



Supplemental Project Agreement

1. **Project Title; Agreement, Funder and Project Numbers:** This Supplemental Project Agreement applies to the Project entitled: ***“Co-Firing in Boiler Testing: Phase 4 HECO Biofuels Program”***. The Parties will reference Supplemental Project Agreement number **CF 012121-11156 (Project ID No. 066202)** in all correspondence. The terms and conditions of the Master Agreement between the Parties dated January 3, 2007 are incorporated herein and govern all Work hereunder. Any Purchase Order issued by Member pursuant to this Agreement is solely for Member's internal accounting requirements and, as such, the terms and conditions of such Purchase Order are superseded by the terms and conditions set forth in this Agreement.

2. **Contact Information:**

Contact	Name	Phone/Fax	Email
EPRI Project Manager:	Anthony Facchiano	650-855-2492	afacchia@epri.com
EPRI Contracts:	Josephine M. Erickson	650-855-2003 / 1032	jerickson@epri.com
EPRI Sector Account Executive:	Richard Menar	650-855-2898	rmenar@epri.com
Member Contracts	Arthur Seki	808-543-7987 / 808-203-1581	arthur.seki@heco.com
Member Project Manager:	Darren Ishimura	808-543-7817 / 7099	darren.ishimura@heco.com

3. **Project Funding in U.S. Dollars:**

Funding Year	-2007-	-2008-	-2009-	-2010-	TOTAL
Funder Cofunding	\$200,000	\$300,000			\$500,000
Total U.S. Dollars	\$200,000	\$300,000			\$500,000

4. **Project Objectives, Tasks and Deliverables:** See Attached Exhibit 1, incorporated herein by reference.

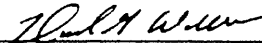

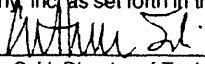
5. **Invoicing:** Funder will be invoiced \$100,000 in 2007, the balance of \$100,000 will be paid from Funder's deposit account. Funder will be invoiced \$150,000 in 2008, the balance of \$150,000 will be paid from Funder's deposit account.

Current year payment enclosed (This form is the invoice for the current year).

Address invoices to: Arthur Seki, Director of Technology
Hawaiian Electric Company, Inc.
820 Ward Ave (M/S WA4-NR)
Honolulu, HI 96840-0001
Phone/Fax: 808-543-7987 / 808-203-1581
E-mail: Arthur.Seki@heco.com

HAWAIIAN ELECTRIC COMPANY, INC.

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Project Agreement to be executed by their duly authorized representatives.

Approval / HAWAIIAN ELECTRIC COMPANY, INC. 820 Ward Ave (M/S WA4-NR) Honolulu, HI 96840-0001 Phone/Fax: 808-543-7987 / 808-203-1581	Approval / ELECTRIC POWER RESEARCH INSTITUTE, INC. Post Office Box 10412 3420 Hillview Avenue Palo Alto, Ca 94303 Phone/Fax: 650-855-2003 / 1032
Signature:  Name: Karl Stahlkopf Title: Sr. VP and CTO Date: 8-8-07	Signature:  Name: Josephine M. Erickson, Title: Revenue Contract Negotiator Date: August 8, 2007
ENDORSEMENT: EPRI is hereby authorized to release Tailored Collaboration Matching Funds from the account of the Hawaiian Electric Company, Inc. as set forth in this Agreement.	
By:  Arthur Seki, Director of Technology	Date: 8/8/07

HAWAIIAN ELECTRIC COMPANY, INC.

Exhibit I
To
Supplemental Project Agreement
CF 012121-11156 (Project ID No. 066202)

“Co-Firing in Boiler Testing: Phase 4 HECO Biofuels Program”

A. Background and Objectives:

The blending of biofuels in oil-fired electric power generating units represents a potential option to reduce reliance on fossil fuels. However, information and experience regarding the utilization of biofuels in steam generation boilers is limited and consequentially, there exists a need to build the knowledge base. Before oil / biofuel co-firing can be utilized on a commercial basis, the technical and economic viability needs to be assessed. This assessment needs to include: (1) screening and resource evaluation of various biofuel options; (2) evaluation of generating unit performance and emissions; (3) investigation of key operational, environmental, and regulatory issues; and (4) demonstration of biofuels in utility power generating units.

The objective of this project is to demonstrate and gain operational experience of co-firing vegetable oil-based biodiesel with Low Sulfur Fuel Oil (LSFO) at HECO's steam generating units on Oahu. The use of higher blend levels and longer testing periods compared to tests conducted at NYPA's Poletti power plant is targeted. Research and evaluation of fuel delivery/storage, unit operation and performance, and emissions will provide the power industry with valuable first-hand experience related to biofuels for power generation.

B. Tasks:

Towards meeting the above objectives, five major tasks are planned:

Task 1 – Fuel Compatibility Evaluation

Task 2 – Biodiesel Co-firing Test Plan

Task 3 – Design, Procurement and Installation

Task 4 – Shakedown and Testing

Task 5 – Test Data Reduction and Analysis

These tasks will be further defined by HECO and EPRI as the project moves forward.

- C. Deliverables: The non-proprietary results of this work will be incorporated into EPRI R&D program P71, Combustion Performance and NOx Control, and made available to funding members of that program and to the public, for purchase or otherwise.

The deliverables targeted for this project are reports for each task. The final report for Task 5 will include findings of all project tasks.

- D. Estimated Period of Performance / Estimated Schedule: The project is scheduled to start in September, 2007 and continue through to September 2008. The schedule for 2008 will be determined at a later date.



**Amendment No. 1
To
Project Funding Agreement
Hawaiian Electric Company, Inc.**

1. **Project Title, Contract - Funder and Project Numbers:** This EPRI Project Funding Agreement applies to the Project entitled: *"Co-Firing in Boiler Testing: Phase 4 HECO Biofuels Program"*. The Parties will reference Contract Number CF 012121-11156 and Project ID No. 066202 in all correspondence. Any Purchase Order issued by Funder pursuant to this Agreement is solely for Funder's internal accounting requirements and, as such, the terms and conditions of such Purchase Order are superseded by the terms and conditions set forth in this Agreement.

2. **Contact Information:**

Contact	Name	Phone/Fax	Email
Funder TC Coordinator	Arthur Seki	808-543-7987 / 808-203-1581	arthur.seki@heco.com
Funder Project Manager:	Darren Ishimura	808-543-7817 / 7099	darren.ishimura@heco.com
EPRI Project Manager:	Anthony Facchiano	650-855-2492	afacchia@epri.com
EPRI Contract Negotiator:	Josephine Erickson	650-855-2003 / 1032	jerickson@epri.com
EPRI Sector Account Exec:	Richard Menar	650-855-2898	rmenar@epri.com

3. **Project Funding in U.S. Dollars:
REVISIONS TO PROJECT FUNDING PER THIS AMENDMENT**

Funding Year	Prior Years	-2007-	-2008-	-2009-	TOTAL
Funder Cofunding		\$96,918			\$96,918
Total U.S. Dollars		\$96,918			\$96,918

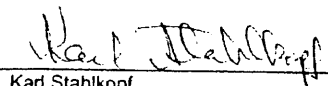
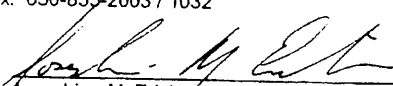
TOTAL REVISED PROJECT FUNDING

Funding Year	Prior Years	-2007-	-2008-	-2009-	TOTAL
Funder Cofunding		\$296,918	\$300,000		\$596,918
Total U.S. Dollars		\$296,918	\$300,000		\$596,918

4. **Project Objectives, Tasks and Deliverables:** There is no change to the Exhibit 1. Additional funds are to cover anticipated shortfall.
5. **Invoicing:** Funder will not be invoiced for additional funds of \$96,918. Funds are being paid from Funder's deposit account.

All other Terms and Conditions to the original Agreement remain in full force and effect and are unchanged by this Amendment.

Intending to be legally bound, the parties' duly authorized representatives have executed this Agreement below:

Approval / HAWAIIAN ELECTRIC COMPANY, INC. 820 Ward Ave (M/S WA4-NR) Honolulu, HI 96840-0001 Phone/Fax: 808-543-7987 / 808-203-1581 Signature:  Name: Karl Stahlkopf Title: Sr. VP and Chief Technology Officer Date:	Approval / ELECTRIC POWER RESEARCH INSTITUTE, INC. Post Office Box 10412 3420 Hillview Avenue Palo Alto, Ca 94303 Phone/Fax: 650-855-2003 / 1032 Signature:  Name: Josephine M. Erickson, Title: Revenue Contract Negotiator Date: December 18, 2007
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**Amendment No. 2
To
Project Funding Agreement**

Hawaiian Electric Company, Inc.

1. **Project Title, Contract - Funder and Project Numbers:** This EPRI Project Funding Agreement applies to the Project entitled: *"Co-Firing in Boiler Testing: Phase 4 HECO Biofuels Program"*. The Parties will reference Contract Number TC/CF 012121-11156 and Project ID No. 066202 in all correspondence. Any Purchase Order issued by Funder pursuant to this Agreement is solely for Funder's internal accounting requirements and, as such, the terms and conditions of such Purchase Order are superseded by the terms and conditions set forth in this Agreement.

2. **Contact Information:**

Contact	Name	Phone/Fax	Email
Funder TC Coordinator	Arthur Seki	808-543-7987 / 808-203-1581	arthur.seki@heco.com
Funder Project Manager:	Darren Ishimura	808-543-7814 / 7099	darren.ishimura@heco.com
EPRI Project Manager:	Anthony Facchiano	650-855-2492	afacchia@epri.com
EPRI Contract Negotiator:	Josephine Erickson	650-855-2003 / 1032	jerickson@epri.com
EPRI Sector Account Exec:	Richard Menar	650-855-2898	rmenar@epri.com

3. **Project Funding in U.S. Dollars:**

REVISIONS TO PROJECT FUNDING PER THIS AMENDMENT

Funding Year	Prior Years	-2008-	-2009-	-2010-	TOTAL
Funder Cofunding		-\$204,500			-\$204,500
Funder TC Funds		\$50,000			\$50,000
EPRI TC Match		\$50,000			\$50,000
Total U.S. Dollars		-\$104,500			-\$104,500

TOTAL REVISED PROJECT FUNDING

Funding Year	Prior Years	-2008-	-2009-	-2010-	TOTAL
Funder Cofunding	\$296,918	\$95,500			\$392,418
Funder TC Funds	\$0	\$50,000			\$50,000
EPRI TC Match	\$0	\$50,000			\$50,000
Total U.S. Dollars	\$296,918	\$195,500			\$492,418

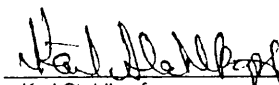

4. **Project Objectives, Tasks and Deliverables:** There is no change to Exhibit 1.
5. **Invoicing:** Funder will use \$2,250 of 2008 Deposit Account to pay a portion of the 2008 Cofunding (this is a reduction from the \$150,000 of 2008 Deposit Account funds specified in the original Supplemental Project Agreement). Funder will be invoiced for \$143,250.



- Current year payment enclosed (This form is the invoice for the current year).
- Address invoices to: Arthur Seki, Director of Technology
Hawaiian Electric Company, Inc.
820 Ward Ave (M/S WA4-NR)
Honolulu, HI 96840-0001
Phone/Fax: 808-543-7987 / 808-203-1581
E-mail: Arthur.Seki@heco.com

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Intending to be legally bound, the parties' duly authorized representatives have executed this Agreement below:

Approval / HAWAIIAN ELECTRIC COMPANY, INC. 820 Ward Ave (M/S WA4-NR) Honolulu, HI 96840-0001 Phone/Fax: 808-543-7987 / 808-203-1581	Approval / ELECTRIC POWER RESEARCH INSTITUTE, INC. Post Office Box 10412 3420 Hillview Avenue Palo Alto, Ca 94303 Phone/Fax: 650-855-2003 / 1032
Signature:  Name: Karl Stahlkopf Title: Sr. VP, Energy Solutions & CTO Date:	Signature:  Name: Josephine M. Erickson, Title: Revenue Contract Negotiator Date: February 1, 2008
ENDORSEMENT: EPRI is hereby authorized to release Tailored Collaboration Matching Funds from the account of the Hawaiian Electric Company, Inc. as set forth in this Agreement.	
By: _____ Arthur Seki, Director of Technology	_____ Date