

# IPM Potential Scenario Customer Bill Analysis

Revised January 14, 2013

# Agenda

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- **Overview of Analysis**
- **Analysis Methodology**
- **Assumptions Development and Sources**
- **Draft Results**

# Overview

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- Analysis Group analysis measures potential changes in residential, commercial, and industrial customer electricity bills for the 91 Cap Alt Bank potential scenario.
- The following slides present projections. These projections are draft and may change as Analysis Group makes refinements based on review and input.
- This analysis provides information for the overall program review process. The scenario specifications do not reflect a preference for or selection of any specific policy.

## ■ Analysis:

- Calculates the change in the average monthly electricity bill on a customer class average basis and impact on customer bill (change from IPM Reference Case to 91 Cap Alt Bank potential scenario)
- Includes adjustment to customer class average consumption each year based on total energy efficiency (EE) savings in that customer class
- Includes adjustment to the average monthly bill by customer class as a result of investments in direct bill assistance

## ■ Does not account for:

- Savings due to fossil fuel EE investments
- Savings on customer bills post 2020 due to EE investments made during the IPM modeling period (2012-2020)

# Methodology – Average Monthly Bill Impact Calculation

**\$/kWh**

**x Monthly kWh**

**=**

**\$/Month**

## Energy Rate

- Reflects wholesale electricity prices – affects competitive supply offers and standard offer/default service rates
- Modeled by ICF for reference and policy scenario through 2020
- Prices include adjustment to load (GWh) due to investments in energy efficiency
- Same for all customer classes

## Delivery (T/D) Rate

- Reflects cost of delivery of electricity to end-use customer, including transmission, distribution, customer charges, etc.
- Based on 5-year averages, using public data reported by distribution companies to EIA
- Calculated for each customer class

## Average Monthly Use

- Based on historical consumption, using public data reported by distribution companies to EIA
- Five-year average to smooth out annual weather-driven variations
- Includes adjustment to load (GWh) due to investments in energy efficiency
- Average calculated for each customer class

## Average Monthly Bill

- Product of combined customer-class average energy and delivery rates, and average customer class monthly consumption
- Adjusted for direct bill assistance refunds for each customer class

## Average Monthly Bill *Impact*

- *Difference* in average monthly bill, between Reference case and Policy Case

Does not account for :

- Savings on customer bills post 2020 due to EE investments made during the IPM modeling period (2012-2020)
- Savings due to fossil fuel EE investments

# Draft Assumptions – Electricity Rates & Average Monthly Usage

- **Electricity Rate Assumptions (\$/kWh)**
  - **Energy Rates:** IPM model output, includes adjustment to load (GWh) due to investments in energy efficiency
  - **Delivery (T/D) Rate:** 5-year average rates from U.S. Energy Information Association (EIA)
  
- **Average Monthly Usage Assumptions**
  - **Historical Usage Data:** 5-year averaged data from EIA
  - Adjustment made to usage (GWh) due to investments in energy efficiency

## Projected Proceed Investments Assumptions

- States made assumptions on how projected additional proceeds from the 91 Cap Alt Bank potential scenario may be invested in the following categories:
  - Electric EE
  - Fossil Fuel EE
  - Clean & Renewable Energy
  - GHG Abatement & Climate Change Programs
  - Direct Bill Assistance
  - Admin/Other

## Draft Assumptions – Projected Proceed Investments

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- Cumulative projected proceeds for the **IPM Reference case** are **\$1,549.97 Million** (2010\$).
- Cumulative projected proceeds for the 91 Cap Alt Bank potential scenario is **\$3,946.74 Million** (2010\$), representing an additional **\$2,396.76 Million** (2010\$) in proceeds compared to the Reference Case.
  - Annual proceeds were calculated by multiplying the estimated number of allowances projected to be purchased at auction by the projected CO<sub>2</sub> allowance price.
  - For the IPM reference case, calculation assumes that the market purchases enough allowances to meet demand based on emissions, minus the 47M banked allowances from first control period spread over the time horizon.
  - For the 91 Cap Alt Bank potential scenario, calculation assumes in 2012 that the market purchases allowances to meet demand based on emissions. For 2013, assumes that the market is made aware of new policies in 2013 and assumes market purchases 100% of available allowances. Post 2013, assumes that the market purchases all available allowances.

# Draft Assumptions – Projected Proceed Investments

- State Proceed Investments:** The table below provides the breakdown of how each state assumed to invest the additional proceeds in the 91 Cap Alt Bank potential scenario (through 2020) compared to the Reference Case

State	Electric EE Investments	Fossil Fuel EE Investments	Direct Bill Assistance	Clean & Renewable Energy Investments	GHG Abatement & Climate Change Programs	Admin/ Other	Total
Connecticut	69.5%*	0.0%	0.0%*	23.0%*	7.5%*	0.0%	100%
Delaware	65.0%	10.0%	5.0%	0.0%	15.0%	5.0%	100%
Maine	81.0%*	0.0%	14.0%*	0.0%	0.0%	5.0%*	100%
Maryland	46.0%	0.0%	40.0%	10.5%	0.0%	3.5%	100%
Massachusetts	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
New Hampshire	47.0%*	47.0%*	0.0%*	0.0%	0.0%	6.0%*	100%
New York	16.0%	59.0%	0.0%	0.0%	10.0%	15.0%	100%
Rhode Island	95.0%	0.0%	0.0%	0.0%	0.0%	5.0%	100%
Vermont	0.0%	98.0%	0.0%	0.0%	0.0%	2.0%	100%

\*Amounts may vary based on allowance prices.

## Draft Assumptions – Projected Proceed Investments

- Regional Proceed Investments:** The table below provides the regional breakdown of assumed state additional proceeds in the 91 Cap Alt Bank potential scenario (through 2020) compared to the Reference Case, weighted by each state’s percentage of the total budget.

State	Electric EE Investments	Fossil Fuel EE Investments	Direct Bill Assistance	Clean & Renewable Energy Investments	GHG Abatement & Climate Change Abatement	Admin/ Other	Total
Connecticut	4.50%*	0.00%	0.00%*	1.49%*	0.49%*	0.00%	6.47%
Delaware	2.97%	0.46%	0.23%	0.00%	0.69%	0.23%	4.58%
Maine	2.92%*	0.00%	0.5%*	0.00%	0.00%	0.18%*	3.60%
Maryland	10.44%	0.00%	9.08%	2.38%	0.00%	0.79%	22.70%
Massachusetts	16.14%	0.00%	0.00%	0.00%	0.00%	0.00%	16.14%
New Hampshire	2.45%*	2.45%*	0.00%*	0.00%	0.00%	0.31%*	5.22%
New York	6.23%	22.97%	0.00%	0.00%	3.89%	5.84%	38.93%
Rhode Island	1.53%	0.00%	0.00%	0.00%	0.00%	0.08%	1.61%
Vermont	0.00%	0.73%	0.00%	0.00%	0.00%	0.01%	0.74%
<b>RGGI Total</b>	<b>47%</b>	<b>27%</b>	<b>10%</b>	<b>4%</b>	<b>5%</b>	<b>7%</b>	<b>100%</b>

\*Amounts may vary based on allowance prices.

# Draft Assumptions – Projected Proceed Investments

- Regional percentage of RGGI proceed investments by category (\$2010M, cumulative 2012-2020):

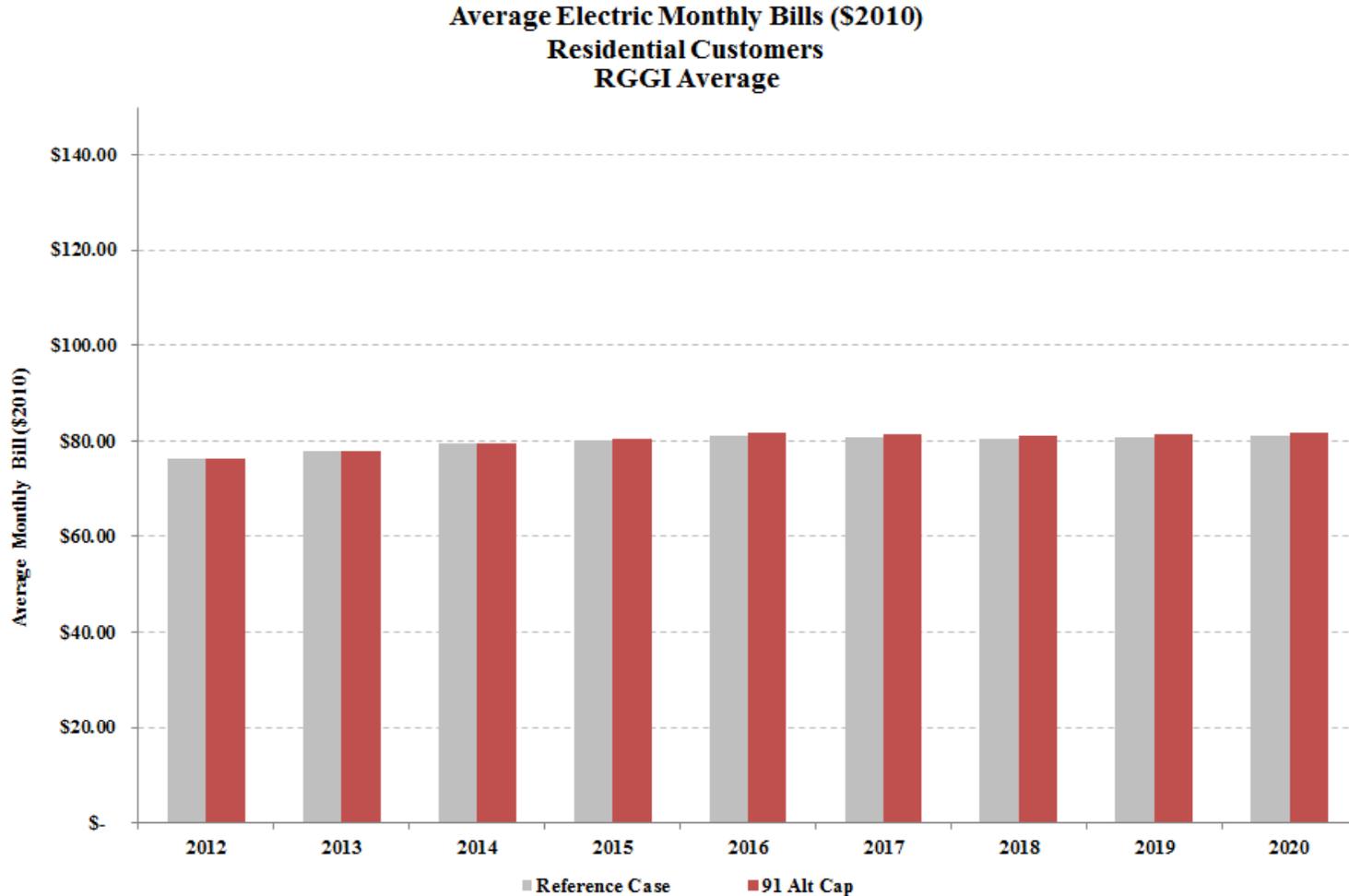
Scenario	Electric EE Investments	Fossil Fuel EE Investments	Total EE (Electric + Fuel EE)	Clean & Renewable Energy Investments	Direct Bill Assistance	GHG Abatement & Climate Change Abatement	Admin/ Other	Total
<b>Total % of RGGI Proceeds:</b>	47%	27%	74%	4%	10%	5%	7%	<b>100.00%</b>
<b>Total Proceeds (2010\$ M)</b>								
Reference Case Proceeds	731.38	412.42	1,143.80	60.03	152.13	78.51	115.50	<b>1,549.97</b>
91 Cap Alt Bank Proceeds	1,862.34	1,050.15	2,912.49	152.86	387.36	199.92	294.11	<b>3,946.74</b>
<b>Difference in Proceeds (Additional 2010\$ M)</b>								
	1,130.96	637.73	1,768.69	92.83	235.24	121.40	178.60	<b>2,396.76</b>

### Draft Results

The following slides show draft results for the 91 Cap Alt Bank potential scenario from 2012-2020, consistent with the IPM modeling timeline.

# Residential Average Bills

## IPM 91 Cap Alt Bank Potential Scenario & Reference Case (2012-2020)



**Notes:**

[1] Usage and Delivery rates based on 5-year historical averages from EIA. Energy rates and avoided load totals based on ICF modeling.

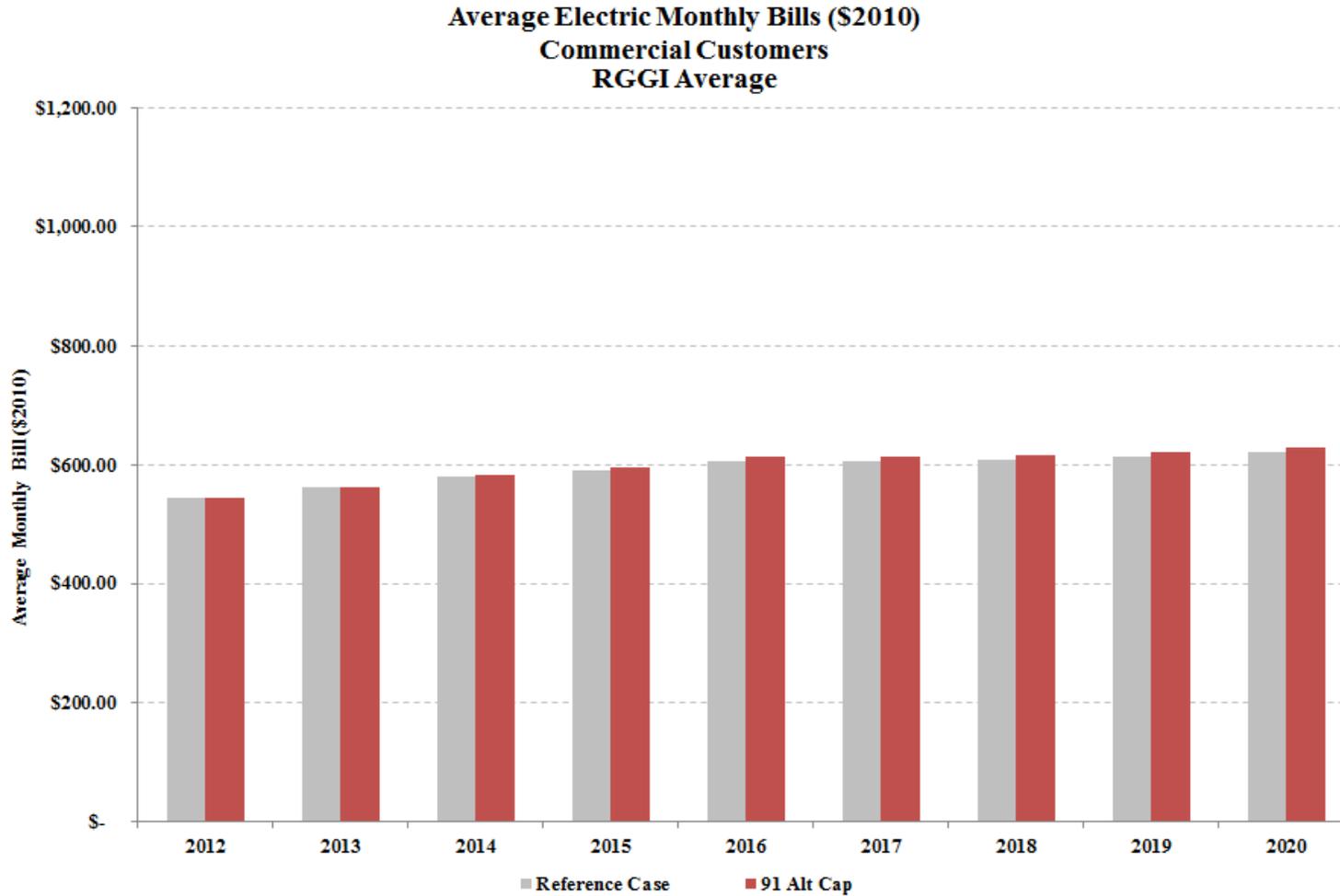
**Regional Average Bill Impacts –  
IPM 91 Cap Alt Bank Potential Scenario Residential Draft Results (2012-2020)**

**Average Bill Impacts  
RGGI Average Residential Customers**

Year	Average Monthly Bill (\$2010)		Difference between Reference Case and Scenario Cases (\$2010)	
	Reference Case		91 Alt Cap	
			Monthly Difference (\$2010)	Percent Difference
2012	\$	76.28	\$ (0.01)	0.0%
2013	\$	77.71	\$ (0.11)	-0.1%
2014	\$	79.31	\$ 0.09	0.1%
2015	\$	79.89	\$ 0.27	0.3%
2016	\$	81.07	\$ 0.49	0.6%
2017	\$	80.75	\$ 0.41	0.5%
2018	\$	80.40	\$ 0.46	0.6%
2019	\$	80.71	\$ 0.40	0.5%
2020	\$	80.97	\$ 0.11	0.1%
<b>Average</b>	<b>\$</b>	<b>79.68</b>	<b>\$ 0.23</b>	<b>0.3%</b>

# Commercial Average Bills

## IPM 91 Cap Alt Bank Potential Scenario & Reference Case (2012-2020)



**Notes:**

[1] Usage and Delivery rates based on 5-year historical averages from EIA. Energy rates and avoided load totals based on ICF modeling.

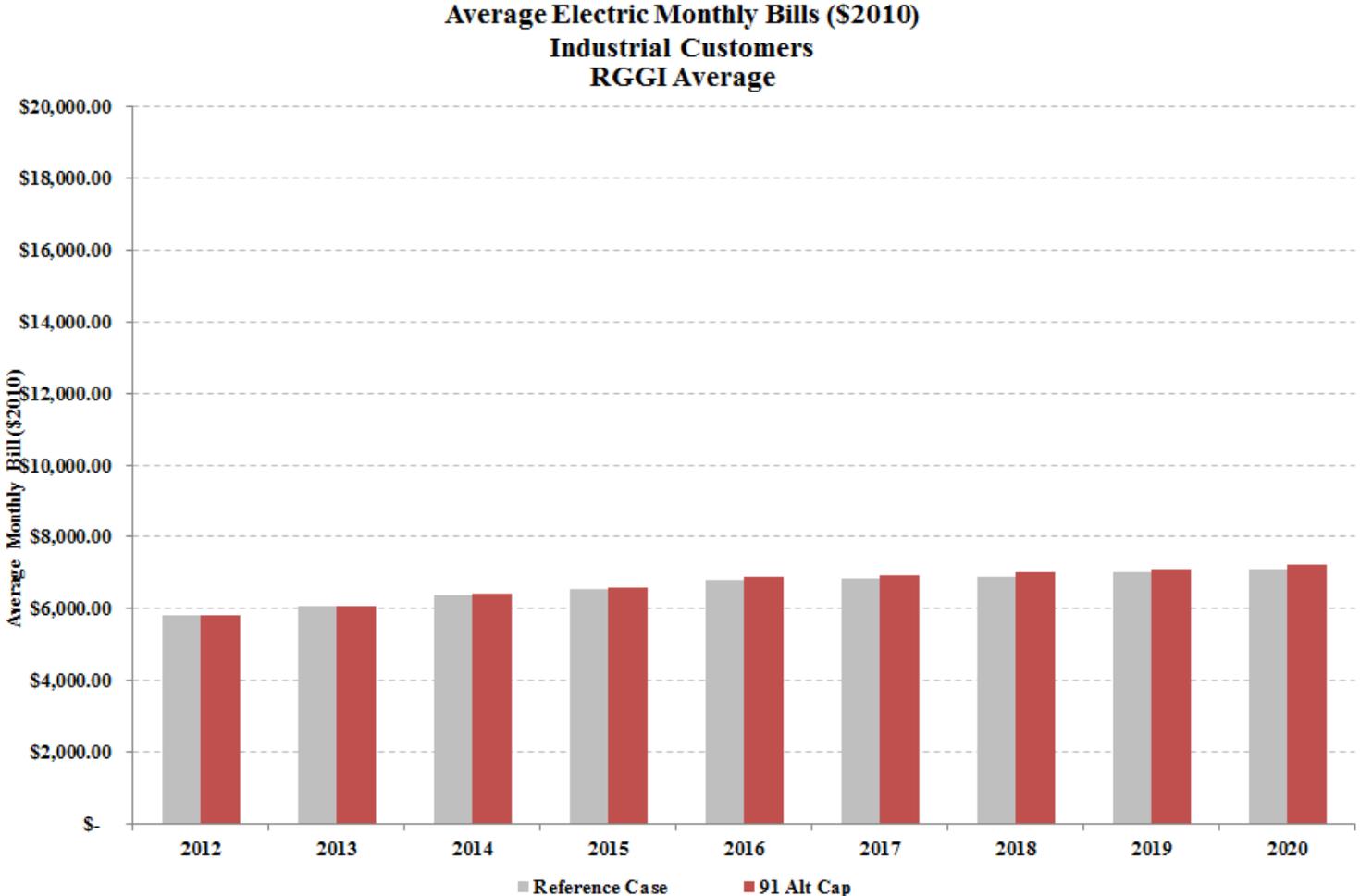
**Regional Average Bill Impacts –  
IPM 91 Cap Alt Bank Potential Scenario Commercial Draft Results (2012-2020)**

**Average Bill Impacts  
RGGI Average Commercial Customers**

<b>Year</b>	<b>Average Monthly Bill (\$2010)</b>		<b>Difference between Reference Case and Scenario Cases (\$2010)</b>	
	<b>Reference Case</b>		<b>91 Alt Cap</b>	
			<b>Monthly Difference (\$2010)</b>	<b>Percent Difference</b>
2012	\$ 545.25	\$	0.00	0.0%
2013	\$ 562.82	\$	(0.16)	0.0%
2014	\$ 581.74	\$	1.64	0.3%
2015	\$ 591.35	\$	4.18	0.7%
2016	\$ 606.14	\$	7.16	1.2%
2017	\$ 607.35	\$	7.73	1.3%
2018	\$ 608.08	\$	8.44	1.4%
2019	\$ 614.71	\$	8.34	1.4%
2020	\$ 620.88	\$	7.77	1.3%
<b>Average</b>	\$ 593.15	\$	5.01	0.8%

# Industrial Average Bills

## IPM 91 Cap Alt Bank Potential Scenario & Reference Case (2012-2020)



Notes:  
 [1] Usage and Delivery rates based on 5-year historical averages from EIA. Energy rates and avoided load totals based on ICF modeling.

**Regional Average Bill Impacts –  
IPM 91 Cap Alt Bank Potential Scenario Industrial Draft Results (2012-2020)**

**Average Bill Impacts  
RGGI Average Industrial Customers**

<b>Year</b>	<b>Average Monthly Bill (\$2010)</b>		<b>Difference between Reference Case and Scenario Cases (\$2010)</b>	
	<b>Reference Case</b>		<b>91 Alt Cap</b>	
			<b>Monthly Difference (\$2010)</b>	<b>Percent Difference</b>
2012	\$ 5,812.25	\$	(0.05)	0.0%
2013	\$ 6,086.42	\$	(2.95)	0.0%
2014	\$ 6,377.12	\$	21.14	0.3%
2015	\$ 6,543.17	\$	54.13	0.8%
2016	\$ 6,776.74	\$	92.81	1.4%
2017	\$ 6,829.16	\$	99.57	1.5%
2018	\$ 6,874.17	\$	109.62	1.6%
2019	\$ 6,996.07	\$	108.39	1.5%
2020	\$ 7,110.95	\$	99.26	1.4%
<b>Average</b>	\$ 6,600.67	\$	64.66	1.0%

# Regional Average Bill Impacts – IPM 91 Cap Alt Bank Potential Scenario Summary Draft Results

## RGGI Average Monthly Bill Impact for years 2012-2020

<b>Customer Class</b>	<b>Reference Case</b>	<b>91 Alt Cap</b>	
	<b>Average Monthly Bill (\$2010)</b>	<b>Monthly Difference (\$2010)</b>	<b>Percent Difference</b>
<b>Residential</b>	\$ 79.68	\$ 0.23	0.3%
<b>Commercial</b>	\$ 593.15	\$ 5.01	0.8%
<b>Industrial</b>	\$ 6,600.67	\$ 64.66	1.0%