The Changing California Electricity Market

by Jeremy Waen and David Howarth, with MRW & Associates in Oakland, California

The California regulatory agencies are scrambling to get ahead of a rapidly changing California electricity market as millions of Californians are being offered an expanding slate of alternatives to fully bundled electricity service from the local investor-owned utility or "IOU".

As many as 1.9 million customers are expected to use some form of customer choice by the end of 2017. More than 85% of the total utility load may depart to alternative suppliers by the middle of the next decade.

While competition in retail electricity supply is not new in California — retail choice was introduced in the late 1990s — that early foray into competition was hobbled by the California energy crisis in 2000 and by subsequent legislation capping the amount of load allowed to exit through direct access.

The driving factors behind the current exodus are the rapid expansion of community choice aggregators or "CCAs" and customers installing solar panels. (For background on CCAs, see "Another Potential Offtaker: Community Choice Aggregators" in the August 2016 *Newswire*, "Huge Potential New Demand for Power" in the October 2016 *NewsWire*, and "Financing Projects With Community Choice Aggregators" in this issue starting on page 1.)

The amount of customer load served by CCAs now exceeds the amount supplied by power marketers. With many more communities either forming new CCAs or joining existing CCAs, the amount of load departing utility service is expected to increase substantially in 2018.

Both the scale and the rate of load departures across the state are causing the California Public Utilities Commission and California Energy Commission to recognize that time is fleeting for policies to adapt to these changes. The regulators are particularly concerned about how the changes in industry structure are affecting their ability to ensure that California meets its aggressive greenhouse gas emission reduction goals.

The CPUC and CEC held a joint "en banc" meeting on these issues on May 19. The CPUC staff issued a */ continued page 6*

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section 201 since the section was enacted in 1974. Relief was granted in 35.6% of the cases.

The US International Trade Commission has until September 22 to decide whether US solar cell and panel manufacturers have suffered serious injury from increased imports. Briefs are due in the case by August 8. If it finds such injury, then the commission will hold a separate hearing to decide on the relief to recommend to the president. Any recommendation to the president must be submitted by November 13. The president then has 60 days to make a decision.

The commission has recommended relief in 54.8% of the 73 cases to date that it investigated. Presidents have then granted relief in 65% of those cases.

The last time the US imposed safeguard tariffs was a 30% tariff in 2002 to protect the US steel industry. The US justified the steel tariff by pointing to the Asian financial collapse in the late 1990s as the unforeseen development that led to higher steel exports to the United States.

Suniva argues the unforeseen development in this case was the move by Chinese solar manufacturers to move production to other countries to avoid US anti-dumping and countervailing duties, leading to a surge in imports from these other countries.

Any relief is supposed to be temporary and not remain in place for more than four years. However, the period can be extended for up to eight years.

The ITC can choose among several options, including tariffs, import quotas or orderly marketing agreements with other countries.

Any tariffs that will remain in place for more than a year must phase down at regular intervals.

Suniva is asking for tariffs declining over four years from 40¢ to 33¢ a watt on imported cells and a floor price declining from 78¢ to 68¢ a watt on modules. It also wants the $1 billion in anti-dumping and countervailing duties collected to date on Chinese solar cells to be distributed 50% to US solar cell and panel manufacturers and 10% to US polysilicon producers. ***/ continued page 7***

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white paper ahead of the meeting to tee up the discussion about how California can balance its priorities for greenhouse gas reductions, grid reliability, rate affordability, universal access and economic development in the rapidly evolving electricity market.

The white paper said the CPUC intends to initiate a formal rulemaking proceeding to explore the "future role(s), structure(s), fiscal and other functions of the three large California electric IOUs."

En Banc Highlights

Many prominent figures attended. The meeting lasted all day. For the CPUC, President Michael Picker and Commissioners Carla Peterman, Liane Randolph, and Martha Guzman Aceves attended. For the CEC, Chairman Robert Weisenmiller and Commissioners Karen Douglas and Andrew McAlister were present.

Several commissioners made opening statements. The day was then divided into separate panel discussions exploring four topics: customer preferences, the state of customer choice, IOU perspectives on the situation, and the future of retail electricity services within California.

The California regulators are scrambling to get ahead of the rapidly changing market.

Picker said the state has no coherent plan yet to deal with the rapid load departures from the IOUs. He said there are two fundamental questions to answer: how do we organize the electric system to achieve our goals, and who is going to finance it? He said the "decision-maker" role is shifting from the regulators to the electricity customers as they exercise retail choice. This shift creates tension between the pursuit of statewide goals and local priorities.

Weisenmiller said he wants to examine the consequences of moving away from a vertically integrated utility model and associated regulatory system. For example, he said the changing nature of the industry means California utilities are no longer signing bilateral contracts to buy capacity from independent generators, which has implications for how the state ensures reliability. He cautioned that "markets do not care about everyone" and the state must make sure this transition does not leave people behind. He said, "We are going into a future that, if we think about it and are clever, can work, but we need to get out in front of it."

Numerous speakers shared their perspectives on the potential consequences of a rapid shift in the electricity load from the IOUs to CCAs and other suppliers. In an unusual instance of stakeholder alignment, the CCAs, power marketers, solar developers, ratepayer advocates, and even the IOUs clamored for policy reform. While they all seem to agree that changes are needed, consensus remains elusive around what specifically needs reform and how best to do it.

A hot topic was how to handle the costs of future electricity supplies that the IOUs have already procured on behalf of ratepayers who are now leaving the utilities. These are called "legacy resource costs."

State law already calls for "ratepayer indifference," meaning the ratepayers who choose to remain with the local IOU should be neither better nor worse off as other ratepayers who choose to take their electricity from other suppliers.

Costs associated with IOU procurement have the potential to become stranded costs due to load departures. IOUs are already allowed to address this problem by collecting a non-bypassable charge known as the power charge indifference adjustment or "PCIA" from customers who move to other electricity suppliers. The PCIA is collected by the IOUs via a line-item charge on departing customers' bills.

The three big California IOUs say the present PCIA methodology is broken and that more costs are being stranded due to the increasing number of customers departing for other suppliers. They say these costs are unfairly being borne by remaining ratepayers on the utility systems. The utilities want the CPUC to use

a "portfolio allocation mechanism" that would replace the PCIA entirely and assign to the departed load the net costs and benefits of the IOU legacy resources rather than just the net stranded costs as is done currently.

The alternative service providers presented differing opinions. Geoff Syphers, CEO of Sonoma Clean Energy, a CCA, said the legacy resources largely overlap with CCA-led procurement because the IOUs failed to take into account CCA load departures in their procurement forecasts. As a result, much of these legacy resources are doubly procured on behalf of CCA customers. While Syphers agrees the PCIA needs reform, he does not agree that the utility proposal is the solution.

Syphers says that the IOUs should be required to mitigate legacy costs, which is not required by the utility proposal, and there must also be rate certainty for all parties and an end to double procurement.

The commissioners gave little insight into how they might resolve the legacy resource cost issue. Commissioner Peterman said the CPUC is treating the matter "with the utmost urgency."

Future Utility Role

Utilities are required by law to serve anyone who wants electricity. CEC Chairman Bob Weisenmiller asked panelists repeatedly, throughout the day, how California should address the utility role as providers of last resort.

The state has used directives to utilities about what type of electricity they supply as the primary tool to implement its goal of moving to greater reliance on renewable energy. The IOUs say the need to act as providers of last resort and to implement state goals in how they procure power sometimes pulls them in opposite directions.

In other states, utilities often serve the residual customer base with short-term, market-rate electricity purchases. Utilities in California have been pushed for state policy reasons to make long-term purchases to address state goals on greenhouse gas reduction, affordability, reliability and economic growth. The IOU panelists said balancing these roles becomes unsustainable in an increasingly competitive electricity market with declining utility bundled loads.

Another panelist, Sue Tierney, who served as a public utilities commissioner during utility deregulation in Massachusetts, said that while competition and retail choice exist in 14 other states, California is uniquely situated due to its climate-oriented policies and procurement mandates. Other states have effectively leveraged competitive markets to drive

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It wants 20% put into a fund that would be used by the US Department of Commerce to help reopen US solar cell and module factories that were shut down after anti-dumping and countervailing duties were imposed in early 2013. It wants the money collected under any new tariff to go into a separate fund to be used to help spur expansion of US solar manufacturing capacity. It also wants the US to negotiate directly with other countries to reduce the amount of product they are shipping to the United States.

Any tariffs at the level Suniva proposes would cripple further growth in US solar installations. Developers building utility-scale projects have had to make assumptions about future equipment costs when signing up to long-term power purchase agreements to supply electricity to utilities and corporate offtakers. The potential harm to project developers is immediate as the uncertainty created while the ITC and president consider the Suniva request makes it hard to bid on future contracts.

IHS Markit estimates the tariff Suniva wants would cause the US solar market to shrink 60% during 2018 to 2021.

Suniva says its two factories in 2016 were 50.6% of US manufacturing capacity for solar cells and 24% of capacity for combined cells and modules. Extrapolating from these numbers suggests 979 US manufacturing jobs are potentially at stake at US solar cell and module factories compared to some significant share that would be put at risk out of the 370,000 total jobs in the US solar sector.

Tariffs are imposed on the importer of record. Thus, where a foreign panel manufacturer sells its product in the United States through a US subsidiary, the US subsidiary must pay the tariff. The seller cannot reimburse the buyer for the tariff. Any such reimbursement must be paid to the US government as an additional import duty.

Section 201 allows an injured US manufacturer to ask for a tariff to be put in place on an emergency basis while its case runs the full course through the ITC as

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down electricity rates for customers while balancing the need for grid reliability, but no other state has had to figure out yet how best to leverage the competitive market to pursue greenhouse gas-reducing objectives.

According to panelists, states like Hawaii and New York are making progress in that direction, but are either too uniquely situated (in the case of Hawaii) or not far enough along (in the case of New York) to impart best practices onto California's efforts.

Several panelists spoke to the need to resolve the tension between state policy to encourage deployment of rooftop solar and other forms of distributed energy while also defaulting to utility-centric procurement.

Panelists with interests in solar technologies said the regulators should focus on rate stability and improved rate structures to support use of solar and battery storage to help with greenhouse gas reduction and grid reliability. While the IOUs have strong balance sheets and are well situated to leverage economies of scale, it remains hotly debated whether the IOUs can act quickly and innovatively enough to support distributed generation.

Other panelists argued for greater state efforts to push electrification of the transportation sector. One panelist, Nora Sheriff, on behalf of the California Large Energy Users Association, made a case for expanding the use of demand response to help achieve the state's goals. Another panelist drew a parallel between California's approach of using the IOUs to implement state goals and "Soviet-style central planning."

Road Ahead

The California electricity market is in transformation. As the CPUC staff said in the white paper, the drivers of change are "accelerating whether [regulators] want them to or not." The CPUC and CEC are attempting to adapt state regulatory policies, but the road ahead and timetable are uncertain. Market participants should prepare for a significant period of regulatory uncertainty and engage with the regulators on what they would like to see emerge from the policy review.

Participants in the day-long en banc meeting left with their heads spinning, filled with wonky thoughts after a wide range of issues was raised. The commissioners who presided over the meeting listened, but gave the audience little sense of how they might resolve the issues.

Only one thing remains certain: California is moving to widespread and competitive customer choice with potentially profound effects on the electricity market.

Hedges for Wind Projects: Evaluating the Options

by Rob Eberhardt and Christine Brozynski, in New York

With a dearth of traditional utility PPAs for US wind projects, project sponsors are evaluating alternative offtake arrangements.

At least three types of hedges have emerged as viable offtake structures: fixed-volume price swaps, virtual PPAs with corporate offtakers and proxy revenue swaps. It is critical for sponsors to understand the basic features of these offtake structures as they evaluate their options to finance their wind projects.

Fixed-Volume Price Swaps

A fixed volume price swap, often called a bank hedge, is perhaps the most tested alternative offtake structure.

Numerous projects over the last five years — mostly in Texas's ERCOT market — have used fixed-volume price swaps. The hedge provider is a bank or another strategic investor. Several large financial institutions with active ERCOT trading desks also make tax equity investments, and for these institutions it is common for fixed-volume price swap and tax equity commitments to be offered together.

At least in ERCOT, fixed-volume price swaps typically are a type of physical hedge, meaning the hedge provider purchases power as part of the transaction. The hedged transaction occurs at a trading hub agreed to by the parties. The project company purchases a fixed volume of power at the hub for the then-current hub price and immediately resells that power to the hedge provider for a pre-agreed fixed price per megawatt hour. Power produced by the project is not part of the transaction and is separately sold on a merchant basis at the grid node nearest the project. The intended result of these two distinct transactions for the project company is the sale of a fixed volume of power at a fixed price.

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The most important political effect may be that the US is unlikely to fulfill its monetary pledges to help developing countries meet their obligations. The US agreed to pay up to $3 billion by 2020 to help poorer countries meet climate goals and adjust to a warming planet, particularly island countries that are expected to be flooded by rising seas. The United States delivered $1 billion under the Obama administration, but President Trump has indicated that is now at an end.

The danger is that failure by the US to meet its commitments could serve as a catalyst for other countries to retreat from theirs.

China and India

The number one and number three greenhouse gas emitter nations, China and India, are expected to exceed targets they set for themselves in the 2015 Paris Climate Agreement, according to United Nations monitors.

Chinese emissions of carbon dioxide may peak more than 10 years sooner than expected. China pledged in the Paris agreement that its emissions would peak around 2030 and that it would source about 20% of its electricity from carbon-free renewables by then. China's faster progress is largely due to reducing coal use for three years in a row, as China moves to bring severe air pollution under control, and a decision to drop plans to build more than 100 new coal-fired power plants.

India had pledged to reduce its carbon intensity per unit of economic activity in line with historical levels, reversing spiraling trends as its economy industrializes. India is now expected to generate 40% of electricity from non-fossil fuel sources eight years ahead of schedule by 2022.

China and the United States are the world's two biggest emitters, accounting for approximately two fifths of greenhouse gas emissions.

Greater Sage Grouse

A federal judge in Oregon in April revoked approval for a wind project given by the Bureau of Land Management. The judge said the bureau failed to properly consider the effects on the greater sage grouse.

An environmental group appealed the approval in 2015. The case went to a US appeals court that sent it back to a lower federal court in May last year after deciding the agency incorrectly concluded that the sage grouse does not spend the winter at the proposed site by relying on data solely from other sites.

The project is the 104-megawatt Echanis project. The developer is proposing to put between 40 and 69 wind turbines on 10,000 acres of private land serviced by transmission lines crossing land owned by the federal government.

The case is *Oregon Natural Desert Association v. Ryan Zinke.*

— contributed by Andrew E. Skroback in Washington

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01-01 PF NewsWire June 2017