



Los Angeles  
Department of  
Water & Power

RESOLUTION NO. \_\_\_\_\_

BOARD LETTER APPROVAL

A handwritten signature in blue ink, reading "Michael S. Webster".

---

**MICHAEL S. WEBSTER**  
Executive Director of Power System –  
Engineering and Technical Services

A handwritten signature in blue ink, reading "Marcie L. Edwards".

---

**MARCIE L. EDWARDS**  
General Manager

**DATE:** October 29, 2015

**SUBJECT:** First Amendment to Smart Grid Demonstration Cooperative Project Agreement Among National Aeronautics and Space Administration for Jet Propulsion Laboratory, University of California Los Angeles, University of Southern California, and LADWP

**SUMMARY**

The purpose of this resolution is to amend the term of the Smart Grid Demonstration Cooperative Project Agreement (Project Agreement) and to carry out the goals of the Smart Grid Regional Demonstration Program (SGRDP) that LADWP has been working with the National Aeronautics and Space Administration (NASA) for Jet Propulsion Laboratory (JPL), University of California Los Angeles (UCLA), and the University of Southern California (USC) (collectively, the Project Participants) according to the Project Agreement. In order to collect two years of operational data, mandated by the federal grant, LADWP was allowed a one year grant extension. Consistent with LADWP accepting a one-year extension of the federal grant associated with the Project Agreement earlier this year, LADWP is requesting that its term with the Project Participants be amended. This Project Agreement originally was to last for five years with the option to extend it by mutual agreement among the parties for up to an additional three years. The proposed amendment to the Project Agreement is consistent with this option in that it will extend the Project Agreement one year and delegates LADWP's future decisions about extending the Project Agreement for up to two more years in one-year increments, to the Program Director of the SGRDP. City Council approval for this amendment is required.

LADWP brings its expertise in power systems to the Project Agreement, while the Project Participants provide a multi-dimensional understanding of smart grid technologies. The Project Participants possess world-class scientific and experimental

LADWP brings its expertise in power systems to the Project Agreement, while the Project Participants provide a multi-dimensional understanding of smart grid technologies. The Project Participants possess world-class scientific and experimental knowledge, along with subject-matter experts in operations, technical analysis, security, electric vehicles (EV), and social and policy analysis. These qualities have provided a comprehensive approach to how the next generation of smart grid technologies should be built and deployed. Project outcomes will provide invaluable data on the benefits and cost-effectiveness of various technologies to improve customer energy management options, and utility operations.

LADWP has utilized the Project Agreement to lay the foundation for future smart grid investments. Because of challenges in procurement, implementation, and coordination with the Project Participants, LADWP accepted a one-year extension of the federal grant earlier this year in order to collect the two years of operational data mandated by the grant. The total project cost of \$120.56M, half-funded by the United States Department of Energy (DOE) grant accepted by the Board of Water and Power Commissioners (Board) on March 18, 2010, remains unchanged, and no additional money requested.

### **RECOMMENDATION**

It is recommended that the Board adopt the attached Resolution to amend the Project Agreement.

### **ALTERNATIVES CONSIDERED**

An alternative is to not amend the Project Agreement. However, this would essentially cause the Project Agreement to not be completed. Since DOE has allowed an accelerated federal reimbursement schedule, failure to complete the SGRDP would force LADWP to pay back the \$54.63M federal share already reimbursed.

### **FINANCIAL INFORMATION**

The Project Agreement is funded by a DOE grant award of \$60.28M, which will be matched by a \$49.28M LADWP expenditure, \$10.00M by UCLA and USC, and a \$1.00M grant from the California Energy Commission so that the total combined budget will be \$120.56M over an approximately six-year grant term. Upon approval of this Project Agreement amendment, LADWP will retain cooperation of the Project Participants through the end of the Project Agreement and will not increase the SGRDP's total budget beyond the current program budget of \$120.56M approved in 2010.

The SGRDP to date has spent a total of \$97.41M with approximately \$9.00M pending DOE approval. LADWP has received reimbursement for \$54.63M from DOE and expects DOE's federal share of \$60.28M to be reimbursed by September 30, 2015. The Project Agreement expenditures are budgeted and funded out of various Power System funds. The Financial Services Organization reviewed and validated funds on August 24, 2009.

## **BACKGROUND**

In early 2009, DOE, through the American Recovery and Reinvestment Act (ARRA), released a Funding Opportunity Award for a Demonstration Project (Award No. DOE-FOA-036). LADWP submitted an application and was awarded a \$60.28M matching grant. On March 18, 2010, the Board authorized the resolution to accept and acknowledge the grant. Later in 2010, the Project Participants executed the Project Agreement with City Council and Mayoral approval.

The Project Participants are currently in year five of the Project Agreement and have made significant progress in the areas of advanced metering, customer behavior, cyber security, demand response, EV infrastructure, and distribution automation.

To date, approximately 52,000 smart meters have been deployed in three regions within LADWP's service territory, along with the communication infrastructure to collect real-time data and send commands to the meters. The Project Agreement has installed smart meters at about 1,100 residential housing units at UCLA that are equipped with smart thermostats, smart appliances, or direct load control devices. The Project Agreement also installed automatic load curtailment technology on 56 commercial buildings at USC, by which LADWP was able to curtail 5.5 MW during the September 2014 heat storm. The EV project has supported the installation of 124 EV chargers at the John Ferraro Building and at various city facilities, approximately 898 EV rebates for LADWP customers, and use of distribution automation equipment.

LADWP has been able to demonstrate the usefulness to its customers of the deployed technologies in the Home and Garage of the Future where it has installed smart meters, smart appliances, solar panels, a battery, and EV charger. LADWP has also developed an operation center that is currently located at the Home of the Future to monitor the health of the Project Agreement.

The Project Agreement allows all customers with smart meters to make more educated energy choices, with home energy management tools providing energy usage by hour, day, and month. Smart meters also provide the utility real-time outage information, allowing for faster response and outage restoration. Demand response technology on the residential and commercial customer levels allows utilities and customers to reduce their loads automatically or voluntarily. Finally, securing LADWP's system through enhanced cyber security protects its customers' information and its power infrastructure.

The Project Agreement has been used to pilot smart technology in areas that could be significantly improved with further smart technology deployment. Risks do exist in integrating this technology and are being mitigated through development of contingency systems designed for future large scale deployment.

The City Administrative Officer Report, dated October 15, 2015, is attached.

## **ENVIRONMENTAL DETERMINATION**

In accordance with the California Environmental Quality Act (CEQA), it has been determined that approval of the First Amendment to the SG Project Agreement is

exempt pursuant to the General Exemption described in CEQA Guidelines Section 15061(b)(3).

### **CITY ATTORNEY**

The Office of the City Attorney reviewed and approved the First Amendment to the Project Agreement and Resolution as to form and legality.

### **ATTACHMENTS**

- Resolution
- First Amendment to the Project Agreement
- Draft Ordinance
- CAO Report Dated October 15, 2015