

DUE DILIGENCE IN SOLE SOURCE CONTRACT ENVIRONMENT

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Abstract:

We are in the age of where big industries are merging and are even utilizing collaboration to ensure they are not just participating in source selection for acquisition contracts, but ultimately winning (either as the prime or sub). On October 14, 2018, military communication equipment providers Harris Corp and L3 Technologies Inc announced an all-stock merger that will create the United States' sixth-largest defense Contractor with a market value of \$34 billion (Brumpton, 2018). So, what do you do to ensure that the government can get to cost realism for negotiations especially in the situations where there is a follow-on contract that must be sole source? Are there better contract strategies for these follow-on contracts?

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Business Strategy:

Sole Source contract is an issue we have with many of our programs. A recent example, we had a current contract that covered the development phase and the first three lot purchases, which was awarded under competition between two Contractors. We knew that the follow-on production contract had to be sole source due to technical requirements and large quantity demand based on inventory objective.

First, cost analyst had to see what the unit cost for these assets would be if we were to bid at the planned pricing band. It was important to find the economic order quantity (EOQ). This is where the company is utilizing their facility to the maximum efficient amount and ultimately getting the best price possible based on that quantity. So, we had to consider the size of the facility, fixed costs, if there are any non-recurring costs going to occur if we were to increase quantity requirement, and what would be the new unit cost. By requesting production representative assets before the first lot buy in order to start executing operational testing earlier, we were able to discover the Contractor's estimated unit price of 20 assets and the fixed costs associated with starting the production line with this proposal. Basically, these assets cost more than the government was willing to pay, so it was best to wait for the first lot, (which was competitive pricing). But we were able to figure out with the data during development and this proposal how much do we predict the assets will cost in the fourth and fifth lot.

We could see the estimated costs for the first 3 lot purchases based on the following: original estimates during development, the cost of the first unit produced (from the proposal of the 20 assets), line loss, testing inefficiencies, Contractor's expected profit rate, and goal learning rate. It was determined these lots were underbid in order to ensure winning the contract, (which by the way the Contractor confirmed our assumptions down the road). It was expected that the fourth and fifth lot buys unit cost would be 15% higher compared to the third lot if we stayed with the planned pricing band.

Below (Figure 1), is a graph that shows an example of how this data looks. The cost analyst calculated unit prices for more pricing bands by utilizing the trend rate curve (also known as quantity discount), applied line loss based on Contractor's inputs during lot 1, factors (such as program management) to the learning curve, and added NRE costs provided by Contractor. It was also important to understand the entire manufacturing operations especially the following: the goal rate per shift (number produced), number of personnel per shift, if there are any bottlenecks in the process, and what process improvements have been put in place to increase efficiency. It was very helpful that our team was involved from the beginning and there were open conversations between the Government's and Contractor's engineers. Based on the unit

price calculations and the information about facility capacity, purchasing approximately 5,400 assets in each lot would be ideal for the government.

So, the Government contracting office added the additional pricing bands to the request for proposal. It was discovered later that we estimated less than 2% off from the proposed pricing. So, now we confirmed that we know how the Contractor estimates, but have we discovered cost realism yet? Does government have a better understanding of how the Contractor estimates?

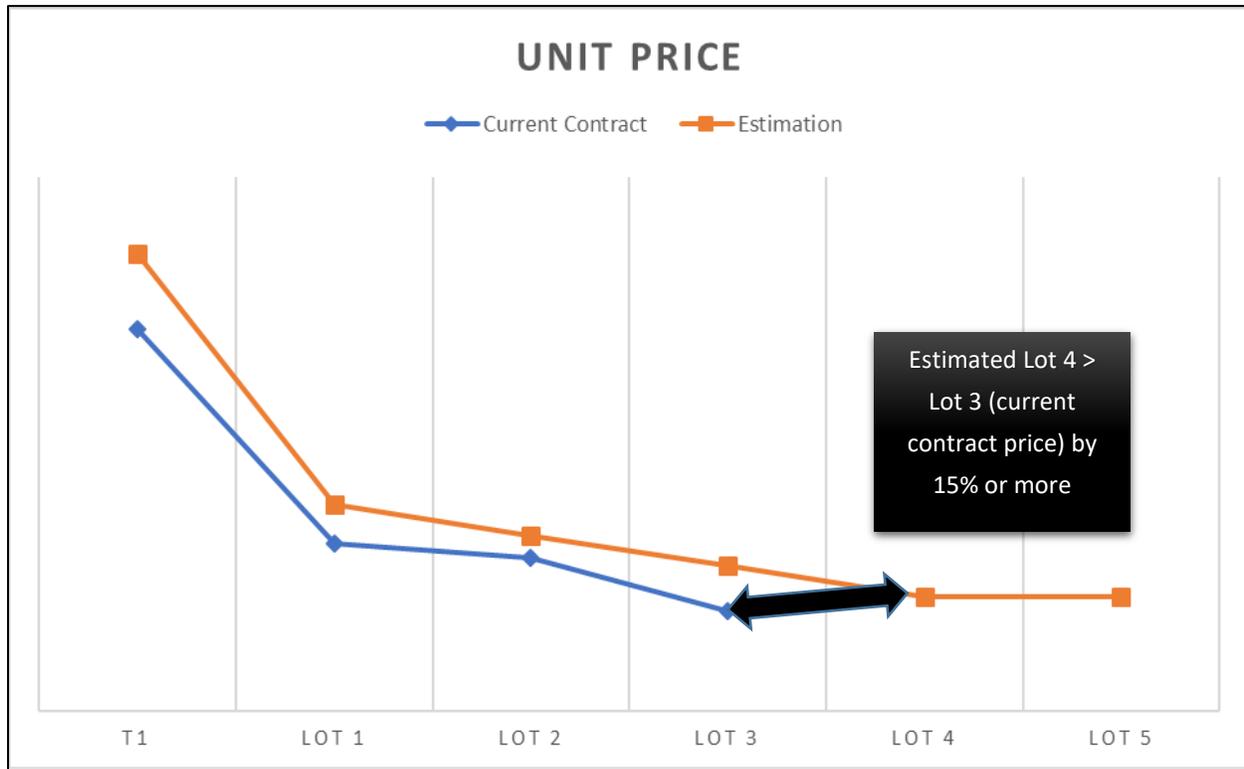


Figure 1 Unit Price Estimated vs Contract

Data Collection:

Our programs tend to receive proposals in PDF and/or Microsoft Word document format. This makes it difficult for all involved in the technical evaluation process. Analysts must spend hours if not months trying to hunt down the basis of estimate and figure out how the Contractor calculated their hours. To solve this, the Request for Proposal to our Contractor also included a template, in Excel format, of how the government would like to receive the cost data, basis of estimate narratives to include intercompany/subcontractors labor, all bill of materials (BOM), and narrative explaining how the hours were calculated. An example of basis of estimate (BOE)

narrative template can be seen below (Figure 2 & 3). It was important to ensure the format included areas that are essential for the pricing and technical evaluation teams. We also brought the Defense Contract Audit Agency (DCAA) team on board right from the beginning. We were then able to contact the Defense Contract Management Agency (DCMA) team members. Some were located at the Contractor’s facility. With the help of the layout of the cost data and narratives, we were able to help scope their audit work to focus on areas we were most concerned about. The formatting of the data proved to be a crucial improvement to the process, especially since the team only had a week until the initial fact-finding meeting.

PROPOSAL TITLE:				PAGE:	1 OF 2	REV:
CLIN:		WBS ITEM DESCRIPTION:			WBS NUMBER:	
PREPARED BY	EXT	DATE	ORGANIZATION NAME	SOW PARA NUMBER		
APPROVED BY	EXT	DATE	ORGANIZATION NAME	DATA ITEM NUMBER		
TASKS	DESCRIPTION OF WORK TO BE PERFORMED TO SATISFY SOW/DATA ITEM NUMBER					
	<p>Assumptions:</p> <ol style="list-style-type: none"> 1. 2. 3. 4. <p>Artifacts Created or Updated:</p>					

Figure 2 BOE Narrative Page 1

PROPOSAL TITLE		WBS ITEM DESCRIPTION:		PAGE: 2 OF 2	REV:
CLIN:				WBS NUMBER:	
PREPARED BY	EXT	DATE	ORGANIZATION NAME	SOW PARA NUMBER	
APPROVED BY	EXT	DATE	ORGANIZATION NAME	DATA ITEM NUMBER	
TASKS		BASIS FOR ESTIMATE (Be specific: Identify source of data and/or rationale [history, judgement comparisons]; summarize material cost or Source Data (i.e., activity, charge number, historical database, etc. - Include hrs or dollars):			
		Rationale for why the Source Data is applicable for this estimate:			
		Any calculations made including Complexity Factors:			
		If Complexity Factor(s) applied, provide the rationale for how the Complexity Factor was derived:			

Figure 3 BOE Narrative Page 2

Fact-Finding:

Having the knowledge of manufacturing line process, exchanging ideas for improvements, and understanding the bottlenecks in the process were very helpful when having discussions with Contractor's technical team. The program management reviews (PMR) included key items like test reductions, current manpower, obsolescence issues, and availability of materials.

Since the template included all essential items for technical evaluation, the team was able to identify gaps and could ask all questions in just one meeting. Additionally, the audit team was invited to fact finding meeting and got to hear in person Contractor's reaction to questions from program office. There were times the questions the program office asked drove the audit teams to ask some key issues and concerns they had. Just by questioning their learning rate this forced the Contractor's estimator to go back and double check, which ultimately the rate went from 95% to 93%. By asking the right questions concerning the Contractor's basis of estimate &

how they applied learning, the program office received all actuals especially since the lead for the DCAA audit team was present at the fact-finding meeting.

Technical Evaluations:

Having the actuals (of all labor charges in their WBS format), proved to be essential during the analysis process. During the analysis and technical evaluation with engineers, it became apparent of the double counting of required labor and the overlap when coming the entire BOE schedule for all tasks and looking at how support was calculated for each task. The proposed hours were formatted to show the entire contract by calendar year and found management manpower versus accepting their method of applying 10% factor. We discovered in many cases; management was doubled if not quadrupled in the Contractor's proposed hours compared to current manpower. It is important to look at the data as full time equivalent and compare to actuals if available (Figure 3).

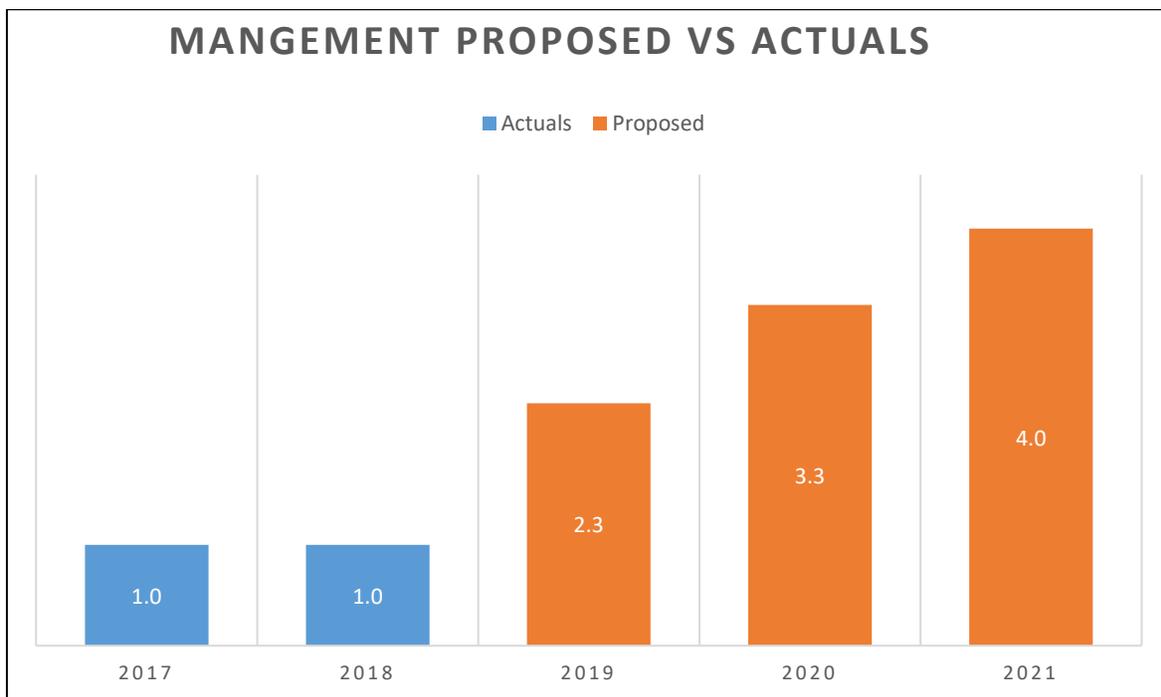


Figure 4 Management Analysis

Additionally, by taking the estimated touch labor hours for the first three lots and compare them to the actuals, the team could see that it mirrored closely to the Contractor's current manpower. It was important to understand the production touch labor, especially in this case, it was a main cost driver. One crucial lesson learned is to capture the percentage of touch labor

versus automation throughout the entire Production phase. The learning rate tends to be higher once a Contractor's facility is mature and is ready to go into full-rate production. It is also beneficial to annotate test reductions & other key aspects of lean manufacturing. The government team walked the line to get a better understanding of the manpower on the facility floor and see if the proposed numbers have realism.

At first, it was difficult to receive intercompany detailed data, but management pushed to ensure we receive what we need and in Excel format. We only received the intercompany dollar amount by year and total in the beginning. Once received the team was able to perform pivot analysis and get the big picture of hours in order to get ready for technical evaluations.

Also, this data was delivered to the audit team. It was also interesting to discover the dollar amount by year shifted a little to the right compared to the cost data received from the Prime Contractor. It was apparent from the initial analysis, that the team would need to take time to look at the hours and narratives for the intercompany tasks. With the BOE narratives, delivered by Contractor, the team was able to layout entire Manufacturing Process and match each section up with proposed hours. As expected, there was a lot of intercompany hours in an area that is supposed to include automation and most of the work is completed at the main facility. Basically, just understanding who performs what in each portion of the process is essential. Also, it is important to have a good understanding of how the basis is calculated.

With the data being formatted, initial analysis completed, and answers from fact finding, we were able to provide DCAA and DCMA a good scope and certain areas to specifically investigate. Having the data in Excel and organized helped the audit team to focus on checking the BOE and spend less time on the initial analysis. They even completed the audit in record time and the program office received essential information. For example, we got detailed information about Contractor's testing and inspection processes to include batch quantities, hours required, and type of workers involved (labor category). The audit team members went in person to collect a lot of this data. Audit team shared draft reports to ensure government technical evaluation was completed with accurate data and ultimately killed lag time.

Additionally, there were many discoveries when it came to the BOM. This is important since in many cases, material cost tend to be a major cost drive (over 50% of the total cost for acquisition end item). Thanks to the template, it was easy to pivot data, visual the highest costs, and find excess in proposed material. There were items that were not required. For example, we had trainers that do not require functionality, so there no need for expensive items like electronics. The trainer's unit cost was cut in half. Interesting thing is, the incidents concerning calculations that led to excess and/or not required items happened in multiple cases. Another good trick is to see total actuals items purchased do to package amounts, because there is a possibility that the Contractor could mention the profit rate is due to risk. But the risk could be

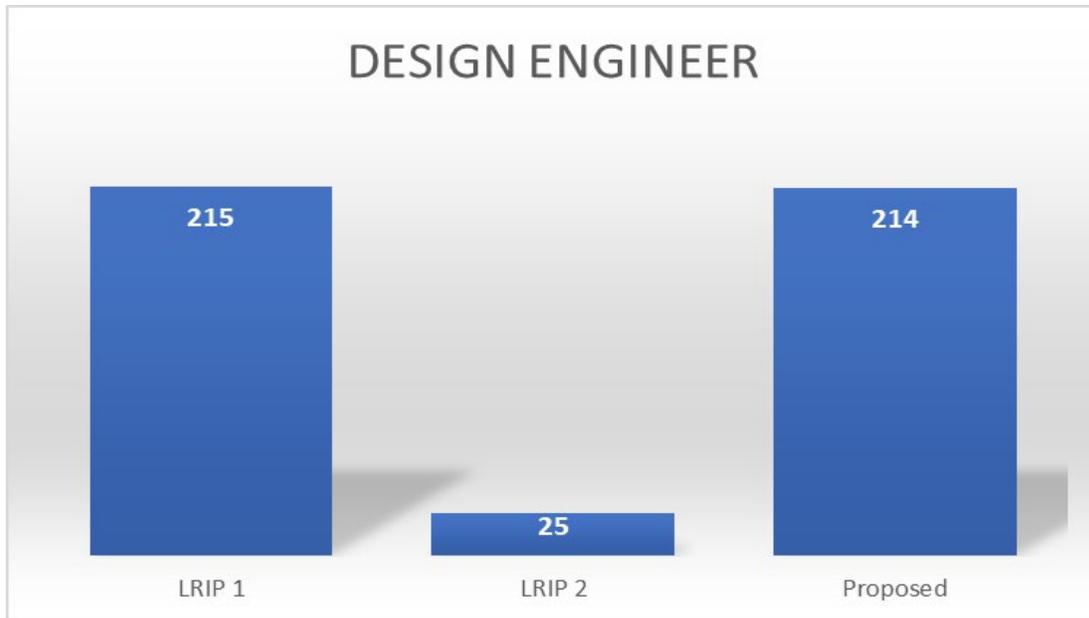


Figure 6 Support Proposed vs Actuals

Way Forward & Closing:

Upon attending recent training events, it has become apparent the exchange of proposal experience is not occurring often enough. This is the only way to get depth and breadth of experience in multiple situations. Such as, key business and financial advisors are not being brought in from the beginning. This can result in lost opportunities such as improvements in business acquisition strategy. This process can become frustrating as it is, so the team needs to work together to ensure everyone understands the concepts. Our team fortunately had open discussions to what was occurring and why it was important. This ultimately led to buy in from each member of the team and a strong case for leadership buy in. There are also concerns when people are not being afforded the opportunity to be a part of source selections and technical team efforts. It is essential our contracting and financial personnel have exposure to these multiple environments. While our team was able to effectively communicate and bring new teammates up to speed quickly without losing efficiency or information; historically, it is a problem across the board.

Additionally, there is a need to ensure all key personnel are involved early in the process (e.g. DCMA). And speaking of team, it will be important to design meetings and evaluations in sprints. Time is precious especially if you have team members are working multiple programs. Our team identified deadlines, point of contacts, and expectations from the beginning. Being prepped before receiving proposal saved time for the government activities.

We also learned that having an analyst in the middle of the process ensured the communication between the program office and contracting office was successful. There can be confusion between expectations from data received from Contractor and the rationales from the government engineers. Ultimately the government award a contract with a better position to buy more assets for the warfighters, because of implementing better contract business strategies, performing preparatory work, teamwork, and leadership support.

Contributors:

Name	Position
Jennifer Hattabaugh	Program Manager
Dave Underwood	Program Manager
Melody Rodgers	Program Manager
Norman Coker	Lead Engineer
Jon Westphal	Manufacturing Engineer
Ron Huzzard	Program Management Support
Chris Laffitte	Contracting Officer
Todd Davis	Contracting Officer
Laura Luttrell	Contracting Officer
Johnny Tubbs	Configuration Management
Judy Davis	Chief Financial Officer
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Bios:

Ms. McNeal is currently an associate with Booz Allen Hamilton as Senior Cost Analyst at NASA Ames Research Center. While Active Duty, she was an Aviation Electrician on F/A-18's and Mission Leader on Personal Security Detachment team for senior leadership escort & recovery missions while deployed in support of Operation Enduring and Iraqi Freedom. As a Civilian, she spent the past 9 years performing quantitative, qualitative, and business analyses for U.S. Air Force and Army.

Ms. Bohannon is currently a civil servant working at Eglin Air Force Base as a Financial Specialist. For the last 15 years, she served in roles as a Financial and Budget Analyst working with Operations & Maintenance; Military Construction; Research Development Test & Evaluation; and Procurement funding. Previously, she was a buyer for Air Force Research Laboratories. While Active Duty, she was the 18th Maintenance Group Resource Manager and deployed in support of Operation Enduring Freedom.

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