The Public ADVOCATES OFFICE

Rooftop solar incentive to cost customers without solar an estimated $8.5 billion by the end of 2024

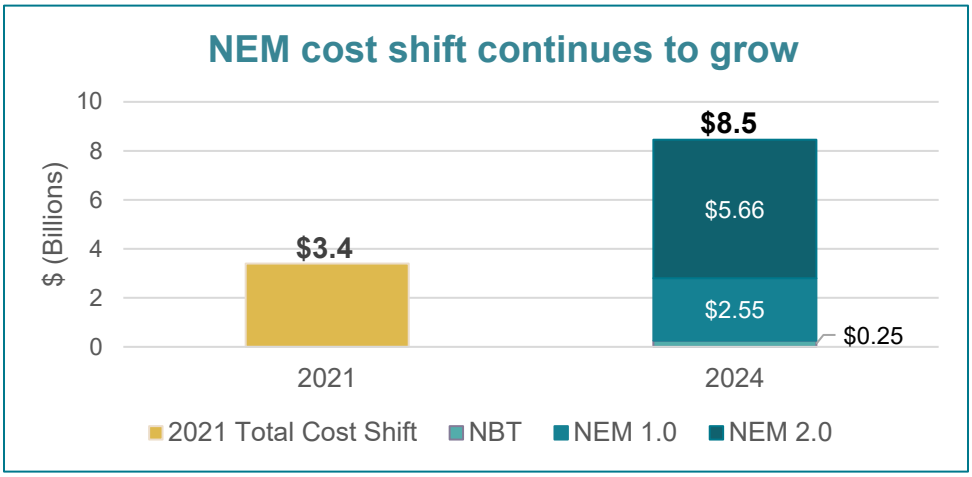
Date: August 22, 2024

SUMMARY: California's main rooftop solar incentive program (Net Energy Metering) will cost customers without solar an estimated $8.5 billion by the end of 2024, a figure that has more than doubled since 2021. The recent cost increases are driven by: (1) a surge in interconnections of new rooftop solar systems prior to the phase out of unsustainable program compensation terms, and (2) higher compensation to rooftop solar customers for the energy their systems generate.

BACKGROUND

Net Energy Metering (NEM) is a billing mechanism that allows customers who generate their own electricity from rooftop solar to receive credits for electricity they generate.

In December 2022, the California Public Utilities Commission (CPUC) voted to reform NEM to better align its incentives with the value enrolled systems provide. Our office supports the CPUC's new program, known as the Net Billing Tariff (NBT), because it will reduce the program's relative cost to customers without solar and promote the adoption of battery storage. However, there are customers who continue to benefit from the previously established incentives, commonly known as NEM 1.0 and NEM 2.0. These NEM 1.0 and 2.0 customers will continue to receive generous subsidies for up to twenty years. The subsidies, paid for by non-rooftop solar customers, are a contributing factor to high electricity rates. This cost burden – commonly referred to as a cost shift – to non-rooftop solar customers of Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric [1] has risen from $3.4 billion annually in 2021 to $8.5 billion annually by the end of 2024, and it will continue to grow in coming years.[2]



WHAT ARE THE CONSEQUENCES OF THE INCREASING COST SHIFT?

As the cost shift grows, it leads to higher retail electricity rates for all customers, which disproportionately affects non-solar customers who are not benefiting from the financial incentives of solar programs. For legacy NEM 1.0, 2.0, and NBT customers, the higher rates they pay for electricity drawn from the grid are

[1] Residential and non-residential customers (e.g., small businesses).

[2] The NEM 2.0 cost shift is larger than the NEM 1.0 cost shift because the amount of installed generation under NEM 2.0 is larger, particularly in the residential sector where NEM 2.0 installations are about three times the amount of NEM 1.0 installations.

often offset by the higher compensation they receive for energy their solar systems produce, a dynamic driven by these increased retail rates. Essentially, non-rooftop solar and NBT customers are bearing the financial burden of the cost shift caused by legacy NEM customers, as they face higher rates over time.

Moreover, as the price of electricity continues to rise, the economic incentive for consumers to transition from fossil fuels to electric alternatives—such as electric vehicles and heat pumps—diminishes, slowing progress toward electrification and the state's climate objectives.

WHAT ARE THE DIFFERENCES BETWEEN NEM 1.0 AND NEM 2.0?

NEM 1.0 was the original program established to encourage the adoption of solar energy for customers who installed solar systems before July 2017. Under NEM 1.0, customers receive a 1:1 retail rate credit for the energy they generate. This means that the credit they receive for the energy produced is equal to the rate they paid for the electricity they consumed from the grid. NEM 1.0 participation was limited by a program cap based on a percentage of the utility's peak demand. These customers will continue to receive the same program benefits for up to 20 years from the time they installed their solar systems.

NEM 2.0 came into effect after the NEM 1.0 cap was reached. It applies to customers who installed their solar systems after July 2017 and before April 2023 when the recent NBT program went into effect. Like NEM 1.0, NEM 2.0 customers receive credits for the energy their systems generate. These customers also receive a credit close to the retail electricity rate. However, they also pay for certain charges, known as non-bypassable charges, which slightly lower the customers' overall benefits.

WHAT IS THE COST SHIFT AND HOW IS IT CALCULATED?

NEM 1.0, 2.0, and NBT customers typically reduce their utility bills significantly because they generate their own power. However, utilities have fixed costs (such as those incurred from wildfire safety measures and grid infrastructure and maintenance) that need to be paid regardless of how much electricity is consumed. If rooftop solar customers are paying less, these fixed costs need to be recovered from all other customers, dramatically increasing rates for non-rooftop solar customers.

A **non-bypassable charge** is a fee included in a utility bill that all electric customers must pay. These charges are typically associated with costs related to maintaining the electric grid, public purpose programs, or other state-mandated initiatives. Under NEM 2.0, these charges were excluded from the compensation rate paid to solar customers for their excess energy, thereby reducing the compensation to NEM 2.0 customers relative to NEM 1.0 customers.

Based on our most recent analysis, we estimate that by the end of 2024, approximately 21-27% of the average non-rooftop solar household's electricity bill will go to subsidizing the program across all utilities.

The total cost of the program on households without solar is the difference between the total amount that NEM 1.0, 2.0, and NBT customers are compensated **(referred to as bill savings)** and the total benefits solar projects provide **(referred to as avoided costs)**. These benefits in terms of costs that are avoided include greenhouse gas emissions reductions, power plant fuel and generation cost savings, and other avoided grid infrastructure costs.

The calculation below shows how our office determines the cost shift for NEM 1.0 v. NEM 2.0. In simpler terms, the cost shift = bill savings – avoided costs.

NEM 1.0 COST SHIFT = (kWh Generation x Average Compensation ($/kWh)) – (kWh Generation x Avoided Cost ($/kWh))

NEM 2.0 COST SHIFT = [(kWh Generation x Average Compensation ($/kWh)) – (kWh Export x Non-Bypassable Charges ($/kWh))] – (kWh Generation x Avoided Cost ($/kWh))

HOW CAN THE COST SHIFT BE ADDRESSED?

Originally, the NEM 1.0 and NEM 2.0 programs were effective in doing what they were meant to do – provide incentives to increase solar adoption in California. In fact, the programs were so effective that the generous incentive will continue to increase for decades to come. To be clear, we support the growth of rooftop solar to contribute to the reduction of greenhouse gas emissions – but the NEM 1.0 and 2.0 subsidies, funded by customers who do not have rooftop solar, are unreasonably high and disproportionately increase energy bills for renters and lower income households. There are a variety of policy changes that could be taken to lessen the cost shift burden for non-solar customers while still allowing solar customers to receive reasonable incentives for investing in rooftop solar.

Although NBT is an improvement on the previous NEM programs, it does not address the significant cost shift from the legacy NEM 1.0 and NEM 2.0 that will continue to grow in coming years because of how the programs' subsidies are designed. Today, the incentives paid to NEM 1.0 and 2.0 customers result in systems that are paying for themselves rapidly, in as little as 4-5 years for NEM 2.0 customers.[3] As electricity rates continue to rise, NBT customer payback periods are also shrinking: these customers now recover their costs within 6-7 years, instead of the 6-9 years originally estimated when the NBT was authorized in December 2022.

Lowering electricity rates requires changes to NEM 1.0 and 2.0 programs. Policy changes that reduce the cost shift burden on non-rooftop solar customers are needed. These changes would maintain a balance of allowing rooftop solar customers to have a reasonable incentive so that their rooftop systems would pay for themselves quickly, and the subsidies paid by customers without solar would also be reasonable.

To achieve meaningful cost savings, our office proposes some possible solutions:

- **Provide NEM 2.0 customers with compensation set at the electric rates in effect at the time of the adoption of the incentives** rather than the current rule, which provides that their compensation for the excess energy that their systems generate increase with retail rates. This new approach still results in rooftop solar customers realizing the full benefit of their investments in a reasonable timeframe of 10 years.
- **Convert NEM 1.0 and 2.0 accounts to the NBT either upon sale of a home or after 10 years of interconnection.** Currently, those who purchase a home with a solar system under NEM 1.0 and 2.0 receive the same benefits as the original homeowner. We propose that the new homeowner would receive benefits under the NBT program and not the NEM 1.0 or 2.0 program. While this approach would not have an immediate effect, this would chip away at the cost shift over time. This program change is fair as it takes away nothing from new homeowners because they did not have a role in installing the system. And even with this change, the system will provide new homeowners with bill savings over the system's operating life. Alternately, for a more substantial cost shift reduction, NEM systems could be transitioned to the NBT program after 10 years of interconnection. This still allows NEM customers ample opportunity to achieve a return on their investment, given the short payback periods for these systems discussed above.

If you have any questions regarding our cost shift methodology, please contact Mary Flannelly at mary.flannelly@cpuc.ca.gov.

The Public Advocates Office represents utility customer interests before the California Public Utilities Commission and other forums. We develop recommendations that advance the state's energy and climate goals in the most affordable ways for ratepayers. For more detailed information, please contact us at publicadvocatesoffice_press@cpuc.ca.gov or visit our website at www.publicadvocates.cpuc.ca.gov.

[3] The NEM 2.0 simple payback periods are relevant for units installed in Spring 2023 that got onto NEM 2.0 before NBT went into effect.