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# California's Utility Residential Rate Reform Increases Contract Risk in Outstanding Solar Securitizations


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## Executive Summary


A new electric rate structure for residential customers of California's three major investor-owned utilities will cut electricity rates for many homeowners who installed solar panels on their rooftops, increasing the risk in outstanding solar asset-backed securitizations (ABS) that some obligors will try to renegotiate their contracts because they are not getting the cost savings they anticipated. Also, consumers who are considering buying homes with solar systems already installed will have less incentive to assume the solar leases or power purchase agreements (PPAs), which could jeopardize the contracts or lead to contract renegotiation in which the customers pay lower prices for solar. The level of risk is uncertain, however, because there is limited historical performance data on the payment behavior of solar customers. Pricing changes to solar contracts would have a negative effect on the cash flows of the four rated solar securitizations issued in 2014 and 2015, which all have large concentrations of obligors in California.[1]

California's utility residential rate reform underscores how regulatory developments are a key risk factor in the growing solar ABS asset class. Also in California, two major utilities have put forward solar pricing proposals that, if adopted, could have a larger negative impact on the solar value proposition than the new electric rate structure. Future regulatory developments in California and other jurisdictions could affect both outstanding and future solar ABS transactions, although the credit effects would vary depending on the collateral composition of the transactions.


## New utility electric rate structure will erode the savings that average-to-high energy consumers anticipated when they installed solar systems

California's new utility electric rate structure will diminish cost savings for average-to-high energy users in the state who installed rooftop solar panels (see highlight box on page 2 for more details on the rate reform). Under the new rate structure, average-to-high energy consuming households currently classified as Tier 3 or Tier 4 customers will pay less for grid electricity in 2019 than they do currently. These customers, who make up the majority of solar lease obligors in California, consume two to four times more energy than the baseline usage.[2]

### Background on Utility Residential Rate Reform in California

On 3 July 2015, the California Public Utilities Commission adopted a utility electric rate design modification that will apply to the residential customers of Pacific Gas & Electric (PG&E; A3 stable), Southern California Edison (SCE; A2 stable) and San Diego Gas & Electric (SDG&E; A1 stable). The new rate structure will affect all of the utilities' customers; existing solar customers are not grandfathered under the prior rate structure.

Key elements of the plan include:

1) streamlining California's existing four-tier residential electric rate structure into two tiers, with a 25% difference in cost between the two structures. The plan will result in lower electricity rates for average-to-high energy consuming households, which comprise the majority of solar customers in California, and higher rates for households that consume low-to-moderate amounts of energy,

2) adding a new "Super User Electric Surcharge", which the utilities will apply to a limited group of extreme-usage customers. These customers, who consume more than four times the baseline energy usage, represent between 2% and 10% of the utilities' customers,[3]

3) allowing the utilities to impose a $10 minimum monthly bill, which will have no effect on the residential solar industry because solar customers' monthly electric utility bills are typically more than $10 per month; these customers therefore will not be penalized.

California will phase in the new utility electric rates from the fall of 2015 through 2019. The $10 minimum monthly bill provision will go into effect this year, and the super user surcharge will go into effect in 2017.

Based on current utility electric rates, a typical Tier 4 non-CARE household[4] that uses electricity from Southern California Edison and is located inland will anticipate savings of roughly 32.6%,[5] or $89 per month, upon signing a solar lease. However, those savings will decline to roughly 20.4%, or $52 per month, in 2019 when the rate reform is fully phased in, as Exhibit 1 shows. Tier 4 non-CARE residential customers represent roughly 35% of the utility's total customers.

Exhibit 1 is based on the following assumptions: The household consumes 1,200 kilowatt-hours (kWh) of electricity per month and installs a 4.6 kW solar photovoltaic (PV) system that covers Tier 3 and Tier 4 usage, and the solar provider promises savings based on 15 cents per kWh in the lease contract. Because the solar system covers Tier 3 and Tier 4 usage, the household pays the utility rate for Tier 1 and Tier 2 usage and the solar price of 15 cents per kWh for Tier 3 and Tier 4 usage. According to the Solar Energy Industries Association, the average size of a residential solar PV system in the US is 5 kW.

Exhibit 1

**California Utility Rate Reform Will Erode the Solar Value Proposition for High-Energy Users**

**Southern California Edison non-CARE residential household located inland**

**Before Rate Change**

| Usage Level (% of Baseline) | Consumption Per Month (kWh) | Current Utility Electric Rate (as of July 2015) | Monthly Utility Bill of Household Without Solar | Monthly Utility Bill of Household With Solar | Economic Savings ($/month) | Economic Savings %* |
|---|---|---|---|---|---|---|
| Tier 1 (100% of baseline**) | 414 | $0.149 | $62 | $62 | $0 | |
| Tier 2 (101%-130% of baseline) | 124 | $0.193 | $24 | $24 | $0 | |
| Tier 3 (131%-200% of baseline) | 290 | $0.254 | $74 | $43 | $30 | |
| Tier 4 (>200% of baseline) | 372 | $0.309 | $115 | $56 | $59 | |
| Total | 1,200 | | $274 | $185 | $89 | 32.6% |

**After Rate Change**

| Usage Level (% of Baseline) | Consumption Per Month (kWh) | 2019 Utility Electric Rate*** (Forecast) | Monthly Utility Bill of Household Without Solar | Monthly Utility Bill of Household With Solar | Economic Savings ($/month) | Economic Savings %* |
|---|---|---|---|---|---|---|
| Tier 1 (100% of baseline**) | 414 | $0.178 | $74 | $74 | $0 | |
| Tier 2 (101%-400% of baseline) | 786 | $0.228 | $179 | $128 | $52 | |
| SUE (>400% of baseline) | | $0.399 | | | | |
| Total | 1,200 | | $253 | $201 | $52 | 20.4% |

*Economic savings (%) is equal to the difference between the monthly utility bill of a household without solar and the monthly utility bill of a household with solar, divided by the monthly utility bill of a household without solar. **According to Southern California Edison, the average baseline for Inland: Zones 10, 13 and 14 is 414 kWh per month. ***2019 rate levels are based on current revenue requirements.

*Sources: Moody's Investors Service, Southern California Edison Business Update July 2015 and public filings*

The decline in the solar value proposition as a result of the new utility electric rate structure will vary based on monthly household electricity consumption, assuming that a household installs a solar system that covers Tier 3 and Tier 4 usage. For example, a household that consumes 1,500 kWh of electricity per month and installs a 6.6 kW system will anticipate savings of roughly 37.3%, or $137 per month, when signing a solar lease. Those savings will decline to roughly 23.4%, or $75 per month, in 2019 following the full phase-in of the rate reform.

## Changes in obligor payment behavior in California would have a negative effect on outstanding solar ABS

As a result of the new utility electric rate structure, contract risk in outstanding solar lease ABS will increase, owing to the potential that some California obligors will try to renegotiate their solar contracts. Contract renegotiation could dent the cash flows of solar ABS.

Existing solar customers in California entered into contracts with solar providers who calculated the long-term economic savings based on the existing utility electric rate structure. For these customers, the economic savings of solar will diminish as a result of lower utility rates. However, because solar customers are obligated to continue paying their solar providers under their lease or PPA contracts, which typically have 20-year terms, we view renegotiation risk as remote for existing homeowners. As long as the price of solar remains below electric rates – even if consumers are saving less money than they originally anticipated – they are unlikely to stop making their lease payments.

However, contract renegotiation risk will be higher if solar customers sell their homes. Consumers who are considering buying houses already equipped with solar systems will have less incentive to assume solar leases or PPAs, especially if the price of solar is lower at the time of the sale, which could jeopardize the solar contracts or lead to solar contract renegotiation in which customers pay lower prices for solar systems.[6]

The level of contract risk is uncertain, however, because there is limited historical performance data on the payment behavior of solar customers.

If solar obligors in California were to successfully renegotiate their contract terms, there would be a negative effect on outstanding solar ABS issued in 2014-15, owing to the large concentration of California obligors whose contracts back these securitizations.

The proportion of the cash flow backing the four rated solar ABS transactions issued in 2014-15 that come from California obligors ranged from 55% to 70% as of deal closing. More than 85% of the deals' cash flows come from residential customers.[7]

## Solar ABS asset class remains subject to regulatory risks

If future regulatory decisions in California were to further reduce or, in an extreme case, entirely erode the solar value proposition, customers would be more likely to try to renegotiate their contracts. Such developments would be credit negative for both outstanding and future solar ABS transactions, although the specific impact on future transactions would vary depending on collateral composition.

If outstanding or future transactions contain large concentrations of California residential customers who signed their solar PPA or lease contracts before the state's recent rate reform, additional regulatory changes that further reduce or entirely erode the economic savings associated with solar will increase the likelihood that customers will try to renegotiate their contracts. However, if future deals contain large concentrations of contracts to new California solar customers, solar developers could adjust the pricing of new leases to reduce this risk.

Other regulatory risks include the potential for a large fixed charge for all utility customers or a major change to rules on net energy metering, a system that provides payment credits to homeowners with solar panel systems for the solar-generated electricity they add to the electric grid. As currently implemented, net metering values solar power at the retail electric rate. Significant changes in the value of the credit or levying high fixed charges on all customers connected to the utility grid would weaken the economic benefit of installing solar.

It is more likely that changes to net metering or the imposition of new fixed utility charges will grandfather existing solar customers than will changes to utility rate structures. Therefore, we view changes to net metering and new fixed utility charges as less of a risk to outstanding solar ABS transactions than changes to electric rate structures. For example, Arizona regulators in 2013 approved a fixed charge of 70 cents per kW of solar system capacity for new solar customers in the state, but not for existing solar customers.

On 3 August 2015, Pacific Gas & Electric and Southern California Edison filed proposals with the California Public Utilities Commission that could have a larger negative impact on the solar value proposition than the new electric rate structure. The proposals include 1) permission to value solar power below the retail electric rate to reduce the credits to solar customers when they deliver power back to the grid, and 2) permission to impose a fixed grid access charge of $3.00 per kW-month on all residential customers who have rooftop solar panels to help pay for the fixed costs of maintaining transmission and distribution grid infrastructure.[8]

Issues surrounding net energy metering, including the value of the credit and the amount of metering that can be allowed in a particular area – along with broader questions on the relative costs and benefits of rooftop solar – have become the subjects of fierce debate in California and other states. Utility regulators are generally focused on the long-term financial health of utilities. Therefore, although regulators support the growth of renewable energy, they will seek to achieve such growth without harming utilities financially.[9] According to GTM Research and the Solar Energy Industries Association, there were more than 20 ongoing regulatory proceedings at the end of 2014 that could affect the value proposition of residential solar, either through changes to net metering or electricity rate structures.[10]

Although the California Public Utilities Commission's electric rate reform balanced the interests of the utilities and the rooftop solar industry,[11] other states may have varying degrees of support, or opposition, to the growth of rooftop solar. Many states, including some outside the traditional solar markets of the southwest and the northeast, have become more open to renewable energy. For example, Georgia recently passed a law allowing consumers to buy power from an entity other than a utility. In response, Georgia Power, the dominant utility in the state, started offering solar installation services through an unregulated affiliate company.

The Environmental Protection Agency's recently announced Clean Power Plan will likely influence the level of support that state regulators extend to rooftop solar.[12] Without a significant contribution from renewable energy sources, it would be hard to achieve the plan's overall carbon emission rate goal of about 1,100 pounds per megawatt-hour (lbs/MWh) by 2030, given that coal plants emit about 2,000 lbs/MWh, while new efficient gas plants emit about 1,000 lbs/MWh. States have to formulate their own plans to reach these targets, and a state that needs more renewable generation than another may be more favorably disposed toward distributed

generation. Another consideration will be the choice of a utility-scale solar facility, which generates solar power and feeds it into the electric grid, or rooftop solar in achieving the Clean Power Plan's goals.

## Moody's Related Research

### Special Comment:

» Solar Securitization Is Emerging as an ABS Asset Class, January 2015 (SF393653)

### Outlook:

» 2015 Outlook – US Commercial & Esoteric ABS, Solar, December 2014 (SF389347)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

## Endnotes

1 The proportion of the cash flow backing the four rated solar ABS transactions issued in 2014-15 that comes from California obligors ranged from 55% to 70% as of deal closing. More than 85% of the cash flow in the deals comes from residential customers. Source: Publicly available pre-sale reports. We did not rate these four transactions, which include three sponsored by SolarCity and one sponsored by Sunrun.

2 The Public Utilities code requires that the baseline energy usage falls between 50% and 60% of average electricity use.

3 See "Breaking: California Reaches Compromise on Utility Residential Rate Reform," GTM Research, 3 July 2015.

4 The California Alternate Rates for Energy (CARE) Program offers a significant monthly discount on energy bills for qualifying households, based on the total income of everyone living in the home.

5 We calculate anticipated savings as the difference between the monthly utility bill of a household without solar and the monthly utility bill of a household with solar, divided by the monthly utility bill of a household without solar.

6 If existing solar customers sell their homes, they are required under the contract terms to prepay their contract unless the buyers assume the contract.

7 As a percentage of the aggregate discounted solar asset balance. Source: Publicly available pre-sale reports.

8 See "PG&E Proposes Smart Energy Reform in Support of Growth of Rooftop Solar," PG&E, 3 August 2015.

9 See Solar Securitization Is Emerging as an ABS Asset Class, 21 January 2015.

10 See "Solar Market Insight Report 2014 Q4," GTM Research and the Solar Energy Industries Association.

11 See Moody's: Rate Reform for Californian Utilities, a credit positive, 10 July 2015.

12 See EPA Carbon Rule Hurts Coal, Boosts Renewables, 12 August 2015.

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