

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract ID Code
Firm Fixed Price

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2. Amendment/Modification No. P00001	3. Effective Date 2014APR03	4. Requisition/Purchase Req No. SEE SCHEDULE	5. Project No. (If applicable)
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6. Issued By U.S. ARMY CONTRACTING COMMAND THOMAS D. BASHUR JR WARREN, MICHIGAN 48397-5000 HTTP://CONTRACTING.TACOM.ARMY.MIL EMAIL: THOMAS.BASHURJR@US.ARMY.MIL	Code W56HZV	7. Administered By (If other than Item 6) DCMA DETROIT 35803 MOUND ROAD STERLING HEIGHTS MI 48310	Code S2305A
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8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code) NEXTENERGY CENTER 461 BURROUGHS DETROIT, MI 48202-3419	<input type="checkbox"/>	9A. Amendment Of Solicitation No.
	<input type="checkbox"/>	9B. Dated (See Item 11)
	<input checked="" type="checkbox"/>	10A. Modification Of Contract/Order No. W56HZV-12-C-0441
	<input type="checkbox"/>	10B. Dated (See Item 13) 2012SEP21
Code 39BY7	Facility Code	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers

is extended, 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 _____ 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)

ACRN: AA NET INCREASE: \$.00

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

<input type="checkbox"/>	A. This Change Order is Issued Pursuant To: The Contract/Order No. In Item 10A.	The Changes Set Forth In Item 14 Are Made In
<input type="checkbox"/>	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).	
<input checked="" type="checkbox"/>	C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:	mutual agreement of the parties
<input type="checkbox"/>	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) JOHN M. HOPFNER JOHN.HOPFNER@US.ARMY.MIL (586)282-7359		
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 2014APR03

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MOD/AMD P00001

Name of Offeror or Contractor: NEXTENERGY CENTER

SECTION A - SUPPLEMENTAL INFORMATION

Buyer Name: THOMAS D. BASHUR JR
Buyer Office Symbol/Telephone Number: CCTA-ADEA/(586)282-7073
Type of Contract: Firm Fixed Price
Kind of Contract: Research and Development Contracts
Type of Business: Other Nonprofit
Surveillance Criticality Designator: C
Weapon System: No Identified Army Weapons Systems

*** End of Narrative A0000 ***

MODIFICATION P00001

PROGRAM: NEXTENERGY CENTER - TARDEC MICROGRID INSTALLATION

PURPOSE: Update the Scope of Work, extend the period of performance, and re-align funding at no net change to the total contract value or the total obligated amount of the contract.

PREVIOUS CONTRACT AMOUNT: \$ 999,971
AMOUNT OF THIS ACTION: \$ 0
TOTAL CONTRACT AMOUNT: \$ 999,971

1. This is a bilateral modification pursuant to mutual agreement.
2. The purposes of this no-cost modification is to incorporate Government initiated changes to the Statement of Work, extend the period of performance, and re-align funding for various SubCLINs.
3. SECTION B SUPPLIES OR SERVICES AND PRICES /COST
 - a. SubCLIN 0001AA (PWD: R312C189R3) MILESTONE 1:
is decreased by \$32,421 from \$210,916 to \$178,495. Performance Completion Date changed from 21 OCT 2012 to 14 APR 2014.
 - b. SubCLIN 0001AB (PWD: R312C189R3) MILESTONE 2:
is increased by \$233,241 from \$210,915 to \$444,156. Performance Completion Date changed from 20 NOV 2012 to 16 JUN 2014.
 - c. SubCLIN 0001AC (PWD: R312C189R3) MILESTONE 3:
is decreased by \$45,719 from \$160,915 to \$115,196. Performance Completion Date changed from 20 DEC 2012 to 04 AUG 2014.
 - d. SubCLIN 0001AD (PWD: R312C189R3) MILESTONE 4:
is decreased by \$44,716 from \$60,915 to \$16,199. Performance Completion Date changed from 19 JAN 2013 to 18 AUG 2014.
 - e. SubCLIN 0001AE (PWD: R312C189R3) MILESTONE 5:
is decreased by \$15,516 from \$60,915 to \$45,399. Performance Completion Date changed from 18 FEB 2013 to 29 SEP 2014.
 - f. SubCLIN 0001AF (PWD: R312C189R3) MILESTONE 6:
is decreased by \$52,816 from \$60,915 to \$8,099. Performance Completion Date changed from 20 MAR 2013 to 06 OCT 2014.
 - g. SubCLIN 0001AG (PWD: R312C189R3) MILESTONE 7:
is increased by \$54,982 from \$42,415 to \$97,397. Performance Completion Date changed from 19 APR 2013 to 27 OCT 2014.
 - h. SubCLIN 0001AH (PWD: R312C189R3) MILESTONE 8:
is decreased by \$5,715 from \$17,115 to \$11,400. Performance Completion Date changed from 19 MAY 2013 to 28 OCT 2014.
 - i. SubCLIN 0001AJ (PWD: R312C189R3) MILESTONE 09:
is decreased by \$22,830 from \$34,230 to \$11,400. Performance Completion Date changed from 18 JUL 2013 to 23 DEC 2014.
 - j. SubCLIN 0001AK (PWD: R312C189R3) MILESTONE 10:
is decreased by \$22,830 from \$34,230 to \$11,400. Performance Completion Date changed from 16 SEP 2013 to 23 FEB 2015.
 - k. SubCLIN 0001AL (PWD: R312C189R3) MILESTONE 11:
is decreased by \$22,830 from \$34,230 to \$11,400. Performance Completion Date changed from 15 NOV 2013 to 23 APR 2015.
 - l. SubCLIN 0001AM (PWD: R312C189R3) MILESTONE 12:
is decreased by \$22,830 from \$34,230 to \$11,400. Performance Completion Date changed from 14 JAN 2014 to 23 JUN 2015.
 - m. SubCLIN 0001AN (PWD: R312C189R3) MILESTONE 13:
funding is unchanged. Performance Completion Date changed from 15 MAR 2014 to 28 AUG 2015.
4. SECTION C DESCRIPTION/SPECIFICATIONS/WORK STATEMENT
 - a. Section C has been updated to capture changes (within scope) relating to the installation of the TARDEC micro-grid.
5. SECTION F DELIVERIES AND PERFORMANCE
 - a. Section F.3 (Period of Performance) is changed to extend the base period of performance from eighteen (18) months to thirty (30) months from the contract award date.
6. Except as provided herein, all other terms and conditions of contract W56HZV-12-C-0441 remain unchanged and in full force and effect.

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*** END OF NARRATIVE A0001 ***

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Name of Offeror or Contractor: NEXTENERGY CENTER

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	PRON: R312C189R3 PRON AMD: 03 ACRN: AA AMS CD: 63300553D00 <u>Inspection and Acceptance</u> INSPECTION: Destination ACCEPTANCE: Destination <u>Deliveries or Performance</u> DLVR SCH PERF COMPL <u>REL CD QUANTITY DATE</u> 001 1 04-AUG-2014 \$ 115,196.00				
0001AD	<u>MILESTONE 4</u> SERVICE REQUESTED: TARDEC MICROGRID - N CLIN CONTRACT TYPE: Firm Fixed Price PRON: R312C189R3 PRON AMD: 03 ACRN: AA AMS CD: 63300553D00 <u>Inspection and Acceptance</u> INSPECTION: Destination ACCEPTANCE: Destination <u>Deliveries or Performance</u> DLVR SCH PERF COMPL <u>REL CD QUANTITY DATE</u> 001 1 18-AUG-2014 \$ 16,199.00	1	LO		\$ 16,199.00
0001AE	<u>MILESTONE 5</u> SERVICE REQUESTED: TARDEC MICROGRID - N CLIN CONTRACT TYPE: Firm Fixed Price PRON: R312C189R3 PRON AMD: 03 ACRN: AA AMS CD: 63300553D00 <u>Inspection and Acceptance</u> INSPECTION: Destination ACCEPTANCE: Destination <u>Deliveries or Performance</u> DLVR SCH PERF COMPL <u>REL CD QUANTITY DATE</u> 001 1 29-SEP-2014 \$ 45,399.00	1	LO		\$ 45,399.00

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Name of Offeror or Contractor: NEXTENERGY CENTER

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	\$ 38,030.00				

Name of Offeror or Contractor: NEXTENERGY CENTER

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

STATEMENT OF WORK (SOW)
NEXTENERGY (CONTRACTOR) AND TARDEC
TARDEC MICROGRID INSTALLATIONC.1 Scope of Work

C.1.1 The scope of this effort is to extend the amount of renewable energy and back-up power provided at the Tank and Automotive Research, Development and Engineering Center (TARDEC) in Warren, MI. This effort will provide power to the Battery Test Chambers and support equipment located outside of TARDECs Building 212B in the case of blackouts at TARDEC.

C.2 Objective

C.2.1 The Contractor shall install a microgrid outside Building 212B at TARDEC to demonstrate the usefulness of microgrids to base operations and assist TARDEC to increase the amount of renewable energy and back-up power on base. Please see Attachment 0001 for the site plan. The primary objectives of this effort are to install a microgrid system to explore the use of various renewable energy solutions as integral parts of TARDECs commitment towards reducing dependencies on the main power grid. Furthermore, the microgrid system, along with available renewable energy sources attached, will serve as a backup power source for the TARDEC Battery Test Chambers and its support equipment in the event of a power outage. The microgrid will record data for loads serviced and will have the ability to operate in an island mode (microgrid operation without power feed from the facility electrical grid) in the event of utility isolation. The microgrid will also allow for facility grid tie operation by operating in tandem with the utility power to prevent blackouts for connected loads.

C.3 Tasks

C.3.1 TM3 Lite System Design

C.3.1.1 The Contractor shall design, integrate, and test TM3 Systems products to the extent necessary to configure and integrate these products into a TM3 Lite System to function as an integral part of the approved new substation connection as designed and defined per TARDECs Facility Engineering (FE). The COR (Contracting Officers Representative) will provide these electrical schematics to the Contractor at the kickoff meeting, upon contract award. Any necessary hardware shall be designed by the Contractor and submitted to DPW and TARDEC FE personnel for their approval. Any system conduit that runs to the building shall run from the approved utility connection point (approved by DPW and TARDEC FE) at Building 216 to the TM3 Systems units, generator, Battery Storage Chambers (BSC), Energy Storage Unit (ESU), and standard lighting connection points as laid out by attachment 1. All electrical wiring schematics, drawings, and construction plans shall be designed per National Electric Code (NEC) and submitted for approval to TARDECs Facility Management and DPW. The Contractor shall request any applicable construction permits through the COR to the TARDEC Facility Engineering team and DPW. The COR will coordinate with TARDEC Facility Engineering for the processing of all necessary construction permits in order to facilitate construction activities.

C.3.1.2 The Contractor shall provide preliminary TM3 Systems products mechanical and electrical system layout design documentation to TARDEC Facility Management and the COR for review ten (10) business days prior to the First Interim Review Meeting in accordance with (IAW) CDRL A005. The preliminary system designs shall include all proposed construction layout plans, an integration schedule, and all necessary electrical integration activities.

C.3.1.3 The Contractor shall design and install a TM3 Lite System, one (1) TM3 System TM3 PV-GSI (Photovoltaic-Grid Storage Inverter) (hereinafter referred to as the TM3 Systems Microgrid) and one (1) Battery Storage System (hereinafter referred to as the Energy Storage Unit (ESU)) to ensure power switching between the integrated power inputs and the utility grid through a new substation provided by TARDEC in case of a power failure. The TM3 Systems Microgrid shall be capable of operating in a Grid-Parallel Mode (operating in unison with the power grid) with an existing area 480 Volts Alternating Current (VAC) supply Electrical Power System (EPS) from the switchgear, as well as be capable of operating in an Island Mode (operating independently from the power grid) in the event of utility isolation. In addition, the TM3 Systems Microgrid shall be capable of operating in an Island Mode on feeders totally independent from any area EPS. The TM3 Systems Microgrid shall also provide a Grid-Parallel/Island Mode where it shall automatically transition between Grid-Parallel and Island Modes of operation depending upon the operational status of the EPS.

C.3.2 Energy Storage Unit (ESU)

C.3.2.1 The Contractor shall develop and manufacture one (1) 65kWh Lithium-Ion Hard Carbon/Mixed Oxide ESU (battery bank) with 47kWh continuous power, to be integrated into the TM3 Systems Microgrid to provide backup power for the connected equipment (Battery Storage Chambers (BSC), and lightings) in case of a blackout. The ESU shall be installed with the following requirements:

1. The ESU shall be Lithium-Ion Hard Carbon/Mixed Oxide based system.

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2. The ESU shall be configured in modular units and racks for easy replacement and removal.
 3. The ESU shall provide 65 kilowatt hours (kWh) of installed storage.
 4. The ESU shall be provided with at a minimum the following warranties:
 - a. Seven (7) years life @ 80% Depth of Discharge (DOD) for battery cells life. The battery storage capacity at the end of 7 years will be approximately 33kWh providing the constant operating temperature does not exceed 30 degrees Celsius.
 - b. System warranty shall be for three (3) years at the GSPEL location for this specific application as defined in this project.
 5. The ESU shall be programmed to support charging profiles from the TM3 Systems Microgrid which is connected to alternative energy sources such as the GFE 60kW of solar array power.
 6. The ESU shall include all finalized documents and drawings necessary for installation and maintenance IAW CDRL A005.
 7. The ESU shall include an Battery Management System (BMS) software to communicate between the BMS and the TM3 Systems Microgrid, in order to collect battery performance data (onboard and remotely) for a standard network Category 6 (CAT6) Ethernet communication line will be provided as GFE to be connected from the control room in building 212B to the ESU network communication port via communication conduits along with other communication lines. The ESU battery management system display shall be made visible in the control room via the provided network connection.
 8. The ESU shall operate under ambient temperature conditions of negative (-) 30 degrees Celsius to 55 degrees Celsius. The ESU shall be installed outdoors, be enclosed for access restriction, and be weather-proofed, IAW National Electrical Manufacturers Association Type 3R (NEMA-3R) or a Standard ISO (International Standard Organization) type container. (Note: The proposed installation location will be located outdoors and will be subjected to some or all outside weather conditions).
 9. The ESU shall have a fire suppression system and fire detector/alarm system. The fire suppression system shall be non-water based system able to suppress any fire associated with the ESU within its container. The fire alarm system shall be monitored by the Battery Management System and provide a warning beacon outside of the container visible at 100 meters away provided there is a clear line of sight. The BMS shall be programmed to provide fire status to the display system inside the control room in building 212B via the GFE CAT6 Ethernet line provided.
- C.3.2.2 The Contractor shall integrate the ESU procured per requirements in C.3.2.1 and perform all system integrations to ensure the ESU is functioning in conjunction with the TM3 Systems Microgrid and is programmed to enable the following operational scenario:
1. The ESU shall be programmed to operate in Load Leveling Mode, where its available energy is used in conjunction with other available power generation sources, such as the Government-furnished 60kW solar photovoltaic system and the Natural Gas Generator procured in C.3.3.1, to stabilize the fluctuation of power supply at any given time based on the anticipated constant power demands from equipment of 45kW continuous. Attachment 0002 contains a graphical representation of this scenario.
 2. The ESU shall also be deep cycled to a DOD of 80%, at a minimum once (1) per day. Furthermore, the ESU system shall have the flexibility to program the timing of State of Charge (SOC) management for the ESU. For instance, the ESU shall have the capability to be programmed to coincide with lower electric rates or electrical supply from the utility to avoid peak hours charging to achieve full State of Charge (SOC) when the ESUs power is not needed.
- C.3.3 Natural Gas Generator
- C.3.3.1 The Contractor shall procure and install one (1) Underwriters Laboratory (UL) Natural Gas Standby Generator with 60kW of power generating capability to be used as backup power in case of a blackout or depletion of power sources. The UL Natural Gas Generator shall also satisfy the following requirements:
- C.3.3.1.1 The generator shall be sound-attenuated type generator with weather protective aluminum enclosure. Noise from the generator when running at full load level shall not exceed 80 decibels (dB) from seven (7) meters away.
- C.3.3.1.2 The generator engine type shall be certified by the U.S. Environmental Protection Agency (EPA) to meet emission standards of the following:
1. Emission standards for Nitrous Oxide (NOx) shall be less than or equal to 1 Gram per Horse Power (g/HP-hr), Carbon Monoxide (CO) shall be less than or equal to 2 g/HP-hr, and Volatile Organic Compounds (VOC), not including formaldehyde, shall be less than or equal to 0.7 g/HP-hr.
- C.3.3.1.2.1 Provide documentation from the manufacturer that the generators engine is certified to meet the EPA emission standards listed above.
- C.3.3.1.3 Fuel line size: TARDEC will provide the appropriate fuel line connection to be determined prior to generator(s) installation.

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C.3.3.1.4 Electrical: 208VAC, Three (3) phase; <300 amps (A) rated at 60Hz

C.3.3.1.5 Commercial warranty: Two (2) years. This warranty only applies to this project application.

C.3.3.2 The Contractor shall integrate the generator procured in C.3.3.1 into the TM3 Systems Microgrid IAW IMS (Integrated Master Schedule) from TARDEC Facility Engineering team, within 100 days of contract modification or after the concrete foundation will be poured and cured, whichever is later. The Government will provide natural gas connection for the Natural Gas Generator when required. All tooling for installation and shipments shall be the responsibility of the Contractor as stated in C.3.6.2 for all non-GFE equipment.

C.3.4 Power Source Management Software

C.3.4.1 The Contractor shall update the current power source management software included with the TM3 Systems Microgrid to interact with the generator to be procured per section C.3.3, the ESU per section C.3.2, and the GFE 60kW solar array. The Contractor shall enable the TM3 Systems Microgrid to manage available power sources effectively to provide additional power for continuous operations of the Government-furnished Battery Storage Chambers and supported equipment at TARDECs Building 212B during a blackout event except with the following non-continuous operation scenarios of concurrent equipment failures:

1. The utility grid fails and the TM3 Systems Microgrid fails
2. (Transfer switch functionality is part of the TM3 Systems Microgrid TM3 PV-GSI subsystem.)
This scenario is the same with scenario no.1.
3. The utility grid fails and the generator fails and there is no solar power and the battery storage runs out
4. The TM3 Systems Microgrid is off-line, for whatever reason
5. The utility grid fails and the TM3 Systems Microgrid is turned off
6. (Transfer switch functionality is part of the TM3 Systems Microgrid TM3 PV-GSI subsystem.)
7. The utility grid branch circuit feeder circuit breaker fails and the TM3 Systems Microgrid fails
8. An overload occurs tripping the TM3 Systems Microgrid output circuit breaker and the utility feeder circuit breaker

The Contractor is responsible for designing and developing the TM3 Systems Microgrid in order to allow the components of the equipment to perform in collaboration with one another and the microgrid. The TM3 Systems microgrid shall be capable of operating in Grid-Parallel Mode, as well as Island Mode. The TM3 Systems microgrid software shall have the capability of self-checks for integrated equipment failures, disconnection, and offline equipment detections at a minimum of weekly intervals to ensure equipment operational accountabilities. Any system failure, discontinuation, and maintenance issues shall be recorded IAW CDRL A001. The TM3 Systems microgrid software package shall also be delivered to the COR upon completion of the contract IAW CDRL A008.

C.3.4.2 The Contractor shall develop the TM3 System Microgrid to accept up to 60kW solar array of Direct Current (DC) power as one of the units power inputs after installation of the solar photovoltaic system at TARDEC is complete. The COR will notify the Contractor when installation is complete.

C.3.4.2.1 The Contractor shall further provide two (2) connectors (individual 400 amp camlock style) required for the connection of the Government-furnished solar photovoltaic system into the TM3 Systems Microgrid and ensure its compatibilities are addressed before system integration. One (1) connector shall be used to integrate the Government-furnished solar photovoltaic systems power output connection and one (1) shall be as used as backup if needed.

C.3.4.3 The Contractor shall enable the TM3 Systems Microgrid system to collect load data and the amount of renewable sources produced annually from the microgrid. Data collected shall be analyzed and computed to reflect the contributions of the microgrid operations and its integrated components to Battery Storage Chambers electrical load demands over a one year timeframe. All analysis reports shall be included in the final report IAW CDRL A002.

C.3.4.4 The Contractor shall perform full system operational tests that verifies connected subsystems (GFE 60kW solar array, an ESU, a 60kW natural gas generator) are interoperable with the TM3 Systems Microgrid and verify that the operational capabilities listed in the design section C.3.1 through C.3.4.3 are achieved. The Contractor shall prepare test equipment and measuring instrumentation as required to conduct operational testing of the TM3 Systems Microgrid and subsystems test. All operational testing data shall be collected, recorded, analyzed, and prepared in a final report format IAW CDRL A002.

C.3.4.5 Training/Demo: The Contractor shall hold one (1), two-day training session for three (3) individuals from TARDEC with Facility Management and COR duties on the entire system including all system components, system operation, system maintenance and any Standard Operational Procedures (SOP) associated with the TM3 Systems Microgrid. The Contractor shall provide the training session at TARDEC,

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within fourteen (14) days after the TM3 Systems Microgrid has completed commissioning and is verified to be fully operational.

C.3.5 Hardware Warranty

(There is no Eaton 9395 in the TM3 Systems Microgrid)

The Contractor shall provide free from design and manufacture defects a one (1) year warranty on the TM3 Lite and the PV-GSI with built-in transformer. For the warranty on the natural gas standby generator and the ESU, please refer to section C.3.3.1.5 and

C.3.2.1/subsection 4. These warranties only apply to this project application. The Contractor will pass on any additional warranty offered by the parts manufacturer.

C.3.6 Shipments

C.3.6.1 The Contractor shall ship all non-GFE equipment in sections C.3.2, C.3.3 and any tools for installation to TARDEC within 100 days after the date of award of contract modification P00001, or after the concrete foundation will be poured and cured, whichever is later. The Contractor shall coordinate and confirm with the COR all the equipment deliveries at 180 days after the award date of contract modification P00001 IAW IMS (Integrated Master Schedule) from TARDEC Facility Engineering team. All non-GFE equipment is to be delivered IAW CDRL A008.

C.4 Meetings

C.4.1 Kick-off Meeting: The Contractor shall plan and conduct a kick-off meeting via teleconference within thirty (30) days of contract award. The Contractor shall coordinate the meeting date, time and agenda with the COR. At this meeting, the Contractor shall explain its intended approach for accomplishing the contract requirements. A copy of the briefing materials shall be provided to the COR IAW CDRL A003.

C.4.2 Interim Review Meetings: The Contractor shall plan and conduct three (3), one-day interim review meetings at TARDEC in Warren, MI within 30 days of contract award and at every 90 days thereafter. The Contractor shall coordinate the date, time and agenda of these meeting with the COR. At these meetings, the Contractor shall present the project status, findings, and any alterations to the intended approach based on these findings. The briefing materials for the Interim Review Meetings shall be provided to the COR IAW CDRL A003.

C.4.3 Final Review Meeting: The Contractor shall plan and conduct a one-day final review meeting at TARDEC in Warren, MI. The Contractor shall coordinate the date, time, and agenda of this meeting with the COR. At this meeting, the Contractor shall demonstrate the TM3 Systems microgrid capabilities along with all integrated components, including the 60kW generator, battery bank, and solar array power connector. A copy of the briefing materials for the meeting shall be provided to the COR IAW CDRL A003.

C.4.4 The Contractor shall conduct nine (9) monthly site visits at TARDEC, starting 9 months after final commissioning to perform monthly maintenance for the TM3 Systems Microgrid. At each site visit, the Contractor shall inspect for any system faults, collect usage data, perform preventive maintenance on the TM3 Systems Microgrid and the ESU system, and record all work performed. Furthermore, the Contractor shall perform maintenance on the Natural Gas Generator specifically to maintain compliance with EPA emission standards by keeping records of conducted maintenance interval based on the generators manufacturer recommendations and record all conducted maintenances performed. All inspections, assessments, and maintenance performed records shall be submitted to the COR in the monthly maintenance report IAW CDRL A007.

C.5 Deliverables

C.5.1 Status Reports: The Contractor shall submit progress reports to the COR IAW CDRL A001.

C.5.2 Final Report: The Contractor shall prepare and submit a draft and Final Technical Report to the COR IAW CDRL A002 within 60 days of final commissioning date.

C.5.3 Safe Operation Document: The Contractor shall provide a document that details all of the requirements necessary for the safe operation of the installed TM3 Systems Microgrid as described in section C.3 to the COR and TARDECs Facility Management prior to any system integration/installation. The Safe Operation Document shall be prepared accordingly per DI-SAFT-80102B requirements. The Safe Operation Document shall be delivered IAW CDRL A004.

C.5.4 Operation & Maintenance Instructions: The Contractor shall provide Operation and Maintenance Instructions that provide Government personnel with all necessary operating, diagnostic, and repair procedures for using and maintaining TM3 Systems Microgrid as designed and delivered IAW CDRL A004.

C.5.5 Product Drawing & Electrical Schematics: The Contractor shall prepare and submit all finalized and completed system drawings, construction layouts, and electrical schematics developed under this contract to the COR IAW CDRL A005.

C.5.6 The Contractor shall provide all training materials per section C.3.4.4 and training materials shall be delivered IAW CDRL A006.

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C.5.7 Monthly Maintenance Report: The Contractor shall deliver all inspection, assessment, and maintenance results to the COR on a monthly basis IAW CDRL A007.

C.5.8 Hardware and Software: The Contractor shall deliver all system hardware and software packages developed or procured under this contract to the COR IAW CDRL A008.

C.5.9 Government Furnished Equipment (GFE): One 60kW solar array system.

C.5.10 The Period of Performance for the base effort is thirty (30) months.

C.6 Options

C.6.1 OPTION 1

C.6.1.1 If Option 1 is exercised by the Contracting Officer, then the Contractor shall conduct monthly site visits (a total of 12 after base Period of Performance (PoP) ends) at TARDEC in Warren, MI where the TM3 Systems Microgrid is installed, to assess the systems performance, perform any necessary preventive maintenance, determine if maintenance is needed on any equipment associated with the TM3 Systems Microgrid (ESU and Natural Gas Generator), and propose any needed equipment support for ongoing microgrid operations at TARDEC.

C.6.1.2 The Contractor shall record any maintenance performed based on the established maintenance recommended procedures and Standard Operation Procedures (SOP) for the system being maintained, to the COR and TARDEC's Facility Management at each site visit per section

C.6.1.1 All monthly inspections and assessments shall be included in the monthly status report IAW A001.

C.6.1.3 The Period of Performance for this Option 1 effort is a maximum of twelve (12) months commencing at the end of base PoP.

C.6.2 OPTION 2

C.6.2.1 If Option 2 is exercised by the Contracting Officer by the end of the contract performance period, then the Contractor shall install and integrate Government-furnished renewable energy sources provided at TARDEC into the TM3 Systems Microgrid. The COR will provide a list of renewable energy source options, as well as the technical specification and requirements for the renewable energy sources to the Contractor no later than 30 days after the Contracting Officer exercises Option 2.

C.6.2.2 The Contractor shall conduct an impact study of the added renewable energy sources to the TM3 Systems Microgrid with assessments and recommendations for future integrations (if any). The Contractor shall deliver the impact studies to the COR no later than 12 months after Option 2 exercise IAW CDRL A001.

C.6.2.3 The Period of Performance for this Option 2 effort is a maximum of twelve (12) months from the date of Option 2 being exercised.

C.6.3 OPTION 3

C.6.3.1 If Option 3 is exercised by the Contracting Officer by the end of the contract performance period, then the Contractor shall design or select and install four (4) Electric Vehicle Service Equipment (EVSE) connection points into the TM3 Systems Microgrid. Each EVSE connection point shall be capable of providing communication points with the TM3 Systems Microgrid to prioritize charging demands based on available electrical power resources. The EVSE connection points shall (i) accept the GFE Tactical Vehicle To Grid Module (TV2GM) that will charge automatically; and (ii) be pre-programmed for optimal power draw. The EVSE connection points shall be compatible with the TV2GM abilities to meet the following technical requirements:

- Industry-approved Society of Automotive Engineers (SAE) J1772 Bi-Directional connector
- Outdoor rated enclosure
- Auto restart in event of power outage
- Breakaway safety cable and integrated stowage
- Auto short circuit and ground fault shutoff
- Protection against live power

C.6.3.2 The EVSE connection points shall also enable 208VAC 3-phase power flow between the microgrid system and its integrated equipment such as Tactical Quiet Generators, vehicles with power generation capabilities, and the TV2GM systems, given that the equipment is provided with proper 208VAC 3-phase power delivery via the J1772 combo connectors. The connectors shall enable power flow and communications between the microgrid system and its components. The government will provide the equipment/components for testing and integration into the EVSE and the microgrid. At a minimum, EVSE connection points shall enable up to four (4) TV2GM vehicle systems with J1772 combo connectors to import and export 208VAC 3 phase power to the microgrid (bi-directional). The contractor shall ensure EVSE and the modification of the microgrid systems power flow are designed and demonstrated with proper safety designs as recommended by the National Electrical Code (NEC) for high voltage power electronics and equipment.

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Name of Offeror or Contractor: NEXTENERGY CENTER

C.6.3.3 The Contractor shall demonstrate the operational EVSE connection points using the GFE TV2GMs integrated to the microgrid system for the COR upon completion of integration into the TM3 Systems Microgrid at TARDEC.

C.6.3.4 The Period of Performance for this Option 3 effort is at maximum of twelve (12) months from the date of option 3 being exercised.

*** END OF NARRATIVE C0001 ***

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Name of Offeror or Contractor: NEXTENERGY CENTER

SECTION F - DELIVERIES OR PERFORMANCE

F.1 DELIVERY

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

F.1.1 Any deliverables requiring a physical address shall be shipped to:

U.S. ARMY TARDEC
PHAT TRUONG, COR, AMRSD-TAR-IN
6501 EAST 11 MILE RD, MS 264
WARREN, MI 48397-5000

F.2 METHOD OF DELIVERY

F.2.1 All deliveries shall be made on an FOB DESTINATION basis.

F.3 PERIOD OF PERFORMANCE

F.3.1 The base period of performance for the contract shall be thirty (30)* months from the contract award date.

F.3.2 The maximum period of performance for the first option, if exercised, shall be twelve (12) months from the end of the base period of performance.

F.3.3 The maximum period of performance for the second option, if exercised, shall be twelve (12) months from the date of exercise.

F.3.4 The maximum period of performance for the third option, if exercised, shall be twelve (12) months from the date of exercise.

*CHANGED PER MODIFICATION P00001

*** END OF NARRATIVE F0001 ***

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Name of Offeror or Contractor: NEXTENERGY CENTER

SECTION G - CONTRACT ADMINISTRATION DATA

LINE	PRON/ AMS CD/ MIPR/ <u>GFEBs ATA</u>	OBLG <u>STAT</u>	JO NO/ <u>ACCT ASSIGN</u>	ACRN	PRIOR AMOUNT	INCREASE/ DECREASE	CUMULATIVE AMOUNT
0001AA	R312C189R3 63300553D00	1	12C189	AA \$	210,916.00 \$	-32,421.00 \$	178,495.00
0001AB	R312C189R3 63300553D00	1	12C189	AA \$	210,915.00 \$	233,241.00 \$	444,156.00
0001AC	R312C189R3 63300553D00	1	12C189	AA \$	160,915.00 \$	-45,719.00 \$	115,196.00
0001AD	R312C189R3 63300553D00	1	12C189	AA \$	60,915.00 \$	-44,716.00 \$	16,199.00
0001AE	R312C189R3 63300553D00	1	12C189	AA \$	60,915.00 \$	-15,516.00 \$	45,399.00
0001AF	R312C189R3 63300553D00	1	12C189	AA \$	60,915.00 \$	-52,816.00 \$	8,099.00
0001AG	R312C189R3 63300553D00	1	12C189	AA \$	42,415.00 \$	54,982.00 \$	97,397.00
0001AH	R312C189R3 63300553D00	1	12C189	AA \$	17,115.00 \$	-5,715.00 \$	11,400.00
0001AJ	R312C189R3 63300553D00	1	12C189	AA \$	34,230.00 \$	-22,830.00 \$	11,400.00
0001AK	R312C189R3 63300553D00	1	12C189	AA \$	34,230.00 \$	-22,830.00 \$	11,400.00
0001AL	R312C189R3 63300553D00	1	12C189	AA \$	34,230.00 \$	-22,830.00 \$	11,400.00
0001AM	R312C189R3 63300553D00	1	12C189	AA \$	34,230.00 \$	-22,830.00 \$	11,400.00
					NET CHANGE	\$ 0.00	

ACRN	ACCOUNTING CLASSIFICATION	INCREASE/ DECREASE
AA	21 12040000016N6N7EP633005255Y S20113 W56HZV	\$ 0.00
NET CHANGE		\$ 0.00

CONTINUATION SHEET

Reference No. of Document Being Continued

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Name of Offeror or Contractor: NEXTENERGY CENTER

		<u>PRIOR AMOUNT</u>		<u>INCREASE/DECREASE</u>		<u>CUMULATIVE</u>
		<u>OF AWARD</u>		<u>AMOUNT</u>		<u>OBLIG AMT</u>
NET CHANGE FOR AWARD:	\$	999,971.00	\$	0.00	\$	999,971.00

LINE

<u>ITEM</u>	<u>ACRN</u>	<u>EDI/SFIS</u>	<u>ACCOUNTING</u>	<u>CLASSIFICATION</u>			
0001AA	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AB	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AC	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AD	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AE	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AF	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AG	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AH	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AJ	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AK	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AL	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AM	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113
0001AN	AA	21	111220400000	W56HZV	16N6N7E63300553D00255YR312C189R3	12C189	S20113