



Increasing Access:

Low Income Community Shared Solar 101

Metropolitan Area Planning Council (MAPC)

April 26, 2017
Solar Webinar Series

Webinar Agenda

1

Brief Introduction to MAPC & the Clean Energy Department

Cammy Peterson, MAPC

2

Webinar Attendee Poll

Megan Aki, MAPC

3

Community Shared Solar 101

Greg Hall & Dave Beavers, Cadmus Group

4

CSS in Action – Newton's Community Solar Share Initiative

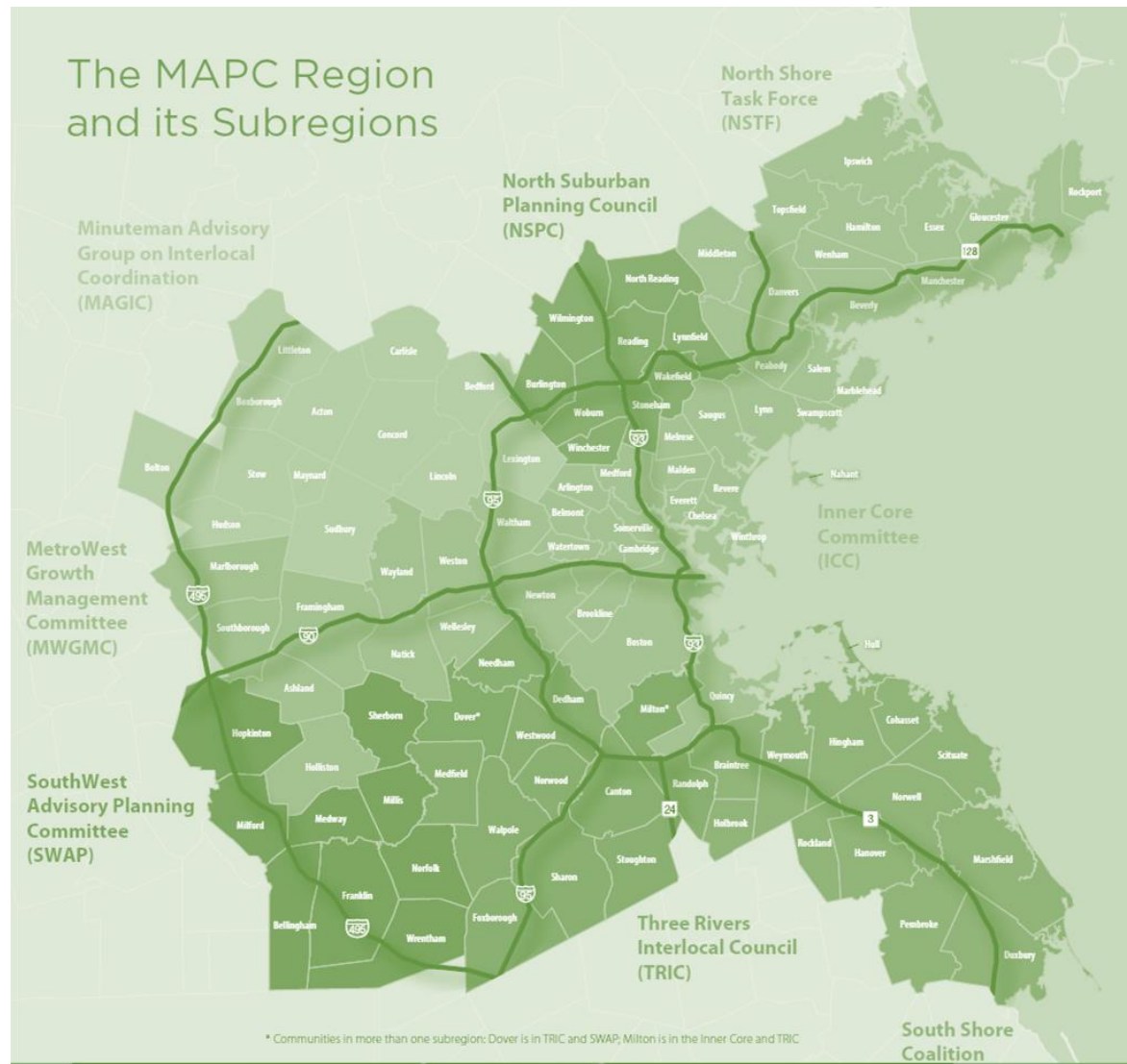
Andy Savitz, City of Newton

5

Q&A with all panelists

MAPC: About Us

- ▶ Regional Planning Agency
- ▶ 101 cities and towns
- ▶ 80+ employees
- ▶ Wide range of planning expertise



MAPC: Clean Energy

1. Regional Energy Projects

- ESCO Procurement
- Regional Solar Initiative
- LED Streetlight Purchasing Program
- Community Aggregation
- Hybrid Conversion Technology
- Energy Resiliency

2. Local Energy Action Program

- Connecting municipalities with incentives + plug-and-play programs
- Community energy and climate baselining, planning, and strategizing
- Outreach programming and education

3. Energy Technical Assistance

- Grant Writing
- Green Communities Designation
- Methane Leaks
- Solar Permitting and Zoning
- State and Local Policy





Poll Time!

1. What best describes your role/place of work?
2. What kind of electric service provider does your city or town have?
3. How familiar are you with community shared solar?



CADMUS



Community Shared Solar

Expanding Solar Access in Your Community

Encompasses:

1. *Community Solar 101*
2. *Ownership*
3. *Value Proposition*
4. *CSS Future under SMART*

Before We Start

- These slides consider primarily communities in Investor Owned Utility (IOU) territories
 - Community Shared Solar in MLP communities is possible, but through a different approach (*as discussed in last slide, best economics for projects completed in the next year*)
 - The term “Community Shared Solar” is unique to Massachusetts
 - Other states / literature may use the term “Community Solar”, or “Shared Solar” used
- This presentation provides an introduction to CSS
 - We are happy to discuss more in depth topics such as siting, procurement and administration through Q/A





Community Shared Solar CSS

- A solar photovoltaic (PV) system that provides benefits to multiple participants.
 - For Mass. “multiple” most likely accommodated through virtual net metering (VNM)
- Benefits can include:
 - Electricity
 - Net metering credits
 - Return on investment
- Currently, over 445 MW worth of CSS have qualified under the Massachusetts Solar Carve Out
 - Represents 23.2% of qualified capacity



The Opportunity

- Emerging and visible model that benefits multiple stakeholders
 - Distributed energy savings through net metering
 - Expands access to segments of the community that traditionally have been unable to avail themselves of solar.
- Involves local constituents
 - Multi-family homes
 - LMI
 - Renters



Expanding Access

- CSS offers an alternative for those who cannot install solar on their own property
 - According to NREL, nearly half of U.S. homes are unsuitable for a 1.5 kilowatt system
 - Experience from Solarize programs in Eastern Mass. suggests that as low as 20% of homes are suitable for solar (i.e. because of trees, roof condition, roof orientation, etc...)
 - Offers opportunity to renters and those in multi-family housing to access solar (especially LMI)
- CSS can also offer comparable economic benefit to renters and low to moderate income (LMI) residents
 - Solar serving low-income customers would receive a higher ratio of RECs for each MWh of generation
 - Under SMART, all evidence points to LMI access receiving valuable “adders”



Ownership

- Majority of CSS is third-party owned
 - Owned and operated by private development
 - Able to monetize 30% investment tax credit (ITC)
 - Experience in CSS administration
- Participant-owned
 - Instigated by private party: municipality may play only a minor role
 - Requires up-front capital and administrative know-how
 - Important to consider the Securities and Exchange Commission's (SEC) perspective on distribution of benefit
 - Return on investment
 - Depends on financing structure, leverage, tax equity treatment, etc.
 - Industry history shows 10-15% IRR



Benefit to your Community

- Subscription model allows participants discounted energy from a local, sustainable, source.
- Net metering credits appear on-bill or through an easy-to-use online portal



SREC-II Sunset

- SRECs under the MA Solar Carve out will be available until March 31, 2018
 - Projects seeking eligibility must be mechanically complete by this date
- CSS typically takes 12-18 months to complete
 - Financing timeline
 - Must fully subscribe
- Most new CSS projects will need to take aim at the next incentive program



CSS under SMART

- Solar Massachusetts Renewable Target (SMART) seeks to set 10 to 20 year fixed price terms depending on project capacity
 - From a \$/kWh “base rate” certain projects will be eligible for “adders”
- CSS projects eligible for \$0.05/kWh to \$0.06/kWh adders*
 - Low income shared solar would be eligible for a more valuable adder

**These adder values are based on DOER’s most recent proposal and are subject to change when DOER files emergency regulations.*



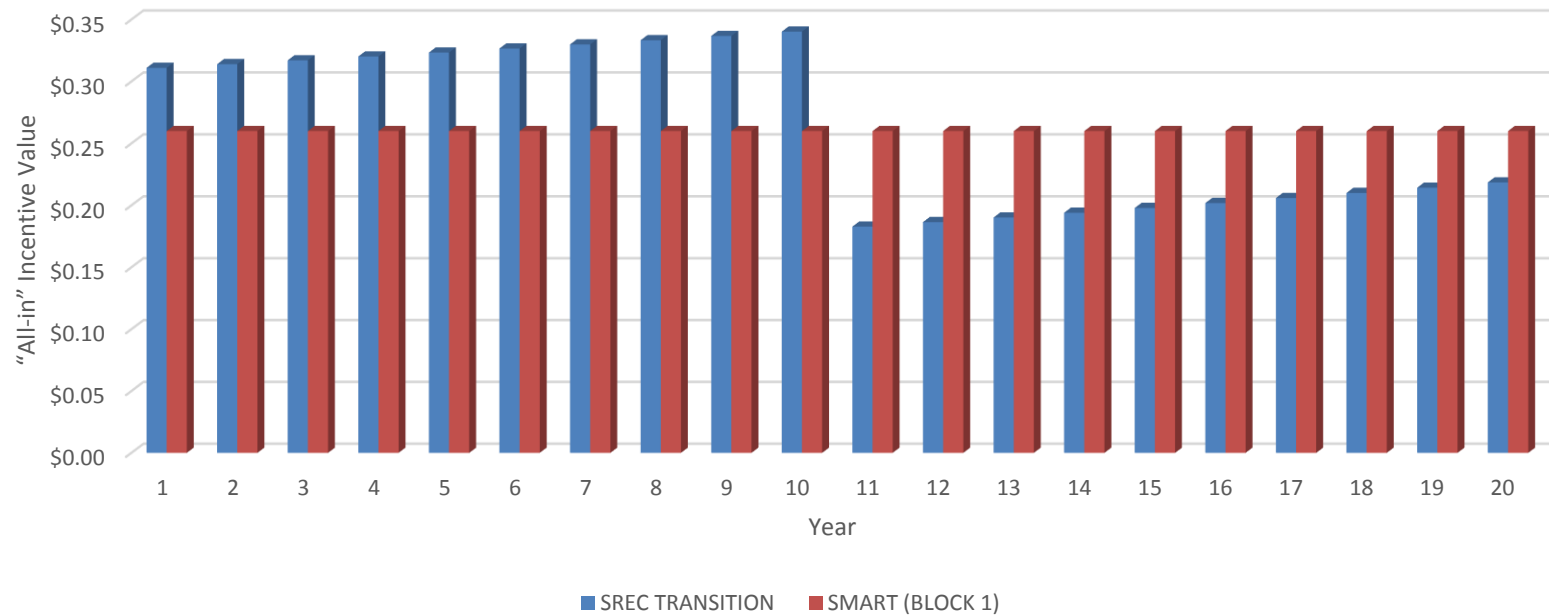
CSS under SMART

CSS GROUND MOUNT -25 to 250 kW(AC)

SREC TRANSITION vs. SMART (\$/kWh)

Value of Net Metering + Incentive

Eversource Utility Territory





Current Hurdles for CSS

- Communities in NGRID Territory
 - No net metering capacity available → no new CSS
 - Options:
 - Currently installed CSS PV may have net metering credits available
 - Under SMART, a new approach called On-Bill-Crediting should enable CSS without the need for net metering
- Communities in NSTAR (dba Eversource) Territory
 - Plenty of net metering cap space available, but:
 - Net metering rate is now only 60% of full retail rate → economics of projects likely to be marginal
 - Urban area has little space for larger PV projects
 - Options:
 - Under SMART economics should look better
 - Use municipal property for CSS projects (e.g. Newton)
- MLP Communities
 - Can establish own policies
 - Be careful of terms in energy supply contract
 - Best economics likely to be with SRECs
 - SREC II program ends next year → move fast



Resources

- Mass. Specific
 - MA DOER CSS
 - www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/community-shared-solar.html
- IREC (www.irecusa.org)
 - *Shared Renewable Energy for Low-to Moderate-Income Consumers: Policy Guidelines and Model Provisions*
 - Model Rules For Shared Solar
- NREL
 - www.nrel.gov/tech_deployment/state_local_governments/community-solar.html
- DOE National Community Solar Partnership
 - <https://energy.gov/eere/solarpoweringamerica/national-community-solar-partnership>



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Newton Low Income Community Share Solar Initiative

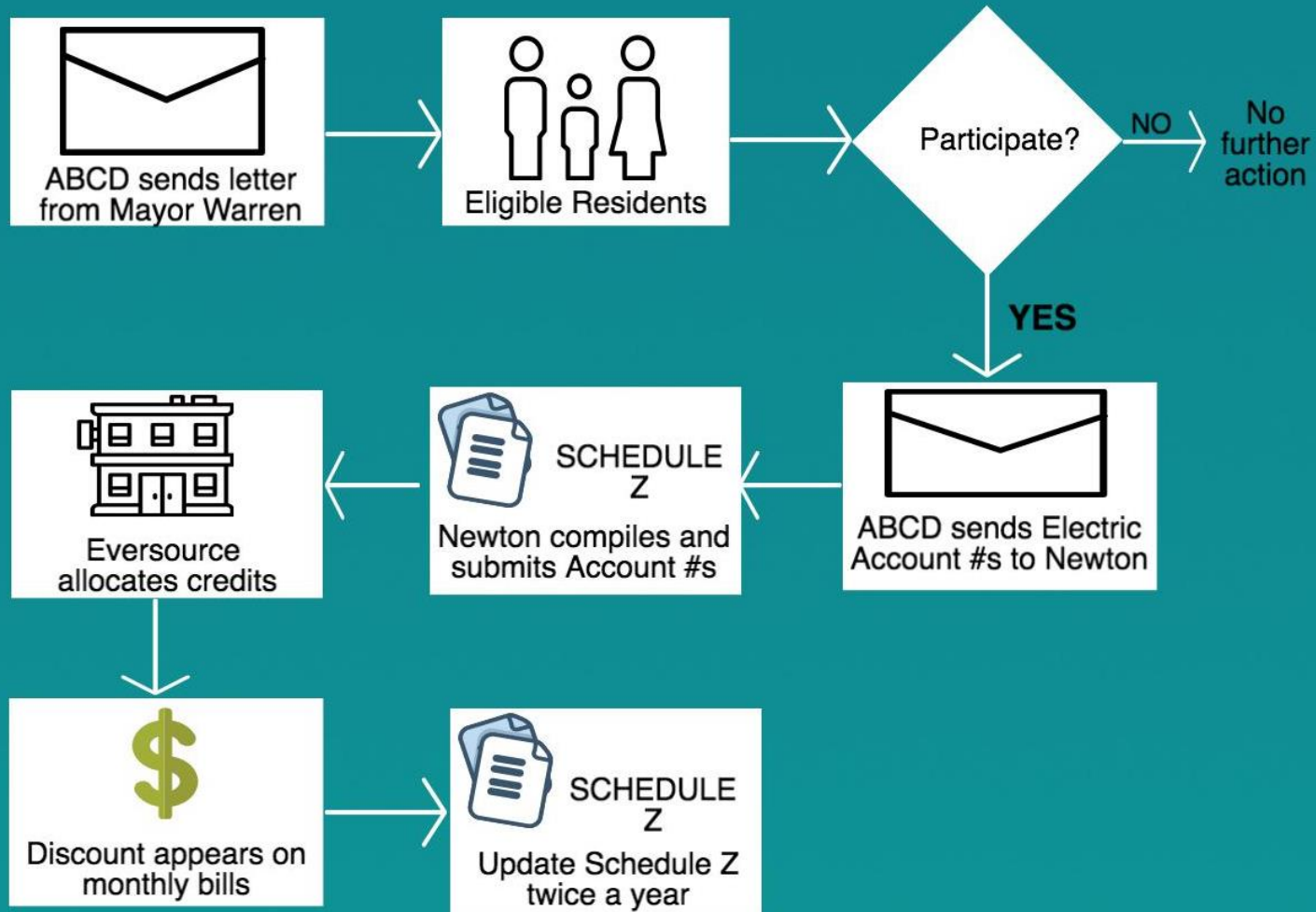
Pilot Project



City of Newton

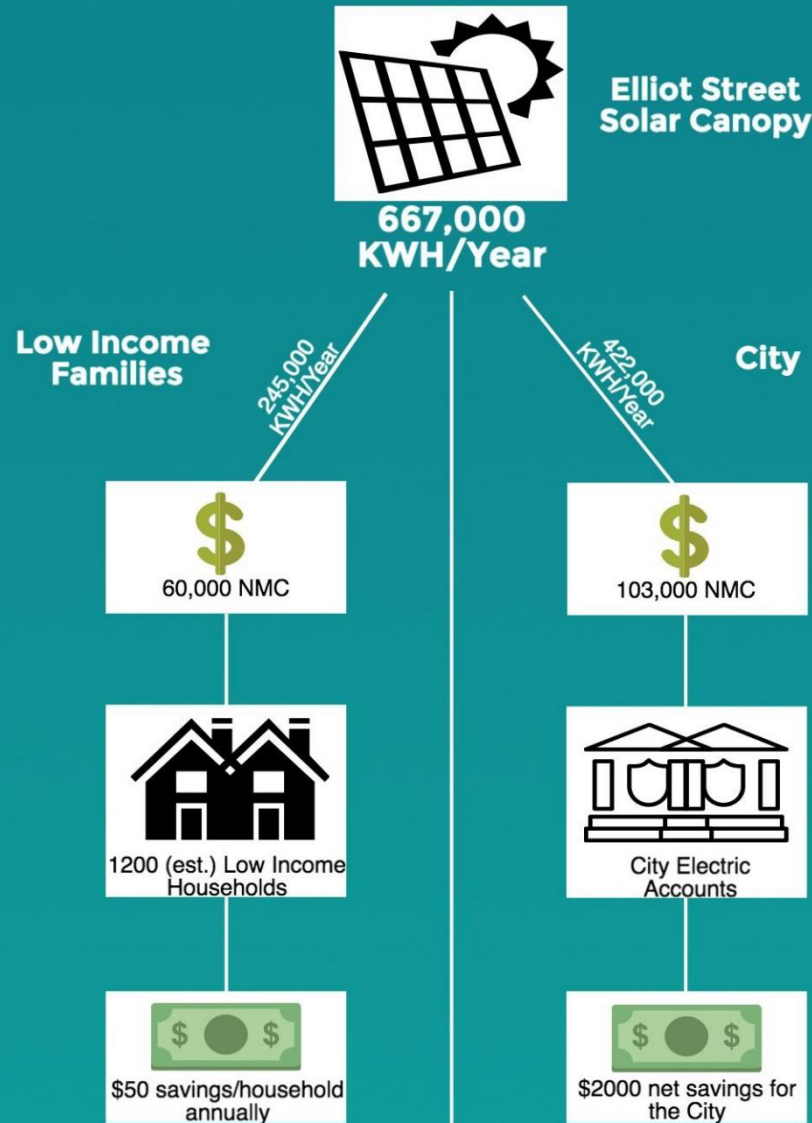
Community Share Solar Initiative (CoSSi)

Program Implementation



Community Share Solar Initiative (CoSSI)

Illustrative Financial Assumptions



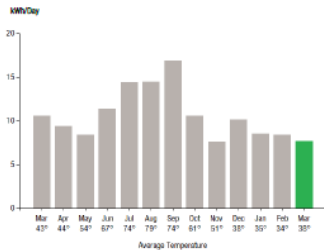
*All dollar amounts illustrative only

EVERSOURCE

Account Number: [REDACTED]
Statement Date: 03/21/17

NEWTON MA 02458-1607

Electric Usage History - Kilowatt Hours (kWh)



Electric Usage Summary

This month your average daily electric use was 7.6 kWh

This month you used 28.3% less than at the same time last year



News For You

Join us at the Eversource Walk for Boston Children's Hospital on Sunday morning, June 11 at the DCR Hatch Shell in Boston. The annual walk raises funds to support the critical research, patient care and community health programs of the hospital. Visit BostonChildrens.org/Walk to register.

Remit Payment To: Eversource, PO Box 660753, Dallas, TX 75266-0753

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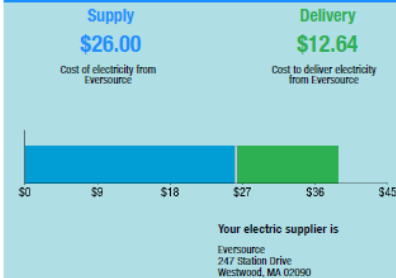
EVERSOURCE

Account Number: [REDACTED]

Total Amount Due by 04/15/17 **\$36.91**

Amount Due On 03/14/17 \$36.35
Last Payment Received On 02/28/17 -\$37.00
Balance Forward -\$0.65
Total Current Charges \$37.56

Current Charges for Electricity



Make your check payable to Eversource.

Total Amount Due by 04/15/17 **\$36.91**

Amount Enclosed

Eversource
PO Box 660753
Dallas, TX 75266-0753

NEWTON MA 02458-1807

12 7 0000003691 13 80 2057 485 1125

EVERSOURCE

Account Number: [REDACTED]

NEWTON MA 02458-1607

Billing Cycle: 13
Service from 02/15/17 - 03/20/17 33 Days
Next read date on or about: Apr 19, 2017

Meter Number	Current Read	Previous Read	Current Usage	Reading Type
[REDACTED]	8627	8375	252	Actual

Contact Information

Emergency: 800-592-2000
www.eversource.com
CustomerServiceMA@eversource.com
Pay by Phone: 800-592-2000
Customer Service: 800-592-2000

Important Messages About Your Account

DIGGING? HITTING AN UNDERGROUND WIRE OR PIPE CAN BE DANGEROUS. THAT'S WHY STATE LAW REQUIRES YOU OR YOUR CONTRACTOR TO CALL DIG SAFE AT 888-DIG-SAFE OR 811 AT LEAST THREE BUSINESS DAYS PRIOR TO DIGGING. FOR MORE INFORMATION, VISIT DIGSAFE.COM. VISIT THE "SAFETY" SECTION OF EVERSOURCE.COM FOR MORE IMPORTANT SAFETY INFORMATION.

Eversource is required to comply with department of Public Utilities' billing and termination regulations. If you have a dispute please see the bill insert for more information. Visit the "Monthly Customer Communications" page under "My Account" on Eversource.com for an electronic version of this insert. Eversource offers Payment Plans for customers with overdue bills. Budget billing is also available to pay a more consistent bill each month. Please see the Customer Rights Supplement for more information.

Total Amount Due by 04/15/17 **\$36.91**

Electric Account Summary

Amount Due On 03/14/17 \$36.35
Last Payment Received On 02/28/17 -\$37.00
Balance Forward -\$0.65
Current Charges/Credits
Electric Supply Services \$26.00
Delivery Services \$12.64
Other Charges or Credits -\$1.08
Total Current Charges \$37.56
Total Amount Due \$36.91

Total Charges for Electricity

Supplier (Eversource) (Basic Svc Fixed)

Generation Service Charge 252 kWh X .10318 \$26.00
Subtotal Supplier Services \$26.00

Delivery (Rate A2-RESIDENTIAL ASSISTANCE)

Customer Charge \$6.43
Distribution Charge 252 kWh X .05585 \$14.07
Transition Charge 252 kWh X -.00243 -\$0.61
Transmission Charge 252 kWh X .02308 \$5.82
Renewable Energy Charge 252 kWh X .00050 \$0.13
Energy Conservation Charge 252 kWh X .00432 \$1.09
Assistance Rate Discount -\$14.29
Subtotal Delivery Services \$12.64
Total Cost of Electricity \$38.64

Other Charges or Credits

NET METERING CREDIT -\$1.08
Subtotal Other Charges or Credits -\$1.08

Total Current Charges \$37.56

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Q & A

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