

Appendix B

Central Hudson Gas & Electric Corporation

AMR Opt Out Cost Estimates

Section A: Meter Change Cost Calculations

Key Assumptions

Section A identifies the upfront one-time cost scenario analysis for a non-AMR equipped meter change. The incremental costs are comprised of five variables that drive the one-time charge: travel time, wrench time (time to install the meter), straight time hourly rate, cost of the vehicle and labor burdens.

METER CHANGE COST CALCULATIONS ⁽¹⁾								
<u>Labor Times (minutes)</u>								
Job	Travel	Wrench Time	Total Job Time	Average Straight Time Hourly Rate ⁽²⁾	Class 2 Vehicle ⁽³⁾	Labor and Capital Burdens ⁽⁴⁾	Straight Time Cost Per Job	Fee
	(a)	(b)	(c)	(d)	(e)	(f)	(g) = ((c)/60)*(d+e)*(1+f)	(h)
Gas								
2011	17	38	55	\$ -	\$ -	\$ -		
2012	14	29	43	\$ -	\$ -	\$ -		
2013	15	41	56	\$ 43.51	\$ 7.00	88%	\$ 88.63	\$ 88.63
Average	15	36	51	\$ 43.51	\$ 7.00	88%	\$ 88.63	\$ 88.63
Electric								
2011	14	13	27	\$ -	\$ -	\$ -		
2012	16	14	30	\$ -	\$ -	\$ -		
2013	15	16	31	\$ 43.51	\$ 7.00	88%	\$ 49.06	\$ 49.06
Average	15	14	29	\$ 43.51	\$ 7.00	88%	\$ 49.06	\$ 49.06
Combined								
2011	17	51	68	\$ -	\$ -	\$ -		
2012	16	43	59	\$ -	\$ -	\$ -		
2013	15	57	72	\$ 43.51	\$ 7.00	88%	\$ 113.95	\$ 113.95
Average	16	50	66	\$ 43.51	\$ 7.00	88%	\$ 113.95	\$ 113.95

¹ Data taken from Obvient Dashboard for the years 2011-2013

² Average straight time hourly rate based on a normal work day effective May 1, 2014

³ Average billing rate for vehicles under 10,000 lbs.

⁴ Based on 3 year average assuming employee is eligible for defined benefit pension plan.

Central Hudson used a three year average to calculate the travel and wrench times that it would take a Commercial Representative to install a new meter should a customer choose to opt-out of a non-AMR equipped meter. As there were very few outliers with this data set, the

Appendix B

Central Hudson Gas & Electric Corporation

AMR Opt Out Cost Estimates

mean for this data was a good representation of the information used to determine the upfront costs for the meter change.

This methodology was applied to the following three scenarios: 1) gas meter change; 2) electric meter change; and 3) gas and electric meter change. To determine the task times for both the travel and wrench times for each scenario, Obvient Strategies (productivity tracking software) was used to calculate and report these times from 2011 through 2013.

Based on this data, Central Hudson anticipates that the upfront costs to install a non-AMR equipped gas and electric meter is approximately \$89 dollars and \$49 dollars, respectively. Furthermore, should a customer opt to have both an electric and gas meter replaced, the upfront costs are approximately \$114 dollars.

Appendix B

Central Hudson Gas & Electric Corporation

AMR Opt Out Cost Estimates

Section B: Meter Read Cost Calculations

Key Assumptions

Section B identifies the on-going cost scenario analysis for a non-AMR equipped meter read. The incremental costs are comprised of five variables that drive the monthly operating costs: travel time, wrench time (time reading the meter), straight time hourly rate, cost of the vehicle and labor burdens.

Table 1 Central Hudson's Monthly Costs Scenario

METER READ COST CALCULATIONS								
<u>Labor Times (minutes)</u>								
Job	Travel	Wrench Time	Total Job Time	Average Straight Time Hourly Rate ⁽¹⁾	Class 2 Vehicle ⁽²⁾	Labor and Capital Burdens ⁽³⁾	Straight Time Cost Per Job	Fee
	(a)	(b)	(c)	(d)	(e)	(f)	(g) = ((c)/60)*(d+e)*(1+f))	(h) = (g)/2
<u>Gas</u>								
2011	17	0.21	17.21	\$ -	\$ -	\$ -		
2012	14	0.19	14.19	\$ -	\$ -	\$ -		
2013	15	0.19	15.19	\$ 26.03	\$ 7.00	39%	\$ 11.88	\$ 5.94
Average ⁽⁴⁾	15	0.20	15.53	\$ 26.03	\$ 7.00	39%	\$ 11.88	\$ 5.94
<u>Electric</u>								
2011	15	1.52	16.52	\$ -	\$ -	\$ -		
2012	16	1.41	17.41	\$ -	\$ -	\$ -		
2013	14	1.36	15.36	\$ 26.03	\$ 7.00	39%	\$ 12.57	\$ 6.29
Average ⁽⁴⁾	15	1.43	16.43	\$ 26.03	\$ 7.00	39%	\$ 12.57	\$ 6.29
<u>Combined</u>								
2011	17	1.73	18.73	\$ -	\$ -	\$ -		
2012	16	1.6	17.6	\$ -	\$ -	\$ -		
2013	15	1.55	16.55	\$ 26.03	\$ 7.00	39%	\$ 13.49	\$ 6.74
Average ⁽⁴⁾	16	1.63	17.63	\$ 26.03	\$ 7.00	39%	\$ 13.49	\$ 6.74

¹ Average straight time hourly rate based on a normal work day effective May 1, 2014

² Average billing rate for vehicles under 10,000 lbs.

³ Based on 3 year average assuming employee is not eligible for defined pension plan.

⁴ Average read times were rounded up to 0.5 minutes, 1.5 minutes and 2 minutes for Gas, Electric and Combined, respectively.

Appendix B

Central Hudson Gas & Electric Corporation

AMR Opt Out Cost Estimates

Similar to the analysis used for the upfront costs for the meter change, Central Hudson used a three year average to calculate the travel and read times that it would take a meter reader to manually read a non-AMR equipped meter should a customer choose to opt-out. This methodology was applied to the following three scenarios: 1) gas meter change; 2) electric meter change; and 3) gas and electric meter change. To determine the task times for both the travel and read times for each scenario, all of Central Hudson's meters (population of ~384,000) were analyzed to conclude the total number of AMR and non-AMR equipped meters by district set forth in the table below:

Table 2 Central Hudson's Percentage of AMR/Non-AMR Meters by District

Row Labels	Count of Non-ERT	% Non-ERT	Count of ERT	% ERT
Catskill	23,839		13,245	
ELECTRIC	23,181	97%	12,092	91%
GAS	658	3%	1,153	9%
Fishkill	43,011		23,936	
ELECTRIC	35,269	82%	13,659	57%
GAS	7,742	18%	10,277	43%
Kingston	50,856		29,197	
ELECTRIC	45,481	89%	20,262	69%
GAS	5,375	11%	8,935	31%
Newburgh	52,356		47,450	
ELECTRIC	43,625	83%	28,334	60%
GAS	8,731	17%	19,116	40%
Poughkeepsie	65,308		35,232	
ELECTRIC	59,167	91%	22,666	64%
GAS	6,141	9%	12,566	36%
Grand Total	235,370	61%	149,060	39%

As detailed in Table 2 above, Central Hudson determined the percentage of electric and gas AMR and non-AMR equipped meters by each district to begin calculating average read times. The following logic and assumptions were used:

- 1) Average daily meter reads by district were analyzed over a three year period;
- 2) The average daily meter reads were divided by an average work day, which was 7.5 hours. This gave the number of meter reads by hour for each district;

Appendix B

Central Hudson Gas & Electric Corporation

AMR Opt Out Cost Estimates

- 3) The hourly meter reads were then calculated by the percentage of gas and electric AMR equipped and non-AMR equipped meters. This gave the number of meter reads per hour for both meter types by segment;
- 4) It was assumed that all AMR equipped meters took on average, 30 seconds of read time;
- 5) As there are more electric meters across Central Hudson's service territory, meter readers will spend more time reading these meter types. Based on the population of data described above, the mean for electric read time is 1.36 minutes, 1.38 minutes and 1.43 minutes for 2013, 2012 and 2011, respectively. Additionally, the median read time is 1 minute and 17 seconds. The mean for gas read time is 0.17 minutes, 0.17 minutes and 0.18 minutes for 2013, 2012 and 2011, respectively. Additionally, the median read time is 0.17 minutes;
- 6) The average travel times were assumed to be the same as the travel times gathered for the meter change for each scenario.

Additionally, a sample analysis of city and country meter reading routes (approximately 6,000 observations) in the Kingston, Catskill and Poughkeepsie districts was conducted to further support the average read times for both AMR and non-AMR equipped meters. As every meter reading route could not be observed, the sample mean was determined for the elapsed time to read both meter types. It was concluded that the average time to read a non-AMR and AMR equipped meter on a country route will take approximately 1.5 minutes and 30 seconds, respectively. Average read time on a city route will take approximately 50 seconds and 15 seconds, respectively.

Based on these data sets (and as evidenced in Table 1 above), Central Hudson concludes that the average read and travel time for non-AMR equipped gas and electric meters is approximately 15.5 minutes and 16.5 minutes, respectively. Combined read time for both meters is approximately 17 minutes. Central Hudson anticipates that the recurring monthly cost to read a non-AMR equipped gas and electric meter is \$6 dollars. Furthermore, should a customer opt to have an electric and gas meter replaced, the recurring monthly cost to read both meters is approximately \$7 dollars.