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CPUC's NEM 2.0 Decision: A Win for Distributed Solar?

The decision may be a temporary victory for the Distributed Solar Industry as legal challenges and further CPUC proceedings loom.

In one of the most anticipated decisions in recent memory, the California Public Utilities Commission (CPUC) on January 28, 2016, by a 3-2 vote, approved a decision (Decision No. 16-01-044 (January 28, 2016) (the Decision) that largely leaves in effect the existing retail rate structure for new net energy metering (NEM) customers. The existing retail rates for NEM customers permit the customer to offset each kilowatt hour (kWh) of renewable energy generated against the retail rate per kWh the customer would otherwise pay for electricity their retail electric utility supplies. This Decision fixes new NEM rates for renewable energy generators once the three major California investor-owned electric utilities (Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E), together, the IOUs) reach the current NEM program limit of 5% of their aggregate customer peak demand, or by July 1, 2017. The Decision declined to impose any fixed charges on new or so-called successor NEM (NEM 2.0) residential customers while the CPUC is determining in other proceedings whether, and, if so, how, such fees should be imposed on the IOUs' residential customers. The Decision does require NEM 2.0 customers to pay some fees not previously collected through NEM rates.

The IOUs, The Utility Reform Network (TURN) and The Coalition of California Utility Employees (CUE) filed for rehearing of the Decision on March 7, 2016. These rehearing requests argue that the Decision fails to comply with the express language of Assembly Bill (AB) 327, the state legislation that authorized the creation of NEM 2.0. TURN states in its rehearing request that "the ultimate outcome [of the Decision] was driven primarily by politics at the expense of the law."

Given proposals in other jurisdictions to substantially reduce compensation to NEM customers, those parts of the solar industry that finance and develop distributed generation solar electric systems (the Distributed Solar Industry) have generally lauded the Decision. (The Decision does not directly impact those who develop large, utility-scale solar electric projects that sell their power directly to the IOUs under power purchase agreements.) Commissioners Mike Florio and Catherine J. K. Sandoval dissented from the Decision. Commissioner Florio's dissent argued the compensation NEM customers receive for solar generation under the Decision is "too high" and "not necessary for the solar industry to thrive." Understanding the history of net energy metering and the ongoing transformation of the IOUs' distribution grids is essential to understanding the Decision's significance.

Background

Many electric utilities have instituted NEM rates as numerous states have approved such retail rate tariff structures to encourage and promote the installation of renewable energy among electric utilities' retail

customers. To promote renewable energy, the tariffs generally permit the electricity the NEM customer generates behind their retail meter to be netted against what the customer's IOU supplies them in a billing month. If the NEM customer's renewable generation exceeds their demand during the billing month, that excess is carried forward as a credit in future billing months. In California, electricity the NEM customer generates in excess of their total electricity demand over 12 billing months is then credited against their retail electric utility bill at a notional per kWh price. In California, and some other states as well, that per kWh price is derived from a market-based electricity price that is not equal to the full retail rate for delivered electricity. The full retail rate recovers not only the costs of generating electricity, but also the fixed costs for transmission and distribution facilities as well as other facilities, and the costs for other services necessary to deliver electricity to retail customers reliably if and when needed. While some of these retail rate costs may be avoidable for a distributed energy resource, such as the electricity generated from a rooftop solar electric system, some are not, and would be recovered from every customer under traditional utility ratemaking principles.

While California legislation permitting NEM was passed in 1995, the Distributed Solar Industry has been nascent until the past few years. Spurred in part by dramatic cost reductions for photovoltaic (PV) modules, a federal 30% investment tax credit, and state and local incentives (such as installation rebates), developers and installers of distributed generation solar electric systems offered to lease or sell the output from these systems to host customers over a long term at an initial rate typically set below the full retail rate in place at the beginning of the lease or output contract, with the initial rate subject to escalation over the life of the lease or output contract. No capital investment is required from the host-customer for the solar electric system the customer hosts. The host-customer benefits from the NEM rate, and the lessor or solar electric system owner receives the benefit of monthly customer payments, the federal 30% investment tax credit, rebate incentives, and typically any environmental attributes that can be monetized, such as renewable energy certificates. These commercial arrangements have resulted in a dramatic increase in the number of NEM customers. These arrangements have been particularly economically attractive for California IOUs' residential customers whose electric usage lifted them into one of the higher of the four or five rate tiers where the incremental rate per kWh could be as much as five-times greater than the rate in the lowest rate tier. Not surprisingly, these customers comprise the largest percentage of the IOUs' residential customers electing to host or install solar electric systems. As the Distributed Solar Industry deployed an increasing number of rooftop solar installations, the cost impact of the subsidies given in NEM rates on IOUs' utility systems grew significantly. As the reported cost shift from NEM to non-NEM customers began to rise into hundreds of millions of dollars on an annual basis, and numbers of NEM customers of each IOU edged toward the statutory 5% of peak demand cap, the California Legislature passed AB 327 in the Fall of 2013. While AB 327 mandated the end of the then-existing NEM tariffs and the cap on NEM installations, the bill failed to explicitly provide for a reduction in the NEM rate below the full retail rate. Instead, the bill directed the CPUC to develop and implement a successor NEM tariff once the existing program limits were reached. The bill mandated that the Commission, no later than December 31, 2015, develop a successor tariff for NEM customers that ensures:

- Customer-sited renewable distributed generation continues to grow sustainably
- The tariff rate is based on the costs and benefits of the NEM customer's renewable generation facility
- The total benefits of the NEM 2.0 tariff to all customers and the electrical system are approximately equal to total costs

The Decision was the CPUC's response to this legislative mandate.

AB 327 also directed the CPUC to develop and implement the recently adopted redesign of residential rates, and to investigate the expansion of distributed energy resources. Regarding redesigning residential rates, AB 327 authorized the Commission to approve fixed charges for residential customers with a limit of US$10 per customer account (as adjusted for inflation), and to permit imposing default time of use (TOU) pricing beginning no sooner than January 2018. On July 3, 2015, the CPUC, by a 5-0 vote, approved decision D.15-07-001 to institute a major redesign of residential rates for California's IOUs. D. 15-07-001 required the IOUs to:

- Revise residential rates to reduce the number of residential rate tiers (defined by kWh delivered) from four to two
- Reduce the per kWh rate differential between rate tiers from as much as 275% between the top and bottom of the previous four tiers to 25% between the two new tiers
- Implement a monthly minimum bill for each residential meter of US$10 in lieu of a monthly fixed charge
- Implement a Super User Energy Surcharge that will impose high rates on customers who consume more than twice the kWhs of the average residential user
- Implement, no later than January 1, 2019, default TOU rates for all residential customers

The redesign of residential rates instituted in D.15-07-001 was specifically intended to better reflect the cost the IOUs incur to serve each residential customer. At the same time, however, this rate redesign will reduce the economic attractiveness of solar electric system host-customer leasing or output contract arrangements, because it will flatten and reduce the number of the retail rate tiers. (Now the highest rate will be substantially lower — only 25% greater than the rate in the lower rate tier.) For example, SCE estimates that the dollar amount that non-NEM customers will pay to compensate for lower revenues from NEM customers will be reduced by about 20% going forward as a result of the flattening and reduction of rate tiers (Edison 2016 Business Update). At the same time, as discussed above, a host-customer's payments under a typical lease or output contract for a third-party owned solar electric system are subject to contract-based escalation factors, and will continue to increase despite the likely increase in host-customer payments under its retail electric utility bill.

Impact of the Decision on NEM 2.0 Customers

In the Decision, the CPUC elected to continue to compensate NEM 2.0 customers for their renewable generation with per kWh credits equal to the full retail rate. In addition, the Commission grandfathered the NEM 2.0 rate structure for 20 years just as it has done for NEM 1.0 customers. In so doing, the CPUC rejected various IOUs and ratepayer advocates' arguments in favor of compensation structures they asserted would more fairly reflect the actual value of such excess generation to all of the IOUs' customers. The CPUC supported its decision to essentially retain the current NEM compensation on the grounds that, while the CPUC was currently able to reasonably estimate the direct cross-subsidy costs under the existing NEM arrangements, the Commission was not yet in a position to evaluate the benefits provided to all of the IOUs' customers through NEM customers' electricity generation. Until those benefits are better understood and quantified, the Commission elected to refrain from changing the basic rate structure for NEM arrangements. The CPUC found that the standard cost-benefit formulas it had developed to evaluate demand-side programs in the CPUC's Standard Practice Manual were insufficient to quantify the total benefits of NEM arrangements; those formulas only balanced the NEM rate-related benefit to NEM customers against the IOUs' costs imposed on non-NEM customers. The CPUC will reexamine the NEM 2.0 rates in 2019, the target date for the beginning of default TOU rates for all

residential customers, with a view to considering adjustments to the rate for sales of excess distributed generation that considers locational and time differentiated values. The CPUC cited three ongoing proceedings at the CPUC that were instigated in response to AB 327 as informing that review — Distribution Resources Plan (R. 14-08-013); Regulatory Framework for Integrated Distributed Energy Resources (R. 14-10-003); and Peak Usage Patterns and TOU Rates (R. 15-12-012). These proceedings seek to further the ongoing transformation of electric grids to accommodate distributed energy resources and provide the Commission a better understanding of the impact of customer-sited distribution resources.

Although the Decision largely leaves in effect the existing rate structure for NEM 2.0 customers, the Decision does require NEM 2.0 customers to be subject to TOU rates, to pay a modest interconnection fee and to pay for non-bypassable costs (NBC). The NBC charges will be collected from NEM 2.0 customers for every kW consumed during an hour that is not generated by the NEM 2.0 customer's renewable generation; current NEM customers pay those charges only on the kWh remaining at the end of the month that their excess generation has not netted out. For example, an NEM 2.0 customer with rooftop solar generation will pay NBC charges for each kWh of electricity consumed as solar generation recedes in the afternoon. NBC charges are costs that are collected in rates from any customer or entity connected to the IOU transmission network or distribution grid based on regulators' determination that all those connected have or will benefit from those costs. Typically, those costs include transmission costs, public purpose programs costs, nuclear decommissioning charges and similar charges. The Decision imposes only the subset of NBC charges modeled by the software developed for the rulemaking, the Public Tool. As a result, the Decision does not impose on NEM 2.0 customers all of the NBC charges other customers pay. Significantly, the Decision explicitly excludes transmission costs from those NBC charges.

The exclusion of transmission costs from NBC charges may become a concern for the California IOUs as their investment in transmission infrastructure to accommodate utility-scale renewables located relatively far away from load centers, mostly utility-scale solar electric systems, has soared in the past five years according to a February 2, 2016, Regulatory Research Associates report. For example, according to that report, SCE's rate base in transmission has gone from approximately US$2 billion to over US$5 billion through 2015. PG&E and SDG&E also had substantial increases in transmission rate base over that time period. In addition, the California IOUs are not permitted to count behind the meter customer-generated renewable energy toward their mandated renewable portfolio standard requirements under state law. Consequently, the failure to include transmission costs as an NBC charge NEM customers must pay means that other residential and commercial customers will be required to bear an increasing share of the transmission costs associated with utility scale renewable power. Given AB 327's elimination of the cap on NEM customers under NEM 2.0 rates, and of the 1 MW size cap on NEM installations, at some point a significant rate squeeze could occur as the result of increasing rates for non-NEM customers, providing an ever-increasing incentive for those customers to become NEM 2.0 customers. Rising transmission costs and fewer customers to pay for them complicate electric utilities' efforts to reach their state-mandated 50% renewable portfolio targets as the number of customers fully funding those costs will diminish as the number of NEM 2.0 customers increases.

Legal Challenges to the Decision

The applications for rehearing argue that the Decision fails to meet the express statutory requirements in AB 327 to implement NEM 2.0. Namely, that by the end of 2015, the Commission approve a successor tariff that permits customer-sited renewable energy to "grow sustainably," that is based on the cost and benefits of the renewable generation facility and that ensures that the total benefits of NEM 2.0 to "all customers" is "approximately equal to the total costs." The rehearing requests argue that the Decision

declines to make any findings establishing the costs or benefits of customer-sited renewable distributed generation facilities, despite substantial evidence in the record that would permit such findings; infers "sustainable growth" as the primary objective of AB 327, despite the absence of statutory language that would support such an inference; eliminates transmission cost from NBC charges based on precedents that contradict that determination; permits NEM 2.0 customers to grandfather the NEM 2.0 rates despite no legislative authorization to do so; and, made numerous findings contrary to undisputed facts.

In criticizing the Decision's failure to meet the requirements of AB 327, TURN argues that:

"Instead of taking these legal obligations seriously, the Decision engages in selective adherence to the explicit requirements governing the successor tariff. Moreover, the Decision undertakes an exercise of creative historical revisionism in an effort to relieve itself from clear and unambiguous requirements relating to cost-shifting and the protection of nonparticipants. The last-minute decision to abandon a serious approach to the development of a successor tariff, even after requiring parties to conduct rigorous analysis throughout the proceeding, suggests that the ultimate outcome was driven primarily by politics at the expense of the law ….

Ironically, the Decision embraces its own preferred tariff without any demonstration that benefits approximate costs while simultaneously rejecting alternative proposals for failing to provide a similar demonstration. This selective application of the statutory requirements is fundamentally arbitrary and capricious."

The IOUs take aim at the high cost to non-NEM customers of subsidizing NEM customers as a result of the Decision. PG&E argues that the CPUC's Energy Division analysis estimates that, under the NEM 2.0 tariffs, the costs other customers incur to subsidize solar customers will total US$3.6 to US$5 billion per year. PG&E argues that the Public Tool developed in the proceeding to estimate costs and benefits shows that the Decision will lock in annual cost-shifting of at least US$1.4 billion by 2020 that will last for at least 20 years.

Challenges Ahead for Distributed Solar and Cleantech

The Decision reflects the Distributed Solar Industry's growing clout in CPUC decision making. The Distributed Solar Industry's next challenge will be in the implementation of TOU rates, which has the potential to substantially reduce the economic attractiveness of NEM arrangements for residential customers. The IOUs have already proposed changing their peak day usage periods to reflect the impact on system demand of customer-sited renewable generation. IOUs' previous proposals generally would move the peak demand periods to later in the day (*e.g.*, early evening) from what has been the historic peak period of mid-afternoon. Traditional utility ratemaking principles arguably would support changes to the current peak periods. The Distributed Solar Industry has argued that the CPUC, in setting TOU rates, must use a more holistic approach that considers the impacts of the rates adopted rather than a formulaic determination of overall system peak demand. Similarly, the Distributed Solar Industry is expected to argue in the CPUC's Regulatory Framework for Integrated Distributed Energy Resources proceedings that retail rates should be designed to permit NEM customers to be compensated for the locational and time-differentiated values they contribute, through reducing demands on the distribution grid, to the bulk power and distribution electric systems.

While the Decision benefits the Distributed Solar Industry, other proceedings before the Commission may pose significant challenges. The Commission's determinations in those other proceedings will need to balance support for the expansion of distributed energy resources, such as solar, with the need to have a reliable and cost-effective distribution grid. Those proceedings inherently have the potential to radically

change the economic considerations in developing and deploying distributed generation solar electric systems. Moreover, the applications for rehearing of the Decision will create uncertainty and risk for the industry until the Commission addresses the rehearing requests. The assertions in the rehearing applications that the Decision failed to follow the express requirements of AB 327, as well as the potentially substantial cost-shifting between the IOUs' NEM and non-NEM customers, raise the likelihood the state appellate courts in California will review the Decision, unless the Commission produces substantial changes in a decision on rehearing. No one can yet predict how the Distributed Solar Industry and their existing and potential future customers will react to these potential changes, and how their reactions may impact the economic prospects of not only the Distributed Solar Industry, but a broad range of cleantech technologies.

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