April 22, 2019

Commissioner Dave Jones
Commissioner Michael Kahn
Commissioner Pedro Nava
Commissioner Carla Peterman
Commissioner Michael Wara
Commission on Catastrophic Wildfire Cost and Recovery
Governor’s Office of Planning and Research, 1400 10th St
Sacramento, CA 95814

SUBJECT: Comments of the California Municipal Utilities Association (CMUA), the Southern California Public Power Authority (SCPPA), the Northern California Power Agency (NCPA), and Golden State Power Cooperative on behalf of Publicly Owned Electric Utilities and Electrical Cooperatives

Dear Commissioners,

On behalf of our publicly owned utility (POU) and electrical cooperative (cooperative) members, we submit these comments in response to the discussions during the Commission on Catastrophic Wildfire Cost and Recovery’s (commission) past meetings and questions posed in the April 8th request for public input. Our agencies and the members we represent take a strong interest in developing comprehensive approaches to addressing the devastating impacts of wildfires. While we acknowledge the work of this commission is principally focused on developing recommendations for the equitable distribution of costs associated with utility liability for damages caused by wildfires, below we offer comments for your consideration on a number of policy discussions that will influence the underlying risks, and thereby the associated costs, imposed by wildfires.

There are 46 POUs and 4 cooperatives across the state that collectively provide electricity to more than 25% of California. These utilities vary in size, geographic location, ownership of facilities and equipment, customer base, and governance structure—all factors that affect their relative wildfire risk exposure. While our members’ expertise is delivering safe, affordable, reliable and sustainable power, as public agencies we have a broader interest in enhancing the safety of our communities. It is in this spirit that we support a comprehensive approach to reducing the threat of wildfires.

POUs and cooperatives have been working for years to proactively prevent and mitigate the impacts of wildfires. Such actions include implementing wildfire mitigation measures in their communities and aggressively implementing numerous state standards related to electric distribution system design, inspection, construction, maintenance and vegetation management. Our members have taken a variety of actions specific to their local geography to minimize wildfire risk. Furthermore, POUs and Cooperatives are uniquely situated within communities and, in many cases, as part of local governments, have strong working relationships with local planning, emergency preparedness and fire departments. We continue to work with our members on exploring opportunities for increased coordination with both public and private sector counterparts at the local, state, and federal levels.
Our comments on several of the specific topics identified in the commission’s request for comment are below.

I. Wildfire Liability Regime

a) Issues with the Current Application of Strict Liability Under Inverse Condemnation and Recommendations for Addressing Concerns

The California Constitution (Article I, Section 19) establishes the doctrine of “inverse condemnation,” which essentially states that state and local governments, including publicly-owned utilities, may be required to pay just compensation when property is taken or damaged by facilities providing a public service (such as utility infrastructure). A utility’s fault or negligence is not considered. According to California courts, this is because “the cost of such damage [associated with providing public services] can be better absorbed, and with infinitely less hardship, by the taxpayers as a whole than by the owners of the individual parcels damaged” (Pacific Bell Telephone Co. v. Southern California Edison Co., 208 Cal.App.4th 1400, 1407 (2012)). The framework is based on a shared “socialization” among all taxpayers of the costs that flow from operation of infrastructure that benefits the public generally.

Inverse condemnation claims have been handled differently by the courts in different situations. In the fire context, utilities are being held financially responsible for all property damage if their facilities are one cause of a wildfire, even when the utility acted reasonably and followed all applicable safety rules. For example, a utility would be held responsible under inverse condemnation if a limb from a healthy tree falls into an electrical line and causes a fire, even if the tree was outside the utility right-of-way and the utility maintained proper clearances between the tree and its power lines.

However, in the context of flood control projects, the courts have required proof that the government acted unreasonably in order to support an inverse condemnation claim. Utilities urge liability standards to be reformed to apply the same fault-based standard used in the flood case to the wildfire context. This change is not an argument for the utility to be absolved of liability if the utility is at fault. In fact, the fault-based standard would still hold the utility liable if the utility was determined to be at fault.

We believe the application of strict liability in inverse condemnation cases involving electric utility facilities can be reformed through legislation. Testimony by a Deputy State Attorney General at the March 13 commission hearing confirmed that the Legislature has the authority to establish a different interpretation of the parameters for applying strict liability because the standard has been applied by two Appellate Courts, but has not been ruled on by the State Supreme Court. In the absence of the Supreme Court interpreting the constitution, the State Legislature has full authority to do so.

Why is the Current Liability Standard Problematic? Inverse condemnation with a strict liability standard imposes no-fault liability on investor-owned and publicly-owned utilities, as well as electrical cooperatives. As increasingly devastating wildfires have begun to arise, a utility’s financial exposure under a strict liability standard can go far beyond the ability of its customers to shoulder the financial burden. If a utility’s insurance does not cover its liabilities, then the utility itself must pay those costs out of pocket. Because publicly-owned utilities do not have shareholders, these costs get passed directly on to customers. This is particularly problematic for smaller utilities that may suffer from catastrophic wildfires, as those utilities do not have a large customer base across which to socialize the cost of damages. Furthermore, for publicly-
owned utilities that are structured as city departments, any liabilities that the utility is not able to cover (either through wildfire insurance or rate increases) could be passed to the city’s balance sheet.

The financial impacts at an individual customer level become impractical and are, in fact, a significant hardship to the ratepayers of all utilities. A substantial liability could impact the utility’s (and in the cases noted above, the city’s) credit rating. Depending on the magnitude of the downgrade, this can present challenges for borrowing capital to finance infrastructure investments.

We believe that the application of strict liability is unsustainable, especially in light of the widely recognized fact that wildfire risk will continue to grow in California largely due to factors outside of a POU or Cooperative’s control, such as less predictable precipitation that leads to more combustible fuel growth. In addition, factors outside of a utility’s control can cause utility equipment to spark or fail resulting in a fire for which a utility can be deemed liable. Two examples illustrating this paradigm are: a motorist hitting a utility pole or a tree branch – from outside a maintained utility right of way – blowing into a powerline sparking a fire. Strict liability means that if the facilities of the POU or cooperative are the ignition source of a wildfire, even if the utility or cooperative has met or exceeded applicable regulations and industry standards and has acted as a prudent electric system operator, the POU or cooperative will be held liable for all the property damages.

Credit rating agencies, such as Moody’s and S&P, have, across the board, cited strict liability as a risk to the financial health of POUs. As an example, in placing the Los Angeles Department of Water and Power on negative credit watch, Moody’s said one factor that could lead to a credit downgrade is the “failure to pass legislation or enact regulatory measures to largely mitigate the impact of inverse condemnation.” In addition, an S&P survey of POU wildfire related liability exposures, called the current application of inverse condemnation “financially onerous” and is “an integral component of our analysis of public power utilities.” A Moody’s Investor Service review of POU wildfire risks in California noted that because “utilities face inverse condemnation related claims irrespective of whether the utility acted negligently or violated regulations, utilities have effectively become the default insurance provider for wildfire liabilities, a risk that is outside the scope of operations and one that substantially increases the risk spectrum for utilities.”

Impacts to credit ratings are important because they form the basis for costs of borrowing for POUs. Those with large Capital Improvement Programs may need to raise rates to meet higher borrowing costs in the event structural solutions are not implemented. Even with interest rates at historically low levels, a downgrade from AA to A would result in $3-4 million of additional interest costs annually for every $1 billion of borrowing, or $100 million over the life of the bonds. A return to higher interest rates could increase these costs dramatically. Utilities may also need additional liquidity to meet more frequent and higher collateral requirements through its power procurement function, stranding financial resources that could be used for other mitigation efforts and also have fewer counterparties willing to provide commodity sales if ratings continue to deteriorate.

Ultimately, POUs and cooperatives must remain financially viable to continue to deliver their essential services to all Californians. Additionally, California’s utilities are the foundation of the state’s clean energy goals – from installation of renewable generation, to investments in transportation electrification. It is for these reasons we believe the application of strict liability is inappropriately applied and undermines the ability of POUs and Cooperatives to meet our obligation to serve all communities, both urban and rural.
b) Recommended Changes to Reform the Strict Liability Standard

We believe it would be appropriate to apply a fault-based standard that holds an electric utility liable if the utility’s conduct posed an unreasonable risk of damage to property and if the conduct posing the risk was a substantial cause of the damage. The following criteria is a starting point for a conversation about how a court can determine if a utility’s conduct posed an unreasonable risk:

- The overall purpose served by the utility facilities.
- The availability to utility of feasible alternatives with lower risks.
- The severity of the damage in relation to risk-bearing capabilities.
- The extent to which the damage is generally considered as a normal risk of land ownership.
- The degree to which similar damage is distributed at-large over other land owners.
- The practical ability of the utility to recover costs from its customers without imposing undue hardship or impair the utility’s financial condition.

Such a standard would still hold utilities accountable for their actions but would provide relief in circumstances where wildfires are started by factors outside of their control. A “fault-based” approach will provide positive incentive for utilities to aggressively implement wildfire mitigation measures.

The reform of strict liability, coupled with improved statewide risk reduction, could lead to improved utility wildfire insurance offerings and will undoubtedly boost the confidence of credit rating agencies, all of which have cited strict liability as a credit risk. We also believe that any system must treat wildfire victims fairly and believe that a fault-based standard is fair to all parties as it would not hinder the ability of harmed individuals to seek damages for bodily harm or wrongful death, as those issues are dealt with under another legal standard, as pointed out in the Governor’s Wildfire Task Force Report, and still allows for a fair property damages recovery process.

We also recognize that other public entities, such as water agencies, are subject to a strict liability interpretation of inverse condemnation. For water agencies, the problem of applying strict liability has been brought highlighted by a case involving the Yorba Linda Water District. To the extent other public agencies also face wildfire costs arising from such a strict liability interpretation, we believe it would be appropriate to explore the issue.¹

II. Insurance

Over the past years, many POUs and cooperatives have seen the price of their wildfire insurance premiums increase dramatically, while at the same time the amount of coverage decreases. As an example, SMUD doubled its wildfire insurance coverage in 2018 but absorbed a four-fold increase to premiums for that additional coverage. The higher costs resulted in .50% rate increase and SMUD expects an additional .25% rate impact when insurance renewal is sought in 2019. This year, Plumas-Sierra Rural Electric Cooperative was unable to obtain the extra umbrella insurance policy they typically carry. Their insurer, Federated Rural Electric Insurance Exchange, is unable to provide a commercial umbrella coverage because of California’s inverse condemnation laws, regardless of the robust, proactive efforts Plumas-Sierra has undertaken to invest in vegetation management.

¹ CMUA represents 43 public water agencies that provide water to more than 70% of the state.
A twofold approach is the more certain way to increase the availability and effectiveness of utility insurance coverage. The twofold approach includes: implement a fault-based liability standard under inverse condemnation and continue to implement statewide measures to reduce the risk of wildfires overall. Both of these measures could result in insurance companies being more willing to offer affordable utility insurance coverage. Availability of more, affordable insurance coverage for POUs and cooperatives will ensure their consumers are able to be made whole in the event of a claim.

III. Financing Mechanisms

Our preference is to reform the strict liability standard. However, the concept of an electric utility catastrophic wildfire fund has been explored in multiple venues as an alternative. The establishment of a utility wildfire fund on its own is not likely to fully resolve the challenges imposed by the current application of the strict liability standard and may not provide adequate access to utility insurance options.

Acknowledging that there is significant interest in the establishment of an electric utility wildfire fund, POUs and cooperatives raise the following key principles for the Commission’s considerations:

- **Participation in the fund should be on an opt-in basis for all POUs.** In no event should only select utilities, be it based on size or otherwise, be mandated to participate.

- **The fund should be prospective and only available on a forward-looking basis.** That is, utilities should not be able to draw from the funds to support claims associated with past wildfires.

- **The fund must be held in trust, such that the funds could not be repurposed for other uses at a later date.**

- **The fund should cover costs arising from a utility-ignited wildfire that are not the result of negligence.**

- **The fund should carefully consider a utility’s individual insurance coverage.** The availability of the fund should not be a substitute for utilities procuring their own, separate insurance policies.

- **A statewide fund must include protections that ensure one utility with significant claims cannot “drain” the fund or make it in any other way insolvent for use by other electric utilities.** The State should consider how the statewide fund would be appropriately capitalized according to risk and how the fund would be replenished once drawn.

- **Contributions would need to take into account the utilities’ relative wildfire risk profiles, geographies, sizes, and operating budgets, among other factors.** A one-size-fits-all approach will not work.

- **The fund must be appropriately structured to be sustainable over multiple years.** Given the changing climate and its impacts on wildfires, the fund must be durable enough to withstand multiple years of high-cost catastrophic wildfires.

- **If the fund relies on utility ratepayer contributions, the contributions must be structured in a way that protects against cost shifts from one customer group to another.** Any charge
should be applied fairly across utility customers. Any POU funding must be recognized as tax exempt funds and may not be used or co-mingled with taxable funds. Any funding approach must be constructed to prevent risking any POU’s tax exempt status or risking a gift of public funds liability.

- **If the fund is limited to recovery from “catastrophic” wildfires, the determination of whether a wildfire is “catastrophic” for a utility must be made relative to that utility’s specific conditions.** Any fund would have to be carefully crafted to ensure utilities of all sizes can realize value.

- **To the extent a utility would need to demonstrate it meets certain standards to participate in the fund, the utility’s mitigation planning efforts required by SB 901 should be taken into consideration.** Utilities should be required to demonstrate compliance with the provisions of SB 901 as a pre-requisite for drawing from the fund.

It has also been suggested that a statewide electric utility catastrophic wildfire fund would only be feasible in conjunction with a more centralized approach to regulating utility wildfire safety practices. We do not believe centralized regulation is a prerequisite to fund participation. First, we note that statewide electric utility standards already exist, which even POUs and cooperatives that are not under the jurisdiction of the CPUC recognize as reflecting industry standard. These standards include, federal North American Electric Reliability Corporation (NERC) standards, vegetation management standards pursuant to CPUC’s GO 95, powerline inspection standards pursuant to GO 165, and the statutory directive pursuant to SB 901 to develop wildfire mitigation plans.

In light of these existing standards, we are not convinced that additional, centralized state regulation will improve safety. To the contrary, a POU’s or Cooperative’s intimate knowledge of their local service territory informs their specific safety standards that exceed existing industry standards. A new centralized approach to regulations would, by its very nature, be more formulaic and less responsive to local conditions. It could actually be detrimental to utility wildfire safety mitigation efforts that reflect local conditions.

Finally, other stakeholders have suggested broader catastrophic wildfire fund concepts that could be used to reimburse Californians for all wildfire damages, regardless of ignition source. We believe the commission should explore these concepts as, based on the most recent CalFire data, electric utility infrastructure is responsible for igniting only 10% of wildfires.

**IV. Community and Wildfire Victim Impacts**

A primary concern from recent wildfires is the devastating impacts of wildfires on communities and residents. The members of our organizations have experienced this devastation first hand and we are working diligently with our local government partners to address community needs. We strongly support investments to improve communication and coordination between fire officials and utilities, especially to facilitate sharing of critical fire weather data. Additionally, we urge the state to lead an effort to streamline access to disaster relief to ensure communities are supported and electric service can be promptly restored.
V. Other Policy Considerations to Reduce the Risk and/or Impact of Wildfires

Publicly owned electric utilities and cooperatives are committed to implementing robust safety and wildfire mitigation practices to ensure the delivery of safe, reliable and affordable electricity. The following policy considerations we believe, supplement and enhance POU and Cooperative commitment to a safer California.

a) Improving Statewide Coordination

We have observed that there is room to improve statewide coordination on wildfire efforts. It would be prudent to investigate the creation of a Wildfire Safety Council or some similar body, or high-level government official, to oversee all wildfire prevention efforts undertaken by CalFire, the Office of Emergency Services and the California Public Utilities Commission (CPUC). There does not appear to be one agency that coordinates all statewide wildfire mitigation efforts, ranging from utility safety standards, to forest management, to local planning practices. Putting a council, or person, in charge of these efforts may prove beneficial to overall risk reduction efforts. We envision that such a council would be empowered to establish regular meetings of agencies with wildfire related activities, to identify cost-effective and feasible measures to improve public safety, and to work with stakeholders to identify goals and the measures needed to accomplish them.

b) Strengthening Coordination Between Transmission-Owning and Transmission-Dependent Utilities, and Water Agencies

Both water utilities and impacted electric utilities face unique challenges associated with IOU de-energization events. For example, the de-energization of water pumping stations can limit a water utility’s ability to provide adequate supply and maintain water pressure. A lack of supply can reduce firefighting capabilities and a lack of adequate water pressure increases the risk of drinking water contamination. Advance notice is one option that can help a water utility at least partially mitigate these problems.

Similarly, some POUs are interconnected with the surrounding or neighboring IOU in such a configuration that it is likely that a preemptive de-energization decision of the IOU would also result in power outages to all or a portion of the POU’s customers. The IOU making the decision to de-energize is unlikely to have contact information for the POU’s medical baseline or other vulnerable customers, or knowledge of the critical infrastructure located in the POU’s territory. Additionally, the affected POU may need to preposition its own employees to help provide an orderly and safe restoration of power within its service territory.

Because of these unique challenges, the IOUs will need to have a high degree of coordination with the POUs and water utilities in or neighboring their service territory. There should be assurances that the channels of communication are open and that each IOU is responsive to requests by a POU or water agency to discuss coordination prior to this upcoming wildfire season.

c) Improving Forest and Vegetation Management

In addition to climate change, historical forest management practices have contributed to thick stands of forests that act as explosive tinder. Proper fuel treatment and vegetation management support forest health and help mitigate the risk of larger fires that would result in serious public health and safety concerns as well as significantly higher air pollution and greenhouse gas emissions in the future. The state has begun to
address this problem, as outlined in a presentation by CalFire staff to the commission on February 25. However, additional resources are needed at the state and federal levels to support enhanced forest management efforts. For this reason, we support Governor Newsom’s efforts to partner with the governors of Washington and Oregon to call on the federal government to double its investment in managing federal forestlands. Continued improvements can be made by doing more prescribed burning and more mechanical thinning where applicable and we support the state’s continued efforts to increase investments in forest management.

We also support efforts to bring to light the critical role of landowners in maintaining defensible space and reducing the potential impacts of wildfires; we suggest that the State should engage in public education campaigns to urge landowners to ensure their property is in compliance with applicable defensible space requirements. Recent policies at the federal and state levels take important steps to address challenges that utilities face in managing vegetation around their infrastructure. The State must provide a framework to assist POUs to expedite the vegetation management around power line rights-of-way with CEQA exemptions similar to the recent federal exemptions that are being implement for federal lands. POUs in many cases have been waiting up to two years for vegetation management permits.

Furthermore, we support efforts to increase workforce training and development opportunities in the context of fire prevention and suppression. As proposed in CalFire’s Community Wildfire Prevention & Mitigation Report, released in February 2019, we are supportive of having the Natural Resources Agency identify specific opportunities for developing workforce training programs that could increase the number of properly trained individuals available to assist with fuels reduction and forest management efforts, among other areas.

d) Improving Fire Suppression and Emergency Response

Protecting communities is the top priority and, towards that end, we agree with many policymakers that California must have a 21st century public safety system able to readily alert residents of impending disasters, including wildfires, and to put forward sufficient resources to respond accordingly. Legislation in 2018 was enacted to improve public alert systems and to increase the effectiveness of the state’s mutual aid response system. It is vital that we continue to build on these improvements. This should include ensuring CalFire and local fire departments are adequately staffed and have sufficient resources to suppress fire. We understand that firefighting resources are inadequate in some areas. As an example, the City of Redding has historically only been able to staff their fire engines with two firefighters, as opposed to the standard three. To improve fire response in the community, the City of Redding Electric Utility will be funding an additional 12 firefighting positions to improve the city’s capabilities. These deficiencies must continue to be remedied statewide.

e) Creating a Culture of Preparedness

Many have said we live in a new normal where wildfires strike unexpectedly and quickly, forcing the evacuation of thousands. The state must undertake robust public education efforts to ensure residents, particularly those in areas of high wildfire threat, have a plan in place to respond quickly to wildfires. This will help reduce issues during evacuations and will hopefully save lives. We support customer education campaigns to support emergency preparedness in their communities. These efforts include providing information on how community members can be prepared in the event of a power outage. We welcome the
opportunity to partner with the Governor, State Legislature, and our local government colleagues on a broader effort that would reach all Californians.

f) **Addressing Local Planning**

Millions of people live in areas of high wildfire threat. We support efforts to re-evaluate local planning and development policies for business and residences in these areas, including those in the wildland-urban interface. We also agree with the recommendation of the Rural County Representatives of California to work with local governments to establish best practices on development in high wildfire threat areas to protect public safety.

In closing, thank you for your consideration of our comments and for your service and commitment to addressing this important issue. Please do not hesitate to contact any of us or our staff with questions.

Sincerely,

Barry Moline
Executive Director
California Municipal Utilities Association

Randy S. Howard
General Manager
Northern California Power Agency

Michael S. Webster
Executive Director
Southern California Public Power Authority

Jessica Nelson
General Manager
Golden State Power Cooperative

Cc: The Honorable Gavin Newsom, Governor of California
   The Honorable Toni Atkins, President Pro Tempore of the California State Senate
   The Honorable Anthony Rendon, Speaker of the California State Assembly
   The Honorable Ben Hueso, Chair of the Senate Committee on Energy, Utilities and Communications
   The Honorable Chris Holden, Chair of the Assembly Committee on Utilities and Energy
   Members, Senate Committee on Energy, Utilities and Communications
   Members, Assembly Committee on Utilities and Energy

Attachments:
   a.  *Rating Action: Moody's revises LADWP's outlook to negative; affirms the Aa2 rating on LADWP's $9.32 billion power system revenue bonds*, Moody's Investors Service, March 18, 2019
   c.  *FAQ: California public power utilities are not immune to wildfire risks*, Moody's Investor Service, April 9, 2019
FAQ: California public power utilities are not immune to wildfire risks

Pacific Gas and Electric Company’s (PG&E, ratings withdrawn) bankruptcy highlights the risks California electric utilities face from climate change, including financial liabilities that arise following a wildfire. While much of the public attention has been directed at PG&E and the other investor-owned utilities (IOUs), municipal utilities and joint-action agencies (JAAs) are not immune to inverse condemnation wildfire-related liability risk. In fact, inverse condemnation has its roots with municipal enterprises and local California governments being liable for damage to personal property caused by government property.

» **What is inverse condemnation and how can it affect California municipal utilities?**
Inverse condemnation requires compensation to private property owners whose property is damaged by public use property, irrespective of whether the public entity acted negligently or violated regulations. Both California municipal enterprises and local governments are exposed to this risk with the view that payment for the claims or damages will be shared across the municipality or the municipal enterprise.

» **What are the primary differences between California municipal utilities and IOUs concerning inverse condemnation and wildfire risk?**
The inverse condemnation risks are identical; however, the exposure differs greatly. Municipal utilities have a higher degree of certainty around inverse condemnation cost recovery because local rate autonomy enables them to pass through such costs. That said, customer pushback to a rate increase could occur if the size of the claim is material. From a physical perspective, municipal utilities’ wildfire exposure is much lower than the IOUs’ because of the topography and size of the service territories.

» **According to the CPUC fire threat map, which municipal utilities are most exposed to potential wildfires?**
We have categorized municipal utilities that we rate across a risk spectrum based on information from the fire threat map; nearly all have low to moderate exposure to wildfire risk.

» **How are JAAs’ credit quality affected by wildfires?**
Exposure to wildfires and inverse condemnation will most likely affect the credit quality of a JAA through changes in the credit quality of one or more of the participants. Because of the strength of the take-or-pay (TOP) contracts, an asset-level impairment following a wildfire would not weigh on the JAA credit quality as long as the participant pool credit quality is unchanged and the participants continue to honor their respective TOP contracts. Alternatively, participant credit quality could be negatively affected if a JAA-owned asset causes an inverse condemnation event because those claims are borne by each JAA participant.
What is inverse condemnation and how can it affect the California municipal utilities?

Under Article 1, Section 19 of the California Constitution, inverse condemnation requires compensation to private property owners whose property is damaged by public use property, irrespective of whether the entity owning the public use property acted negligently or violated regulations. The courts have applied inverse condemnation broadly with the understanding that the cost of the damage would effectively be socialized by the parties that derive benefits from the public use of the property. In the case of a municipality or a municipal enterprise, the costs associated with the damage to personal property caused by the assets owned by a municipality would be recovered through higher rates, taxes or fees charged to residents or customers across the municipality. Because utilities face inverse condemnation related claims irrespective of whether the utility acted negligently or violated regulations, utilities have effectively become the default insurance provider for wildfire liabilities, a risk that is outside the scope of operations and one that substantially increases the risk spectrum for utilities. In that regard, our view of the state’s municipal utilities’ credit profile will depend upon actions taken by state policymakers and legislators to limit or mitigate wildfire litigation risk that accompanies inverse condemnation related claims.

Inverse condemnation is rooted in property rights protected by the Fifth Amendment of the US Constitution, and the constitutional principle is not new. In 1885, the California Supreme Court held that the constitutional clause granted private property owners the right to compensation in the event a public improvement did not physically take or purchase a property, but rather caused tangential harm to the property and losses to the property owner. California is one of two states that applies this principle. Alabama is the other, although its application is not as strict as California’s approach. While the California local government sector is exposed to inverse condemnation damage claims following a natural disaster, the municipal electricity sector is more vulnerable because electric equipment presents an inherent risk of fire to private properties given the frequency and severity of wildfires throughout the state. For example, Los Angeles Department of Water & Power’s (LADWP, Aa2 negative) insurer recently settled wildfire claims related to the 2013 Powerhouse Fire for about $100 million, of which LADWP was responsible for its $3 million deductible with $1 million recovered from the insulator manufacturer.

What are the primary differences between California municipal utilities and IOUs concerning inverse condemnation and wildfire risk?

Regarding inverse condemnation, there is no difference between the risk faced by IOUs and municipal utilities in California. Both types of utilities have the same potential liabilities should their equipment be found to be the cause of a wildfire irrespective of whether negligence had occurred or regulations had been violated. However, the ability and approach to recover costs are very different.

Municipal utilities, which operate under a cost plus model with limited incremental margin opportunity, have the ability to set rates to recover costs through their respective local boards or city councils, including costs associated with natural disasters, such as earthquakes, wildfires and floods. The rate setting process typically occurs over a relatively short period, particularly when compared to IOUs. Inverse condemnation principles are predicated on the belief that such costs that are not recovered through third-party insurance can be effectively socialized and recovered through higher rates, taxes or fees charged to residents or customers across the municipality.

By comparison, the IOUs’ ability to recover such costs are conditional and require a request to the California Public Utilities Commission (CPUC) for approval of recovery of such costs wherein the matter is litigated, prudence is determined and a decision on recovery is rendered. Under the current framework, the ability for IOUs to recover such costs is considerably less certain and takes substantially more time with ultimate recovery dependent upon the facts and circumstances in each case.

While the recovery mechanism is more streamlined and more certain for a municipal utility, one area of concern for municipal utilities is their ability to seamlessly absorb and spread the costs associated with an outsized wildfire related claim, when it occurs, over their customer base. This concern is amplified for the smaller municipal utilities.

Regarding wildfire risk, the differences between IOUs and municipal utilities are notable. From a service territory perspective, the IOUs are the dominant provider of electric service in the state providing service to 89% of the state’s land area (based upon square mileage).
or about 139,205 square miles.\(^2\) Two investor-owned utilities alone — PG&E and Southern California Edison Company (SCE, Baa2 negative) — together provide electric service to nearly 78% of the state's square mileage, about 122,300 square miles.\(^2\) The sheer size of these service areas, from a wildfire prevention and mitigation standpoint, makes the task quite challenging for each of these utilities. In contrast, the largest municipal utility by customers, LADWP, has a 500 square mile service territory or 0.3% of the state; the largest by land area, Imperial Irrigation District (IID, A1 stable) serves 6,471 square miles or about 4.1% of the state.

The CPUC, based on information from California Department of Forestry and Fire Protection (Cal Fire), has developed a fire threat map intended to measure an area’s vulnerability to utility-caused wildfire risk. The purpose of the map is to help the state’s IOUs and municipal utilities identify which areas of their respective service territories have the greatest vulnerabilities to wildfires with the goal of prioritizing their remediation plans around those at-risk areas. To help frame the issue, the CPUC designated areas categorized as Tier 2 as having elevated wildfire risk and areas categorized as Tier 3 as having extreme wildfire risk. Based upon this categorization, the CPUC estimates that about 45% of the state's square mileage, or about 70,305 square miles, falls into areas that are considered Tier 2 or Tier 3 risk exposure.\(^4\)

Based upon our review of regulatory filings by the state's IOUs with the CPUC, we calculate that the IOUs serve 90% of the square miles, or 63,441 square miles, in the state identified as Tier 2 or Tier 3 or slightly less than 6,900 square miles, is served principally by municipal utilities. However, more than half of the remaining square miles identified as Tier 2 or Tier 3 served by municipal utilities includes land areas in sparsely populated portions of northern California, including the counties of Trinity and Lassen. Based on the CPUC fire threat map, we estimate that 90% of the publicly owned utilities' service territories in these two counties are classified as Tier 2 and Tier 3, representing about 3,650 square miles, leaving about 3,200 square miles, or less than 5% of the state's square mileage, identified as Tier 2 and Tier 3 spread across the remaining California municipal utilities. By comparison, the estimated square mileage served by IOUs in Tier 2 or Tier 3 represents about 41% of the state's square mileage and about 46% of the square mileage served by IOUs.

**According to the CPUC fire threat map, which municipal utilities are most exposed to potential wildfires?**

We have categorized the municipal utilities that we rate in California across a risk spectrum based on the information from the CPUC fire threat map. Specifically, we categorized the risk to utilities from wildfires primarily based on the percentage of a municipal utility's service territory that was deemed to be Tier 2 – Elevated or Tier 3 – Extreme on the CPUC fire threat map. We then created a relative scale of the sector’s exposure to wildfire risk by using three buckets: low, moderate or elevated, as defined below.

- **Low risk:** No more than 10% of a service territory is Tier 2 – Elevated.
- **Moderate risk:** More than 10% or less than 50% of a service territory is classified as Tier 2 – Elevated OR up to 10% of a service territory is classified as Tier 3 – Extreme.
- **Elevated risk:** More than 50% of a service territory is classified as Tier 2 – Elevated OR more than 10% of a service territory is classified as Tier 3 – Extreme.

We also recognize that a utility's exposure to wildfire risk is not limited to the boundaries of the service territory and that some generation or transmission assets owned by a municipal utility or through the city's participation in a JAA may physically reside in another utility's service territory. In those cases, we examined the generation or transmission asset's relative exposure to wildfire risk and adjusted our classification for the municipal utility accordingly.

Based on the above categories, Exhibit 1 details our assessment of the potential exposure to wildfire risk for the municipal electric utilities in California that we rate, ranked by exposure and then by the level of debt outstanding.
Below for each municipal issuer is a short summary explaining the rationale behind the specific categorization (Low, Moderate or Elevated), a map detailing the service territory for those categorized as Elevated or Moderate, the rationale behind any recent rating action taken on the municipal utility concerning wildfires (if applicable) and an identification of any tangible mitigants that influences our credit view of the municipal utility.

Exhibit 1

Municipal utilities by fire risk

<table>
<thead>
<tr>
<th>Utility</th>
<th>Debt Outstanding ($'000)</th>
<th>Rating</th>
<th>Outlook</th>
<th>Fire Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trinity Public Utilities District, CA</td>
<td>22,237</td>
<td>Baa1</td>
<td>Negative</td>
<td>Elevated</td>
</tr>
<tr>
<td>Los Angeles Department of Water &amp; Power, CA Electric Enterprise</td>
<td>9,277,415</td>
<td>Aa2</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Sacramento Municipal Utility District, CA</td>
<td>2,523,775</td>
<td>Aa3</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Turlock Irrigation District, CA</td>
<td>1,074,393</td>
<td>A2</td>
<td>Stable</td>
<td>Moderate</td>
</tr>
<tr>
<td>Anaheim (City of) CA Electric Enterprise, CA</td>
<td>671,217</td>
<td>Aa3</td>
<td>Stable</td>
<td>Moderate</td>
</tr>
<tr>
<td>Glendale (City of) CA Electric Enterprise, CA</td>
<td>144,815</td>
<td>Aa3</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Burbank (City of) CA Combined Utility Enterprise, CA</td>
<td>77,855</td>
<td>Aa3</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Colton (City of) CA Electric Enterprise, CA</td>
<td>33,495</td>
<td>A3</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Modesto Irrigation District, CA</td>
<td>654,335</td>
<td>A2</td>
<td>Stable</td>
<td>Low</td>
</tr>
<tr>
<td>Imperial Irrigation District, CA Electric Enterprise</td>
<td>530,590</td>
<td>A1</td>
<td>Stable</td>
<td>Low</td>
</tr>
<tr>
<td>Vernon (City of) CA Electric Enterprise</td>
<td>367,830</td>
<td>Baa3</td>
<td>Stable</td>
<td>Low</td>
</tr>
<tr>
<td>Roseville (City of) CA Electric Enterprise</td>
<td>207,725</td>
<td>A1</td>
<td>Stable</td>
<td>Low</td>
</tr>
<tr>
<td>Lodi (City of) CA Electric Enterprise</td>
<td>42,500</td>
<td>A2</td>
<td>Stable</td>
<td>Low</td>
</tr>
</tbody>
</table>

Source: Moody’s Investors Service, California Public Utilities Commission
Utility with elevated fire risk classification

Trinity Public Utility District, CA (TPUD, Baa1 negative)

Debt outstanding: Approximately $22 million

Fire risk classification: Elevated

The district’s elevated wildfire risk is reflected in the Tier 2 fire risk designation for nearly 100% of TPUD’s 2,126 square mile service territory, located in Trinity County, California. TPUD’s fire exposure is heightened by the fact that 90% of its 740 miles of electric lines are above ground and in forested areas.

TPUD, whose total assets approximate $50 million, has received about $136 million in claims related to the 2017 Helena wildfire. The district has denied all of the claims, asserting it has evidence that its equipment was not at fault, and there is currently no litigation related to the fire claims. It is unclear how much, if any, of this amount the district may ultimately be required to pay, because the cause of the fire remains the subject of an ongoing review. If ultimately determined to be responsible for starting the fire, the district would be exposed to a substantial liability, exemplifying the potential magnitude of this issue for the state’s municipal utilities.

We rate the district’s 2010 Electric Revenue Bonds, which have $1.09 million outstanding and mature in April 2020. The 2010 bonds also benefit from a debt service reserve fund equal to one year of debt service. These bonds are senior to the district’s unrated 2017 Electric Revenue Bonds, of which $20.7 million is outstanding.
Utilities with moderate fire risk classification

Los Angeles Department of Water & Power (LADWP, Aa2 negative)

Debt outstanding: Approximately $9.3 billion

Fire risk classification: Moderate

The moderate fire risk classification recognizes that about 15% of LADWP’s 500 square mile service territory is within Tier 2 with a very limited 0.5% in Tier 3, according to the CPUC’s fire threat map. That said, the border of LADWP’s service territory in the LA Basin is adjacent to Tier 3 regions served by SCE, which creates potential risk for LADWP to manage.

LADWP’s wildfire risk management includes a multipronged approach that benefits from LA’s urban service area, which enables rapid response time from the fire department. In addition, LA exceeds the state’s standards for spacing between transmission lines and has implemented other fire mitigation programs, including replacing distribution power lines’ cross bars with composite or steel material, as well as an active vegetation, brush and tree management program.

LADWP’s generation and transmission assets have low wildfire risk because most of the assets are located outside of California principally through their participation in the Southern California Public Power Agency (SCPPA) JAA.

LADWP is currently subject to litigation regarding the cause of the December 2017 Sylmar Creek Fire where LADWP’s investigation has concluded that the utility’s equipment did not cause or contribute to the fire ignition.

The combination of LADWP having Sylmar Creek exposure, coupled with the utility’s service territory being surrounded by Tier 3 areas served by SCE, were factors in our recent decision to change LADWP’s rating outlook to negative.

Turlock Irrigation District (TID, A2 stable)

Debt outstanding: Approximately $1.1 billion

Fire risk classification: Moderate

The moderate fire risk classification recognizes that more than 10% of TID’s service territory has been identified as Tier 2. TID also has exposure to wildfire risk through a 12.54% participation in NCTA – California – Oregon Transmission (TANC, Aa3 negative), a 340 mile transmission line that travels through northern California to Oregon, and a 6.33% share in Northern California Power Agency’s NCPA – Geothermal Project (Aa3 stable). Both TANC and NCPA Geothermal are situated in Tier 2 and Tier 3 portions of the state, which is mitigated by TID’s relatively modest participation.

The area identified as Tier 2 in TID’s service territory is a mountainous region that is largely uninhabited with the exception of a single residential community with approximately 600 electric meters. Electric distribution lines to these customers are largely underground, reducing wildfire and related inverse condemnation risk. TID has also increased fire patrols in this region with a focus on the inspection of potentially vulnerable equipment.

Given the limited exposure to wildfire risk in TID’s service area and its modest exposure through its participation in the two JAA projects, we maintained a stable rating outlook at TID as part of our recent affirmation of the A2 rating.
Anaheim (City of) CA Electric Enterprise (Anaheim Electric, Aa3 stable)

Debt outstanding: Approximately $670 million
Fire risk classification: Moderate

The moderate fire risk classification for Anaheim Electric recognizes that approximately 5.7% of its service territory is within an area classified as Tier 2 or Tier 3.

Most of the area identified in a fire threat zone is on the eastern side of Anaheim Electric’s service territory, encompassing the outer boundaries of East Anaheim on the border of a state-owned park area that includes the Santa Ana mountains. This region is largely uninhabited. There is a transmission line that cuts across the Anaheim Hills area, but the line is owned by SCE.

Nearly all (98%) of the power lines in Anaheim Electric’s service territory located within high fire risk zones as identified by the CPUC fire threat map are underground. This significantly reduces the risk of the utility sparking a wildfire, in Moody’s view. The city’s wildfire strategy employs a multipronged approach with active fire threat monitoring, regular vegetation management and scheduled equipment inspections as well as more creative techniques such as deploying goat herds to consume dried-out vegetation in fire-prone locations.

Anaheim Electric’s participation in SCPPA generation and transmission projects do not increase its wildfire-related risk because all of the projects are either located in non-Tier 2 or Tier 3 regions in California or are located outside of the state.

Since 98% of the power lines within the area identified as Tier 3 are underground, we view this risk as being largely mitigated and as such, we maintained a stable rating outlook as part of our recent affirmation of the Aa3 rating.

Sources: Moody’s Investors Service, California Public Utilities Commission

Glendale (City of) CA Electric Enterprise (GWP, Aa3 negative)

Debt outstanding: Approximately $145 million
Fire risk classification: Moderate

The moderate fire risk classification recognizes that approximately 40% of GWP’s 31 square mile service territory is within Tier 2 or Tier 3. Customer concentration in these areas is approximately 8% of the approximate 90,000 electric meters in GWP’s service territory, a concern in light of the city’s median estimated home value of $675,000.

The location of nine fire stations within GWP’s service contributes to rapid fire response times in the city. Additionally, the city of Glendale has reciprocity arrangements with the cities of Burbank and Pasadena, which help to collectively mitigate fire risk in this region. Wildfire risk management policies include enhanced protection measures, such as brush abatement and increased tree trimming.

GWP secures most of its generating and transmission resources through its participation in SCPPA projects, which does not add to their wildfire exposure owing to the projects’ location.

Notwithstanding the manageable size of the service territory and the number of fire departments, we changed the rating outlook to negative on GWP’s debt as part of our recent rating affirmation because of the relatively high portion of the service territory classified as Tier 2 or Tier 3.

Sources: Moody’s Investors Service, California Public Utilities Commission
Burbank (City of) CA Combined Utilities Enterprise (BWP, Aa3 negative)

Sources: Moody’s Investors Service, California Public Utilities Commission

Debt outstanding: Approximately $78 million

Fire risk classification: Moderate

The moderate fire risk classification recognizes that approximately 35% of BWP’s 17 square mile service territory is within an area classified as Tier 2 under the CPUC fire threat map. Customer concentration in these areas is limited to 3-5% of the utility customer base, a concern in light of the city’s median estimated home value of $650,000.

The location of six fire stations within BWP’s 17 square mile service territory contributes to the city’s rapid fire response times. The city of Burbank’s fire department has reciprocity relationships with the cities of Glendale and Pasadena. BWP has undergrounded approximately 50% of the electric distribution lines servicing customers in the fire risk zone.

BWP secures most of its generating and transmission resources through its participation in SCPPA projects, which does not add to their wildfire exposure owing to the projects’ location.

Notwithstanding BWP’s active mitigation efforts and a manageably sized service territory, we recently changed BWP’s outlook to negative given the utility’s exposure to Tier 2 wildfire risk in its service territory.

Colton (City of) CA Electric Enterprsie (Colton, A3 negative)

Sources: Moody’s Investors Service, California Public Utilities Commission

Debt outstanding: Approximately $34 million

Fire risk classification: Moderate

The moderate fire risk classification recognizes that approximately 20% of Colton’s service territory is within an area classified as Tier 2 or Tier 3.

Mitigating steps to reduce the fire threats include the undergrounding of a substantial portion of the electrical lines in the classified area with the exception of a 12KV line that heads into the canyon. Colton has explored mitigation strategies around this specific line, including insulating or undergrounding, but is awaiting further legislative developments from the state before proceeding.

Colton secures most of its generating and transmission resources through its participation in SCPPA projects, which does not add to their wildfire exposure owing to the projects’ location.

The negative rating outlook at Colton is partly attributed to the city of Colton’s (A3 negative) negative rating outlook owing in part to pension related issues.
Sacramento Municipal Utility District (SMUD, Aa3 negative)

Debt outstanding: Approximately $2.5 billion

Fire risk classification: Moderate

SMUD’s moderate risk classification recognizes that while no portion of its service territory lies in zones classified as Tier 2 or Tier 3 under the CPUC fire threat map (see Exhibit 9), it does have wildfire risk exposure through its ownership of the Upper American River Project (UARP), a 688 megawatt hydro facility system, and its ownership of a transmission system that transports electricity from the hydro system into SMUD’s service territory. The UARP system is located in PG&E’s service territory and is largely considered to be Tier 2, with some sections considered to be Tier 3 (see Exhibit 10).

SMUD has an active, longstanding fire mitigation program and is currently developing a wildfire mitigation plan to comply with SB 901 requirements. In addition, SMUD also filed a detailed fire prevention and response plan for its UARP assets with the Federal Energy Regulatory Commission (FERC) in 2015 in connection with the project’s 50-year license operating license renewal, which FERC granted in July 2014.

During 2019, SMUD’s proposed 2020-21 rate increases include a portion of the increases attributable to permanent planned spending on wildfire mitigation efforts. This action is credit positive because it serves to inform customers of the importance of this capital spending and it better aligns the interests of customers with an objective of the utility.

Because of SMUD’s exposure to wildfires through its ownership of UARP, we changed the rating outlook to negative as part of our recent rating affirmation. SMUD is also the largest participant with a 27.7% share in the NCTA – California-Oregon Transmission JAA whose outlook we recently changed to negative, as discussed further below.
Utilities with low fire risk classification

**Modesto Irrigation District (MID, A2 stable)**  
*Debt outstanding: Approximately $654 million*

MID’s service territory is in a valley with a topography that is flat, irrigated and consists primarily of towns or irrigated farmlands. The farmland consists of mostly almond trees and dairy farms with limited amounts of wild trees and brush. MID’s principal exposure to wildfire risk is through its 21.3% exposure through TANC. MID’s low fire risk classification recognizes that no portion of its service territory has been classified as a fire threat, with limited incremental exposure through a JAA.

**Imperial Irrigation District (IID, A1 stable)**  
*Debt outstanding: Approximately $530 million*

IID’s service territory consists of very little urban-wildland interface, and what urban/nonurban interface exists is either developed farmland or sparsely vegetated desert. IID’s low fire risk classification recognizes that only a small section of its service territory has been classified as Tier 2. This section, near the Salton Sea, is largely unpopulated open land with a limited number of electric customers.

**Roseville (City of) CA Electric Enterprise (Roseville, A1 stable)**  
*Debt outstanding: Approximately $210 million*

Roseville’s low risk classification recognizes that no portion of its service territory has been classified as a fire threat, and that approximately 85% of the distribution lines are underground, greatly mitigating direct wildfire risk. Roseville’s wildfire exposure is through its participation in three JAAs, a 12.0% share in NCPA – Hydroelectric Project I (Aa3 stable), a 253 MW hydro project in northern California, a 2.11% share in TANC and a 7.88% share in the NCPA – Geothermal Project.

**Vernon (City of) CA Electric Enterprise (Vernon Electric, Baa3 stable)**  
*Debt outstanding: Approximately $370 million*

Vernon Electric’s low risk classification recognizes that no portion of its service territory has been classified as a fire threat, the small and urban nature of the service territory and the existence of its own fire department, which greatly enhances its response time.

**Lodi (City of) CA Electric Enterprise (Lodi, A2 stable)**  
*Debt outstanding: Approximately $43 million*

Lodi’s service territory is limited to a fairly dense urban footprint that does not have any areas classified as Tier 2 or Tier 3. The electric utility, which serves a 14 square mile territory, provides distribution services with generation and transmission ownership through JAAs. Roughly 53% of the utility’s distribution lines are underground and the service territory is surrounded by miles of grape vineyards which, with their open space and moisture content, provide a good wildfire firebreak. Lodi’s wildfire exposure is through its participation in three JAAs, a 10.37% share in NCPA – Hydroelectric Project I, a 1.92% share in TANC and a 10.28% share in NCPA – Geothermal Project.
How are JAAs’ credit quality affected by wildfires?

Exposure to California wildfires and inverse condemnation will most likely affect the credit quality of a particular JAA project through potential changes in the credit quality of one or more of the participants in that JAA project. Recently, we changed the rating outlook on several JAA projects, including nine SCPPA projects because of the change in outlook for the larger municipal utility participants, including LADWP, as well as the city utilities of Glendale and Burbank (see Exhibit 11). Asset quality and asset location, key considerations for assessing the credit quality of JAAs, were not key credit drivers behind these rating actions because the JAA assets that serve the southern California area reside in areas outside of California and are not exposed to wildfire risk, including transmission assets in Arizona and Utah, as well as generation assets in Utah and Washington. Moreover, the SCPPA JAA assets are located in regions that are not considered Tier 2 or Tier 3 by the CPUC fire threat map.

Exhibit 11
Joint Action Agencies by debt outstanding

<table>
<thead>
<tr>
<th>JAA Project</th>
<th>Debt Outstanding ($ millions)</th>
<th>Rating</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermountain Power Agency, UT</td>
<td>861.73</td>
<td>A1</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Transmission Project Revenue, CA</td>
<td>486.41</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Magnolia Project, CA</td>
<td>295.44</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>NCTA - California - Oregon Transmission</td>
<td>200.29</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Millford Wind Corridor Phase 1 Project, CA</td>
<td>177.59</td>
<td>Aa2</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Mead-Adelanto Project Revenue, CA</td>
<td>80.70</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Tieton Hydro Revenue, CA</td>
<td>48.00</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Mead-Phoenix Project Revenue, CA</td>
<td>37.94</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Mead-Adelanto Project Revenue, CA (LADWP Interest)</td>
<td>24.55</td>
<td>Aa2</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - Mead-Phoenix Project Revenue, CA (LADWP Interest)</td>
<td>20.11</td>
<td>Aa2</td>
<td>Negative</td>
</tr>
<tr>
<td>SCPPA - City of Burbank, CA</td>
<td>17.00</td>
<td>Aa3</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Source: Moody’s Investors Service

Because of the nature of the TOP obligation that underpins JAAs, an asset level impairment that follows any type of natural disaster, should it occur, would not immediately affect JAA credit quality as long as the credit quality of the participant pool remained unchanged and participants continue to honor their respective TOP obligation. In an extreme case, the municipal participants’ willingness to continue paying their TOP obligations may become more problematic, particularly if the asset impairment results in the assets being stranded. That said, we expect municipal participants will continue to honor their respective TOP obligation regardless of the assets’ condition.

Included in the list above is NCTA – California-Oregon Transmission (TANC), whose outlook we recently changed to negative. TANC is the majority owner and operator of the California-Oregon Transmission Project (COTP), a 339 mile transmission line that runs from Klamath county in southern Oregon to the tesla substation located south of the city of Tracy in San Joaquin county, CA. TANC estimates that roughly 34% of the transmission line runs through Tier 2 and 1% runs through Tier 3 fire risk zones. The agency employs an extensive, longstanding fire risk management plan to mitigate its exposure that includes semiannual aerial inspections; a rigorous vegetation management program; as well as limiting crops and vegetation height in orchard areas. TANC has also formed a wildfire advisory committee to ensure compliance with recently enacted laws, strengthen existing practices and monitor relevant legislative and regulatory activities. The COTP line is also constructed entirely of steel lattice or single pole steel structures and the agency maintains a 200-foot right-of-way around the transmission line that is kept clear of trees and large vegetation.

As discussed above, individual participant credit quality could eventually be affected should a JAA-owned asset be the cause of a wildfire that leads to inverse condemnation claims because those claims would ultimately be borne by each participant on a pro-rata basis. This risk is largely mitigated by the fact that the asset typically has asset-level insurance coverage and has implemented fire mitigation strategies at the site. Within a typical JAA, there is insurance coverage for property damage and replacement, and there may...
be a specific policy for wildfires. JAA participants bear the cost of the insurance, and JAA participants would bear any claims that exceed the asset level insurance on a pro-rata basis.

The other credit-related event that could arise from a large inverse condemnation claim within a JAA are situations where one or more of the participants’ credit quality weakens materially because of a specific claim. In an extreme case, the step-up provisions in the JAA documents serve to provide broad support to maintain the JAA’s credit quality.

Appendix A includes a list of rated California electric JAAs as well as the JAA’s exposure to wildfire risk based upon the participant pool’s exposure to that risk as well as an assessment of wildfire risk based upon the physical location of the asset, ranked by debt outstanding.

What mitigating strategies are being considered and being implemented by the state’s municipal utilities?

From a legislative standpoint, under Senate Bill (SB) 901, the state’s municipal utilities must file specific wildfire mitigation plans by January 1, 2020. The filing of these reports will provide greater transparency about future initiatives and objectives along with the associated costs to deal with this statewide climate change problem.

SB 901 also created a state Commission on Catastrophic Wildfire Cost and Recovery, which has been tasked with recommending options for the governor and the California Legislature to consider how to socialize wildfire costs in an equitable manner and establish a fund to assist in the payment of costs associated with wildfires. The commission has been asked to provide recommendations before July 1, 2019.

While there are a couple of catastrophe fund options under consideration, it appears that the wildfire liability insurance fund proposed by Assemblyman Chad Mayes in Assembly Bill (AB) 235 has garnered the most attention. We understand that AB 235 would authorize both IOUs and public power utilities to participate and would require each participating entity to make an initial contribution, as well as contributions to replenish the account. If a participating utility were to incur costs because of a wildfire, those costs would be reimbursed by the fund. Many aspects of the bill remain unresolved including how would costs be allocated and how would costs be replenished over time.

Beyond the legislative efforts, most of the state’s municipal utilities have implemented active mitigation strategies, including the undergrounding of distribution systems and active vegetation programs. In addition, utilities have identified a series of measures for their entire electric system intended to prevent wildfires from occurring, minimize the spread of any fire that does occur and improve the resiliency of its system. These measures include the installation of materials to reduce the risk of sparking, the strengthening of equipment exposed to strong wind conditions, and the increased monitoring of fire conditions. We also believe that for most municipal systems, the cities’ sister relationship with their fire departments help to serve as an ongoing and important mitigant for the municipal utilities, particularly those with an urban footprint which can serve to shorten the response time to a particular fire.
### Appendix A

**Exhibit 12**

**Joint Action Agencies by fire risk**

<table>
<thead>
<tr>
<th>Joint Action Agency</th>
<th>Rating</th>
<th>Outlook</th>
<th>Debt Outstanding ($mm)</th>
<th>Participant fire risk</th>
<th>Asset fire risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermountain Power Agency, UT</td>
<td>A1</td>
<td>Negative</td>
<td>861.73</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Transmission Project Revenue, CA</td>
<td>Aa3</td>
<td>Negative</td>
<td>486.41</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Canyon Power Project</td>
<td>Aa3</td>
<td>Stable</td>
<td>323.37</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>NCPA - Hydroelectric Project 1</td>
<td>Aa3</td>
<td>Stable</td>
<td>315.53</td>
<td>Low</td>
<td>Elevated</td>
</tr>
<tr>
<td>SCPPA - Magnolia Project, CA</td>
<td>Aa3</td>
<td>Negative</td>
<td>295.44</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>NCPA - Lodi Energy Center, CA (Indenture Group A)</td>
<td>A1</td>
<td>Stable</td>
<td>227.39</td>
<td>Low</td>
<td>Elevated</td>
</tr>
<tr>
<td>NCTA - California - Oregon Transmission</td>
<td>Aa3</td>
<td>Negative</td>
<td>208.40</td>
<td>Moderate</td>
<td>Elevated</td>
</tr>
<tr>
<td>SCPPA - Milford Wind Corridor Phase 1 Project</td>
<td>Aa2</td>
<td>Negative</td>
<td>177.59</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>NCPA - Lodi Energy Center, CA (Indenture Group B)</td>
<td>Aa2</td>
<td>Stable</td>
<td>115.19</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Mead-Adelanto Project Revenue, CA</td>
<td>Aa3</td>
<td>Negative</td>
<td>80.70</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Tieton Hydro Revenue</td>
<td>Aa3</td>
<td>Negative</td>
<td>48.00</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Mead-Phoenix Project Revenue, CA</td>
<td>Aa3</td>
<td>Negative</td>
<td>37.94</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>NCPA - Capital Facility Project, CA</td>
<td>A2</td>
<td>Stable</td>
<td>33.64</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>SCPPA - Mead-Phoenix Project Revenue, CA (LADWP Interest)</td>
<td>Aa2</td>
<td>Negative</td>
<td>28.90</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>NCPA - Geothermal Project, CA</td>
<td>A1</td>
<td>Stable</td>
<td>28.77</td>
<td>Low</td>
<td>Elevated</td>
</tr>
<tr>
<td>SCPPA - Mead-Adelanto Project Revenue, CA (LADWP Interest)</td>
<td>Aa2</td>
<td>Negative</td>
<td>21.40</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>

The 'participant fire risk' was determined by calculating the weighted average of each JAA’s participants’ fire risk.

Source: Moody's Investors Service
Moody's related publications
Methodologies:

» General Principles for Assessing Environmental, Social and Governance Risks, January 2019

Sector In-Depth

» Regulated Utilities and Power — US: PG&E bankruptcy highlights environmental, social and governance risks in California, February 2019
» Regulated Electric and Gas Utilities — US: Climate-related disclosures by four major utilities vary in both depth and scope, December 2018

Sector Comments

» Potential remedies to reduce California fire risk face competing interests, April 2019
» P&C Insurance — US: PG&E’s bankruptcy likely to lower lawsuit recoveries and generate liability losses, January 2019
» Power Generation Projects and Power Companies — US: PG&E bankruptcy contagion impacts selected commodity suppliers, January 2019
» Cross-Sector California wildfires could create material contingent liabilities and credit challenges, December 2017

Outlooks and Medians

» Public Power Electric Utilities — US: 2019 outlook stable, aided by sound cost recovery, adaptability to clean energy shift, December 2018
» Public Power Electric Utilities — US: Public Power Medians: Stability continues amid low energy prices, clean energy shift, September 2018

Credit Opinions

» Anaheim (City of) CA Electric Enterprise: Update to credit factors following ratings affirmation, April 2019
» Glendale (City of) CA Electric Enterprise: Update following outlook change to negative from stable, April 2019
» Burbank (City of) CA Combined Utility Ent.: Update following outlook change to negative from stable, March 2019
» Turlock Irrigation District, CA: Update following affirmation of TID’s A2 rating, March 2019
» Colton (City of) CA Electric Enterprise: Update to credit analysis, March 2019
» Los Angeles Dept. of Wtr&Pwr., CA Elec. Ent.: Update to credit analysis after outlook revised to negative, March 2019
» Trinity Public Utilities District, CA: Update following the downgrade to Baa1 from A2, March 2019

Press Releases

» Moody’s revises Sacramento Municipal Utility District’s (CA) outlook to negative; affirms Aa3 rating, April 2019
Endnotes

1 Calculated based on IOUs responses to Data Requests from the California Public Advocates Office 18-10-007 and data presented in PG&E’s 2019 Wildfire Safety Plan Overview.


3 Southern California Edison Company’s 2019 Wildfire Mitigation Plan, February 6, 2019.


5 PG&E, 2019 Wildfire Safety Plan Overview

6 CalPA-SDG&E-03 R.18-10-007 — SB901 Wildfire Mitigation Plan OIR SDG&E Response

7 Southern California Edison Company’s (U 338-E) 2019 Wildfire Mitigation Plan, February 6, 2019.

8 BVES response to CalPA-BV-R1810007-003 Attachment A, March 11, 2019

9 LU CalPeco Response to CalPA-Liberty-R1810007-003, March 11, 2019

10 PacifiCorp’s Response to Public Advocates Office Data Request No. CalPA-PAC-R1810007-002, March 14, 2019

11 Trinity’s total service territory is 2,126 sq. miles and Lassen’s total service territory is 1,933 sq. miles.

12 Potential remedies to reduce California fire risk competing interests, April 3, 2019
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Public power utilities - US: FAQ: California public power utilities are not immune to wildfire risks
Rating Action: Moody's revises LADWP's outlook to negative; affirms the Aa2 rating on LADWP's $9.32 billion power system revenue bonds

18 Mar 2019

Approximately $9.32 billion power system revenue bonds affected

New York, March 18, 2019 -- Moody's Investors Service has revised the rating outlook to negative from stable and affirmed the Aa2 rating on the Los Angeles Department of Water and Power, CA Electric Enterprise's ("LADWP") $9.32 billion of outstanding power system revenue bonds.

RATINGS RATIONALE

Today's rating action reflects Moody's view that the utility's operating environment in California has become more challenging as legislators and other policy makers look for viable alternatives around laws and proceedings involving the application of inverse condemnation while simultaneously balancing the potential impact on municipal utilities and ratepayers. The potential risk of wildfires related to inverse condemnation could materially impact the utility long-term as the frequency and intensity of these fires increase, coupled with subsequent mudslides that often follow when heavy rains occur after a fire.

LADWP has the unfettered ability to effectively socialize any inverse condemnation costs across its customer base in a relatively short time should additional funds be needed. This rate making structure provides additional and more certain support not available to the investor owned utilities facing the same inverse condemnation risk in the state. While the municipal ratemaking structure does provide greater certainty for cost recovery of inverse condemnation costs, it does effectively transfer risks typically borne by insurance to the utility and their ratepayers. Moreover, given the size of the potential claims following a wildfire and the degree of frequency that they have occurred, the ability to seamlessly change customers' rates for inverse condemnation claims may become in question, particularly given the severity and size of the wildfire and its potential impact to customer rates. California Senate Bill 901 requires all electric utility's to prepare a wildfire mitigation plan before January 1, 2020, which LADWP is developing and has already implemented mitigation measures for many years.

We view LADWP as having moderate exposure to wildfire risk as LADWP's service territory is primarily urban with about 15% of its 500 square miles classified as Tier 2 according to the CPUC's Fire Threat Map fire map with a very limited 0.5% in Tier 3. LADWP's wildfire risk management includes a multipronged approach that benefits from LA's urban service area that enables rapid response time from the fire department. In addition, LA exceeds the state's standards related to the spacing between its transmission lines and has implemented other fire mitigation programs including the replacement of the distribution power lines' cross bars with composite or steel material, as well as an active vegetation, brush and tree management program. LADWP maintains wildfire insurance coverage with a $185 million limit as well as a self-insurance fund with a $182 million, in addition to substantial property and excess liability insurance coverage. The wildfire insurance has been sufficient to cover LADWP’s exposure, but should insurance falls short or not pay timely, LADWP maintains strong on balance sheet liquidity and access to its undrawn external bank lines of credit as well. Finally, LADWP can raise its rates through its Energy Cost pass through rates within 90 days without regulatory approval if LADWP needs emergency recovery of any unexpected high costs or to replenish any depleted liquidity that was used during a potential short term shock.

LADWP's insurer recently settled wildfire claims related to the 2013 Powerhouse Fire for about $100 million, of which LADWP was responsible for its $3 million deductible. The root cause was an equipment failure and not LADWP's management of the line, and LADWP was able to subrogate against the manufacturer, a bankrupt foreign company, with LADWP being able to recover $1 million. LADWP is currently in litigation related to the cause of the December 2017 Sylmar Creek Fire where LADWP's investigation has concluded that LADWP's equipment did not cause or contribute to the fire ignition.

Moody's acknowledges recent pronouncements from the governor's office to address these issues are credit positive. This is consistent with Moody's expectation that state policymakers will look to ensure LADWP and other utilities remain financially healthy to help the state meet its ambitious renewable targets and other public
policy goals. That said, the problem is complicated and multi-faceted, and the solutions, when identified, will take several years to fully implement.

LADWP's Aa2 rating reflects its status as the largest US municipal electric utility that self-regulates its monopolistic provision of essential electricity to a sizeable and diverse customer base in the City of Los Angeles (Aa2 Stable), coupled with a record of cost recovery supported by the city's governing board that has resulted in sustained strong financial metrics while maintaining competitive customer rates owing to the utility's balanced competitive power supply mix. The utility continues to position itself to procure more renewable energy to comply with local and state mandates, while executing on a plan to eliminate all of its coal-fired generation. The rating incorporates the utility's ownership and able stewardship of a transmission network that represents about 25% of the state's electric transmission grid, presenting opportunities for balancing and local control and management, as well as challenges related to large reinvestment requirements.

RATING OUTLOOK

The negative outlook reflects the risks associated with the uncertain magnitude of potential contingent liabilities related to inverse condemnation and the nearby wildfires affecting electric utilities in California, as well as the execution risk around the implementation of legislative and regulatory initiatives at the state level that will significantly mitigate these risks.

FACTORS THAT COULD LEAD TO AN UPGRADE

- An upgrade of LADWP's ratings is unlikely given the negative outlook. However, we could stabilize the outlook if the financial impact of the wildfires is largely mitigated through regulatory, legislative, or judicial action that we believe effectively mitigates the unknown risk to a higher level of certainty moving forward.

- Significant and consistent improvement in financial metrics with fixed obligation charge coverage ratio exceeding 2.0x, coupled with a material deleveraging or reduced unfunded net pension liability.

- Successful implementation of the power supply transformation plan to a predominantly renewable energy portfolio while remaining cost competitive and reliable.

FACTORS THAT COULD LEAD TO A DOWNGRADE

- Failure to pass legislation or enact regulatory measures to largely mitigate the impact of inverse condemnation risk exposure from wildfires on utilities is likely to put additional downward pressure on LADWP.

- Material increase in direct leverage or unfunded adjusted net pension liability that weakens financial metrics on a sustained basis

- Higher than expected costs related to obtaining greater renewable resources; transitioning out of the 1,800 MW coal-fired Intermountain Power Project; or a burdensome General Fund transfer to the City

- Rates become externally regulated

LEGAL SECURITY

The power system revenue bonds are secured by the net revenues of the power system. The bond covenants are relatively weak with a sum sufficient rate covenant and no debt service reserve requirement, while additional bonds can be issued if adjusted net income for 12 consecutive months in the preceding 18 months before the new debt is issued equals 1.25x the forecast maximum annual debt service including the new debt, subject to adjustments like the inclusion of already approved rate increases and expected new income from system expansions. While there are no indenture required reserves, LADWP maintains an unrestricted Debt Reduction Trust Fund that equaled $466.8 million as of December 31, 2018 as well as other significant liquidity sources included strong available cash on hand and a large amount of unused capacity under its bank lines of credit.

PROFILE

LADWP is the nation's largest municipal electric utility that operates with self-regulated cost recovery. LADWP provides electric service to about four million residents in a 500 square mile service area, making it the third largest California electric utility in terms of customer demand. LADWP does not have dominant customers as its top 10 customers represent about 10% of total revenues. The utility has a major generation and transmission presence in the western region with net dependable generating capacity of 7,852 MW and
ownership of 25% of the state's transmission assets.

METHODOLOGY

The principal methodology used in these ratings was US Public Power Electric Utilities With Generation Ownership Exposure published in November 2017. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

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John Medina
Lead Analyst
Project Finance
Moody's Investors Service, Inc.
7 World Trade Center
250 Greenwich Street
New York 10007
US
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Kurt Krummenacker
Additional Contact
Project Finance
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Releasing Office:
Moody's Investors Service, Inc.
250 Greenwich Street
New York, NY 10007
U.S.A
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

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NEW YORK (S&P Global Ratings) Feb. 28, 2019--Several terrible wildfires have struck California in recent years, and authorities allege that electric utility power lines caused some of these fires. The resulting significant personal and property damage, including the loss of lives, has led many affected to bring substantial legal claims for damages against some of the state’s electric utilities. For example, estimates of claims against the Pacific Gas & Electric Co., are in the tens of billions of dollars. Nevertheless, S&P Global Ratings believes regulatory and operational factors temper the exposure of California’s public power utilities to potential wildfire-related liabilities. Overall, we believe these characteristics distinguish California's rated public power utilities from the downward rating pressures S&P Global Ratings has identified for the state's investor-owned utilities. (For more information, see, "Will California Still Have An Investment-Grade Investor-Owned Electric Utility?,” published Feb. 19, 2019, on RatingsDirect). Consequently, we do not see the same downward rating pressure on California's public power utilities because of wildfire-related liabilities.

REGULATION
We understand that, under California law, courts can apply the doctrine of "inverse condemnation" to both investor-owned and municipal electric...
utilities. The doctrine provides that if a state actor or a company providing services to the public, like an electric utility, is the substantial cause of property destruction, whether or not through negligence, it can be held liable for damages to affected property owners.

Compared with investor-owned utilities, the state's public power utilities do not need regulatory approval to raise rates or issue debt to fund claims to the extent they are liable for wildfire-related liabilities because of the application of inverse condemnation. This ability to set rates and issue debt as needed supports our view that, comparatively and within limits, public power utilities are in a better position than investor-owned utilities to address wildfire-related liabilities including recovering from ratepayers amounts paid as judgments. Put another way, in our view, the credit quality of the public power utilities we rate does not hinge on the constraints of California's regulatory framework. By comparison, we believe that California's current regulatory construct, particularly the lack of clarity surrounding investor-owned utilities' ability to recover wildfire-related liabilities, weighs on the creditworthiness of those utilities.

GEOGRAPHY

In addition to assigning considerable weight to the cited regulatory distinctions, our analysis also considers geographic attributes of California's public power utilities. The utilities' transmission and distribution lines are principally within urban service territories, which we believe are less prone to power lines sparking catastrophic wildfires like those affecting the California investor-owned utilities we rate. Some of the state's investor-owned utilities have expansive service territories that include rural and exurban areas with significant combustible vegetation that might be prone to wildfires.

Furthermore, the transmission and distribution lines of the primarily urban public power utilities we rate tend to fall outside the areas designated as high fire danger zones by the California Public Utilities Commission (CPUC) and the U.S. Forest Service. Exceptions include portions of some utilities' service territories, like the Los Angeles Department of Water & Power (DWP).

OTHER CONSIDERATIONS

Participation in transmission projects

About a dozen southern California utilities and 15 northern California utilities import substantial amounts of electricity from other states through participation in the long-distance transmission projects of the Southern California Public Power Authority and the Transmission Agency of Northern California. These joint-action agencies' transmission lines extend hundreds of miles in some cases. Some of these transmission lines traverse barren desert regions, with little risk of wildfires or property damage. Other lines span areas with combustible vegetation that might be prone to wildfires.

We believe that participation in these projects could expose municipal
utilities to fire risks from sparking high-voltage transmission lines. Furthermore, participating utilities might be obligated to cover wildfire damage claims against the joint-action agencies, including possible findings of inverse condemnation liability. However, we have not seen this happen and are unaware of fire claims against joint-action agencies.

Two public utilities are facing lawsuits
We have identified two public power utilities, DWP and Trinity Public Utility District, which are facing lawsuits seeking compensation for wildfire damage. DWP management reports the utility is contesting the claims and believes that, if found liable, its robust financial reserves and insurance policies can cover judgments related to these claims. Trinity also reports that it is contesting the claims. We are monitoring the lawsuits for possible ratings implications.

Legislative developments
Despite legislative directives that California utilities mitigate fire risks, in our view, wildfires attributable to utilities will persist because it will take time for them to implement fully fire-mitigation measures. California enacted SB1028 in 2016 and SB901 in 2018, requiring investor-owned and municipal utilities "to construct, maintain, and operate . . . electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment." The legislation also requires investor-owned utilities to submit annual wildfire mitigation plans to the CPUC.

Although there has been considerable discussion surrounding legislatively reigning in the financially onerous inverse condemnation doctrine, we have yet to see concrete steps in that direction. Notwithstanding what we view as distinguishing characteristics for California's rated public power utilities, the potential for liability under inverse condemnation remains an integral component of our analysis of public power utilities, and we will continue to conduct case-by-case assessments of utilities' management of this risk and financial capacity to cover wildfire-related liabilities.

This report does not constitute a rating action.

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