

**Bill Impacts Working Group
Residential Bill Impacts**

July 14, 2009

Agenda

- Bill Impact Working Group process
- Recap of bill impact initiative
- Key assumptions
- Bill impact summary
- Next steps

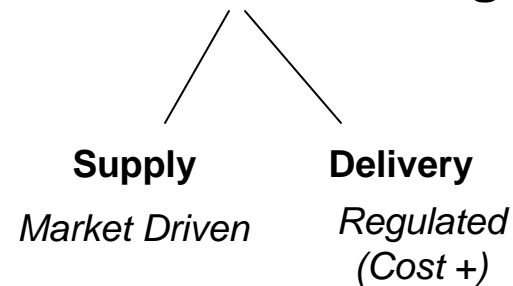
Recall from last session, there are several factors that affect the bill:

EE Related Factors

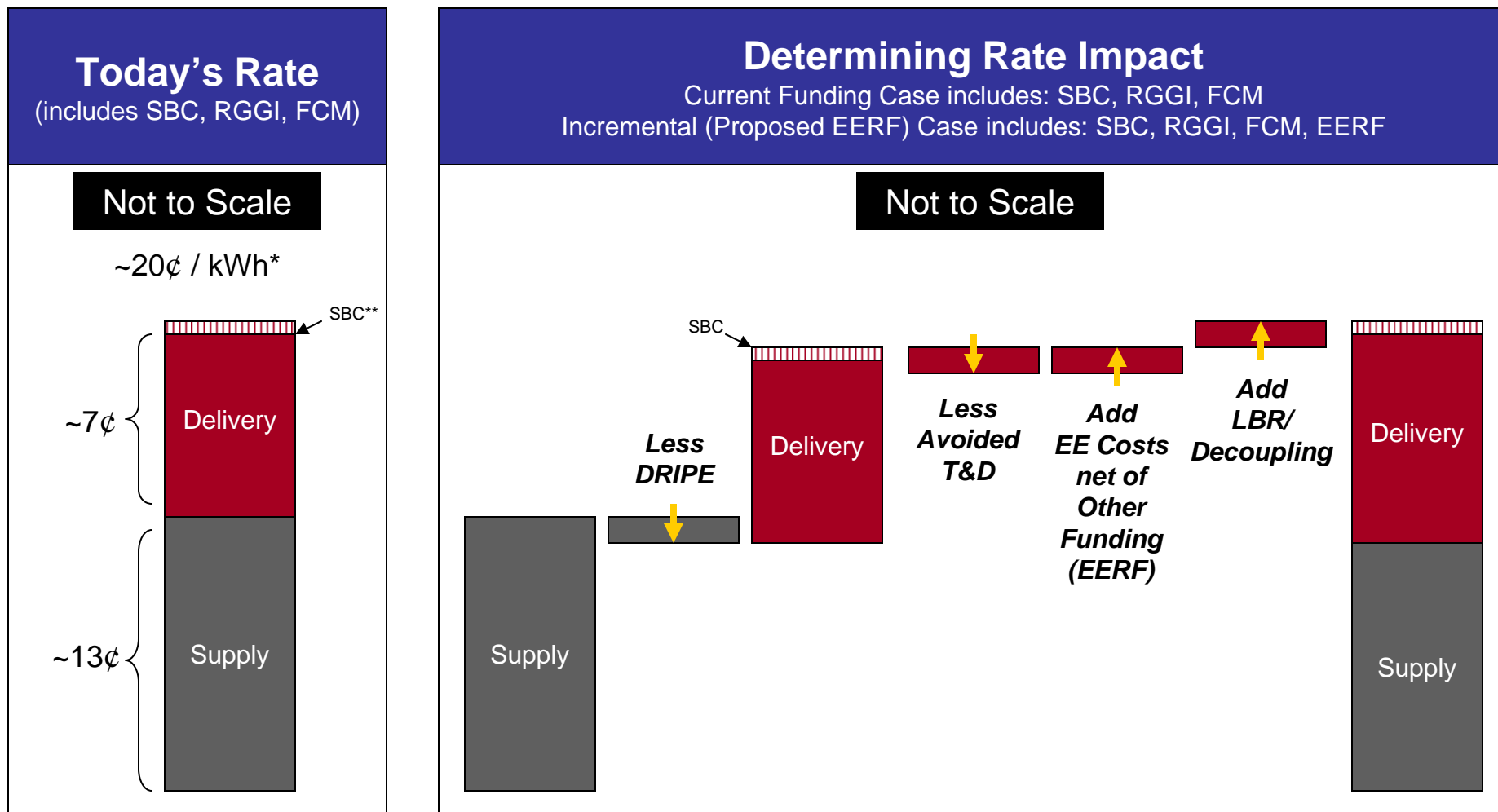
- EE Program Costs
- Sources of Funding
- Usage savings
- Decoupling/Lost Base Revenues (LBR)
- Etc.



$$\text{Bill} = \text{Rate} \times \text{Usage}$$



Method of determining Rate change effects

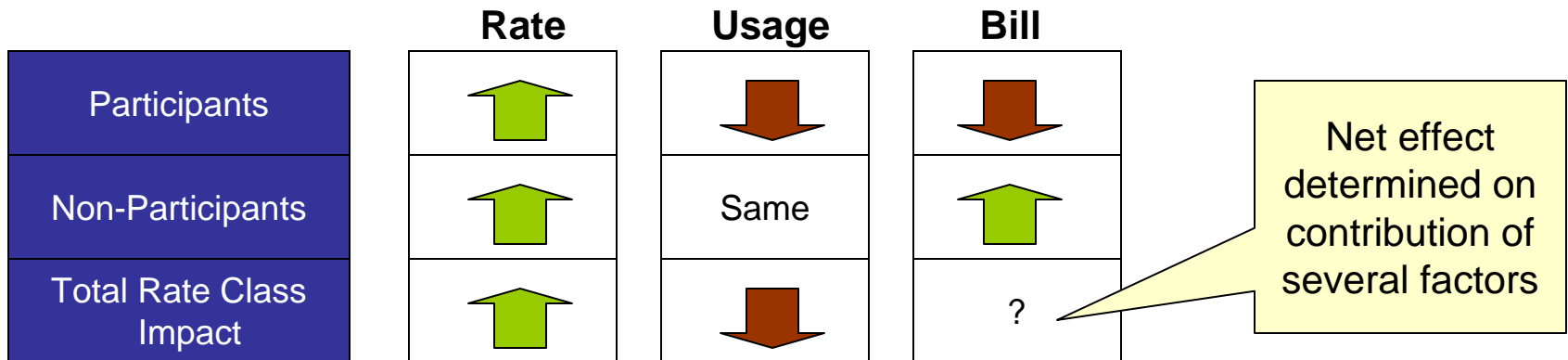


* 2012, NSTAR/former Boston Edison territory, R1 Rate Class

** SBC 3.5% of current delivery rates

Overall, we are looking at the bill impacts for participants, non-participants, and the rate class in aggregate

Total Bill Calculation			
Delivery Rate	X	usage kWh	= \$ delivery
Supply Rate	X	usage kWh	= \$ supply
<hr/>			
Total Rate	X	usage kWh	= \$ total



Bill impacts examine a given customer at a snapshot in time

We are showing the impact on bills by including an additional reconciling charge (EERF)

- All results represent the change between “Current” case and “Incremental” case
 - “Current” case represents the current funding scenario, which has:
 - For Electric:
 - System Benefit Charge (“SBC”)
 - Forward Capacity Market (“FCM”)
 - Regional Greenhouse Gas Initiative (“RGGI”) money funding EE initiatives
 - For Gas:
 - Current EE customer charge
 - “Current” does not equal “No EE”
 - “Incremental” case represents:
 - Electric: addition of an Energy Efficiency Reconciliation Factor (“EERF”) charge
 - Gas: increased EE customer charge
- Participant vs Non-Participant
- Not the same as common bill impact calculations
 - Includes benefits and costs
 - Assesses impacts over time

Requirements of the Green Communities Act

- The Green Communities Act requires the Department (DPU) to consider “**the effect of any rate increases** on residential and commercial customers” when reviewing proposals for “**other funding** as approved by the Department”
- “Other funding” in addition to SBC, FCM, RGGI; therefore focusing on *incremental* funding for the bill impact analysis
- Green Communities Act (GCA)
G.L. c. 25, § 19(a).

DPU Order in 08-50-A

- **Comprehensive and well-documented** assessment of rate impacts and average bill impacts associated with the energy efficiency activities
- Important to properly quantify and present the rate and average bill impacts of the energy efficiency programs. This requires capturing the **total effects on costs and sales**, as well as presenting the rate and average bill impacts in a way that is meaningful and easily understood.
- Use **consistent** inputs, assumptions, and methods to the extent it is appropriate and possible to do so

The following are key assumptions:

EE Savings & Cost Calculation

- Uses a hybrid 2007 and prelim 2009 AESC figures to calculate EE cost savings + DRIPE adjustment
- No DRIPE applied for gas

Bill Impact Model assumptions - forecasts

- Other than EE impacts, distribution rate kept the constant
- Supply rate varies according to AESC study
- Underlying kWh Sales forecast excludes EE and adopts a 1% growth level
- Utility specific rate case timing
- Current gas model using known forecast

Bill Impact Model assumptions - allocations

- EE cost + savings from each sector (Residential, Low Income C&I) allocated according to load
- Low income allocation of EERF is based on recent D.P.U. Orders in various dockets

Bill Impact Model assumption – participant vs non participant allocations

- Participant participates in 2010 only for Residential examples

Current vs Incremental definitions

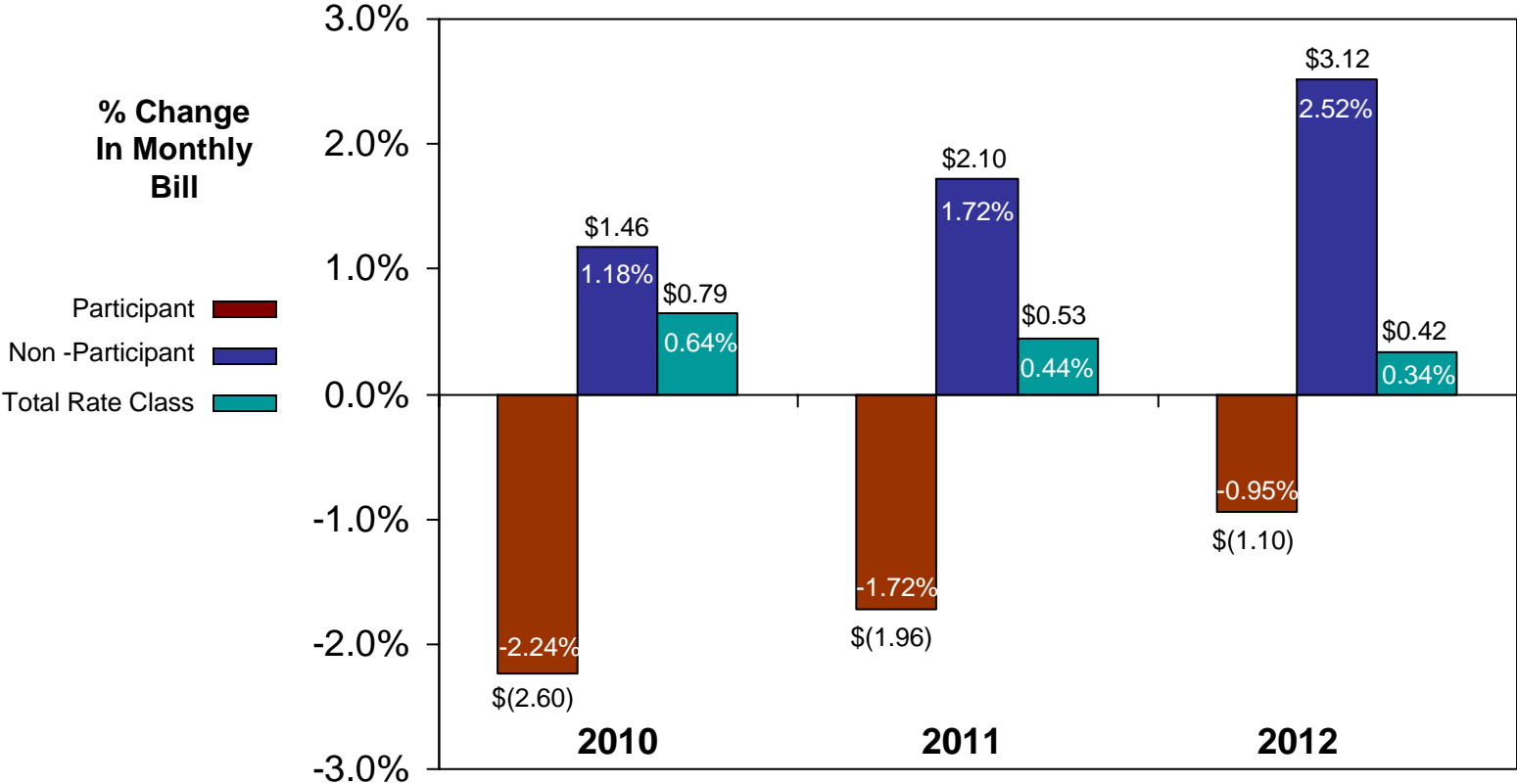
- Current Funding Case budget and revenue sources limited to SBC, RGGI & FCM collection for electric
- Current Funding Case savings a percentage of Incremental savings based on existing funding scenarios for each utility
- Participant savings for current case based on historical values

We will go through the following points for a sample Residential class:

1. Customer Bill Impacts
 - Participant vs Non-Participant
 - Incremental vs Current
2. Breakdown of Supply/Delivery
3. Participant Monthly Usage Savings

A residential electric customer who participates in 2010 will see total bill savings

NSTAR BECO Residential (R1) Customer Bill Impacts
Incremental vs Current Case



Average Participant Monthly Bill in 2010 current case: \$116.11
 Average Non-Participant Monthly Bill in 2010 current case: \$123.95
 Total Rate Class Average Monthly Bill in 2010 current case: \$122.93

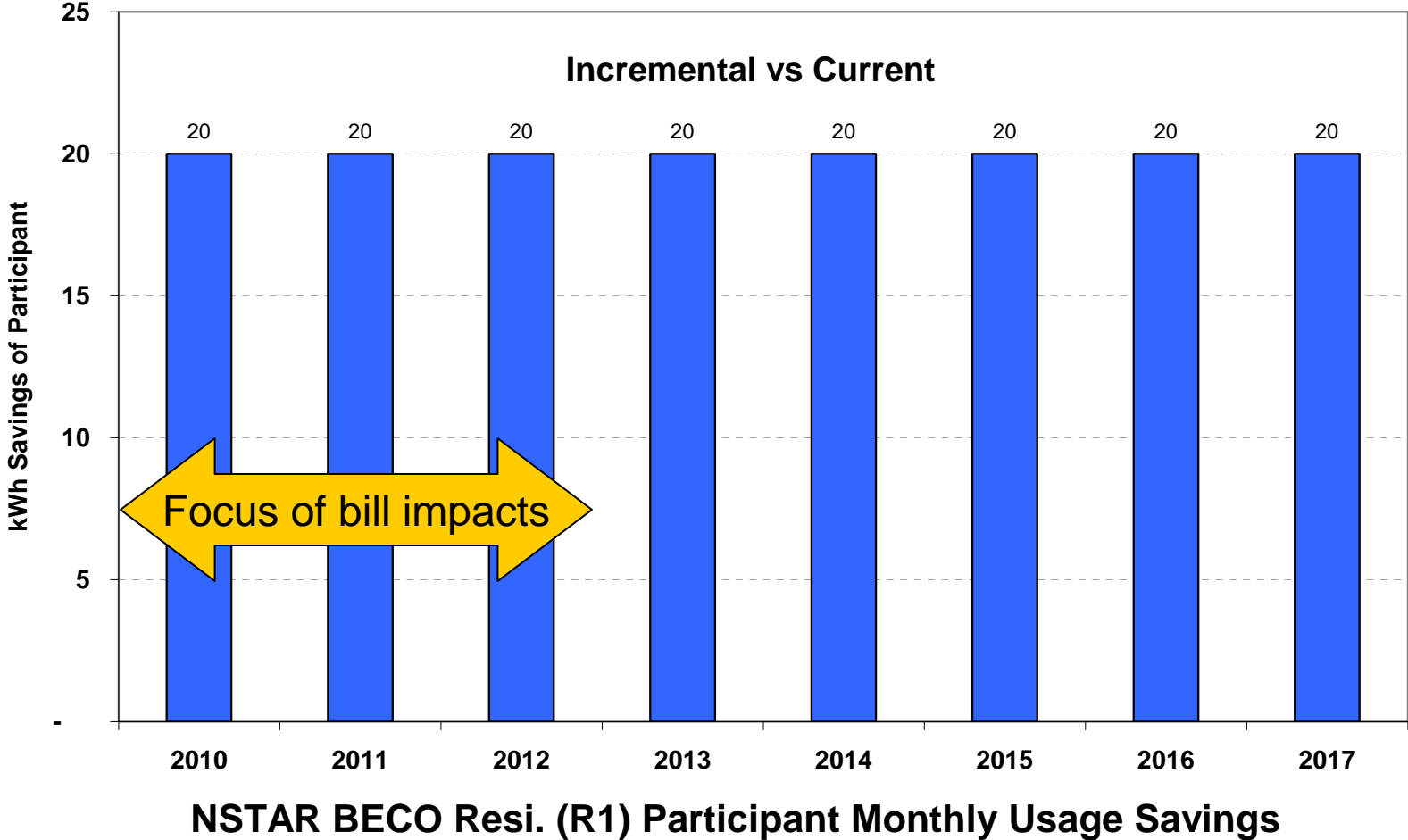
The increased distribution bill impact is mitigated by supply

Following the previous slide, for 2012:

2012	Participants	Non-Participants	Total Rate Class
Supply	-4.37%	-0.83%	-3.04%
Delivery	4.05%	7.46%	5.33%
Net Total	-0.95%	2.52%	0.34%

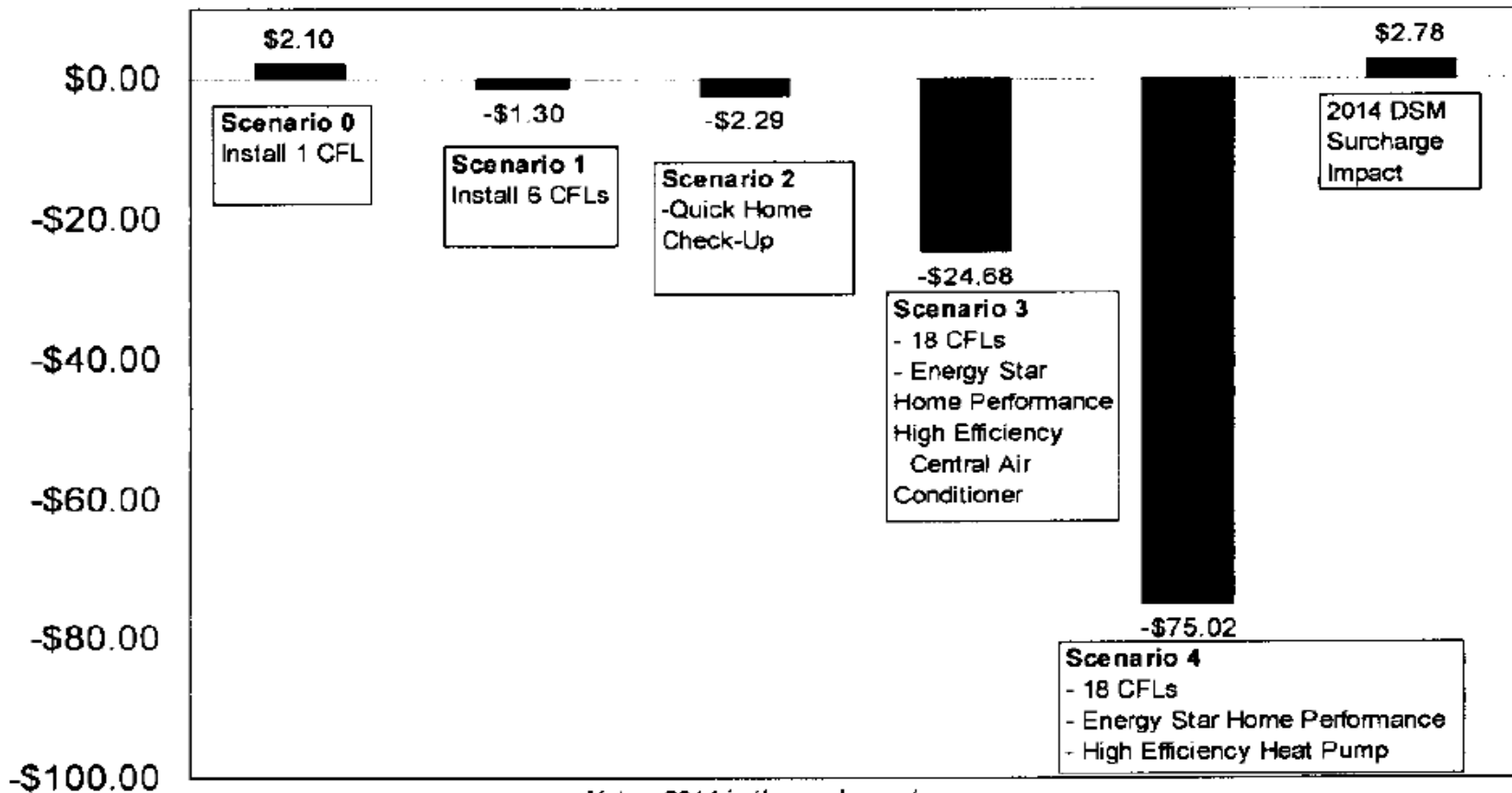
2012	Participants	Non-Participants	Total Rate Class
Supply	(\$3.01)	(\$0.61)	(\$2.19)
Delivery	\$1.90	\$3.73	\$2.61
Net Total	(\$1.10)	\$3.12	\$0.42

Savings from lower usage for participants continue for the life of the measure



Example of Scenario Analysis

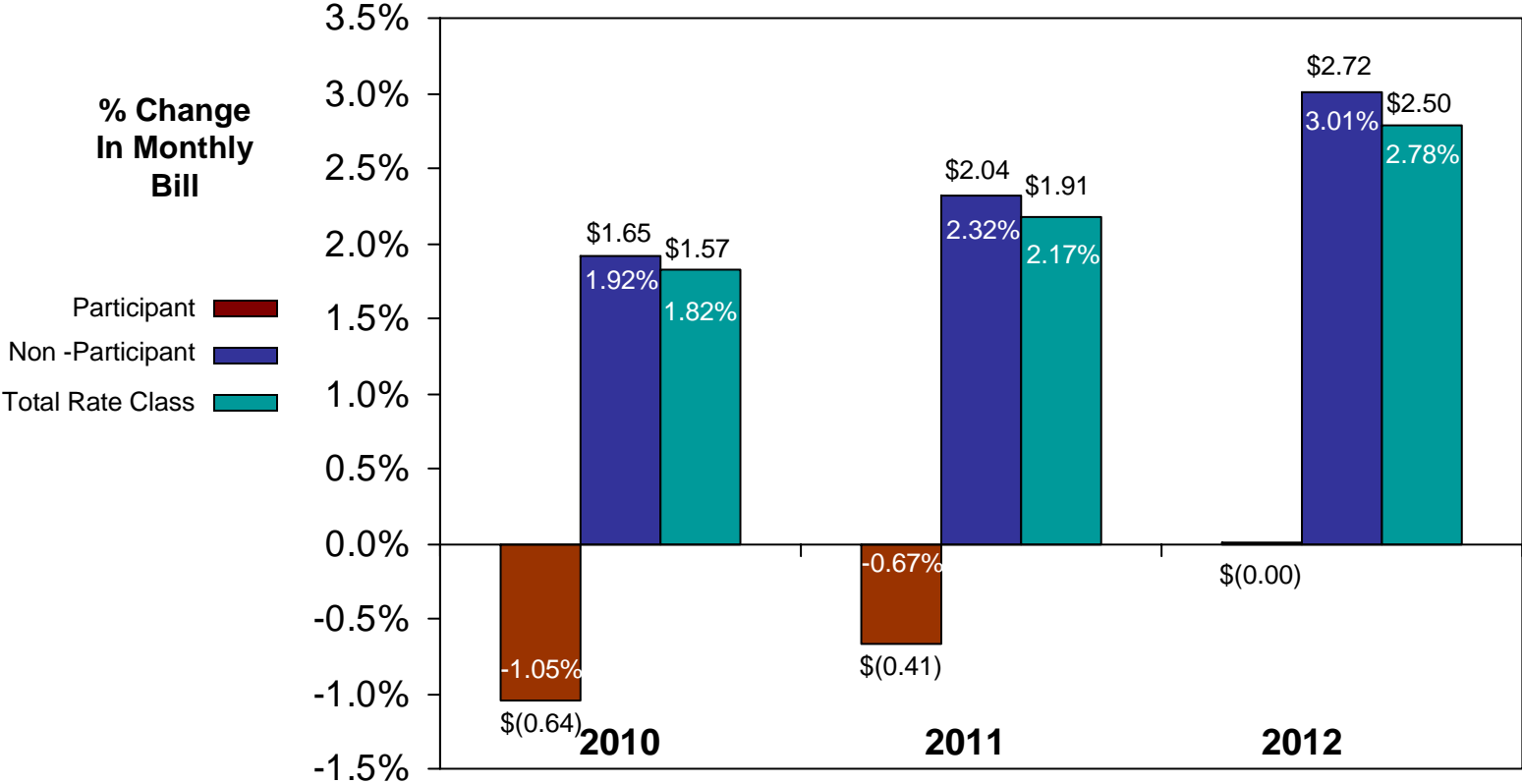
PEPCO Maryland Residential Conservation Programs Monthly Bill Impacts in 2014 (Net of Surcharge)



Note: 2014 is the peak surcharge

A residential low income gas customer who participates in 2010 will see total bill savings

**BSG Residential Low Income (R4) Customer Bill Impacts
Incremental vs Current Case**



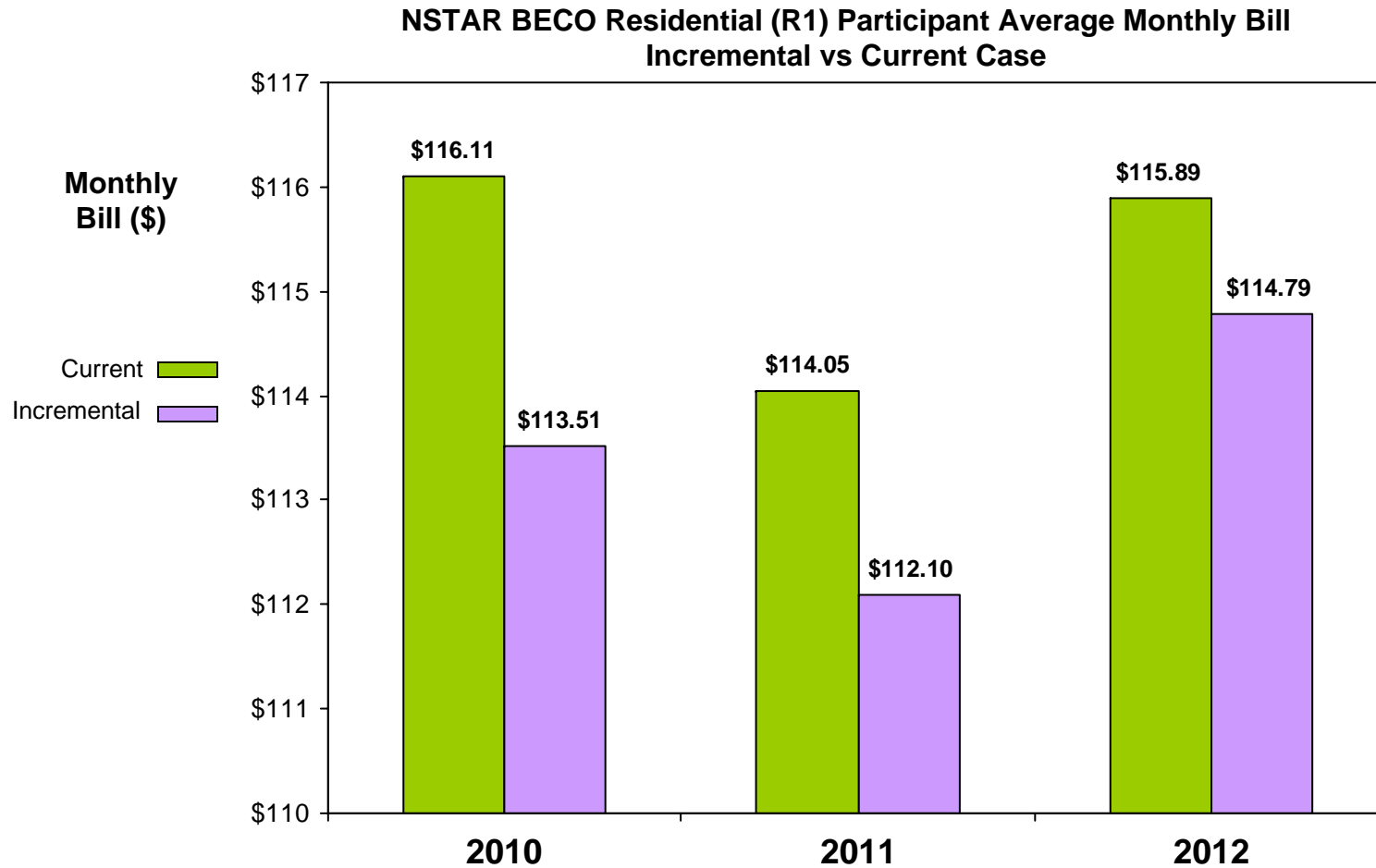
Average Participant Monthly Bill in 2010 current case: \$60.80
Average Non-Participant Monthly Bill in 2010 current case: \$87.74
Total Rate Class Average Monthly Bill in 2010 current case: \$86.08

Next Steps

- Within the next week
 - Provide bill impacts detail for rate classes where data is complete
 - Training session for the model with all PAs
 - Provide supplemental bill impact detail for other rate classes as they are vetted and available
- Further out
 - Update model with data changes and use latest avoided costs

Appendix

A participant saves on their monthly bill in the incremental case vs the current case



A non-participant spends more on their monthly bill in the incremental case vs the current case

NSTAR BECO Residential (R1) Non-Participant Average Monthly Bill
Incremental vs Current Case



BECO RESIDENTIAL (R1) - PARTICIPANT

2010	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19586	560	\$109.68	\$0.12368	560	\$69.26	\$0.07219	560	\$40.43
Total			\$116.11			\$69.26			\$46.86
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19830	540	\$107.08	\$0.12339	540	\$66.63	\$0.07490	540	\$40.45
Total			\$113.51			\$66.63			\$46.88
Differences									
In Units %	\$0.00243 1.24%	(20) -3.57%	(\$2.60) -2.24%	(\$0.00028) -0.23%	(20) -3.57%	(\$2.63) -3.79%	\$0.00271 3.76%	(20) -3.57%	\$0.02 0.05%

BECO RESIDENTIAL (R1) - PARTICIPANT

2011	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19218	560	\$107.62	\$0.11977	560	\$67.07	\$0.07241	560	\$40.55
Total			\$114.05			\$67.07			\$46.98
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19568	540	\$105.67	\$0.11911	540	\$64.32	\$0.07657	540	\$41.35
Total			\$112.10			\$64.32			\$47.78
Differences									
In Units %	\$0.00349 1.82%	(20) -3.57%	(\$1.96) -1.72%	(\$0.00066) -0.55%	(20) -3.57%	(\$2.75) -4.11%	\$0.00416 5.74%	(20) -3.57%	\$0.80 1.70%

BECO RESIDENTIAL (R1) - PARTICIPANT

2012	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19547	560	\$109.46	\$0.12291	560	\$68.83	\$0.07256	560	\$40.63
Total			\$115.89			\$68.83			\$47.06
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.20066	540	\$108.36	\$0.12189	540	\$65.82	\$0.07877	540	\$42.54
Total			\$114.79			\$65.82			\$48.97
Differences									
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units	\$0.00520	(20)	(\$1.10)	(\$0.00101)	(20)	(\$3.01)	\$0.00621	(20)	\$1.90
%	2.66%	-3.57%	-0.95%	-0.83%	-3.57%	-4.37%	8.56%	-3.57%	4.05%

BECO RESIDENTIAL (R1) - NON-PARTICIPANT

2010	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19586	600	\$117.52	\$0.12368	600	\$74.21	\$0.07219	600	\$43.31
Total			\$123.95			\$74.21			\$49.74
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19830	600	\$118.98	\$0.12339	600	\$74.04	\$0.07490	600	\$44.94
Total			\$125.41			\$74.04			\$51.37
Differences									
In Units %	\$0.00243 1.24%	0 0.00%	\$1.46 1.18%	(\$0.00028) -0.23%	0 0.00%	(\$0.17) -0.23%	\$0.00271 3.76%	0 0.00%	\$1.63 3.27%

BECO RESIDENTIAL (R1) - NON-PARTICIPANT

2011	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19218	600	\$115.31	\$0.11977	600	\$71.86	\$0.07241	600	\$43.45
Total			\$121.74			\$71.86			\$49.88
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19568	600	\$117.41	\$0.11911	600	\$71.47	\$0.07657	600	\$45.94
Total			\$123.84			\$71.47			\$52.37
Differences									
In Units %	\$0.00349 1.82%	0 0.00%	\$2.10 1.72%	(\$0.00066) -0.55%	0 0.00%	(\$0.40) -0.55%	\$0.00416 5.74%	0 0.00%	\$2.50 5.00%

BECO RESIDENTIAL (R1) - NON-PARTICIPANT

2012	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19547	600	\$117.28	\$0.12291	600	\$73.74	\$0.07256	600	\$43.53
Total			\$123.71			\$73.74			\$49.96
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.20066	600	\$120.40	\$0.12189	600	\$73.14	\$0.07877	600	\$47.26
Total			\$126.83			\$73.14			\$53.69
Differences									
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units	\$0.00520	0	\$3.12	(\$0.00101)	0	(\$0.61)	\$0.00621	0	\$3.73
%	2.66%	0.00%	2.52%	-0.83%	0.00%	-0.83%	8.56%	0.00%	7.46%

BECO RESIDENTIAL (R1) - RATE CLASS TOTAL

2010	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19586	595	\$116.50	\$0.12368	595	\$73.56	\$0.07219	595	\$42.94
Total			\$122.93			\$73.56			\$49.37
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19830	591	\$117.29	\$0.12339	591	\$72.98	\$0.07490	591	\$44.30
Total			\$123.72			\$72.98			\$50.73
Differences	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units	\$0.00243	(3)	\$0.79	(\$0.00028)	(3)	(\$0.58)	\$0.00271	(3)	\$1.37
%	1.24%	-0.56%	0.64%	-0.23%	-0.56%	-0.78%	3.76%	-0.56%	2.77%

BECO RESIDENTIAL (R1) - RATE CLASS TOTAL

2011	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19218	590	\$113.39	\$0.11977	590	\$70.67	\$0.07241	590	\$42.72
Total			\$119.82			\$70.67			\$49.15
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19568	582	\$113.91	\$0.11911	582	\$69.34	\$0.07657	582	\$44.57
Total			\$120.34			\$69.34			\$51.00
Differences	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units	\$0.00349	(8)	\$0.53	(\$0.00066)	(8)	(\$1.33)	\$0.00416	(8)	\$1.85
%	1.82%	-1.33%	0.44%	-0.55%	-1.33%	-1.88%	5.74%	-1.33%	3.77%

BECO RESIDENTIAL (R1) - RATE CLASS TOTAL

2012	Total Rates and Bills			Supply Rates and Bills			Delivery Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$	(\$/kWh)	kWh	\$
Current Funding Case									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.19547	586	\$114.63	\$0.12291	586	\$72.08	\$0.07256	586	\$42.55
Total			\$121.06			\$72.08			\$48.98
Incremental Case (Proposed)									
Monthly Service Charge (fixed)	----	----	\$6.43	----	----	----	----	----	\$6.43
Volumetric Component	\$0.20066	573	\$115.05	\$0.12189	573	\$69.88	\$0.07877	573	\$45.16
Total			\$121.48			\$69.88			\$51.59
Differences	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Supply Electric Rate	Monthly Energy Consumption	Average Monthly Bill	Delivery Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units %	\$0.00520 2.66%	(13) -2.24%	\$0.42 0.34%	(\$0.00101) -0.83%	(13) -2.24%	(\$2.19) -3.04%	\$0.00621 8.56%	(13) -2.24%	\$2.61 5.33%