Comptroller General
of the United States

Washington, D.C. 20548

Decision

Matter of: The Trane Company

File: B-279466

Date: June 18, 1998

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John E. Larricia, Esq., James G. McLaren, Esq., Russell A. Bryan, and Jerry W. Aldridge, Department of the Air Force, for the agency.
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DIGEST

Contracting agency reasonably determined that upgrade and expansion of energy management and control system must be accomplished using the products of the manufacturer of the existing system where (1) the existing system communicates using a proprietary protocol and no gateways between that protocol and the protocols of other control systems' manufacturers have been developed, and (2) one technician will be responsible for operation and maintenance of the entire system.

DECISION

The Trane Company protests the terms of invitation for bids (IFB) No. F24604-98-B-0013, issued by the Department of the Air Force for upgrade and expansion of the energy management and control system (EMCS) at Malmstrom Air Force Base (AFB), Montana. The protester argues that the IFB unduly restricts competition by requiring that the equipment to be installed have been manufactured by HSQ Technology.

We deny the protest.

Malmstrom's EMCS manages energy usage by the base's industrial facilities. The current system, which was installed in 1979 and expanded in 1988, encompasses more than 60 buildings, and is composed entirely of components manufactured by HSQ Technology. The system operates as follows: wall sensors located within each building feed climate and other energy usage data to remote terminal units (RTU), which transmit the data along fiber optic lines to a central command and control unit (CCU), which analyzes the data. The system communicates using a protocol that is proprietary to HSQ.

The instant IFB calls for upgrading of the RTUs already installed in 45 of the buildings, expansion of the system to 16 previously unconnected buildings, and replacement of the existing CCU. The IFB requires that the upgrade and expansion be accomplished using the products of HSQ Technology. Such a restriction is necessary, the agency explains, to ensure that the new equipment can communicate with the existing HSQ equipment and to avoid overburdening Malmstrom's EMCS operating technician with the need to learn an additional system or systems.

The protester takes issue with the agency's justification, arguing that, although its system does not use the same protocol as HSQ's, its equipment can communicate with HSQ's through a gateway, a device which translates the protocol of one manufacturer into the protocol of another. Trane further argues that the fact that the base's EMCS technician might need to learn another system is not sufficient justification for restricting competition. The protester also argues that if the Air Force requires a single integrated EMCS, it should consider replacing the existing HSQ equipment with equipment communicating via a recently developed and widely supported open protocol known as BACnet (Building Automation and Control network),[1] because it would then have in place the infrastructure to take advantage of future technological developments from a range of manufacturers.[2]

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[1]BACnet is an open (i.e., nonproprietary) data communications protocol developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers during the late 1980s and early 1990s and approved by the American National Standards Institute in July 1995. The three largest control system manufacturers in the United States (Honeywell, Johnson Controls, and Landis & Gyr Powers), as well as many smaller manufacturers, including Trane, have announced their intention to support BACnet in their products. According to the protester, BACnet is now the standard industry protocol.

[2]It is unclear whether the protester is also arguing that the agency ought to have allowed offerors to install a parallel system (i.e., RTUs communicating with a separate CCU using a protocol different from HSQ's) in the new buildings. We understood the protester to have conceded, in its May 8 reply to the Air Force's response to Trane's comments on the agency report, that the agency had a legitimate interest in maintaining a single integrated system. ("Like the agencies in the cases on which the Air Force relies, Malmstrom AFB needs an integrated, basewide EMCS system, such that each building in the system can be monitored from a single station." Protester's May 8 submission, p. 5.) Trane's post-hearing comments suggest otherwise, however. ("[Another] alternative would be to install a parallel BACnet system in the new buildings--without the gateway to existing HSQ equipment. . . . While this would result in two separate systems that were not electronically tied together, it would permit Malmstrom Air Force Base to capitalize on all the other advantages afforded by BACnet technology, while avoiding the Air

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In preparing a solicitation for supplies or services, a contracting agency must specify its needs and solicit offers in a manner designed to achieve full and open competition, and include restrictive provisions only to the extent necessary to satisfy the agency's needs. 10 U.S.C. § 2305(a)(1)(A)(i), B(ii) (1994). The contracting agency, which is most familiar with its needs and how best to fulfill them, must make the determination as to what its needs are in the first instance, and we will not question that determination unless it has no reasonable basis. Madison Servs., Inc., B-278962, Apr. 17, 1998, 98-1 CPD ¶ 113 at 2; Corbin Superior Composites, Inc., B-242394, Apr. 19, 1991, 91-1 CPD ¶ 389 at 5. Specifications based upon a particular manufacturer's product are not improper in and of themselves, and may be warranted where the agency establishes that the requirements are reasonably related to its needs. CairnsAir, Inc., B-278141, Jan. 2, 1998, 98-1 CPD ¶ 1 at 2.

First, regarding the protester's argument that the agency would be better off replacing the existing HSQ equipment than modifying and adding on to it, it is clear from the record that the agency considered the former alternative but decided against it for budgetary reasons: i.e., it would be two and a half times more expensive to replace the system in its entirety than to leave the existing equipment in place and add on to it. The agency also determined that it did not require an infrastructure that would allow it to take advantage of future technological developments from a range of manufacturers, such as a BACnet system would provide, since its energy management needs were relatively unsophisticated and were adequately served by HSQ's existing technology. We see nothing unreasonable in either of these determinations.

The protester next argues that the agency's need for a single integrated basewide EMCS incorporating the existing HSQ equipment does not require that the new equipment also have been manufactured by HSQ since the equipment of other manufacturers, including itself, can communicate with HSQ's via a gateway. In response, the agency explains that it has a number of reasons for not wanting a hybrid system consisting of HSQ and non-HSQ BACnet-protocol equipment, a primary one being that a BACnet-HSQ gateway has not to date been developed and that it appears that HSQ does not intend to participate in the development effort. The agency also expresses concern that if a gateway malfunctions, all building RTUs communicating through that gateway will be severed, meaning that the CCU

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[2](...continued)
Force's perceived concerns about a gateway." Protester's May 28 submission, p. 4.) To the extent that the protester is arguing that it is unduly restrictive of competition for the agency not to allow offerors to propose parallel systems, we have previously recognized that a single, basewide, integrated EMCS may be a legitimate agency need furthering operation efficiency and cost savings. Building Sys. Contractors, Inc., B-266180, B-266184, Jan. 23, 1996, 96-1 CPD ¶ 18 at 3.

will be incapable of monitoring and controlling them; that the gateway could affect performance of the EMCS by slowing the flow of signals to and from the CCU and/or by translating the signals imperfectly; and that upgrade of the protocol on either side of the gateway would require upgrade of the gateway. The agency argues that, given the uncertainties associated with development of a gateway and the additional risk to system performance that use of a gateway introduces, it was reasonable for it not to allow the installation of non-HSQ equipment communicating with the HSQ CCU through a gateway.

The protester responds that, even though an HSQ-BACnet gateway has not yet been developed, there is every reason to believe that a working gateway can readily be provided. In this regard, the protester notes that 26 different companies have developed gateways between their proprietary protocols and BACnet. Trane disputes the agency's assertion that HSQ does not intend to cooperate in the development of an HSQ-BACnet gateway, but argues that even if such is the case, development of a gateway is still possible through reverse engineering.

We received extensive testimony regarding the issue of gateway development at the hearing that we held in conjunction with this protest. It is our conclusion, based on that testimony, that although development of a BACnet-HSQ gateway could be fairly easily accomplished if HSQ were willing to furnish its proprietary protocol, the development effort will be far more complicated, time-consuming, and expensive--and a favorable outcome far less certain--if HSQ is not willing to cooperate since reverse engineering will be required. Indeed, there is some question as to whether a company specializing in gateway development would even be willing to undertake such a project. In this regard, the protester's own witness, who is president of such a company, testified at the hearing:

> [It] can be very difficult to do that kind of reverse-engineering. So in general from a customer's perspective it would be a risky position to buy into a reverse-engineered. . . . As a rule, my company shies away from reverse-engineering projects because they tend to be difficult to come up with a fixed price and quote for.

Teleconference Hearing Transcript, p. 47.

It is not clear from the record that HSQ will be willing to cooperate in the development effort. Although HSQ has apparently expressed a general willingness to work with Trane in development of an HSQ-BACnet gateway, Malmstrom AFB's mechanical engineer reports that when he contacted HSQ with regard to this issue, HSQ's Vice President for Marketing and Sales told him that HSQ had not developed, and did not intend to develop, a BACnet gateway. We think that, at a minimum, the agency could reasonably conclude on the basis of this conversation that HSQ's cooperation was not guaranteed, and that reverse engineering might therefore be required to develop a gateway between its proprietary protocol system and a

BACnet system; we also think that the agency could reasonably decide that it did not want to take the risks that a reverse engineering effort would entail. See AAI ACL Techs., Inc., B-258679.4, Nov. 28, 1995, 95-2 CPD ¶ 243 at 7.

We also find that it was reasonable for the agency to be concerned about possible consequences of a failure of the gateway, and for that reason, to have defined its needs as being for a non-hybrid system. In response to the agency's argument that failure of a gateway could sever communications with all equipment downstream from the gateway, Trane argues that a gateway is no more likely to fail than the interface in an RTU. Even assuming that such is the case, we do not think that failure of the interface in an individual RTU can be equated with the failure of a gateway; failure of the former might bring down an individual building or part of a building, whereas failure of a gateway would bring down all parts of the system connected through the gateway.

Further, we think that the agency reasonably determined that it required an EMCS that its sole EMCS technician would be capable of maintaining, and that due to the differences among various manufacturers' control systems and the burden that learning a new system would impose on that technician, only an all-HSQ system would meet that need. In this regard, although the protester argues that some technicians are capable of learning more than one system--and would in fact welcome the challenge of learning a new one--the fact is that the Air Force, which is most familiar with the capabilities of Malmstrom's sole EMCS technician, has determined that it would be an unreasonable burden on him to have to learn an additional system. We see no basis to question the agency's judgment in this regard.[3]

The protest is denied.

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[3]In its comments on the agency report, Trane argues that the Air Force did not comply with certain procedural requirements of the Federal Acquisition Regulation regarding the specific contents and approval of the justification. These issues are untimely. Under our Bid Protest Regulations, 4 C.F.R. § 21.2(a)(2) (1998), protests based on other than solicitation improprieties must be filed within 10 days of when the protester knew of the basis of protest. Here, Trane received the agency report, including the justification, on April 10. Since Trane's comments were not filed until April 21, 11 days later, the new issues raised are untimely. While Trane received permission to file its comments later than the 10 calendar days required by our Regulations, 4 C.F.R. § 21.3(i), granting of such an extension does not waive our timeliness requirements. Terex Cranes, Inc., B-276380, June 10, 1997, 97-1 CPD ¶ 209 at 6.