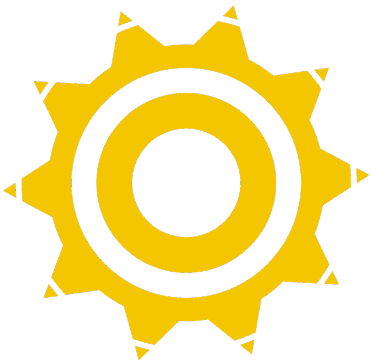

BROOKLYN
SOLARWORKS

# SYSTEM GUIDE

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# Equipment & Communications

## 1. Hardware

***Solar Panels:***
Your solar panels are mounted on your roof. They are most likely LG modules, but may be another brand if required by site specific conditions. Regardless of their brand, they have no moving parts or electronics and are therefore quite long lasting, requiring no regular inspection or maintenance. The array should be angled sufficiently to allow rain water to run off naturally, taking with it any pollen or particulate build up, so washing them is not required. Snow removal is also not required nor recommended, as the power lost during snowstorms is exceedingly small and it can be dangerous on icy/snowy rooftops. If you do choose to clean your panels, avoid harsh detergents and metal or hard plastic brushes that could scratch the glass.

***Enphase Microinverters & Communication Gateway:***
Your inverters convert your solar panels' DC electricity info AC electricity used by your home and the utility grid. Each panel is equipped with its own microinverter, mounted to the back of the panel. The "brains" of the operation, in conjunction with the Gateway communication device, they monitor the health of your solar array as well as the utility grid and will isolate itself and send an alert if either becomes unsafe for operation. The Gateway is located inside the white plastic enclosure depicted below, typically mounted on the solar array structure.


If necessary to check the functioning of the system or if required during wifi setup/reconnection, it is safe to open the white plastic enclosure (the Enphase Combiner) as the electrical components are separated behind a plastic cover inside. Inside, at the top of the enclosure, there are four LED indicators denoting the Gateway's connection to the microinverters, the microinverter's energy production status, and the Gateway's wifi connection status.

The indicator next to the cell phone icon indicates whether the Gateway is emitting a wifi network to allow you to communicate with it. It will normally be unlit.

The right hand LEDs indicate the Gateway's connection status to your solar array. They will both be green during the daytime during normal operation, indicating the microinverters on the roof are communicating with the Gateway and are producing power normally, but may turn orange or become unlit after sundown when the system is in hibernation.

## 2. Gateway Communications Options

In most cases, it is suggested that the Enphase Gateway be provided with an internet connection. This allows both you, the system owner, as well as the installer, Brooklyn SolarWorks, to monitor the output and health of the system remotely and in close to real time. However, it is not a requirement that internet be provided. The solar system is fully capable of energy production without an internet connection, and the electric utility monitors excess energy export onto the grid separately through the existing electric meter with no internet connection required.

The Gateway can connect to most standard 2.4 GHz wifi networks, which is the preferable communication method where available. BrooklynSolarworks will connect your Gateway to your wifi network initially, but will ask for your assistance to reconnect should you change your wifi equipment or password in the future. Those instructions can be found in Section 3.

When a wifi network does not reach or has low signal strength at the location of the Gateway, a cell modem can be purchased and used to bypass relying on internet within the building. Cell modems come with a 5 year limited data plan, and only report data four times per day rather than continuously.

If required, the Gateway can also be hardwired by Ethernet, but Brooklyn SolarWorks does not offer this installation method. Should you choose to pursue installation yourself, Brooklyn SolarWorks can provide instructions if needed.

## 3. Connecting/Reconnecting an Gateway to a WiFi Network

If you've made changes to your wifi network, such as getting a new router or ISP, or updating your wifi network name or password, the Enphase Gateway will need to be updated with your new wifi credentials to start transmitting data to you and Brooklyn SolarWorks again. Rather than relist the instructions here, we recommend you follow Enphase's walkthrough, which will show you through all the required steps and is conducted through the same app, Enlighten, you use to monitor the system already.

As mentioned above, in most cases you will need to get onto the roof and open the white plastic Enphase Combiner box to perform some of these steps. Again, the box can be opened safely as all electrical components are secured behind a protective shield inside.

# Reading Your ConEd Bill & Net Meter Summary

Getting your first ConEd bill is an exciting step, but can unfortunately be a bit confusing because ConEdison does a poor job of explaining their billing and recordkeeping system. Below is an example of the new section that will appear on your bill after going solar (it can take one extra billing cycle after final approvals to kick in). The new section, titled Your Net Meter Summary lists ConEd's record of how much energy you've bought from them or how many solar credits (if any) you have stored up. The first column, 'Your Electricity Use', should really read 'Your Utility Electricity Use'. If your house required more electricity than your solar array produced in a month, the value will be positive, since you bought some extra from the grid to make up the difference. If your array made more than you needed in a month, the value will be negative because you gave away your excess to the grid. That negative value gets stored in the next column, 'Cumulative Net Meter Energy Credit', which is your "bank" of stored up credits. If your grid use in the first column is negative in a given month, that amount will get added to the previous month's banked amount. If your grid use is positive, that amount will be withdrawn from your credit bank if you have any. If your credit bank hits 0, ConEd will then charge you for any remaining amount of power, which is listed in the last column, 'kWh billed'. As a side note, if you get an unusual bill, it's good to check the reading type, listed on page 2 of your bill. If the most recent reading says 'Estimated', ConEd didn't take a true reading this month and your bills may be much different than what really happened (if your system was recently installed, they often incorrectly estimate that the system was not active). They should take a true reading within a month or two and will correct for any overcharges.

## Your Net Meter Summary

| Billing period | Your electricity use | Cumulative net meter energy credit | kWh billed |
|---|---|---|---|
| JUN 10, 2022 - JUL 12, 2022 | 142 | 0 | 142 |
| JUL 12, 2022 - AUG 10, 2022 | -399 | -399 | 0 |
| AUG 10, 2022 - SEP 09, 2022 | -223 | -622 | 0 |
| SEP 09, 2022 - OCT 11, 2022 | -154 | -776 | 0 |
| OCT 11, 2022 - NOV 08, 2022 | -33 | -809 | 0 |
| NOV 08, 2022 - DEC 12, 2022 | 213 | -596 | 0 |
| DEC 12, 2022 - JAN 11, 2023* | 220 | -376 | 0 |
| JAN 11, 2023 - FEB 10, 2023 | 205 | -171 | 0 |
| FEB 10, 2023 - MAR 14, 2023 | 356 | 0 | 185 |
| MAR 14, 2023 - APR 12, 2023 | 587 | 0 | 587 |
| APR 12, 2023 - MAY 10, 2023 | 765 | 0 | 765 |
| **Credit Carried Forward to Next Period** | | | **0** |

**Your electricity use** 765kWh
The electricity supplied to you by Con Edison or the electricity you generated back into the grid during this period. A negative number indicates a net meter energy credit for the period.

**Cumulative net meter energy credit** 0kWh
The sum of your net meter energy credit(s) you earned in the current billing period and any credits from prior billing periods.

**kWh billed** 765kWh
The amount of kWh you were billed for in this billing period. If you generated more electricity than you consumed in this current period and/or have a cumulative net meter energy credit from prior period(s), that credit has been applied towards your kWh Billed.

For more information on Net Metering please visit us at: **conEd.com/solar**

The other potentially confusing factor here is that ConEd cannot see how much power your solar system generates. All they can see is how much power you take from or give to the grid. The chart below is an example of how you would complete the picture of computing your home's actual energy consumption by adding in the missing solar production data (which is available in your Enlighten monitoring account). As an example of how a single month works, if the solar system produced 598 kWh between 9/10/19 and 10/9/19, the fact that 411 kWh were sent back to the grid means the home consumed 187 kWh in that period. Similarly, if between 2/11/20 and 3/12/20, the system produced 498 kWh and an additional 157 were brought in from the grid, that means the home consumed a total of 655 kWh. Keep this in mind if you need to figure out your home's true electric consumption for any reason, or are interested in determining your true solar offset percentage for a given month or year (Solar Production divided by Actual Home Usage). If you have trouble finding your solar production numbers, please let us know and we can direct you to them.

*Info from ConEdison* | *Info from Enlighten* | *Combined Results*

| Start | End | Your Electricity Use | Cumulative Net Meter Energy Credit | kWh Billed | Solar Production (kWh) | Actual Home Usage |
|---|---|---|---|---|---|---|
| Jun 11, 2019 | Jul 11, 2019 | 352 | 0 | 352 | 635 | 987 |
| Jul 11, 2019 | Aug 09, 2019 | 93 | 0 | 93 | 662 | 755 |
| Aug 09, 2019 | Sep 10, 2019 | -252 | -252 | 0 | 652 | 400 |
| Sep 10, 2019 | Oct 09, 2019 | -411 | -663 | 0 | 598 | 187 |
| Oct 09, 2019 | Nov 07, 2019 | -152 | -815 | 0 | 479 | 327 |
| Nov 07, 2019 | Dec 11, 2019 | 319 | -496 | 0 | 430 | 749 |
| Dec 11, 2019 | Jan 10, 2019 | 403 | -93 | 0 | 357 | 760 |
| Jan 10, 2019 | Feb 11, 2020 | 440 | 0 | 347 | 429 | 869 |
| Feb 11, 2020 | Mar 12, 2020 | 157 | 0 | 157 | 498 | 655 |

If, after reading this section, you believe there are issues with your solar system's performance please feel free to contact Brooklyn SolarWorks. If you believe there is a problem with your billing, you can contact ConEd's Net Metering division at netmetering@coned.com or 212-780-6600. Keep in mind that they can only see their portion of this data and have no idea how much energy your system has made.

## Claiming Your Tax Credits

When it comes time to file your taxes, there are four credits your system may be eligible for. Your system installation date and signed contract are available in your Brooklyn SolarWorks customer portal.

***Disclaimer:*** *Brooklyn SolarWorks are not financial professionals. As much as we'll always strive to provide our customers with the most accurate information regarding solar tax incentives, we are not tax experts. Please consult your tax advisor for guidance on filing for credits with respect to your specific circumstances.*

The **Federal Residential Energy Credit** forms can be found here. This form is submitted with your federal return in April the year after your system is installed. Installations from January 1st, 2020 to December 31st, 2020 would file in April 2021. The form is usually updated by the IRS in late January or early February, so you will need to wait until then to download it.

The **NYS Solar Energy System Equipment Credit** can be found here. As above, submitted in April the year after system installation. It will also be updated in January or February.

The **NYS Historic Homeownership Rehabilitation Credit** can be found here. Only certain homes in historic regions qualify for this credit. We would have discussed your eligibility during the sales process. As above, submitted in April the year after system installation. It will also be updated in January or February. You should receive a letter from the NYS parks within a couple months of your system installation referencing your project completion that lists your project number and approved expenditure amount. Please make sure to keep it for your records as Brooklyn SolarWorks does not receive a copy.

The **New York City Property Tax Abatement** is claimed on your behalf by Brooklyn SolarWorks during the permitting process. Building permits signed off by March 15th will have their property tax abatements initiated the following July. You should see a reduction on your property tax bill under a line item called 'Solar' or 'Solar Elec

Generating System Abatem'. The credit is split up over four years and into four quarters, so there will be 16 total line item reductions. You can find your property tax records by searching for your address here. Be aware, the search function is finicky. Numbered streets should be entered as '6 street' not '6th street'.