BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues.	Rulemaking 12-11-005 (Filed November 8, 2012)

REPLY COMMENTS OF THE UTILITY REFORM NETWORK ON A NET ENERGY METERING TRANSITION PERIOD

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1. Summary

TURN submitted opening comments recommending that the Commission adopt a transition period ending in 2020 for all customers, based on data showing that payback periods have been declining since 2009, and based on policy considerations guiding the transition. The utilities generally recommended a transition period ending in 2013.[1]

Various Solar Parties,[2] representing solar vendors and solar advocates, recommended a transition period of thirty (30) years for all customers based on the expected life of solar systems, thus creating unique transition end dates for all customers.

The underlying economic premise behind the arguments of the Solar Parties is that any solar customer (including residential homeowners) installs a rooftop solar system based on the economic expectation of earning the rate of return forecast at the time of system installation. Such an expectation is akin to

[1] PG&E and SDG&E recommended a shorter transition period, ending in 2020, for customers installing between April 1, 2014 and December 31, 2015.

[2] TURN generally identifies the following as "Solar Parties," though we appreciate that there were a few differences among the filings: Solar Energy Industry Association and the Vote Solar Initiative ("SEIA/VSI"), California Solar Energy Industries Association ("CALSEIA"), Interstate Renewable Energy Council ("IREC"), the Alliance for Solar Choice ("TASC") and Recolte Energy.

assuming that the both NEM 1.0 and the underlying rate design of the otherwise applicable tariff ("OAT") would remain unchanged for the life of the system.

As discussed in Section 2 below, this assumption is wrong as a matter of law and policy, especially for residential customers. Not only has the Commission repeatedly presaged that residential rate design would change, but the fundamental purpose of AB 327 was to reform residential rate design. The Legislature explicitly chose not to "grandfather" all existing customers but instead to adopt a "transition period" for existing customers. The only means of complying with AB 327 is to adopt a transition that actually moves existing customers to a future NEM 2.0.

TURN also responds to allegations concerning the motivations of customers who install solar, showing in Section 3 that residential customers will continue installing rooftop solar despite the adoption of a transition period. In Section 4 TURN responds to comments discussing the appropriate transition period for both residential and commercial customers, showing that based on payback and policy considerations the Commission could adopt a slightly longer transition period for certain commercial customers.

2. Defining the Payback Period Based on an Expected Solar Installation System Life Violates Both Traditional Ratemaking Principles and Legislative Intent

2.1. The Position of Various Solar Parties Assumes That All Solar Customers Expected a Fixed Rate of Return at the Time of Installation

The Solar Parties argue for a thirty-year transition period for all customers, including commercial and residential customers, based on information showing that panel warranties are generally about 25-years.[3]

The Solar Parties assert that investment in solar installations was based "on an investment horizon that extended over the lifetime of the rooftop solar system."[4] Without distinguishing at all between residential and commercial customers, they suggest that "the driving impetus behind a majority of investments in solar installations is the realization of electric bill savings over the operational life of the system, not just the ability to break even on the investment."[5]

The underlying economic premise behind these claims is that all solar customers, including residential customers, made the choice to invest in a solar system based on the expectation of earning the rate of return as forecast at the time of system installation. Some solar advocates raise alarm that California's distributed generation goals will be imperiled if actual benefits are reduced for

[3] For example, TASC, p. 8-9; CALSEIA, p. 4 (unnumbered).
[4] See, for example, TASC, p. 7.
[5] SEIA, p. 4.

existing customers due to a transition period that reduces total returns over the life of the system.[6]

The economic benefit of a solar system depends on both the structure of net energy metering as well as on the underlying rate design. It is undisputed that changes in residential rate design, such as fixed charges or different tiers or tier differentials, greatly impact the monthly bill credits and thus the economics of solar installations for residential customers.[7] The argument that residential customers either should have, or actually did, rely on a fixed rate of return over the life of the solar system in making the investment decision, assumes not only that NEM 1.0 would remain unchanged, but also that the **underlying residential rate design** (the "otherwise applicable tariff") would not change.

2.2. No Residential Customer Could Reasonably Have Expected that Rates and Rate Design Would Remain Unchanged for Thirty Years

The assumption that rate design and NEM would remain unchanged for thirty years has no basis in theory or reality, especially for residential customers. The existing residential rate design was created primarily by AB1X in 2001, which mandated the 130% of baseline rate protections as a response to the energy crisis and resulting excess energy costs.[8] However, the statute never mandated any particular tier differentials for rates above 130% of baseline. The utilities

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[6] CALSEIA, p. 7 (unnumbered).

[7] See, for example, LBNL, "The Impact of Rate Design and Net Metering on the Bill Savings from Distributed PV for Residential Customers in California," April 2010.

[8] See, for example, D.11-05-047, *mimeo.* p. 5-6.

have changed both the number of tiers[9] as well as tier differentials on numerous occasions since 2001.

There has never been a signal from this Commission implying that rate design for residential customers would stay constant. In fact, since at least 2005 this Commission has repeatedly and consistently argued that tiered rates should be replaced by dynamic pricing,[10] and that the 130% of baseline protections under AB1X were unfair and should be changed.[11] It has largely been due to the legislative advocacy of TURN and various Solar Parties that these protections stayed in place until 2010. To the extent any vendors of solar equipment made representations to residential customers that tiered rate design would not change, the Commission should make no policy determinations based on such vendor representations.

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[9] For example, PG&E effectively reduced its tiers from 5 to 4 by making two tiers the same rate.

[10] See, Energy Action Plan II, October 2005 (discussing desire for dynamic pricing); D.06-07-027, *mimeo.* p. 11 ("AMI opens the door to true real-time pricing which accurately reflects the cost of energy."); D.08-07-045, *mimeo.* p. 39 (discussing need for dynamic pricing and concluding: "Therefore, we will require PG&E to file an application proposing default TOU/CPP for residential customers 30 days after any change in the law that changes the AB1X rate protections in a manner that could allow default or mandatory time-variant rates for residential customers.")

[11] For a recent example, see, CPUC, "Public Utilities Code Section 748 Report to the Governor and Legislature on Actions to Limit Utility Cost and Rate Increases," June 2013, p. 43 ("[T]he Commission's limited ability to consider adequate adjustments to non-CARE Tier 1 and 2 rates will exacerbate the already very high and inequitable upper-tier residential electricity rates affecting millions of residential electricity consumers.")

CALSEIA points out that a page of the distributed generation website of the CPUC notes that "NEM rates are typically available for the life of the system." While regrettable, this statement is unlikely to have had practical impact. The more relevant pages from the "GoSolarCalifornia" website, designed to provide customer education regarding solar installations, as opposed to targeting the professional audience that relies on the CPUC website, contain no such statement in the description of NEM.[12]

2.3. Indeed, the Primary Purpose of AB 327 Was to Reform Residential Rate Design

The fact that no residential customer could count on tiered rates staying exactly the same is supported by legislative actions. In 2009 the Legislature passed SB 695, which authorized limited increases to rates for consumption up to 130% of baseline.

More significantly, the primary purpose of AB 327 was to authorize fundamental changes to residential rate design, including removing the restriction on escalating rates for usage up to 130% of baseline. AB 327 authorized reducing the number of tiers down to just two tiers and authorized a possible fixed customer charge. TURN does not suggest that these are positive changes. Rather, TURN simply notes that the primary purpose of AB 327 was to reform residential rate design. Any changes made as a result of AB 327, which

[12] See, http://www.gosolarcalifornia.ca.gov/solar_basics/net_metering.php as available on December 23, 2013.

will certainly reduce upper tier rates,[13] will automatically affect the rate of return of any existing solar system, irrespective of whether the customer participates on existing NEM 1.0 or a new NEM 2.0. Thus, to argue that AB 327 NEM changes should somehow protect the "entire value" of the solar system for the life of the system fundamentally conflicts with the underlying purpose of AB 327.

2.4. The Legislature Explicitly Did Not "Grandfather" Existing Customers But Directed the Commission to Establish a "Transition Period"

Indeed, the only way in which the 'return' of the solar system could be maintained for the life of the system is if the Legislature had grandfathered **both** the NEM structure **and** the underlying residential rate for all existing solar customers. The Legislature not only declined to do so, but actively authorized changes to residential rate design, and the Legislature did not grandfather NEM 1.0.

The position of the Solar Parties – that NEM 1.0 eligibility should continue for a time period equivalent to the life of the system – would essentially "grandfather" all existing customers on NEM 1.0, since they would remain on NEM 1.0 as long as their system generated electricity.[14] However, the Legislature

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[13] See, for example, R.12-06-013, "Assigned Commissioner's Ruling Inviting Utilities to Submit Interim Rate Change Applications," October 25, 2013, p. 3-5 (Requesting proposals to adopt interim changes to "stabilize and rebalance tiered rates.")

[14] A "grandfather clause" commonly means allowing a person or business to continue operating without having to meet the criteria of a new law or regulation. See, for example, Barron's Law Dictionary, 1984. This "positive" aspect of grandfathering has replaced the original meaning of a grandfather

specifically did not "grandfather" all existing NEM 1.0 customers, but rather directed the CPUC to establish a "transition period." The logical conclusion, consistent with the standard principle of statutory construction of *expresio unius est exclusio alterius*, is that the Legislature intended the transition period to be different than a grandfathering of all existing customers.

As explained in TURN's opening comments,[15] and likewise summarized by SCE and PG&E,[16] the rationale for not grandfathering existing NEM 1.0 customers stems from the Legislature's intent that the Commission balance the reasonable expectations of existing NEM customers who invested in solar, with the interests of all other ratepayers, who are heavily subsidizing existing NEM customers.

The benefits of behind the meter solar output due to the bill crediting mechanism of NEM 1.0 is not a contractual right, such as a power purchase agreement. It is a tariff rider that depends on the otherwise applicable tariff (OAT) and Legislative approval. The fact that vendors may have represented utility rate designs as constant does not have legal bearing, and should not be a consideration in crafting Commission policy. That is not to say that the Commission should not take into account the interests of solar customers who made private investments based, at least in part, on the economics of existing

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clause as a tool adopted by Southern States after the Civil War to disenfranchise Negro voters. See, Webster's Unabridged Dictionary.

[15] TURN Opening Comments, p. 4-6.

[16] SCE Opening Comments, p. 4-5, 9-10; PG&E Opening Comments, p. 2.

rates and NEM 1.0. Rather, the Commission can and must appropriately balance those interests with the interests of all other ratepayers.

3. A Transition Period Until 2020 for Residential Customers Will Not Harm the Solar Market, Since Residential Customers Do Not Install Solar Based on a Fixed Hurdle Rate

The Solar Parties make numerous assertions concerning the motivations of residential customers who have installed rooftop solar systems. They warn that adopting a transition period that reduces the expected lifetime benefits denies customers the benefit of their investment and will cause customers to cease investing in new solar installations.

The Solar Parties point to no studies, surveys or other data to support their broad contentions regarding customer motivations. TURN does not deny that customers are motivated by economic benefits; however, the Commission should be wary of various unsubstantiated statements concerning residential customer motivations. Social science research shows that solar customers are motivated by a mix of economic, environmental and social motivations, including both long-term cost savings as well as payback time.[17] The research indicates that the primary economic considerations are cost and payback

[17] See, Zhai, P. and Eric D. Williams, "Analyzing Consumer Acceptance of Photovoltaics (PV) Using Fuzzy Logic Model," *Renewable Energy 41*, p. 350-357 (2012). Indeed, IREC argues that NEM customers are motivated "to fundamentally change the way they interact with their utilities." IREC, p. 6. IREC provides no support for this assertion; but TURN agrees that social motivators are a factor for solar customers.

period.[18] Long term benefits of solar power (including the benefits of leases and PPAs) are touted as a hedge against future utility rate increases.

At least for residential customers, TURN suggests that the fixation on a "rate of return" is misplaced. There is no basis to conclude that residential customers made the investment decision based on an expectation of an 11%, rather than an 8% or 6% hurdle rate. Given lower solar prices and greater financing options, residential customers will continue to install solar even if rate design and NEM changes mean that payback periods will not continue to decline. Ultimately, the point of the transition period is to ensure that existing customers do not continue to reap inequitable subsidies but rather "realize a reasonable return on that investment," as desired by IREC.[19] The goal is to reform rates and net energy metering to ensure that rooftop solar investment continues in a sustainable manner.

4. The Commission Has Credible Evidence to Determine Appropriate Transition Periods for Residential and Non-Residential Customers

4.1. A Transition Period For Residential Customers Can Be Based on Payback Periods

Several parties point out that payback calculations will differ for different customers due to variability in load and system costs. PG&E emphasizes that the

[18] Zhai, p. 352.
[19] IREC, p. 8.

term should be defined based on the "reasonable expected" payback period, not based on individual customer calculations.[20]

TURN provided data using public sources showing that average payback periods for residential customers have declined from about fifteen years in 2008 to just less than ten years in 2012.[21] This average payback period matches data provided by the utilities,[22] and TURN anticipates that parties may provide additional data as authorized by the ALJ. The Solar Parties did not provide any data concerning payback periods, though IREC noted that residential customer payback periods are roughly 6-8 years.[23]

As pointed out by several parties, the Commission should keep in mind that the transition period does not at all have to equal any particular customer's payback period, since NEM customers will continue to obtain financial benefits under NEM 2.0. More importantly, most residential customers are presently entering into leases, where the "benefit" to the customer is the difference between the lease payment and the reduction in utility bills. There is an immediate positive benefit to the customer from day one. That benefit will continue in the future under modified rates and a modified NEM, as long as the average "price" for solar under the lease is less than the average "price" for the upper tier consumption avoided by the solar.

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[20] PG&E Opening Comments, p. 13.
[21] TURN Opening Comments, Figure 1, p. 9.
[22] See, PG&E Opening Comments, p. 5.
[23] IREC Opening Comments, p. 7-8.

TURN explained in our opening comments why adopting a single year – 2020 – as the end of the transition period for most customers appropriately reflects the actual data on declining paybacks and prevents an potential gold rush in 2015-2016 is the transition period is instead set as a fixed number of years for all customers.

4.2. A Transition Period Until 2025 May Be Appropriate for Some Commercial Customers Based on Different Economics and Expectations

Several parties representing agricultural and commercial customers emphasize that commercial customers analyze rates of return and make a decision based on expected returns over the life of the system.[24] Recolte explains that commercial customers look at the payback period, then consider other forms of investment analysis.[25]

TURN has not closely examined the rate designs and economics of solar installations for commercial customers. The Net Energy Metering Cost Effectiveness analysis showed that commercial customers create about 20-30% of the total cost of NEM under various scenarios.[26]

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[24] See, especially, Comments of Recolte Energy. See, also, Comments of the California Farm Bureau Federation and the Agricultural Energy Consumers Association.

[25] Recolte, p. 3-4.

[26] See, CPUC, "California Net Energy Metering Ratepayer Impacts Evaluation," October 2013, Tables 1 and 2, p. 6-7. The only exception was the higher contribution of 40% from non-residential customers in the "Full CSI subscription – All NEM Generation" scenario.

TURN accepts the general notion that commercial customers more closely look at rates of return on capital investments. Changes in NEM may especially impact the economics for some customers, like government entities, who cannot generally take advantage of tax credits.

Assuming there is credible data that changes in NEM may strongly impact the payback periods or returns for commercial customers, TURN would recommend that the Commission adopt a transition period end date of 2025 for such customers, thus providing them an extra five years on NEM 1.0.

5. Any Material Expansion Should not Count as Part of the Existing System

The Solar Parties generally argue that the transition period should apply to system expansions. TURN agrees with those who suggest that only non-material expansions, perhaps due to the replacement of modules with newer models, should be counted as part of the existing system.

TURN notes that a purpose of AB 1900, adopting compensation for excess energy at the end of a year, was to promote potential reductions in consumption due to investment in energy efficiency. No party has presented any credible policy or legal argument for why expansions in existing system sizes should be promoted by treating them as part of the original system for purposes of NEM.

6. Consumer Protection Rules Should Continue

PG&E recommends that consumer protection rules under NEM continue to apply for NEM 2.0.[27] TURN has raised this issue previously. TURN suggests that the Commission include this issue in the scope of Phase 3 of this proceeding.

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Respectfully submitted,

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[27] PG&E Opening Comments, p. 15.