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STATE OF CALIFORNIA
State Energy Resources
Conservation and Development Commission

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

Exhibit No. 4046

Testimony of Matt Owens Regarding CAISO Analysis

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DECLARATION OF
Matt Owens

I, **Matt Owens**, declare as follows:

1. I have 22 years of experience in energy technology and utilities industries working in engineering, product marketing and management and business development roles. I currently lead Stem's new market entry strategy and business development initiatives with utilities in North America. I previously worked at Itron and Silicon Energy where I led product marketing and management for Itron's smart grid solutions in North America. I started my career at PG&E where I had roles in marketing and engineering and construction departments. I earned my BS in Mechanical Engineering from UC Davis and his MBA from the Haas School of Business at UC Berkeley. I am a license Professional Engineer in the State of California.

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

3. I prepared the Testimony of Matt Owens Regarding CAISO Analysis, 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: Matt Owens

At: Millbrae, 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 4046
Testimony of Matt Owens Regarding CAISO Analysis
Summary of Testimony

1) Stem is the nation's largest provider of behind-the-meter energy storage solutions, providing savings for commercial and industrial customers and supporting the evolving needs of the grid, with over 700 systems installed and under contract in 75 U.S. jurisdictions, representing 150 MWh of customer-sited systems.

2) Stem sees a tremendous opportunity to meet the contingency needs in the Moorpark area for its aggregated network of storage systems.

3) Stem believes it can offer cost-competitive storage solutions by leveraging our distributed network of storage systems, which can provide additional value to our customers and vital support for grid operations.

4) The cost data cited by the California Independent System Operator (CAISO) are out-of-date and only look at the cost of the resource, not cost of capacity that would be bid into a Request for Offers (RFO). Therefore, the cost estimates for storage systems used in the study overstate cost to ratepayers.

Testimony

Stem creates innovative technology services that transform the way energy is distributed and consumed. Athena™ by Stem is the first Artificial Intelligence (AI) for energy storage and virtual power plants. It optimizes the timing of energy use and facilitates consumers' participation in energy markets, yielding economic and societal benefits while decarbonizing the grid. The company's mission is to build and operate the smartest and largest digitally-connected energy storage network for our customers.

Stem's superintelligent software solution provides real-time energy optimization to maximize savings for our customers while providing grid support services. Using machine learning and incorporating data from our extensive network of distributed solutions, Stem's AI software solution constantly adapts to fluctuations in energy usage and rates, while giving utilities and grid operators a way to respond to customer and grid needs with speed and precision.

We are the nation's largest provider of BTM energy storage solutions, providing savings for commercial and industrial customers and supporting the evolving needs of the grid, with over 700 systems installed and under contract in 75 jurisdictions in the United States, representing 150 MWh of customer-sited systems.

Stem's rapidly-expanding network has successfully responded to more than 500 utility dispatch requests around the country. In California, Stem has consistently offered stored energy from its network into the CAISO wholesale markets since 2015, including dispatch for seven grid areas during the unprecedented heat wave on June 19, 2017. Stem has dispatched aggregated customer-sited systems in 300 responses to the CAISO wholesale market in 2017 alone.

Stem is currently under contract with SCE to provide 78 MW of capacity reduction to meet the Local Capacity Requirements of the West Los Angeles area, and 7 MW for the Johanna – Santiago area in Orange County. We also have nearly 17 MW of projects in the SCE service territory under contract or in service in the Self-Generation Incentive Program (SGIP), many of which are already participating in Demand Response Auction Mechanism (DRAM), Critical Peak Pricing (CPP) and other demand response programs. Stem also has 14 MW of energy storage systems under contract or in service in PG&E's SGIP program and 12 MW under contract or in service in the SDG&E SGIP program, where our customers also participate in DR services to support the reliable operation of the grid.

Currently, Stem provides the greatest economic value for our customers through demand charge mitigation services – lowering consumption during peak periods to reduce demand charges. However, by participating in LCR, SGIP, DR and other programs, Stem is able to provide multiple services, lowering our costs and enhancing our grid support capabilities. Stem is also helping identify and create new sourcing mechanisms to unlock new value streams.

For example, Stem is currently working with CAISO staff and other stakeholders to develop a wholesale load consumption product that would allow BTM storage providers to absorb excess generation caused by the rapid growth of solar PV in the state. This would provide additional value to our customers, as well as support the State in achieving its ambitious Greenhouse Gas

(GHG) reduction policy goals, helping to reduce the curtailment of GHG-free resources by addressing the "belly of the duck" over-generation issue.

Stem believes BTM storage solutions can play an important role in addressing the contingency need for capacity in the event of a failure of two of the transmission lines serving the Moorpark area, either directly via dispatching our batteries for four to six-hour duration, or as a "lead-in" resource for slow-responding DR in half-hour to one-hour increments. We believe BTM storage should be allowed to bid for this service, beyond the incremental Distributed Energy Resources (DER) baseline assumed in the CAISO's recently completed Moorpark Sub-Area Local Capacity Alternative Analysis.

Although the analysis focuses on grid-connected, In-Front-of-the-Meter (IFOM) storage resources with nine- to ten-hour continuous dispatch capability, we contend that BTM storage solutions such as those offered by Stem should also be considered for the contingency capacity needs in the Moorpark area. If offered this opportunity, Stem would almost certainly bid into an RFO for the Moorpark area. Due to the multiple value streams Stem offers, we believe our BTM storage solution can be very cost-competitive with other resources considered in the CAISO analysis.

Indeed, one of the main concerns we have of the CASIO analysis is the cost assumptions for energy storage systems. We appreciate that CAISO acknowledges that it is not an expert in storage capital costs, and only attempted to provide a high-level estimate of costs based on publicly available information. However, in doing so, CAISO inadvertently created an unrealistic and negative perception of the cost-effectiveness of energy storage in general.

To begin with, the analysis relies on a report from Navigant Consulting that is two years old and out-of-date for an industry experiencing such rapid growth and cost declines as energy storage. Energy storage solutions comprise everything from pumped hydro, compressed air energy storage, flow batteries, and battery technologies, to name a few. It also includes both IFOM and BTM solutions, which have different cost structures and provide different value streams. The analysis assumes the full cost of an energy storage system will be the basis for capacity prices bid into an RFO for contingency services. This is simply not true, however.

As previously stated, Stem is able to provide multiple services and value streams - including, for example, demand charge mitigation, demand response, and potentially ancillary and energy consumption services. Stem would leverage these multiple revenue streams to lower our offer price for an RFO for contingency capacity services that might be held for the Moorpark or neighboring areas. In this way, the capacity price Stem would bid would be designed to be cost-competitive for this service. In fact, this is how Stem bid into the RFO for the Goleta area in the first quarter of 2017 for similar services. Unfortunately, the RFO was suspended, pending the outcome of this proceeding.

Unfortunately, because of the outdated cost assumptions and omission of the potential for BTM storage providers like Stem to provide multiple value streams, the CAISO study undervalues the potential contributions and cost-competitiveness of our BTM energy storage solution.

We therefore believe the Commission should consider BTM energy storage for shorter duration capacity support services for the Moorpark area in addition to the other IFOM, longer-duration energy storage resource identified in the CAISO analysis.

This concludes my testimony.

Matt Owens, PE

Experience

STEM INC, 2015 – Present — Millbrae, CA

Director Business Development

- Leading team responsible for defining Stem's grid services strategy and go-to market approach for the North American utility market.
- Led and executed on $7+M contract with major CA IOU for distributed energy storage. Account lead for key utility accounts in California and North America.
- Defined strategy and executed on new market entry in New York. Led positioning, relationships and bid strategy that resulted in $1.8M contract with Con Edison.
- Defined methodology and framework to evaluate new market entry and defined market migration map and strategy

ITRON INC., 2003 – 2015 — Oakland, CA

Director Product Marketing, Electricity North America — 2012 – 2015

- Provided effective deal strategy and sales support for Itron Smart Grid solutions including solution design, RFP responses and customer presentations.
- Successfully launched Itron's Smart Grid SaaS offering, generating $30M+ in new business in first year.
- Led marketing promotions for Itron Smart Grid Analytics and Itron Total Grid Managed Service offerings to establish thought leadership and generate new business.
- Led and executed partner agreements for smart grid applications including prepay, distribution automation, EV charging, and solar inverter monitoring.
- Performed strategic Smart Grid market assessments and made recommendations regarding Itron product roadmap investments and growth opportunities.
- Product leader for Itron Smart Grid Analytics – lead architectural and roadmap direction, go-to market strategy and initial customer acquisitions for early stage solution.

Director Product Line Management, Software Products — 2003 - 2012

- Overall responsibility for a portfolio of operational and analytic software solutions that address utility needs in the areas of meter data management, consumer engagement, demand response, revenue protection, and complex billing.
- Grew Itron Enterprise Edition product line from $5M to $40M/yr in business over 6 years.
- Led IEE MDM product to earn Gartner Magic Quadrant Leader category status and global market share leadership.
- Led team of product managers responsible for product strategy and roadmap, new product launches, product profitability, and product marketing and sales support.
- Provided effective deal strategy and sales support including solution design, RFP responses and presentations on product strategy, roadmap and differentiators.
- Promoted Itron thought leadership by speaking at industry conferences on Smart Grid solutions, meter data management, demand response and consumer engagement.

SILICON ENERGY CORP. 1998 – 2003 — Alameda, CA

Vice President, Product Development, 2000 - 2003

- Directed and led a 25 person software development team responsible for Silicon Energy's Enterprise Energy Management Suite of applications sold to utilities and large

commercial and industrial customers. Lead team that built first generation meter data management system.
- Implemented software development lifecycle best practices to improve the efficiency, effectiveness, and quality of the software development team.

Product Manager, 1998 – 2000
- Product manager for Silicon Energy's pioneering Enterprise Energy Management solution for large commercial and industrial and utilities.
- Provided effective sales support including detailed product demonstrations that lead to execution of multiple deals.

GENENTECH INC., 1996 – 1997 South San Francisco, CA

Environmental Management Consultant
- Lead Genentech's initiative to develop and implement a company wide environment, health and safety management system as outlined by ISO 14000.

PACIFIC GAS & ELECTRIC COMPANY, 1990 – 1994 San Francisco, CA

Pricing Analyst, Marketing Department, 1993 - 1994
- Designed competitive pricing strategies and performed competitive technology analysis in response to possible deregulation of the electric utility industry.
- Prepared and presented rate and service connection options to potential and existing industrial, high technology, and agricultural customers.

Project Engineer, Mechanical & Nuclear Engineering Department, 1990 - 1992
- Project manager and engineer for multiple capital improvement projects (up to $500,000). Responsible for project's cost, scope, schedule, contracts, and design.

Education

UNIVERSITY OF CALIFORNIA, BERKELEY
Walter A. Haas School of Business
Masters of Business Administration, 1996

UNIVERSITY OF CALIFORNIA, DAVIS
Bachelors of Science, Mechanical Engineering, 1990
- Tau Beta Pi National Engineering Honor Society

Certification

Licensed Professional Engineer, Mechanical Engineering, State of California, 1994