



CAC Item C7

Staff Report Item 14

**TO:** East Bay Community Energy Board of Directors

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**SUBJECT:** Informational Discussion on the Net Billing Tariff as a Successor to the Net Energy Metering 2.0 Tariff

**DATE:** September 20, 2023

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### **Recommendation**

Receive an update on staff plans to address the Net Billing Tariff (NBT) as a successor to Net Energy Metering (NEM) 2.0.

### **Background**

EBCE regulatory staff has been tracking the NEM 2.0 successor tariff, and presented on major developments at the [December 2022 Board of Directors meeting](#). At that time the Commission had not yet finalized their decision. Since then, the Net Billing Tariff was approved on December 15, 2022.

In 1995, the first Net Energy Metering tariff was established through the passage of SB 656. NEM 1.0 was a tariff favorable to mid-day solar production, such that customers were compensated for generating solar in excess of what they consumed. NEM 1.0 is responsible for starting the annual credit cycle and true-up process, which serves as a mechanism to compensate customers for their solar generation. On a monthly interval, credits are provided to customers at the retail rate that can be used to offset energy usage. Annually, at an event called the “true-up,” the customer is paid out at the Net Surplus Compensation (NSC) rate, which is similar to a market-based rate, for excess solar generation. The customer’s NEM credits then reset and they start again for another 12 month cycle. Customers were granted a

20 year interconnection agreement and a guaranteed 20 years on this tariff, which was available through 2017.

NEM 2.0, the successor to NEM 1.0, is very similar to NEM 1.0, but requires a time-of-use (TOU) rate for all NEM customers where rates differ depending on the time of day. Lower retail rates are mid-day in response to the glut of solar on the grid and higher rates are charged in the late afternoon and early evening when demand peaks and solar production wanes. Usage and generation are netted based on the TOU period. NEM 2.0 customers are also responsible for non-bypassable charges, such as the Public Purpose Programs charge. Annual payouts are provided at NSC rates. Customers on this tariff were given 20 years to remain on NEM 2.0, with the legacy period remaining with the solar system itself. NEM 2.0 was offered to solar systems with applications received from 2017 through April 14, 2023. We can expect NEM 2.0 customers to transition to NBT starting in 2037.

Net Billing Tariff (NBT) is the successor to NEM 2.0. Rather than receive the retail rate for generation that is exported to the grid, customers receive compensation at a new Avoided Cost Calculation (ACC) rate, also called the Energy Export Credit. The ACC is a tool used by the California Public Utility Commission (CPUC) to determine the value of onsite solar and other distributed energy resources. The ACC varies by the hour and the month. Spring and summer mid-day ACC prices are the lowest while late summer early evening prices are the highest. ACC pricing is aligned with historic California Independent System Operator, or CAISO, energy demand and availability. There is a “glidepath” for new NBT customers, which provides a small adder, or increase, to the established ACC rates to help ease the transition from NEM 2.0 to NBT.

See Table 1 for a comparison summary of NEM 1.0, NEM 2.0, and the NBT.

Click here to enter text. Table 1: Summary of NEM 1.0, NEM 2.0, and NBT

	<b>NEM 1.0 1996-2017</b>	<b>NEM 2.0 2017-Apr. 14, 2023</b>	<b>NBT Apr. 15, 2023 - present</b>
<b>Rate Schedule</b>	Any	TOU rates (4-9 pm peak rates)	Residential customers are required to be on a TOU Electrification Rates (4-9pm peak, 3pm-12am partial peak)
<b>Value of solar used concurrently on-site</b>	Offsets imports, equivalent to retail rate	Offsets imports, equivalent to retail rate	Offsets imports, equivalent to retail rate

<b>Value of solar exported to grid</b>	Full retail rate	Retail rate minus non-bypassable charges	Avoided Cost Calculation (ACC) price per hour, with an adder for low income customers.
<b>Netting methodology</b>	Imports are netted against exports	Imports are netted against exports within each TOU interval	Imports are charged at the retail rate, exports are compensated at ACC. Energy use is no longer netted.
<b>Net Surplus Compensation (NSC) payment at true-up</b>	Net exports times NSC rate	Net exports times NSC rate	Net exports times NSC rate, minus ACC export value already granted
<b>Billing and true-up period</b>	Annual billing, annual true-up (both charges and credits roll over for 12 months)	Annual billing, annual true-up (both charges and credits roll over for 12 months)	Monthly billing and payment; annual true-up (credits roll over for 12 months)
<b>Legacy Period</b>	20 Years, tied to the system	20 Years, tied to the system	9 Years, tied to both the system AND the customer as a unit.

### California Public Utilities Commission Goals

The California Public Utilities Commission (CPUC) has had a different set of goals with each iteration of the Net Metering Tariff (now, Net Billing Tariff).

NEM 1.0 was developed to promote rooftop solar and diversify the energy resource mix. The tariff favored the midday peak solar production and credited customers at the full retail rate. While NEM 1.0 was successful at its goal of proliferation of rooftop solar, this is when the state started to grapple with the infamous duck curve that aligned with abundant mid-day solar.

## California's duck curve is getting deeper

CAISO lowest net load day each spring (March–May, 2015–2023), gigawatts

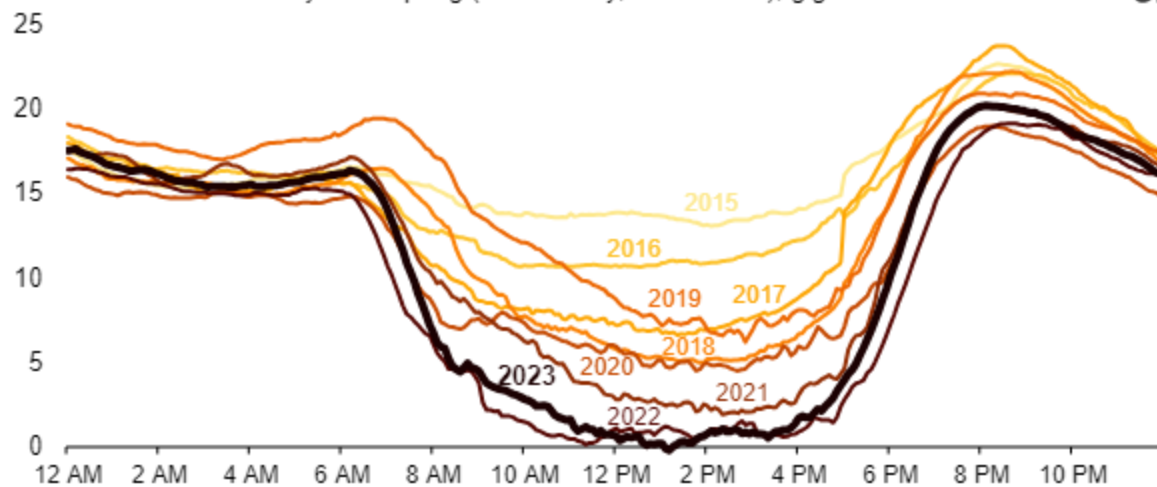


Figure 1: The Duck Curve<sup>1</sup>

NEM 2.0 was the CPUC's first attempt to align the compensation structure closer to costs by way of TOU rates configured to match supply. NEM 2.0 also included requirements to pay non-bypassable charges, including a minimum delivery fee.

NEM 1.0 and NEM 2.0 have shown to increase pricing to non-NEM customers by paying an artificially high price for inexpensive mid-day energy generation to NEM customers. The CPUC's study by Energy + Environmental Economics and Verdant estimates that NEM 2.0 customers annually shift about \$2,600 of their energy cost burden to non-NEM customers<sup>2</sup> (for both generation and delivery).

NBT is designed to better align generation compensation (the ACC, or avoided cost calculation) for customer-sited solar with the actual net benefits provided to the grid. NBT's structure encourages on-site battery storage, which could help to flatten the duck curve.

### **Implementation Schedule**

There are two groups of customers that will initially be eligible for NBT:

1. Customers that completed their self-generation application after April 14, 2023 will be automatically placed on NBT.
2. Customers that have completed 20 years on NEM 1.0 will transition to NBT at their next PG&E delivery true-up.

<sup>1</sup> From *As solar capacity grows, duck curves are getting deeper in California*, June 21, 2023 from the U.S. Energy Information Administration at: <https://www.eia.gov/todayinenergy/detail.php?id=56880>

<sup>2</sup> From *Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020*, May 28, 2021. Page 29 at: <https://willdan.app.box.com/s/3jpscul3lbt0f5erje7f4bkqkk96uahp/file/816006172639>

Given the complexities of this new tariff, PG&E's billing systems are not ready to bill on NBT, which they are calling "Solar Billing Plan," or SBP. PG&E expects to have their residential SBP operations ready by December 2023 and non-residential prepared by July 2024. Once the billing systems are ready, customers will transition to SBP based on their PG&E delivery true-up date.

### **Underlying Limitations and Opportunities**

#### *Price and Billing Signals*

EBCE customers are also PG&E customers for delivery service. Since PG&E will be billing for delivery charges on the Solar Billing Plan tariff, customers will receive the price signals from this portion of their bill and will feel that change from NEM 2.0 to SBP. For customers installing today, they'll be basing their purchase decision on SBP models, as solar providers have historically used only PG&E pricing to model solar performance.

#### *Data Opportunities*

Considering two-way meter channel data (both imports and exports) may lead to enhanced understanding of customer usage and generation patterns, allowing for more targeted incentive opportunities. Ingesting and using hourly billing quality meter data is also a global requirement as we look to tariffs of the near future, like Day Ahead Real Time Pricing.

#### *Customer Opportunities and Legacy Systems*

Customers are not without agency in this tariff change. While NBT does not offer the retail rate for exports, energy generated and used onsite without being exported is still "worth" the retail rate. Customers can see value on the NBT rate by installing a smaller solar system to offset their "base" or "always-on" load, shifting their demand to meet their own generation supply, or adding battery storage to take advantage of higher retail rates in the late evening hours, either to offset their own energy use during peak hours, or benefitting from the higher export rates.

Customers are also allowed 20 years on NEM 2.0. EBCE will continue to offer NEM 2.0 through 2044, accounting for the legacy period of customers who are just installing their systems today and through 2024. EBCE serves 63,000 customers on NEM 1.0 and NEM 2.0 today. Based on historic installation data, staff expects to see a steady, but slow transition of customers from NEM 1.0 and 2.0 over to NBT. Over half of today's NEM customers won't transition to NBT until 2038, as shown in Figure 2.

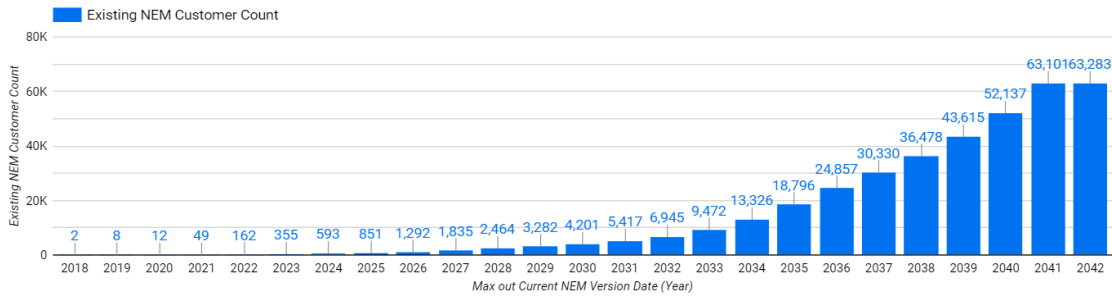


Figure 2: Charting customers transition dates, NEM 1.0 and 2.0 to NBT (EBCE data)

### Status

Staff is exploring the impacts to both our customers and our organization of mirroring NBT as prescribed by the CPUC and largely as implemented by PG&E. Staff is using current customer usage and generation data to model ways for customers to maximize their rooftop solar system to benefit their energy bills, as well as add-ons like battery storage that can help reduce both bills and grid reliability. In the meantime, our billing agent is developing requirements to bill customers on SBP.

Today, EBCE offers a bonus credit to our low-income NEM customers and we continue to discuss equity concerns, including ways to assist in development of rooftop solar and battery storage by way of increasing the export credit. The ACC, or energy export credit, already includes an adder for low-income customers. Staff may look to increase the value or duration of this adder.

Staff is also exploring incentives for customers that use batteries per our time requirements. Battery storage and discharge at the right times helps with overall grid stability and helps reduce EBCE procurement costs, which can be passed on to all customers.

Staff expects to return to the Board no later than December 2024 with a proposal for how EBCE will implement a successor to the NEM 2.0 tariff.

### Fiscal Impact

Staff is modeling fiscal implications of options for a successor tariff to NEM 2.0.

### Attachments

- A. Presentation

SEPTEMBER 20, 2023

# Informational Discussion on the Net Billing Tariff as a Successor to the Net Energy Metering 2.0 Tariff



# Introduction - What is Net Energy Metering?

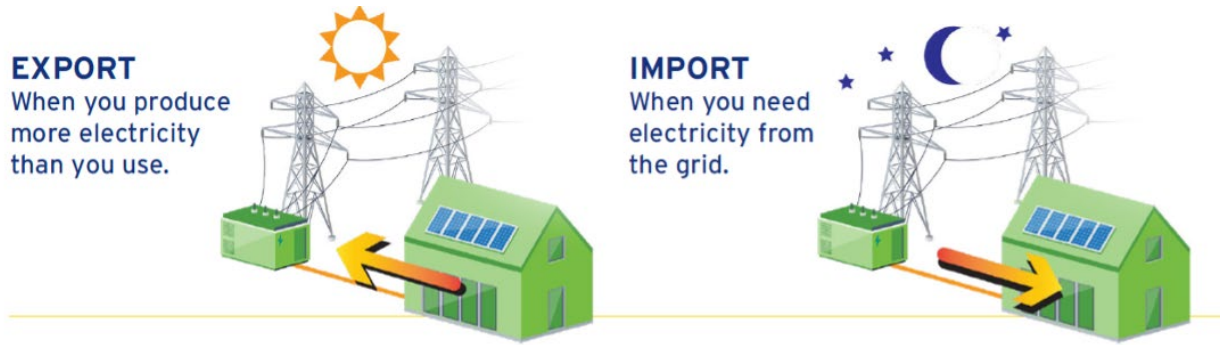
Net Energy Metering (NEM) is the historic billing methodology used to compensate customers for excess energy produced by their own systems, like rooftop solar. NEM also defined how this compensation was handled vis-a-vis customer usage.



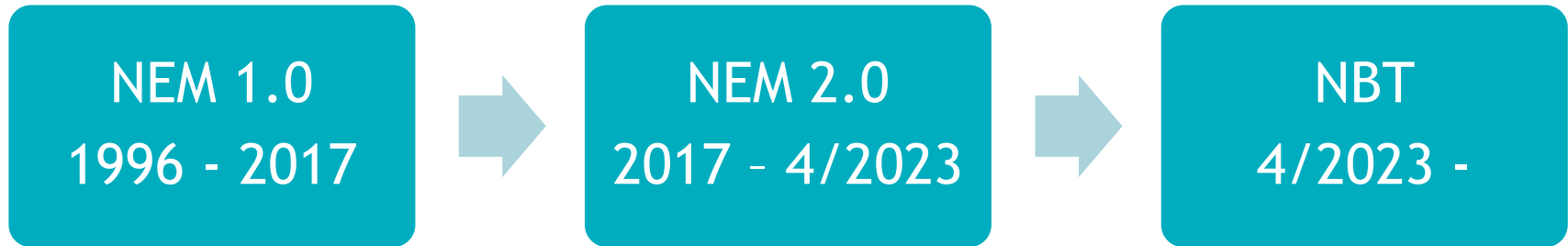


# Introduction - What is Net Billing Tariff?

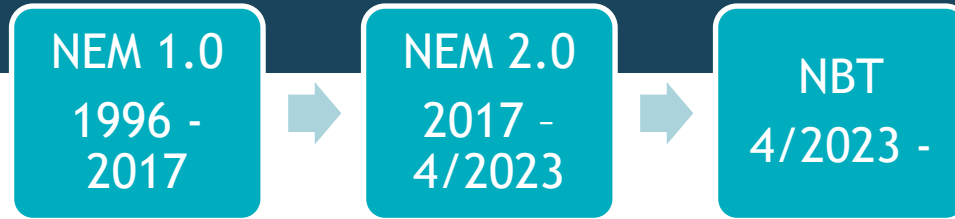
Net Billing Tariff (NBT) is a new compensation tariff approved by the CPUC on December 15, 2022. Energy exports, or excess generation is "sold" back at one price and energy imports, or electricity used from the grid, is purchased at the standard customer rate.



# Timeline

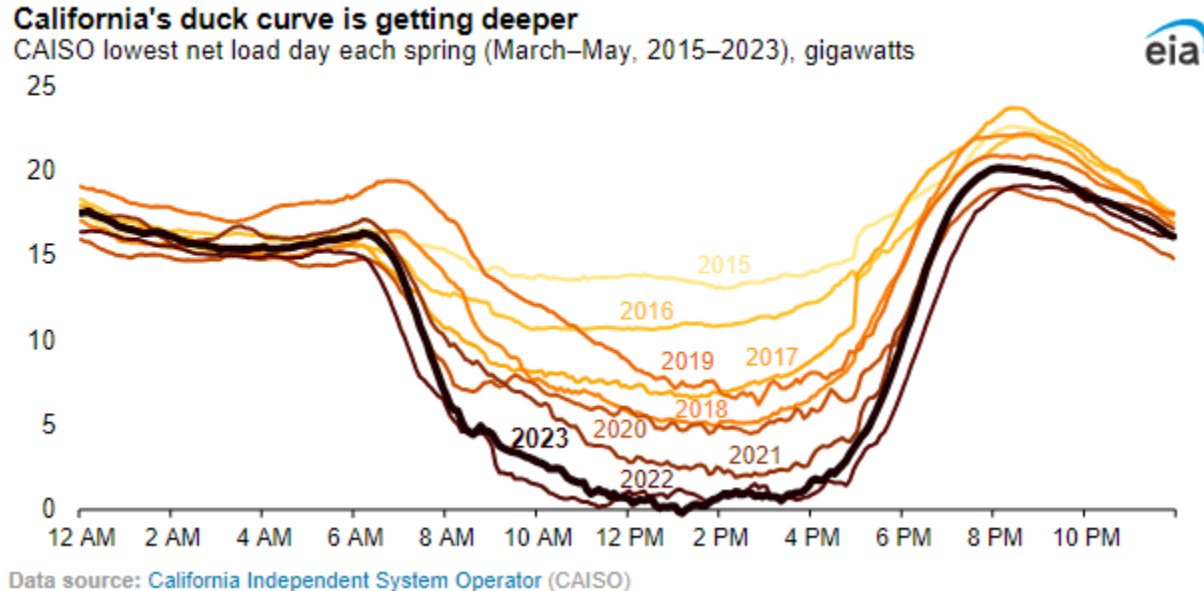


# CPUC Goals

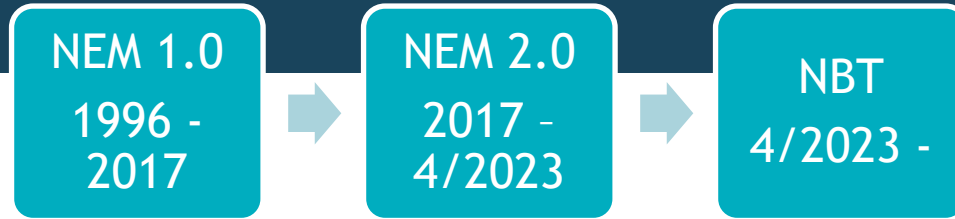


NEM 1.0	NEM 2.0	NBT
<ul style="list-style-type: none"><li>• Promote rooftop solar</li><li>• Diversify resource mix</li><li>• Tariff favored mid-day solar production</li></ul>	<ul style="list-style-type: none"><li>• More closely align compensation closer to cost via TOU rate</li><li>• Require participants to pay non-bypassable charges</li></ul>	

# The Duck Curve



# CPUC Goals



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# Solar Metering Tariffs: Side-by-Side

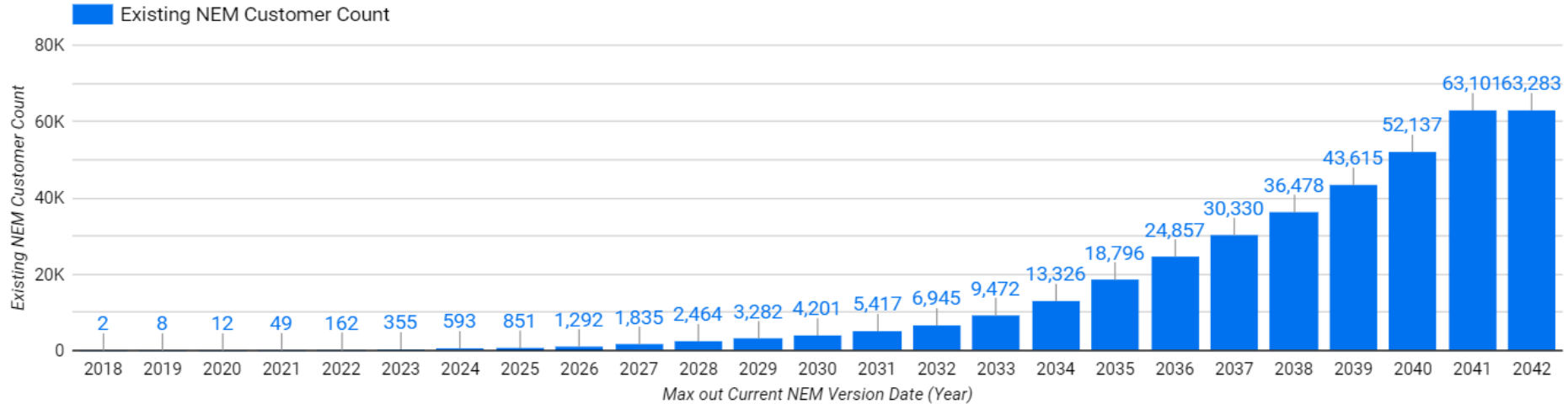
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# Customer Transitions from NEM 1 and 2 to NBT

Attachment Staff Report Item 14

## Cumulative Customer Count Eligible for NBT



- Staff is exploring the impacts of mirroring NBT as prescribed by the CPUC, as well as looking for opportunities to customize the tariff for our customers and agency
- Exploring questions such as:
  - How can NBT create value for our solar customers as well as our other customers?
  - How will EBCE continue to support our low-income customers?
  - Battery storage and timely discharge can help with overall grid stability. Battery storage can also help reduce customer bills and increase the value of rooftop solar. Is there an opportunity for a program to help encourage battery adoption?
- Staff expects to return to the Board no later than December 2024 with a proposal for how EBCE will implement a successor to the NEM 2.0 tariff



# Thank You!



Questions? Give us a call:  
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