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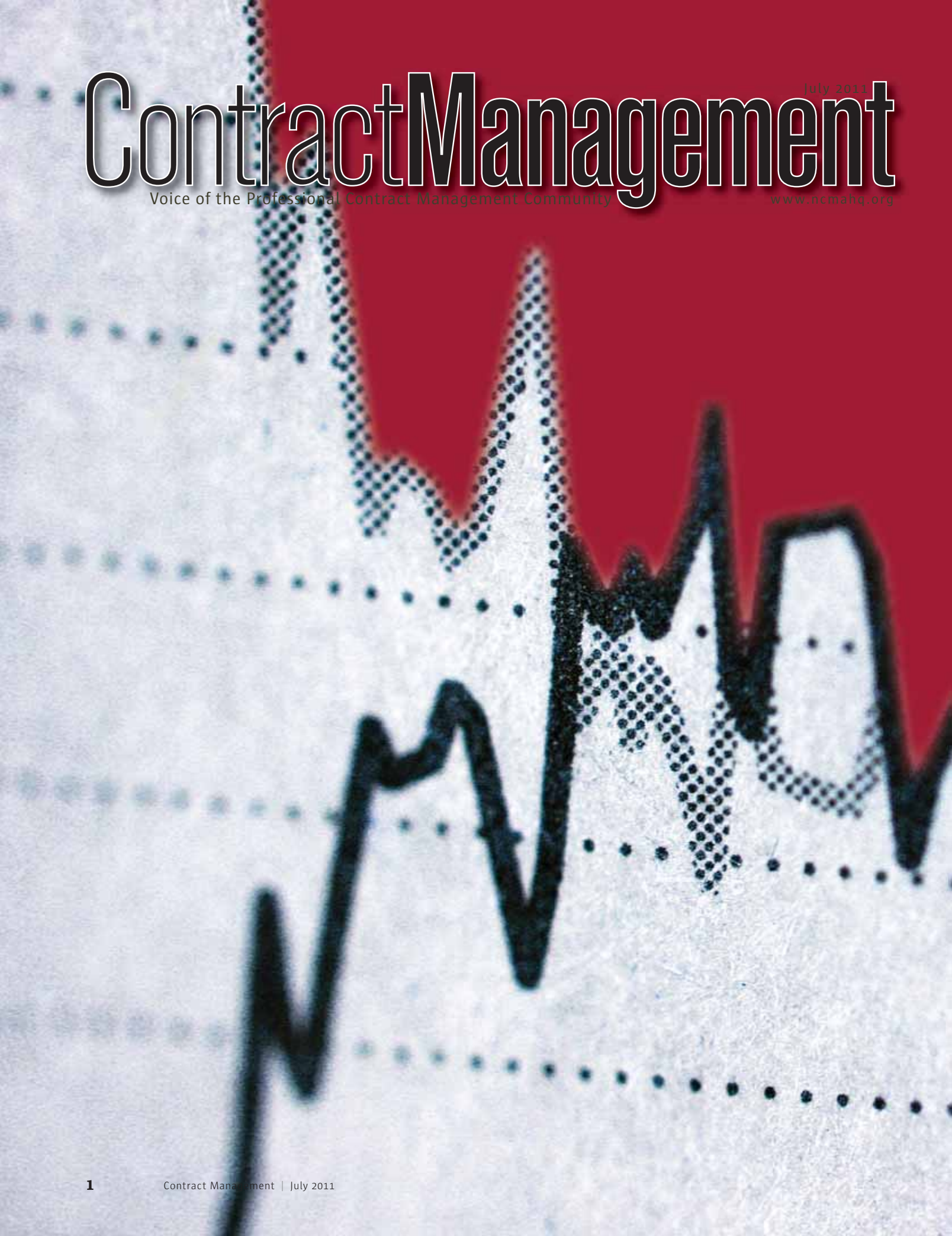
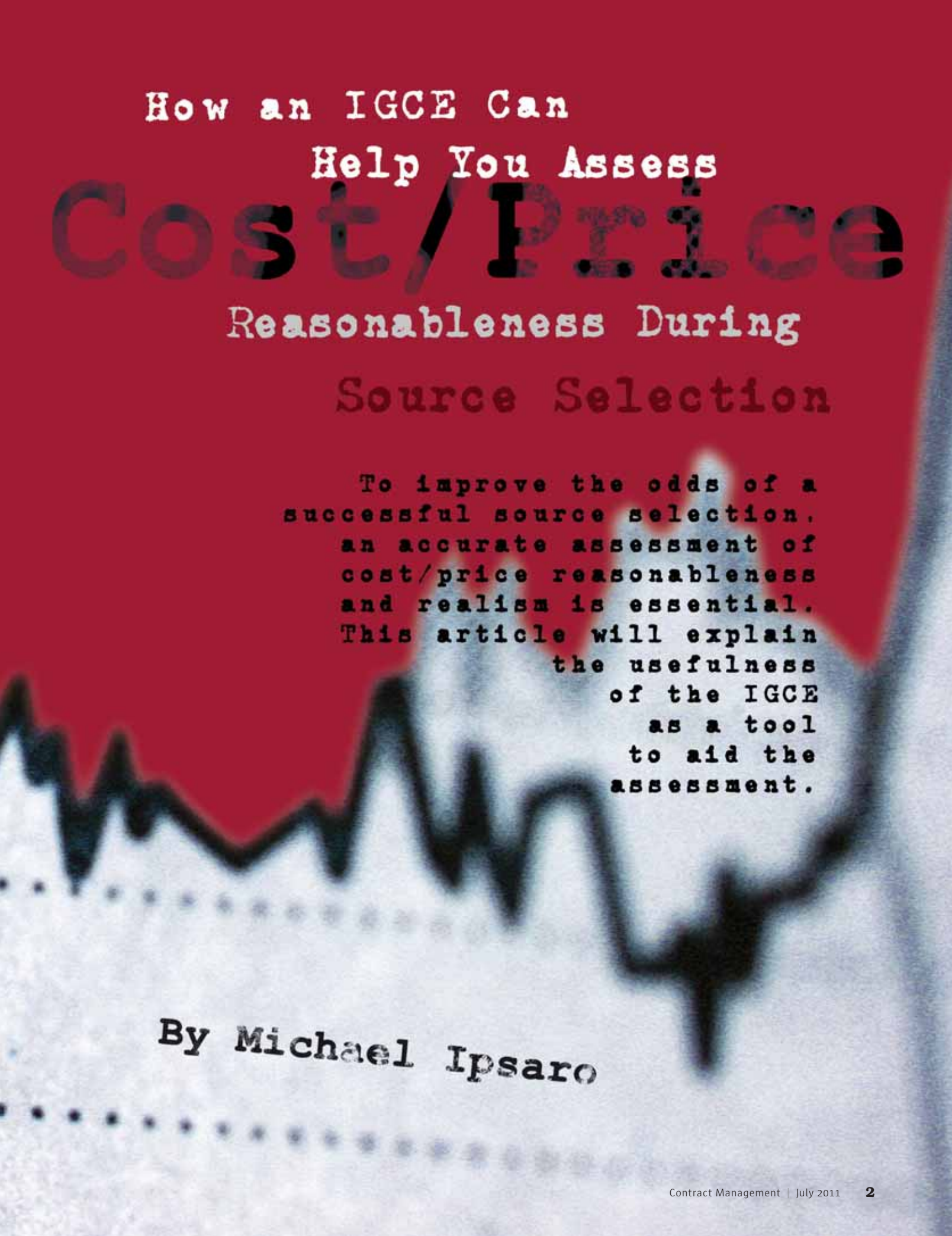


How an IGCE Can Help You Assess Cost/Price Reasonableness During Source Selection



To improve the odds of a successful source selection, an accurate assessment of cost/price reasonableness and realism is essential. This article will explain the usefulness of the IGCE as a tool to aid the assessment.

By Michael Ipsaro

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resource allocations, planning
future cost overruns, and avoiding
contract administration). Ultimately,
this leads to greater stewardship
of taxpayer dollars.

"Realistic" and "reasonable" are often used interchangeably. This article will refer to "realistic" in the context of prices not being understated, and "reasonableness" in the context of prices not being overstated.

The requirement for reasonableness comes from *Federal Acquisition Regulation* (*FAR*) 15.4, which states: "Contracting officers must purchase supplies and services from responsible sources at fair and reasonable prices." It's required in order to ensure that the government acquires goods and services economically. In FAR 15.4, there are many ways to establish the reasonableness or realism of the offered prices, including cost and price analysis. Cost analysis generally involves evaluating the reasonableness of individual cost elements. Price analysis should be used to verify that the overall price offered is fair and reasonable.

There are many tools available for the acquisition and program management professional when performing cost and price analysis. For example, reasonableness may be derived through "tried and true" competition. There is high certainty a competitive market will render a reasonable price range. Also, it could be compared with a commercial catalog or published price list, such as a General Services Administration Schedule. A comparison with previous procurements of a similar scope may be used if scaled appropriately. (Of course, it would have to be assumed the previous procurement was fair and reasonable, based on a factor such as sufficient competition.) Then there's the IGCE.

IGCE—A Key to the Whole Procurement Process

The IGCE can help support the determination of reasonableness and realism by providing a frame of reference for decision-makers when evaluating proposals during the source selection process. Stepping back further, the IGCE can be seen as part of due diligence performed throughout the broader procurement process, including the pre-award and source selection phases. Greater due diligence often improves the odds of deriving cost/price realism and reasonableness, resulting in a more informed sourcing decision.

In the pre-award phase, the program management office or requirer prepares a procurement request package to obtain the capability to meet a mission need. Key components of the procurement request package are the requirements document (e.g., statement of work), market research results, and the IGCE. If due diligence is performed with these efforts, then it will likely help lead to identifying useful technical evaluation criteria for the source selection plan. In addition, they (specifically, the IGCE) provide a type of cost/price reasonableness/realism criteria for evaluating the price proposal. Further, the IGCE helps answer the question of whether sufficient funds will be available to cover the requirement. This is an important aspect of proper due diligence. An accurate IGCE can help plan and allocate resources effectively and appropriately, thereby minimizing a risk of anti-deficiency.

IGCE in a Source Selection Scenario

In order to illustrate a scenario when factors do not yield a sense of cost/price realism, a sample case will be examined. This case will involve using the IGCE within a source selection scenario. For simplicity, the amount of information included will be streamlined. In the applicable sections of the solicitation and the sample proposals, only a subset of necessary information pertaining directly to the cost/price realism/reasonableness will be included. So, for example; Sections B, C, L, and M of the solicitation will be in the first part; followed by the IGCE (retained "in-house"); and finally, the contractor's technical and cost/price proposals are prepared in response to the solicitation.

Sample Case

The following is a review of the sample technical and cost/price proposals against the solicitation (including Sections B, C, L, and M) requirements and the IGCE. Factors or pitfalls that do not yield a sense of cost/price realism will also be examined.

The following represents a solicitation, streamlined for this case, and the associated IGCE for a new "safety training services" contract. The scope contains the following elements of work, as stated in Section C below. For simplicity, other direct costs (ODCs) were excluded from this case. Further, loaded rates were used.

SOLICITATION

SECTION B—SUPPLIES OR SERVICES AND PRICES/COSTS:
The scope of work shall be performed over a 12-month base period of performance (October 1, 2011–September 30, 2012). A fixed labor hour/time and materials contract type will be used for this base period. Please fill in the table (see **FIGURE 1** on page 5).

SECTION C—STATEMENT OF WORK:
In accordance with the "Analysis Design Development Implementation Evaluation" (ADDIE) Training Model, the contractor shall perform the following tasks and provide the following deliverables:

- Task 1—The contractor shall analyze objectives, goals, and requirements. The contractor shall clarify the instructional problem, establish instructional goals and objectives, and identify the learning environment and the learner's existing knowledge and skills.
- Task 2—The contractor shall design a systematic, logical, orderly

Contract Line Item Number (CLIN)	HOURS	$$
CLIN 1—DIRECT LABOR		
Sub-CLIN 1—Task 1 Analyze		
Sub-CLIN 2—Task 2 Design		
Sub-CLIN 3—Task 3 Develop		
Sub-CLIN 4—Task 4 Implement		
Sub-CLIN 5—Task 5 Evaluate		
CLIN 2—ODC	n/a	
Total		

FIGURE 1.

method of identifying, developing, and evaluating specific strategies designed to achieve the project's goals. The contractor shall provide an instructional design plan that is detailed and executable.

- Task 3—The contractor shall develop and assemble the needed content that was architected in the design phase. The contractor shall use tools such as storyboards and graphics to develop the content. A small amount of distributed learning is expected for this base period. The contractor shall develop and integrate technologies. The contractor shall test the training product using debugging procedures in accordance with industry standard XYZ. If requested by the client, the contractor shall revise the training products according to the feedback received from testing.
- Task 4—The contractor shall develop and implement a procedure for training the facilitators and training participants. The facilitators' training should focus on the course curriculum, learning outcomes or outputs, method of delivery, and evaluation procedures. The training for the participants (students) includes training them on new tools and registration procedures. In addition, the contractor shall deploy the required materials (e.g., binders, tools, CD-ROMs, and software) and deliver a functionally tested training product.
- Task 5—The contractor shall evaluate the training services and products as a whole and in part. To that end, the contractor shall perform formative and summative evaluation. The contractor shall perform formative evaluation at each phase of the ADDIE process. Summative evaluation shall consist of tests for specific items and for providing feedback from identified users.
- Task 6—The contractor shall perform project management of the contract. (Deliverable: monthly project status report.) (See **FIGURE 2** on page 6.)

SECTION L—INSTRUCTIONS, CONDITIONS, AND NOTICES OF OFFERORS (Volume X—Price Proposal)

- **L1.** To aid in evaluating reasonableness and realism associated with the offeror's proposal, the offeror shall submit a breakdown of direct labor cost by labor category and labor rate on a time and materials/labor hour basis for the period of performance listed in Section B of the solicitation. Direct labor or levels of effort should be reflected as labor hours and not as a percentage of a person's time.
- **L2**. The price proposal shall reflect the contractor's fully loaded offsite rates applied to each of the six technical areas stated in Section C that it will address in the technical proposal. If applicable, rates in the price proposal should reflect escalation, along with supporting methodology.
- **L3**. The government may use an IGCE for determining price reasonableness and completeness. The offeror's prices provided in Section B shall include all services to be delivered under the contract.
- **L4**. All approved travel will be an acceptable item to be invoiced. *Approved travel* is defined as travel required in support of the contract and invoiced in accordance with the *Federal Travel Regulations*. In addition, the contractor may invoice for all allocable and allowable ODCs, such as reproduction, in accordance with FAR 52.232-7, "Payment under Time and Materials and Labor-Hour Contracts." The government will not consider allowable the purchase or lease of equipment and/or software to be reimbursed under ODCs for this contract.

Deliverable	Link to Statement of Work Task
Project Plan	6
Monthly Status Report	6
Concept of Operations	1
Instructional Design Plan	2
Training Curriculum (5–7 courses)	3
Test Plan	3
Test Report	3
Implementation Procedure	4
Deployment Report	4
Evaluation Reports	5

FIGURE 2.

SECTION M—COST EVALUATION FACTORS FOR AWARD

- **M1**. The offeror is expected to establish a reasonable relationship among price/cost elements listed in Section B. An evaluation of the offeror's cost proposal will be made to determine if the cost is realistic for the work to be performed, reflects a clear understanding of the requirements, and is consistent with the technical proposal. Reasonableness determinations will be made by determining if competition exists, comparing offeror prices and labor rates with comparable Federal Supply Schedules, and by comparing prices with the IGCE.

- **M2**. The proposal will be evaluated for cost/price realism. A proposal that is unrealistic in terms of technical level of effort or unrealistically low in cost and/or price will be considered to reflect a lack of technical competence or inability to comprehend the complexity and risk of contract requirements.

Safety Training Services IGCE (NOT disclosed as part of solicitation)
Refer to **FIGURES 3, 4,** and **5** on pages 69–70. The following technical and cost/price proposals were received.

CONTRACTOR TECHNICAL PROPOSAL

The contractor will use the ADDIE model to deliver training as follows:

- Task 1 (A)—The contractor will analyze objectives, goals, and requirements. The contractor will clarify the instructional problem, establish instructional goals and objectives, and identify the learning environment and learner's existing knowledge and skills. (One senior designer and two systems analysts at 400 hours.)

- Task 2 (D)—The contractor will deliver an instructional design plan that is detailed and executable. It will do this by applying the expertise required. (See price proposal for specific labor mix for this task.)

- Task 3 (D)—The contractor will provide senior instructional designers and developers to create content that was architected in the design phase. The contractor will use tools such as storyboards and graphics to do it. It will employ the right labor mix of experienced developers to do this. In addition, the contractor shall deliver a functionally tested training product. It will do this through the use of many talented programmers (at least three) who will employ an innovative approach using a significant amount of distributed learning. (See price proposal for specific labor mix for this task.)

- Task 4 (I)—The contractor will develop and implement a procedure for training the facilitators and training participants. It will do this by delivering training for participants (students) including new tools and registration procedures. In addition, the contractor will deploy required materials (e.g., binders, tools, CD-ROMs, and software). (One training implementation specialist at 400 hours.)

- Task 5 (E)—The contractor will evaluate the training services and products as a whole and in part. To that end, the contractor will employ its standard processes to perform formative and summative evaluation. (One quality assurance person at 400 hours.)

- Task 6—The contractor will perform project and financial management of the contract. (Three project managers at 400 hours.) (Refer to **FIGURES 6, 7,** and **8** on pages 8 and 9.)

FIGURES 9 and **10** on pages 72 and 73 identify deltas based on evaluating the IGCE and proposals (technical and price). Specifically, the first figure identifies deltas at a summary level. The second figure reflects specific observations of note (highlighted) based on a review of the technical proposal, price proposal, and IGCE. Next, these highlighted items are explained as potential factors or elements that likely yield a price proposal that is not realistic or reasonable. These explanations would be used by the price evaluation team of the source selection team to support their conclusions regarding price reasonableness/realism.

Level of Effort Per Task Cross-checked with industry averages and similar efforts at another agency Average level of effort based on task analysis performed by IPT							
Labor Category	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Task 5**	**Task 6**	**Total Hours**
	Analyze	**Design**	**Develop**	**Implement**	**Evaluate**	**PM**	
Project Manager						1,400	1,400
Senior Instructional Systems Design Engineer	200	500					700
Instructional Systems Design Engineer	400	1,000					1,400
Senior Instructional Developer	100	200	600				900
Instructional Developer			3,400				3,400
Computer Programmer			400				400
Graphics Designer		200	400				600
Senior Quality Assurance Specialist	50				1,920		1,970
Quality Assurance Specialist					1,920		1,920
Training Implementation Specialist	200			1,720			1,920
Total	**950**	**1,900**	**4,800**	**1,720**	**3,840**	**1,400**	**14,610**
FTE Count	**0.49**	**0.99**	**2.50**	**0.90**	**2.00**	**0.73**	**7.61**

FIGURE 3.

Based on an evaluation of the sample contractor proposals against the solicitation and the IGCE, several factors or observations are noted that suggest a high probability the cost proposal does not yield a sense of cost/price reasonableness and realism.

- Cost realism:
  - Proposal does not reflect clear understanding of requirements,
  - Price proposal not consistent with the technical proposal.
- Cost reasonableness:
  - No competition (only one vendor proposed, IGCE importance magnified even more for assessment);
  - Offeror's prices/labor rates not comparable with Federal Supply Schedule rates in IGCE;
  - Significant variance from IGCE tolerance (within +/- 8 percent of IGCE). (Refer to **FIGURE 11** pg 11-12.) The next time someone says he or she is struggling to determine the reasonableness and realism of a cost/price proposal, you can recommend using the IGCE. An IGCE facilitates due diligence throughout the procurement process and improves the probability of acquiring capability in the most economical way. **CM**

Independent Government Cost Estimate								
Labor Category	Labor Rate	Task 1 Analyze	Task 2 Design	Task 3 Develop	Task 4 Implement	Task 5 Evaluate	Task 6 PM	Total Price
Project Manager	$175	-	-	-	-	-	$245,000	$245,000
Senior Instructional Systems Design Engineer	$170	$34,000	$85,000	-	-	-	-	$119,000
Instructional Systems Design Engineer	$115	$46,000	$115,000	-	-	-	-	$161,000
Senior Instructional Developer	$150	$15,000	$30,000	$90,000	-	-	-	$135,000
Instructional Developer	$115	-	-	$391,000	-	-	-	$391,000
Computer Programmer	$115	-	-	$46,000	-	-	-	$46,000
Graphics Designer	$90	-	$18,000	$36,000	-	-	-	$54,000
Senior Quality Assurance Specialist	$130	$6,500	-	-	-	$249,600	-	$256,100
Quality Assurance Specialist	$105	-	-	-	-	$201,600	-	$201,600
Training Implementation Specialist	$100	$20,000	-	-	$172,000	-	-	$192,000
Total		**$121,500**	**$248,000**	**$563,000**	**$172,000**	**$451,200**	**$245,000**	**$1,800,700**

FIGURE 4.

General Assumptions	Value	Basis/Source of Estimate
Location of place of performance.	Contractor facility	Per statement of work, Section F; Paragraph #3
Work week, month, year.	40 hrs; 160 hrs; 1,920 hrs.	Standard work week/month/year
2,080—80 hrs/2 wks (vacation); 80 hrs/2 wks for holidays		
Technical level of effort (high, average).	High, average, low range	Based on job task analysis identified in statement of work combined with research of similar efforts (scaled to adjust for differences) performed. Job task analysis conducted via integrated process team in which IGCE preparer worked with engineers. Range values used to perform quick sensitivity analysis. Statistical may be used in future as cost estimating relationships are studied.
Source(s) of labor categories and rates.	See rates in detail worksheet	Used average "loaded" labor rates between General Services Administration Schedule XYZ and agency BPA contract. Reconciled labor category differences between two vehicles. Used contractor site rates.

FIGURE 5.

Company ABC Price Proposal			
Contract Line Item	**HRS**	**FTE**	**PRICE**
CLIN 1 – Analyze	875	0.5	$91,500
CLIN 2 – Design	1,425	0.7	$135,250
CLIN 3 – Develop	5,315	2.8	$475,400
CLIN 4 – Implement	3,835	2.0	$400,400
CLIN 5 – Evaluate	75	0.04	$15,000
CLIN 6 – PM	2,480	1.3	$466,000
Total Labor	**14,005**	**7.3**	**$1,583,550**

FIGURE 6.

Price Proposal Supporting Detail/BOE										
Direct Labor (LCAT)	**Rate**	**Hours (Level of Effort)**							**FTE**	**Basis of Estimate (BOE)** Assumption (one person year = 1880 hrs)
		Task 1 (A)	**Task 2 (D)**	**Task 3 (D)**	**Task 4 (I)**	**Task 5 (E)**	**Task 6 (PM)**	**Total Hours**		
Program Manager	$200	75	75	75	75	75	1,880	2,255	1.2	Based on SOW interpretation
Financial Analyst	$150	0	0	0	0	0	600	600	0.3	Prepare financial reports
SR Instructional Systems Design Engineer	$165	0	0	0	0	0	0	0	0.0	Not needed for SOW requirements.
Instructional Systems Design Engineer	$90	100	400	0	0	0	0	500	0.3	Based on SOW requirements
SR Instructional Developer	$150	0	0	100	0	0	0	100	0.1	Minimal effort required.
Instructional Developer	$95	500	500	1,000	0	0	0	2,000	1.0	Requirements to be met by using (5) developers
Computer Programmer	$85	0	150	3,840	0	0	0	3,990	2.1	
Graphics Designer	$80	0	300	300	0	0	0	600	0.3	
SR QA Specialist	$130	0	0	0	0	0	0	0	0.0	Not needed for SOW requirements.
QA Specialist	$105	0	0	0	1,880	0	0	1,880	1.0	
Training Implementation Specialist	$100	200	0	0	1,880	0	0	2,080	1.1	
Direct Labor		**875**	**1,425**	**5,315**	**3,835**	**75**	**2,480**	**14,005**	**7.3**	**Reflect onsite rates**

FIGURE 7.

Direct Labor (LCAT)	Rate	Price Per Task						
		Task1 (A)	Task 2 (D)	Task 3 (D)	Task 4 4 (I)	Task 5 (E)	Task 6 (PM)	Total Hours
Program Manager	$200	$15,000	$15,000	$15,000	$15,000	$15,000	$376,000	$75,000
Financial Analyst	$150	$0	$0	$0	$0	$0	$90,000	$90,000
SR Instructional Systems Design Engineer	$165	$0	$0	$0	$0	$0	$0	$-
Instructional Systems Design Engineer	$90	$9,000	$36,000	$0	$0	$0	$0	$45,000
SR Instructional Developer	$150	$0	$0	$15,000	$0	$0	$0	$15,000
Instructional Developer	$95	$47,500	$47,500	$95,000	$0	$0	$0	$190,000
Computer Programmer	$85	$0	$12,750	$326,400	$0	$0	$0	$339,150
Graphics Designer	$80	$0	$24,000	$24,000	$0	$0	$0	$48,000
SR QA Specialist	$130	$0	$0	$0	$0	$0	$0	$-
QA Specialist	$105	$0	$0	$0	$197,400	$0	$0	$197,400
Training Implementation Specialist	$100	$20,000	$0	$0	$188,000	$0	$0	$208,000
Direct Labor		**$91,500**	**$135,250**	**$475,400**	**$400,400**	**$15,000**	**$466,000**	**$1,583,550**

FIGURE 8.

Delta Between IGCE and Contractor Price Proposal									
Contract Line Item (CLIN)	IGCE			Proposal			Delta		
	HRS	FTE	Dollars	HRS	FTE	Dollars	HRS	Dollars	%
CLIN 1 – Analyze	950	0.5	$121,500	875	0.5	$91,500	-75	$(30,000)	-25%
CLIN 2 – Design	1,900	1.0	$248,000	1,425	0.7	$135,250	-475	$(112,750)	-45%
CLIN 3 – Develop	4,800	2.5	$563,000	5,315	2.8	$475,400	515	$(87,600)	-16%
CLIN 4 – Implement	1,720	0.9	$172,000	3,835	2.0	$400,400	2,115	$228,400	133%
CLIN – Evaluate	3,840	2.0	$451,200	75	0.0	$15,000	-3,765	$(436,200)	-97%
CLIN 6 – PM	1,400	0.7	$245,000	2,480	1.3	$466,000	1,080	$221,000	90%
Total Labor	**14,610**	**7.6**	**$1,800,700**	**14,005**	**7.3**	**$1,583,550**	**(605)**	**$(217,150)**	**-12%**

FIGURE 9.

Direct Labor (LCAT)	Labor Rate			Hours (Level of Effort)												Total Hours		Total Dollars		
				Task 1 – Analyze		Task 2 – Design		Task 3 – Develop		Task 4 – Implement		Task 5 – Evaluate		Task 6 – PM						
	Prop	IGCE	Delta	Prop	IGCE	Prop	IGCE	Prop	IGCE	Prop	IGCE	Prop	IGCE	Prop	IGCE	Prop	IGCE	Prop	IGCE	Delta
Program Manager	$200	$175	13%	75	0	75	0	75	0	75	0	75	0	1,880	1400	2,255	1400	$451,000	$245,000	84%
Financial Analyst	$150	n/a		0	0	0	0	0	0	0	0	0	0	600	0	600	0	$90,000	$0	100%
SR Instructional Systems Design Engineer	$165	$170	-3%	0	200	0	500	0	0	0	0	0	0	0	0	0	700	$-	$119,000	-100%
Instructional Systems Design Engineer	$90	$115	-28%	100	400	400	1,000	0	0	0	0	0	0	0	0	500	1,400	$45,000	$161,000	-72%
SR Instructional Developer	$150	$150	0%	0	100	0	200	100	600	0	0	0	0	0	0	100	900	$15,000	$135,000	-89%
Instructional Developer	$95	$115	-21%	500	0	500	0	1,000	3,400	0	0	0	0	0	0	2,000	3,400	$190,000	$391,000	-51%
Computer Programmer	$85	$115	-35%	0	0	150	0	3,840	400	0	0	0	0	0	0	3,990	400	$339,150	$46,000	637%
Graphics Designer	$80	$90	-13%	0	0	300	200	300	400	0	0	0	0	0	0	600	600	$48,000	$54,000	-11%
SR QA Specialist	$130	$130	0%	0	50	0	0	0	0	0	0	0	1,920	0	0	0	1,970	$-	$256,100	-100%
QA Specialist	$105	$105	0%	0	0	0	0	0	0	1,880	0	0	1,920	0	0	1,880	1,920	$197,400	$201,600	-2%
Training Implementation Specialist	$100	$100	0%	200	200	0	0	0	0	1,880	1720	0	0	0	0	2,080	1,920	$208,000	$192,000	8%
Direct Labor				**875**	**950**	**1,425**	**1,900**	**5,315**	**4,800**	**3,835**	**1,720**	**75**	**3,840**	**2,480**	**1,400**	**14,005**	**14,610**	**$1,583,550**	**$1,800,700**	**-12.1%**

FIGURE 10.

Factor/Observation	Explanation
• Minimal Basis of Estimate (BOE)	Sparse documentation provided that would provide rationale to review to understand how labor mix and level of effort (LOE) and assumptions were derived.
• Inconsistent allocation of labor hours between tech and price prop	Tech approach merely "parrots" back what is in the statement of work. There is no specific technical approach described for each task. The labor mix and estimates proposed in the technical proposal are inconsistent with what they proposed in the price proposal.
• LOE not appropriate for some/all tasks in statement of work/IGCE • Labor mix not appropriate for some/all tasks in statement of work/IGCE	Proposed LOE does not reflect clear understanding of requirements. Very project manager (PM) heavy. PM is allocating 75 hrs over the tasks. Further, offeror proposed less experienced staff. For example, offeror proposed less experienced designers and developers for this critical and complex project. This drives risk exponentially. Further, the offeror eliminated some critical labor categories. For example, there is no quality assurance person performing the evaluations (Task 5). They are proposing to use an implementation specialist. For Task 3, significant LOE for the computer programmer (vs. the developer) suggests a heavy distributed learning technical approach. Per the solicitation, distributed learning was to be a smaller scope of effort this base period. For Task 1, offeror proposed 500 hours of an instructional developer's time. This seems unreasonable given the scope of the phase. Should expect to see hours from a designer or an engineer labor category (LCAT) for Task 1. Offer proposed a new LCAT, financial analyst. In the IGCE, this scope of work would be performed by the PM. This appears to warrant inquiry. Management oversight benchmark (based on market research approx 5–10% of total cost). PM hours per contractor proposal is approximately double the IGCE (28% and 14%, respectively). There is no sufficient documentation to understand how labor mix was derived.

FIGURE 11.

Factor/Observation	Explanation
• Overstated/Understated Labor Rates used (vs. IGCE)	Contractor used government site rates. Section L of solicitation required contractor site rates. Contractor may have used individual rates from labor category pool, not composite rates as required per Section L. Several LCAT rates were overstated or understated vs. IGCE. They are highlighted in the delta detail spreadsheet. For example, rate proposed for computer programmer LCAT is 35% below the rate in the IGCE. The IGCE rates are based on an average of FSS. The instructional designer and developer LCATs were understated by at least 20%. The only rate that was overstated was for the PM LCAT. Offeror proposed a PM LCAT that reflected a higher rate than a PM.
• Faulty assumptions	
o Period of performance (account for vacation and holidays)	Offeror assumed 1,880 work hours/year (instead of 1,920 hours) per Section L of request for proposal.
o Valid/originally valid rates	Offeror did not state the source of rates. They do not match their General Services Administration Federal Supply Schedule rates. Do not know if there are current rates.
• Total price(s) exceeds low threshold (low range of IGCE)	Contractor-proposed total price exceeds established reasonableness threshold of +/- 8% (from IGCE). Total price 14% lower than IGCE.

FIGURE 11 ***(continued)***.

ABOUT THE AUTHOR

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