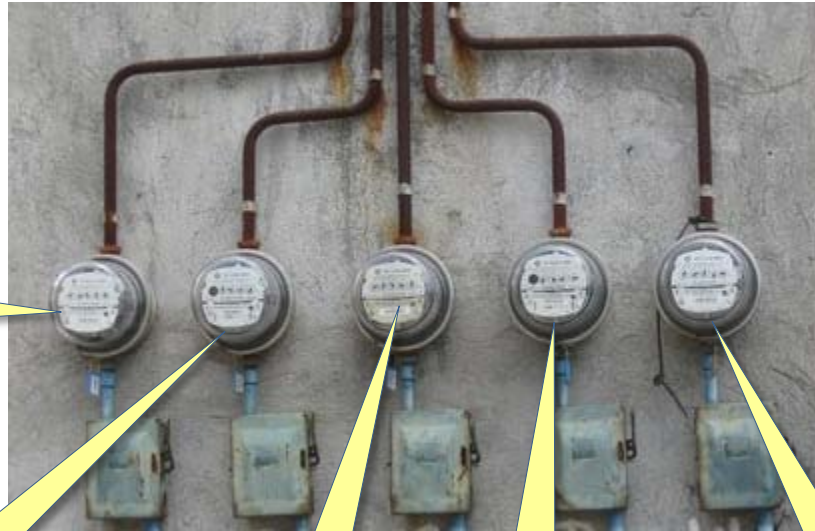# Building ~~a Smart Grid~~ Smarter Customers

Mid-Atlantic Distributed Resource Initiative
Dynamic Pricing Workshop
May 12, 2011

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Lawrence Berkeley National Laboratory

Can you spot the problem in this picture?

Whole House (what's left)

Tiered Inclining Block Rate

Storage Water Heater

Discount Flat Interruptible Rate

Solar PV System

Net Metering Monthly Adjustment

Electric Vehicle

Off-Peak Interruptible Rate

Ice Storage

Time-of-Use Rate

Smart Grid from a customer perspective.

What is the objective?

Whole House (what's left)

Tiered Inclining Block Rate

Storage Water Heater

Discount Flat Interruptible Rate

Solar PV System

Net Metering

Electric Vehicle
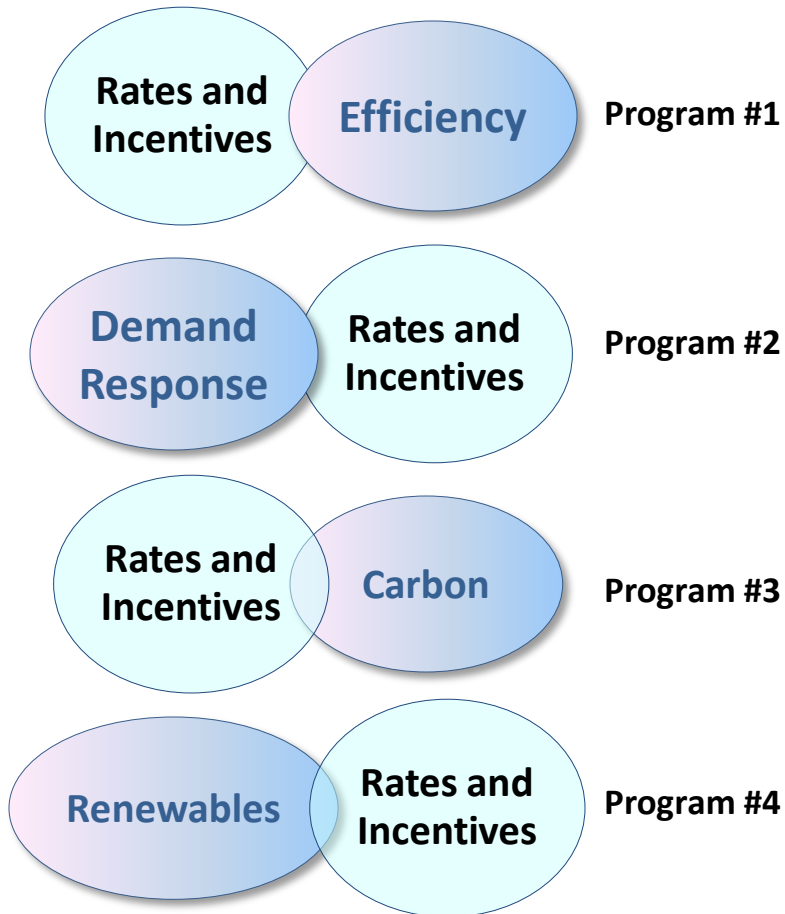
Off-Peak Interruptible Rate

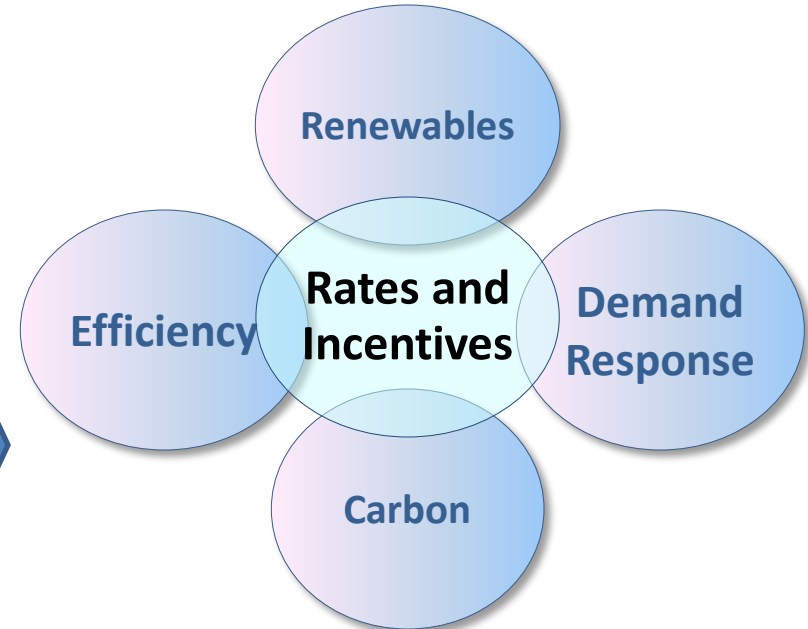**Ice Storage**

Time-of-Use Rate

Rates to support Smart Grid

Current Grid

Separate Programs / Incentives

Rates and Incentives — Efficiency — Program #1

Demand Response — Rates and Incentives — Program #2

Rates and Incentives — Carbon — Program #3

Renewables — Rates and Incentives — Program #4

Smart Grid

Integrated Incentives

Renewables

Efficiency — Rates and Incentives — Demand Response

Carbon

1. **Create a long-term perspective**
2. **Integrate rates and incentives**
3. **Common, technology platform standard to link initiatives**
4. **Customer focused**

Rates to support Smart Grid

Smart Grid Critical Rate Features

Rate Components

1. Rate Design

2. Prices

- ❑ **Is there a clear relationship between usage and customer cost ?**

- ❑ **Can the rate be translated into digital price signals ?**

- ❑ **Is it possible to integrate retail and wholesale prices ?**

Can "Price" be used to provide incentives that integrate efficiency, demand response, generation alternatives, and renewable objectives ?
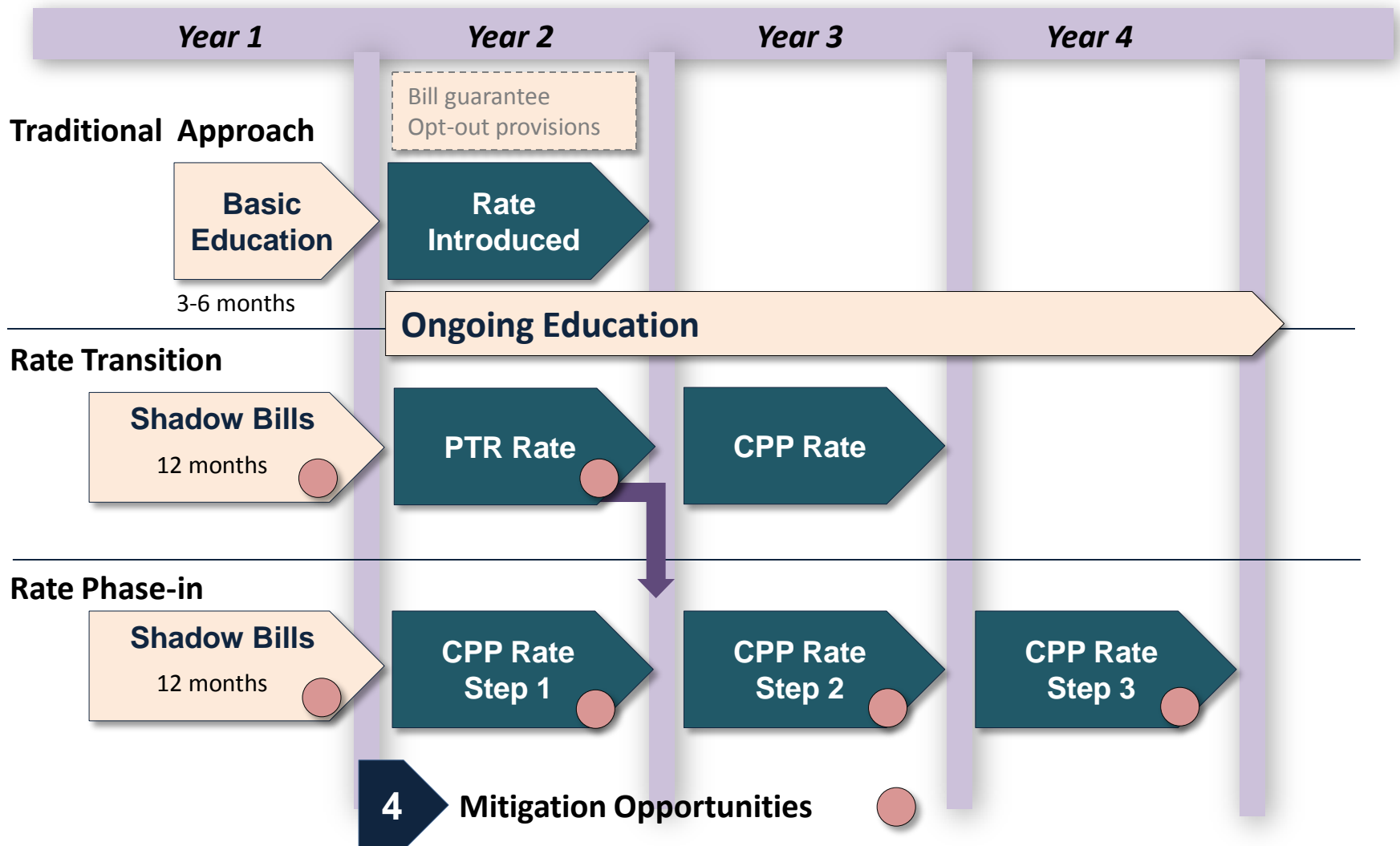
Plan for a Transition: What are the issues?

1 How do we transition customers from existing flat and tiered rates to a dynamic rate?

2 How do we educate customers regarding both the opportunities and risks?

3 Will technologies be available so customers can automate their response?

4 What can we do to identify and mitigate potential adverse bill impacts before they create problems?

Plan for a Transition: What are the issues?

1 How do we transition customers from existing flat and tiered rates to a dynamic rate?

➤
- Implementation Time Frame Transition, Phase in, options

2 How do we educate customers regarding both the opportunities and risks?

➤
- Virtual participation
- Tools, case studies, subsidies, regulations

3 Will technologies be available so customers can automate their response?

➤
- Utility programs / options
- Non-utility open market options

4 What can we do to identify and mitigate potential adverse bill impacts before they create problems?

➤
- Monitoring
- Pro-active intervention

5.34 Rate Design

Year 1	Year 2	Year 3	Year 4

Traditional Approach

Bill guarantee
Opt-out provisions

Basic Education

Rate Introduced

3-6 months

Ongoing Education

Rate Transition

Shadow Bills

12 months

PTR Rate

CPP Rate

Rate Phase-in

Shadow Bills

12 months

CPP Rate Step 1

CPP Rate Step 2

CPP Rate Step 3

4 **Mitigation Opportunities**

Contact Information

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