NATIONAL AERONATUTICS AND SPACE ADMINISTRATION
JOHN F. KENNEDY SPACE CENTER, FLORIDA

JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION
(BRAND NAME DETERMINATION)

Launch Equipment Shop, K6-1247 HVAC Upgrade
PCN 99016

ESTIMATED VALUE OF SQUARE D METERS CM4000T: $9,000 Per Assembly
ESTIMATED TOTAL VALUE OF SINGLE MANUFACTURER ITEMS: $9,000

1.) Based on the justification provided herein, I recommend that an acquisition be made by other than full and open competition for the contract action described below:

2.) This contract action is for the acquisition of electrical power metering equipment manufactured by Square D Company to be installed in conjunction with the Launch Equipment Shop, K6-1247 HVAC Upgrade PCN 99016 project. Proprietary equipment required for this project is as follows:

(5) Square D Meters CM4000T

3.) The Square D CM4000T power meter and its associated network cards are used by NASA KSC for advanced power consumption metering, power demand metering, power quality analysis, transient analysis, and for use in troubleshooting its electrical power systems. In support and promotion of NASA's Strategic Plan, NASA's Strategy for Environmental Excellence in the Twenty-First Century, and NASA Policy Directive (NPD) 8500.1, "NASA Environmental Management," and consistent with the requirements of the National Energy Conservation Policy Act (NECPA), as amended by the Energy Policy Act of 2005 (EPACT), and Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," KSC is required to reduce energy consumption from a 2003 baseline with 3% per year or 30% overall by FY 2015. Further, the legislation and NASA Policy Directives require KSC to demonstrate is progress toward these goals via consumption data on a per facility basis to NASA Headquarters and subsequently to the Department of Energy. To this end, in 1992 KSC began the process of evaluating electrical metering products to meet its needs. The technical review resulted in the selection and procurement of the Square D brand multifunction power meter. As a part of a Shuttle program funded initiative, KSC installed a large electrical metering network, based on the Square D meter, using the Square D manufactured System Manager Software and associated network communications hardware. This device described in this action is the multifunction power meter and its associated network card. This hardware assembly represents the field devices required for compatibility with the

existing metering network and supervisory software. The total estimated cost of the Square D CM4000T is $9,000 per assembly. There is one (1) CM4000T assembly required for this project for a total of $9,000.

4.) Contracting without full and open competition is permitted pursuant to 10 U.S.C. 2304 (c) (1), because the equipment required by KSC is available from only one responsible manufacturer and no other type of equipment will fully satisfy our requirements. There is a reasonable basis to conclude that KSC's minimum requirements can only be satisfied by the unique equipment available from the Square D Company.

5.) This meter and its associated communications hardware represent the only device capable of full compatibility with the existing KSC Power Metering Network and the Kennedy Complex Control System (KCCS) at KSC. This requirement is based on several compatibility issues relating to software interface compatibility, communications protocols and on the considerable investment already made by the government on the Square D meter type as described by the following:

a. The System Manager Software (SMS) package currently in use by multiple programs/elements at KSC (Shuttle, Payloads, and Institutional) is the primary engineering software used by KSC to do system monitoring and data collection and is manufactured by the Square D company. The software allows KSC personnel to access proprietary device functions such as meter configuration, data logging, waveform capture, and onboard alarming. No other software package allows this level of access. This software exists in client/server form with four licensed servers running on site. This software is tailored for the Square D line of power meters and cannot be used to integrate other manufacturer's product with the required level of compatibility. The current government replacement cost is over $44,693 (4 x $11,173). The use of other manufacturer's product would drive KSC to develop a similar server software structure around that manufacturer's product line.

b. The KCCS system is KSC's central facility monitoring platform. The network protocol standardized for use in KCCS is the Modbus TCP Ethernet protocol. The Square D CM4000T with its associated network card uses this protocol as its native communication interface. In addition to the data collected by the SMS servers, KCCS polls these power meters providing KSC electrical distribution system status to the Complex Control Center (CCC) located in the Launch Control Center (LCC). Data provided by this meter type to the KCCS console in the CCC is monitored 24 hours a day and is used to establish systems status for flight readiness. The Modbus TCP driver used by KCCS to communicate with its field controllers is fully compatible with the CM4000T and has been fine tuned by the KCCS system's manufacturer for interface with the Square D meter. The KCCS interface to the Square D meter has been extensively

tested and refined by the government to meet operational need. Further, the government, at its expense, has developed interface software within the KCCS system around the Square D meter's architecture, register map, and network adapter settings. The choice to develop this interface software around the Square D meter was based on the device's technical competence, the large installed base of the meter type, and the government's (both NASA and prime contractor) in-house knowledge of the Square D metering system. The use of any other manufacturer's equipment would drive the government to duplicate this KCCS interface for another hardware type.

c. The government has trained on-site personnel to be fully capable of installing, operating, and maintaining the Square D metering. More than 15 KSC onsite personnel (NASA and prime contractor) have been certified by authorized Square D training on the metering and SMS software with a total cost in excess of $35,000.00. The use of any other manufacturer's equipment would require the government to develop a comparable level of competence on that device type in addition to maintaining its current competence on the Square D product.

d. The government has made a significant investment in Square D meters and monitoring software. KSC has more than 120 Square D power meters installed and communicating back to the SMS servers (two servers online with two more online near term). The size of the installed meter base has driven the government to maintain spare parts and meters in federal stock. The use of any other manufacturer's equipment would cause the government to store other device hardware in addition to maintaining its current stock of the Square D product.

6.) Efforts are being made to ensure that qualified offerors are solicited from as many potential sources as possible. The project specifications used to require the Square D meter type are written to fully explain the government's requirements regarding power meters. These specifications will be used to inform all potential meter manufactures of the government's interface needs. Additionally, this brand name determination will be posted with the solicitation on the Federal Business Opportunities website at www.fbo.gov.

7.) I hereby determine that the anticipated price of the prime contract, including the CM4000T meter units will be fair and reasonable. This determination is based on the belief that the overall competitive nature of the procurement will entice bidding prime contractors to seek the most advantageous pricing from Square D authorized distributors and supply houses as well as all other equipment and material supplies.

8.) A market survey was conducted in 1992 during the initial deployment of networkable power meters. It was determined that the Square D metering line

best suited the needs of the government at that time. Since that market survey KSC has revisited the issue, soliciting product demonstrations from other leading metering manufacturers including Cutler-Hammer and Power Measurements Limited in FY2000 and FY2001. The resulting consensus of KSC's technical community has been that while other metering packages have made significant improvement and exhibit excellent new features, no other meter can meet KSC's need in general application.

9.) By written correspondence, the government, through its contracted engineering firm, has specifically requested a review of these specifications by three leading electrical metering manufacturers. As a part of the correspondence, the government specifically asked if the manufacture can meet this specification and for an explanation of any negative responses. Although this effort was made by the government to inspire the cooperation and involvement of other potential sources, no responses to this inquiry have been received.

10.) Future actions to remove barriers to competition will be maximized to the fullest practicable extent. This will be accomplished by taking every reasonable step to reduce the amount of equipment that must be procured on a single manufacturer basis by continuing to reach out to other manufacturers.

Pursuant to FAR 6.303-2(b), I hereby certify that the supporting data furnished in support of contracting by other than full and open competition, under 10 U.S.C. 2304(c) (1), with Square D Company for the purchase of power meters is complete and accurate to the best of my knowledge and belief.

Samori Ball
Project Management Branch
NE-F1

8/10/15
Date

Mike Felker
Contracting Officer
OP-ES

8/11/15
Date