AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract ID Code	Page	Of
Firm-Fixed-Price	1	33

2. Amendment/Modification No.	3. Effective Date	4. Requisition/Purchase Req No.	5. Project No. (If applicable)
0001	2013FEB05	SEE SCHEDULE	

6. Issued By Code W56HZV

U.S. ARMY CONTRACTING COMMAND
RACHEL HEANEY
WARREN, MICHIGAN 48397-5000
HTTP://CONTRACTING.TACOM.ARMY.MIL

EMAIL: RACHEL.HEANEY@US.ARMY.MIL

7. Administered By (If other than Item 6) Code

8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)

Code | Facility Code

[X] **9A. Amendment Of Solicitation No.**
W56HZV-12-R-0574

9B. Dated (See Item 11)
2013JAN14

[ ] **10A. Modification Of Contract/Order No.**

10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] **The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers**
[ ] **is extended,** [X] **is not extended.**

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing items 8 and 15, and returning 2 signed **copies of the amendments: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.**

12. Accounting And Appropriation Data (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS
It Modifies The Contract/Order No. As Described In Item 14.

[ ] **A. This Change Order is Issued Pursuant To: The Changes Set Forth In Item 14 Are Made In The Contract/Order No. In Item 10A.**

[ ] **B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).**

[ ] **C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:**

[ ] **D. Other (Specify type of modification and authority)**

E. IMPORTANT: Contractor [ ] **is not,** [ ] **is required to sign this document and return _____ copies to the Issuing Office.**

14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SEE SECOND PAGE FOR DESCRIPTION

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. Name And Title Of Signer (Type or print)		16A. Name And Title Of Contracting Officer (Type or print)	
15B. Contractor/Offeror _____ (Signature of person authorized to sign)	**15C. Date Signed**	**16B. United States Of America** By /SIGNED/ (Signature of Contracting Officer)	**16C. Date Signed**

SECTION A - SUPPLEMENTAL INFORMATION

Weapon System: No Identified Army Weapons Systems

*** End of Narrative A0000 ***

SILICON CARBIDE (SiC) GENERATOR CONTROLLER EXECUTIVE SUMMARY
RFP: W56HZV-12-R-0574

SiC GENERATOR CONTROLLER OVERVIEW
The objective of the procurement is for the contractor to design and develop a ruggedized SiC generator controller that will enable high temperature operation of high voltage starter/generators for military vehicle applications, while meeting the performance requirements defined in the statement of work. This procurement includes a base effort and three separate options.

AFFORADABILITY
The contract award affordability for the base effort under this solicitation is $2,277,700 (FY13 constant dollars). The base effort scope of work in Section C contains all of the capabilities desired at this affordability amount. Proposals requesting funding in excess of $2,277,700 for the base contract effort will be considered unafforadable.

BASE EFFORT OVERVIEW
The base effort consists of the design, development, test, demonstration, and delivery of two functional copies of the SiC generator controllers, as well as providing optimization and use training at TARDEC. The Period of Performance for the Base contract will be 18 months after contract award.

OPTION 1 OVERVIEW
The first option (Option 1) is for the build, test, and delivery of up to four additional copies of the SiC Generator Controller. If Option 1 is exercised, the Period of Performance for the deliveries under Option 1 shall be 14 months after award of the option quantity(s).

OPTION 2 OVERVIEW
The second option (Option 2) is for the delivery of a functioning Integrated Starter Generator Motor. If Option 2 is exercised, the Period of Performance for the delivery of the Integrated Starter Generator Motor under Option 2 shall be 12 months after award of the option.

OPTION 3 OVERVIEW: The third option (Option 3) is for the integration and testing of one SiC Generator Controller Unit into the TARDEC Systems Integration Lab (SIL) to demonstrate the operation of the generator controller with a generator and provide a test data report. If Option 3 is exercised, the Period of Performance for completion of the integration, testing, and delivery of the test data report shall be two (2) months after award of the option.

ACQUISITION STRATEGY
A full and open competition utilizing best value tradeoff procedures will be used for the award of a single contract. All proposal submission requirements are located in Section L. A firm fixed price base contract will be awarded for the base effort. All proposals shall clearly identify why the acceptance of the proposal would be advantageous to the Government. Any proposed deviations from the terms and conditions of the solicitation shall be clearly identified and explicitly defined and may be cause for rejection of the proposal.

NOTICE REGARDING SUBCONTRACTING
Offerors who are Other than Small Business Concerns shall submit a Small Business Subcontracting Plan in accordance with the Section I clauses. The Small Business Subcontracting Plan must be a separate stand-alone file and be clearly labeled as the Small Business Subcontracting Plan.

PRE-PROPOSAL QUESTION SUBMISSION
The deadline for Government receipt of Pre-proposal offeror questions is 11 February 2013, 1:00 P.M. local time, Warren, MI.

All questions regarding this soliciation shall be submitted in writting to the Contract Specialist, Rachel Heaney, via email at rachel.r.heaney2.civ@mail.mil. All questions and correspondence related to this soliciation shall reference the solicitation number W56HZV-12-R-0574 in the e-mail subject line.

Since the solicitation and associated information are posted on the FEDBIZOPPS website, the Government will post amendments to the soliciation on that website. The Government will post answers to industry-generated questions at the following website http://contracting.tacom.army.mil/research/scgc/scgc.htm.

Offerors are responsible for periodically reviewing the aforementioned websites for the most current information pertaining to this solicitation.

*** END OF NARRATIVE A0001 ***

SOLICITATION: W56HZV-12-R-0574
AMENDMENT: 0001

1. PURPOSE: The purpose of this Amendment 0001 to Solicitation W56HZV-12-R-0574 is to make the following changes:

a. Revise the Section A Executive Summary.

b. Revise Section B to remove sub-CLINs 0008AA and 0008AC, include performance completion dates for sub-CLIN 0013AA and 0014AA, and to add CLIN 0015 with sub-CLINs 0015AA and 0015AB for newly established Option 3.

c. Provide clarifications and revisions to the requirements stated in Section C.

d. Revise Section E, Section F, Section H, Section L, Section M, and Contract Data Requirements List data item A009 to reflect the associated changes in Section C.

2. As a result of this Amendment 0001, the Solicitation is amended as follows:

a. Section A - Executive Summary is revised as follows:

DELETED: COST TARGET
The cost target for the base effort under this solicitation is $2.5M (FY13 constant dollars). The base effort scope of work in Section C contains all of the capabilities desired at this cost target.

ADDED: AFFORADABILITY
The contract award affordability for the base effort under this solicitation is $2,277,700 (FY13 constant dollars). The base effort scope of work in Section C contains all of the capabilities desired at this affordability amount. Proposals requesting funding in excess of $2,277,700 for the base contract effort will be considered unafforadable.

ADDED: The following language is added to the executive summary to provide an overview of option 3.

OPTION 3 OVERVIEW: The third option (Option 3) is for the integration and testing of one SiC Generator Controller Unit into the TARDEC Systems Integration Lab (SIL) to demonstrate the operation of the generator controller with a generator and provide a test data report. If Option 3 is exercised, the Period of Performance for completion of the integration, testing, and delivery of the test data report shall be two (2) months after award of the option.

REVISE: The Pre-Proposal Question Submissions deadline is revised from 23 January 2013, 1:00 P.M. local time, Warren, MI to 11 February 2013, 1:00 P.M. local time, Warren, MI.

b. Section B Supplies or Services and Prices/Costs is revised as follows:

i. Sub-CLIN 0008AA INTEGRATION & TESTING AT TARDEC is deleted from the Base Effort.

ii. Sub-CLIN 0008AC - TEST DATA REPORT TARDEC TESTING is deleted from the Base Effort.

iii. Sub-CLIN 0013AA is revised to include a reference to Section F.3.2.2 in the narrative.

iv. Sub-CLIN 0014AA is revised to include a reference to Section F.3.2.3 in the narrative.

v. CLIN 0015 is added and is titled UNEXERCISED OPTION 3.

vi. Sub-CLIN 0015AA is added and is titled INTEGRATION & TESTING AT TARDEC.

vii. Sub-CLIN 0015AB is added and is titled TEST DATA REPORT TARDEC TESTING.

c. Section C Description / Specifications / Work Statement is revised as follows:

i. Section C.2.3.3

DELETED: The generator controller shall make available on the CAN network the following functions: Enable/disable, Torque command, speed command, voltage command, mode selection (torque, speed, voltage).

ADDED: The generator controller shall make available on the CAN network the following functions: Enable/disable, Torque command, speed command, voltage command, mode selection (torque, speed, voltage), and individual fault reset.

ii. Section C.2.4.1

DELETED: The generator controller shall operate at full power with 105 degrees Celsius (\'b0C) input coolant and a 125\'b0 C ambient temperature, with an objective of 125 degrees Celsius input coolant and 150 degrees Celsius ambient temperature. The flow rate shall not exceed 6 liters/minute.

ADDED: The generator controller shall operate at full power with 105 degrees Celsius input coolant and a 121 degrees Celsius ambient temperature, with an objective of 125 degrees Celsius input coolant and 150 degrees Celsius ambient temperature. The flow rate shall not exceed 12 liters/minute, at 9 PSIG (Pounds Per Square Inch Gauge) inlet pressure. The maximum outlet temperature shall not exceed 120 degrees Celsius.

iii. Section C.2.4.3:

DELETED: The generator controller shall be compatible with an Ethylene Glycol Water (EGW) 50/50 mixture.

ADDED: The generator controller shall be compatible with an Ethylene Glycol Water (EGW) 50/50 mixture, and be capable of operating at a pressure of 100 PSIG.

iv. Section C.2.5.6:

DELETED: The generator controller shall have three (3) 600VDC output circuits with the following current ratings: (i) 300 amps, (ii) 75 amps, and (iii) 75 amps. The 600VDC circuits shall utilize solid state SiC switches that are configured electrically as normally off (the device will not pass current without a gate signal). The circuits shall have a user adjustable current setting that allows for adjustments from 20% to 100% of its maximum current rating. The circuits shall have the ability to be disabled via a message from the CAN bus.

ADDED: The generator controller shall have three (3) 600VDC output circuits with the following current ratings: (i) 300 amps, (ii) 75 amps, and (iii) 75 amps. The 600VDC circuits shall utilize solid state SiC circuit breakers that are configured electrically as normally off (the device will not pass current without a gate signal). The circuits shall have a user adjustable current setting that allows for adjustments from 20% to 100% of its maximum current rating. The circuits shall have the ability to be disabled via a message from the CAN bus.

v. Section C.3.4: Section C.3.4 as shown below is deleted in its entirety from the base effort and is moved to Section C.6 as Option 3. Section C.3.4 is marked as RESERVED.

DELETED: After COR concurrence of successful demonstration of the SiC generator controller (at the contractor facility), the contractor shall integrate one of the SiC generator controllers into the TARDEC Systems Integration Lab (SIL) and test the system in accordance with the approved test plan to demonstrate the operation of the generator controller with a generator. The ISG in the TARDEC lab will be a Magnet Motors model G40-1A, or equivalent. All test data shall be delivered to the COR in accordance with CDRL A009.

vi. Section C.6.2 is revised to add the specifications for an equivalent ISG motor as follows:

DELETED: If exercised in accordance with H.1.2, the contractor shall deliver an integrated starter generator (ISG) motor in accordance with Section F.3.2.3 of the contract for demonstration of the generator controller. The ISG shall be Magnet Motors model G40-1A, or equivalent (same size and technical capabilities).

ADDED: If exercised in accordance with H.1.2, the contractor shall deliver an integrated starter generator (ISG) motor in accordance with Section F.3.2.3 of the contract for demonstration of the generator controller. The ISG shall be Magnet Motors model G40-1A, or equivalent (same size and technical capabilities). An equivalent ISG motor shall meet the following specifications:

--Output power at 600VDC: 160kW continuous (threshold) 175kW (objective)

--Starting Torque at 300 RPM: 1500N-m peak 700N-m continuous

--Maximum Speed of 3050 RPM

--Dual Wound (2 sets of 3 phase wires)

--Dimensions not to exceed 785 mm diameter, 128 mm deep.

vii. Section C.6.3 is added as Option 3 Integration and Testing at TARDEC as follows:

ADDED: If exercised in accordance with H.1.3, the contractor shall integrate one of the SiC generator controllers delivered under the base effort into the TARDEC Systems Integration Lab (SIL) and test the system in accordance with the approved test plan to demonstrate the operation of the generator controller with a generator. The ISG in the TARDEC lab will be a Magnet Motors model G40-1A, or equivalent (specifications as defined above in Option 2). All test data shall be delivered to the COR in accordance with CDRL A009. The integration, testing, and test report shall be completed IAW the timeframe stated in Section F.3.2.4.

d. Section E Inspection and Acceptance is revised as follows:

i. Section E.2.6 titled Integration, Testing and Training at TARDEC Acceptance Criteria (CLIN 0008) is revised to Optimization and Use Training At TARDEC Acceptance Criteria (CLIN 0008).

ii. Section E.2.6.1 as shown below is deleted in its entirety and Section E.2.6.1 is marked as RESERVED.

DELETED: Integration and Testing at TARDEC will be inspected by the COR for compliance with the approved test plan, CDRL A008, and the test method criteria set forth in Attachment 0005. COR acceptance of the Test Data Report IAW with the acceptance criteria in E.2.7.2 below will signify successful integration and testing completion.

iii. Section E.2.6.2 as shown below is deleted in its entirety and Section E.2.6.2 is marked as RESERVED.

DELETED: The test data report will be inspected by the COR for compliance with the approved test plan using the test method criteria set forth in Attachment 0005, and the requirements of CDRL A009. The contractor shall be responsible for correcting any deficiencies or failures of the silicon carbide generator controller units found during integration and testing at TARDEC at no additional cost to the Government. Deficiencies and failures of the SiC Generator controller units shall be corrected and units retested for compliance before COR acceptance of the test data report.

iv. Section E.2.8 titled Option 1 SiC Generator Controller Units Acceptance Criteria (CLIN 0014) is revised to reflect the correct CLIN reference of CLIN 0013.

v. Section E.2.9 titled Option 2 Integrated Starter Generator Motor Acceptance Criteria (CLIN 0015) is revised to reflect the correct CLIN reference of CLIN 0014.

vi. Section E.2.10 is added for the Inspection and Acceptance Criteria for Option 3 as follows:

ADDED:
E.2.10 Option 3 Integration and Testing at TARDEC Acceptance Criteria (CLIN 0015)

E.2.10.1 If exercised, the Integration and Testing at TARDEC will be inspected by the COR for compliance with the approved test plan, CDRL A008, and the test method criteria set forth in Attachment 0005. COR acceptance of the Test Data Report IAW with the acceptance criteria in E.2.10.2 below will signify successful integration and testing completion.

E.2.10.2 If exercised, the test data report will be inspected by the COR for compliance with the approved test plan using the test method criteria set forth in Attachment 0005, and the requirements of CDRL A009. The contractor shall be responsible for correcting any deficiencies or failures of the silicon carbide generator controller units found during integration and testing at TARDEC at no additional cost to the Government. Deficiencies and failures of the SiC Generator controller units shall be corrected and units retested for compliance before COR acceptance of the test data report.

e. Section F Deliveries or Performance: Section F.3.2.4 is added to specify the period of performance for Option 3 as follows:

ADDED: Option 3 - Integration and Testing at TARDEC (C.6.3): The period of performance shall be two (2) months after award of this option.

f. Section H Special Contract Requirements: Sections H.1.3 through H.1.3.2 are added for Option 3 as follows:

ADDED:

H.1.3. Option 3: Integration and Testing at TARDEC

H.1.3.1 The Government reserves the right to exercise the option for Integration and Testing at TARDEC described in C.6.3. The Government may exercise this option at any time after contract award but no later than 18 months after award.

H.1.3.2 If exercised, the option effort shall be awarded on a firm fixed price basis as follows:

Integration & Testing at TARDEC: $ PRICE to be established.

Test Data Report: $ PRICE to be established.

g. Section L Instructions, Conditions, And Notices To Offerors is revised as follows:

i. Section L.3.1. Item B of referenced table is revised as follows:

DELETED: Temperature Capability threshold of 125 Degrees Celsius Ambient

ADDED: Temperature Capability threshold of 121 Degrees Celsius Ambient

ii. Section L.5.1

DELETED: The Price volume shall include the Offeror's total proposed price for Primary CLINs (0001 through 0014), each Primary CLIN price shall consist of the summation of its sub-CLINs that are identified in Section B of the proposal.

ADDED: The Price volume shall include the Offeror's total proposed price for Primary CLINs (0001 through 0015), each Primary CLIN price shall consist of the summation of its sub-CLINs that are identified in Section B of the proposal.

iii. Section L.5.2

DELETED: The Offerors shall provide the basis for establishing the proposed price for Primary CLINs (0001 through 0014), including any offered discounts, established catalogs, price lists, or other verifiable and established records that are regularly maintained by the vendor, and are published or otherwise available for customer inspection. Catalog and/or price lists for commercial items can be provided as a basis to support direct materials such as purchased finished components (per "direct material cost", under L.5.3.4 below).

ADDED: The Offerors shall provide the basis for establishing the proposed price for Primary CLINs (0001 through 0015), including any offered discounts, established catalogs, price lists, or other verifiable and established records that are regularly maintained by the vendor, and are published or otherwise available for customer inspection. Catalog and/or price lists for commercial items can be provided as a basis to support direct materials such as purchased finished components (per "direct material cost", under L.5.3.4 below).

iv. Section L.5.3

DELETED: In support of the price reasonableness determination, the Offeror shall provide its proposed direct costs relative to the proposed price, on a "CLIN-by-CLIN" basis (Primary CLINs 0001 through 0014). The cost breakdown shall be sent in Microsoft Excel format, and include all formulas, functions, macros, computations, and equations used to compute the proposed amounts. For each Workbook, all rows, columns, cells and worksheets must be visible. If workbooks or worksheets are password protected, then the password(s) must be provided. The cost breakdown shall include the following cost element information, detailed by Offerors fiscal year:

ADDED: In support of the price reasonableness determination, the Offeror shall provide its proposed direct costs relative to the proposed price, on a "CLIN-by-CLIN" basis (Primary CLINs 0001 through 0015). The cost breakdown shall be sent in Microsoft Excel format, and include all formulas, functions, macros, computations, and equations used to compute the proposed amounts. For each Workbook, all rows, columns, cells and worksheets must be visible. If workbooks or worksheets are password protected, then the password(s) must be provided. The cost breakdown shall include the following cost element information, detailed by Offerors fiscal year:

h. Section M Evaluation Factors For Award is revised as follows:

i. Section M.2.2

DELETED: Affordability. The non-Price Factors, when combined, are significantly more important than the Price Factor. However, no proposal or combination of proposals, no matter how low the risk/highly rated, will be considered for award if unaffordable. This includes contract award affordability based on the total available funding in base period (FY13). For planning purposes see the below funding schedule:

Base Period (FY13): $2.5 Million. Proposals requesting funding in excess of $2.5M for the base contract effort (CLINs 0001 through 0012) will be considered unaffordable.

ADDED: Affordability. The non-Price Factors, when combined, are significantly more important than the Price Factor. However, no proposal or combination of proposals, no matter how low the risk/highly rated, will be considered for award if unaffordable. This includes contract award affordability based on the total available funding in base period (FY13). For planning purposes see the below funding schedule:

Base Period (FY13): $2,277,700. Proposals requesting funding in excess of $2,277,700 for the base contract effort (CLINs 0001 through 0012) will be considered unaffordable.

ii. Section M.3 through M.3.5 is renumbered to correct a duplication of use of M.3.1.

iii. Section M.4 through M.4.7 are added and marked as RESERVED as these numbers were inadvertently omitted from the numbering scheme.

iv. Section M.4.8.1 and its sub-paragrpahs are renumbered to correct the duplication of numbers in the numbering scheme.

v. Section M.4.8.3 (renumbered to Section M.4.8.1.3) item B in the table of the four requirements which will be evaluated under the Technical Factor is revised as follows:

DELETED: Temperature capability threshold of 125 Degrees Celsius Ambient.

ADDED: Temperature capability threshold of 121 Degrees Celsius Ambient.

vi. Section M.4.8.3 Evaluation of Price Factor is renumbered to correct the inadvertent omission of the number four (4) from the numbering scheme in each sub-paragraph.

i. Exhibit A Contract Data Requirements List is revised as follows: Data Item A009 is revised to add Scope of Work reference C.6.3 to block 5 and to revise Block 16 as follows:

DELETED: a. All test data (raw and summarized) shall be submitted to the COR for review after completed execution of the approved test plan IAW C.3.3. at the Contractor Facility and C.3.4 at TARDEC. Test data shall be available for review by the COR during witness testing, and submitted to the COR during execution of the test plan upon request.

ADDED:

a. Section C.3.3 and CLIN 0004AB: All test data (raw and summarized) shall be submitted to the COR for review after completed execution of the approved test plan at the Contractor Facility. Test data shall be available for review by the COR during witness testing, and submitted to the COR during execution of the test plan upon request.

b. Section C.6.3 and CLIN 0015AB: If Option 3 Integration and Testing at TARDEC is exercised, the contractor shall submit all test data (raw and summarized) to the COR for review after completed execution of the approved test plan at TARDEC. Test data shall be available for review by the COR during witness testing, and submitted to the COR during execution of the test plan upon request.

*** END OF NARRATIVE A0002 ***

Name of Offeror or Contractor:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS				
0008					
0008AA	DELETED				
0008AB	OPTIMIZATION & USE TRAINING AT TARDEC	1	SV		$_____
	CLIN CONTRACT TYPE: Firm-Fixed-Price GENERIC NAME DESCRIPTION: OPTIMIZATION & USE TRAINING PRON: R322C113R3 PRON AMD: 02 AMS CD: 622705EM400 Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination Deliveries or Performance DEL REL CD / QUANTITY / DAYS AFTER AWARD 001 / 1 / 0540 $				
0008AC	DELETED				
0013AA	OPTION 1 - SIC GENERATOR CONTROLLER UNIT	4	EA	$_____	$_____
	GENERIC NAME DESCRIPTION: UNEXERCISED OPTION 1 This CLIN is in accordance with Sections C.6.1, C.6.1.1, C.6.1.2, C.6.1.3, and H.1.1. If exercised in accordance with Special Provision H.1.1 of the contract, the contractor shall supply all of the supplies and services to deliver the option quantity(s). OPTION QUANTITY, PURSUANT TO THE CLAUSE ENTITLED OPTION FOR INCREASED QUANTITY--- SEPARATELY PRICED LINE ITEM (52.217-4001). The quantity stated for the option CLIN DOES NOT Form a part of the basic contractual quantity. Part or all of it may, however, be added to the contract by exercise of the option clause, at the discretion of the Government.				

Name of Offeror or Contractor:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	The failure of the offeror to insert a unit price applicable to the option quantity shall mean that the offeror will supply all or any part of the option, if exercised by the Government, at the basic contract unit price, and the offer will be evaluated for award accordingly. (End of narrative B001) Packaging and Marking Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination Deliveries or Performance DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 DEL REL CD QUANTITY DEL DATE 001 4 UNDEFINITIZED FOB POINT: Destination SHIP TO: (Y00000) SEE BELOW FOR SHIPPING INSTRUCTIONS If exercised, the SiC Generator Controller Units shall be delivered to the physical address stated in Sections C.5.9 and F.1.1. and in accordance with the time period specified in Section F.3.2.2. (End of narrative F001)				
0014AA	OPTION 2 -INTEGRATED STARTER GENERATOR MOTOR GENERIC NAME DESCRIPTION: UNXERCISED OPTION 2 This CLIN is in accordance with Sections C.6.2 and H.1.2. OPTION QUANTITY, PURSUANT TO THE CLAUSE ENTITLED OPTION FOR INCREASED QUANTITY--- SEPARATELY PRICED LINE ITEM (52.217-4001). The quantity stated for the option CLIN DOES NOT Form a part of the basic contractual quantity. Part or all of it may, however, be added to the contract by exercise of the option clause, at the discretion of the Government. If exercised, inspection and acceptance of the	1	EA	$_____	$_____

Name of Offeror or Contractor:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	integrated starter generator motor will be IAW the requirements detailed in Section E. (End of narrative B001) Packaging and Marking Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination Deliveries or Performance DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 DEL REL CD QUANTITY DEL DATE 001 1 UNDEFINITIZED FOB POINT: Destination SHIP TO: (Y00000) SEE BELOW FOR SHIPPING INSTRUCTIONS If exercised, the Integrated Starter Generator Motor shall be delivered to the physical address stated in Sections C.5.9 and F.1.1., and in accordance with the time period stated in Section F.3.2.3. (End of narrative F001)				
0015	UNEXERCISED OPTION 3				
0015AA	INTEGRATION & TESTING AT TARDEC GENERIC NAME DESCRIPTION: UNEXERCISED OPTION 3 This CLIN is in accordance with (IAW) Sections C.6.3, and H.1.3. If exercised IAW Special Provision H.1.3 of the contract, the contractor shall supply all of the supplies and services to deliver the option effort. This CLIN DOES NOT form a part of the basic contractual requirement. It may be added to the contract by exercise of the option clause, at the discretion of the Government. The offeror shall provide the "Price" for the Integration and Testing to be performed at TARDEC in	1	SV		$_____

Name of Offeror or Contractor:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	the "Amount" field. If exercised, inspection and acceptance of the Integration and Testing at TARDEC will be IAW the requirements detailed in Section E. (End of narrative B001) Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination Deliveries or Performance DLVR SCH REL CD: 001 — QUANTITY: 1 — PERF COMPL DATE: UNDEFINITIZED If exercised, performance completion shall be in accordance with the time period specified in Section F.3.2.4. (End of narrative F001)				
0015AB	TEST DATA REPORT - TARDEC TESTING GENERIC NAME DESCRIPTION: UNEXERCISED OPTION 3 This CLIN is in accordance with (IAW) Section C.6.3 and H.1.3. If exercised IAW Special Provision H.1.3, the contractor shall provide all of the supplies and services to deliver the option test data report for the integration and testing performed at TARDEC IAW C.6.3, C.5.13, and CDRL A009. The quantity stated for this option CLIN DOES NOT form a part of the basic contractual requirement. It may, however, be added to the contract by exercise of hte option clause, at the discretion of the Government. The Offeror shall provide the "Price" for the test data report in the "Amount" field. If exercised, inspection and acceptance of the Test Data Report will be IAW the requirements detailed in Section E. (End of narrative B001) Packaging and Marking	1	EA	$_____	$_____

Name of Offeror or Contractor:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination Deliveries or Performance DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 UNDEFINITIZED FOB POINT: Destination SHIP TO: (Y00000) SEE BELOW FOR SHIPPING INSTRUCTIONS If exercised, the test data report shall be delivered to the e-mail address as stated in CDRL A009 in accordance with the time period stated in Section F.3.2.4. (End of narrative F001)				

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

Silicon Carbide Generator Controllers

C.1 OBJECTIVES:

C.1.1 The objective of this statement of work is for the contractor to design, develop and deliver two ruggedized Silicon Carbide (SiC) generator controllers that enable high temperature operation of high voltage starter/generators for vehicle applications.

C.1.2 The contractor, acting as an independent contractor and not an agent of the government, shall provide the necessary personnel, facilities, materials and services to complete the effort described herein.

C.2 SCOPE OF WORK:

C.2.1 Specifications: Unless specifically attached hereto, all MIL-STDs referenced herein may be downloaded from https://assist.daps.dla.mil/quicksearch/. The SiC generator controller shall meet the following specifications:

C.2.1.2 The generator controller shall output 600 volts direct current (VDC) in accordance with MIL-PRF-GCS600A Characteristics of 600 Volt DC Electrical Systems for Military Ground Vehicles (Attachment 0002).

C.2.1.3 The generator controller shall meet its operational performance requirements described in this statement of work during and after being subjected to the following emission and susceptibility requirements of MIL-STD-461F:

a. Conducted Emissions, Power Leads, 10 kHz to 10 MHz (CE102),

b. Conducted Susceptibility, Power Leads, 30 Hz to 150 kHz (CS101),

c. Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz (CS114),

d. Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation (CS115),

e. Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz (CS116),

f. Radiated Emissions, Electric Field, 10 kHz to 18 GHz (RE102),

g. Radiated Susceptibility, Electric Field, 2 MHz to 40 GHz (RS103).

C.2.1.4 The generator controller shall meet its operational performance requirements described in this statement of work immediately after being subjected to the Radiated Susceptibility, Transient Electromagnetic Field (RS105) requirement of MIL-STD-461F.

C.2.1.5 The generator controller shall meet its operational performance requirements described in this statement of work when exposed to the radio frequency electromagnetic environment (RF EME) described in paragraph 5.3 of MIL-STD-464C, Table 4.

C.2.1.6 The generator controller shall meet MIL-STD-810G environmental requirements necessary for integration onto combat and tactical vehicles.

C.2.2 Performance Requirements: The Sic generator controller shall meet the following performance requirements:

C.2.2.1 Electric Machine Compatibility

C.2.2.1.1 The generator controller shall be compatible with a 3 phase permanent magnet (PM) machine with and without a position feedback device in both motoring and generating modes.

C.2.2.1.2 The generator controller shall have inputs and function with all of the following position feedback devices: Resolver, Encoder, Hall Effect sensor.

C.2.2.2 Power and Torque

C.2.2.2.1 The generator controller shall provide 175 kilowatts (kW) of continuous power output on the 600 volts direct current (VDC) side.

C.2.2.2.2 The generator controller shall operate an electric machine in torque mode and speed mode to allow for vehicle engine starting and burst acceleration.

C.2.2.2.3 The generator controller shall motor the generator to perform the engine cranking function pursuant to the following:

a. Minimum torque capability shall be 700 Newton-meter (N-m) steady-state.

b. Minimum peak (transient) torque capability shall be at least 1500 N-m, 600 Amps Root-Mean-Square (RMS) output, with an objective of 1200 Amps RMS output.

c. Minimum sustained cranking speed shall be 300 revolutions per minute (RPM),with a capability of at least 300 Amps RMS output, with an objective of 600 Amps RMS output.

d. Minimum sustained cranking time (single event) shall be 30 seconds.

e. Coolant flow shall be zero during cranking event.

f. Bulk coolant maximum temperature before cranking event shall be 105\'b0 Celsius (C).

C.2.2.2.4 The generator controller shall have an output direct current (DC) link capacitance no less than 100 micro-Farads (uF) for DC bus stability. The generator controller shall minimize the effects of source harmonics from the effects of dead time, unbalance of alternating current (AC) input, and torque ripple. The generator controller shall absorb up to three percent harmonics Root Mean Square (RMS) values relative to the DC magnitude in current from the other DC bus loads.

C.2.2.2.5 The generator controller shall provide 175 kW of continuous power output to the motor.

C.2.2.3 Environmental

C.2.2.3.1 The generator controller shall not suffer performance degradation or damage following exposure to water jet spraying when the jet spray is applied perpendicular to the surface being cleaned at a distance of not less than 1 foot (ft) [0.3 meter (m)] from the surface and a cleaning rate of 1 ft squared/minutes [930 centimeters (cm squared)/minutes)]. The water jet shall be derived from a nozzle having a maximum orifice diameter of 0.25 inch (64 cm) and a maximum nozzle pressure of 25 pounds per square inch (psi) (172 kilopascal(kPa).

C.2.2.3.2 The generator controller shall operate without performance degradation during basic shock conditions. Basic shock conditions consist of imposing shock half sine impulses of 40 g (1 g =acceleration due to earths gravity) with an effective duration of 11 millisecond (ms) at the interface between the subsystem and the location of the vehicle where it is mounted. This includes mounting brackets, weld joints, shock isolators, or any other mounting device as applicable. Verification shall be done by exposing the device to three shock impulses in each direction of three mutually perpendicular axes (total of 18 shock pulses) and verifying there is no damage.

C.2.2.3.3 The generator controller shall withstand minimum static equivalent loads of 10g vertical, 6g fore and aft, and 6g in the lateral direction for 48 hours.

C.2.2.3.4 The generator controller shall operate with no physical damage that affects the performance or functionality at the conditions described in this statement of work.

C.2.2.3.5 The generator controller shall operate without performance degradation during and after exposure to relative humidity up to 100%.

C.2.2.3.6 The generator controller shall be hardened with nuclear event detection circuitry.

C.2.2.3.7 The generator controller shall meet its full performance requirements without performance or physical degradation while operating to a minimum ambient air temperature of -60 degrees F (-51 degrees C).

C.2.2.3.8 The generator controller shall comply with the performance requirements defined in ATPD-2404 section 5 (Attachment 0003).

C.2.2.4 Safety

C.2.2.4.1 The generator controller shall have protection from short circuit conditions at the high voltage outputs as follows: Each high voltage output power connector on the generator controller shall accommodate a High Voltage Interlock Loop interface that detects if a high voltage connector to the load is disconnected (open circuit condition). The generator controller shall output 600 VDC only if the high voltage interlock is closed on the corresponding output. This high voltage interlock shall have the capability to be overridden via controller area network (CAN) through a safety override type command.

C.2.2.4.2 The generator controller shall sense a connection between its power circuitry and the chassis and notify the vehicle (broadcast) via CAN if a Ground Fault is detected at the controller 600 VDC output. The ground-fault interrupter (GFI) hardware shall sense if there is a Ground Fault current of 3 milliamp (mA) from +300 VDC to chassis and from -300 VDC to chassis.

C.2.2.4.3 The generator controllers high voltage (HV) power (600 VDC) and return shall be electrically isolated from the generator controllers primary power (28 VDC) returns by a resistance of 100 Megaohms or greater.

C.2.2.4.4 The generator controllers HV power (600 VDC) and return shall be electrically isolated from the equipment chassis by a resistance of 100 Megaohms or greater when not connected to the Ground Fault Detector circuitry.

C.2.2.4.5 The generator controller shall be designed and manufactured to comply with High Voltage Corona (HVC) pursuant to the requirements defined in MIL-HDBK-454, Guideline 45 for altitudes up to 15,000 ft (4,572 m).

C.2.2.4.6 The generator controller shall have a green light emitting diode (LED) indicator by the HV connector signifying if 600VDC is being outputted through the connection. The LED shall turn red if the safety interlock is open. The LED shall turn blue if the HV safety interlock has been overridden and the connection is outputting 600VDC.

C.2.2.4.7 The generator controller shall incorporate arc flash mitigation to limit incident energy as follows pursuant to the IEEE-1584 Arc Flash Standard:

a. Bolted Fault current shall not exceed 15 kiloamps (kA)

b. Clearing Time shall be less than or equal to .01 seconds

c. Working Distance less than or equal to 18 inches

d. System Voltage (Vs) equal to 623 VDC

e. Arc Boundary distance shall be less than 10.4 cm

C.2.3 Control Interface

C.2.3.1 The generator controller shall be controllable via J1939 CAN protocol. The generator controller shall provide no network termination.

C.2.3.2 The generator controller shall make available on the CAN network all monitored data; this includes phase voltages, DC bus voltage, currents, temperatures, fault status, feedback [bus voltage, current quadrature (Iq) component, and current direct (Id) component {higher update rate}, speed, available temperatures] and all other data that the controller monitors.

C.2.3.3 The generator controller shall make available on the CAN network the following functions: Enable/disable, Torque command, speed command, voltage command, mode selection (torque, speed, voltage), and individual fault reset.

C.2.3.4 The generator controller shall be configurable via reprogramming through the CAN network interface.

C.2.3.5 The generator controller CAN messages shall use the messaging format in the CAN message interface control document (ICD) template (Attachment 001).

C.2.3.6 The generator controller shall monitor and report status of the high voltage interlocks via CAN.

C.2.3.7 The generator controller shall record faults and report them over the CAN network for system diagnosis.

C.2.3.8 The generator controller software shall alert via CAN when regulation pursuant to MIL-PRF-GCS600A (Attachment 002) is not possible due to generator and generator controller limitations (Attachment 002).

C.2.3.9 The following generator controller options shall be programmable via CAN and through an additionally provided serial port:

a. Induction PM machine

b. Surface-mount PM machine

c. Number of pole pairs

d. Resolver, encoder, hall feedback

e. Resolver configuration (excitation frequency, number of resolver poles, alignment)

f. Encoder configuration (number of lines, alignment (index))

g. Hall configuration (alignment)

h. Tuning parameters (Proportional Integral Derivative gains for current/speed/voltage loops)

i. Calibration (offset and gain on current/voltage sensors)

j. Limits (current, voltage, slew rates, temperature, speed)

k. Switching frequency

l. Dead time

m. Temperature foldback and shutdown current settingsn. Digital to analog (D/A) output settings real-time update rate (e.g. Id, Iq, Volts Direct Current (Vdc), Phase Currents (Ia, Ib, Ic) Voltage quadrature (Vq) component, Voltage direct (Vd) component, position, speed)

o. Field weakening parameters (e.g. Iq and Id profiles with respect to torque and speed)

p. Save serial configuration options to non-volatile memory

q. Calibration for operation without a position sensor.

r. Calibration for operation with a position sensor.

s. Save and restore all parameters to disk (on the programming computer)

C.2.3.10 The generator controller shall be programmable by Government personnel to allow for integration with PM machines of varying designs as described in paragraph C.2.2.1.1.

C.2.3.11 The generator controller shall utilize a 28VDC input for low voltage control power. The 28 VDC bus shall be compatible with MIL-STD-1275D.

C.2.3.12 The generator controller application software shall provide access to:

a. Input / Output (I/O) signals

b. Status

c. Drive faults

d. Torque (current)

e. Feedback signals (rotor position and rotor speed, current, bus voltage, and power delivered to the HV DC Link (HV Bus).)

C.2.3.13 The generator controller shall be capable of operating in parallel with another identical controller to provide double wound machine control capability, and increased single wound machine power capability.

C.2.3.14 The generator controller shall cease bus regulation and cease energizing the bus upon external command via messaging from the CAN bus.

C.2.3.15 The generator controller firmware and embedded operating system software shall be upgradable via the serial port described in section C.2.3.9. The contractor shall also deliver the final version of firmware required for operation of the generator controller in accordance with CDRL A010.

C.2.4 Cooling

C.2.4.1 The generator controller shall operate at full power with 105 degrees Celsius input coolant and a 121 degrees Celsius ambient temperature, with an objective of 125 degrees Celsius input coolant and 150 degrees Celsius ambient temperature. The flow rate shall not exceed 12 liters/minute, at 9 psig (Pounds Per Square Inch Guage) inlet pressure. The maximum outlet temperature shall not exceed 120 degrees Celsius.

C.2.4.2 The generator controller components shall be designed to withstand a non-operational peak soak back temperature of 125\'b0C, with an objective of 150 degrees Celsius.

C.2.4.3 The generator controller shall be compatible with an Ethylene Glycol Water (EGW) 50/50 mixture, and be capable of operating at a pressure of 100 PSIG.

C.2.4.4 The generator controller shall monitor critical cooling performance data, including at a minimum, inlet and outlet coolant temperatures, and critical heat rejection component temperatures (e.g. power conversion devices). Examples of Critical components include the components that will be first to suffer failure due to excessive heat rejection while under load conditions.

C.2.5 Space Claim

C.2.5.1 The generator controller shall have a power density (power/volume) of at least 20 kW/liter with an objective of 35 kW/liter. The power used to compute the power density and specific power shall be the continuous electrical power of the generator controller. Continuous operation is defined as operation for 180 minutes at constant output power and stabilized conditions with coolant inlet temperatures of greater than or equal to 105 degrees C inlet and a 125\'b0 C ambient temperature, while operating from 600V dc bus. The volume and weight used for the power density and specific power (power/weight) calculation is calculated with a rectangular box that includes the total generator controller enclosure and all components that are mechanically and permanently attached, including all generator controller hardware such as the power stage, gate drive/power supply, inductors, sensors, filters, and interfaces.

C.2.5.2 The generator controller shall have a specific power (power/weight) of at least 10kW/kg and an objective of 25 kW/kg.

C.2.5.3 The generator controller shall use SiC modules for the primary switching components inside the controller.

C.2.5.4 The generator controller shall be designed to be mounted in any physical orientation and operate without degradation. The generator controller shall not exceed any of the following dimensions stated in millimeters (mm) (including connectors) 385mm (L) x 130 mm (H) x 280mm (D). The contractor shall deliver PRO-E Models of the exterior envelope of the generator controller IAW C.5.5.

C.2.5.5 The generator controller signal connectors shall be of an existing current military standard (e.g. MIL-DTL-38999L w/AMENDMENT 2, series III).

C.2.5.6 The generator controller shall have three (3) 600VDC output circuits with the following current ratings: (i) 300 amps, (ii) 75 amps, and (iii) 75 amps. The 600VDC circuits shall utilize solid state SiC circuit breakers that are configured electrically as normally off (the device will not pass current without a gate signal). The circuits shall have a user adjustable current setting that allows for adjustments from 20% to 100% of its maximum current rating. The circuits shall have the ability to be disabled via a message from the CAN bus.

C.2.6 Graphical User Interface (GUI)

C.2.6.1 The contractor shall develop a GUI for the SiC generator controllers that functions with both CAN and serial communication interfaces, and that provides data acquisition capability for testing.

C.2.6.2 The GUI shall allow for the tuning of the generator system parameters in real-time, including hardware controlled and monitored current and voltage limits, control(s) system gain parameters, bus voltage control gains and limits, and any other parameters essential for HV Power production and HV Bus voltage regulation. The GUI shall have data logging and debugging functionality. The GUI shall allow user modification of CAN data frames, packing, bit rate, and all other configurable parameters without modifying source code.

C.2.6.3 The contractor shall develop and deliver a user manual for the GUI within 16 months of contract award to the COR in accordance with CDRL A007. The contractor shall also deliver the final version of firmware required for operation of the generator controller in accordance with CDRL A010.

C.3 Integration, Testing, and Training

C.3.1 The contractor shall develop a test plan that when performed demonstrates that the SiC generator controller systems meets the requirements described in this statement of work. The plan shall include demonstration of the generator controller compliance with all performance specifications listed in this statement of work.

C.3.2 The contractor shall submit the test plan in accordance with CDRL A008 and Attachment 0005 to the COR a minimum of 60 days before the Test Readiness Review (TRR) described in paragraph C.4.4. The COR will comment or concur within 15 days after receipt. The contractor shall submit any requested revisions to the test plan within 15 days after receipt of COR comments.

C.3.3 After receipt of COR concurrence of the test plan in paragraph C.3.2, the contractor shall integrate and test all deliverable SiC generator controllers at the contractor facility, in accordance with the approved test plan to demonstrate the operation of the generator controller with a generator. The COR shall be notified a minimum of 30 days prior to test, to allow the COR an opportunity to witness the testing. All test data shall be delivered to the COR in accordance with CDRL A009. After COR concurrence of successful demonstration of each of the SiC generator controller (at the contractor facility), the contractor shall schedule delivery as described in section C.5.2 no later than 16 months after award in accordance with F.3.1.

C.3.4 RESERVED

C.3.5 The contractor shall provide one day of training for up to 15 TARDEC personnel at TARDEC on the use and optimization of the generator motor operation; training shall include the use and optimization of the following components: the SiC generator controller, SiC generator controller GUI, and the software/parameter modifications made to the SiC generator controller. The contractor shall coordinate the specific dates for the integration, testing, and training with COR no less than ten (10) days in advance. The contractor shall deliver a Training Plan IAW CDRL A011 no later than 17 months after award. The COR will review and approve or comment on the training plan within 15 days of receipt. The contractor shall revise and resubmit within 15 days of receipt of COR comments.

C.4 Meetings

C.4.1 Start of Work Meeting: The contractor shall plan and conduct a one (1) day start of work meeting at a mutually agreed upon location, which shall be the contractors facility, or teleconference within seven days after contract award. The date and time of the start of work meeting shall be mutually agreed to between the COR and contractor. The contractor shall coordinate this meeting with the COR and at a minimum invite the COR, the Contract Specialist shown on page one of the contract and the Administrative Contracting Officer shown in Section G of the contract. In accordance with CDRL A003, the contractor shall deliver an agenda, presentation materials and a program plan to the COR prior to the scheduled meeting. The program plan schedule shall include the individual tasks, deliverables, major events, and critical milestones. The contractor shall obtain COR approval of the program plan prior to continuing the effort; the COR will concur or comment within 14 days after the Start of Work meeting. The contractor shall provide minutes from the Start of Work meeting to the COR no later seven (7) calendar days after said meeting in accordance with CDRL A004.

C.4.2 Preliminary Design Review (PDR): The contractor shall plan and conduct a PDR at a mutually agreed upon location, which shall be the contractors facility or teleconference no later than two (2) months after contract award. The date and time shall be mutually agreed to between the COR and contractor. In accordance with CDRL A003, the contractor shall deliver an agenda and presentation materials, including the design for the SiC generator controller, and an updated program plan to the COR no later than one week prior to the scheduled meeting. The contractor shall also deliver the functional diagrams and schematics, and PRO-E Models of the exterior envelope IAW CDRL A006 as described in C.5.4 and C.5.5 no later seven (7) days prior to the PDR. The contractor shall obtain COR approval of the design and updated program plan prior to proceeding with the effort. The COR will concur or comment within fourteen (14) business days after the design review. The contractor shall provide minutes from the PDR to the COR no later seven (7) calendar days after said meeting in accordance with CDRL A004.

C.4.3 Critical Design Review (CDR): The contractor shall plan and conduct a CDR at a mutually agreed upon location, which shall be the contractors facility or teleconference no later than four (4) months after contract award. The date and time shall be mutually agreed to between the COR and contractor. In accordance with CDRL A003, the contractor shall deliver an agenda and presentation materials, including the updated design for the SiC generator controller, and an updated program plan to the COR no later than one week prior to the scheduled meeting. The contractor shall also deliver the functional diagrams and schematics, and PRO-E Models of the exterior envelope IAW CDRL A006 as described in C.5.4 and C.5.5 no later than seven (7) days prior to the CDR. The contractor shall obtain COR approval of the updated design and program plan prior to proceeding with the effort. The COR will concur or comment within fourteen (14) business days after the design review. The contractor shall provide minutes from the CDR to the COR no later seven (7) calendar days after said meeting in accordance with CDRL A004.

C.4.4 Test Readiness Review (TRR): The contractor shall plan and conduct a TRR at a mutually agreed upon location, which shall be the contractors facility or teleconference. The contractor shall schedule and coordinate the TRR no later than nine (9) months after contract award. The date and time shall be mutually agreed to between the COR and contractor. In accordance with CDRL A003, the contractor shall deliver an agenda and presentation materials to the COR no later than one week prior to the scheduled meeting. The contractor shall obtain COR approval of the testing plan prior to proceeding with the effort. The COR will concur or comment within fourteen (14) business days after the TRR. The contractor shall provide minutes from the TRR to the COR no later seven (7) calendar days after said meeting in accordance with CDRL A004.

C.5 Deliverables

C.5.1 The contractor shall submit bi-monthly (every two months) progress reports for the duration of this contract, in accordance with CDRL A001. The first report shall be due 60 days after contract award.

C.5.2 The Contractor shall deliver two (2) functioning SiC generator controllers that meet the requirements specified above. The two controllers shall be delivered in accordance with Section F.3.1 of the contract. The contractor shall also deliver the final version of firmware required for operation of the generator controller in accordance with CDRL A010.

C.5.3 The Contractor shall develop and deliver a non-proprietary, public releasable Performance Specification and Interface Control Document (ICD) that will allow for competitive future procurement and integration into an electrical power system. The contractor shall deliver the Performance Specification and ICD to the COR in accordance with CDRL A005 within 16 months of contract award..

C.5.4 The Contractor shall deliver functional diagrams and schematics in accordance with CDRL A006 to describe the operation of the controller for the SiC generator hardware and software developed and delivered under this contract. The contractor shall deliver the diagrams and schematics to the COR a minimum of seven (7) days prior to the Preliminary Design Review (PDR). The contractor shall provide all updates and revisions to the software diagrams and schematics to the COR a minimum of seven (7) days prior to the Critical

Design Review (CDR).

C.5.5 The Contractor shall deliver the electronic version of the PRO-E models of the exterior envelope, with connections and mounting points, for the generator controller to the COR IAW CDRL A006 a minimum of seven (7) days prior to the Preliminary Design Review. The contractor shall provide all updates and revisions to the PRO-E models of the exterior envelope to the COR a minimum of seven (7) days prior to the Critical Design Review (CDR). The contractor shall provide all final updates and revisions to the PRO-E models 16 months after contract award in accordance with CDRL A006.

C.5.6 The Contractor shall deliver the GUI and documentation to the COR in accordance with CDRL A007 within 16 months of contract award. The contractor shall also deliver the final version of firmware required for operation of the generator controller in accordance with CDRL A010.

C.5.7 The contractor shall deliver a user manual for the GUI in accordance with CDRL A007 within 16 months of contract award. The contractor shall also deliver the final version of firmware required for operation of the generator controller in accordance with CDRL A010.

C.5.8 The contractor shall deliver a Draft and Final Report in accordance with CDRL A002. This report shall include all data collected during tests and the test results, final designs, source code developed under this effort, recommendations for future improvements, and lessons learned.

C.5.9 The contractor shall deliver the SiC generator controllers and the GUI to the following address:

U.S. Army Tank-automotive and Armaments Command
ATTN: RDTA-RS, MS121, Joseph Heuvers
6501 E. 11 Mile Rd.
Warren, Michigan 48397-5000

C.5.10 The contractor shall deliver conference agendas (meeting agendas) in accordance with CDRL A003.

C.5.11 The contractor shall deliver conference minutes (meeting minutes) in accordance with CDRL A004.

C.5.12 The contractor shall deliver a test plan in accordance with CDRL A008.

C.5.13 The contractor shall deliver test data/report in accordance with CDRL A009.

C.5.14 The contractor shall deliver a training plan in accordance with CDRL A011.

C.6 Options

C.6.1 Option 1 Additional SiC generator controllers:

C.6.1.1 If exercised in accordance with H.1.1, the Contractor shall build up to four (4) functioning SiC generator controllers that meet the requirements specified in the base statement of work (C.2 through C.2.6.3).

C.6.1.2 The contractor shall test each of the SiC generator controller(s) at its facility in accordance with the approved test plan developed and approved by the COR in paragraphs C.3.2. The contractor shall deliver all test data to the COR in accordance with CDRL A009. After COR concurrence of successful demonstration of the SiC generator controller(s) (at the contractor facility), the contractor shall deliver the functioning SiC generator controller(s) in accordance with Section F.3.2.1.1 of the contract.

C.6.1.3 The contractor shall deliver Bi-Monthly (every two months) Progress reports for the duration of the SiC Generator Controller option effort, in accordance with CDRL A001. The first report shall be due 60 days after exercise of the option effort.

C.6.2 Option 2 Integrated Started Generator Motor:
If exercised in accordance with H.1.2, the contractor shall deliver an integrated starter generator (ISG) motor in accordance with Section F.3.2.3 of the contract for demonstration of the generator controller. The ISG shall be Magnet Motors model G40-1A, or equivalent (same size and technical capabilities). An equivalent ISG motor shall meet the following specifications:

--Output power at 600VDC: 160kW continuous (threshold) 175kW (objective)

--Starting Torque at 300 RPM: 1500N-m peak 700N-m continuous

--Maximum Speed of 3050 RPM

--Dual Wound (2 sets of 3 phase wires)

--Dimensions not to exceed 785 mm diameter, 128mm deep.

C.6.3 Option 3 Integration and Testing at TARDEC:

If exercised in accordance with H.1.3, the contractor shall integrate one of the SiC generator controllers delivered under the base effort into the TARDEC Systems Integration Lab (SIL) and test the system in accordance with the approved test plan to demonstrate the operation of the generator controller with a generator. The ISG in the TARDEC lab will be a Magnet Motors model G40-1A, or equivalent (specifications as defined above in Option 2). All test data shall be delivered to the COR in accordance with CDRL A009. The integration, testing, and test report shall be completed IAW the timeframe stated in Section F.3.2.4.

*** END OF NARRATIVE C0001 ***

SECTION E - INSPECTION AND ACCEPTANCE

E.1 INSPECTION & ACCEPTANCE POINT

E.1.1 Inspection and acceptance of all deliverables under this contract shall be made at DESTINATION by the Contracting Officer or his duly authorized representative. The determination that the deliverables are complete and conform to the requirements of the contract will be made by the Contracting Officer's Representative (COR), to assure the work and the results thereof are in accordance with the terms of the contract.

E.2 INSPECPECTION & ACCEPTANCE

E.2.1 Bi-Monthly Progress Reports Acceptance Criteria (CLIN 0001).

E.2.1.1 The Bi-Monthly Progress Reports will be inspected by the COR for compliance with requirements of CDRL A001. Any revisions required by the COR to meet compliance with the CDRL requirements shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the Bi-Monthly Report.

E.2.2 Diagrams, Schematics, and PRO-E Models Acceptance Criteria (CLINs 0002 & 0003)

E.2.1.1 The diagrams, schematics, and PRO-E Models (Functional, Revision, and Finals) will be inspected by the COR for compliance with requirements of CDRL A006 and the requirements of C.2.5.4, C.4.2, C.4.3, C.5.4, and C.5.5. Any revisions required by the COR to meet compliance with the CDRL requirements or the Section C requirements shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the diagrams, schematics, and PRO-E Models.

E.2.2 Test Plan and Test Data Report Acceptance Criteria (CLIN 0004)

E.2.2.1 A deficiency is defined as a condition that lacks an essential quality or element of Section C.

E.2.2.2 A failure is defined as the condition of not achieving the desired end or requirement, i.e. an event or state, in which a system or a component does not perform as specified.

E.2.2.3 The test plan will be inspected and accepted by the COR for compliance with CDRL A008 and the test method criteria set forth in Attachment 0005. Any revisions required by the COR in accordance with Section C.3.2 shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the test plan and prior to the execution the test plan.

E.2.2.4 The test data report will be inspected by the COR for compliance with the approved test plan using the test method criteria set forth in Attachment 0005, and the requirements of CDRL A009. The contractor shall be responsible for correcting any deficiencies or failures of the silicon carbide generator controller units found during testing at no additional cost to the Government. Deficiencies and failures of the SiC Generator controller units shall be corrected and units retested for compliance prior to COR concurrence of demonstration success as stated in Section C.3.3 and COR acceptance of the test data report.

E.2.3 Graphical User Interface (GUI) Acceptance Criteria (CLIN 0005)

E.2.3.1 GUI software and documentation will inspected by the COR for compliance with the requirements set forth in Section C.2.6 and CDRL A007. Any revisions required by the COR to meet compliance with the CDRL requirements and Section C.2.6 shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the GUI software and documentation.

E.2.3.2 The GUI user manual will be inspected by the COR for compliance with the requirements set forth in Section C.2.6.3 and CDRL A007. Any revisions required by the COR to meet compliance with the CDRL requirements and Section C.2.6 shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the GUI user manual.

E.2.4 Performance Specification and Interface Control Document Acceptance Criteria (CLIN 0006)

E.2.4.1 The Performance Specification and Interface Control Document will be inspected by the COR for compliance with the requirements set forth in Section C.5.3 and CDRL A005. Any revisions required by the COR to meet compliance with the CDRL requirements and Section C.5.3 shall be made by the contractor at no additional cost to the Government prior to COR acceptance of the Performance Specification and Interface Control Document.

E.2.5 SiC Generator Controller Unit Acceptance Criteria (CLIN 0007)

E.2.5.1 The SiC Generator Controller Units will be visually inspected by the COR to ensure no damage in transit.

E.2.6 Optimization and Use Training at TARDEC Acceptance Criteria (CLIN 0008)

E.2.6.1 RESERVED

E.2.6.2 RESERVED

E.2.6.3 Optimization and Use Training at TARDEC will be considered successful upon completion of the training covering all training items as described in Section C.3.5 and in the COR approved Training Plan IAW CDRL A011. The COR will certify completion of the training via email to the contractor.

E.2.7 Final Technical Report Acceptance Criteria (CLIN 0009)

E.2.7.1 The Final Technical Report will be inspected by the COR for compliance with the requirements set forth in Section C.5.8 and CDRL A002. Any revisions required by the COR to meet compliance with the CDRL requirements and Section C.5.8 shall be made by the contractor at no additional cost to the Government and prior to COR acceptance of the Final Technical Report.

E.2.8 Option 1 SiC Generator Controller Units Acceptance Criteria (CLIN 0013)

E.2.8.1 If exercised, the test data report required under C.6.1.2 will be inspected by the COR for compliance with the approved test plan using the test method criteria set forth in Attachment 0005, and the requirements of CDRL A009. The contractor shall be responsible for correcting any deficiencies or failures of the SiC Generator Controller units found during testing no additional cost to the Government. Deficiencies and failures of the SiC Generator controller units shall be corrected and units retested for compliance before COR acceptance of the test data report. COR acceptance of the test data report shall signify successful demonstration of the units.

E.2.8.2 If exercised, the SiC Generator Controller Units will be visually inspected by the COR to ensure no damage in transit.

E.2.9 Option 2 - Integrated Starter Generator Motor Acceptance Criteria (CLIN 0014)

E.2.9.1 If exercised, the integrated starter generator motor will be inspected by the COR for functionality and compliance with Section C.6.2.

E.2.10 Option 3 Integration and Testing at TARDEC Acceptance Criteria (CLIN 0015)

E.2.10.1 If exercised, the Integration and Testing at TARDEC will be inspected by the COR for compliance with the approved test plan, CDRL A008, and the test method criteria set forth in Attachment 0005. COR acceptance of the Test Data Report IAW with the acceptance criteria in E.2.10.2 below will signify successful integration and testing completion.

E.2.10.2 If exercised, the test data report will be inspected by the COR for compliance with the approved test plan using the test method criteria set forth in Attachment 0005, and the requirements of CDRL A009. The contractor shall be responsible for correcting any deficiencies or failures of the silicon carbide generator controller units found during integration and testing at TARDEC at no additional cost to the Government. Deficiencies and failures of the SiC Generator controller units shall be corrected and units retested for compliance before COR acceptance of the test data report.

*** END OF NARRATIVE E0001 ***

SECTION F - DELIVERIES OR PERFORMANCE

F.1 DELIVERY POINT (TACOM)

All deliveries shall be made in accordance with the Contract, the Contract Data Requirements List, or as otherwise authorized by the Contracting Officer or authorized representative and shall be packaged and marked in accordance with Section D.

F.1.1 Unless otherwise directed elsewhere in this contract, any deliveries requiring a physical address shall be shipped to:

U.S. Army Tank-automotive and Armaments Command
ATTN: RDTA-RS, MS121, Joseph Heuvers
6501 E. 11 Mile Rd.
Warren, Michigan 48397-5000

F.2 METHOD OF DELIVERY

All deliveries shall be made on an FOB Destination basis.

F.3 PERIOD(S) OF PERFORMANCE

F.3.1 The contractor shall deliver two SiC generator controllers no later than sixteen (16) months after contract award. The period of performance for all effort required under this contract, including delivery of the final technical report, shall be eighteen (18) months after date of contract award.

F.3.2 Performance - Option Requirements (reference C.6 and H.1):

F.3.2.1 The total period in which any options under this contract may be exercised shall be eighteen (18) months after contract award. However, deliveries under the options exercised may extend beyond this eighteen (18) month period.

F.3.2.1.1 The completion date of the contract inclusive of any options exercised shall be fourteen (14) months after the date of the latest option exercise.

F.3.2.2 Option 1 - Additional SiC generator controllers (C.6.1): The period of performance for each option exercise shall be fourteen (14) months after each option exercise.

F.3.2.3 Option 2 - ISG Motor (C.6.2): The period of performance for shall be twelve (12) months after award of this option.

F.3.2.4 Option 3 Integration and Testing at TARDEC (C.6.3): The period of performance shall be two (2) months after award of this option.

*** END OF NARRATIVE F0001 ***

SECTION H - SPECIAL CONTRACT REQUIREMENTS
Section H.1 Exercise of Options

H.1.1 Option 1: Additional SiC generator controllers (C.6.1).

H.1.1.1 The Government reserves the unilateral right to exercise part or all of the option for additional SiC generator controllers described in C.6.1. The Government may exercise this option for four additional units (singly or in any combination up to a total of four units) at any time during the option exercise period specified in F.3.2.1.

H.1.1.2 The Government may exercise this option (up to four individual times or in any combination up to four total units) at any time after contract award but no later 18 months after contract award.

H.1.1.3 If exercised, the option effort shall be awarded on a firm fixed price basis as follows:

Unit One: $ PRICE to be established
Unit Two: $ PRICE to be established
Unit Three: $ PRICE to be established
Unit Four: $ PRICE to be established

H.1.2 Option 2: ISG Motor

H.1.2.1 The Government reserves the right to exercise the option for the ISG motor described in C.6.2. The Government may exercise this option at any time after contract award but no later 18 months after contract award.

H.1.2.2 If exercised, the option effort shall be awarded on a firm fixed price basis as follows:

Unit One: $ PRICE to be established

H.1.3. Option 3: Integration and Testing at TARDEC

H.1.3.1 The Government reserves the right to exercise the option for Integration and Testing at TARDEC described in C.6.3. The Government may exercise this option at any time after contract award but no later than 18 months after award.

H.1.3.2 If exercised, the option effort shall be awarded on a firm fixed price basis as follows:

Integration & Testing at TARDEC: $ PRICE to be established.

Test Data Report: $ PRICE to be established.

*** END OF NARRATIVE H0001 ***

Name of Offeror or Contractor:

SECTION J - LIST OF ATTACHMENTS

List of Addenda	Title	Date	Number of Pages	Transmitted By
Exhibit A	CONTRACT DATA REQUIREMENTS LIST (DD FORM 1423)	30-JAN-2013		

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

L.1 General Proposal Information. The proposal, subject to the Submission, Modification, Revision and Withdrawal, paragraph of Instructions to Offerors Competitive Acquisitions (52.215-1, ALT I) contained in Section L of the solicitation, shall be submitted in the format and quantities set forth below. All information necessary for the review and evaluation of a proposal must be contained in the proposal volumes set forth below. Section M of the solicitation sets forth the evaluation criteria and delineates the factors and sub-factors to be evaluated and their relative order of importance. The offerors proposal, as required by this section, shall be evaluated as set forth in Section M of this solicitation. The proposal shall be presented in sufficient detail to allow Government evaluation of its response to the requirements of the solicitation. The Government will not assume the Offeror possesses any capability, understanding, or commitment not specified in its proposal. It is an offerors responsibility to submit a well-written proposal, with adequately detailed information which clearly demonstrates an understanding of and the ability to comply with the solicitation requirements to allow for a meaningful review. The Government does not assume the duty to search for data to cure problems found in the proposals. FAR clause 52.215-1 advises Offerors that the Government intends to evaluate proposals and award a contract without discussions with Offerors. Therefore, the Offerors initial proposal should contain the Offerors best terms from a price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. Where award will be made without discussions, exchanges with Offerors are limited to clarifications as defined in FAR 15.306(a).

L.1.1 The offerors proposal shall be submitted in four (4) separate volumes as set forth below. Some parts of the proposal contain page limit recommendations as set forth in Section L below. Where page limit recommendations are specified, they are based upon standard 8.5 x 11 paper with a minimum font size of 10pt and with a minimum of 0.5 margins. Schedules, drawings, and other documents more appropriate to larger paper may be formatted no larger than 11 x 17. A proposal executive summary or transmittal letter is optional. It will not be considered as part of the responses called for in the four (4) proposal volumes required below, nor will it be evaluated. If a proposal executive summary or transmittal letter is submitted, it must be submitted as a separate volume from the four (4) volumes set forth below and it is recommended to be no more than 3 pages. The offerors proposal shall consist of the following volumes, submitted electronically via the Army Single Face to Industry (ASFI) Online Bid Response System (BRS):

(a) Volume 1: Technical Volume.

(b) Volume 2: Experience Volume.

(c) Volume 3: Price Volume.

(d) Volume 4: Proposal Terms and Conditions (SF33, Solicitations Sections A-K)

L.1.2 Each volume listed above shall be submitted separately and shall be prepared using Microsoft (MS) Word, MS Excel, MS PowerPoint, MS Project, MS Access, or PDF compatible formats. All MS files shall be 2003/2007 compatible unless otherwise indicated. Each Volume shall be labeled so that it is easily identifiable for evaluation purposes (example: Technical Volume), and shall also include the offerors name and the solicitation number. Each volume shall include a (i) title page, (ii) table of contents, and (iii) list of tables and figures. Each page of the proposal shall be numbered. The table of contents shall be organized by sub-factor (if applicable) as set forth in Section L. Provide a list of all attachments and substantiating data in the table of contents under the specific sub-factor (if applicable) which it supports. The table of contents shall include the following information for each sub-factor (if applicable), attachment and/or substantiated data listed:

(a) A cross-reference to the related section L paragraph number
(b) Page number
(c) Volume name

L.1.3 Submission method and Due Date. The offerors proposal shall be received electronically through the ASFI BRS by 1:00 PM, Warren, MI Local Time, on 28 February 2013. Reference clause 52.204-4016 for detailed information about submitting your offer electronically. The offeror must ensure its proposal, in its entirety, reaches its intended destination before the date and time set for closing of the solicitation. In accordance with FAR 15.208, if your proposal was not received at the initial point of entry to the Government infrastructure (in this case, received through ASFI) by the exact date and time specified herein, it will be determined late. Proposal, as the term is used here, means ALL volumes and/or parts of the proposal. There is no expected or target length of time for proposal submission; size and content may be factors, therefore offerors are strongly cautioned to submit their proposal allowing adequate time for submission.

L.2 All or None. Offers in response to this solicitation must be submitted for ALL of the requirements identified in the solicitation. Offers submitted for less than ALL the requirements called for by this solicitation may be rejected.

L.3 Volume 1 Technical Factor:

L.3.1 The Technical Factor shall specifically identify the power, temperature, space claim, and weight capabilities of the silicon carbide generator controller and how the construction method will meet or exceed the thresholds identified in the table below. The paragraph references stated within the table below reference to the scope of work (SOW) in Section C of this solicitation.

Requirement	Threshold	Objective
A. Power Capability (C.2.2.2.3 & C.2.2.2.1)	300 Amps RMS Continuous 600 Amps RMS Transient 175kW Continuous DC	600 Amps RMS Continuous 1200 Amps RMS Transient 175kW Continuous DC
B. Temperature Capability (C.2.4.1)	121 Degrees Celsius Ambient	150 Degrees Celsius Ambient
C. Space Claim (C.2.5.1)	20 kW/liter	35 kW/liter
D. Weight (C.2.5.2)	10 kW/kg	25 kW/kg

L.3.2 For the above four considerations, the offeror's Technical Factor proposal shall include the following:

L.3.2.1 For the Power Capability requirement in sections C.2.2.2.3 and C.2.2.2.1 of the SOW, the Offeror shall:

(a) Identify its proposed performance level (Threshold; Objective; Achievement between Threshold and Objective - provide the exact performance level if between Threshold and Objective), and

(b) Describe its proposed Power Capability configuration to achieve the proposed level of performance. At a minimum, include spec sheets for the proposed components, provide supporting component literature, an engineering analysis including any calculations substantiating the offerors approach, and a narrative or other information substantiating that the offeror's approach will meet the proposed performance level.

L.3.2.3 For the Temperature Capability requirement in section C.2.4.1 of the SOW, the Offeror shall:

(a) Identify its proposed performance level (Threshold; Objective; Achievement between Threshold and Objective - provide the exact performance level if between Threshold and Objective), and

(b) Describe its proposed Temperature Capability configuration to achieve the proposed level of performance. At a minimum, include an engineering analysis including any calculations substantiating the offerors approach, and a narrative or other information substantiating that the offeror's approach will meet the proposed performance level.

L.3.2.4 For the Space Claim requirement in section C.2.5.1 of the SOW, the Offeror shall:

(a) Identify its proposed performance level (Threshold; Objective; Achievement between Threshold and Objective - provide the exact performance level if between Threshold and Objective), and

(b) Describe its proposed configuration to achieve the proposed Space Claim. At a minimum, include three-dimensional drawings to include all components in the following views: front, side, back. This information will be used to substantiate that the offeror's approach will meet the proposed performance level.

L.3.2.5 For the Weight requirement in section C.2.5.2 of the SOW, the Offeror shall:

(a) Identify its proposed performance level (Threshold; Objective; Achievement between Threshold and Objective - provide the exact performance level if between Threshold and Objective), and

(b) Describe its proposed configuration to achieve the proposed Weight. At a minimum, include a list of all proposed components and their associated weights, substantiating that the offeror's approach will meet the proposed performance level.

L.4 Volume 2: Experience: Offerors shall submit the following:

L.4.2.1 The Offeror shall identify a grand total of no more than three (3) Contracts/Delivery or Task Orders, which are the most recent and relevant to the scope of work specified below in paragraphs L.4.2.3.1 and L.4.2.3.2 below.

L.4.2.2 Recent Contracts. Recent Contracts/Orders are those performed within approximately three years of the date of issuance of this RFP.

L.4.2.3 Relevant Contracts. Relevant Contracts/Orders or work directives are those which, as described below, are comparable in scope to RFP requirements. Where prior relevant experience is under a broader Blanket Purchase Agreement (BPA) or Indefinite Delivery Indefinite Quantity (IDIQ)-type contract, do not just cite the broader BPA or IDIQ Contract. Rather, include the specific individual work directives/ delivery or task orders which you consider to be reflective of relevant prior experience. In accordance with section L.4.2.1

above, each prior Contract/Order identified by the Offeror as being applicable, shall be evaluated based upon the extent to which prior experience is relevant to RFP requirements.

Specifically, the extent of relevant Experience with the following RFP requirements will be assessed by the Government:

L.4.2.3.1 Building silicon carbide electronic assemblies of a complexity comparable to this effort.

L.4.2.3.2 Ruggedizing electronics for extreme environmental conditions of a complexity comparable to this effort.

L.4.2.4 For each of the up to three (3) recent/relevant contracts/task orders identified, the Offeror shall provide the following:

(a) Contract Number

(b) Contract type

(c) Contract performance period

(d) Government or commercial contracting activity address, telephone number, and E-mail address

(e) Procuring Contracting Officer's (PCO's) name, telephone number and E-mail address

(f) Administrative Contracting Officer's (ACO's) name, telephone number and E-Mail address

(g) Government or commercial contracting activity technical representative, or COR, name, telephone number and E-mail address

(h) Copies of all Scope of Work paragraphs of the contracts/orders reflecting Experience which is relevant to the relevance considerations cited above in paragraphs L.4.2.3.1 and L.4.2.3.2.

(i) A discussion of specific similarities between these contract scopes of work and the scope in Section C herein.

Failure to provide the information requested under paragraph L.4.2.4 (a-h, particularly paragraphs (a c) and (h)), so that the Government can evaluate the recency and relevance of claimed experience may result in an assessment that prior experience lacks relevance or recency.

L.4.2.5 Cross-Reference Matrix: The Offeror shall also complete the matrix at Attachment 0004 of this RFP. The matrix identifies the experience considerations in the first row. The offeror shall list each of the up to three (3) prior contracts/orders in the left margin of each chart. These contracts should match the types of experience the Government will be using for evaluation purposes. The offeror shall identify recent/relevant contracts under each of the Experience sub-factors, through placement of an (X) in the applicable matrix boxes. The offeror may include a brief description in the matrix of the extent of any similarities. However, any brief narrative provided in the chart itself will not be sufficient to constitute as a substitute for the narrative required discussing the experience sub-factor as required by L.4.2.4(h) above.

L.5 Volume 3: Price Factor:

L.5.1 The Price volume shall include the Offeror's total proposed price for Primary CLINs (0001 through 0015), each Primary CLIN price shall consist of the summation of its sub-CLINs that are identified in Section B of the proposal.

L.5.2 The Offerors shall provide the basis for establishing the proposed price for Primary CLINs (0001 through 0015), including any offered discounts, established catalogs, price lists, or other verifiable and established records that are regularly maintained by the vendor, and are published or otherwise available for customer inspection. Catalog and/or price lists for commercial items can be provided as a basis to support direct materials such as purchased finished components (per "direct material cost", under L.5.3.4 below).

L.5.3 In support of the price reasonableness determination, the Offeror shall provide its proposed direct costs relative to the proposed price, on a "CLIN-by-CLIN" basis (Primary CLINs 0001 through 0015). The cost breakdown shall be sent in Microsoft Excel format, and include all formulas, functions, macros, computations, and equations used to compute the proposed amounts. For each Workbook, all rows, columns, cells and worksheets must be visible. If workbooks or worksheets are password protected, then the password(s) must be provided. The cost breakdown shall include the following cost element information, detailed by Offerors fiscal year:

L.5.3.1 Direct labor hours. The Offeror shall include, for each Primary CLIN, the total proposed direct labor hours and direct labor hours broken down by proposed labor category.

L.5.3.2 Direct Labor Rates. The Offeror shall include, for each Primary CLIN, the proposed direct labor rate for each proposed labor hour category.

L.5.3.3 Direct Labor cost for each Primary CLIN (total dollar amount for wages and salaries only, with no fringe benefits or overhead).

L.5.3.4 Direct Material cost. The Offeror shall provide, for each Primary CLIN, the direct material cost (for the material cost items with an extended cost over $5,000, list by material name, vendor and dollar amount).

L.5.3.5 Cost for Subcontracted Services/Efforts. The Offeror shall provide an itemized list, for each CLIN, of subcontracted services/efforts over $10,000 to include the subcontractor name, subcontract price, and the Offeror's narrative description of each subcontractor's effort.

L.5.3.6 Any other direct costs, for each Primary CLIN, over $5,000 (itemized by name/kind of other direct cost, supplier and dollar amount).

L.5.3.7 Overhead, G&A, and Facilities Capital Cost of Money (FCCM). The Offeror shall provide, for each Primary CLIN, the proposed overhead, G&A, and FCCM rates used in the proposal.

L.5.4 In addition to the "by-CLIN" breakout specified in L.5 above, also provide a composite cost element breakdown of all CLINs combined (Base and Option CLINs) as follows:

Total Material
Total Material Overhead
Total Labor
Total Labor Overhead
Total Subcontracted Services
Total Other Direct Costs
Total FCCM
Total G&A
Total Profit

L.5.5 Exchange Rate Information. All price information shall be stated in United States (U.S.) dollars only, for both the prime contractor and any potential subcontractors. If the basis for the proposal is any other currency, the Offeror shall:

(a) State the exchange rate(s) being used to convert any currency to U.S. dollars and how the exchange rate was developed.

(b) Explain how you intend to deal with the risk that fluctuation in exchange rates may impact this prospective contract.

This additional data will help us confirm that the full scope of these requirements has been communicated, is understood, and is fair and reasonable.

L.5.6 In addition to the above information, the Government reserves the right to request additional or more detailed price breakdown data to support its determination of price reasonableness.

L.6 Volume 4: Proposal Terms and Conditions (SF33, Solicitation Sections A-K) Offerors shall submit the following:

L.6.1 Volume 4 shall contain the following information:

L.6.1.1 Include a scanned image of a signed copy of the SF 33 cover page signed by a person authorized to sign bids, quotations or proposals on behalf of the Offeror. Offeror shall fill-in blocks 12, 13, 15A, 15B, 16, 17, and 18 on the SF 33.

L.6.1.2 One copy of this solicitation (Sections A-K) with all clauses and other fill-ins completed. Any required certifications and representations that are required under the solicitation.

L.6.1.3 A statement of agreement to all the terms, conditions, distribution statements, and provisions of this solicitation.

L.6.1.4 A list of any exceptions the Offeror takes to any term, condition, distribution statement, or requirement contained in the solicitation and the basis for each exception. Offerors are cautioned to consult, in writing, with the Contracting Officer before submitting an offer that takes exception to any term or condition of this RFP.

L.6.1.5 Other than U.S. Small Business concerns, as defined by the North American Industry Classification System (NAICS) code applicable to this solicitation, 541712, shall submit an acceptable small business subcontracting plan in accordance with FAR 52.219-9 and TACOM Local clause 52.219-4004, and provide this plan as part of the proposal submission.

*** END OF NARRATIVE L0001 ***

SECTION M - EVALUATION FACTORS FOR AWARD

M.1 BASIS FOR AWARD

M.1.1 It is the Governments intent to award one (1) contract as a result of this solicitation. The Government will select for award the proposal which represents the best value to the Government as described below.

There are three evaluation factors:

1. Technical
2. Experience
3. Price

The relative order of importance of these factors (sub-factors and elements where applicable) are described in paragraph M.4 below.

The evaluation of proposals submitted in response to this solicitation shall be conducted on a source selection basis utilizing a "tradeoff" process to obtain the best value to the Government. The Government will weigh the evaluated proposal (other than the Price Factor) against the evaluated price to the Government. As part of the best value determination, the relative strengths, weaknesses, and risks of each proposal shall be considered in selecting the offer that is most advantageous and represents the best overall value to the Government. The Government may make no contract award where it concludes that no proposal exists with a reasonable probability of achieving program and contract terms and conditions.

M.2 Rejection of Offers:

M.2.1. Offerors shall carefully read, understand and provide all the information requested in the Proposal Preparation Instructions contained in Section L. If there are parts of the Section L instruction you do not understand, request clarification from the Contracting Officer in writing before the closing date of this solicitation. In accordance with clause FAR 52.215-1 contained in this solicitation, the Government may reject any or all proposals if such action is in the Government's interests. Examples of the circumstances that may lead to the rejection of a proposal are:

M.2.1.1 The proposal fails to meaningfully respond to the Proposal Preparation Instructions specified in Section L of this solicitation. Examples of failure to meaningfully respond include:

M.2.1.1.1 When a proposal merely offers to perform work according to the RFP terms or fails to present more than a statement indicating its capability to comply with the RFP terms and does not provide support and elaboration as specified in Section L of this solicitation.

M.2.1.1.2 A proposal fails to provide any of the data and information required in Section L.

M.2.1.1.3 A proposal provides some data but omits significant material data and information required by Section L.

M.2.1.1.4 A proposal merely repeats the contract Scope of Work without elaboration.

M.2.1.2 The proposal reflects an inherent lack of technical competence or a failure to comprehend the complexity and risks required to perform the RFPs requirements due to submission of a proposal which is unrealistically high or low in price or unrealistic in terms of technical or schedule commitments.

M.2.1.3 The proposal contains any unexplained significant inconsistency between the proposed effort and price, which implies the offeror has (1) an inherent misunderstanding of the scope of work, or (2) an inability to perform the resultant contract.

M.2.1.4 The proposal contains unbalanced pricing. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly over or understated as indicated by the application of cost or price analysis techniques. There must be a direct relationship between the effort expended and its cost or price for the basic quantity and option.

M.2.1.5 The proposal price is unreasonable or unaffordable.

M.2.1.6 The proposal offers a product or service that does not meet all stated material requirements of the solicitation.

M.2.1.7 The proposal proposes exceptions to the attachments, exhibits, enclosures, requirements, or other RFP terms and conditions.

M.2.2 Affordability. The non-Price Factors, when combined, are significantly more important than the Price Factor. However, no proposal or combination of proposals, no matter how low the risk/highly rated, will be considered for award if unaffordable. This includes contract award affordability based on the total available funding in base period (FY13).

For planning purposes see the below funding schedule:
Base Period (FY13): $2,277,700

Proposals requesting funding in excess of $2,277,700 for the base contract effort (CLINs 0001 through 0012) will be considered unaffordable.

M.3 Evaluation and Source Selection Process

M.3.1 Evaluation Process Selection of the successful Offeror shall be made following an assessment of each proposal, based on the response to the information called for in Section L of this RFP and against the solicitation requirements and the evaluation criteria described in Section M herein. Proposals will be evaluated as specified herein, to include developing narrative support for the evaluation conclusions under each factor and subfactor. The Government reserves the right to reject offers, in accordance with solicitation provision Rejection of Offers above.

M.3.2 Source Selection Authority The Source Selection Authority (SSA) is the official designated to direct the source selection process and select the Offeror for contract award.

M.3.3 Source Selection Evaluation Board (SSEB) An SSEB has been established by the Government to evaluate proposals in response to this solicitation. The SSEB is comprised of technically qualified individuals who have been selected to conduct this evaluation in accordance with the Evaluation Criteria for this solicitation. Careful, full and impartial consideration will be given to all proposals received pursuant to this solicitation, as well as the evaluation of such proposals.

M.3.4 Award Without Discussions This RFP includes FAR Provision 52.215-1 Instructions to Offerors - Competitive Acquisition in Section L which advises offerors that the Government intends to make award without conducting discussions. Where award will be made without discussions, exchanges with offerors are limited to Clarifications as defined in FAR 15.306(a). Therefore, the offerors initial proposal should contain the offerors best terms from a technical, delivery and price standpoint. However, under FAR 52.215-1, the Government reserves the right to hold discussions, if necessary.

M.3.5 Importance of Cost/Price All the factors contained in each proposal will be evaluated. However, the closer the Offerors' evaluations are in the non-cost/price factors, the more important the price becomes in the decision. Notwithstanding the relative order of importance of the Evaluation Areas as stated in Section M herein, Price may be controlling when:

a. Proposals are otherwise considered approximately equal in non-price areas; or

b. An otherwise superior proposal is unaffordable; or

c. The advantages of a higher rated, higher price proposal are not considered to be worth the price premium.

M.3.6 Proposal and Performance Risks For the purpose of evaluation of proposals in response to this RFP, proposals shall be evaluated in terms of both proposal risk and performance risk as follows:

M.3.6.1 Proposal Risks Proposal Risks are those risks associated with an Offeror's proposed approach in meeting the Government Requirements. Proposal Risk is assessed by the Source Selection Evaluation Board (SSEB) and is integrated into all evaluations except the rating for Experience.

M.3.6.2 Performance Risks Performance Risks are those risks associated with the probability that an Offeror will successfully perform the solicitation requirements as indicated by that Offeror's record of past and current experience. Performance risk will be assessed by the Source Selection Evaluation Board (SSEB).

M.3.7 Determination of Responsibility Per FAR 9.103, contracts will be awarded only to Contractors who are determined to be responsible as per the standards of responsibility set forth in FAR 9.104.1 and FAR 9.104-3(b). See also TACOM clause 52.209-4011. The Government reserves the right to conduct a Pre-Award Survey on any or all Offerors to aid the PCO in the evaluation of each Offerors proposal and ensure that a selected Contractor is responsible. No award can be made to an Offeror who has been determined to be not responsible by the PCO.

M.3.8 Source Selection Trade-Off Process This solicitation represents a Best Value acquisition using a Source Selection Trade-Off process. As such, the Source Selection Authority, in making the final Source Selection Trade-Off judgment, will weigh the merits of the non-price factors against the evaluated price in arriving at the final Source Selection decision. As part of the best value determination, the relative strengths/weaknesses and risks of each Offeror's proposal in the non-price factors as well as the total evaluated price shall be considered in selecting the offer which is most advantageous and represents the best value to the Government. This determination may result in award to other than the Offeror with the lowest evaluated price.

M.4 RESERVED

M.4.1 RESERVED

M.4.2 RESERVED

M.4.3 RESERVED

M.4.4 RESERVED

M.4.5 RESERVED

M.4.6 RESERVED

M.4.7 RESERVED

M.4.8 Evaluation Criteria

There are three evaluation factors:

(a) Technical
(b) Experience
(c) Price

The Technical factor is significantly more important than the Experience Factor. The Experience Factor is more important than the Price Factor. As required by FAR 15.304(e), the non-Price Factors, when combined, are more important than the Price Factor. The evaluations shall be made based on the substantiating data provided by the offeror. Assumptions of capabilities will not be made. The Government will review the Technical Approach narrative in the breadth and depth necessary to conduct its Technical assessment of the Offerors proposal.

M.4.8.1 EVALUATION OF TECHNICAL FACTOR (SEE L.3)

M.4.8.1.1 RESERVED

M.4.8.1.2 The Government will assess the Offeror's proposed Performance Levels, relative to the four considerations listed in M.4.8.1.3, as follows:

a. where the requirements listed in M.4.8.1.3 identify objectives, the Government will assess the extent to which the Offeror's proposed performance levels credibly satisfy the objective performance levels.

And

b. the proposal risk probability that the Offeror will achieve the proposed performance levels, to include achieving proposed performance above threshold levels where offered.

M.4.8.1.3 The following four requirements will be evaluated under the Technical Factor:

Requirement	Threshold	Objective
A. Power Capability (C.2.2.2.3 & C.2.2.2.1)	300 Amps RMS Continuous 600 Amps RMS Transient 175kW Continuous DC	600 Amps RMS Continuous 1200 Amps RMS Transient 175kW Continuous DC
B. Temperature Capability (C.2.4.1)	121 Degrees Celsius Ambient	150 Degrees Celsius Ambient
C. Space Claim (C.2.5.1)	20 kW/liter	35 kW/liter
D. Weight (C.2.5.2)	10 kW/kg	25 kW/kg

M.4.8.1.4 Evaluation of Objective Performance. The Government will evaluate the extent to which the Offeror credibly proposes to achieve the objective performance levels, as identified in M.4.8.1.3 as follows:

M.4.8.1.4.1 If the Government evaluation shows that an Offeror has demonstrated, in accordance with Section M evaluation criteria, that an Offeror is likely to achieve an objective performance level, in whole or in part (to the benefit of the Government), it shall be noted as a Factor strength. Strengths may also result in an increase in the assigned rating for the Factor.

M.4.8.1.4.2 If Government evaluation of the proposal indicates achievement of the proposed objective performance level is likely, at moderate risk or lower, the proposed level of objective performance will be included in any resulting contract. In the event an Offeror

does not agree to incorporate the proposed Objective level of performance into the resulting contract, the Offeror will not be credited, in whole or in part, with their achievement of the Objective Performance Level.

M.4.8.1.4.3 For the objective performance being evaluated, and where detailed in M.4.8.1.3(a-d), evaluation credit may be given for proposed performance above the threshold performance requirement level up to the objective level of performance. For proposed performance between the threshold level of performance and the objective level of performance, a proportional credit may be given to the extent that the proposed level of performance is achievable at moderate, or lower, risk, and benefits the Government.

M.4.8.1.4.4 To receive Objective Performance evaluation credit, the Offeror's proposal must demonstrate to the Government that the proposed Objective Performance level is achievable at moderate, or lower, risk. Proposed achievement of an Objective Performance level will be assessed as Moderate Risk where the proposed approach provides a solution that is moderate risk and is likely to result in achievement of the proposed objective Performance level. Where the Objective performance level is evaluated as having risk higher than moderate risk for achieving proposed performance, no additional evaluation credit shall be given, nor shall such a proposal be considered a proposal strength or to have benefit to the Government.

M.4.8.2 EVALUATION OF EXPERIENCE FACTOR (SEE L.4)

The Government will assess the risk probability that the offeror will successfully meet contract requirements. This assessment will result in the application of a Confidence Rating which will be based upon the extent to which recent prior experience is relevant to the following solicitation requirements:

M.4.8.2.1 Building silicon carbide electronic assemblies of a complexity comparable to this effort.

M.4.8.2.2 Ruggedizing electronics for extreme environmental conditions of a complexity comparable to this effort.

M.4.8.2.3 An offeror's failure to provide experience through the submission of relevant contracts as required under L.4.2.3 will be interpreted by the Government as a representation by the offeror that no favorable data exists with respect to Experience Factor considerations and the offeror will be assessed by the Government as higher risk.

M.4.8.2.4 Even where the offerors proposal identifies experience for either itself or any subcontractor, the Government will consider whether the benefits of this experience will ever be employed/realized should the offeror subsequently be awarded a contract. Accordingly, any prime or subcontractor experience which is identified in the offerors Experience Sub-Factor proposal submission, but the offerors proposal under the Price Factor does not clearly support that this experience is intended to be used by the offeror during contract performance, will be discounted in whole or in part.

M.4.8.3 EVALUATION OF PRICE FACTOR (SEE L.5)

M.4.8.3.1 The Cost/Price Factor evaluation will assess the total evaluated Cost/Price to the Government and for each offeror. The total evaluated Cost/Price will include the sum of all CLINs (base and options) as included and priced in Schedule B of the RFP. The Government will sum all of the Sub-CLIN prices under each Primary CLIN to determine the total price for each Primary CLIN priced in Schedule B of the RFP.

M.4.8.3.2 Reasonableness: The Government will evaluate the reasonableness of the Offeror's proposed costs and prices, to include fee/profit. A cost/price is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business. The Government may not evaluate proposals that are considered unreasonable as to price.

M.4.8.3.3 The total evaluated price will be used in the trade-off evaluation.

*** END OF NARRATIVE M0001 ***

CONTRACT DATA REQUIREMENT LIST

Form Approval OMB No. 0704-0188 Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.: 0010
B. EXHIBIT: A
C. CATEGORY:
D. SYSTEM/ITEM: 175 kW Silicon Carbide Generator Controller
E. CONTRACT/PR NO.: TBD
F. CONTRACTOR: TBD

1. DATA ITEM NO.: A001
2. TITLE OF DATA ITEM: Contractors Progress, Status and Management Report
3. SUBTITLE: Status Reports
4. AUTHORITY: DI-MGMT-80227
5. CONTRACT REFERENCE: C.5.1
6. REQUIRING OFFICE: AMSRD-TAR-S
7. DD250 REQ: LT
8. APP CODE: 11. AS OF DATE:
9. DIST. STATEMENT REQUIRED.: B
10. FREQUENCY: Bi-Monthly
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB.: SEE BLK 16
13. DATE OF SUBS. SUB...: SEE BLK 10

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	FINAL
E-mail Progress Reports to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	0	1
Rachel Heaney, Contract Specialist, Email: Rachel.r.heaney2.civ@mail.mil	0	1
Administrative Contracting Officer identified in Section G of the contract	0	1
15. TOTAL:	0	3

16. REMARKS: Contractor shall provide bi-monthly (every 60 days) written progress reports. First report due 60 days after contract award and continue every 60 days thereafter for the duration of the contract.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE :

---

1. DATA ITEM NO. .....: A002
2. TITLE OF DATA ITEM: SCIENTIFIC AND TECHNICAL REPORTS Summary
3. SUBTITLE: FINAL REPORT
4. AUTHORITY: DI-MISC-81612A
5. CONTRACT REF: C.5.8
6. REQUIRING OFFICE: AMSRD-TAR-S
7. DD250 REQ: DD
8. APP CODE: 11. AS OF DATE:
9. DIST. STATEMENT REQUIRED.: A
10. FREQUENCY: SEE BLK 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB.: SEE BLK 16
13. DATE OF SUBS. SUB.: SEE BLK 16
14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	FINAL
E-mail Draft and Final Reports to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	1	1
Rachel Heaney, Contract Specialist, Email: Rachel.r.heaney2.civ@mail.mil	1	1
Administrative Contracting Officer identified in Section G of the contract	1	1
15. TOTAL:	3	3

16. REMARKS: Submit the draft final report NLT 60 days prior to the contract completion date. The COR will review and request any revisions within 30 days. The Final report shall be due 30 days thereafter.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A003
2. TITLE OF DATA ITEM: Conference Agenda
3. SUBTITLE: Agenda
4. AUTHORITY (Dt of Acq Document No.): DI-ADMN-81249A
5. CONTRACT REFERENCE: C.4.1, C.4.2, C.4.3, & C.4.4, C.5.10
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: B
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	FINAL
E-mail Agenda to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	0	1
Rachel Heaney, Contract Specialist, Email: Rachel.r.heaney2.civ@mail.mil	0	1
Administrative Contracting Officer identified in Section G of the contract	0	1
15. TOTAL:	0	3

16. REMARKS:
a. The contractor shall deliver to the government a meeting agenda one week prior to any start of work meeting or any quarterly review meeting under this effort.
b. Complete the reports in accordance with (IAW) Data Item Description (DID) DI-ADMN-81249A, "Conference Agenda" The COR is responsible for accepting or rejecting the Conference Agenda.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A004
2. TITLE OF DATA ITEM: Conference Minutes
3. SUBTITLE: Minutes
4. AUTHORITY (Dt of Acq Document No.): DI-ADMN-81250A
5. CONTRACT REFERENCE: C.4.1, C.4.2, C.4.3 & C.4.4, C.5.11
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: B
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	FINAL
E-mail Minutes to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	0	1
Rachel Heaney, Contract Specialist, Email: Rachel.r.heaney2.civ@mail.mil	0	1
Administrative Contracting Officer identified in Section G of the contract	0	1
15. TOTAL:	0	3

16. REMARKS:
a. The contractor shall record all meeting minutes and action items, and shall deliver the meeting minutes within seven (7) days after any start of work meeting or quarterly meeting required under this effort.

b. Complete the reports in accordance with (IAW) Data Item Description (DID) DI-ADMN-81250A, "Conference Minutes" The COR is responsible for accepting or rejecting the Conference Minutes.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A005
2. TITLE OF DATA ITEM: Performance Specification and Interface Control Document
3. SUBTITLE: ICD
4. AUTHORITY (Dt of Acq Document No.): DI-CMAN-81248A
5. CONTRACT REFERENCE: C.5.3
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	FINAL

E-mail Performance Specification and ICD to:

Joseph Heuvers, COR,
Email: joseph.heuvers@us.army.mil 0 1

15. TOTAL: 0 1

16. REMARKS:
a. The contractor shall provide a Performance Specification and Interface Control Document, which describes the rated performance, physical installation requirements, and operation details of the generator controller, as well as all of the hardware and software interfaces to the controller. The software controller area network (CAN) messages shall be documented in accordance with the CAN message interface control document (ICD) template (Attachment 001).

b. Complete the reports IAW DID DI-CMAN-81248A, "Interface Control Document". The COR is responsible for accepting or rejecting the interface control document.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A006
2. TITLE OF DATA ITEM: Product Drawings/Models and Associated Lists
3. SUBTITLE: Diagrams, Schematics, and PRO-E Models
4. AUTHORITY (Dt of Acq Document No.): DI-SESS-81000D
5. CONTRACT REFERENCE: C.2.5.4, C.4.2, C.4.3, C.5.4, C.5.5
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES B. COPIES: DRAFT / FINAL

E-mail Diagrams, Schematics, and PRO-E Models to:

Joseph Heuvers, COR,
Email: joseph.heuvers@us.army.mil 1 1

15. TOTAL: 1 1

16. REMARKS:
a. The contractor shall provide product diagrams and schematics to describe operation of the SiC generator controller hardware and software developed and delivered under this effort.

b. The contractor shall provide PRO-E models of the exterior envelope, with connections and mounting points, for the generator controller developed and delivered under this effort.

c. Complete the reports in accordance with (IAW) Data Item Description (DID) DI-SESS-81000D, "Product Drawings/Models and Associated Lists." The COR is responsible for accepting or rejecting the drawings, models, and lists.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A007
2. TITLE OF DATA ITEM: Computer Software Product
3. SUBTITLE: Graphic User Interface Software, Documentation, and User Manual

4. AUTHORITY (Dt of Acq Document No.): DI-IPSC-81488
5. CONTRACT REFERENCE: C.2.6.3, C.5.6, & C.5.7
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	/ FINAL
SEE BLOCK 16	0	1

15. TOTAL: 0 1

16. REMARKS:
a. The contractor shall provide Graphical User Interface Software, Documentation, and User Manual for the generator system prior to the delivery of the generator controller. The Graphical User Interface Software, Documentation, and User Manual shall be delivered on CD ROM or DVD to the physical address stated in Section C.5.9 and F.1.1. All documentation and user manual files shall be in Microsoft Word 2003/2007 or PDF format.

b. Complete the reports IAW DID DI-IPSC-81488, "Computer Software Product." The COR is responsible for accepting or rejecting the Graphical User Interface Software and Documentation.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A008
2. TITLE OF DATA ITEM: Test Plan
3. SUBTITLE:
4. AUTHORITY (Dt of Acq Document No.): DI-NDTI-80566A
5. CONTRACT REFERENCE: C.3.2, C.5.12
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16
14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	/ FINAL
E-mail Plan to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	1	1
15. TOTAL:	1	1

16. REMARKS:

a. All test plans shall be submitted to the COR for review and approval by the COR. The COR will review the test plan within fifteen (15) days after receipt and provide concurrence or comment. The test plan shall be delivered within six (6) months after contract award.

b. Complete the reports in accordance with (IAW) Data Item Description (DID) DI-NDTI-80566A, "Test Plan." The COR is responsible for accepting or rejecting the test plans.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A009
2. TITLE OF DATA ITEM: Test Data/Report
3. SUBTITLE:
4. AUTHORITY (Dt of Acq Document No.): DI-NDTI-808098
5. CONTRACT REFERENCE: C.3.3, C.5.13 & C.6.1.2, C.6.3
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16
14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	/ FINAL
E-mail Plan to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	0	1
15. TOTAL:	0	1

16. REMARKS:

a. Section C.3.3 and CLIN 0004AB: All test data (raw and summarized) shall be submitted to the COR for review after completed execution of the approved test plan at the Contractor Facility. Test data shall be available for review by the COR during witness testing, and submitted to the COR during execution of the test plan upon request.

b. Section C.6.3 and CLIN 0015AB: If Option 3 Integration and Testing at TARDEC is exercised, the contractor shall submit all test data (raw and summarized) to the COR for review after completed execution of the approved test plan at TARDEC. Test data shall be available for review by the COR during witness testing, and submitted to the COR during execution of the test plan upon request.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A010
2. TITLE OF DATA ITEM: Computer Software Product
3. SUBTITLE: Firmware

4. AUTHORITY (Dt of Acq Document No.): DI-IPSC-81488
5. CONTRACT REFERENCE: C.2.3.15, C.5.2
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	/ FINAL
See block 16	0	1
15. TOTAL:	0	1

16. REMARKS:
a. The contractor shall provide the final version of firmware required for the operation of the generator controller and a method for the end user to load the firmware to the generator controller. The firmware shall be delivered on CD ROM or DVD to the physical address stated in Section C.5.9 and F.1.1.

b. Complete the reports IAW DID DI-IPSC-81488, "Computer Software Product." The COR is responsible for accepting or rejecting the firmware.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE:

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1. DATA ITEM NO.: A011
2. TITLE OF DATA ITEM: Training Plan
3. SUBTITLE:

4. AUTHORITY (Dt of Acq Document No.): See block 16
5. CONTRACT REFERENCE: C.3.5, C.5.14
6. REQUIRING OFFICE: RDTA-RS
7. DD250 REQ: LT
8. APP CODE:
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: See Block 16
11. AS OF DATE: See Block 16
12. DATE OF FIRST SUB: See Block 16
13. DATE OF SUBS.SUB: See Block 16

14. DISTRIBUTION

A. ADDRESSEES	B. COPIES: DRAFT	/ FINAL
E-mail Training Plan to:		
Joseph Heuvers, COR, Email: joseph.heuvers@us.army.mil	1	1
15. TOTAL:	1	1

16. REMARKS:

The offeror shall provide training plan consisting of descriptions of the training content (e.g., subject, topics, tasks) and all training material required to conduct the training class at TARDEC. The training shall cover the operation and optimization of the following components: the generator controller (both in motoring and generating modes), generator controller GUI, and the software/parameter modifications made to the SiC generator controller. Training shall also cover Maintenance and installation of the generator controller.

The Training plan shall be submitted to the COR no later than 17 months after award. The COR will review and concur or provide comments within 15 days of the receipt. If comments are provided, the contractor shall update the training plan within 15 days of receipt of COR comment.

17. PRICE GROUP:
18. ESTIMATED TOTAL PRICE: