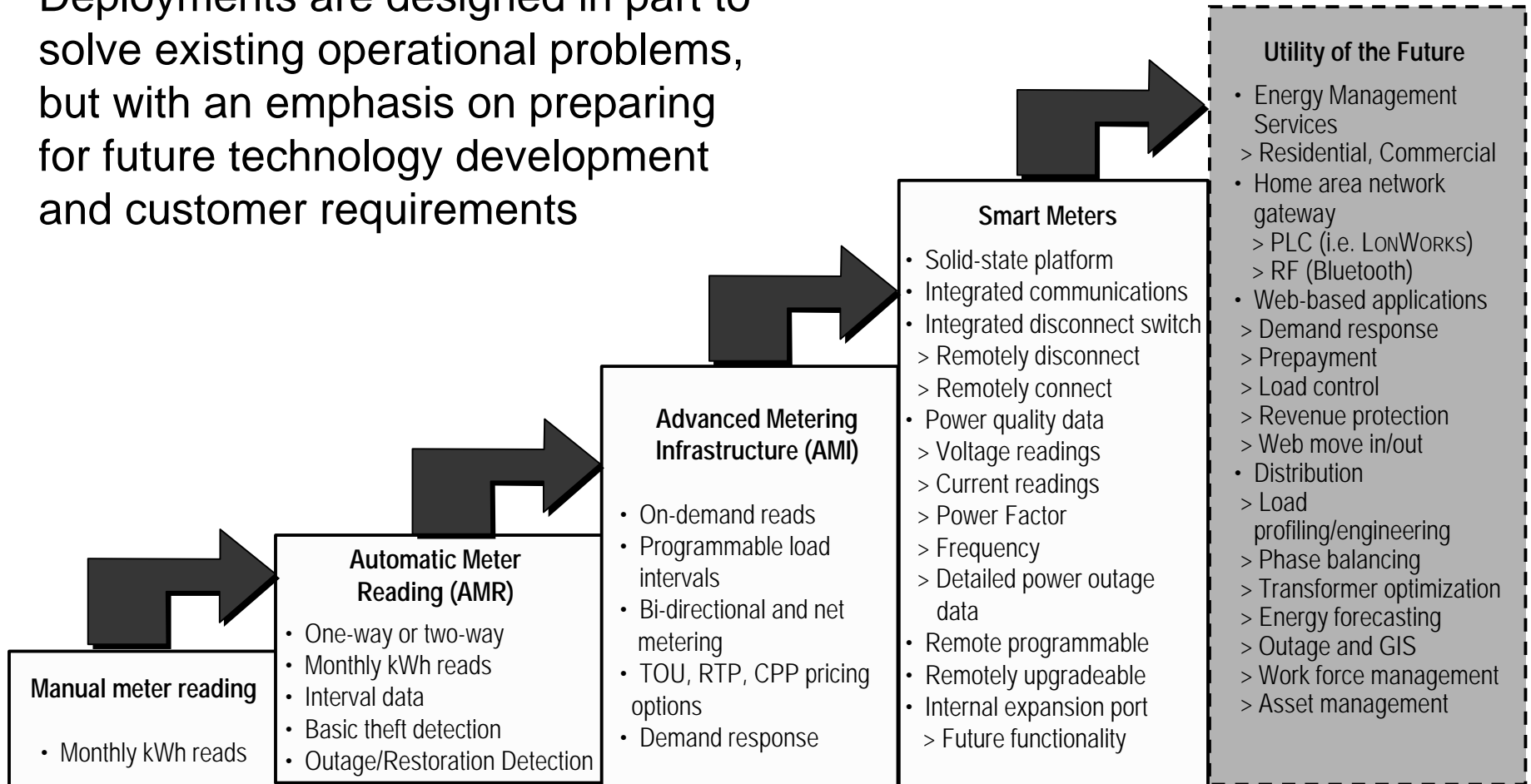
***Motivating Energy Efficiency
with Metering Technologies***

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Building for Future Needs

Deployments are designed in part to solve existing operational problems, but with an emphasis on preparing for future technology development and customer requirements



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Process Overview

- Workshop Phase (completed)
- Staff Recommendations
- Stakeholder Comment
- Commission Action

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Participation Mechanisms

Email ListServ: SmartMetering@lists.puc.state.oh.us

Provides for:

- Announcements and workshop materials
- Informal comment on workshop content and substance
- Q&A

To subscribe to a list, send an e-mail to

listserv@lists.puc.state.oh.us with a blank subject line
and the following words in the body of the message:

- subscribe *listname yourfirstname yourlastname*
- e.g. - subscribe smartmetering Dan Shields

Fundamental AMI Goals

- Empower customers to manage power costs by enabling them to respond to time based changes in actual costs and prices
- Capture utility operational efficiencies
- Facilitate improvements in consumer services and reliability

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Goal

- Establish an analytical foundation for the Commission's consideration of AMI deployment
- Explore the extent to which it would be feasible and beneficial to create planning targets related to:
 - AMI deployment
 - Demand Response
 - Reductions in peak demand and related resource requirements needed to power Ohio's economic base
 - Costs, price impacts, and reductions in wholesale price volatility

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Guiding Principle

Staff supports the principle of recovery of costs net of benefits to the electric distribution utility for AMI deployment consistent with the Commission's direction and guidance

Who are the Beneficiaries of AMI?

- Utilities
- Consumers
- Society
- Modern Grid Stakeholders

Some Utility Benefits of AMI

- Elimination of manual meter reading
 - Labor costs
 - Employee safety
- Reduction in re-reads
- Fewer (near zero) estimated bills
- Reduction in field service orders
- Improved metering accuracy
- Elimination of manual metering capital costs
- Reduction in call center volume

More Utility Benefits of AMI

- Reduction in load research costs
- Reduction in revenue losses from unoccupied premises
- Faster response to power quality problems
- More rapid outage response and restoration
 - Small isolated
 - Large system wide
- Reduction in false outage dispatches
- Increased revenues from more rapid outage restoration (loss of sales)
- Use of AMI information and communications for other system purposes

More Utility Benefits of AMI

- Reduced costs from remote turn on / turn off capability
- More effective theft detection and prevention
- Improved customer satisfaction
- Improved revenue management process
- Better data for use in optimizing planning and operations

Some Consumer Benefits of AMI

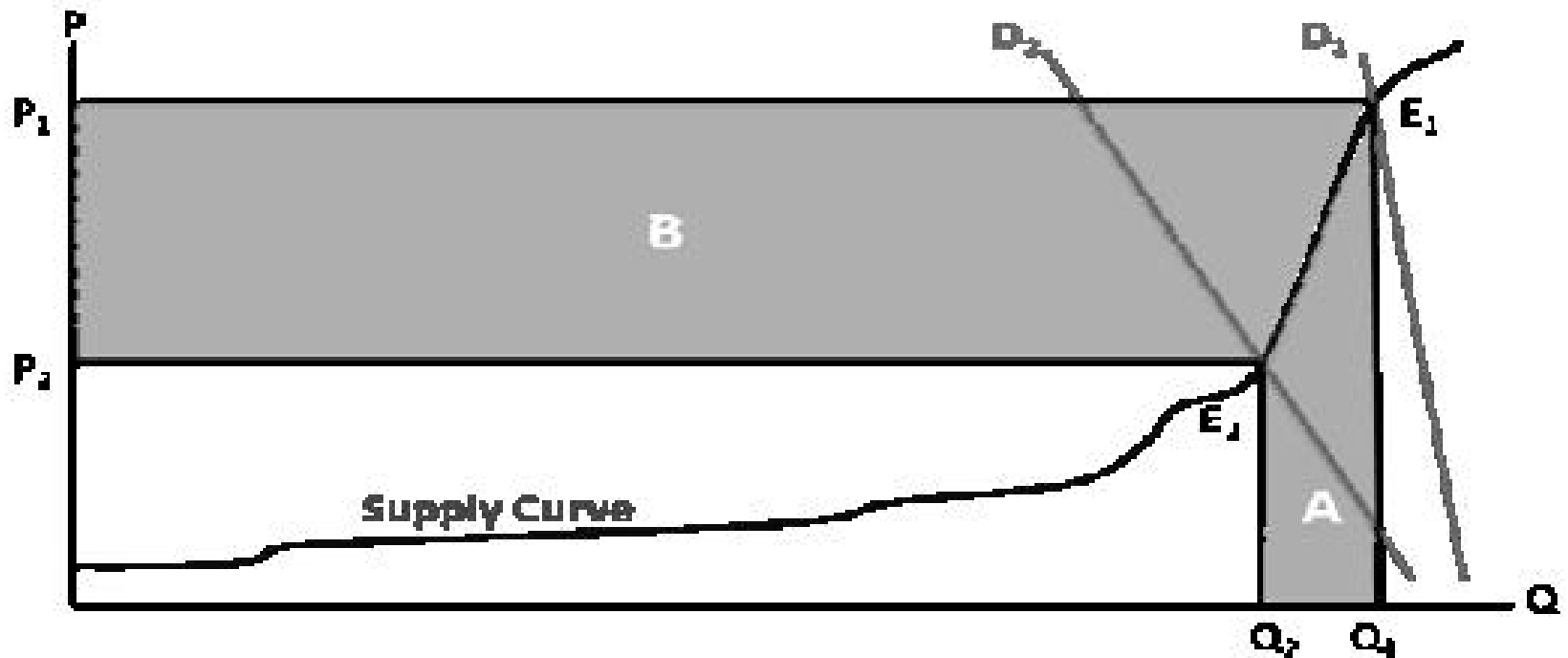
- More customer information and choices
 - Home energy management
 - Demand response
 - Electricity markets
 - E-commerce
- Greater billing accuracy
- Fewer and shorter outages
- Reduction in financial losses due to power outages

Consumer Investment Required

Additional customer devices would be required and could be considered as part of new energy efficiency programs

- A home monitoring dashboard to indicate time differentiated pricing plus current or planned consumption activity
- The next generation of in-home load control. Examples include:
 - Air Conditioning that can be intelligently cycled based on energy signals and comfort specifications
 - Smart refrigerators with intelligent defrost cycling
 - Dishwashers that will automatically delay operation - unless overridden - based on preferences
 - Clothes dryers that can tumble without heat if energy pricing are above certain parameters

Direct and Indirect Consumer Benefits



Demand 1 .. Peak Load without Energy Efficiency and Demand Response

Demand 2 .. Peak Load with Peak Period Energy Efficiency and Demand Response

Societal Benefits of AMI

- Reduction in peak load leading to:
 - Avoided costs of capacity additions and power purchases
 - Lower emissions and other environmental improvements
- Shorter, less frequent outages leading to a reduction in losses suffered by society
- Availability of consumer information enabling system operators to more effectively operate the system (reliably, securely and economically)
- Potential mitigation of increasing electricity prices

Modern Grid benefits enabled by AMI

- **Demand response with DER operation**
 - Integration of consumer and operator
 - Effective peak management
 - Reduction in system losses
 - Reduction in transmission congestion
 - More efficient system operation
 - Environmental benefits
- **Advanced Outage Management Systems**
 - Rapid identification of emerging and actual trouble
 - Dramatic reduction in outage duration and frequency
 - More effective storm management
 - Regional perspective

Modern Grid benefits enabled by AMI

- **Distribution Automation**
 - Automatic response to emerging and actual trouble
 - Supports self healing feature of the Modern Grid
 - Reduces vulnerability to attack
- **Integrated Asset Management processes**
 - System Planning
 - Maintenance
 - More efficient utilization of assets with reduction in losses
- **Improved Market operations**
 - More buyers and sellers
 - More efficient energy market
- **Work Management**
 - Additional operational efficiencies
 - Integration with GIS mobile work force management