

Bill Impact Analysis of Energy Efficiency Plans: Status Update

Program Administrators (PAs)

Council Consultants

MA EE Advisory Council Meeting

June 23, 2009

Outline of Presentation

- Status update
- Background on bill and rate impact analysis, consistent with GCA and DPU 08-50-A order
- Summary of working group progress to date
- Method and approach for bill impact analysis
- Example for illustrative purposes only
- Next steps

Status Update

- Stakeholder working group coordinated by DOER and DPU staff (08-50)
- Meeting weekly since May 7
- Significant progress on common method and input data for bill impact analysis
- Developed outputs and summary tables
- Using examples from NSTAR (electric) and Bay State Gas; analysis of other PAs to follow
- Working group currently scheduled to meet weekly through July 9

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

There are different perspectives to analyze EE

Benefit Cost Analysis

- Cost-effectiveness
- Total Resource Cost (TRC) Test
- Total resource view point (all benefits and all costs); calculates total resource net benefits
- Used to analyze each EE program and the total portfolio of programs

Bill Impacts

- The impact on ratepayers' utility bills
- Customer/ratepayer view point
- Includes participants and non-participants of EE programs
- Examines a given customer at a snapshot in time

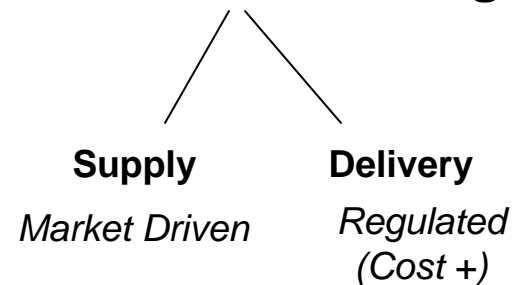
There are several factors that affect a customer's bill

EE Related Factors

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

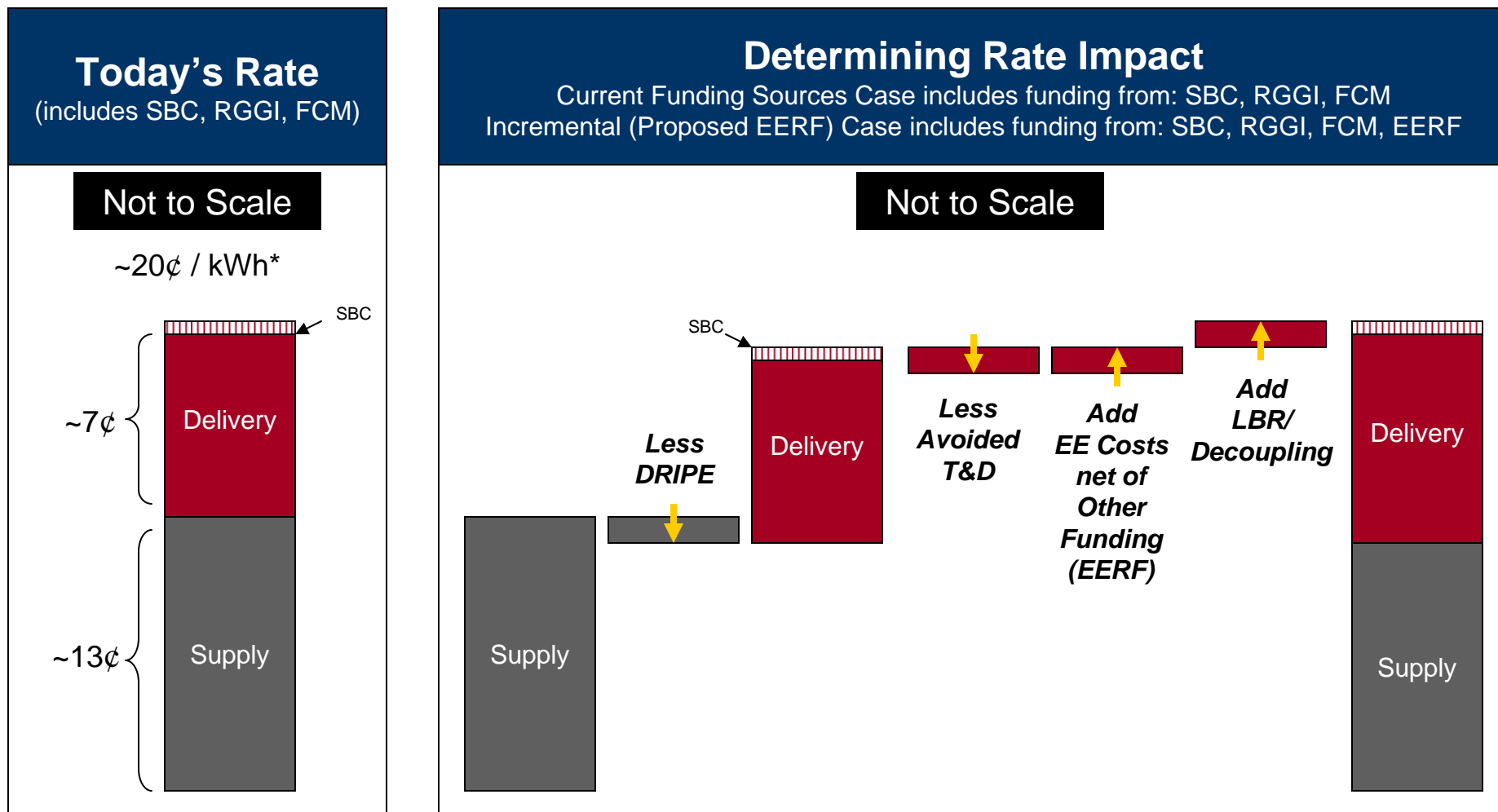


$$\text{Bill} = \text{Rate} \times \text{Usage}$$



EE objective: reduce customer *bills* (total costs), though *rates* may increase slightly to fund the programs (and for LBR)

Method of determining RATE change effects










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

** SBC 3.5% of current delivery rates

Examining total BILL impacts

Total Bill Calculation		
Delivery Rate	X usage kWh	= \$ delivery
Supply Rate	X usage kWh	= \$ supply
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Total Rate	X usage kWh	= \$ total

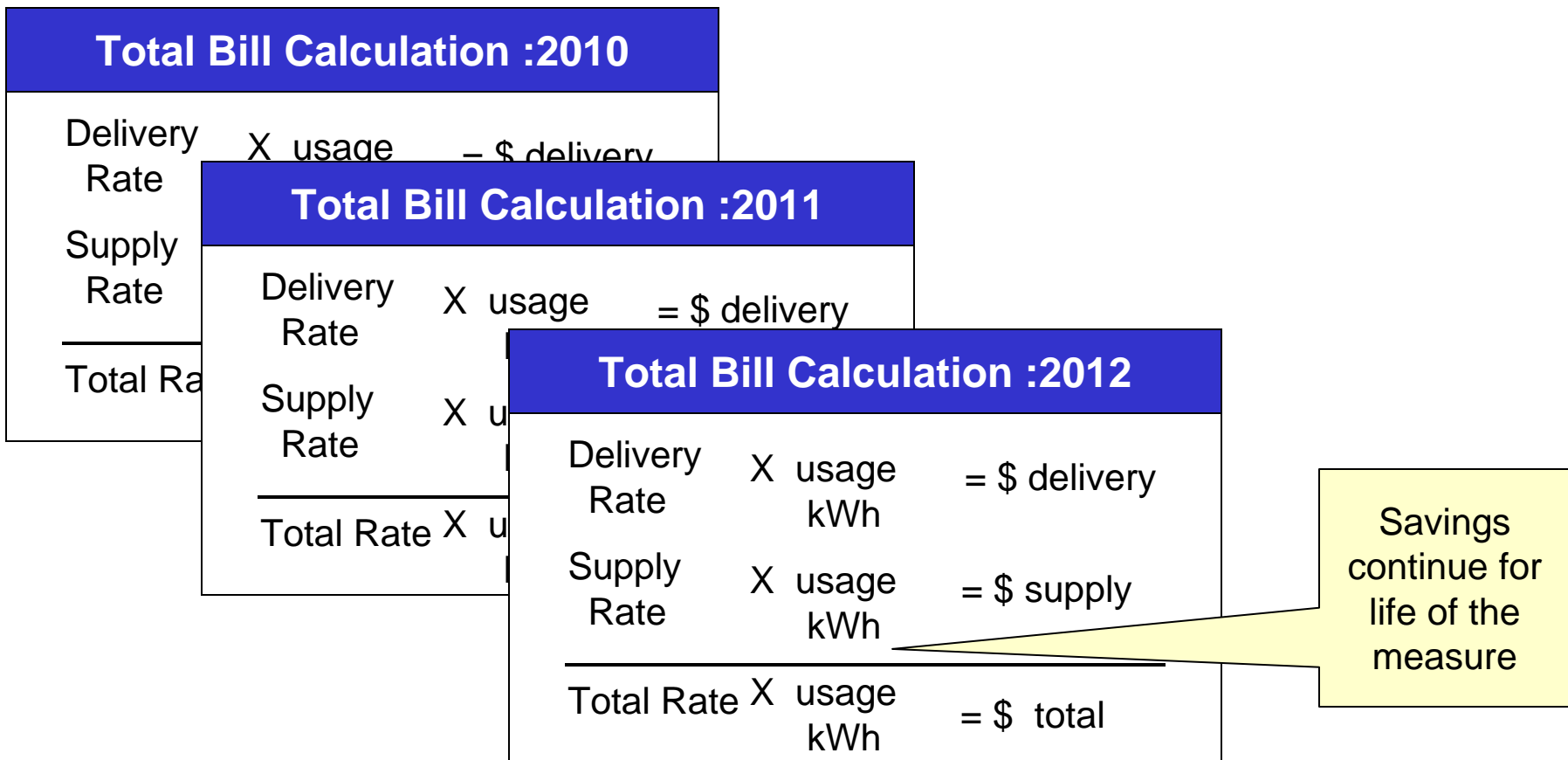
	Total Rate	Usage	Total Cost
Participants			
Non-Participants		Same	
Average for Rate Class			?

Net effect determined on contribution of several factors

Bill impacts examine a given customer at a snapshot in time

Participants continue to realize savings after 2012

Participants



The working group is analyzing many scenarios

Scenarios

- Four representative rate classes:
 - Residential
 - Low Income
 - Commercial & Industrial – Large
 - Commercial & Industrial – Small
- Currently 1 PA territory for electric, 1 PA territory for gas (ultimately, all PAs and all major rate classes)
- Will be testing two sets of EE plans (savings & costs)
 - PA Plans (electric and gas)
 - GCA savings levels per EEAC Consultant analysis

The group is working through many assumptions and key concepts

Key Assumptions

- Currently based on 2007 Avoided Cost study
- All avoided costs and benefits allocated by billed sales kWh
- LBR until rate case, decoupling thereafter
- Underlying delivery costs (before EERF, etc) held constant
- Supply costs vary in same proportion as those in avoided cost study
- Typical participant usage savings based on historical programs
- Load forecast with no EE assumes 1% growth
- Does not capture customer contribution
- Examining how to demonstrate continued benefits of reduced usage over time
- Examining DRIPe and LBR in calculation

Sample Output (Electric)

Current Funding vs. Incremental (Proposed EERF)

For Illustrative Purpose Only

BECO RESIDENTIAL (R1) - PARTICIPANT				BECO RESIDENTIAL (R1) - NON-PARTICIPANT				BECO RESIDENTIAL (R1) - AVERAGE			
2010	Total Rates and Bills			2010	Total Rates and Bills			2010	Total Rates and Bills		
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill		Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill		Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill
	(\$/kWh)	kWh	\$		(\$/kWh)	kWh	\$		(\$/kWh)	kWh	\$
Current Funding Case				Current Funding Case				Current Funding Case			
Monthly Service Charge (fixed)	----	----	\$6.43	Monthly Service Charge (fixed)	----	----	\$6.43	Monthly Service Charge (fixed)	----	----	\$6.43
Volumetric Component	\$0.19619	577	\$113.20	Volumetric Component	\$0.19619	600	\$117.71	Volumetric Component	\$0.19619	592	\$116.05
Total			\$119.63	Total			\$124.14	Total			\$122.48
Incremental Case (Proposed)				Incremental Case (Proposed)				Incremental Case (Proposed)			
Monthly Service Charge (fixed)	----	----	\$6.43	Monthly Service Charge (fixed)	----	----	\$6.43	Monthly Service Charge (fixed)	----	----	\$6.43
Volumetric Component	\$0.19849	564	\$112.01	Volumetric Component	\$0.19849	600	\$119.09	Volumetric Component	\$0.19849	587	\$116.49
Total			\$118.44	Total			\$125.52	Total			\$122.92
Differences				Differences				Differences			
	Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill		Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill		Total Electric Rate	Monthly Energy Consumption	Average Monthly Bill
In Units	\$0.00230	(13)	(\$1.19)	In Units	\$0.00230	0	\$1.38	In Units	\$0.00230	(5)	\$0.43
%	1.17%	-2.20%	-1.00%	%	1.17%	0.00%	1.11%	%	1.17%	-0.79%	0.35%



Sample Output (Electric)

Non-Participant vs. Participant

For Illustrative Purpose Only

2010	Current Funding Sources Case				
	Monthly Usage (kWh)	Total	Supply	Delivery	Monthly Service Charge
Electric Rate (\$/kWh)		\$ 0.19619	\$ 0.12382	\$ 0.07237	
Non-Participant (NP)	600	\$ 124.14	\$ 74.29	\$ 43.42	\$ 6.43
Participant	577	\$ 119.63	\$ 71.45	\$ 41.76	\$ 6.43
In Units (vs. NP)	(23)	(\$4.51)	(\$2.84)	(\$1.66)	
In % (vs. NP)	-3.83%	-3.63%	-3.83%	-3.83%	
Average	592	\$ 122.48	\$ 73.24	\$ 42.81	\$ 6.43
In Units (vs. NP)	(3)	(\$1.66)	(\$1.05)	(\$0.61)	
In % (vs. NP)	-1.41%	-1.34%	-1.41%	-1.41%	

2010	Incremental (Proposed EERF) Case				
	Monthly Usage (kWh)	Total	Supply	Delivery	Monthly Service Charge
Electric Rate (\$/kWh)		\$ 0.19849	\$ 0.12366	\$ 0.07483	
Non-Participant (NP)	600	\$ 125.52	\$ 74.20	\$ 44.90	\$ 6.43
Participant	564	\$ 118.44	\$ 69.79	\$ 42.23	\$ 6.43
In Units (vs. NP)	(36)	(\$7.08)	(\$4.41)	(\$2.67)	
In % (vs. NP)	-5.94%	-5.64%	-5.94%	-5.94%	
Average	587	\$ 122.92	\$ 72.57	\$ 43.92	\$ 6.43
In Units (vs. NP)	(13)	(\$2.61)	(\$1.62)	(\$0.98)	
In % (vs. NP)	-2.19%	-2.08%	-2.19%	-2.19%	

Note:

Current Funding Sources Case includes revenues from: SBC, RGGI, FCM

Incremental Funding Case includes revenues from: SBC, RGGI, FCM, EERF

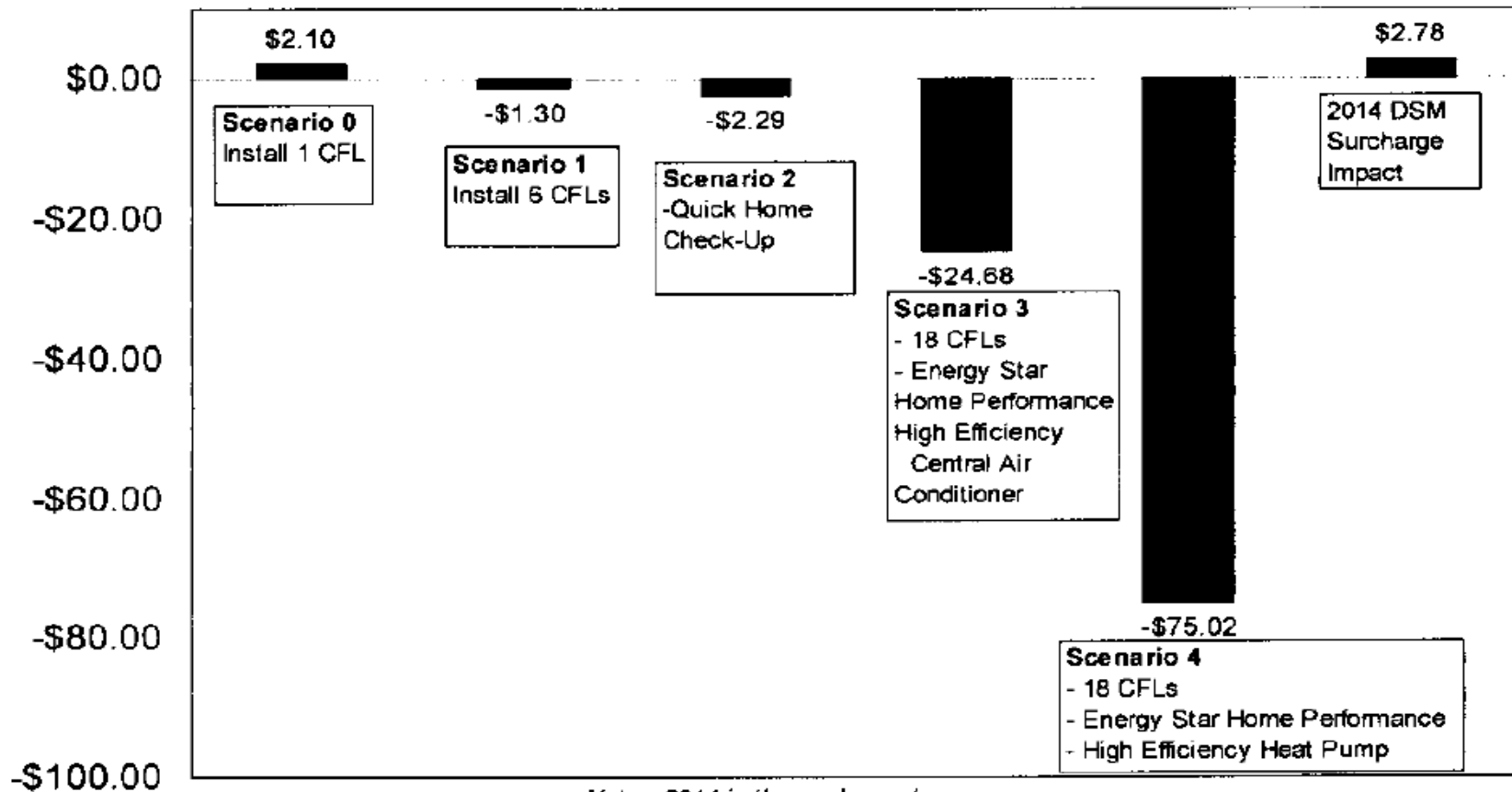
Monthly Service Charge levied to all customers for recovering customer related expenses (e.g. meters, call center)

Items Unique to Gas Bill Impacts

- Currently only one source of funding
- The majority of the large impact EE measures are weather sensitive
- LBR has been in place for most of the gas companies and is reflected in the Current Funding scenario
- Expected life of typical gas-related EE measures is longer than electric
- Capital cost for typical gas-related EE measures is higher than electric
- There are currently no Compliance Costs for gas companies.

Example of Scenario Analysis

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



Note: 2014 is the peak surcharge

Next Steps/ Process

- Working group will continue meeting weekly (June 25, July 2, July 9)
- Finalize method and input data
- Finalize outputs and summary data
- Conduct and review analysis for major rate classes, for electric and gas
- Review analysis results at July 14 Council meeting
- PAs complete bill impact analysis for the revised statewide Plans (due July 16), and follow up with any additional analysis (remaining analysis of individual PAs, not all of which will be completed by July 16)