

CONTINUATION SHEET	Reference No. of Document Being Continued PIIN/SIIN W56HZV-04-C-0132 MOD/AMD P00001	Page 2 of 8
Name of Offeror or Contractor: GLOBAL EMBEDDED TECHNOLOGIES		

SECTION A - SUPPLEMENTAL INFORMATION

1. The purpose of this unilateral Modification P00001 is to correct the vehicle nomenclature of the Government Furnished Property, HMMWV and change the Contracting Officer Representative (COR) cited in Section G from John Monroe to Ryan Wampler.
2. The affected Paragraphs are hereby changed: C.6, f.1.4, H-9 and H-10.
3. The attached pages are changed to incorporate the new vehicle nomenclature and are hereby incorporated into the contract.
4. Section G has been updated to incorporate Ryan Wampler as the new COR.
5. The contract total is neither increased nor decreased.
6. All other terms and conditions remain unchanged.

*** END OF NARRATIVE A 001 ***

Name of Offeror or Contractor: GLOBAL EMBEDDED TECHNOLOGIES

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 Scope:

This Statement of Work (SOW) describes the requirements for the Advanced 42-Volt Technologies for Military Vehicles Phase-II effort, and relates to Department of Defense (DOD) Small Business Innovation Research (SBIR) Solicitation 2002.2, Army Topic A02-249. The period of performance for the Phase-II effort of this contract is 24 months, and is a follow-on to Phase I SBIR Contract DAAE07-03-C-L049.

C.2 Requirements: The Contractor, as an independent contractor and not as an agent of the Government, shall perform the following:

C.2.1 The Contractor shall refine the preliminary design developed in Phase I to accommodate prototype construction.

C.2.2 The Contractor shall design, construct, test, and demonstrate a triple voltage (14/28/42V) prototype system incorporated in a Government furnished High Mobility Multipurpose Wheeled Vehicle (HMMWV), to test and demonstrate a 42 Volt-based Vehicle Electrical System using the components listed in C.2.5.1 below. For this development, the system must be capable of normal automotive function/usage (excluding cross country) and meet the performance requirements of paragraph C.2.4 on a recurring basis without extensive special preparation.

C.2.3 The Contractor shall prepare a work schedule that identifies all the milestones of this project, and submit it to the Government at the Contract Start of Work Meeting described in C.5.1 below. The Contractor shall submit a schedule of the planned Contractor technical demonstrations and simulations of the various System components to the Government, at the Contract Start of Work Meeting.

C.2.4 Performance: The Contractor shall demonstrate the System's capability to produce 14-Volts, 28-Volts, and 42-Volts at a total maximum system current of 300 Amperes; maintain optimal charge of the Power/Energy Storage components during normal usage as well as; Supply 750 Watts of Electrical Power to the System for a minimum of eight (8) hours in Silent Watch Mode; and communicate all data generated on the Data Bus.

C.2.5 Design

C.2.5.1 The Contractor shall prepare Design Specifications for the following:

1. 42V power generation capability
2. 36V battery pile, using three cascaded batteries
3. Intelligent battery monitoring and communication support
4. Power conversion from 42V to 14/28V loads
5. Power conversion from 28V to 42V for jumpstarting
6. Ultra-capacitor bank for load leveling and 28V jumpstarting
7. Custom Power Management Module (PMM) to supervise vehicle loads
8. Electrified coolant circulation pump
9. Custom connection systems as required
10. Custom wiring harnesses as required
11. Custom fixtures and vehicle mountings as required

C.2.5.2 The Contractor shall use Commercial Off The Shelf (COTS) technology, where possible, in the design of the System; and design, where necessary, all remaining components necessary to complete the System.

C.3 Verification:

C.3.1 The Contractor shall plan and conduct annual technical demonstrations for the Power Generation Components, the Power Management Components, the Power/Energy Storage Components, and the Data Bus Communications Components of the System as integrated onto the HMMWV, to show that they are capable of meeting or exceeding the performance specifications as described in C.2.4.

C.4 Data Requirements:

C.4.1 Requirement Specification: The Contractor shall develop a Requirement Specification. The Requirement Specification shall define the requirements for the components to be used in the System, specifically, the Power Generation; Power Management; Power/Energy Storage, Starting; Data Bus Communications. The Contractor shall prepare and present the Requirement Specification for COR review and concurrence 2 months after award of the contract. The Contractor shall update the Requirement Specification throughout the course of this contract and submit it as an attachment to the Final Report, for review and approval of the Government COR, in accordance with Exhibit A, CDRL Data Item No. A002.

C.4.2 Design Specification: The Contractor shall develop a Design Specification. The Contractor shall prepare and present

CONTINUATION SHEET	Reference No. of Document Being Continued	Page 4 of 8
	PIIN/SIIN W56HZV-04-C-0132	MOD/AMD P00001

Name of Offeror or Contractor: GLOBAL EMBEDDED TECHNOLOGIES

the Design Specification for COR review and concurrence 7 months after award of the contract. The Contractor shall update the Design Specification throughout the course of this contract and submit it as an attachment to the Final Report, for review and approval of the Government COR, in accordance with Exhibit A, CDRL Data Item No. A002.

C.4.3 Test Plan: The Contractor shall develop a Test Plan that describes the Contractor's test program, including component, level, demonstration and system testing to confirm that the requirements are met. The Contractor shall obtain approval from the COR prior to implementation of the Test Plan. This Test Plan shall include any simulation tools and models required for verification on the respective System Component progress. The Contractor shall provide the Draft Test Plan to the COR for review and approval 9 months after contract award before first testing begins and IAW Exhibit A, CDRL Data Item No. A005.

C.4.4 Data Bus Evaluation: The Contractor shall define the requirements for interfacing the various components of the System with each other via the Data Bus. The Contractor shall evaluate the use of various data bus communications protocols and interfaces that shall include SAE J1939, CAN bus, and/or RS 232. The Contractor shall define the requirements based on the evaluation of the data bus communications protocols. The Contractor shall, using these requirements, design and implement the optimal data bus architecture into the final System demonstration. The Contractor shall deliver the Data Bus Evaluation as an attachment to the Final Report and submitted IAW Exhibit A. CDRL, Data Item No. A002.

C.4.5 Final Report: The Contractor shall prepare a Final Technical Report to document all technical aspects of Phase II Effort of the contract. The Contractor shall include an upgraded Trade Study as an attachment to the Final Report. The Trade Study shall be a continuation of the study began in Phase I contract and is to assure that the Contractor is consistent with state of the art methods, practices and technologies. The Contractor shall also include a Data Bus Evaluation, the Requirements Specification, the Design Specifications, as attachments to the Final Report. The Contractor shall present a Draft Final report to the COR for review and approval in accordance with, Exhibit A, CDRL Data Item No. A002. The Contractor shall deliver the Final Technical Report to the Government, at the end of the contract.

C.4.6 Contractor's Progress, Status and Management Reports: The Contractor shall submit quarterly reports to the Government IAW Exhibit A, CDRL Data Item No. A001.

C.4.7 Presentation Materials: The Contractor shall prepare and deliver Presentation Materials IAW Exhibit A, CDRL Data Item No. A003. The Contractor shall deliver one (1) initial 3-panel display board sixteen (16) months after contract award. The COTR shall review the 3-panel display board and communicate any comments to the Contractor within thirty (30) days of receipt of the 3-panel display board. The Contractor shall deliver one (1) final 3-panel display board upon completion of the contract. The Government may publicly display these Presentation Materials at Government locations, or professional or industry trade shows or conferences.

C.4.7.1 Presentation Materials Specification Requirements: The Contractor shall prepare a portable 3-panel Display board, approximately 72 inches in width x 30 inches in height. The left panel shall include the following: Purpose, Problem and Procedure. The center panel shall include the following: Title, Illustration Photos and/or Graphics/Charts. The right panel shall include: Results and Conclusions.

C.4.8 Conference Minutes: The Contractor shall record and submit to the Government the minutes for the Start of Work meeting, Program Review meetings, all teleconferences and Video Conferences IAW Exhibit A, CDRL Data Item No. A004.

C.5 Meeting Schedule and Program Review:

C.5.1 Start of Work Meeting: The Contractor shall initiate, plan, coordinate and conduct a one (1) day Start of Work Meeting with the Government, within thirty (30) days of the award of the contract. The contractor shall provide the copies of the briefing materials. The Government COR and the contractor shall mutually agree to the time and location of the meeting. At the meeting, the contractor shall present plans to the Government for accomplishing the contract requirements. The contractor shall cover all proposed aspects of their planned work effort.

C.5.2 Program Review: The contractor shall initiate, plan, coordinate and conduct quarterly program reviews of the contract effort and present them to the Government. The Contractor shall provide copies of the briefing materials. The reviews may be held by Video Conference, Teleconference, or on site at either the Contractor's location or the Government's location. The time and location of the Program Review meetings shall be determined later, as mutually agreed to by the Government COR and the contractor.

C.6 Deliverables:

The Contractor shall deliver to the Government: a Final Technical Report; and the converted vehicle, M996, High Mobility Multipurpose Wheeled Vehicle (HMMWV), NSN 2310-01-111-2275, as modified IAW the contract. The Contractor shall deliver to the Government the Test Plan as described in C.4.3, at twelve (12) months after contract award.

CONTINUATION SHEET	Reference No. of Document Being Continued PIIN/SIIN W56HZV-04-C-0132 MOD/AMD P00001	Page 5 of 8
Name of Offeror or Contractor: GLOBAL EMBEDDED TECHNOLOGIES		

*** END OF NARRATIVE C 002 ***

CONTINUATION SHEET**Reference No. of Document Being Continued****Page 6 of 8****PIIN/SIIN** W56HZV-04-C-0132**MOD/AMD** P00001**Name of Offeror or Contractor:** GLOBAL EMBEDDED TECHNOLOGIES

SECTION F - DELIVERIES OR PERFORMANCE

F.1 Summary of Deliverables

Global ET shall provide the following deliverables to the Army over the course of the Phase II program:

F.1.1 One test plan as described in C.4.3 at twelve months after contract award.

F.1.2 Seven quarterly progress and status reports within two weeks after the conclusion of each reporting period.

F.1.3 Final Scientific and Technical Report due during the 24th month after start of Phase II.

F.1.4 The converted vehicle, M996, High Mobility Multipurpose Wheeled Vehicle (HMMWV), NSN 2310-01-111-2275, as modified in accordance with the contract.

F.1.5 The Presentation Materials as described in C.4.7 and C.4.7.1 shall be delivered to the COTR at the end of the 24th month after the start of Phase II.

*** END OF NARRATIVE F 002 ***

CONTINUATION SHEET**Reference No. of Document Being Continued****Page 7 of 8****PIIN/SIIN** W56HZV-04-C-0132**MOD/AMD** P00001**Name of Offeror or Contractor:** GLOBAL EMBEDDED TECHNOLOGIES

SECTION G - CONTRACT ADMINISTRATION DATA

<u>Status</u>	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
G-1 CHANGED (TACOM)	52.242-4016	COMMUNICATIONS	MAY/2000

(a) Communications on technical matters pertaining to the contract shall be direct between the contractor and the Technical Representative. Communications for the Technical Representative shall be addressed to:

Name: Ryan Wampler
e-mail: wamplerRy@tacom.army.mil

(b) The Administrative Contracting Officer's (ACO) name and email address are also provided if known at this time:

ACO: Mark Carver
e-mail: Mark.Carver@dcma.mil

(c) Please see the appointment letters prepared at time of contract award for functions the Technical Representative and ACO will perform on this contract.

[End of Clause]

CONTINUATION SHEET	Reference No. of Document Being Continued PIIN/SIIN W56HZV-04-C-0132 MOD/AMD P00001	Page 8 of 8
---------------------------	---	--------------------

Name of Offeror or Contractor: GLOBAL EMBEDDED TECHNOLOGIES

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H-9 Government-Furnished Equipment (GFE): The Government is providing an M996, High Mobility Multipurpose Wheeled Vehicle (HMMWV), NSN 2310-01-111-2275, Registration Number NG22EP, Serial Number 026036 to the Contractor within 60 days of award. The Contractor shall coordinate with the COR to finalize arrangements for the Contractor picking up the Army HMMWV. The Contractor shall be responsible for the performance of all required maintenance of the vehicle for the period of the contract. The Contractor shall secure the vehicle at Contractor's place of business, or other secured area in accordance with FAR 52.245-5. The acquisition cost is \$61,042.

H-10 GFE Disposition: The Contractor shall return the furnished vehicle, M996, (HMMWV), NSN 2310-01-111-2275, to the Government not more than 60 days after the conclusion of the contract. The vehicle will be returned as modified fair wear and tear excepted.

*** END OF NARRATIVE H 002 ***