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STATE OF CALIFORNIA
State Energy Resources
Conservation and Development Commission

In the Matter of:)	Docket No. 15-AFC-01
)	
APPLICATION FOR CERTIFICATION)	**INTERVENORS' SIERRA CLUB LOS PADRES CHAPTER, ENVIRONMENTAL COALITION OF VENTURA COUNTY AND ENVIRONMENTAL DEFENSE CENTER**
OF THE PUENTE POWER PROJECT)	

Exhibit No. 4045

Testimony of Damon Franz re CAISO Study

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DECLARATION OF
Damon Franz

I, **Damon Franz**, declare as follows:

1. I am currently an Associate Manager of Policy and Business Development at Tesla, a position I have held for 5 months. Prior to my employment at Tesla, I was a Policy Director at SolarCity for 2 years prior to Tesla acquiring SolarCity. Before joining SolarCity, I worked at the California Public Utilities Commission for 8.5 years, where I worked on the California Solar Initiative, Demand Response Programs, Energy Efficiency, Electric Vehicle policy and cap and trade as an analyst, project supervisor and advisor to the President. I have a Master's degree in Economics and Energy Policy from Johns Hopkins University and a Bachelor's in Ecology from University of Florida.

2. A copy of my professional qualifications and experience is attached and incorporated by reference.

3. I prepared the Testimony of Damon Franz submitted by intervenors the Los Padres Chapter of the Sierra Club, the Environmental Coalition of Ventura County, and the Environmental Defense Center. The basis for my testimony is set forth in the testimony itself and is incorporated by reference.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: August 30, 2017 Signed: /s/ Damon Franz

At: San Francisco, CA

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: APPLICATION FOR CERTIFICATION FOR THE PUENTE POWER PROJECT	 Docket No. 15-AFC-01

INTERVENOR SIERRA CLUB, ENVIROMENTAL DEFENSE CENTER, ENVIRONMENTAL COALITION OF VENTURA COUNTY

Exhibit 4045

Testimony of Damon Franz re CAISO Study

In this testimony, I will explain why CAISO's attempt to estimate the costs of various distributed energy resource (DER) solutions that might meet the reliability need in the Moorpark Sub-area overstates ratepayer cost and should not be relied upon.

The primary flaw in CAISO's estimation of the costs of alternative portfolios is that CAISO looks only at the total capital cost of those resource portfolios and does not subtract out the benefits in order to arrive at a net cost, which is the appropriate metric by which to compare the costs of diverse types of resources providing significantly different types of benefits.

For example, the CAISO study uses a total installed capital cost of $2.65 million per MW of solar photovoltaic (PV) systems but does not subtract from that cost the value of the energy that these systems will produce on a daily basis at no incremental cost to SCE's ratepayers. Neglecting to include the value of energy benefits is a major oversight when comparing the cost of a fossil plant that will run only rarely with a renewable resource that will produce energy on a daily basis.

Recognizing that different types of resources vary in their costs but also provide different benefits, the California Public Utilities Commission (CPUC) uses standardized cost-effectiveness tests that attempt to capture all of the quantifiable costs and benefits when assessing whether to approve a utility investment or fund a demand-side resource program. For example, when considering the utilities' Advanced Metering Infrastructure (AMI) investments, the CPUC

recognized that AMI meters are more expensive but also provide a broader array of benefits than mechanical meters and sought to take all of the costs and benefits into account by considering the net benefits, rather than simply comparing total costs.

The CAISO Special Study deviates from that approach by failing to consider the other benefits beyond reliability that distributed resources provide to the utility and ratepayers, such as energy value, flexible capacity, and avoided Renewable Portfolio Standard (RPS) purchases. Neglecting to consider those benefits is a major flaw of the study and a departure from the standard approach to evaluating cost-effectiveness.

A second and related problem with CAISO's attempt to estimate capital costs of DER solutions and compare them with the cost of a natural gas plant is that this analysis ignores the value of customer benefits that reduce the cost of DER solutions to the utility and its ratepayers.

Green Mountain Power in Vermont provides a relevant example of how customer benefits can reduce the cost to the utility of energy services from behind-the meter resources. In a new program, GMP provides customers with batteries located behind the customer meter in order to provide peak shaving and other services. Customers are able to use the battery for backup power, and they are willing to pay the utility a fee of $15 per month for this service, which reduces the cost to the utility of the grid services the battery can provide. If such customer benefits and the corresponding value streams are not accounted for, the cost of the resource to the utility can be overstated.

In California, there are other customer value streams beyond backup power that could reduce the cost of behind-the-meter storage to the utility. In particular, customers can derive value through mitigation of time-of-use rates by storing energy when it is abundant and inexpensive and releasing at peak times when it is relatively more expensive. As long as demand response events needed to mitigate a reliability issue are called on a day-ahead basis, or are structured in such a way that they are compatible with time-of-use (TOU) mitigation, this is a significant additional value stream that reduces the cost of BTM storage to the utility for purposes of demand response.

Finally, CAISO's estimation of costs for DER resources is flawed for the simple reason that government agencies typically do not have good insight into current and future technology costs. Even the consultant reports on which government forecasts are typically based tend to be overly conservative in predicting technology cost declines. For example, a recent report in the Journal Nature Energy found that governments have historically underestimated the cost declines and adoption of solar PV by a significant amount.[1]

The difficulty faced by agency staff in estimating the cost of emerging technologies is clear from the sources cited in the CAISO study for storage costs. In providing an estimate of the cost of Lithium-Ion (Li-Ion) battery technology, CAISO cites to a Navigant research report from 2016 that cites a different Navigant report from 2014 as the source of its energy storage cost estimates.

[1] Harvey, Chelsea. "We've been underestimating the solar industry's momentum. That could be a big problem." Washington Post, August 25, 2017. https://www.washingtonpost.com/news/energy-environment/wp/2017/08/25/weve-been-underestimating-the-solar-industrys-momentum-that-could-be-a-big-problem/?utm_term=.b5c932590385

Thus, CAISO is using a three-year-old cost estimate to project the future cost of an emerging technology that is rapidly scaling up production for both automotive and grid purposes. To put this in context, Bloomberg New Energy Finance reported earlier this year that the cost of lithium-ion batteries has fallen by half since 2014.

For these reasons, CAISO estimates of installed capital costs of DER resources are not an accurate indication of actual ratepayer cost for these resources and should not be relied upon when determining whether DERs in combination with other resource solutions can feasibly meet reliability needs as an alternative to the Puente Peaker plant.

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Damon Alexander Franz

Experience

2015 - 2017 Tesla/SolarCity San Francisco, CA

Associate Manager, Business Development and Policy

- Managed Tesla/SolarCity's policy engagement and strategy over a broad range of policy matters in the state of California, including net energy metering, integrated resource planning, multi-family solar programs, demand response, and distribution resource planning.
- Developed and advocated for Tesla's policy positions on issues before the California energy agencies through regulatory filings, position papers, engagement in working groups, meetings with decision-makers and presentations at conferences and other events
- Assisted internal sales and project development teams understand the California regulatory landscape by communicating policy changes and explaining regulatory processes that affect Tesla's business

2006 - 2015 California Public Utilities Commission San Francisco, CA

Supervisor, Emerging Procurement Strategies

- Managed a team of analysts developing policies to address climate change; promote development of combined heat and power facilities; fund the research and development of emerging technologies; and foster the use of electric vehicles through EV rates, deployment of EV charging infrastructure and vehicle-grid integration.
- Oversaw the rollout of the cap and trade program to the state's electric ratepayers, including the return of utility allowance revenue and outreach to customers about the program; designed and implemented a proposal to use cap and trade revenue to promote energy efficiency and increase household energy awareness.
- Authored policy papers: exploring ways to reach the governor's 2050 greenhouse gas goals; proposing new means of procuring combined heat and power; and returning Low-Carbon Fuel Standard revenue to EV drivers.
- Recruited, hired, trained and mentored new staff; briefed Commissioners and Legislators on policy matters; drafted funding requests and advocated for them at the Legislature.

Advisor to President Peevey

- Advised President Peevey on policy concerning electricity markets, renewable energy, demand response, energy efficiency and other energy matters. Wrote Decisions, Resolutions and other instruments of policy.
- Represented President Peevey in meetings with industry, interest groups, Legislators, communities and federal officials. Assisted President Peevey in the drafting of speeches and other public messages.

Energy Division Staff

- Project Manager, CSI-Thermal Program: Planned, designed, and implemented a new $350 million incentive program to transform the market for solar water heating and other solar thermal technologies in California.
- Lead Analyst, Edison Solar PV Project: Devised an innovative policy for procuring energy from large rooftop solar PV facilities using a combination of utility ownership and PPAs secured at lowest price through auction.
- Lead Analyst, Advanced Metering Infrastructure (AMI): Evaluated the IOU's multi-billion-dollar AMI initiatives to ensure they met state energy policy goals and created positive net present value.

1999 – 2005 E&E Publishing/National Journal Washington, DC

Reporter/writer

- Created original feature news stories about national energy and environment policy for a sophisticated audience of policy professionals whose livelihoods depend on timely access to information.
- Covered the Federal Energy Regulatory Commission, Department of Agriculture and Environmental Protection Agency, as well as Congress, as a reporter filing daily news reports on national energy and environment issues

Education

2003 – 2005 **Johns Hopkins University SAIS** **Bologna, IT/Wash. DC**

- **Masters of Arts in International Relations and Economics**; focus in Energy and Environment
- Selected coursework: Corporate Finance, Econometrics, Natural Resources Economics, Politics and Economics of Energy, Political Economy of Public Policy, Financial Transactions, Monetary Theory, Trade Theory

1992 – 1997 **University of Florida** **Gainesville, FL**

- **Bachelor of Science in Ecology:** Golden Key Honor Society; Florida Academic Scholars Award; Phi Eta Sigma Freshman Honor Society; Cycling Club; Travel and Recreation Program trip leader; bike shop manager