Net Metering

Understanding Net Metering is an important component of long term solar ownership that goes hand in hand with understanding how the utility is both tracking your energy production/usage and representing this data on your electric bills each month.

The following represents our current understanding of Net Metering policies and procedures for Eversource and National Grid, which are always subject to change. Current official rules and regulations may be found through Mass.Gov.

Video version here: https://youtu.be/inejqEBEK64

Basic Terminology

Net-Exporter - You have exported/sold more energy to the grid than you have imported/purchased from your utility provider during a given billing cycle.

Net-Importer - You have imported/purchased more energy than you have exported/sold during a given billing cycle.

Net Metering Rate - The dollar value associated with Net Metering Credits, on a per kWh basis. This fluctuates seasonally with utility rate changes, typically just below current utility rates for systems receiving "Retail Net Metering" (other rates apply in certain situations)

Net Metering Credit - Money associated with net-export energy during a given billing cycle, issued at the current Net Metering Rate calculated on a per kWh basis.

Utility Net Meter - A standard utility meter measures the flow of electricity from the grid to your home/business, when solar is installed the utility replaces this with a Net Meter which measures energy going in and out, and tracks the net total.

Total Consumption - All of the electricity used by your property over the course of a given billing cycle, including direct from your panels and imported from the grid.

Net Zero - When your solar production is able to offset all of your electricity usage over the course of the year, taking into account seasonal shifts in solar production and energy consumption. This is often the "ultimate goal" of a solar design.

Understanding your Solar Production and Energy Usage

During the day when your solar array is on and producing electricity, all of those amazing little electrons are traveling from your panels, through your inverter(s), into your home or business,

and then out to the grid. Along this journey, some of those electrons will feed directly into your current loads (refrigerator, lights, gadgets, etc.) and whatever is not needed in the moment will continue on to be sent out to the grid. Energy that is sent to the grid is measured by your Utility Net Meter, and shown on your utility bill as "Exports" or "Sales".

When your active loads require more electricity than your panels are currently producing (time of day, weather conditions, you power up those mini-splits, etc.), you will start importing energy from the grid to cover those loads. Electricity flowing to you from the grid is also counted by your Utility Net Meter, and will show up on your utility bill as "Imports" or "Purchases". Most Utility Net Meters even have a small arrow that will show you which direction the energy is flowing at a given moment. Watching this change as you turn loads on and off can be a fun and educational exercise!

At the end of the billing cycle when the utility reads your meter, it is the Net number between your Exports/Sales and your Imports/Purchases that is used to calculate your bill. In a month when you are a Net-Importer (receive more than you send) you will get charged by the utility, and in a month when you are a Net-Exporter (send more than you receive) you will generate Net Metering Credits at the current Net Metering Rate which will be added to your account balance. Net Metering Credits accumulate on your utility account, and are then spent down in future billing cycles when you incur a bill.

A typical site here in Massachusetts will generate Net Metering Credits during the summer (better solar conditions, longer days, generally lower usage) and then spend those down in the winter (worse solar conditions, snow, shorter days, generally higher usage). A site would be considered "Net Zero" if it was able to offset 100% of its electricity consumption with solar production over the course of the year.

Calculating Total Consumption

Before getting solar, the kWh usage shown on your electric bill represents your Total Consumption, and is a complete picture of your energy usage. After getting solar, you will need to do some additional calculations to find your Total Consumption, as it will no longer be shown on your electric bill.

To calculate this, you would take your Net Usage (from your utility bill) and combine this with your Total Production for the same time period (from your inverter or production meter). The sum of these two numbers is your Total Consumption, because it takes into account electricity that is consumed directly by your home or business before it reaches your utility meter.

In months when you are a Net-Exporter, your Net Usage number will be in the negative, whereas in months when you are a Net-Importer it will be in the positive.

Some systems also include Consumption Meters, which specifically calculate electricity that is being consumed on site - regardless of where those electrons came from. This can be a good option for folks looking to keep closer tabs on their energy usage, but can also be costly depending on the system.

Allocating Net Metering Credits

The utility company will not write you a check for your Net Metering Credits - once they are generated and appear on your account balance, they must be spent down on that account. However, solar owners are able to share a percentage of *future* Net Metering Credits with other accounts in the same utility territory and load zone ([reference map](#)). This is also the basic concept behind Community Solar, and comes in very handy for smaller scale array owners as well even though the process is not the most user-friendly.

Common reasons why you might choose to share Net Metering Credits with another account:

- Your array produces more energy than you need over the course of the year, leaving you with a growing negative balance year over year

- You oversize your system design planning for future increases in energy needs (Electric vehicle, HVAC upgrades, converting that old barn into a swanky Airbnb, etc.) but want to utilize those credits now rather than just letting them build up

- You want to use one array to cover the energy needs of multiple meters on site

- A person or organization you care about is in need of support, and you want to share the sun's wealth with them

Whatever *your* reason might be, the process for sharing Net Metering Credits is the same. Simply fill out a new Schedule Z form ([Eversource](#), [National Grid](#)), submit this to your utility company, and they'll update your account accordingly.

Eversource customers can send their updated Schedule Z to: netmetering@eversource.com Instructions for NGrid customers are available [HERE](#).

Once your Net Metering Allocation has been updated, both your electric bill and the bills of any recipients of your credits will have a line item at the very end that shows the transfer of Net Metering Credits.

Net Metering & Schedule Z Best Practices

While the process is simple, determining how to distribute your credits can be tricky and does require upkeep over time. Here are our recommendations for setting up and maintaining your Net Metering Allocation:

- Allocations may be changed up to twice each year by filing a new Schedule Z

- Try not to spend too much time on the math, predicting future Net Metering Credits impossible to do with perfect accuracy. Our recommendation is to pick a reasonable percentage and adjust as needed.

- It may take the utility up to 3 billing cycles for Schedule Z changes to take effect on your bills

- The *best* time to refile your Schedule Z is in the early spring, as this is when your utility account balance should be at its lowest point. The amount of credits left over at the end of the winter is typically a good indication of what your overall excess is for the year as a whole. Refiling in the early spring also helps to have your changes go into effect before the more productive summer months.

- Review your utility accounts annually and make sure that credits are not being built up somewhere that they can't be utilized. The *best* time to do this is in the early spring.

- In most cases, we recommend waiting until your solar array has been energized for a full year before adjusting your Net Metering, due to the seasonal nature of when credits are generated and used.

- You are allocating a percentage of your Net Metering Credits - not a percentage of your total production. The allocation happens in the next billing cycle after the Net Metering Credits are generated. The allocation is a percentage of the money generated by Net Metering, not a percentage of the kWhs your array produces.

- Net Metering Credit Transfers are shown on each individual bill, but the utility does not do any overall tracking or calculation. If keeping track of credit transfers is important to you, we recommend keeping a spreadsheet and entering the total from each bill.

Reach out for more - If you have questions or need additional support with your system or net metering, please contact our service team at service@pvsquared.coop!