Helping Massachusetts Municipalities Create a Cleaner Energy Future

COMMONWEALTH OF MASSACHUSETTS

Charles D. Baker, Governor
Matthew Beaton, Secretary
Judith Judson, Commissioner

Understanding Your Electric Bill

Webinar

June 24, 2015

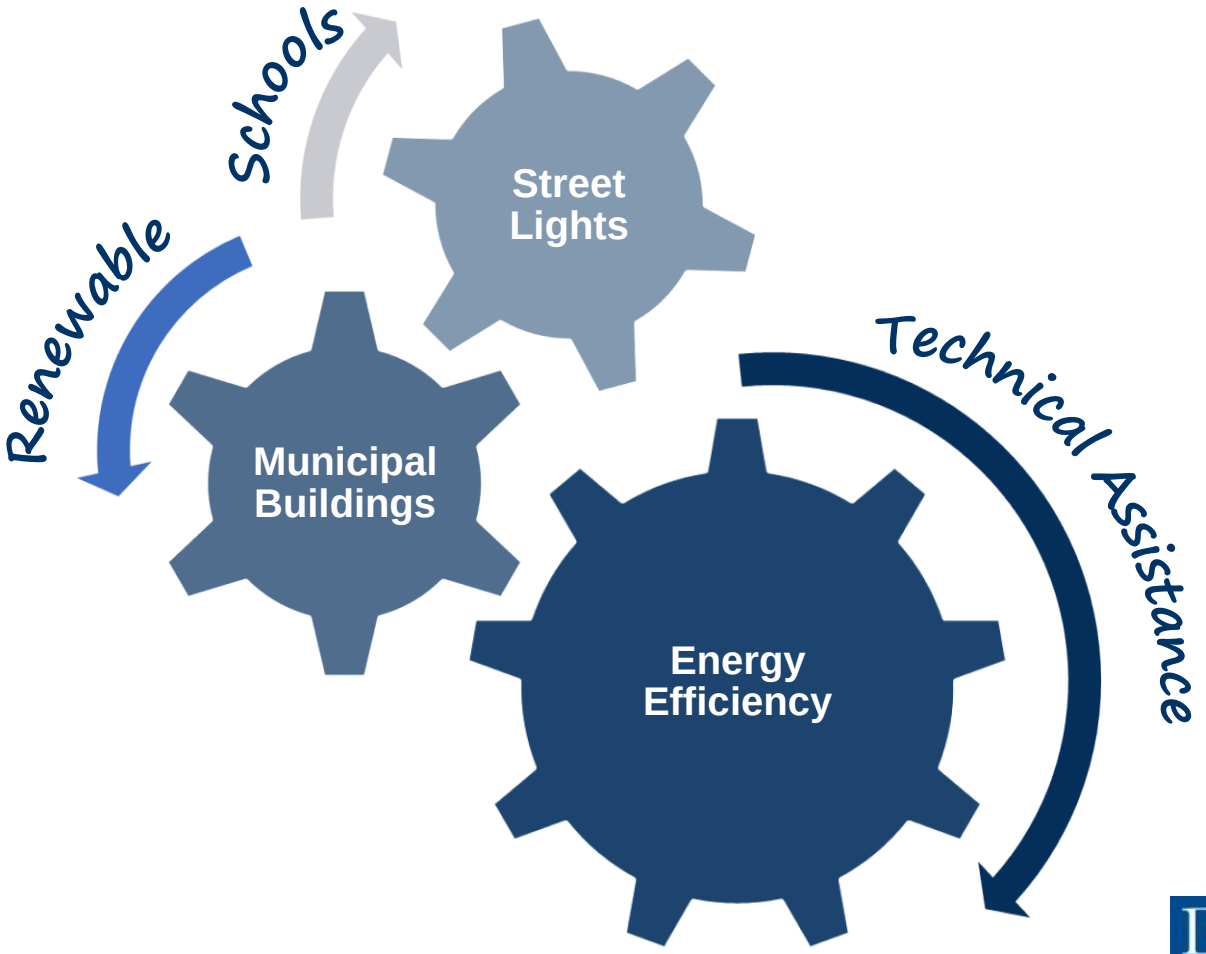
12:30 PM

Justin Brant, Department of Public Utilities

Katherine Moses, City of Lowell

Green Communities Division

The energy hub for ***all*** Massachusetts cities and towns, not just designated “Green Communities.”



Helping Massachusetts Municipalities Create A Cleaner Energy Future

Outreach - Regional Coordinators

- Regional Coordinators act as direct liaisons with cities and towns on energy efficiency and renewable energy activities
- Located at each of the DEP Regional Offices:

WERO – SPRINGFIELD: Jim Barry
Jim.Barry@state.ma.us

NERO – WILMINGTON: Joanne Bissetta
Joanne.Bissetta@state.ma.us

CERO – WORCESTER: Kelly Brown
Kelly.Brown@state.ma.us

SERO – LAKEVILLE: Seth Pickering
Seth.Pickering@state.ma.us

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Green Communities Division -
Programs & Resources for Municipalities

- Green Communities Designation and Grant Program
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Efficiency Program
- Energy Management Services Technical Assistance
- Clean Energy Results Program (CERP)
- Mass Municipal Energy Group (MMEG)
- Website filled with tools & resources: www.mass.gov/energy/greencommunities

Email updates via e-blasts – Sign up by sending an email to:

join-ene-greencommunities@listserv.state.ma.us

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Recording & Presentation

- The webinar is being recorded and will be available on our website in approximately 48 hours at: http://www.mass.gov/eea/energy-utilities-clean-tech/webinars.html
- Click on the camera icon top right of your screen to save any slides for future reference
- Use the Q & A icon on your screen to type in questions
- The slide presentation will also be posted at: http://www.mass.gov/eea/energy-utilities-clean-tech/webinars.html
- Websites are also listed at end of presentation

Poll Question #1

- Who is in the audience today?
  a) Municipalities and other public entities
  b) Non-profit entities
  c) Homeowners

Restructured Electric Market

- Electric bills are split into two parts: delivery and supply
- Delivery: Cost to maintain electric grid and deliver power from point of generation to homes and businesses
  - All customers must take delivery service from their utility
  - Rates are regulated by the DPU
- Supply: Cost to generate electricity
  - Customers may choose to take supply from Competitive Supplier
  - Distribution Companies procure supply for those customers who do not choose Competitive Supply (i.e., Basic Service)
  - DPU licenses Competitive Suppliers, but does not regulate their rates or products

Type of Distribution Charges

- Base distribution rates are established during a rate case and generally remain fixed until the next rate case
- Fixed charges established by legislature (e.g., System Benefits Charge, Renewable Energy Charge)
- Transmission – Cost to maintain transmission system (regulated by FERC and ISO-NE)
- Transition Charge – Cost of past investments in generation and power contracts
- Reconciling Mechanisms – Recover certain costs outside of base rates
  - Utility costs that fluctuate (e.g., pensions, storm response)
  - State policy objectives (e.g., energy efficiency, net metering, smart grid pilots, Attorney General, decoupling, low-income discount)

Cost Recovery Methods

- Customer Charge – Fixed monthly charge
  - Used to recover fixed utility expenses, such as meters and billing systems
- Volumetric Charges – Charge per kwh of electricity used
- Demand Charge – Based on maximum demand over a 15 minute period (kw)
  - Only used for larger commercial and industrial customers
  - Ensures that large energy users pay “fair share” of electric system costs

Customer Class

- Customer class determines the types of charges that appear on a bill
- Depending on customer class, charges may vary seasonally or by time-of-day
- Definitions of C&I customer classes vary by distribution company
- Municipal operations will likely fall in either G-1 or G-2 customer classes

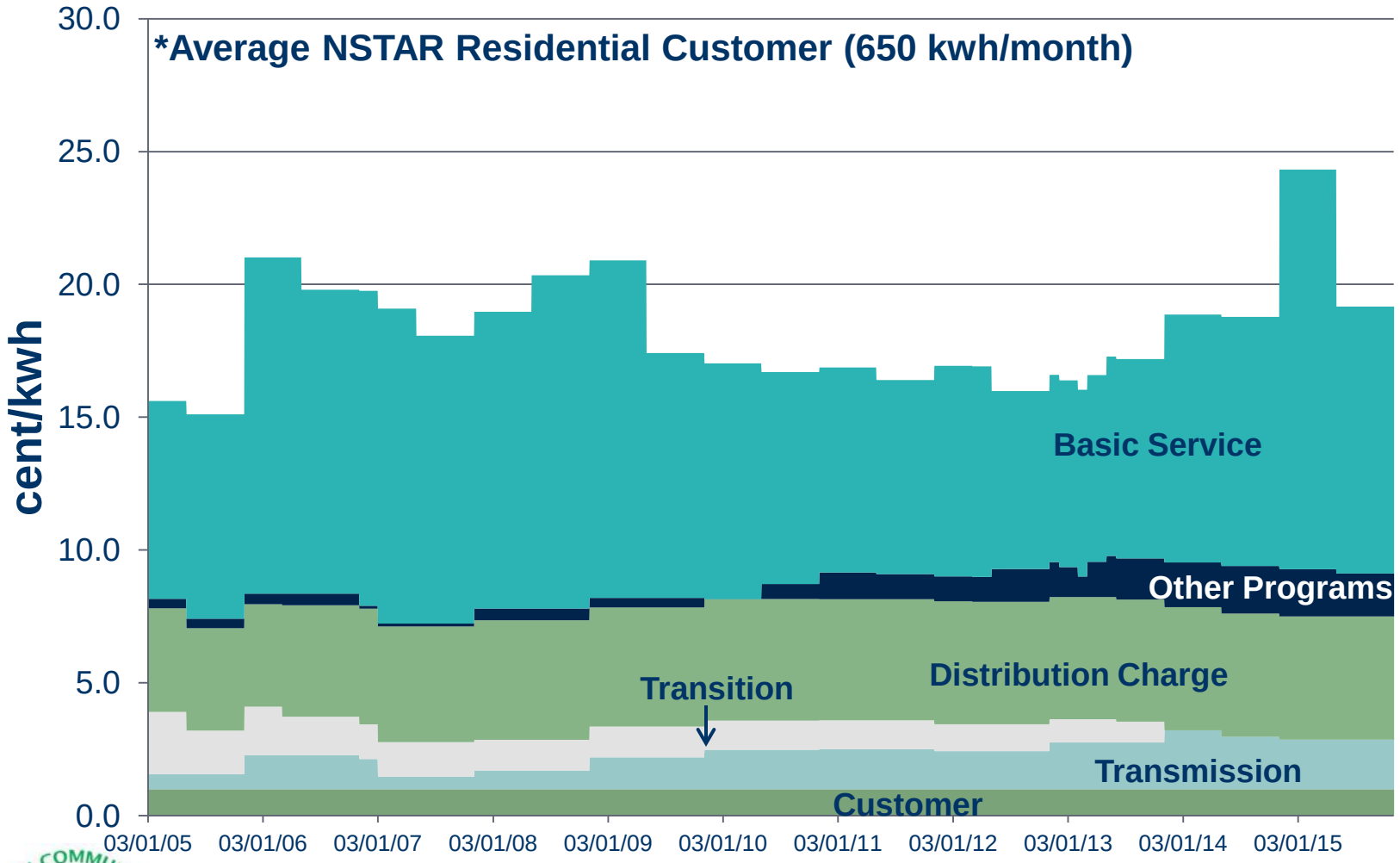
Breakdown of Bill

	Cost ($/kwh)	Avg. Customer Monthly Charge	% of total Bill
Customer Charge ($/month)	$ 10.0000	$ 10.0000	4.7%
Distribution Charge	$ 0.0302	$ 37.66	17.9%
Transmission	$ 0.0228	$ 28.38	13.5%
CapEx Factor	$ 0.0020	$ 2.52	1.2%
Basic Service Adj	$ (0.0012)	$ (1.50)	-0.7%
Res Assist Adj	$ 0.0056	$ 6.95	3.3%
Storm Adj	$ 0.0036	$ 4.48	2.1%
Pension Adj	$ 0.0023	$ 2.88	1.4%
Revenue Decoupling	$ 0.0026	$ 3.19	1.5%
AG Cost	$ 0.0000	$ 0.02	0.0%
Solar Cost Adj	$ 0.0001	$ 0.14	0.1%
Smart Grid Adj	$ 0.0004	$ 0.49	0.2%
Transition	$ (0.0015)	$ (1.92)	-0.9%
EERF	$ 0.0074	$ 9.19	4.4%
SBC	$ 0.0025	$ 3.12	1.5%
Renewable Energy	$ 0.0005	$ 0.62	0.3%
Total Retail Delivery	$ 0.0772	$ 106.22	50.5%
Basic Service	$ 0.0837	$ 104.31	49.5%
Total		**$ 210.53**	**100.0%**

***As of 6/1/2015, Average National Grid G-1 Customer (1247 kwh/month)**

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Electric Rate Breakdown



Helping Massachusetts Municipalities Create A Cleaner Energy Future

Basic Service

- All Basic Service customers have choice between monthly variable prices and a fixed price
- For medium and large C&I customers, Companies procure 100% of load for three months
  - Basic Service intended to be short-term, last resort service for large customers
  - Quarterly procurement intended to send price signals to customers, while providing some short-term certainty
  - Default option is monthly variable
- For Residential and small C&I customers, Companies procure 50% of load for one year, biannually
  - Procurement method designed to provide a greater level of price stability, while also reflecting current market conditions
  - Default option is six-month fixed price

Bill Recalculation

- Goal: ensure customers pay the cost of the electricity used
- Basic Service contract prices vary monthly
- **Fixed** price basic service rate is a weighted average of monthly prices
- Historically, customer who switched to competitive supply during a 6-month pricing period would have previous bills recalculated as if on monthly variable price
- The Department recently eliminated the bill recalculation for residential and small C&I customers as it was a perceived penalty for switching to a competitive supplier (D.P.U. 14-140-A)
- Solicited comments on bill recalculation for municipal aggregations
  - Municipal aggregations act like large C&I customers that can drastically influence basic service procurement prices
  - Received comments on June 5, deciding on next steps

Example Bill Recalculation

	January	February	March	April	May	June
Fixed	9.334	9.334	9.334	9.334	9.334	9.334
Variable	12.530	12.280	8.341	7.359	6.910	7.337
Fixed Bill	$ 93	$ 93	$ 93	$ 93	$ 93	$ 93
Variable Bill	$ 125	$ 123	$ 83	$ 74	$ 69	$ 73
Difference	$32	$29	$-10	$-20	$-24	$-20
Bill Recalc.	**$32**	**$61**	**$51**	**$31**	**$7**	

***Assume 1,000 kwh/month**

Options to Reduce Electric Bills

Supply

- Energy Efficiency
- Renewable Energy
- Competitive Supply Market

Distribution

- Energy Efficiency
- Renewable Energy
- Demand Reduction, if applicable
- Remove inactive accounts

Poll Question #2

- Are you using a competitive service supplier or a basic service supplier?
  a) Competitive service
  b) Basic service
  c) Don't know

Solar and Your Energy Bills

- Energy produced from solar panels can reduce your electricity bills in several ways:
  - Direct Install: Installation of solar panels on facilities can directly offset the energy used, reducing the number of kWh you are charged for.
  - Net Metering: If the solar panels generate more energy than is used by the facility, you receive a credit for the excess generation.
  - Virtual Net Metering: Credits can also be generated from solar panels that are located in areas not directly tied to your facility.
- Understanding virtual net metering on your utility bills will be the focus of this portion of the webinar.

Benefits of Virtual Net Metering Credits

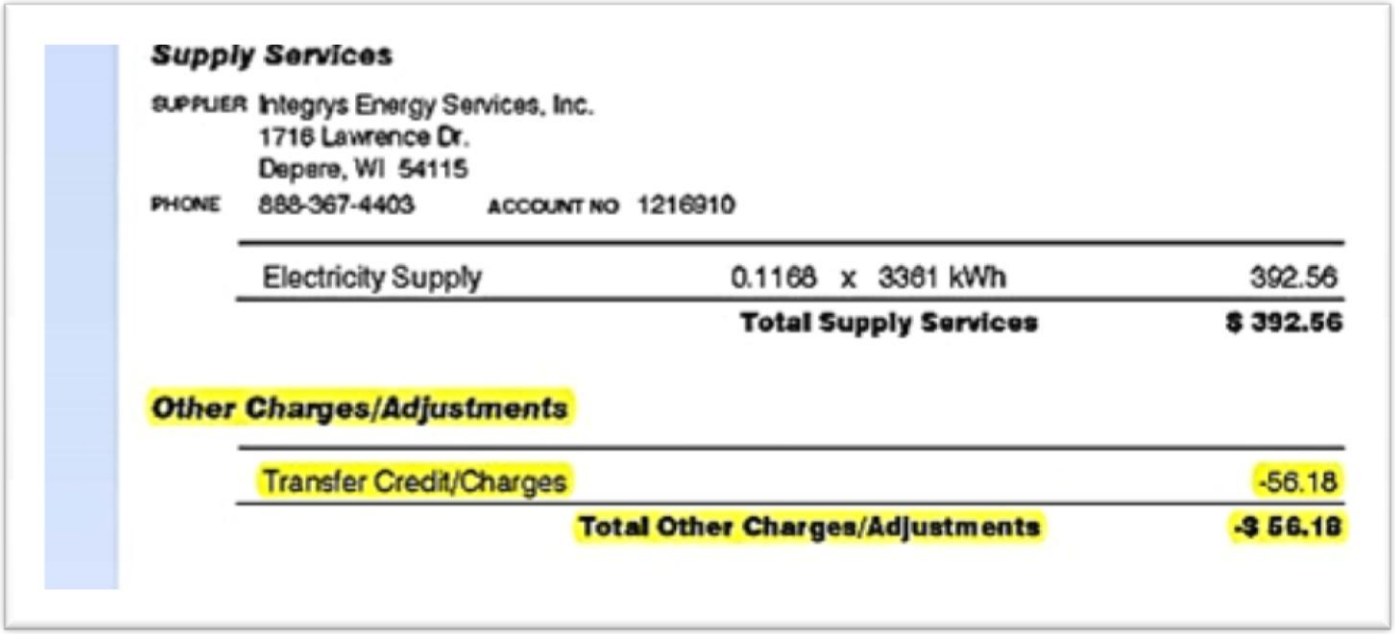
- Lowell's Experience
  - The City of Lowell has developed three large sites that generate virtual net metering credits.
  - The 8.5 MW include one site on the City's closed landfill and two fields in western Massachusetts
  - Since October 2013, these projects have cumulatively:
    - Added 11 million kWh of renewable energy to the electrical grid
    - Saved the City over $350,000 on utility bills
    - Helped to mitigate the fiscal impact of rate increase from one of our competitive suppliers

Real Savings

- One of the largest accounts in terms of usage and cost in Lowell is the account for the Regional Wastewater Utility Plant.
- In FY 2014, this facility consumed over 7.6 million kWh with electricity costs of over $890,000.
- In order to help mitigate these costs, the City allocated virtual net metering credits to the account.
- In a 15-month period, through net metering credits, savings of over $152,000 were realized.

Finding Net Metering Credits on Your Bill

- Net metering credits are generally listed after the Supply Services portion of the bill under the category of "***Other Charges/Adjustments***"



Supply Services

SUPPLIER Integrys Energy Services, Inc.
1716 Lawrence Dr.
Depere, WI 54115
PHONE 888-367-4403 ACCOUNT NO 1216910

Electricity Supply	0.1168 x 3361 kWh	392.56
	Total Supply Services	**$ 392.56**

Other Charges/Adjustments

Transfer Credit/Charges		-56.18
	Total Other Charges/Adjustments	**-$ 56.18**

Tracking Net Metering Credits

- Tracking Net Metering Credits can be done in several ways:
  - The Easy Way (through your solar developer)
  - The Harder Way (through utility account comparison)

Tracking Credits – The Easy Way

- Many solar developers will, upon request, track your utility bills and include copies of the bills as part of their invoicing.
- This allows you to directly see when the credits generated were applied to the accounts.

Tracking Credits – the Harder Way

- If developers are unwilling to track the credits, you can also track them through utility bill data analysis.
  - Step 1: Look at the bill for the solar facility
  - Step 2: Compare the solar facility's utility bill with the bill from your solar developer
  - Step 3: Compare individual bills in the Schedule Z with the solar developer's bill

Tracking Credits – the Harder Way

- Step 1: Look at the bill for the solar facility
  - You will receive a bill from your utility company if you are the Host Customer. The project is listed as “COGEN” at the top of the bill.
  - From this bill, you can determine the net metering credits you should be getting during the month

General Service - Small C/I G-1 VOLTAGE DELIVERY LEVEL 2.2 - 15 kv				
Customer Charge				10.00
Net Met Cr Other	0.1735	x	-131790 kWh	-22,865.56
Net Met Cr First -2000 KWH	0.04501265	x	-2000 kWh	-90.03
Net Met Cr Next -129790 KWH	0.06273265	x	-129790 kWh	-8,142.08
			Total Delivery Services	**-$ 31,087.67**

Tracking Credits – the Harder Way

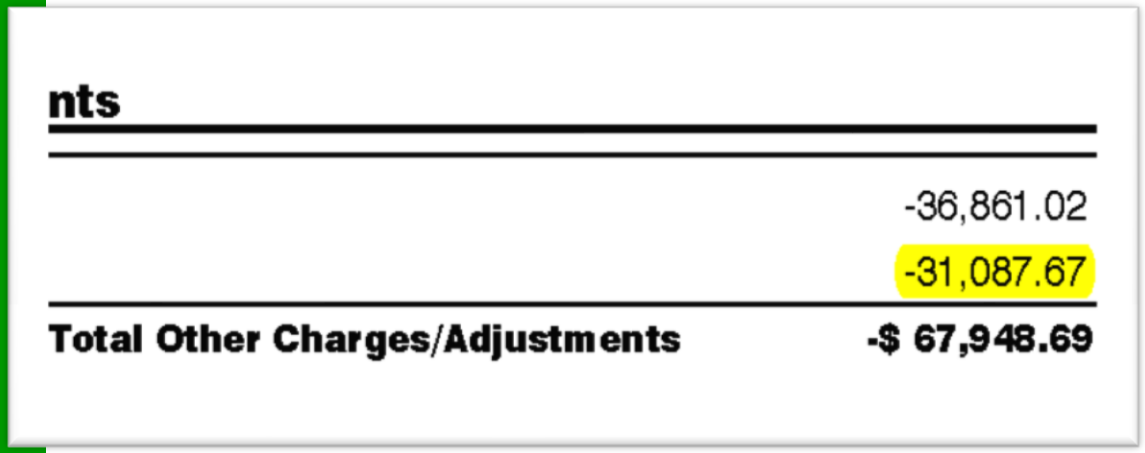
- Step 2: Compare the solar facility's utility bill with the bill from your solar developer

AGE DELIVERY LEVEL 2.2 - 15 kv	
	10.00
0.1735 x -131790 kWh	-22,865.56
501265 x -2000 kWh	-90.03
273265 x -129790 kWh	-8,142.08
Total Delivery Services	**-$ 31,087.67**

Credits Transferred
25,893.16
31,087.67
28,627.32
85,608.15

Tracking Credits – the Harder Way

- Step 3: Compare individual bills in the Schedule Z with the solar developer's bill.
  - In the example below, the Schedule Z allocates 100% of the credits from the meter to a single account.



nts	
	-36,861.02
	-31,087.67
Total Other Charges/Adjustments	**-$ 67,948.69**

Credits Transferred
25,893.16
31,087.67
28.627.32

Poll Question #3

- How do you track your net metering credits?
  a) Solar developer tracks the net metering credits
  b) We track our net metering credits internally
  c) Not sure
  d) Additional assistance in tracking would be helpful

Schedule Z Basics

- Previous slides referenced a Schedule Z.
- For those unfamiliar with virtual net metering credits, this is a form from your utility company to allocate the credits to other electric accounts within your utility service territory and ISO-New England Load Zone.
- The Schedule Z asks you to identify the percentage of the monetary credits generated by solar that will go to a particular utility account.
- A Schedule Z needs to be completed for each meter in a solar field. Some large facilities may have more than one meter. (In Lowell, one of our 3.5 MW fields has 3 meters).
- Schedule Z's can be changed twice a year.

Schedule Z Basics

- A customer may allocate:
  - 100% of credits to a single large account
  - Moderate percentages to a few large accounts
  - Smaller percentages to a large number of accounts
  - Allow credits to build up to the Host Customer account

- The solar facility size, customer savings goals, and developer discount should all be factors in determining allocations.

Lowell's Methodology for Schedule Z's

- *Start with historical data on costs for all electricity accounts*. This data could be pulled from Mass Energy Insight, from utility records online, or internal records.
- *Factor in known cost increases*. Is your competitive supply contract price expiring? What is the fiscal impact?
- *Assume that 95% of the electricity costs will be offset*. This is intended to prevent over-allocation of credits due to variations in usage.
- *Factor in anticipated savings from energy efficiency projects.* Since Schedule Z's are generally changed twice a year, pay particular attention to projects coming online in the next six months.

Lowell's Methodology for Schedule Z's

- *Project output of net metering credits from each facility*. This can be based on either historical output or estimates from the solar developer on anticipated/guaranteed output.
- *Determine allocation percentages*. Compare annual electricity account costs to annual net metering credit production through an Excel formula. This will also allow you to exclude accounts that would have negligible (less than 1%) allocations.
- *Complete Schedule Z*. Fill in appropriate allocations into the Schedule Z form and submit to your distribution company.
- *Monitor credits and update Schedule Z in six months*.

Tips and Considerations for Schedule Z

- *Factor in off-bill competitive supply*. Only charges appearing on your distribution company electric bill can be offset by net metering credits. Some competitive suppliers may include a separate bill for supply costs. These costs cannot be offset by net metering credits.
- *Remember that solar is an intermittent source*. There will be daily and seasonal variations depending on weather, hours of daylight, and snow coverage. This may mean that, in the summer, more credits will be generated than the total electricity bill cost. Understand that the credits will wind down over time and level out due to low winter production. Just keep monitoring and make semi-annual adjustments as needed.

Thank You

Justin Brant
Assistant Director, Electric Power Division at
Massachusetts Department of Public Utilities
Justin.brant@state.ma.us

Katherine Moses
City of Lowell, Energy Manager
kmoses@lowellma.gov