

## CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512



February 23, 2015

Barbara Petersen  
Tetra Tech, Inc.  
3475 E. Foothill Blvd.  
Pasadena, CA 91107

Re: Agreement Number: 600-13-002 Work Authorization #3  
  
Technical Assistance for the ARFVT Program

Dear Ms. Petersen:

Enclosed is the fully executed copy of the above-referenced Work Authorization Agreement for your records. You are now authorized to provide the agreed upon services.

If you have any questions or need clarification on any items, please contact me at (916) 654-4809 or [Michael.Poe@energy.ca.gov](mailto:Michael.Poe@energy.ca.gov).

Sincerely,

  
So: MICHAEL POE  
Commission Agreement Officer

Enclosures

cc: Aida Escala, Commission Agreement Manager, MS-27  
Accounting, MS-2  
File

**Work Authorization  
Contract # 600-13-002-Tetra Tech, Inc.**

**Work Authorization #:** 3- Technical Assistance for PON-14-602: Biofuels Early and Pre-Commercial Technology Development

**Amount:** not to exceed \$250,000

**Project Name:** Technical Assistance for the Alternative and Renewable Fuel and Vehicle Technology (ARFVT) Program

**Effective Date:** The Effective Date of this work authorization is the date the Department of General Services (DGS) approves it. DGS approval will occur after both parties have signed the work authorization. No work is authorized, nor shall any work begin, until on or after the Effective Date. (The term of the work authorization must occur within the term of the prime contract. In case of conflict, the beginning and/or ending date of the prime contract controls.)

**End Date:** March 31, 2016

**Agreement Tasks:** The tasks in this Work Authorization are described in the attached Scope of Work. This Work Authorization falls within Task 2 (Sub-tasks 2.1 and 2.2) of the Energy Commission Agreement number 600-13-002. Contractor shall only submit invoices to the Energy Commission for work performed in accordance with the terms of the Contractor-Energy Commission Agreement and this Work Authorization.

Agreement 600-13-002 is attached to this document and is hereby incorporated by reference to this Work Authorization.


**Contractor Project Manager:** Dr. Eddy Huang **Commission Contract Manager:** Aida Escala

**This WA contains the following Exhibits:**

- EXHIBIT A - SCOPE OF WORK AND SCHEDULE OF DELIVERABLES
- EXHIBIT B - BUDGET DETAIL
- EXHIBIT C – CONFIDENTIAL DELIVERABLES AND INTELLECTUAL PROPERTY LISTS

**APPROVAL:**

	<i>Eddy Huang</i>	<i>11/26/2015</i>	<u>Date</u>
Dr. Eddy Huang	Contractor Authorized Representative		
	<i>A Escala</i>	<i>11/29/2015</i>	<u>Date</u>
Aida Escala	Commission Contract Manager		



**ALTERNATIVE AND RENEWABLE FUEL AND  
VEHICLE TECHNOLOGY PROGRAM  
TECHNICAL ASSISTANCE CONTRACT  
WORK AUTHORIZATION 3**

**BACKGROUND/PURPOSE/SCOPE OF WORK**

The Energy Commission expects to receive between 20-25 proposals in response to the *Biofuels Early and Pre-Commercial Technology Development* solicitation (PON-14-602). The proposals will be for biofuels projects that are in the early/pre-commercial technology development stage. This solicitation emphasizes transformative technology solutions, to significant biofuels industry problems, that will increase yields, productivity, or cost effectiveness of biofuel production; and/or that target a significant unmet need in California's biofuels industry. The Energy Commission is seeking technical assistance through this Work Authorization to validate technical merit and need, technology development determination, qualifications of the project team, and GHG reductions.

The purpose of this work authorization is to direct the Contractor to complete the following tasks:

1. Technical Merit and Need Determination – The Contractor will evaluate, verify and make comments on the applicants' responses provided in the Technical Merit and Need section (Scoring Criteria 1). It will verify if the project meets the following criteria:
  - a. Needed by industry and the California market.
  - b. Not commercially available to, or widely used by, the proposed end-user/market.
  - c. An original and transformative technology solution to a significant biofuels industry problem that will increase yields, productivity, or cost effectiveness of biofuel production.
  - d. Targets a significant unmet need in California's biofuels industry.
  - e. Technically feasible and achievable.
  
2. Technology Development Determination – The Contractor will evaluate, verify and make comments on the applicants responses provided in the Technical Merit and Need, Project Implementation, and Project Readiness sections (Scoring Criterion 1, 2, and 4). The Contractor will evaluate and provide comments on the feasibility of the projects and their transportation fuel based on its experience in the field and performing literature searches where necessary. It will evaluate the co-products and determine whether they are economically advantageous and can account for additional revenue for the facilities or greenhouse gas reductions. Based on its experience in the alternative fuel field, it will evaluate and comment on the proposed steps to develop, demonstrate, commercialize and deploy the technology. It will evaluate and comment on the time frame provided by the applicant by comparing with similar technologies currently in the marketplace. The Contractor, using a combination of its experience in the field and contacting necessary academics or experts in the various technologies, will determine the current state and use of the technology proposed by the applicant. Based on the timeline provided by the applicant, the Contractor shall make comments on the likelihood of achieving the timeline and volumes of fuel to be produced each year for the duration of the proposed agreement period.

3. Qualifications of the Project Team – The Contractor will evaluate the applicant’s response to the Qualifications of the Project Team section (Scoring Criterion 3). It will verify that project team members’ and key project partners’ qualifications, skills, abilities, relevant technical experience, and recent completed work align with the needs of the proposed project and with the project’s successful completion.
4. GHG Reductions Calculations – The Contractor will evaluate and verify the applicants’ response to the Greenhouse Gas Emission Reduction section. (Scoring Criterion 7 located on page 22-23, g. Sustainability, bullet points 2-3, of the Application Manual of PON-14-602). It will determine, based on the biofuel that is being produced, the most accurate carbon intensity pathway based on available CA-GREET pathways approved for the Low Carbon Fuel Standards (LCFS) and AB1007 pathways. If applicable, the Contractor will then confirm that this pathway is consistent with the pathway selected by the applicant.
5. Prepare a technical assessment report in Microsoft Word of no more than six (6) pages that presents an individual analysis of each project proposal. The technical assessment report will include a determination of the validity of the claims and identify claims that are infeasible, anomalous, or overestimate reasonable results. All calculations and assumptions will be attached in a Microsoft Excel format. In addition, the Contractor will provide a score in the technical assessment report to rate the degree to which the information provided in the project proposal is verifiable. The scoring scale (from 0 to 5) is as follows:
  - 0: No information was verified.
  - 1: Some information was verified but not in all categories.
  - 2: Some information was verified in all categories.
  - 3: Most information was verified but not in all categories.
  - 4: Most information was verified in all categories.
  - 5: All information was verified in all categories.
6. The Contractor has signed a Confidentiality Agreement with the Energy Commission on December 10, 2013 which shall remain in full force and effect until the completion of this work authorization and shall survive the termination of Contract 600-13-002. The Contractor will also be asked to certify that there are no conflicts of interest prior to reviewing any proposals by submitting a filled-up Questionnaire for Identifying Conflicts of Interest (CEC-105).
7. The Contractor shall submit the deliverables by the dates specified below.

DELIVERABLES

<u>Task</u>	<u>Deliverable</u>	<u>Due Date</u>
2	Technical Assessment Report for at least 20 and at maximum 25 proposals	10 to 15 working days after receipt of proposals for review

BUDGET (attached)

The following budget is allocated for the tasks covered by this WA. Payment of the work performed under this WA shall occur only after the work has been completed to the satisfaction of the Commission's Agreement Manager. The Contractor is responsible for submitting invoices, including all required supporting documentation, in order to receive payment for the work performed.

Total WA Budget: Maximum of \$250,000



<b>Contract 600-13-002 -- Work Authorization 3 (PON-14-602 Biofuels Early &amp; Pre-Commercial Technology Development)</b>											
		Subtask		Subtask		Subtask		Subtask		Subtask	
	Loaded Hourly Rate	1		2		3		4		5	
<b>TETRA TECH, INC.</b>		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Subtotal ODCs			\$0.00		\$0.00		\$0.00		\$0.00		\$25.00
<b>Other Costs/Fees</b>											
G&A (15%)			\$0.00		\$0.00		\$0.00		\$0.00		\$3.75
Subtotal Other Costs/Fees			\$0.00		\$0.00		\$0.00		\$0.00		\$3.75
<b>Subcontractor (LCA)</b>		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
<b>Managing Director</b>											
Stefan Unnasch	\$192.58	0	\$0.00	0	\$0.00	0	\$0.00	4	\$770.32	0	\$0.00
<b>Sr. Engineer/Scientist</b>											
Jenny Pont	\$171.36	0	\$0.00	0	\$0.00	0	\$0.00	4	\$685.44	0	\$0.00
<b>Engineer/Scientist</b>											
Susan Boland	\$121.94	0	\$0.00	0	\$0.00	0	\$0.00	4	\$487.76	0	\$0.00
Subtotal Subcontractors		0	\$0.00	0	\$0.00	0	\$0.00	12	\$1,943.52	0	\$0.00
Fee on Subs (10%)			\$0.00		\$0.00		\$0.00		\$194.35		\$0.00
<b>SUBTASK TOTAL</b>		12	\$1,729.82	12	\$1,729.82	7	\$856.05	19	\$3,351.09	5	\$994.01
<b>WA TOTAL</b>		<b>55</b>	<b>\$8,660.79</b>								

Note 1: Staff hour estimates are based on the averaged review time of 20 to 25 proposals.

## Hour Calculations

Task #1 - Technical Merit and Need Determination	Work performed per application Tetra Tech staff will validate applicant assertions regarding Technical Merit and Need Determination.	Hours Per Application	12
Task #2 - Technology Development Determination	Work performed per application Tetra Tech staff will validate applicant assertions regarding Technology Development Determination.	Hours Per Application	12
Task #3 - Qualifications of the Project Team	Work performed per application Tetra Tech staff will validate applicant assertions regarding Qualifications of the Project Team.	Hours Per Application	7
Task #4 - GHG Reductions Calculations	Work performed per application Tetra Tech staff will validate applicant assertions regarding GHG Reductions Calculations. Based on the biofuel that is being produced, the most accurate carbon intensity pathway based on available CA-GREET pathways approved for the Low Carbon Fuel Standards (LCFS) and AB1007 pathways will be determined.	Hours Per Application	19
Task #5 - Technical Assessment Report	Work performed per application Tetra Tech staff will prepare a technical assessment report in Microsoft Word of no more than six (6) pages that presents an individual analysis of each project proposal. The technical assessment report will summarize the project proposal claims for the areas listed in Task 1 to Task 4 above. All calculations and assumptions will be attached in Microsoft Excel format.	Hours Per Application	5
Total WA Hours			55



Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			40%	55%	7%	10%	
Managing Director	Stefan Unnasch	\$73.20	\$29.28	\$56.36	\$11.12	\$17.00	\$186.96
Sr. Engineer/Scientist	Jenny Pont	\$65.14	\$26.06	\$50.16	\$9.90	\$15.13	\$166.39
Engineer/Scientist	Susan Boland	\$46.35	\$18.54	\$35.69	\$7.04	\$10.76	\$118.38

**FY15 ( 1/1/15 - 12/31/15)**

Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			40%	55%	7%	10%	
Managing Director	Stefan Unnasch	\$75.40	\$30.16	\$58.06	\$11.45	\$17.51	\$192.58
Sr. Engineer/Scientist	Jenny Pont	\$67.09	\$26.84	\$51.66	\$10.19	\$15.58	\$171.36
Engineer/Scientist	Susan Boland	\$47.74	\$19.10	\$36.76	\$7.25	\$11.09	\$121.94

**FY16 ( 1/1/16 - 12/31/16)**

Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			40%	55%	7%	10%	
Managing Director	Stefan Unnasch	\$77.66	\$31.06	\$59.80	\$11.80	\$18.03	\$198.35
Sr. Engineer/Scientist	Jenny Pont	\$69.10	\$27.64	\$53.21	\$10.50	\$16.05	\$176.50
Engineer/Scientist	Susan Boland	\$49.17	\$19.67	\$37.86	\$7.47	\$11.42	\$125.59

**FY14 ( 10/1/13 - 9/30/14)**

Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			44%	55%	15%	15%	
Director/PIC	Eddy Huang and Charles Egigian-Nichols	\$78.00	\$34.32	\$61.78	\$26.12	\$30.03	\$230.25
Project Manager/Principal Scientist/Principal Engineer	Charng-Ching Lin, David Palmer, Keith Henn, and Floriano Ferreira	\$68.00	\$29.92	\$53.86	\$22.77	\$26.18	\$200.73
Sr. Engineer/Scientist	Jeff Coombe, Pauline Sun, and Mike Chan	\$45.00	\$19.80	\$35.64	\$15.07	\$17.33	\$132.84
Engineer/Scientist III	Jason Smith and Kelly Trainor	\$28.00	\$12.32	\$22.18	\$9.38	\$10.78	\$82.66
Engineer/Scientist II	Erica Alvarado and Wen-Han Liu	\$26.00	\$11.44	\$20.59	\$8.70	\$10.01	\$76.74
Project Assistant	Helena Chiang and Christina Kam	\$29.00	\$12.76	\$22.97	\$9.71	\$11.17	\$85.61

**FY15 ( 10/1/14 - 9/30/15)**

Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			44%	55%	15%	15%	
Director/PIC	Eddy Huang and Charles Egigian-Nichols	\$81.00	\$35.64	\$64.15	\$27.12	\$31.19	\$239.10
Project Manager/Principal Scientist	Charng-Ching Lin, David Palmer, Keith Henn, and Floriano Ferreira	\$71.00	\$31.24	\$56.23	\$23.77	\$27.34	\$209.58
Sr. Engineer/Scientist	Jeff Coombe, Pauline Sun, and Mike Chan	\$47.00	\$20.68	\$37.22	\$15.74	\$18.10	\$138.74
Engineer/Scientist III	Jason Smith and Kelly Trainor	\$29.00	\$12.76	\$22.97	\$9.71	\$11.17	\$85.61
Engineer/Scientist II	Erica Alvarado and Wen-Han Liu	\$27.00	\$11.88	\$21.38	\$9.04	\$10.40	\$79.70
Project Assistant	Helena Chiang and Christina Kam	\$30.00	\$13.20	\$23.76	\$10.04	\$11.55	\$88.55

**FY16 ( 10/1/15 - 6/30/16)**

Labor Category	Employee	Raw Rate	EFB @	OH@	G&A @	Fee @	Full Burdened Rate
			44%	55%	15%	15%	
Director/PIC	Eddy Huang and Charles Egigian-Nichols	\$84.00	\$36.96	\$66.53	\$28.12	\$32.34	\$247.95
Project Manager/Principal Scientist	Charng-Ching Lin, David Palmer, Keith Henn, and Floriano Ferreira	\$74.00	\$32.56	\$58.61	\$24.78	\$28.49	\$218.44
Sr. Engineer/Scientist	Jeff Coombe, Pauline Sun, and Mike Chan	\$49.00	\$21.56	\$38.81	\$16.41	\$18.87	\$144.65
Engineer/Scientist III	Jason Smith and Kelly Trainor	\$30.00	\$13.20	\$23.76	\$10.04	\$11.55	\$88.55
Engineer/Scientist II	Erica Alvarado and Wen-Han Liu	\$28.00	\$12.32	\$22.18	\$9.38	\$10.78	\$82.66
Project Assistant	Helena Chiang and Christina Kam	\$31.00	\$13.64	\$24.55	\$10.38	\$11.94	\$91.51