Testimony

of

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On Behalf of the Edison Electric Institute

before the

Committee on Energy and Commerce
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Testimony for House Energy and Commerce Committee
Environment Subcommittee
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Chairman Shimkus, Ranking Member Tonko, and Members of the Subcommittee, thank you for inviting me today. My name is Geisha Williams, and I am the Chief Executive Officer and President of Pacific Gas and Electric Company (PG&E). I am testifying today on behalf of the Edison Electric Institute (EEI).

EEI's member companies provide electricity for 220 million Americans and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States or about 5 percent of all jobs in the country. The industry also contributes $880 billion annually to U.S. GDP, or 5 percent of total GDP, and invests more than $100 billion each year to make the energy grid stronger, cleaner, more dynamic, and more secure.

PG&E is California's largest energy provider, with a service area that is home to 16 million people and is one of the fastest growing markets in the country for electric vehicles (EVs). One out of every five EVs in the United States plugs into PG&E's system. In addition, the energy we deliver is among the cleanest in the nation: last year, nearly 80 percent of our electricity delivered was greenhouse gas-free, and 33 percent came from eligible renewable resources. We also operate one of the nation's largest fleets of clean-fuel vehicles.

The market for EVs in the United States is growing significantly, driven by a combination of forces, including technology improvements, changing customer preferences, declining costs, tighter fuel efficiency standards and environmental regulations, and evolving customer sustainability goals.

A joint study by EEI and the Institute for Electric Innovation projects by 2025 the number of electric vehicles on America's roads will grow from current levels of about 820,000 to 7 million, or roughly 3 percent of all registered passenger vehicles. Indeed, total EV sales for 2017 increased 26 percent compared to 2016. And, sales this year are continuing the momentum: First-quarter 2018 sales increased 32 percent compared to first-quarter 2017.[1]

A greater variety of models, improved battery capacity and declining costs have made EVs increasingly attractive to consumers. EVs are less expensive to operate than gasoline vehicles. This is primarily due to fuel cost savings because electricity is less expensive than gasoline on an equivalent cost basis. It also reflects the fact that EV maintenance costs are generally lower than those for conventional-fuel vehicles.[2] Electric energy companies have helped raise customer awareness of these and other benefits of EVs through activities such as social media campaigns, community events, and ride-and-drives.

[1] EEI, *Electric Vehicle Sales: Facts & Figures*, April 2018. http://www.eei.org/issuesandpolicy/electrictransportation/Documents/EV_%20Sales%20Facts%20and%20Figures.pdf

[2] Union of Concerned Scientists, *Going from Pump to Plug (2017)* (November 2017), https://www.ucsusa.org/clean-vehicles/electric-vehicles/ev-fuel-savings

EVs have also become an important compliance solution for automakers as they work to meet Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) tailpipe standards. Compliance with both standards is playing a role in driving continued automaker investment in—and availability of—EVs.

EEI member companies believe that continued growth in the EV segment will also drive important benefits above and beyond their cost-savings and environmental potential. In particular, the increased use of EVs represents an opportunity to more efficiently utilize the nation's energy grid. "Smart" or "managed" charging allows energy companies and consumers to take advantage of times when excess energy is available on the system. This increased utilization effectively lowers the average cost to serve for all customers.[3]

We also believe that leveraging our nation's electric grid to fuel EVs also represents an important national security opportunity. When EVs connect to the grid, they are 100 percent powered by North American energy sources, including natural gas, coal, nuclear, hydropower, wind and solar energy.

In today's testimony, I will highlight three critical areas in which our industry is now working to support and accelerate the growth in EVs. These include (1) investing in infrastructure to make charging more accessible, (2) working to seamlessly integrate the growing number of EVs into the electric grid, and (3) working to increase the use of EVs in fleet and off-road applications.

[3] *See, e.g.,* Energy Environmental Economics (E3), *California Transportation Electrification Assessment, Phase 2: Grid Impacts* (October 2014), http://www.caletc.com/wp-content/uploads/2016/08/CalETC_TEA_Phase_2_Final_10-23-14.pdf

Investing in Infrastructure

Electric companies are integral partners in the growth of electric transportation. The joint EEI and Institute for Electric Innovation study (mentioned above) estimates that serving the 7 million EVs that are expected to be on the road by 2025 will require nearly 5 million charging ports.[4] Nevertheless, public charging infrastructure in many areas of the country has been slow to develop, creating one of the primary barriers to increased EV adoption.

While public and DC fast charging accounts for a relatively small share of overall EV charging, its availability helps to alleviate "range anxiety" concerns. Public charging also provides a solution for EV drivers who do not have dedicated parking. And, DC fast charging provides a solution for long-distance travel along major corridors.

Electric companies are focused on expanding access to EV charging infrastructure for all types of customers. In partnership with automakers, policymakers, and other stakeholders, we can fill in the gaps based on the unique geographic and market needs of their service territories. We understand that public and DC fast charging must be accessible and easy to use and must provide EV drivers with a consistent and positive charging experience. Critical elements include a

[4] EEI and the Institute for Electric Innovation (IEI), *Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required* (June 2017), http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20PEV%20Sales%20and%20Infrastructure%20thru%202025_FINAL%20(2).pdf.

seamless charging network experience, including a simple payment system and open network and communication protocols to ensure flexibility and choice.

More than a dozen EEI member companies together are investing more than $350 million in customer programs and projects to deploy charging infrastructure and to accelerate electric transportation. This is not just happening on the coasts; some of the most successful electric transportation programs led by electric companies are in states such as Missouri and Utah.

In 2015, Kansas City Power & Light (KCP&L) began building out a Clean Charge Network of more than 1,000 charging stations throughout its service territory in Missouri and Kansas. KCP&L also paired the charging network with an extensive education and outreach campaign that included working with automakers and local dealerships to help educate drivers about EVs. The experience provides a real-world example of "build it and they will come." Kansas City has become one of the fastest growing EV cities in the country, with the number of drivers using the network increasing 74 percent last year.

Rocky Mountain Power in Utah is another great example. In 2016, Utah enacted legislation allowing the company to create an EV charging infrastructure incentive program—similar to energy efficiency programs that electric energy companies have implemented successfully around the country. Rocky Mountain Power also leveraged a U.S. Department of Energy grant to help build DC fast charging stations along major travel corridors. These efforts are allowing the company to serve customers in new ways. Already, the company has announced a partnership

with Uber and Lyft to grow EV usage in ride-sharing applications, utilizing charging infrastructure that the company is helping to build.

At my company, PG&E, this year we launched our EV Charge Network program, investing $130 million over the next three years to help customers install 7,500 chargers at workplaces and multi-family residences – roughly doubling the number of public level-two chargers available in our service area. Pending approval from our regulators, we hope to soon launch another $230 million in investments for public fast charging and customer fleet charging infrastructure.

Electric companies also play an essential role in siting certain types of charging infrastructure where the energy grid has the capacity to support it and in helping customers to understand the cost implications for new installations. It is important that charging infrastructure developers and fleet operators work closely with electric companies as partners on charging project implementation. For example, as more high-powered DC fast chargers are deployed, and as fleet owners seek to charge multiple vehicles at single locations, the capacity of the energy grid at that location is an important consideration.

Integrating Vehicles with the Grid

As the EV market grows and the energy grid increasingly powers transportation, electric companies are critical to ensuring that EV charging is integrated with the energy grid in an efficient manner and that siting of certain types of charging infrastructure takes into account both

customer needs and energy grid capacity. That means minimizing costs, improving reliability, and meeting customer needs. Electric companies are taking a number of actions in this regard.

In particular, programs that encourage charging to occur when the energy grid has available capacity are crucial. Electric company programs that encourage charging to occur when the energy grid has available capacity will both minimize costs and help the grid operate more efficiently.

For example, electric companies can send price signals to encourage customers to charge their EVs at night to increase energy grid utilization or, in states with excess wind generation such as Texas, to increase wind energy utilization. PG&E's special electric rates for EV owners allow them to refuel in their garage overnight at the equivalent of $1.20 per gallon, a price we haven't seen for gasoline since 1998.[5] In states with excess solar energy generation, such as my state of California, electric companies can send price signals to encourage EV charging during the day to increase solar energy utilization.[6] In fact, we are planning to soon extend our off-peak charging rates through the middle of the day. This effectively lowers the average system cost for ***all*** electric customers.

Supporting Increased Use of EVs in Fleet and Off-Road Applications

[5] U.S. Energy Information Administration, *California All Grades Reformulated Retail Gasoline Prices (April 2018)*, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPM0R_PTE_SCA_DPG&f=A

[6] The flexibility of EVs to charge at different times, locations, and power levels can lead to a more efficient use of the energy grid, providing benefits to all customers. EV charging can be managed in multiple ways, including customer education, rate design, and "smart charging" that enables communication among the energy grid, the EV, and/or the charging equipment. Electric companies currently are testing multiple charge management strategies, including those that complement approaches used to integrate renewable and distributed energy resources.

A major opportunity to expand EV adoption is greater use of EVs in fleet and off-road applications. Electric transit buses have become increasingly popular as transit agencies recognize the fuel-cost savings of running buses on electric power. Electric-powered medium- and heavy-duty trucks also are coming to market. And, automakers and technology companies are testing autonomous vehicles today, while pairing the technology with electric powertrains.

For example, Portland General Electric is installing electric bus charging stations, allowing the city to electrify an entire bus route. My company, PG&E, is working with the cities of Stockton and San Jose to help them achieve their goal to fully electrify their transit bus fleets. These transit agencies will soon be piloting advanced smart-charging and energy storage technologies to more seamlessly integrate their electric bus fleet charging with our grid, reducing costs.

In addition, electric companies are collaborating with corporate customers that want to electrify their fleets to meet carbon commitments. San Diego Gas & Electric's pilot with UPS to support electric delivery trucks is a prime example.

Electric vehicles are also increasingly suited for off-road applications at airports and port facilities to reduce emissions, reduce costs, and improve productivity. Georgia Power, for example, supported the electrification efforts at the Port of Savannah and ground support equipment at Atlanta's Hartsfield-Jackson airport.

Finally, we believe in leading by example. More than 70 electric companies invested more than $120 million in EVs for their own fleets in 2017 alone. In addition, they have increased the number of EVs in their fleets by 43 percent since 2015.

Similarly, electric companies also are incenting their employees to purchase EVs and are providing educational activities to increase awareness in the communities where they live. PG&E, for example, offers many of our employees workplace charging. We have nearly 1,000 employees who drive electric, and we've worked with automakers to offer special purchase incentives to our customers, too.

Essential Partners in America's Transportation Future

The nation's energy sector is in the midst of a profound transformation. Our industry is making unprecedented investments in smarter energy infrastructure, providing even cleaner energy, and expanding the choices and energy solutions available to meet the changing needs of our customers. Electrifying the nation's transportation sector is an opportunity to leverage this progress to achieve extraordinary benefits for all Americans in the decades ahead.

Our companies are essential partners in this effort and in building a smart, sustainable transportation future for our country. We are fully committed to working together with policymakers, customers and all stakeholders to make this opportunity a reality.

Thank you again for having me here today. I look forward to your questions.

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