

STATE OF CALIFORNIA
 Budget Change Proposal - Cover Sheet
 DF-46 (REV 08/15)

iscal Year 2016/17	Business Unit 3360	Department California Energy Commission	Priority No.
Budget Request Name 3360-011-BCP-DP-2016-GE		Program DEVELOPMENT	Subprogram TRANSPORTATION TECHNOLOGY AND FUELS

Budget Request Description
 Expansion of In-State Biofuel Production Capacity

Budget Request Summary

This proposal requests \$25 million from the Greenhouse Gas Reduction Fund (GGRF) to incentivize in-state production of low-carbon biofuel production for use in the transportation sector. The Energy Commission anticipates the \$25 million in GGRF funding will incentivize approximately 75-100 million gallons per year in new, in-state biofuel production through the expansion of existing or the construction of new facilities. GGRF funding will supplement and not supplant biofuel production funding provided under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP).

Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed
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Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	Department CIO	Date
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For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance.

FSR SPR Project No. Date:

If proposal affects another department, does other department concur with proposal? Yes No
Attach comments of affected department, signed and dated by the department director or designee.

Prepared By	Date	Reviewed By <i>NWail</i>	Date <i>12/2/15</i>
Department Director <i>[Signature]</i>	Date <i>12-2-15</i>	Agency Secretary <i>[Signature]</i>	Date <i>12/30/15</i>

Department of Finance Use Only

Additional Review: Capital Outlay ITCU FSCU OSAE CALSTARS Dept. of Technology

BCP Type: Policy Workload Budget per Government Code 13308.05

PPBA	Original Signed By: Ellen Moratti	Date submitted to the Legislature <i>1/7/16</i>
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BCP Fiscal Detail Sheet

DP Name: 3360-011-BCP-DP-2016-GB

BCP Title: In-State Biofuel Production Capacity

Budget Request Summary

	FY16					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Operating Expenses and Equipment						
54XX - Special Items of Expense	0	25,000	0	0	0	0
Total Operating Expenses and Equipment	\$0	\$25,000	\$0	\$0	\$0	\$0
Total Budget Request	\$0	\$25,000	\$0	\$0	\$0	\$0

Fund Summary

Fund Source - Local Assistance						
3228 - Greenhouse Gas Reduction Fund	0	25,000	0	0	0	0
Total Local Assistance Expenditures	\$0	\$25,000	\$0	\$0	\$0	\$0
Total All Funds	\$0	\$25,000	\$0	\$0	\$0	\$0

Program Summary

Program Funding						
2390010 - Transportation Technology and Fuels	0	25,000	0	0	0	0
Total All Programs	\$0	\$25,000	\$0	\$0	\$0	\$0

Analysis of Problem

A. Budget Request Summary

This proposal requests \$25 million from the Greenhouse Gas Reduction Fund (GGRF) to incentivize in-state production of low-carbon biofuel production for use in the transportation sector. The Energy Commission anticipates the \$25 million in GGRF funding will incentivize approximately 75-100 million gallons per year in new, in-state biofuel production through the expansion of existing or the construction of new facilities. GGRF funding will supplement and not supplant biofuel production funding provided under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP).

This proposal requests up to five percent of the funds appropriated for the administration of the funding along with authority for a two-year encumbrance period and a four-year liquidation period.

B. Background/History

Implementation of the California Global Warming Solutions Act of 2006 (AB 32) includes measures that achieve real, quantifiable, cost-effective reductions of greenhouse gas (GHG) emissions and return California to 1990 emission levels by 2020. Since 2006, the State has continued to steadily implement a set of actions that are driving down GHG emissions, cleaning the air, diversifying the energy and fuels that power our society, spurring innovation in a range of advanced technologies and improving natural resource health statewide.

These efforts have put California on course to achieve the 2020 emissions limit, and have created a framework for ongoing climate action that can be built upon to maintain and continue reductions beyond 2020. In addition to the near-term GHG emission reduction goals established in AB 32, mid-term and longer-term GHG emission reduction targets have been established in Executive Orders B-30-15 and S-3-05 to reduce GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, respectively.

The Greenhouse Gas Reduction Fund (GGRF -funded by the Cap-and-Trade Program generated Auction Proceeds, authorized by AB 32) has been established for the purpose of funding measures that allow California to achieve its GHG reduction goals, furthering the purposes of AB 32. In addition, SB 535 (de León, Chapter 830, Statutes of 2012) requires that twenty-five percent of GGRF funds are spent to benefit designated disadvantaged communities, and ten percent must be spent within disadvantaged communities.

The ARFVTP, under Health and Safety Code 44270 et. seq, authorizes the Energy Commission to “develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.” One goal of the ARFVTP is to help build capacity of California companies to produce economically competitive biofuels from waste-based and renewable feedstocks to displace imports from foreign countries and other states.

To date, the Energy Commission’s ARFVTP has invested \$137.9 million in 47 biofuel production facility projects using advanced process technologies and waste-based and alternative feedstocks, with a production capacity of over 150 million gallons of biofuel annually. In comparison to other alternative fuel types, the biofuels category has a broader range of fuel products (e.g. ethanol/renewable gasoline, biodiesel/renewable diesel, biogas/syngas, etc.), conversion technologies, and feedstocks that provide unique and significant benefits.

The biofuels funding category has historically and consistently been oversubscribed in funding requests. In July 2014, the Energy Commission issued a Notice of Proposed Awards totaling ~\$47.5 million in proposals for pilot- and commercial-scale biofuels production facility projects. An additional ~\$30 million in eligible proposals were not funded due to lack of available funds.

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C. State Level Considerations

This proposal is supported by a number of major policy goals in California as outlined in Table 1.

Table 1: Energy Policy Goals

Policy Origin	Objectives	Goals and Milestones
Assembly Bill 32 (Nunez, Chapter 488, Statutes of 2006)	GHG Reduction	Reduce GHG emissions to 1990 levels by 2020
Executive Order B-30-15	GHG Reduction	Reduce GHG emissions to 40 percent below 1990 levels by 2030
Executive Order S-3-05	GHG Reduction	Reduce GHG emissions to 80 percent below 1990 levels by 2050
Low-Carbon Fuel Standard	GHG Reduction	Reduce carbon intensity of transportation fuels in California by 10 percent by 2020
State Alternative Fuels Plan	Petroleum Reduction	Reduce petroleum fuel use to 15 percent below 2003 levels by 2020*
Bioenergy Action Plan	In-State Biofuels Production	Produce in California 20 percent of biofuels used in state by 2010, 40 percent by 2020, and 75 percent by 2050
Clean Air Act; California State Implementation Plans	Air Quality	80 percent reduction in NOx by 2023

Source: California Energy Commission.

*In his second inaugural address, Governor Brown also proposed a goal of reducing petroleum use in cars and trucks up to 50 percent by 2030.

This proposal directly supports California's Low Carbon Fuel Standard (LCFS), which aims to reduce the carbon intensity of California's transportation fuels by 10 percent by 2020, and the federal Renewable Fuel Standard (RFS2), which mandates 36 billion gallons of renewable fuel annually by 2022, nationally. The Energy Commission expects the LCFS and RFS2 to have significant early effects on the state's efforts to reduce GHG emissions by expanding demand for alternative fuels. Additionally, the proposal seeks to assist California in meeting the goals of the Bioenergy Action Plan, which are currently not being met.

D. Justification

California's transportation sector accounts for approximately 37 percent of GHG emissions. In order to achieve the state's climate change, clean air, and petroleum reduction goals, the transportation sector must transition from petroleum-based fuels to low carbon emission fuels. Biofuels, including gasoline substitutes, diesel substitutes, and biomethane, represent the largest category of alternative fuels in California today, contributing more than 99 percent of alternative fuel GHG reductions and petroleum fuel reductions in California. Liquid biofuels are blended into gasoline sold throughout the state and into biodiesel and renewable diesel used in trucks that move freight from California ports to warehouses and rail yards. Biomethane is also used in refuse trucks, transit buses and other vehicles to augment natural gas transportation fuels. Due to their compatibility with California's existing fleet of light-, medium-, and heavy-duty vehicles, these low-carbon substitute fuels have the potential for immediate, high-volume effects on California's fuel markets. Additionally, companies that are developing low-carbon biofuels are using waste-based biomass resources or alternative feedstocks to reduce tailpipe emissions and GHG emissions by 50 percent to 90 percent, particularly in large trucks and buses. Low-carbon biofuels that can directly displace the roughly 14.6 billion gallons of gasoline and 3.4 billion gallons of diesel used per year in California represent both an immediate and long-term opportunity to reduce GHG emissions and petroleum dependence.

Because of the significant positive effects that biofuels can have on transforming California's transportation sector from conventional petroleum fuels, a number of regulations, combined with government incentive funding programs, have been put in place. The federal RFS2, the California LCFS, a federal blenders' tax credit for biodiesel and renewable diesel sales, and cofounding of biofuel production plants have stimulated a California market for low-carbon intensity biofuels. As a result, California has seen an increase in imports of low-carbon fuels from other states and countries and in the development of California production plants. However, in-state production is increasing at too slow

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a rate and has not kept up with increased in-state demand. California's annual demand totals 1.4 billion gasoline gallon equivalents (gge) of ethanol and 45 million gge of diesel substitutes; however, California biofuel producers are providing less than 20 percent of this demand. California firms are at a competitive disadvantage to firms from other states and countries that receive production incentives. This proposal would provide government capital needed to accelerate the transition of in-state technologies by providing investment that private markets are not yet ready to take on, in part due to regulatory uncertainties. Supporting in-state biofuel production plants and increasing biofuel production will help ensure needed alternative low-carbon, sustainably produced transportation fuels are available to transform California's transportation sector from conventional petroleum fuels and will help California achieve state and federal policy goals for GHG reduction.

While the Energy Commission has the regulatory authority to administer this proposal, ARFVTP does not have the staff resources or funding capacity to fully support the in-state production of low-carbon biofuels.

If this proposal is approved, the biofuels production and supply industries would be the ultimate recipients of the GGRF funding. Beneficiaries may include biomethane and biofuel producers, local governments, waste haulers, truck and bus fleets, and consumers. To be eligible for funding, entities must have a physical plant and business presence in California. While the fuel produced is expected to be utilized statewide, biofuel production facilities are typically located in recognized disadvantaged communities (as defined by CalEnviroScreen) and provide economic and job benefits to those communities, along with the environmental benefits resulting from the use of low-carbon alternative fuels.

E. Outcomes and Accountability

The proposal will be overseen by the Energy Commission to ensure the outcomes are appropriate and the overall program has accountability. The Energy Commission will follow public resources statute requirements in the development, award and management of agreements funded with these one-time funds. The execution and use of GGRF funds will follow a public and transparent process including Energy Commission Business Meetings, the Energy Commission Executive Office approval and other normal contract and grant award process oversight capabilities. GGRF funds will be reported to the public in annual program status reports and in other GGRF required reporting documents.

Projects funded under this proposal will be evaluated on their ability to produce large volumes of low-carbon transportation fuels in California along with the ability to accelerate biofuels production and assist the transition of in-state technologies in the transportation sector.

The Energy Commission will require periodic reports from award recipients and progress will be monitored by Energy Commission agreement managers and management. Award recipients will be required to provide data to document fuel produced and the resulting benefits, including but not limited to GHG and petroleum reductions, air quality impacts, job creation, and market transformation impacts. Surveys of recipients will also be conducted. A sample of projects will have on-site field verification and post-project monitoring.

Expected In-State Benefits:

- Petroleum Reduction: 75-100 million gallons per year

From 2009 to 2015, the ARFVTP's biofuels funding has supported an increased production of over 150 million gallons per year (mgpy) of low carbon biofuels. Based on the proposals of unfunded applicants from the most recent ARFVTP biofuels solicitation, \$25 million in funding could have supported an additional 45 mgpy in diesel substitute production, over 30 mgpy in gasoline substitute production, and 1 mgpy in biomethane production. In addition, surveys of

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funded diesel substitute, gasoline substitute, and biomethane grant recipients indicate that an estimated 114 million gallons of expanded capacity by 2017 could be achieved with \$25 million from the GGRF.

- GHG Emission Reductions: 4 million metric tons by 2020

This proposed funding is estimated to support 100 mgpy annually of increased low-carbon biofuel production and will reduce GHG emissions by approximately 4 million metric tons in the near term, targeting the peak LCFS compliance period of 2017-2020. In addition, these biofuels will reduce criteria pollutant emissions in non-attainment zones and support the growth of alternative fuels in the heavy-duty transport sector.

- Jobs Created: 300 direct jobs and 400 indirect jobs

Projects resulting from this proposed funding will provide economic benefits, including the addition of an estimated 300 new direct jobs, and over 400 new indirect jobs based on previously funded project results. Each project will generate state and local tax revenues that will include corporate and personal (payroll) taxes, as well as taxes on production and imports. While not easy to quantify, projects on average predict between \$500,000 and \$1 million in tax revenue generated per year based on the size and capacity of the production facility.

Existing biofuel and biomethane production plants are located primarily in economically distressed or tailpipe emission non-attainment areas in the San Joaquin and Sacramento Valleys and near urban landfills, wastewater treatment plants, and waste recovery facilities. Expansions and new projects will be constructed in these same regions, thereby providing economic and job benefits where the plants will be located.

- In-State Biofuels Consumption: 25 percent to 30 percent

Larger in-state biofuels production resulting from this proposed funding will increase the proportion of California-derived biofuels used in state from 20 percent to 25 percent to 30 percent, approaching the 2020 target of the Bioenergy Action Plan. Support specifically for in-state biofuels production is expected to boost market and investor confidence in this area, creating long-term, sustainable market benefits that include a greater rate of in-state biofuels implementation, an increase in California fuel security, and lower susceptibility to volatilities in foreign fuel markets. Advances in biofuel production, particularly for biomethane, can also extend benefits to other fuel types and stationary power generation, as well as support other state initiatives such as water recycling and organics diversion.

F. Analysis of All Feasible Alternatives

1. Approve \$25 million from the GGRF to support in-state, low-carbon biofuel production.

Pro: Utilizes a proven program (ARFVTP) to fund biofuel production projects that can efficiently and effectively incentivize biofuel production in California. Can help strengthen California's economy by attracting and retaining clean technology businesses and stimulating high-quality job growth.

Con: Funds could be expended on other qualified activities.

2. Amend existing Low Carbon Fuel Standard regulation to include a minimum million gallon per year requirement for in-state production of biofuel.

Pro: Mandates a higher volume of lower carbon fuels produced in-state.

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Con: Lengthy process. Could be met with strong opposition from foreign countries and other states. Could deter out-of-state producers from entering the California market—out-of-state fuel is needed in partnership with in-state fuel to meet California’s GHG reduction goals.

3. Shift more funding into the biofuel category within the ARFVTP.

Pro: Provides the needed additional funding for biofuel projects; could fund a production incentive program not already managed by the ARFVTP.

Con: Impacts other funding areas of the ARFVTP such as electric vehicle infrastructure, hydrogen fueling infrastructure, and medium- and heavy-duty truck technology. Provides greater focus on biofuels, violating the ARFVTP’s mission of investing in a portfolio of alternative fuels and vehicle technologies; does not recognize that all fuels and technologies have unique risks and benefits and no single fuel or vehicle technology can assist California in meeting its climate change goals for transportation.

4. Do not authorize funding.

Pro: Allows funds to be expended on other qualified activities.

Con: Results in slower development of in-state biofuels production, relying heavily on out-of-state biofuels production. Biofuels would make less of a contribution to meeting the state’s policy objectives, and the state’s climate change goals would take longer to meet. Funding is spread thin, and the ARFVTP does not have the funding capacity or the staff resources to develop a production incentive program.

G. Implementation Plan

The Energy Commission will implement the proposal in several stages:

Phase 1: Hire necessary staff. (2016, Quarter 3)

Phase 2: Conduct stakeholder workshops to solicit input on strategies to expend funds for production incentives and infrastructure/capital development grants. (2016, Quarter 3)

Phase 3: Develop solicitations to fund potential projects and/or production incentives. (2016, Quarter 4)

Phase 4: Release solicitation(s), receive and score applications, and award funds. (2017, Quarter 1-2)

Phase 5: Develop agreements for awards and bring to an Energy Commission Business Meeting. (2017, Quarter 3-4)

Phase 6: Kick-off projects, monitor progress and manage agreements. (2017 through 2022)

Phase 7: Receive project data and record project benefits. (2017 through 2022)

Production incentives and infrastructure/capital development grants will be competitively bid through an open solicitation conducted by the Energy Commission. Applicants will compete based on selection criteria and will be scored and ranked based on those criteria. Highest scoring applicants will be recommended for awards until available funds are exhausted. Staff will evaluate and score project proposals based on at least the following three factors: volume of fuel produced, carbon intensity reduction, and CalEnviroScreen score.

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Production incentives could be awarded as fuel is produced and sold. New biofuel production and supply projects typically require several years for full completion of the proposed project.

H. Supplemental Information

The following links provide supporting materials and documents:

2014 Integrated Energy Policy Report, California Energy Commission:
http://www.energy.ca.gov/2014_energy_policy/

The Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program Investment Plan:
<http://www.energy.ca.gov/2014-ALT-01/>

I. Recommendation

Recommend approval of \$25 million from the GGRF in Fiscal Year 2016-2017 to incentivize in-state production of low-carbon biofuel production for use in the transportation sector.