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Pollack



Comptroller General  
of the United States  
Washington, D.C. 20548

4522711

## Decision

**Matter of:** Engineered Air Systems, Inc.  
**File:** B-254032.2  
**Date:** November 23, 1993

Linda L. Shapiro, Esq., and Timothy F. Noelker, Esq.,  
Coburn & Croft, for the protester.  
Irvin Becker, Esq., for Lear Astronics Corporation,  
Developmental Science Center, an interested party.  
Maj. William R. Medsger and Tony K. Vollers, Esq.,  
Department of the Army, for the agency.  
Catherine E. Pollack, Esq., and John M. Melody, Esq., Office  
of the General Counsel, GAO, participated in the preparation  
of the decision.

### DIGEST

1. Protest of technical evaluation of proposal is denied where review of proposals and evaluation record supports agency's conclusions that awardee's proposal was superior in several important areas.
2. Where solicitation provided that technical evaluation factors were more than 3 times more important in award selection than price, agency reasonably determined that awardee's technical superiority was worth 53 percent higher price.

### DECISION

Engineered Air Systems, Inc. (EASI) protests the award of a contract to Lear Astronics Corporation, Developmental Science Center (DSC) under request for proposals (RFP) No. DAH01-92-R-0018, issued by the U.S. Army Aviation and Troop Command for advanced aviation forward area refueling systems (AAFARS). EASI alleges that the agency failed to properly evaluate its technical proposal and failed to make a proper cost/technical tradeoff in deciding to award the contract to DSC at a higher price.

We deny the protest.

The AAFARS is used for refueling helicopters in field operations. It must be capable of simultaneous refueling of up to four aircraft under all possible environmental conditions

in which rotary wing aircraft can operate, including sub-zero temperatures and total darkness. As the AAFARS is to be used in field operations, its components must be capable of being carried manually from a transport vehicle to the refueling site and must be easy to assemble under adverse conditions. The RFP provided for award based on the proposal offering the best value to the government in terms of four evaluation factors: technical, integrated logistics support (ILS), performance risk, and cost/price. Of these factors, technical was the most important, worth three times more than the ILS factor; past performance and cost/price were equally weighted and worth slightly less than the ILS factor. The RFP reserved the agency's right to make award to other than the low-priced offeror if the competitive strengths of that offeror's proposal in nonprice areas significantly outweighed those of the low-priced proposal.

Four firms submitted initial proposals by the closing date. Following the initial evaluation, several rounds of discussions, and submission of best and final offers (BAFO), DSC's and EASI's proposals were ranked first and second, respectively. Although DSC's price was higher than EASI's by 53 percent, the contracting officer--who was the source selection authority for this procurement--concurred with the technical evaluation team's (TET) finding that DSC's technical approach was superior in several respects, and concluded that DSC's proposal represented the best value to the government.<sup>1</sup> Upon learning of the ensuing award to DSC, EASI filed this protest.

EASI asserts that the agency's conclusions about the technical superiority of DSC's proposal were unreasonable, and therefore were based on unequal treatment of the two proposals. EASI essentially contends that DSC's proposed

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<sup>1</sup>While the Army's initial source selection decision enumerated the weaknesses in EASI's proposal, it did not compare them to the strengths and weaknesses of DSC's proposal, or explain why DSC's technical superiority was worth its higher price. After EASI filed its protest, the contracting officer prepared an addendum to his decision explaining the basis for the award in more detail. EASI argues that we should not give significant weight to this addendum document because it was prepared after the protest was filed rather than when the decision was made. While we generally give more weight to contemporaneous records than to those prepared after the fact, see, e.g., Management Tech. Servs., B-250834, Feb. 22, 1993, 93-1 CPD ¶ 304, since the addendum is consistent with the original decision document and the evaluation record, there is no basis for according it less weight here than other documents. See Benchmark Sec., Inc., B-247655.2, Feb. 4, 1993, 93-1 CPD ¶ 133.

system does not provide any substantive technical advantage over EASI's, and therefore does not warrant payment of a 53-percent higher price.

The evaluation of technical proposals, and the determination of their relative merits, is primarily the responsibility of the contracting agency, since the agency is responsible for defining its needs and the best method of accommodating them, and must bear the burden of any difficulties resulting from a defective evaluation. Litton Sys., Inc., B-237596.3, Aug. 8, 1990, 90-2 CPD ¶ 115. In reviewing protests against allegedly improper evaluations or technical/cost tradeoff decisions, therefore, we examine the record only to determine whether the agency's judgment was reasonable and in accord with the evaluation criteria listed in the RFP. Id.; Litton Indus., Inc., B-236720, Dec. 26, 1989, 89-2 CPD ¶ 595.

As discussed below, the record supports the contracting officer's conclusions that DSC's proposal was superior to EASI's in several respects, and that DSC's proposal was worth its 53 percent higher price.

#### SYSTEM EVACUATION AND RECOVERY

The RFP required that the AAFARS be equipped with a method of purging the system components of fuel and returning it to the fuel drums at the completion of each refueling operation. This evacuation and recovery process was to require minimal effort, use no more than four personnel, and take no more than 20 minutes to complete.

EASI and DSC proposed to approach the system evacuation requirement in different ways. EASI proposed the "pigging" method, which uses compressed air to move a displacement ball, or pig, through the system's hoses to force fuel back into the drums; the proposal requires the use of an air compressor, 200 feet of air hose, a ball inlet (opening) and ball receiver, and the pig itself. The procedure involves disconnecting the fuel pump and connecting the air compressor in its place, disconnecting the nozzles from the discharge hoses, and pigging each hose, then retrieving and packing the hoses; EASI estimated that the process would take 19 minutes. DSC, in contrast, proposed to evacuate the system using an auxiliary pump attached to the inlet of the fuel drum; DSC estimated that the procedure would take 25 minutes to complete. The primary difference between the two methods is that under DSC's approach the fuel is evacuated by the auxiliary pump, while under EASI's approach two individuals use a small object to physically displace the fuel.

The TET found, and the contracting officer agreed, that the pigging method EASI proposed is too labor-intensive and probably cannot be accomplished within the required 20-minute timeframe. The TET chairman explains that this is because the pigging method requires connection of the compressor module to the engine module--a potentially time-consuming process--before evacuation can begin, and connection of a launcher coupling and a receiver coupling to each discharge and recirculation hose before the hose can be pigged; this process requires two soldiers and must be repeated for each hose as the hoses are evacuated one at a time. Given the nature and number of steps involved in EASI's approach, the TET found EASI's estimated 19-minute timeframe unrealistic. The number of additional components involved--compressor, air hose, inlet and receiver couplings, and pig--was also viewed as a weakness, especially as to the smaller items which could easily be lost. DSC's process, on the other hand, requires only one soldier to connect the auxiliary pump to the fuel drum (a simpler connection than EASI's connection of the compressor to the engine) and to operate the pump; the other three soldiers disconnect, retrieve and pack the evacuated hoses. The only additional components required are a low-maintenance auxiliary pump and an electrical cable. Although DSC's 25 minute estimate for the procedure was 5 minutes longer than the required timeframe, the TET considered this to be realistic; in fact, the TET determined that EASI's proposed procedure would actually take longer than DSC's. The TET and the contracting officer concluded that DSC's approach was superior to EASI's.

EASI disputes the agency's conclusion, arguing that its proposed process is in fact faster than DSC's and is more efficient, leaving less residual fuel in the system. EASI alleges further that in downgrading its proposed method based on its time-consuming aspects, but failing to downgrade DSC's proposal for exceeding the 20-minute requirement, the Army failed to treat the two offerors equally.

The agency's conclusion regarding the superiority of DSC's proposed approach was reasonable. While EASI's evacuation method has one purported advantage--i.e., it leaves less fuel in the system--we agree with the agency that DSC's is advantageous in the area highlighted in the RFP, that is, it requires minimal effort and only one individual to operate. In this regard, EASI acknowledges that its approach is more labor-intensive than DSC's, and the record shows DSC's method is simpler and more straightforward than EASI's. We also think the agency reasonably rated EASI's evacuation time no better--and probably worse--than DSC's, since EASI's 19-minute estimate does not appear to account for the multiple connections and disconnections of accessory couplings

required for evacuation of all the hoses. The agency certainly was not precluded from making its own technical judgment regarding evacuation time, as EASI's argument suggests. We conclude that the proposals were evaluated on an equal basis, and that the agency reasonably found DSC's preferable in the evacuation and recovery area based on the minimal effort required.

#### BACKUP STARTING CAPABILITY

The RFP required that the AAFARS be able to start within 5 minutes under a variety of specified conditions, including ambient temperatures as low as -25 degrees Fahrenheit (F). In addition, the RFP required that a backup starting system be provided for any AAFARS equipped with an electric or other non-manual starting system. Both EASI and DSC proposed to use a Deutz (Ruggerini) model MD-151 diesel engine with an electric starter guaranteed by the manufacturer to start at -25 degrees F; both offerors submitted with their proposals results of their own tests showing that the engine did in fact start at that temperature. Both offerors proposed as a backup a manual rope starter, although both proposals also acknowledged that a manual rope starter is ineffective at temperatures below freezing. Both offerors proposed a solution to this problem. EASI proposed to use the manual starter only at temperatures above 32 degrees F; at lower temperatures EASI proposed to start the engine by connecting it to an external 24 volt power source, such as a helicopter or military vehicle, via a NATO slave receptacle (the RFP required this receptacle, in addition to a backup starting system, for units equipped with a battery). In addition, EASI proposed an auxiliary starter to be used if the starter integral to the engine were inoperable; this auxiliary starter also would be powered by an external source using a NATO slave cable. DSC, on the other hand, proposed to warm the engine so that it could be started manually at -25 degrees F by placing a small heater that requires little battery power in the air intake manifold.

The TET found that EASI's proposed approach undesirable because at very cold temperatures it relies on an external power source that may not be available; the auxiliary starter presents the further disadvantage of adding weight and volume to the system. DSC's approach, in contrast, is self-contained, adds only one or two pounds to the system weight and virtually nothing to its volume, and enables an operator to start the engine manually at very low temperatures as long as there is a small amount of power remaining in the battery (in the event of a completely dead battery, DSC proposed to use an external power source as did EASI). The TET chairman explains that DSC's approach is superior because it provides more starting capability than EASI's

approach with minimal adverse impact on system weight and volume.

EASI responds that it is impossible to tell which offeror's approach is more reliable without actually testing the systems. In fact, EASI points out, one of the technical evaluators ranked both systems very highly in this area. Furthermore, EASI argues, it offered to test cold-starting alternatives during first article testing, and would have made any improvements feasible to meet the Army's standards. EASI concludes that the agency does not have a reasonable basis to pay a substantial cost premium for a questionable advantage in system starting capability.

We find nothing unreasonable in the agency's conclusion. While neither offeror's approach fully satisfies the solicitation requirement, it is clear that DSC's approach potentially would allow manual starting at far lower temperatures than EASI's approach; we think it is inherently reasonable to prefer a system with this superior capability. (The fact that one evaluator apparently found merit in both approaches does not change our conclusion regarding the agency's ultimate decision.) The RFP requirement for an easily transportable system provided an additional legitimate basis for the agency's preference for DSC's approach, which involves virtually no extra weight and bulk. Contrary to the tenor of EASI's argument, the agency was not required to view EASI's approach as equal to DSC's based on the possibility that it might develop a better solution to the cold-start problem during first article testing; it of course is just as possible that EASI would not be able to develop a better solution to the problem. We conclude that backup starting capability provided a proper basis for preferring DSC's approach.

#### SUCTION CAPABILITY

One concern the technical evaluators had about EASI's proposal was whether its proposed AAFARS would have sufficient suction capability, known as net positive suction head (NPSH), to avoid cavitation of the pump. According to the Army, cavitation occurs when the pump sucks in air rather than fluid; the resulting air bubbles adversely affect the pump's operation and may damage it over time. EASI's proposal contained conflicting information regarding how much suction pressure was necessary for the system to operate properly under worst-case conditions and how much was actually available; accordingly, the contracting officer asked EASI to address the discrepancy in its BAFO.

In its BAFO response, EASI acknowledged that the information in its proposal was correct. That is, the system's available suction pressure in the worst-case scenario was

less than the amount actually necessary to avoid cavitation. To remedy this defect, EASI redesigned the "cross" where the three suction hoses leading from the fuel drums intersect and lead to the single hose through which fuel enters the pump. Since the cross design causes pressure loss on the suction side of the system, EASI re-engineered the cross to minimize this loss.

In evaluating EASI's proposal, the TET was not confident that the proposed improvements to the cross design would result in sufficient NPSH to avoid cavitation. This is because EASI's cross design is a new technology that has not been proven in similar applications; the agency's evaluation of EASI's proposed approach therefore relied entirely upon analysis of the mathematical calculations the firm submitted with its BAFO. In performing this analysis, the agency found EASI had not offered data to support some of the assumptions used in its calculations, and noted that if certain assumptions changed, the pressure loss in the cross would be too great to sustain NPSH. The agency concluded that EASI had failed to show that its newly-designed system has sufficient suction capability.

EASI alleges that the assumptions used in its calculations were reasonable, and support the feasibility of its revised approach to the suction problem. Whether or not EASI is correct that its assumptions were reasonable and that its approach is feasible, the fact remains that its approach constituted new, unproven technology. As such, EASI's approach involved a risk not present in DSC's approach, which was based on proven, tested technology. It follows that the Army had a legitimate basis to rate EASI's approach less desirable than DSC's. We conclude that this, too, was a proper basis for the agency to prefer DSC's proposal.<sup>2</sup>

#### NOISE SUPPRESSION

The RFP required, with limited exceptions, that the noise produced by the AAFARS conform with MIL-STD-1474 requirements; these requirements essentially limit the noise level

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<sup>2</sup>In its final supplemental comments, EASI argues for the first time that the Army treated the two offerors unequally because it failed to consider NPSH for the auxiliary pump DSC proposed for fuel evacuation. This argument is untimely, as it was not raised within 10 working days after EASI received the agency report, the basis for the argument; we therefore will not consider it. See 4 C.F.R. § 21.2(a)(2) (1993). We note, however, that DSC's system did not rely upon any new technology that would have led the Army to question the NPSH as it did with EASI's proposed system.

to 85 decibels at the operator position and any positions likely to be occasionally occupied during typical system operation. As noted above, both EASI and DSC proposed to run the AAFARS using the same model engine. However, each offeror proposed a different way to reduce the noise impact on the operator to the required level. DSC's solution was to locate the operator control panel six feet from the engine module and away from the exhaust (the source of most of the engine noise), and to add an exhaust muffler. EASI's solution was to add an exhaust muffler and a removable noise suppression housing; EASI also proposed to obtain official waivers of the MIL-STD-1474 requirements (which would require, among other things, that operators wear hearing protection) if the housing did not sufficiently reduce the noise level.

In the Army's view, neither offeror proposed an optimal approach to the noise suppression requirement. While DSC's approach met the requirement for the noise level at the normal operator position, it did not do so for other positions that occasionally could be occupied; the Army did not accept DSC's representation that there would never be any need for the operator to leave the control panel. EASI's proposal of a removable noise suppression housing also was considered weak, however, because it must be removed and replaced in order to perform certain functions (such as connecting the air compressor for the fuel evacuation procedure). Because of the inconvenience involved in operating the unit with the housing, the TET believed that soldiers would be inclined to operate the unit without it. Further, the evaluators found that this accessory could easily be damaged during transport, thereby reducing its effectiveness, or even become lost. Finally, the Army was concerned that EASI believed obtaining a waiver of the MIL-STD-1474 requirements was an acceptable approach to meeting the noise requirement. Based on these concerns, the contracting officer concluded that DSC's proposal offered the preferable approach to the noise requirement.

Again, the agency's conclusion is reasonable. While DSC's approach would violate the noise requirement only if the operator had to leave the control panel to approach the engine (an unlikely but possible event, in the Army's view), EASI's approach carried with it the risk that the requirement would not be met at all, i.e., if soldiers did not use the housing, or it became damaged or was lost. We agree with the Army's judgment that DSC's approach of distancing the operator from the noise source, albeit simple on its face, presented the greatest possibility of meeting the noise suppression requirement for the one individual who definitely would be at risk from the noise levels. Unlike EASI's approach, it eliminates the operator's discretion to ignore the available protections.

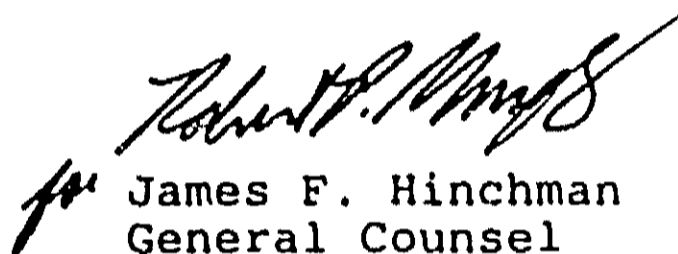


Based on all of the relative weaknesses in EASI's proposal, and the corresponding relative strengths of DSC's, the record supports the Army's conclusion that DSC's proposal was superior to EASI's.<sup>3</sup>

#### TECHNICAL/PRICE TRADEOFF

EASI asserts that the agency's technical/price tradeoff decision was flawed because it relied upon the conclusion that DSC's proposal is substantially superior when in fact the two proposals should have been considered equal. As discussed, however, we conclude that the agency reasonably determined that DSC's proposal was superior to EASI's in a number of areas. The RFP provided for award on the basis of the proposal giving the best value to the government; technical factors were considered three times more important than cost in making that determination. In view of the superiority of DSC's proposal in important, mission-critical areas, the Army's decision to pay substantially more in order to gain the benefits of DSC's technical approach was reasonable and consistent with the stated evaluation factors. See GP Taurio, Inc., B-238420; B-238420.2, May 24, 1990, 90-1 CPD ¶ 497.

The protest is denied.

  
 for James F. Hinchman  
 General Counsel

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<sup>3</sup>In addition to the technical areas discussed above, the evaluation and source selection decision show that the agency perceived DSC's proposal to be superior in some other areas which EASI has not challenged, for example, predicted mean time between failures, need for further testing to verify proposed approaches to problems, and price realism. In one area where the Army found DSC's proposal superior, that of the method of connecting the engine module to the pump module, the record does not clearly show that DSC's proposed approach was superior to EASI's. However, the record supports the agency's selection of DSC on the basis of its technical superiority in the other areas discussed.