Understanding Your Electric Bill with Solar Net Metering

Now that Your Solar Panels are Installed

CONCORD MUNICIPAL LIGHT PLANT

ELECTRIC | BROADBAND | ENERGY MANAGEMENT

How Solar Reduces Your Billed Electric Usage (kWh)

Meter #1 – Records electricity CMLP delivered to the customer that month

Meter #2* - Notice the meter # ending in 'N'; CMLP's smart meter (which can record backwards) shows excess electricity generated by solar panels, not used by the customer, and sold back to CMLP from the customer

Net usage billed = electricity CMLP delivers to the customer minus the solar electricity sent back to CMLP by the customer

*NOTE: CMLP's net meter doesn't interface with the solar array meter your solar installer provided; we don't know how much solar generation was produced and can't measure the total amount of electricity used. See pg 7 to learn how to calculate how much electricity you've generated and used.

Meter Number		Read Dates Present	Read Dates Previous	Billing Days	Meter Readings Code	Meter Readings Present	Meter Readings Previous	Multiplier	Usage		Units
ELECTRIC: 1	8506	04/30/2017	03/31/2017	30	MR	22498	20824	1	1674	A	kWh
ELECTRIC: 2	506N	05/01/2017	03/31/2017	31	MR	09620	08272	1	1348	B	kWh

BILLING SUMMARY

Previous Balance as of : 04/10/17	($627.67)
Payments & Adjustments 04/10/17	$0.00
Balance Forward as of : 05/10/17	($627.67)
Current Charges as of : 05/10-17	$72.96
Account Balance	($554.71)

PREVIOUS BALANCE			-627.67
BALANCE FORWARD			-627.67
	Rate	Usage	Charges
METER CHARGE			9.00
ENERGY CHARGE	0.064180	326	20.92
TIER 1-CAPACITY / TRANSMISSION	0.048530	326 C	15.82
DISTRIBUTION CHARGE / KWH	0.031600	326	10.30
NET METERING DISTRIBUTION CHARGE			17.40
RATE STABILIZATION CREDIT			-1.63
NY POWER AUTHORITY CREDIT			-0.29
UNDERGROUND SURCHARGE			1.07
ENERGY CONSERVATION CHARGE			0.37
CURRENT CHARGES			$72.96
ACCOUNT BALANCE			-$554.71

ELECTRIC USAGE HISTORY

Month	Days	Electric Use (kWh)	Elec. Usage per Day
05-17	31	326	11
03-17	31	1464	47
02-17	28	1758	63
01-17	32	3005	94
12-16	30	2795	93
11-16	30	1631	54
10-16	31	406	13
09-16	30	452	15
08-16	31	447	14
07-16	72	1852	26
05-16	44	615	14

(Example #1)

Mail All Correspondence To:
P.O. Box 1029, CONCORD, MA 01742-1029

Bill Type	Account Type	Bill Date	Due Date	Amount Due	Payment Type
REGULAR	RESIDENTIAL	05/10/2017	06/05/2017	(-554.71)	DO NOT PAY

MESSAGES:

CONCORD MUNICIPAL LIGHT PLANT 1175 Elm Street, Concord MA 978.318.3101

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CURRENT CHARGES			$72.96
ACCOUNT BALANCE			-$554.71

(Example #1)

All solar net metering customers are assessed a monthly **Net Metering Distribution Charge** based upon the size of their solar PV system.

ELECTRIC USAGE HISTORY

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MESSAGES:

CONCORD MUNICIPAL LIGHT PLANT 1175 Elm Street, Concord MA 978.318.3101

Solar Net Metering Credit

Meter Number	Read Dates Present	Read Dates Previous	Billing Days	Meter Readings Code	Meter Readings Present	Meter Readings Previous	Multiplier	Usage	Units
ELECTRIC: 8363	04/30/2017	03/31/2017	30	MR	04674	04017	1	657	kWh
ELECTRIC: 363N	04/30/2017	03/31/2017	30	MR	03967	02810	1	1157	kWh

BILLING SUMMARY

Previous Balance as of : 04/10/17	$12.33
Payments & Adjustments 04/24/17	($12.33)
Balance Forward as of : 05/10/17	$0.00
Current Charges as of : 05/10-17	$7.37
Total Amount Due	$7.37

PREVIOUS BALANCE			12.33
PAYMENT 04/24/2017			-12.33
BALANCE FORWARD			0.00
	Rate	Usage	Charges
METER CHARGE			8.00
KWH - NET RESIDENTIAL SALES			-15.58
NET METERING DISTRIBUTION CHARGE			13.80
UNDERGROUND SURCHARGE			0.11
ENERGY CONSERVATION CHARGE			0.04
CURRENT CHARGES			$7.37
TOTAL AMOUNT DUE			$7.37

ELECTRIC USAGE HISTORY

Month	Days	Electric Use (kWh)	Elec. Usage per Day
04-17	30	0	0
03-17	31	0	0
02-17	28	283	10
01-17	32	783	24
12-16	59	1780	30
11-16	61	2448	40
09-16	62	2760	45
07-16	60	2597	43
05-16	62	2159	35
03-16	57	2173	38
01-16	63	2450	39
11-15	62	2726	44
09-15	62	2310	37

(Example #2)

Mail All Correspondence To:
P.O. Box 1029, CONCORD, MA 01742-1029

Bill Type	Account Type	Bill Date	Due Date	Amount Due	Payment Type
REGULAR	RESIDENTIAL	05/10/2017	06/05/2017	7.37	PLEASE PAY BY DUE DATE

MESSAGES:

CONCORD MUNICIPAL LIGHT PLANT 1175 Elm Street, Concord MA 978.318.3101

Net Metering Credit - This home generated & sold back to the grid more electricity than was needed from CMLP. The resulting negative usage, shown on the bill as 'Net Residential Sales' is their Solar Net Metering Credit.

The credit amount for energy generated that exceeds that purchased from CMLP is a variable amount as described in the Residential Net Metering with Banking rate.

You can find the variable monthly credit amount at: www.concordma.gov/536/Solar-Net-Metering-Credit.

See Example #1 for the Net Metering Distribution charge.

Home > Government > Departments > Municipal Light Plant > Electric Service > Rates > Solar Net Metering Credit

Solar Net Metering Credit

Solar Net Metering Credit

The net metering credit is based on the average Day Ahead Independent System Operator-New England (ISO-NE) price for all hours in the month prior to the current billing month between 9 a.m. - 4 p.m. The credit amount for energy generated that exceeds a customer's purchases from CMLP is a variable amount as described in the Residential Net Metering with Banking rate.

ISO-NE oversees the constant availability of electricity in New England by ensuring the day-to-day operation of New England's bulk power generation and transmission system, ensuring the fair administration of the region's wholesale electricity markets, and managing regional planning.

Solar Photovoltaic Rebate Programs

CMLP offers rebates for solar photovoltaic installations. Read more for information about our Solar Photovoltaic Rebate Program for your home or business.

Net credit per Kilowatt Hour	Month Kilowatt Hours sold to CMLP	Month customer's bill rendered
$0.03115	April 2017	May 2017
$0.03581	March 2017	April 2017
$0.02942	February 2017	March 2017

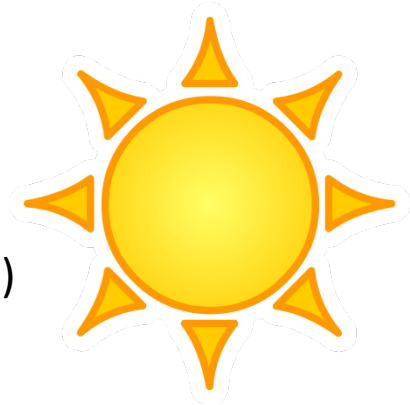
Net Metering Distribution Charges

	Installed Generation Capacity:		Charge / mo.
	Equal or Greater Than	and Less Than	
	2 kW (AC)	4 kW (AC)	$3.60 / mo.
	4 kW (AC)	7 kW (AC)	$6.60 / mo.
	7 kW (AC)	10 kW (AC)	$10.20 / mo.
Ex. 2	10 kW (AC)	13 kW (AC)	$13.80 / mo.
Ex. 1	13 kW (AC)	16 kW (AC)	$17.40 / mo.
	16 kW (AC)	19 kW (AC)	$21.00 / mo.
	19 kW (AC)	22 kW (AC)	$24.60 / mo.
	22 kW (AC)	25 kW (AC)	$28.20 / mo.
	25 kW (AC)	28 kW (AC)	$31.80 / mo.
	28 kW (AC)	31 kW (AC)	$35.40 / mo.
	31 kW (AC)	34 kW (AC)	$39.00 / mo.
	34 kW (AC)	37 kW (AC)	$42.60 / mo.
	37 kW (AC)	40 kW (AC)	$46.20 / mo.
	40 kW (AC)	46 kW (AC)	$53.40 / mo.
	46 kW (AC)	58 kW (AC)	$67.80 / mo.
	58 kW (AC)	82 kW (AC)	$96.60 / mo.
	82 kW (AC)	130 kW (AC)	$154.20 / mo.
	130 kW (AC)	167 kW (AC)	$198.60 / mo.

All solar net meter customers are assessed a monthly **Net Metering Distribution Charge** based on the installed generating capacity of their solar PV system

Find more information about CMLP's net metering rider rate and the net metering distribution charges at: www.concordma.gov/DocumentCenter/Home/View/1205

How Much Electricity Did You Use?



To figure out how much electricity you used in a month (**E**):

1. Take the electricity delivered from CMLP (**A** on the sample bill)
2. Subtract the electricity sold to CMLP (**B** on the sample bill, gross)

   = Amount CMLP charges you each month (**C**)
3. Add your monthly solar output reading from your solar array meter

   or web portal (the gross reading from your array) (**D**)

   (which CMLP doesn't know, so that is not reflected on the bill)

Example #1

1,674 kWh CMLP → Home (**A**)
– 1,348 kWh Home → CMLP (**B**)
326 kWh (**C**)
+ Gross from Solar Meter (**D**)
Total kWh Used = Home Load (**E**)

Example #2

657 kWh CMLP → Home (**A**)
– 1,157 kWh Home → CMLP (**B**)
– 500 kWh (**C**)
+ Gross from Solar Meter (**D**)
Total kWh Used = Home Load (**E**)

CMLP's Basic Residential Service Rate

To learn more about the Residential Service rate for Concord residents:
www.concordma.gov/DocumentCenter/Home/View/1199

1. Both the Energy (6.4¢ / kWh) and Distribution (3.2¢ / kWh) charges are calculated based on kWh used.

2. Capacity and transmission charges are broken down into three tiers depending on monthly electricity usage:
   a) First 600 kWh: 4.9¢ / kWh
   b) Next 316 kWh: 6.3¢ / kWh
   c) Any use above 916 kWh: 9.1¢ / kWh

3. Combined energy, distribution, and capacity and transmission charges broken down into three tiers depending on electricity usage are:
   a) First 600 kWh: (6.4¢ + 3.2¢ + 4.9¢) / kWh = 14.5¢ / kWh
   b) Next 316 kWh: (6.4¢ + 3.2¢ + 6.3¢) / kWh = 15.9¢ / kWh
   c) Any use above 916 kWh: (6.4¢ + 3.2¢ + 9.1¢) / kWh = 18.7¢ / kWh

THE TOWN OF CONCORD MASSACHUSETTS

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GOVERNMENT SERVICES RESIDENTS BUSINESSES HOW DO I...

Home > Government > Departments > Municipal Light Plant > Energy Management: Renewable Energy & Efficiency > Your Home > Rebates for Your Home > Solar Panels

- Lease/Buy/Choose an Installer
- EPA video explaining RECs
- How to Read Your Solar Net Metered Bill

Solar Panels

Steps to Installing Solar

Customers frequently ask us about the process for installing solar photovoltaic (PV) panels on their homes or businesses. For solar PV installations, CMLP offers rebates of $625 per kW(AC) of installed capacity, capped at $3,125.

Here are the various stages involved in the process. On average, the time from interconnection application submittal to CMLP before panels are installed to approval from CMLP to operate the PV system after panels are installed is 2 months.

1) Property owner decides on leasing or buying a system and finds a solar installer
2) Installer gathers all needed paperwork:
   a) Residential Interconnection Application or Commercial Interconnection Application
   b) CMLP Solar PV Rebate Application *

Questions?

For more information about CMLP's solar program or other questions, please contact:

Pamela Cady
Energy Specialist
CMLP
1175 Elm Street
Concord, MA 01742
(978) 318-3149 pcady@concordma.gov

CONCORD MUNICIPAL LIGHT PLANT
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Steps to Installing Solar Panels on Your Property:

Property owner finds a solar installer to work with
[see list on website of solar installers who've worked in town]

Start!

Installer gathers all needed paperwork
[see list on website of required solar documents]

Step 1

All solar paperwork bundled & sent to ENE
[see website for ENE contact info]

Step 2

CMLP Engineer gives Approval to Install *
(occasionally a site visit is necessary)

Step 3

CMLP Director gives Approval to Install

Step 4

ENE notifies property owner & installer of Approval

Step 5

Panels Installed on property

Step 6

Town Electrical Inspector visits site to give approval

Step 7

CMLP Electrician installs send & receive meter
(Meter installed next to solar meter
Property owner does not need to be on site
Usually a brief power outage is required)

Step 8

CMLP Engineer gives Approval to Operate**
(on site visit not usually needed)

ENE notifies property owner & installer of Approval

Step 9

Property owner begins generating their own power!

Finish!

Property owner receives one-time rebate check in the mail in ~ 6 weeks
(if this is selected rather than rebate applied to bills)

*** <u>Approval to Install</u>**: Please be aware that all PV systems should not be installed on the property until CMLP has given the final approval via the approval to install email. CMLP requires this step because:

- It financially protects the homeowner so they don't have to pay extra money to change, for instance, the location of the meter if it is not within the required distance to the utility disconnect
- CMLP will confirm that nearby cables and transformers on our electric grid will not be overloaded by the addition of the PV system
- CMLP will assure that our electric grid lines will remain balanced with the increase in electricity they will carry during sunlight hours

**** <u>Approval to Operate</u>**: Please be aware that all PV systems should not be switched on until CMLP has given the final approval via the approval to operate email. CMLP requires this step because:

- It is a potential operational safety hazard for our linesmen working on our electric grid if the PV system begins operating before we are aware of it
- If a PV system begins operating before we install the net meter, any power generated by the system with the old meter in place is automatically calculated as energy CMLP sent to the customer rather than vise-versa (because the old meter can only run in one direction)