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Title: Action on the Demonstration of Energy & Efficiency Developments (DEED) Grant Agreement Silicon Valley Power CG-2167 Maximizing the Effectiveness of Ductless Mini-Split Heat Pumps in Existing Homes and Approval of Budget Amendment

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Attachments: 1. APPA Deed with Battelle Attached

Date	Ver.	Action By	Action	Result
11/13/2018	1	Council and Authorities Concurrent Meeting	Approved	

REPORT TO COUNCIL

SUBJECT

Action on the Demonstration of Energy & Efficiency Developments (DEED) Grant Agreement Silicon Valley Power CG-2167 Maximizing the Effectiveness of Ductless Mini-Split Heat Pumps in Existing Homes and Approval of Budget Amendment

BACKGROUND

The American Public Power Association's Demonstration of Energy & Efficiency Developments (DEED) program provides funding for research grants for member utilities, student scholarships, and internships. Members of the program pay annual dues, which are used to fund the grants and scholarships. Utilities may apply for funding up to \$125,000 per project, with matching funds provided by the utility or other project partners. Grant-funded projects can be research and development, pilot projects, early commercialization, or new technology demonstrations, and are expected to have applicability to the broader public power community. Deliverables developed through the project are made available to all DEED member utilities. As a member of the DEED program, Silicon Valley Power (SVP) is eligible to apply for grant funding.

In order to expand its energy efficiency programs, SVP periodically participates in research and development efforts to investigate new technologies or study ways to improve the energy efficiency achieved through technology solutions. SVP partners in larger efforts undertaken regionally or nationally to leverage the expertise and investment by other industry partners. SVP also leverages funding by applying for grant money, where applicable.

In an effort to expand its residential energy efficiency programs and assist customers in saving energy, SVP, along with other utilities, has been investigating the addition of ductless mini-split heat pumps (DHP) into its energy efficiency program portfolio. These DHP systems have several advantages:

- 1) are highly effective at heating individual rooms or zones within a home, allowing for heating or cooling of only occupied rooms;
- 2) allow flexibility in placement options, including wall mounted, ceiling mounted, or placed in a drop ceiling;
- 3) are easy to install because no duct work is required;
- 4) are more efficient than ducted systems because up to 30% of heat is lost through leaking ducts; and
- 5) can be customized with built-in timers and sleep functions.

To that end, on September 18, 2018, Council approved a strategic partnership with Battelle Memorial Institute, Pacific Northwest Division to study the energy savings achieved and effectiveness of DHPs in existing homes.

DISCUSSION

This grant money will be used to test control strategies in the Pacific Northwest National Laboratory (PNNL) lab homes operated by Battelle Memorial Institute, to validate energy savings capabilities and model the energy savings potential in 13 climate zones, including Santa Clara's climate zone. This effort will determine the appropriate control strategies to maximize energy efficiency from the DHP technology and improve energy efficiency program design.

SVP will provide matching funds of \$50,000 available through its Public Benefits Program, budgeted in the Electric Operating Grant Trust Fund, and will provide quarterly reporting regarding the project's progress to the DEED program. A final report and abstract (a brief summary of the research) are also required. Under SVP's direction, PNNL will develop a technical report with both experimental and modeled results of three solutions using two algorithms each, for each of the 13 climate zones, which will be made available to all DEED member utilities. Results from this work will guide the design of a potential DHP program for SVP's residential customers and will assist other public power utilities in determining program applicability within their own service territory.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a "project" within the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378(a) as it has no potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

FISCAL IMPACT

The total amount of the grant under the Demonstration of Energy & Efficiency Developments (DEED) Grant Agreement Silicon Valley Power CG-2167 Maximizing the Effectiveness of Ductless Mini-Splits in Existing Homes Grant from the American Public Power Association will not exceed \$124,284. SVP must provide matching funds in the amount of \$50,000 and the DEED Grant will not exceed the pro-rata share of the Battelle Memorial Institute study expense up to a value of \$174,284.

The DEED Grant funds will offset money that has already been committed toward the Strategic Partnership Projects Agreement No. 72173 between Battelle Memorial Institute and City of Santa Clara which Council approved on September 19, 2018. The DEED process requires SVP to approve the research agreement prior to being awarded the grant.

Budget Amendment

FY 2018/19

	Current	Increase/ (Decrease)	Revised
Electric Operating Grant			
Trust Fund			
<u>Revenues</u>			
Grant Funding - 1312	\$0	\$124,284	\$124,284
<u>Expenditures</u>			
Materials/Services/Supplies - 1312	\$11,349,518	\$124,284	\$11,473,802

COORDINATION

This report has been coordinated with the Finance Department and City Attorney's Office.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall Council Chambers. A complete agenda packet is available on the City's website and in the City Clerk's Office at least 72 hours prior to a Regular Meeting and 24 hours prior to a Special Meeting. A hard copy of any agenda report may be requested by contacting the City Clerk's Office at (408) 615-2220, email clerk@santaclaraca.gov or at the public information desk at any City of Santa Clara public library.

RECOMMENDATION

1. Approval of a Demonstration of Energy & Efficiency Developments (DEED) Grant Agreement with American Public Power Association for CG-2167 Maximizing the Effectiveness of Ductless Mini-Splits in Existing Homes; and
2. Approval of a budget amendment in the amount of \$124,284 for the Electric Department's Public Benefits Program Operating Budget Grant Funding and Contractual Services.

Reviewed by: John C. Roukema, Chief Electric Utility Officer

Approved by: Deanna J. Santana, City Manager

ATTACHMENTS

1. APPA Deed with Battelle Attached