



Pre-Bid Workshop

GFO-17-901

Renewable Intermediate Fuel Production for Jet Fuel in Heavy-Duty Transportation Sector

August 25, 2017

Energy Research and Development Division
California Energy Commission



Agenda

- Welcome and Introduction
- Low-Carbon Fuel Research Program Overview
- GFO Purpose and Overview
- Project Eligibility
- Block Flow Data Worksheet
- Overview of Grant Solicitation Application Manual
- Questions and Answers



Housekeeping

- ...In case of fire
- ...Local facilities
- ...Muting of WebEx during presentation
- ...Q&A protocol



Commitment to Diversity

The Energy Commission adopted a resolution strengthening its commitment to diversity in our funding programs. We continue to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, Energy Commission staff conducts outreach efforts and activities to:

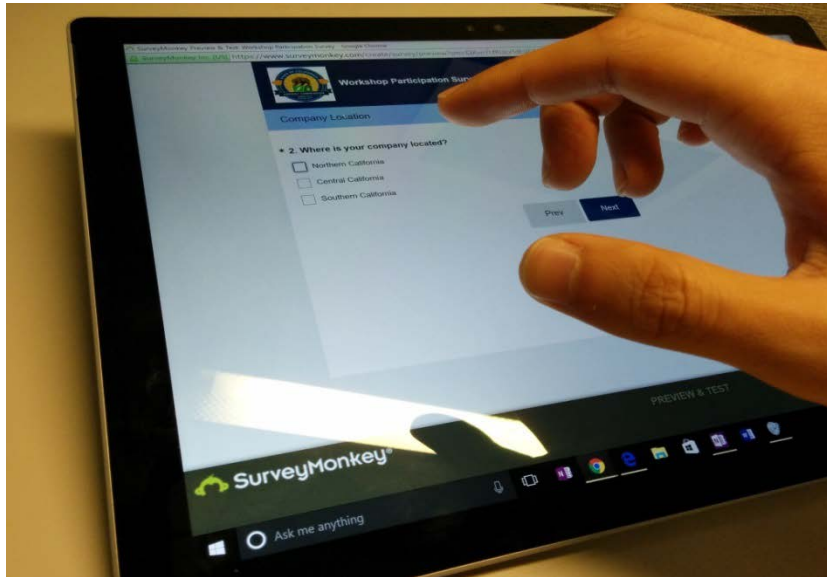
- Engage with disadvantaged and underrepresented groups throughout the state.
- Notify potential new applicants about the Energy Commission's funding opportunities.
- Assist applicants in understanding how to apply for funding from the Energy Commission's programs.
- Survey participants to measure progress in diversity outreach efforts.



We Want to Hear From You!

1 Minute Survey

- The information supplied will be used for public reporting purposes to display anonymous overall attendance of diverse groups.



- Does your company identify as an underrepresented group?
- Where is your company located?
- How did you hear about the workshop?
- **Online survey for WebEx Participants:**

<https://www.surveymonkey.com/r/CEC-08-25-2017>



Policy Drivers

The following policies and legislation guide the Low-Carbon Fuel Research and Development agenda:

Assembly Bill 32	California Global Warming Solutions Act of 2006, calls for approximately 36 percent of the state's 2020 GHG reduction targets to come from the transportation sector.
Low Carbon Fuel Standard	Encourages the use and production of cleaner low-carbon fuels in California to reduce GHG emissions. Standards are expressed in terms of the "carbon intensity" of conventional fuel and their respective substitutes.
Assembly Bill 118 / 8 (ARFVTP)	Authorizes the Energy Commission to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's energy, clean air, and climate change goals.
Executive Order B-30-15	Sets statewide GHG emission reduction goals to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.



Low-Carbon Fuel Research Program

With funding from the Budget Act of 2016, the Energy Commission is implementing a Low Carbon Fuel Research and Development Program that focuses on near-term adoption of low-carbon drop-in fuel production projects targeting research and demonstration areas not currently addressed.

The goals of this program are to:

- Reduce GHG emissions by increasing the use of low-carbon fuels utilizing California's waste feedstocks
- Decrease petroleum usage by providing viable alternative fuel options



Context of the Research

- Fungible low-carbon fuels production derived from California's biomass feedstocks provide an innovative solution for not only reducing GHG emissions from fuels used in the transportation sector, but also reducing California's dependency on petroleum fuels.
- Renewable biofuels have the potential to be fully compatible with existing petroleum distribution system and vehicle technologies.
- Advancements in conversion processes that produce bio-based intermediate fuel can accelerate adoption of low-carbon bio-fuels in the transportation market.



Purpose of the Solicitation

- The purpose of this solicitation is to support research and pre-commercial demonstration of fungible low carbon fuels synthesis that result in the development of bio-oil to be used for upgrading to renewable jet fuel.
- The research will fund pilot scale demonstrations of advanced thermochemical conversion methods successfully proven at the lab or bench scale to efficiently produce bio-based intermediate fuels and potential co-products.
- Focus research on market barriers that prevent wide-scale adoption of innovative methods for the production of bio-oil in order to accelerate renewable jet fuel commercialization.



Funding Information

- Up to **\$3 million** of Low-Carbon Fuel Research and Development Program funding is available under this solicitation for grant awards with a **maximum award amount of \$1,500,000 per distinct project.**
 - Federal Cost Share (GFO-16-307): \$3.6 million pending
 - R&D to Decarbonize Transportation Fuels (GFO-16-901): \$11.4 million

Match Funding Requirements:

- Match funding is required in the amount of **at least 25%** of the requested Energy Commission project funds
- Match-funds eligibility can be found on page 6 of the application manual



Eligible Applicants and Requirements

- Open solicitation seeking proposals from public and private entities.
- Applicant must agree to use Terms and Conditions that corresponds to its organization.
- Applicants are required to register and be in good standing with the California Secretary of State to enter into an agreement with the Energy Commission.



What's New

- This solicitation builds off of the goals of GFO-16-901, “Research and Demonstration to Decarbonize Transportation Fuels”
 - Two projects proposed for funding focus on bio-oil production for end-product renewable diesel
- Narrowed focus on production of intermediate fuel that can be upgraded to renewable jet fuel
 - Technological advancement in a market eager to adopt the use of renewable fuel
 - Public health benefits
- Inclusion of feedstocks from energy crops or purpose grown crops



Eligible Projects

- Eligible projects will support research and development of the bio-oil as an intermediate fuel product to upgrade to fungible renewable jet fuel.
- Applicants must:
 - Site the demonstration facility in California.
 - Complete a Block Flow Data Work Sheet (Attachment 12).
 - Demonstrate how the process will:
 - Produce an intermediate fuel that is compatible with existing petroleum refineries or biorefineries for converting or upgrading to advanced fungible renewable jet fuel.
 - Target a feedstock volume of 100 tons per day or greater at the end of the project.



Eligible Projects (cont'd)

- Applicants must demonstrate how the process will:
 - Determine a set of sustainable biomass sources, utilizing California's organic waste streams
 - Deploy a pilot-scale manufacturing high-selectivity/high yield process to produce an intermediate fuel (bio-oil)
 - Carry out chemical and physical characterization of bio-oil to meet requirements for upgrading
 - Meet biorefinery specifications in order to produce fungible low-carbon, drop-in biofuels compatible with pipeline, fuel dispensing infrastructure and vehicle technologies.
 - Develop a strategy for the recycling of solid waste due to the manufacturing process.
 - Determine the most cost-intensive parts of the developed projects and make projections on how these costs will change based on scale-up



Eligible Projects (cont'd)

- Projects are encouraged to also:
 - Consider feedstocks that will maximize benefits by addressing California's current issues including, but not limited to:
 - Water limitations
 - Tree mortality
 - Greenhouse gas emissions
 - Land use impacts
 - Establish market adoption partnerships with entities, such as the US Military or commercial air freight industry, which have a record of accelerating commercialization and deployment of innovative products.
 - Provide letters of support from key partnerships needed to complete the production process.



Eligible Projects (cont'd)

- Projects that use feedstock from energy crops or purpose grown crops for feedstock production will be considered, however the following metrics will be evaluated in addition to the information included in the Block Flow Data Worksheet (Attachment 12), including but not limited to:
 - Water use
 - Land use
 - Energy Use



Attachment 12

Block Flow Data Work Sheet

- The purpose of the Block Flow Data (BFD) Work Sheet is to assess the merits of the selected technology and the status of the process technology in order to gain an understanding of project risks and the potential viability of the proposed project.
- Instructions will help guide the applicant in how best to describe the existing facility, proposed facility, or commercial facility with emphasis on the proposed pilot scale facility.
- Include Unit Operation Step – defined as areas in the plant where a change occurs, such as reactions, physical changes to materials including materials handling, or chemical conversions – when describing the proposed conversion process.



Attachment 12

Block Flow Data Work Sheet (cont.)

- Use unique numbering or labeling to illustrate each unit operation in the BFD including recycle loops and waste streams.
- Applicants are encouraged to summarize the process using ten blocks or less for an estimated level of detail.
- The information provided in this attachment will be evaluated as a part of the following scoring criteria (pg. 27):
 - Technical Merit
 - Technical Approach
 - Benefits to California



Selection and Award Process

- For the proposals submitted, a scoring committee will evaluate the projects using the scoring criteria described in Section IV of the Application Manual.
- The scoring committee may conduct optional interviews for clarification purposes.
- **A minimum score of 70.00 points** is required for the application to be eligible for funding. In addition, the application must receive a minimum score of **49.00 points** for criteria **1–4** to be eligible for funding.
- Project(s) will be recommended for funding starting with the highest ranked project meeting the minimum required score in each research topic area until all funds are exhausted.



Scoring Criteria

Technical Merit and Need	20
Technical Approach	20
Impacts and Benefits for California	15
Team Qualifications, Capabilities and Resources	15
Funds Spent in California	15
Budget and Cost Effectiveness	15
Total Points	100



Attachments

1. Application Form/Cover Page
2. Executive Summary
3. Fact Sheet
4. Project Narrative
5. Project Team
6. Scope of Work/Project Schedule
7. Budget Forms
8. CEQA Compliance Form (requires signature)
9. References and Work Product Form
10. Contact List
11. Commitment and Support Letters (requires signature)
12. Block Flow Data Worksheet



Grounds for Rejection (pg. 20)

- CEC reserves the right to reject any application and/or to cancel an award for any of the following circumstances:
 - It is received after 5:00 pm on **October 13, 2017**
 - It does not meet all Stage One screening criteria (pg. 22)
 - The application contains false or intentionally misleading statements or references that do not support an attribute or condition contended by the applicant.
 - The application is intended to erroneously and fallaciously mislead the State in its evaluation and the attribute, condition, or capability is a requirement of this solicitation.
 - The application does not literally comply or contains caveats that conflict with the solicitation, and the variation or deviation is material.
 - The applicant has received unsatisfactory evaluations from the Energy Commission or another California state agency.



Grounds for Rejection (cont'd)

- The applicant has received unsatisfactory evaluations from the Energy Commission or another California state agency.
- The applicant is a business entity that is not in good standing with the California Secretary of State.
- The applicant has not demonstrated that it has the financial capability to complete the project.
- The application is not submitted in the format specified in Part III, Sections A through D of the solicitation.



Proposal Guidelines

- Either Electronic OR Hard Copy Delivery
- The preferred method of delivery for this solicitation is the Energy Commission Grant Solicitation System, available at:
<https://gss.energy.ca.gov/>
- Hard Copies must be delivered with an electronic copy included
- The original and copies must be labeled “Grant Funding Opportunity GFO-17-901” and include the title of the application and applicants name.
- Application will not be accepted via e-mail
- Proposals should **NOT** contain confidential information



Schedule

ACTIVITY	ACTION DATE
Solicitation Release	August 11, 2017
Pre-Application Workshop	August 25, 2017
Deadline for Written Questions by 5 p.m.	August 28, 2017
Distribute Questions/Answers and Addenda (if any) to GFO	Week of September 4, 2017
Deadline to Submit Applications by 5:00 p.m.	October 13, 2017
Anticipated Notice of Proposed Award Posting Date	November 2017
Anticipated Commission Business Meeting Date	March 2017
Anticipated Agreement Start Date	June 2017
Anticipated Agreement End Date	36 to 45 months after start date



Solicitation Documents

Solicitation documents for Renewable Intermediate Fuel Production for Jet Fuel in Heavy-Duty Transportation Sector:

http://www.energy.ca.gov/contracts/other_research.html#GFO-17-901

Please make sure to read all addendums



Questions and Answers

Written Questions are due:

August 28, 2017 by 5 p.m.

Please send all GFO related questions to
Gordon Kashiwagi, Agreement Officer at:

Gordon.Kashiwagi@energy.ca.gov



Thank You!

Questions & Answers



LinkedIn Link

<https://www.linkedin.com/groups/13514377>