DEPARTMENT OF FINANCE
OFFICE OF THE DIRECTOR

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May 2, 2014

Honorable Mark Leno, Chair
Joint Legislative Budget Committee
Senate Budget and Fiscal Review Committee

Honorable Nancy Skinner, Chair
Assembly Budget Committee

Honorable Kevin de León, Chair
Senate Appropriations Committee

Honorable Mike Gatto, Chair
Assembly Appropriations Committee

Emergency Drought Relief Legislation—Cap and Trade Expenditures

Pursuant to the provisions of Items 3860-301-3228, 3860-101-3228, and 8570-001-3228, Budget Act of 2013, the following report is respectfully submitted.

Chapter 2, Statutes of 2014, (SB 103) appropriates $40 million Greenhouse Gas Reduction Fund for the following purposes:

- $20 million for the Department of Water Resources (DWR) for a grant program to support local water-use efficiency projects.
- $10 million for the DWR for energy efficiency projects at State Water Project facilities.
- $10 million for the Department of Food and Agriculture (CDFA) for water and energy efficiency projects in the agricultural sector.

Prior to the expenditure of these funds, provisional language requires that the Legislature be notified of the following: (1) a description of proposed expenditures, (2) how the expenditures will further the regulatory purposes of the California Global Warming Solutions Act of 2006 (AB 32), (3) how the expenditures will achieve specified greenhouse gas emission reductions, (4) how the agency considered other objectives of AB 32, and (5) how the agency will document expenditure results.

The Department of Finance has received the attached documents from DWR and CDFA that describes how the programs will reduce water use and achieve greenhouse gas emission reductions.

We concur that the expenditure of these funds will further the regulatory purpose of AB 32.

If you have any questions or need additional information regarding this matter, please call Matt Almy, Assistant Program Budget Manager, at (916) 324-0043.

MICHAEL COHEN
Director
By:

KEELY M. BOSLER
Chief Deputy Director

Attachment

cc: Honorable Jim Nielsen, Vice Chair, Senate Budget and Fiscal Review Committee
Honorable Jeff Gorell, Vice Chair, Assembly Budget Committee
Honorable Jim Beall, Chair, Senate Budget and Fiscal Review Subcommittee No. 2
Honorable Richard Bloom, Chair, Assembly Budget Subcommittee No. 3
Mr. Mac Taylor, Legislative Analyst (3)
Mr. Mark Ibele, Staff Director, Senate Budget and Fiscal Review Committee
Mr. Mark McKenzie, Staff Director, Senate Appropriations Committee
Mr. Seren Taylor, Staff Director, Senate Republican Fiscal Office
Mr. Craig Cornett, Senate President pro Tempore's Office (2)
Mr. Christian Griffith, Chief Consultant, Assembly Budget Committee
Mr. Geoff Long, Chief Consultant, Assembly Appropriations Committee
Mr. Eric Swanson, Staff Director, Assembly Republican Fiscal Committee
Ms. Deborah Gonzalez, Policy and Fiscal Director, Assembly Republican Leader's Office
Mr. Christopher W. Woods, Assembly Speaker's Office (2)
Mr. Kasey Schimke, Assistant Director, Department of Water Resources
Ms. Jody Lusby, Assistant Director, California Department of Food and Agriculture
Ms. Ellen Peter, Chief Counsel, Air Resources Board
Ms. Edie Chang, Deputy Executive Officer, Air Resources Board

Government Code Section 16428.9 requires the preparation of a record prior to the expenditure of any monies by a state agency from the fund. That record includes the following:

(1) A description of each expenditure proposed to be made by the state agency pursuant to the appropriation.

On March 1, 2014 the Department of Water Resources (DWR) was appropriated state operations and local assistance funding in SB 103 (Committee of Budget and Fiscal Review), which amended the 2013-14 Budget Act to provide $1 million for state operations support and $19 million for "a grant program for local agencies, joint powers authorities, or nonprofit organizations to implement residential, commercial, or institutional water efficiency programs or projects that reduce greenhouse gas emissions, and also reduce water and energy use."
[Provision 2 of Section 3860-101-3228, of the Budget Act of 2013, as amended by Chapter 2, Statutes of 2014]

DWR will be developing a $19 million grant program, administered by DWR staff that are to be funded by the $1 million state operation appropriation, based upon similar water use efficiency grants administered previously by DWR, but with the requirement that the project(s) and/or program(s) identify and achieve a measurable reduction in greenhouse gas emissions and quantifiable efficiencies in water use. The funds will be expended through one planned grant solicitation for local agencies, joint powers authorities, and nonprofit organizations. Types of projects and programs can vary widely, from residential retrofit of water heaters, showerheads and toilets, to repairing leaks in municipal water systems, to large water treatment or recycling projects. Each of these has the potential to reduce water loss, and in turn, reduce energy use associated with the delivery and/or treatment of potable water. Specific amounts of water and energy savings will depend upon the type(s) of projects submitted for funding by the local agencies, joint powers authorities, or nonprofit organizations.

(2) A description of how a proposed expenditure will further the regulatory purposes of Division 25.5 (commencing with Section 38500) of the Health and Safety Code, including, but not limited to, the limit established under Part 3 (commencing with Section 38550) and other applicable requirements of law.

The proposed expenditure is for a grant program to local agencies, joint powers authorities, or nonprofit organizations to implement water efficiency programs or projects that reduce greenhouse gas emissions, and also reduce water and energy use. In many instances there exists a direct nexus between water and energy use, for instance, the California Energy Commission estimates that the operation of water supply and wastewater systems throughout the state – especially end uses – accounts for about 19 percent of the state's total use of electric power and 30 percent of non-power plant natural gas use in California. Because end uses comprise the vast majority of this energy intensity, a focused effort on integrating water and energy efficiency at the customer level has the potential to reduce the GHG emissions of water use in California. Beyond CEC estimates, other state efforts, such as the AB 32 Scoping Plan[1], the Embedded Energy in Water Pilot Impact Evaluation[2], and

[1] California Air Resources Board. *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework.* 10 Feb. 2014.
[2] California Public Utilities Commission. *Embedded Energy in Water Pilot Programs Impact Evaluation.* 9 Mar. 2011.

the Cap-and-Trade Auction Proceeds Investment Plan[3] have also identified the energy intensity of water use and highlighted the need for improved water-use efficiencies. This research and documentation establishes investments in water conservation and water pumping or conveyance, fueled by renewable or low-carbon energy, as potential GHG reduction strategies for California. To be eligible, water efficiency projects under the proposed grant program must demonstrate the linkage to energy reduction, and the corresponding greenhouse gas emission reduction or the potential to reduce greenhouse gas emissions.

(3) A description of how a proposed expenditure will contribute to achieving and maintaining greenhouse gas emission reductions pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

Many water resources require some level of energy to transport it from point A to point B, or to treat it to achieve a level of quality that is adequate for its intended use. Depending upon the source of that energy and the distance or energy intensity to transport or treat the water, the level of greenhouse gas emissions can vary. Water use efficiency projects, by definition, provide for a more efficient use of water. Where such efficiency reduces the need for the transportation or treatment of additional water, or it provides for the reuse of water in ways that limit further energy needs, a reduction in greenhouse gas emissions can be calculated.

DWR has previously administered water efficiency projects, for which energy-use and greenhouse gas emission reductions have been calculated. The calculations regarding energy reductions (and correspondingly, reductions to greenhouse gas emissions) requires a knowledge of the volume of water saved, the energy intensity of that water for that locale, and the amount of greenhouse gas emissions associated with that energy - as different sources of energy (natural gas, coal, hydroelectric, solar, wind) are imbedded with different intensities of greenhouse gas emissions (or potentially none).

The reduction in greenhouse gas emissions for a grant program that implements water efficiency programs and/or projects that (1) reduce greenhouse gas emissions, and also reduce (2) water and (3) energy use, can be calculated. DWR will require grant recipients to identify the savings described above as part of accounting procedures associated with the grant requirements. It is anticipated that the projects will have a useful life beyond 2020.

(4) A description of how the state agency considered the applicability and feasibility of other nongreenhouse gas reduction objectives of Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

Division 25.5 of the Health and Safety Code includes other objectives beyond the reduction in greenhouse gas emissions. These include such objectives as the equitable distribution of costs and benefits to Californians, the prevention of disproportionate impacts on low-income communities, reductions in other air pollutants, diversification of energy sources, benefits to the economy, environment, and public health, the cost-effective implementation of AB 32, and minimizing the administrative burden of implementing requirements of AB 32. Increased water use efficiency and clean, affordable drinking water, has the potential to reduce water utility cost for low-income and provide public health benefits to disadvantaged community members, consistent with the objectives of SB 535 and AB 1532 (statutes of

[3] California Air Resources Board. *Cap-and-Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16.* 14 May 2014.

2012). The issues of minimizing cost burdens and impacts on low-income communities are consistent with practices of DWR in the implementation of other grant programs within the department. For example, DWR currently takes into account the benefits a proposed project may have on disadvantaged communities in grant selection criteria. Additionally, the recently-enacted AB 685 (Chapter 524, Statutes of 2012) requires DWR and all relevant agencies that operate in the arena of water, to administer programs in a way that takes into account specific human needs for clean, affordable drinking water. This too is an "additive" objective to our program activities in the same way as AB 32 includes additional public health and environmental objectives.

The $19 million in local assistance grant funding appropriated to DWR from Greenhouse Gas Reduction Funds in SB 103 (Committee of Budget & Fiscal Review), Chapter 2, Statutes of 2014, is for a grant program to implement water efficiency programs or projects that reduce greenhouse gas emissions, and also reduce water and energy use. In the development of such a program, DWR will take into account the multiple objectives of AB 32, as well as those other objectives in state law.

(5) A description of how the state agency will document the result achieved from the expenditure to comply with Division 25.5 (commencing with Section 35800) of the Health and Safety Code.

Grant awards made by the Department of Water Resources require recipients to document their use of the funding. Compared to other DWR grant programs, this program has the added requirement that projects achieve a reduction in greenhouse gas emissions. Applicants will be required to provide a projection and the methodology used in its calculation of the expected greenhouse gas, water, and energy reductions of the activities or programs for which they are applying for a grant. The calculation of energy, water savings, as well as the greenhouse gas emissions reductions will need to be made using standardized, or otherwise academically-justified methodologies.

DWR's past water use efficiency programs have tracked the benefits of the activities. This program will be no different and will include the tracking and reporting of greenhouse gas emissions reductions and other program benefits. Upon closure of the grant program a final "accounting" of the activities undertaken with the grants will be prepared. In addition, program status and benefits, including GHG emission reductions, will be reported in the Department of Finance's annual report on Greenhouse Gas Reduction Fund expenditures, as required by Health and Safety Code Section 39720.

Government Code Section 16428.9 requires the preparation of a record prior to the expenditure of any monies by a state agency from the fund. That record includes the following:

(1) A description of each expenditure proposed to be made by the state agency pursuant to the appropriation.

On March 1, 2014 the Department of Water Resources (DWR) was appropriated $10 million in Greenhouse Gas Reduction Funds in SB 103 (Committee of Budget and Fiscal Review), which amended the 2013-14 Budget Act to provide the $10 million as capital outlay support to "improve water use efficiency, save energy, and reduce greenhouse gas emissions from state water management systems."
[Provision 1 of Section 3860-301-3228, of the Budget Act of 2013, as amended by Chapter 2, Statutes of 2014]

DWR had proposed, in the Governor's 2014-15 Budget, funding to replace and retrofit two hydroelectric turbines in DWR State Water Project (SWP) facilities. The purpose of the replacement and retrofit would be to increase the efficiency of the clean hydroelectric generation, and in turn reduce the SWP's need to purchase that incremental equivalent of "brown" electricity on the wholesale market. The ensuing savings in the amount of electricity purchased has a corresponding savings in greenhouse gas emissions.

(2) A description of how a proposed expenditure will further the regulatory purposes of Division 25.5 (commencing with Section 38500) of the Health and Safety Code, including, but not limited to, the limit established under Part 3 (commencing with Section 38550) and other applicable requirements of law.

The proposed expenditure would provide $10 million to [1] improve water use efficiency, [2] save energy, and [3] reduce greenhouse gas emissions from state water management systems. The funding will be used to replace two hydroelectric generation turbines – one at the Hyatt Unit within Oroville Dam, and one at the Thermalito Unit, just down river from Oroville Reservoir. Replacing these units would make them more efficient, producing more clean hydroelectric energy with the same amount of water, which would reduce the energy that the SWP would need to purchase on the wholesale market – reducing the GHG emissions of the SWP. With that reduction, the project will assist in reducing greenhouse gas emissions within the energy sector, and as such will further the regulatory purpose of AB 32.

(3) A description of how a proposed expenditure will contribute to achieving and maintaining greenhouse gas emission reductions pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

The SWP operates in the wholesale energy market for the purchase of electricity to operate the system. The Cap-and-Trade Investment Plan specifically recommends that the revenues be used to invest in Energy Efficiency and Clean Energy priorities – including "energy efficiency in water pumping and conveyance."

The estimated reduction in greenhouse gas emissions per year as a result of the replacement of these turbines would be 4,500 - 6,500 metric tons for the Hyatt unit, and 1,500 -, 2,100 metric tons for the Thermalito Unit. This emission reduction estimate is based on production of 19,833MWHs of clean energy per year multiplied by California electricity generation baseload and non-baseload emission factors for GHG emissions per megawatt hour for market energy. It is anticipated that the projects will have a useful life beyond 2020, helping the state maintain post-2020 GHG reduction goals.

(4) A description of how the state agency considered the applicability and feasibility of other nongreenhouse gas reduction objectives of Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

Division 25.5 of the Health and Safety Code includes other objectives beyond the simple reduction in greenhouse gas emissions. These include such objectives as the equitable distribution of costs and benefits to Californians, the prevention of disproportionate impacts on low-income communities, reductions in other air pollutants, diversification of energy sources, benefits to the economy, environment, and public health, the cost-effective implementation of AB 32, and minimizing the administrative burden of implementing requirements of AB 32. Many of these objectives are not directly applicable to the expenditure of Greenhouse Gas Reduction Funds, rather they appear to be intended to guide the Air Resources Board's implementation of its regulatory authority. However, the applicability of elements of these objectives can be viewed as applicable to the expenditure of the funds

Development of additional renewable energy generation capacity, through the efficiency improvements at Thermalito and Hyatt, will reduce energy generation costs, produce additional renewable energy, and help the state diversify our energy sources.

(5) A description of how the state agency will document the result achieved from the expenditure to comply with Division 25.5 (commencing with Section 35800) of the Health and Safety Code.

Water Code Section 142 requires DWR to annually report to the Governor and the Legislature annually on its efforts to reduce dependency upon fossil fuels. The department has included in this report an accounting of its energy purchases and use. The results achieved by this proposed expenditure would be identified in the reporting, as well as in the SWP documentation associated with the billing of water contractors for the costs of operating the SWP.

In addition, program status and benefits, including GHG emission reductions, will be reported in the Department of Finance's annual report on Greenhouse Gas Reduction Fund expenditures, as required by Health and Safety Code Section 39720.

California Department of Food and Agriculture
Water Efficiency and Enhancement Program
Record to Expend $10 Million in Greenhouse Gas Reduction Funds
Per Government Code 16428.9

Appropriated Funds:
Item 8570-001-3228 (Chapter 2, Statutes of 2014) appropriated $10,000,000 to the California Department of Food and Agriculture (CDFA) from the Greenhouse Gas Reduction Fund (GGRF) to provide financial incentives for growers to implement water conservation and greenhouse gas (GHG) reduction measures on farms.

Record Required per Government Code 16428.9:

1) Description of each expenditure proposed to be made by the state agency pursuant to the appropriation.

   Per Provision 1 of Item 8570-001-3228 (Chapter 2, Statutes of 2014) CDFA's appropriation "shall be available for encumbrance until June 30, 2015, for consultation and coordination with the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB), to establish and implement a program, on or before July 1, 2014, to provide financial incentives to agricultural operations to invest in water irrigation treatment and distribution systems that reduce water and energy use, augment supply and increase water and energy efficiency in agricultural applications. Incentives shall be ranked and distributed based on financial need, immediacy of water supply increased and efficiency gained to address water shortages, and reduction in water pumping or treatment that uses energy causing greenhouse gas emissions." CDFA will use appropriated funding to provide competitive grants to farmers to improve the efficiency of their irrigation systems to save water, reduce GHG emissions through subsequent reduced energy use, and provide co-benefits such as improved air quality.

2) Description of how a proposed expenditure will further the regulatory purposes of Division 25.5 (commencing with Section 38500) of the Health and Safety Code, including, but not limited to, the limit established under Part 3 (commencing with Section 38550) and other applicable requirements of law.

   There is adequate scientific information available to show that water efficiencies on farms lead to energy efficiencies and, consequently, GHG emission reductions from reduced fuel combustion[1, 2]. Approximately 41% of the state's water resources are used for agricultural activities, which in turn creates significant energy demand to obtain, treat, and transport water and results in GHG emissions. Multiple state efforts, such as the AB 32 Scoping Plan[1], the Public Energy Research Program[2], the

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[1] California Air Resources Board. *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework.* 10 Feb. 2014.
[2] California Energy Commission. *Refining Estimates of Water-Related Energy Use in California.* 2006.

Embedded Energy in Water Pilot Impact Evaluation[3], the Cap-and-Trade Auction Proceeds Investment Plan[4], and other strategies have identified the energy intensity of water use and highlighted the need for improved water-use efficiencies. This research and documentation establishes investments in water conservation and water pumping or conveyance, fueled by renewable or low-carbon energy, as potential GHG reduction strategies for California.

3) Description of how a proposed expenditure will contribute to achieving and maintaining greenhouse gas emission reductions pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

GHG emissions stem from on-farm energy use including nonrenewable fuels and inefficiencies from irrigation water pumps. The proposed expenditures will fund grants to farmers to make irrigation systems and pumps more efficient, leading to reductions in GHG emissions. The program will incentivize farmers to 1) install water efficient irrigation systems that reduce or optimize water and, consequently, energy use and 2) utilize renewable sources of energy for water pumping. Both of these design elements will lead to reduced GHG emissions. For example, making irrigation systems on farms more efficient will lead to less diesel fuel use and thereby will reduce carbon dioxide emissions. Farmers will be able to replace existing irrigation methods that utilize large amounts of water over a short period to time (e.g., flood or furrow irrigation) with irrigation systems that deliver small amounts of water more directly to the plant root zone for greater water use efficiency. Greater water use efficiency correlates with energy efficiency. The program is also designed to reduce GHG emissions by replacing diesel or nonrenewable fuel systems with those that use wind or solar power. Other design elements aimed at reducing GHG emissions include using low pressure pumps and establishing effective irrigation scheduling with soil moisture sensors or probes. It is anticipated that the projects will have a useful life beyond 2020, helping the state maintain post-2020 GHG reduction goals.

4) Description of how the state agency considered the applicability and feasibility of other nongreenhouse gas reduction objectives of Division 25.5 (commencing with Section 38500) of the Health and Safety Code.

In addition to promoting GHG emission reductions and improving the availability of the water supply through the use of more efficient systems, this program will benefit disadvantaged communities as it is likely that many grant recipients will be in the Central Valley (per CalEnviroScreen a vast portion of the most challenged communities are located in the Central Valley). The program has been designed, in addition to achieving greater water savings and efficiencies, to encourage energy efficiency for pumping water. For instance, one of the ranking criteria is the reduction

[3] California Public Utilities Commission. *Embedded Energy in Water Pilot Programs Impact Evaluation.* 9 Mar. 2011.
[4] California Air Resources Board. *Cap-and-Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16.* 14 May 2014.

of GHG by using renewable energy or electricity from the grid as an alternative to diesel fuel use. The result is that there will be less GHG emissions and other pollutants that affect disadvantaged communities. In addition, the program will be designed to ensure that a portion of the funding goes to smaller farming operations, which are often small businesses. Some farmers may also employ outside firms to install irrigation equipment which could lead to temporary job growth.

5) Description of how the state agency will document the result achieved from the expenditure to comply with Division 25.5 (commencing with Section 35800) of the Health and Safety Code.

The proposed grant program will encourage the use of United States Department of Agriculture, Natural Resources Conservation Service (NRCS) conservation practices for water and energy efficiency on farms. These practices have been designed for quantifiable outcomes and are considered the highest standard in terms of conservation practices on farms. Several standards have been identified including NRCS Conservation practice 441 titled "Irrigation System, Microirrigation" and 449 titled "Irrigation Water Management." CDFA will utilize an independent third party to establish baseline water use, GHG emission levels, and other project benefits which will be compared to results taken on a regular basis after the installation of new systems to quantify the results of the project. The calculation of energy-water savings, as well as the greenhouse gas emissions reductions will be made using standardized or otherwise academically-justified methodologies, and will be reviewed by staff at the DWR and the Air Resources Board for consistency with state greenhouse gas reduction efforts. This information will be compiled into a report in consultation with DWR and SWRCB and will be provided to the Air Resources Board. CDFA will also report program progress periodically to the State Board of Food and Agriculture. In addition, program status and benefits, including GHG emission reductions, will be reported in the Department of Finance's annual report on Greenhouse Gas Reduction Fund expenditures, as required by Health and Safety Code Section 39720.