

## Kenneth Baker

### KENNETH BAKER, HEWLETT PACKARD COMPANY

#### EDUCATION AND TRAINING

- Texas A&M University Engineering Extension Service, Associate Degree in Electronics Technology, 1978.

#### PROFESSIONAL EXPERIENCE

**Industry Standard Servers, Hewlett Packard**      **2005 - Present**

#### *Datacenter Infrastructure Technologist*

Research and develop new power distribution and cooling architectures for data centers, designed to lower inefficiencies and save energy.

**Hewlett Packard, Houston, TX**      **2000 - 2005**

#### *BladeSystem Infrastructure Technologist*

Responsible for supporting the power systems for HP's BladeSystem line of compute and storage products. Further, principal technologist responsible for researching how large KW loads integrate into data centers successfully

**Compaq Computer, Houston, TX**      **1990 - 2000**

#### *Advanced Technology Manager*

Performed necessary research to drive new power and cooling related technologies into successful products.

**Compaq Computer, Houston, TX**      **1983 - 1990**

#### *Various Engineering and Management Positions*

Held various positions in the formative years at Compaq, including Reliability Lab Manager, Repair Facility Manager, and Product and Program Management roles.

#### PUBLICATIONS

- Contributor to two ASHRAE published guides, "Datacom Equipment Power Trends Cooling Applications", and "Thermal Guidelines for Data Processing Environments."

#### PATENTS

- US5821636 Low profile, redundant source power distribution unit.
- US6796833 Multi-server, quick swap rack frame with consolidated power distribution, integrated keyboard/video/mouse concentrator, and USB hub.



## Kfir Godrich

### KFIR GODRICH, DIRECTOR OF TECHNOLOGY

#### EDUCATION AND TRAINING

- Ben Gurion University, Israel, M.S., 2002-2005.
- Ben Gurion University, Israel, B.S., 1986-1990.

#### PROFESSIONAL EXPERIENCE

Projects Cornerstone, Buckeye and Lonestar, Roanoke, TX, Delaware, OH and Austin, TX	2007 - 2009
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#### Quality Assurance/ Quality Control

Provided engineering services for a new Tier 4 Greenfield single story 243,000 sq. ft. data center with 100,000 sq. ft. of raised floor computer environment. The remaining space was an office environment, M/E/P infrastructure, maintenance, service and related support spaces. The NTDC was highly robust in its capacity, reliability, and maintainability including high wind resistance, security measures, and redundancy in infrastructure. It also enveloped the "infinite flexibility" philosophy which allowed it to deploy any technology anywhere, anytime. This included high density server cabinets. EYP MCF was selected to design and construct two Greenfield Data Centers located in Delaware, OH and Austin, TX. Each of these Tier 4 buildings will occupy over 240,000 sq. ft. of building space and support over 100,000 sq. ft. of useable raised floor.

Confidential Fortune 500 Financial Client, Research Triangle Park, NC	2008
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#### Quality Assurance/ Quality Control

Provided M/E/P/FP services for their new 150,000 sq. ft. Tier 4 Greenfield Data Center project. The new data center operated as a 24/7 mission critical facility to include approximately 40,000 sq. ft. of raised floor/data center space, as well as MEP support space, IT ancillary space, Command Center space. The facility is concurrently maintainable with no single point of failure, and with an initial minimum electrical load density of 100 W/sq. ft.

Confidential Fortune 500 Financial Client, Birmingham, AL	2006
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#### Job Title – Not Available

Provided M/E/P/FP engineering services, as well as security and IT structure cable plant services for a Tier 4 Greenfield project in the Oxmoor Center, Birmingham, AL. The Tier 4 facility is situated on a 20-30-acre tract of land. The proposed single-story, 210,000 sq. ft. data processing facility consists of 100,000 sq. ft. of raised floor technology space situated adjacent to the associated M/E/P infrastructure space. The program also involved the design of conference rooms and general office areas.

Confidential Fortune 500 Financial Client, Birmingham, AL	2004 - 2005
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#### Job Title – Not Available

Provided M/E/P/FP engineering services, as well as security and IT structure cable plant services for a Tier 4 Greenfield project in the Oxmoor Center, Birmingham, AL. The Tier 4 facility is situated on a 20-30-acre tract of land. The proposed single-story, 210,000 sq. ft. data processing facility consists of 100,000 sq. ft. of raised floor technology space situated adjacent to the associated M/E/P infrastructure space. The program also involved the design of conference rooms and general office areas.



## Kfir Godrich

**KFIR GODRICH, DIRECTOR OF TECHNOLOGY**

**PUBLICATIONS**

None

**PATENTS**

None



## Miguel E. Chavez (Co-PI)

### MIGUEL E. CHAVEZ, EATON CORPORATION

#### EDUCATION AND TRAINING

- North Carolina State University, Raleigh, NC, M.S. in Electrical Engineering, 1989.
- Universidad Ricardo Palma, Lima, Peru, B.S. in Electronics Engineering, 1986.

#### PROFESSIONAL EXPERIENCE

**Eaton Corporation, Raleigh, NC** | 2007 - Present

##### *Director of Engineering, Critical Power Solutions*

Led global engineering teams for division. Responsible for three-phase power quality products: uninterruptible power systems, power distribution equipment, surge protection devices, and power factor correction. Responsibilities included: Research and Development activities, new product development, sustaining engineering, and program management.

**Eaton Corporation, Raleigh, NC** | 2004 - 2007

##### *Manager, UPS New Product Development*

Led global new product development teams, in the U.S. and Europe, for three-phase uninterruptible power systems. Responsibilities included overall technology and new product development in the areas of systems engineering, power electronics, embedded software, and mechanical engineering.

**Powerware Corp., Raleigh, NC** | 2001 - 2004

##### *Engineering Manager, Senior Staff Engineer*

Led engineering team on new product development. Managed multi-disciplinary team composed of electrical, mechanical, and firmware engineers that developed global three-phase transformer-less UPS product family from 40KVA to 160KVA. Designed and developed three-phase uninterruptible power systems and peripherals. Managed team of five engineers dedicated to power electronics and system design, controls and printed circuit board development. Project leader on team developing 1500VA - 3KVA uninterruptible power systems. Responsible for all aspects of product design, including product specification, system integration, scheduling of engineering tasks, prototype development, and beta production.

#### PUBLICATIONS

- With Malik Elbuluk, A Complete Normalized Analysis of a Current-fed Resonant DC-to-DC converter, Proceedings of the Fifteenth Annual Conference of the IEEE Industrial Electronics Society, IECON '89, Philadelphia, November 1989.
- Analysis of the Current-fed series DC-to-DC Converter, M.S. Thesis, North Carolina State University Graduate School, August 1989.
- With Malik Elbuluk, A Current-fed Series Resonant Inverter for High-frequency High-power Applications, Proceedings of the 21st. Southeastern Symposium on Systems Theory, Florida State University, Tallahassee, March 1989.

#### PATENTS

- US 7,050,312 Multi-mode uninterruptible power supplies and methods of operation thereof.
- US 6,629,247 Methods, systems, and computer program products for communications in uninterruptible power supply systems using controller area networks.
- US 6,307,763 Twelve-pulse rectifiers including separate six-pulse controllers and methods

## Miguel E. Chavez (Co-PI)

**MIGUEL E. CHAVEZ , EATON CORPORATION**

of controlling same.

- US 6,201,720 Apparatus and methods for space-vector domain control in uninterruptible power supplies.



## Robert W. Johnson

### ROBERT W. JOHNSON , EATON CORPORATION

#### EDUCATION AND TRAINING

- Drexel University, Philadelphia, PA, B.S. Electrical Engineering, 1969.

#### PROFESSIONAL EXPERIENCE

Eaton Corporation, Raleigh, NC | 1968 - Present

##### *Chief Engineer*

Identify and research new concepts, components, and methods and apply them in novel ways to improve existing designs or develop new topologies to capture their full advantage. Recent focus has been directed toward raising the efficiency of power conversion for the data center from the AC utility to DC supplied to the CPU. Effort continues to fully develop single-stage AC to DC conversion topologies with galvanic isolation that have best-in-class efficiency. Monitor developments in the areas of alternate energy storage means and how it can be intergraded with power conversion topologies. Received the 2004 Engineer of the Year award from Eaton Electrical for streamlining the quality of platforms by leveraging reusable designs in the execution of leading technology in the power conversion industry. Entire work-life has been focused on identifying new and novel topologies then lead/direct the product development effort of these first-of-kind products.

#### PUBLICATIONS

- W. J. Raddi and R. W. Johnson, "An Utility Interactive PWM Sine Wave Inverter Configured as a High Efficiency UPS," IEEE Int. Telecommunication. Energy Conf, Intelec 81.
- Robert Johnson and Steven Widner, "New Generation UPS Defines Process Before Product," Intertec International, Ninth High Frequency Power Conversion Conference April 1994.
- Myung Moon and Robert Johnson, "DSP Control of UPS Inverters with a Current Limit using a Droop Method," PESC 1999.

#### PATENTS

36 US patents granted; many with international counterparts and others pending. Most recent include:

- US 7,561,411 Uninterruptible power distribution systems and methods using distributed power distribution units.
- US 7,542,268 Modular electronic systems and methods using flexible power distribution unit interface.
- US 7,508,094 UPS systems having multiple operation modes and methods of operating same.
- US 7,403,368 Devices and methods for detecting operational failures of relays.
- US 7,252,524 Power interconnect assemblies and methods for configuring the same.
- US 7,082,040 Power factor corrected UPS with improved connection of battery to neutral.
- US 7,050,312 Multi-mode uninterruptible power supplies and methods of operation thereof.
- US 6,819,576 Power conversion apparatus and methods using balancer circuits.
- US 6,314,007 Multi-Mode Power converters Incorporating Balancer Circuits.
- US 6,160,722 UPS with Dual Sourcing Capability.



## Michael Harrison

### MICHAEL HARRISON, EATON CORPORATION

#### EDUCATION AND TRAINING

- Auckland University, New Zealand, B.E. Electrical and Electronics Engineering, 1991.
- Auckland Institute of Technology, New Zealand, NZCE Electronics and Computing, 1988.

#### PROFESSIONAL EXPERIENCE

**Eaton Corporation, Christchurch, New Zealand** | **2003 - Present**

##### **Chief Engineer – Power Conversion, DC Power Business Unit**

Design and development of AC/DC power conversion products for Telecoms applications.  
Research and development of ultra high efficiency power conversion, including the development of Resonant Cyclo-Converter.

**Energy Recyclers Ltd., Auckland, New Zealand** | **1996 - 2002**

##### **Engineering Director**

Design and development of a grid inter-tied inverter for Telecoms and renewable energy applications. Develop other power conversion products – AC/DC and AC motor drives.

**Auckland UniServices Ltd., Auckland, New Zealand** | **1989 - 1995**

##### **Research & Development Engineer**

Design of 4MeV linear particle accelerator (Linac) for pulse radiolysis biochemistry research.  
Development of a microprocessor based automotive engine management system.

**Santon Ltd., Auckland, New Zealand** | **1987 - 1989**

##### **Electronics Technician**

Testing/commissioning of UPS and Telecoms DC power systems.

#### PUBLICATIONS

- Survey of Single-Stage Telecommunications Rectifiers - INTELEC 2007, Rome.
- A Novel Three-Phase Software Phase-Locked Loop - EPE-PEMC 2006, Slovenia.
- New Generation Power Converter under Pseudo-Derivative Control - INTELEC 2006, Rhode Island.
- Three-Phase Phase-Locked Loop Control of a New Generation Power Converter - ICIEA 2006, Singapore.
- New Generation Power Converter - AUPEC 2005, Tasmania.

#### PATENTS

- Server Power Supply Hold-Up Circuit Apparatus and Control Methods - Application in progress, Eaton reference No: 09-mPWR-289.
- PFC Booster Circuit - Application in progress, Eaton reference No: EAT052
- High Frequency Power Transformer and Method of Forming – App. No: 574515 - 28 January 2009.
- A Composite Inductor/Capacitor – App. No: 575304 - 3 March 2009.
- A Power Factor Corrected Switched Mode Power Supply – App. No: 571084 - 5 September 2008.
- A Cyclo-Converter and Methods of Operation - PCT/NZ2007/000165.
- A Switched Mode Power Supply and Method of Production - PCT/NZ2007/000215.
- A Power Component Magazine, Power Components, a Power Component Assembly and

## Michael Harrison

### MICHAEL HARRISON, EATON CORPORATION

Methods of Assembly - PCT/NZ2007/000116.

- A Connector, a Connector Assembly and an Edge Connector - PCT/NZ2007/000216.
- A Polyphase AC to DC Power Converter - PCT/NZ2005/000276.

## Kevin Lee

### KEVIN LEE, P.E., EATON INNOVATION CENTER

#### EDUCATION AND TRAINING

- University of Wisconsin, Madison, WI, Ph.D. in Electrical Engineering, 2008.
  - Topic Area: Power Quality Problems and Solutions in UPS and Adjustable Speed Drives
- Rensselaer Polytechnic Institute, Troy, NY, M.S. in Electrical Engineering, 1990.
  - Topic Area: Electric Power Systems, Control Systems, Robotics
- Tsinghua University, Beijing, China, B.S. in Electrical Engineering, 1986.
  - Thesis Title: "Design and modulation of a pulsed current generator for material study"

#### PROFESSIONAL EXPERIENCE

Innovation Center, Eaton Corporation, Milwaukee, WI      2004 - Present

##### *Senior Engineering Specialist/Program Manager*

Responsible for technology and product development in the fields of data center power management, power quality, sustainability and energy efficiency, renewable energy, various power conversion equipment, low and medium voltage power distribution, architecture, and control systems.

Industrial Controls Division, Eaton Corporation, Milwaukee, WI      1998 - 2004

##### *Principal Engineer*

Responsible for technology and product development in the fields of soft switching power converters, adjustable speed drives, 18-pulse rectifiers, PWM rectifiers, active filters, voltage sag correctors, motor soft starters, and system health and wellness.

Sola/Hevi-Duty Electric, A Unit of General Signal (Now, SPX), Lake Geneva, WI      1990 - 1998

##### *Engineering Manager, Airport Lighting Products*

Responsible for product design and development in 4 kW through 70 kW dry type and oil filled constant current regulators, 1Φ and 3Φ dry type transformers up to 750 kVA, constant voltage regulators up to 750 kVA, product training seminars, customer, and manufacturing support.

#### PUBLICATIONS

- "Investigation of the transmission line impedance effects on voltage quality and flicker emission for grid connected to wind turbines", IEEE 6th International Power Electronics and Motion Control Conference, ECCE-Asia, Wuhan, China, May, 2009.
- "The windmill topology: Evaluation of adjustable speed drive systems", IEEE Industry Applications Magazine, March, 2009.
- "New parameter-insensitive observer-based control methods for combined source voltage harmonics and unbalance disturbances in PWM voltage-source converters", IEEE Applied Power Electronics Conference and Exposition, Washington, DC, 2009.
- "Simplified active and reactive power control of doubly fed induction generator and the simulation with STATCOM", IEEE Applied Power Electronics Conference and Exposition, Washington, DC, 2009.
- "Impact of input voltage sag and unbalance on dc link inductor and capacitor stress in adjustable speed drives", IEEE Transactions on Industry Applications, November/December 2008.

## Kevin Lee

### KEVIN LEE, P.E., EATON INNOVATION CENTER

- "Modeling effects of voltage unbalances in industrial distribution systems with adjustable speed drive", IEEE Transactions on Industry Applications, September/October 2008.
- "Input harmonic estimation and control methods in active rectifiers", 39th IEEE Power Electronics Specialists Conference, Island of Rhodes, Greece, June 2008.
- "Design oriented analysis of DC link current observer of a three-phase double conversion uninterruptable power system or adjustable speed drive", IEEE Applied Power Electronics Conference and Exposition, Anaheim, CA, 2007.
- "Impact of input voltage sag and unbalance on dc link inductor and capacitor stress in adjustable speed drives", IEEE Transactions on Industry Applications, September/October 2006.
- "A high performance and cost effective drive based power conditioner for critical applications", IEEE 40th Industry Applications Society Annual Conference, Hong Kong, China, 2005.

### PATENTS

- US 6,768,284B2 Method and compensation modulator for dynamically controlling induction machine regenerating energy flow and direct current bus voltage for an adjustable frequency drive system.
- US 7,468,595 System and method of controlling the startup of an adjustable speed motor drive based sinusoidal output power conditioner.
- US 7,508,094 UPS systems having multiple operation modes and methods of operating same.

**Instructions and Summary**

Award Number: DE-FOA-0000107  
 Award Recipient: Hewlett-Packard

Date of Submission:  
 Form submitted by:

(May be award recipient or sub-recipient)

**Please read the instructions on each page before starting.  
 If you have any questions, please ask your DOE contact. It will save you time!**

**On this form, provide detailed support for the estimated project costs identified on the SF-424A form (Budget).**

- The dollar amounts on this page must match the amounts on the associated SF-424A.
- The award recipient and each sub-recipient with estimated costs of \$100,000 or more must complete this form and a SF-424A form.
- The total budget presented on this form and on the SF424A must include both Federal (DOE), and Non-Federal (cost share) portions, thereby reflecting **TOTAL PROJECT COSTS** proposed.
- For costs in each Object Class Category on the SF-424A, complete the corresponding worksheet on this form (tab at the bottom of the page).
- All costs incurred by the preparer's sub-recipients, vendors, contractors, consultants and Federal Research and Development Centers (FFRDCs), should be entered only in section f. Contractual. All other sections are for the costs of the preparer only.

**SUMMARY OF BUDGET CATEGORY COSTS PROPOSED**

(Note: The values in this summary table are from entries made in each budget category sheet.)

CATEGORY	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Total Costs	Project Costs %	Comments (Add comments as needed)
a. Personnel						
b. Fringe Benefits						
c. Travel						
d. Equipment						
e. Supplies						
f. Contractual Sub-recipient FFRDC Vendor						REDACTED EXEMPTION 4
g. Construction						
h. Other Direct Costs						
i. Indirect Charges						
Total Project Costs						

**Additional Explanations/Comments (as necessary)**

**Davis-Bacon Act written Affirmation:**

It is HP's understanding that any grant awarded to Hewlett-Packard pursuant to DOE grant announcement #DE-FOA-0000107 will not be a contract for the construction, alteration, or repair of public buildings or public works and hence, the requirements of the Davis-Bacon will not apply.

# Budget Justification

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*DE-FOA-0000107*

*Adaptive Environmentally Contained Power and Cooling IT Infrastructure for the  
Data Center*

## Combined Project Costs and Cost Sharing

Hewlett-Packard Company

REDACTED  
EXEMPTION 4

## HP Labor Cost Justification

REDACTED  
EXEMPTION 4

HP Function Name	Annual Salary (\$K)
REDACTED EXEMPTION 4	*
	*
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	*
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	*
	*
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	*
	*
	*

REDACTED  
EXEMPTION 4

From: DOE - DOE

Representative: Uriel Trujillo

ReceivedDate Time: 06/30/2009 03:56 PM

Public: YES

Document: Recovery Act: Energy Efficient Information and Com (DE-FOA-0000107)

Attachment:

Subject: RE: Estimating Labor Costs

DOE would accept labor cost estimates based on the actual payroll rates of the researchers who will be working on the proposed project. Thanks ----- If a high-tech IT company is not CAS compliant or compliant with FAR Part 31 due to FAR Part 12 commercial-item exemptions, in what manner can it proceed with estimating its labor costs? Would it be acceptable to base its labor cost estimates on the actual payroll rates of the researchers who will be working on the proposed project? (It would necessarily forego any inclusion of indirect costs in its budget). Hourly rates would be verified by a current copy of the researchers' official company earnings statements. This information would be provided to DOE upon request through the company's HR Department in order to prevent the employees' personal information from being disclosed to other researchers and administrative staff during any fact-finding activity prior to actual grant award. Would you please comment on whether or not DOE would accept labor cost estimates being proposed in such a manner?

[Return](#)

PMC123.1 - Budget Justification for SF 4Z4A Budget

### a. Personnel

PLEASE READ!!!

**List costs solely for employees of the entity completing this form (award recipient or sub-recipient). All personnel**

Identify positions to be supported. Key personnel should be identified by title. All other personnel should be identified either by title or a group category. State the amounts of time (e.g., hours or % of time) to be expended, the composite base pay rate, total direct personnel compensation and identify the rate basis (e.g., actual contractual efforts of the entity preparing this) must be included under "Contracted

Add rows as needed. Formulas/calculations will need to be entered by the preparer of this form. Please enter formulas as

REDACTED  
EXEMPTION 4

Additional Explanations/Comments (as necessary)

a. Personnel

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Dollars	Rate Basis
		Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 3		

## b. Fringe Benefits

	Budget Period 1	Budget Period 2	Budget Period 3	Total
Rate applied:	0.0%	0.0%	0.0%	
Total fringe requested:	\$0	\$0	\$0	\$0

A federally approved fringe benefit rate agreement, or a proposed rate supported and agreed upon by DOE for estimating purposes is required if reimbursement for fringe benefits is requested. Please check (X) one of the options below and provide the requested information. Calculate the fringe rate and enter the total amount in Section B, line 6.b. ("Fringe Benefits") of form SF-424A.

A fringe benefit rate has been negotiated with, or approved by, a federal government agency. A copy of the latest rate agreement is included with this application, and will be provided electronically to the Contracting Officer for this project.

\*In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

X There is not a current, federally approved rate agreement negotiated and available.

When this option is checked, the entity preparing this form shall submit a rate proposal in the format provided at the following website, or a format that provides the same level of information and which will support the rates being proposed for use in performance of the proposed project. Go to <https://www.eere-pmc.energy.gov/forms.aspx> and select PM/C 400.2 Sample Rate Proposal. \* In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

### Additional explanation/comments (as necessary)

\*IMPORTANT: In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total fringe costs. If the total fringe costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get or fringe cost percentage. NOTE: The fringe benefit rate should be applied to both the Federal Share and Recipient Cost Share.

## b. Fringe Benefits

Rate applied:	Budget Period 1	Budget Period 2	Budget Period 3	Total
Total fringe requested:			REDACTED EXEMPTION 4	

A federally approved fringe benefit rate agreement, or a proposed rate supported and agreed upon by DOE for estimating purposes is required if reimbursement for fringe benefits is requested. Please check (X) one of the options below and provide the requested information. Calculate the fringe rate and enter the total amount in Section B, line 6.b. ("Fringe Benefits") of form SF-424A.

A fringe benefit rate has been negotiated with, or approved by, a federal government agency. A copy of the latest rate agreement is included with this application, and will be provided electronically to the Contracting Officer for this project.  
 \*In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

- X There is not a current, federally approved rate agreement negotiated and available.  
 When this option is checked, the entity preparing this form shall submit a rate proposal in the format provided at the following website, or a format that provides the same level of information and which will support the rates being proposed for use in performance of the proposed project. Go to <https://www.eere-pmc.energy.gov/forms.aspx> and select PMC 400.2 Sample Rate Proposal. \* In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

### Additional explanation/comments (as necessary)

\*IMPORTANT: In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total fringe costs. If the total fringe costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get overall fringe cost percentage. NOTE: The fringe benefit rate should be applied to both the Federal Share and Recipient Cost Share.

C. Travel

**PLEASE READ!!!**

Provide travel detail as requested below, identifying total Foreign and Domestic Travel as separate items. Purpose of travel are items such as professional conference, DOE sponsored meeting, project management meeting, etc. The Basis for Estimating Costs are items such as past trips, current quotations, Federal Travel Regulations, etc.

All listed travel must be necessary for performance of the Statement of Project Objectives.

Add rows as needed if rows are added, formulas/calculations may need to be adjusted by the preparer.

Additional Explanations/Comments (as necessary)

**d. Equipment**

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**PLEASE READ!!!**

Equipment is generally defined as an item with an acquisition cost greater than \$5,000 and a useful life expectancy of more than one year. Further definitions can be found at 10 CFR 600 found on the P/MC Recipient Resources Forms page at <https://www.eere-pmc.energy.gov/Forms.aspx#regs>.

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 3					
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
			\$0		
Budget Period 3 Total		\$0			
PROJECT TOTAL		\$0			

Additional Explanations/Comments (as necessary)

e. Supplies

PLEASE READ!!!

Supplies are generally defined as an item with an acquisition cost of \$5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance. Further definitions can be found at 10 CFR 600 found on the PMC Recipient Resources Forms page at <https://www.eere-pmc.energy.gov/Forms.aspx#regs>.

List all proposed supplies below, providing a bases of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the Preparer.

## **Additional Explanations/Comments (as necessary)**

**f. Contractual****PLEASE READ!!**

The entity completing this form must provide all costs related to sub-recipients, vendors, contractors, consultants and FFRDC partners in the applicable boxes below.

**Sub-recipients (partners, sub-awardees):**

For each sub-recipient with total project costs of \$100,000 or more, a separate SF-424A budget and PWC123.1 budget justification form must be submitted. These sub-recipient forms may be completed by either the sub-recipients themselves or by the preparer of this form. The budget totals on the sub-recipient's forms must match the sub-recipient entries below.

The preparer of this form need only provide further support of the completed sub-recipient budget forms as they deem necessary. The support to justify the budgets of sub-recipients with estimated costs less than \$100,000 may be in any format, and at a minimum should provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

**Vendors (includes contractors and consultants):**

List all vendors, contractors and consultants supplying commercial supplies or services used to support the project. The support to justify vendor costs (in any amount) should provide the purpose for the products or services and a basis of the estimated costs that is considered sufficient for DOE evaluation.

**Federal Research and Development Centers (FFRDCs):**

For FFRDC partners, award recipient will provide a Field Work Proposal (if not already provided with the original application), along with the FFRDC labor mix and hours, by category and FFRDC major purchases greater than \$25,000, including Quantity, Unit Cost, Basis of Cost, and Justification. The award recipient may allow the FFRDC to provide this information directly to DOE.

**Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.**

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	\$48,000	\$32,000	\$16,000	\$96,000
					\$0
					\$0
					\$0
					\$0

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO			Project Total
	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	
				\$0
				\$0
				\$0
<b>Sub-total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
					\$0
					\$0
					\$0
					\$0
		\$0	\$0	\$0	\$0
	Total Contractual				\$0

Additional Explanations/Comments (as necessary)

**Davis-Bacon Act Written Affirmation:** Please see H/P's response to the Davis-Bacon Act requirement first lab/worksheets.

### Budget Justification Statement: Please see HIDE Budget Justification Statement (second tab)worksheet

6

**PLEASE READ!!**

**Construction, for the purpose of budgeting, is defined as all types of work done on a particular building, including erecting, altering, or remodeling. Construction conducted by the award recipient is entered on this page. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under f. Contractual.**

**List all proposed construction below, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives.**

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

## Overall description of construction activities:

Example Only!!! - Build wind turbine platform



**PLEASE READ!!!**

PLEASE READ!!!

Other direct costs are direct cost items required for the project which do not fit clearly into other categories, and are not included in the indirect pool for which the indirect rate is being applied to this project. Examples are meeting costs, postage, couriers or express mail, telephone/fax costs, printing costs, etc.

**Basis of cost** are items such as vendor quotes prior numbers of similar

Add rows as needed. If rows are added, formulas/calculations may need to be modified.

General description	Cost	Basis of Cost	Justification of need
		Budget Period 1	
EXAMPLE ONLY!! Grad student tuition	\$16,000	Established UCD costs	Support of graduate students working on project
Budget Period 1 Total	\$0	Budget Period 2	
Budget Period 2 Total	\$0	Budget Period 3	
Budget Period 3 Total	\$0	PROJECT TOTAL	\$0

### **Additional Explanations/Comments (as necessary)**

### i. Indirect Costs

	Budget Period 1	Budget Period 2	Budget Period 3	Total
Rate applied:				
Total indirect costs requested:		<b>REDACTED</b>		<b>EXEMPTION 4</b>

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of fringe benefits is requested. Please check (X) one of the options below and provide the requested information if it has not already been provided as requested, or has changed. Calculate the indirect rate dollars and enter the total in the Section B, line 6.j. (Indirect Charges) of form SF 424A.

**There is a federally approved indirect rate agreement. A copy is provided with this application and will be provided electronically to the Contracting Officer for this project.**  
*\*In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.*

**There is no current, federally-approved indirect rate agreement.**

*When this option is checked, the entity preparing this form shall submit an indirect cost rate proposal in the format provided at the following website, or in a format that provides the same level of information and which supports the rate(s) being proposed for use in estimating the project. Go to https://www.eere-pmc.energy.gov/forms.aspx and select PMC 400.2 Sample Rate Proposal. \*In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.*

#### Additional Explanations/Comments (as necessary)

**\*IMPORTANT:** In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total indirect costs. If the total indirect costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one indirect cost percentage. NOTE: The indirect rate should be applied to both the Federal Share and Recipient Cost Share.

Cost Share

PLEASE READ!!!

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided in the table below. Identify the source & amount of each item of cost share proposed by the award recipient and each sub-recipient or vendor. Letters of commitment must be submitted for all third party cost share (other than award recipient).

Note that "cost-share" is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds. Documentation of cost sharing commitments must be provided, if not already provided with the original application and they have not changed since its submission.

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317. Also see 10 CFR 600.318 relative to profit or fee.

Add rows as needed if rows are added formulas/calculations may need to be adjusted by the preparer.

**Instructions and Summary**

Award Number: DE-FOA-0000107  
 Award Recipient: Eaton Corporation

Date of Submission: 21-Jul-09  
 Form submitted by: Miguel Chavez of Eaton

(May be award recipient or sub-recipient)

**Please read the instructions on each page before starting.****If you have any questions, please ask your DOE contact. It will save you time!****On this form, provide detailed support for the estimated project costs identified on the SF-424A form (Budget).**

- The dollar amounts on this page must match the amounts on the associated SF-424A.
- The award recipient and each sub-recipient with estimated costs of \$100,000 or more must complete this form and a SF-424A form.
  - The total budget presented on this form and on the SF424A must include both Federal (DOE), and Non-Federal (cost share) portions, thereby reflecting **TOTAL PROJECT COSTS** proposed.
  - For costs in each Object Class Category on the SF-424A, complete the corresponding worksheet on this form (tab at the bottom of the page).
  - All costs incurred by the preparer's sub-recipients, vendors, contractors, consultants and Federal Research and Development Centers (FFRDCs), should be entered only in section f. Contractual. All other sections are for the costs of the preparer only.

**SUMMARY OF BUDGET CATEGORY COSTS PROPOSED**

(Note: The values in this summary table are from entries made in each budget category sheet.)

CATEGORY	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Costs %	Comments
					(Add comments as needed)
a. Personnel					
b. Fringe Benefits					
c. Travel					
d. Equipment					REDACTED EXEMPTION 4
e. Supplies					
f. Contractual					
Sub-recipient					
FFRDC					
Vendor					
Total Contractual					
g. Construction					
h. Other Direct Costs					
i. Indirect Charges					
Total Project Costs					

**Additional Explanations/Comments (as necessary)**

**PLEASE READ!!!****a. Personnel (fully burdened)**

**PLEASE READ!!!**  
**List costs solely for employees of the entity completing this form (award recipient or sub-recipient). All other personnel costs (of subrecipients or other contractual efforts of the entity preparing this) must be included under f. Contractual. This includes all consultants and FFRDCs.**

**Identify positions to be supported. Key personnel should be identified by title. All other personnel should be identified either by title or a group category. State the amounts of time (e.g., hours or % of time) to be expended, the composite base pay rate, total direct personnel compensation and identify the rate basis (e.g., actual salary, labor distribution report, technical estimate, state civil service rates, etc.).**

**Add rows as needed. Formulas/calculations will need to be entered by the preparer of this form. Please enter formulas as shown in the example.**

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Dollars	Rate Basis
		Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 3		
1. Generation 2A Receiver Design EXAMPLE ONLY!!!	Sr. Engineer Electrical engineers	10000 2000 6200 1800	\$85.00 \$35.00 \$217,000 \$20.00	\$423,000 \$170,000 \$217,000 \$36,000	600 200 400 0	\$50.00 \$35.00 \$14,000 \$0.00	\$24,000 \$10,000 \$14,000 \$0	800 200 600 0	\$50.00 \$35.00 \$10,000 \$0	\$31,000 \$10,000 \$21,000 \$0	11400 2400 7200 1800	\$478,000 Actual Salary
	Technician											

**REDACTED EXEMPTION 4**



## b. Fringe Benefits

Rate applied:	Budget Period 1	Budget Period 2	Budget Period 3	Total
Total fringe requested:				
	REDACTED			EXEMPTION 4

A federally approved fringe benefit rate agreement, or a proposed rate supported and agreed upon by DOE for estimating purposes is required if reimbursement for fringe benefits is requested. Please check (X) one of the options below and provide the requested information. Calculate the fringe rate and enter the total amount in Section B, line 6.b. ("Fringe Benefits") of form SF-424A.

A fringe benefit rate has been negotiated with, or approved by, a federal government agency. A copy of the latest rate agreement is included with this application, and will be provided electronically to the Contracting Officer for this project.  
 \*In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

X There is not a current, federally approved rate agreement negotiated and available.

When this option is checked, the entity preparing this form shall submit a rate proposal in the format provided at the following website, or a format that provides the same level of information and which will support the rates being proposed for use in performance of the proposed project. Go to <https://www.eere-pmc.energy.gov/forms.aspx> and select PMC 400.2 Sample Rate Proposal. \* In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.

### Additional explanation/comments (as necessary)

\*IMPORTANT: In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total fringe costs. If the total fringe costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one fringe cost percentage. NOTE: The fringe benefit rate should be applied to both the Federal Share and Recipient Cost Share.

*It is Eaton's policy to not disclose details of our rates and factors outside of Eaton. Details of these rates and factors will be provided directly to the DOE upon request.*

C. Travel

**PLEASE READ!!!**

Provide travel detail as requested below, identifying total Foreign and Domestic Travel as separate items. Purpose of travel are items such as professional conference, DOE sponsored meeting, project management meeting, etc. The Basis for Estimating Costs are items such as past trips, current quotations, Federal Travel Regulations, etc.

All listed travel must be necessary for performance of the Statement of Project Objectives.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Purpose of travel	No. of Travelers	Depart From (not required for domestic travel)	Destination (not required for domestic travel)	No. of Days	Cost per Traveler	Cost per Trip	Basis for Estimating Costs
							Budget Period 2
Domestic Travel							
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 2 Total							
Domestic Travel							
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 3 Total							
Domestic Travel							
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 4 Total							
PROJECT TOTAL							

### **Additional Explanations/Comments (as necessary)**

**d. Equipment**

**PLEASE READ!!!**

Equipment is generally defined as an item with an acquisition cost greater than \$5,000 and a useful life expectancy of more than one year. Further definitions can be found at 10 CFR 600 found on the [PMC Recipient Resources Forms page at https://www.eere-pmc.energy.gov/Forms.aspx#regs](https://www.eere-pmc.energy.gov/Forms.aspx#regs).

List all proposed equipment below, providing a basis of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying its need as it applies to the Statement of Project Objectives. If it is existing equipment, and the value of its contribution to the project budget is being shown as cost share, provide logical support for the estimated value shown. If it is new equipment which will retain a useful life upon completion of the project, provide logical support for the estimated value shown.

For equipment over \$50,000 in price, also include a copy of the associated vendor quote or catalog price list.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Additional Explanations/Comments (as necessary)

e. Supplies

PLEASE READ!!!

**Supplies** are generally defined as an item with an acquisition cost of \$5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance. Further definitions can be found at 10 CFR 600 found on the PMC Recipient Resources Forms page at <https://www.eere-pmc.energy.gov/Forms.aspx#regs>.

List all proposed supplies below, providing a bases of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Additional Explanations/Comments (as necessary)

**f. Contractual****PLEASE READ!!!**

The entity completing this form must provide all costs related to sub-recipients, vendors, contractors, consultants and FFRDC partners in the applicable boxes below.

**Sub-recipients (partners, sub-awardees):**

For each sub-recipient with total project costs of \$100,000 or more, a separate SF-424A budget and PWC123.1 budget justification form must be submitted. These sub-recipient forms may be completed by either the sub-recipients themselves or by the preparer of this form. The budget totals on the sub-recipient's forms must match the sub-recipient entries below.

The preparer of this form need only provide further support of the completed sub-recipient budget forms as they deem necessary. The support to justify the budgets of sub-recipients with estimated costs less than \$100,000 may be in any format, and at a minimum should provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

**Vendors (includes contractors and consultants):**

List all vendors, contractors and consultants supplying commercial supplies or services used to support the project. The support to justify vendor costs (in any amount) should provide the purpose for the products or services and a basis of the estimated costs that is considered sufficient for DOE evaluation.

**Federal Research and Development Centers (FFRDCs):**

For FFRDC partners, award recipient will provide a Field Work Proposal (if not already provided with the original application), along with the FFRDC labor mix and hours, by category and FFRDC major purchases greater than \$25,000, including Quantity, Unit Cost, Basis of Cost, and Justification. The award recipient may allow the FFRDC to provide this information directly to DOE.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Sub-Recipient Name/Organization	Purpose/Tasks in SOW	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	\$48,000	\$32,000	\$16,000	\$96,000
					\$0
					\$0
					\$0
					\$0
					\$0

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO			Project Total
	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	
				\$0
				\$0
				\$0
				\$0
				\$0
<b>Sub-total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4). Required for expanding CPV module mfg. capacity. Cost is from competitive quotes.	\$32,900	\$86,500		\$119,400
					\$0
					\$0
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Additional Explanations/Comments (as necessary)

### g. Construction

PLEASE READ!!!

**Construction, for the purpose of budgeting, is defined as all types of work done on a particular building, including erecting, altering, or remodeling. Construction conducted by the award recipient is entered on this page. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under f. Contractual.**

List all proposed construction below, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

overall description of construction activities:

**Example Only!!! - Build wind turbine platform**

### **Additional Explanations/Comments (as necessary)**

**h. Other Direct Costs**

PLEASE READ!!!

Other direct costs are direct cost items required for the project which do not fit clearly into other categories, and are not included in the indirect pool for which the indirect rate is being applied to this project. Examples are meeting costs, postage, couriers or express mail, telephone/tax costs, printing costs, etc.

**Basis of cost** are items such as vendor quotes, prior purchases of similar or like items, published price list, etc.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

General description	Cost	Basis of Cost		Justification of need
		Budget Period 1		
EXAMPLE ONLY!!! Grad student tuition	\$16,000	Established UCD costs		Support of graduate students working on project
Budget Period 1 Total	\$0			
		Budget Period 2		
Budget Period 2 Total	\$0			
		Budget Period 3		
Budget Period 3 Total	\$0			
PROJECT TOTAL	\$0			

**Additional Explanations/Comments (as necessary)**

**i. Indirect Costs**

<b>Indirect Costs</b>		
	Budget Period 1	Budget Period 2
Rate applied:		REDACTED
Total indirect costs requested:		EXEMPTION

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of fringe benefits is requested. Please check (X) one of the options below and provide the requested information if it has not already been provided as requested, or has changed. Calculate the indirect rate dollars and enter the total in the Section B, line 6.j. (Indirect Charges) of form SF 424A.

**There is a federally approved indirect rate agreement. A copy is provided with this application and will be provided electronically to the Contracting Officer for this project.**

\*In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.

There is no current, federally-approved indirect rate agreement.

When this option is checked, the entity preparing this form shall submit an indirect cost rate proposal in the format provided at the following website, or in a format that provides the same level of information and which supports the rate(s) being proposed for use in estimating the project. Go to <https://www.eere-pmc.energy.gov/forms.aspx> and select PMC 400.2 Sample Rate Proposal. \*In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.

**Additional Explanations/Comments (as necessary)**

**\*IMPORTANT:** In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total indirect costs. If the total indirect costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one indirect cost percentage. NOTE: The indirect rate should be applied to both the Federal Share and Recipient Cost Share.

**It is Eaton's policy to not disclose details of our rates and factors outside of Eaton. Details of these rates and factors will be provided directly to the DOE upon request.**

## Cost Share

PLEASE READ!!!

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided in the table below. Identify the source & amount of each item of cost share proposed by the award recipient and each sub-recipient or vendor. Letters of commitment must be submitted for all third party cost share (other than award recipient).

Note that "cost-share" is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds. Documentation of cost sharing commitments must be provided, if not already provided with the original application and they have not changed since its submission.

**Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards.** Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317.

Add rows as needed If rows are added formulas/calculations may need to be adjusted by the preparer.

Total Project Cost: \$4,901,619

Additional Explanations/Comments (as necessary)

**Cost Share Percent of Award:** 100.0%