

Understanding TrueUp on NEM 2

This paper attempts to provide a detailed understanding of how the end of year TrueUp calculation works for those on the NEM 2 (post 2016 to April 2023) set of rules. It does not address the earlier NEM 1 nor does it address NEM 3 (post April 2023).

The author is a Solar Rights Alliance volunteer. The content herein is solely his and does not necessarily represent the opinion of Solar Rights Alliance.

NEM 2 Charges

While everyone thinks of NEM as selling power at retail rates, The CPUC added two fees as a part of NEM 2.0 in 2016.

- **Minimum Distribution Charge (MDC)** – Don't confuse this charge with the Utility Tax currently being proposed. As a part of NEM 2.0 everyone is now charged about 32¢ cents a day. You pay this each month regardless of NEM sales or power purchases. The big difference between the proposed Utility Tax and MDC is that MDC is *potentially* a credit on your final bill. The details vary as discussed below
- **Non-By Passible Charges (NBC)** – PGE quotes your rate in two ways. A Bundled rate which is a single number for a given time/date and an unbundled rate which breaks the bundled rate into its components. NBC says that a number of items in the unbundled rate cannot be reimbursed by NEM sales. These purchases have to be paid for in the final TrueUp. Again, how this applies to your bill varies, but the bottom line is you will always pay this charge regardless of how much power you sell.

Your total bill for the year is at least the larger of your NBC and MDC. What you pay at TrueUp depends on how much power you have bought (which affects NBC), how much you have sold, and how the balance compares to MDC.

Bills are quoted differently depending on whether you are a solar only customer or if you are solar + battery. The following uses two actual sets of bills to show the parts of the final TrueUp calculation.

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Solar Only Bill

Let's discuss the solar only first since that is fairly straightforward.

Monthly Bill with only solar Panels

Each month your bill will contain a page such as this

Summary of NEM Charges

Bill Period End Date	Net Peak Usage (kWh)	Net Part Peak Usage (kWh)	Net Off Peak Usage (kWh)	Net Usage (kWh)	Estimated NEM Charges Before Taxes	Estimated Taxes	Estimated Total NEM Charges
04/11/2018	-5	-130	331	196	\$21.49	\$1.19	\$22.68
05/10/2018	-128	-280	248	-160	-68.79	-3.70	-72.49
06/11/2018	-92	-221	375	62	-39.98	-2.10	-42.08
TOTAL	-225	-631	954	98	-\$87.28	-\$4.61	-\$91.89

Differences in net usage may occur due to rounding

Electric Charges

Bill Period End Date	Minimum Delivery Charges	Energy Charges *
04/11/2018	\$5.26	\$12.53
05/10/2018	9.53	-28.94
06/11/2018	10.51	-26.54
TOTAL	\$25.30	-\$42.95

* Please go to pge.com/electricrates to find the generation component of your Energy Charges.

Explanation of Calculations

Your Year-to-Date (YTD) Total NEM Charges represent the balance of your net usage since the start of your True-Up period. Charges and credits are calculated each month but are not billed until the end of the True-Up period. The State Mandated Non-Bypassable Charges are based on usage (kWh) and are relevant to determine your True-Up amount. Your NEM electric usage charges and credits will be reset to zero at True-Up.

The Minimum Delivery Charge is billed monthly and credited at True-Up if the total NEM Charges Before Taxes or total State Mandated Non-Bypassable Charges are greater than your cumulative Minimum Delivery Charges. Refer to Detail of NEM Charges page for details about the State Mandated Non-Bypassable Charges.

If negative, Energy Charges are not applicable at True-Up.

This is your YTD balance. Your total NEM balance will be reconciled on your True-Up statement (03/2019).

Total NEM Charges Before Taxes	-\$87.28	
Total State Mandated Non-Bypassable Charges		34.99
Total Electric Minimum Delivery Charges		-25.30
YTD Estimated NEM Charges At True-Up	\$9.69	

The top section provides a running total of your energy usage per (Time of Day) TOD period. If you have negatives then it means you are generating an NEM credit (maybe).

The section labeled "Electric Charges" lists the Minimum Delivery Charge. In every month except the TrueUp month this is copied onto the front of your bill as the electrical portion of the bill.

The section labeled "Explanation of Calculations" gives you the running total of your TrueUp estimate

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Amount “A” is negative. This means this customer sold more power than he purchased. Since this bill was in the middle of the year this is just a running total which can be used to offset purchase during other months.

“B” lists the Non ByPassable Charges discussed above. Simple message “buy power – rack up NBC”. As stated above you always have to pay for NBC and an excess of solar will not compensate for this.

Minimum Distribution Charge “C” counts against NBC purchases. As you can see the money you pay monthly for MDC is a credit against the other charges in the right column. In this example it almost compensates for the NBC you owe from your purchases.

Basically, rinse and repeat each month until TrueUp.

TrueUp Bill

At the end of your TrueUp year the amount calculated will be the amount you are billed. You may receive some reimbursement for excess sales, but this customer did not have those.

How Battery TrueUp is handled

If you have a battery also then your bill looks totally different. You will actually get two notices each month. The first your old electric plus gas bill that you have always gotten. The electric portion will be different than what a solar only customer receives. This is described below.

The second is a thick raft of paper labelled



PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC DETAIL OF BILL
Service Dates: November 09,2022 to December 11,2022

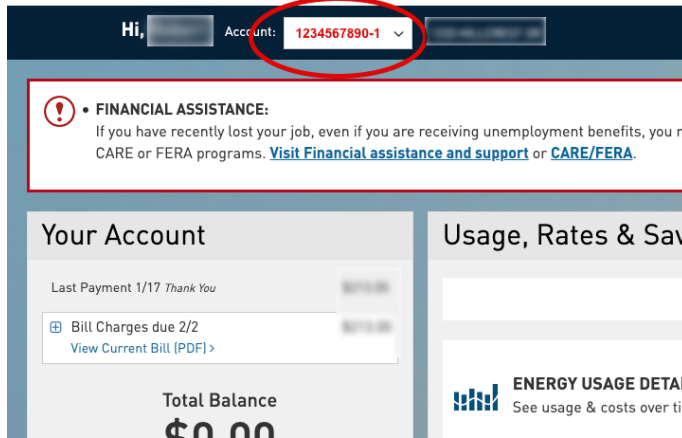
NEM PAIRED STORAGE ACCOUNT



If you chose to go paperless then getting these two documents from the website involves some effort. Your bill is listed on the left side of the PGE webpage. Each month you will be charged the Minimum Distribution Charge (with no explanation). You will pay this each month along with your gas bill.

If you request paperless statements the NEM Paired Storage Statement is buried under the account link (shown here in red). This can appear as long as a week after the bill.

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Click the account number (shown in red here). This will display a popup. Select “My Accounts and Services”. This will bring up a list of your accounts.

Click your electric account number which will bring up this. This customer named the electric account “Electric After Battery” so your list might look different. Select the electric account.

Show Details	Service Nickname	Service ID	Status
<input checked="" type="radio"/>	Electric after battery		Active
<input type="radio"/>	Gas		Active

Service details

SERVICE NICKNAME	Electric after battery	CURRENT RATE
SERVICE ID		
ASSOCIATED ACCOUNT		
SERVICE ID STATUS		
METER NUMBER		
PREMISE TYPE		
OUTAGE BLOCK		

DOWNLOAD DETAIL OF BILL: 12/11/23

The download list will initially be blank. Select the month of NEM details you want to see which will download the report.

NEM Paired Storage Statement

What you will discover is that with the battery you are no longer charged for bundled service. Each of the various charges described in the tariff are separately billed. The whole thing is vastly confusing, but here is a road map.

The first page gives a good summary of what happened that month

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This Detail of Bill summarizes your monthly billing and Net Energy Metering charges/credits. Any charges due are reflected on your monthly PG&E bill ("Energy Statement") which is provided separately and can also be accessed in your PG&E account online.

Energy charges for this account are due annually. Your annual True-up will be **Nov 2023**.

Following the True-up, generation credits and usage history are reset to zero and energy credits do not carry forward to your next True-up billing cycle.

BILLING SUMMARY	
Minimum Charges	\$11.29
Electric Utility User Tax	0.56
San Jose Franchise Surcharge	0.03
Total Current Month's Electric Charges Due	\$11.88*
*This amount is the minimum you must pay this month and is reflected on your regular monthly PG&E bill ("Energy Statement").	

SUMMARY OF CURRENT MONTH'S ENERGY CHARGES/CREDITS	
Current Month Energy Charge or Credit (-)	\$-21.95
Cumulative Energy Charges or Credits (-)	\$327.63
*Current Month Non-Bypassable Charges	\$15.34
Cumulative Non-Bypassable Charges	\$187.88
*The State Mandated Non-Bypassable Charge (NBC) is calculated based on your energy usage and is relevant to determine the True-Up amount. This amount is included within the Energy Charges however, cannot be offset by credits from exports. This charge includes the following fees: Public Purpose Programs, Nuclear Decommissioning, Wildfire Fund Charge and Competition Transition Charge.	
CUMULATIVE ENERGY CHARGES FOR YOUR ELECTRICITY USAGE WILL BE DUE AT THE END OF YOUR ANNUAL TRUE-UP PERIOD	

The \$11.88 is carried over to the bill you pay. Of this \$11.29 is your Minimum Distribution Charge for the month. I was not able to find a running total of the MDC.

The rest summarizes your NEM activity. The important numbers are

- Current Monthly Charge – what happened this month with NEM sales vs purchases
- Cumulative Energy Charge – your running TrueUp total
- Cumulative NBC – how much NBC you have racked up

If you are interested in your monthly kWh usage/credits these are in a table later in the report.

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What is not included in the report, which is included if you have solar only, is a running estimate of your TrueUp status equivalent to the “Explanation of Calculations” in the solar only bill. It is left to the homeowner to make this calculation on their own. You can approximate this using

$$\text{Trueup} = (\text{Larger of (Cumulative Energy Charge and NBC) } - \text{ MDC})$$

If your Cumulative Energy Charge or NBC are too small then you likely lose part of the MDC credit which you previously paid. See the details in the examples below for the actual computation.

The TrueUp Bill

The last report you receive during your True-Up year will contain some extra tables to calculate your True-Up. The calculation for the True-Up is much, much less understandable. First the bill that you pay only lists the amount you owe without providing any details. For details you have to dig into the NEM Paired Storage Statement. This looks like the monthly detailed statement, but contains some extra tables (which you have to dig to find).

Start with the first page.

Understanding NEM 2 TrueUp

This is your annual True-Up period. Any unpaid energy charges, taxes or fees are due at this time.

To be eligible for Net Surplus Compensation (NSC), your True-up Total Net Usage (kWh) must be negative. Your NSC calculation for this period is shown below.

Following the True-Up, generation credits and usage history are reset to zero and energy credits do not carry forward to your next True-Up billing cycle.

BILLING SUMMARY	
Minimum Charges	\$10.91
NEM True-Up Adjustment	205.18
Energy Commission Tax	0.97
Electric Utility User Tax	10.80
San Jose Franchise Surcharge	0.65
Total Current Month's Electric Charges Due	\$228.51

Net Surplus Compensation: \$0.00
True-Up Total Net Usage (kWh): 0

SUMMARY OF CURRENT MONTH'S ENERGY CHARGES/CREDITS	
Current Month Energy Charge or Credit (-)	\$12.70
Cumulative Energy Charges or Credits (-)	\$340.33
*Current Month Non-Bypassable Charges	\$13.82
Cumulative Non-Bypassable Charges	\$201.70
<small>*The State Mandated Non-Bypassable Charge (NBC) is calculated based on your energy usage and is relevant to determine the True-Up amount. This amount is included within the Energy Charges however, cannot be offset by credits from exports. This charge includes the following fees: Public Purpose Programs, Nuclear Decommissioning, Wildfire Fund Charge and Competition Transition Charge.</small>	

Note there is a provision for the sold kWh being negative at the end of the year, but this example did not include that case.

But how is the NEM True-Up Adjustment calculated? For that you have to dig into the fine print. There appear to be multiple {undocumented} ways this can be calculated. This only shows one path.

Start with the table labeled "NBC and non-NBC Components". This is a calculation of how NBC and the non-NBC charges are going to affect the final charge.

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NBC and non-NBC Components		A		Other		B	
NBC Code	Description	True-up Amt	Value Used (a)	Non-NBC Code	Description	True-up Amt	Value Used (b)
+PPP*P*P	Public Purpose Programs	161.45	161.45	+TRANS*T*T	Transmission	168.15	168.15
+ND*N*N	Nuclear Decommissioning	7.22	7.22	+DIST*D*D	Distribution	-96.04	-96.04
+DWR*DWR*DWR	Wildfire Fund Charge	31.14	31.14	+CTC*1*1*CON	Generation Charge	732.41	0.00
+OCF*OCF*1	On-Going CTC	1.89	1.89	+CTC*1*1*SOLAR	Generation Credit - Solar	-682.48	0.00
				+RMR*RMR*T	Reliability Services	1.68	1.68
				+1DR*1DR*1	Energy Cost Recovery Amount	-5.97	-5.97
				+NSGC*NSG*NSG	New System Generation Charge	10.91	10.91
				+DIA*DIA*D*Z	Conservation Incentive Adjustment	-0.02	-0.02
				+TRANS*TR*T	Transmission Revenue Balance Adjustment	0.63	0.63
				+ECT*AEL*Z	Energy Commission Tax	0.97	0.00
				+RB*RB*RB	Recovery Bond	32.22	32.22
				+RBC*RBC*RBC	Recovery Bond Credit	-32.22	-32.22
				+WH*WH*WH	Wildfire Hardening	8.39	8.39
TOTALS		201.70	201.70			138.63	87.73

To expand what this chart says

- “A” = the amount of NBC used in the calculation
- “Other” (aka True-Up Amount) are the non-NBC portions of your unbundled bill. The Cumulative Energy Charges(credits) from the summary (\$340.33) minus the NBC (“A”) = \$138.63 is the total for this column.
- “B” = equals a “corrected” amount. Basically the “Other” Column excluding the Generation charges and credits (i.e. your NEM sales) and the Energy Commission Tax.

The next step is “True-Up Evaluation” which determines how much of your MDC will be applied to your final bill. This contains several formulas

True-up Evaluation				
Evaluation Amt (e)	YTD Min Del Charge (c)	Evaluation Result	Result Used for True-up	Description of Rule for Result Used
289.43	134.18	STANDARD TRUE-UP	STANDARD TRUE-UP	Evaluation Amount (e) is >= the YTD Minimum Delivery Charges (c), and non-NBC (b) >= 0.

Evaluation Amount (e) = (a) + max (0, (b))

- The value “E” is calculated from “A” (NBC) + “B” from the above. “B” is only added though if it is positive
- To have your MDC fully applied two tests have to pass.
 - “E” has to be larger than your MDC (“C”) and
 - “B” has to be positive.

I assume if one of the tests fail that a portion of the MDC credit would be lost, but I do not have an example of this.

I was unable to find a use for “E” other than the True-up Evaluation Test.

Understanding NEM 2 TrueUp

The actual TrueUp payment is calculated in the next table labeled “True-Up Adjustment”

True-Up Adjustment

Schedule	Season	Rate Eff Date	Rate Days	Calculated Cumulative Amounts	Calculated Used Amounts	Previous Billed Amounts	Other Billable Charges	Current Billed Amounts	Comp Type	Revenue Code	Major Comp	Memo Mjr Comp	TrueUp Usage
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
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EVA	Winter	10/01/23											
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
EVA	Summer	10/01/23											
EVA	Winter	10/01/23											
EVA	Summer	10/01/23	20	\$0.67	\$0.00	\$0.00	\$0.67	\$0.00	ECT	AEL	Z		0.000
EVA	Winter	10/01/23	9	\$0.30	\$0.00	\$0.00	\$0.30	\$0.00	ECT	AEL	Z		0.000
TOTALS				\$340.33	\$339.36	\$134.18	\$0.97	\$205.18					

Current Billed Amount = Cumulative Used Amounts - Previously Billed Amounts



In this table the Cumulative Energy Charges(credits) of \$340.33 from the first page is adjusted to the “Used” column (\$339.36). The \$0.97 is an energy commission tax that is removed from “Used” since it is added separately to the final bill. Since the tests above allow use of the full MDC already paid (\$134.18), the MDC paid during the year is subtracted from the “Used” column giving \$205.18. This figure is then carried to the first page as my “NEM True-Up Adjustment” amount.

It would be useful to compare this against an NEM statement where the tests for “True-Up Evaluation” failed. This would happen if you did not buy enough power (which adds to your NBC) to offset MDC.

This is a single example for a customer who ended up owing money at the end of the year. I would like to extend this to customers whose end of year cumulative energy charges were less than NBC and for those that had a negative cumulative energy charge balance. I suspect for those customers some (all) of the MDC credit is lost. If you have a bill like this and you feel comfortable sharing a redacted version, we can expand this paper to cover more cases.