



# PROJECT AIR FORCE

THE ARTS

CHILD POLICY

CIVIL JUSTICE

EDUCATION

ENERGY AND ENVIRONMENT

HEALTH AND HEALTH CARE

INTERNATIONAL AFFAIRS

NATIONAL SECURITY

POPULATION AND AGING

PUBLIC SAFETY

SCIENCE AND TECHNOLOGY

SUBSTANCE ABUSE

TERRORISM AND  
HOMELAND SECURITY

TRANSPORTATION AND  
INFRASTRUCTURE

WORKFORCE AND WORKPLACE

This PDF document was made available from [www.rand.org](http://www.rand.org) as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

## Support RAND

[Purchase this document](#)

[Browse Books & Publications](#)

[Make a charitable contribution](#)

## For More Information

Visit RAND at [www.rand.org](http://www.rand.org)

Explore [RAND Project AIR FORCE](#)

View [document details](#)

## Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents.

This product is part of the RAND Corporation monograph series. RAND monographs present major research findings that address the challenges facing the public and private sectors. All RAND monographs undergo rigorous peer review to ensure high standards for research quality and objectivity.

# Price-Based Acquisition

Issues and Challenges for  
Defense Department Procurement  
of Weapon Systems

Mark A. Lorell, John C. Graser, Cynthia R. Cook

Prepared for the United States Air Force

Approved for public release; distribution unlimited



The research described in this report was sponsored by the United States Air Force under Contract F49642-01-C-0003. Further information may be obtained from the Strategic Planning Division, Directorate of Plans, Hq USAF.

**Library of Congress Cataloging-in-Publication Data**

Lorell, Mark A., 1947–

Price-based acquisition : issues and challenges for Defense Department procurement of weapon systems / Mark A. Lorell, John C. Graser, Cynthia R. Cook.

p. cm.

“MG-337.”

Includes bibliographical references.

ISBN 0-8330-3788-9 (pbk.)

I. United States—Armed Forces—Procurement. I. Graser, John C. II. Cook, Cynthia R., 1965– III. Title.

UC263.L67 2005

355.6'212'0973—dc22

2005007839

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

**RAND**® is a registered trademark.

*Cover photo by Chad Baker/Getty Images*

© Copyright 2005 RAND Corporation

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2005 by the RAND Corporation

1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

1200 South Hayes Street, Arlington, VA 22202-5050

201 North Craig Street, Suite 202, Pittsburgh, PA 15213-1516

RAND URL: <http://www.rand.org/>

To order RAND documents or to obtain additional information, contact

Distribution Services: Telephone: (310) 451-7002;

Fax: (310) 451-6915; Email: [order@rand.org](mailto:order@rand.org)

## Summary

---

This report presents findings from a research study conducted by RAND Project AIR FORCE, a division of the RAND Corporation, to examine the effects of using price-based acquisition (PBA) approaches for the development and production of major Air Force weapon systems, subsystems, and other military-unique articles. Typically in these cases, the cost-based acquisition (CBA) approach is used—i.e., the price to develop and produce such an article is based on cost data that the government requires the contractor to provide. Critics of this traditional, CBA method see it as imposing heavy regulatory burdens on the government and the contractor and tending to discourage potential non-defense contractors from competing for government contracts, thus reducing competition and quality and increasing cost. By contrast, PBA is seen as

a way to buy goods and services that does not rely primarily on a supplier providing cost data. . . . In its purest form, PBA results in a firm-fixed-price . . . contract and a fair and reasonable price is established without obtaining supplier cost data (Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 1999b, p. 7).

Currently, PBA is a major acquisition reform tool, one that many senior Department of Defense (DoD) officials have advocated as a means of improving cost, schedule, and performance outcomes. DoD has considered the use of PBA in major defense acquisition programs (MDAPs) for several years. Interest in reforming the

defense acquisition system to make it more cost-effective intensified in the late 1980s, as research and development (R&D) and procurement budgets continued to decline from the peak years of the Reagan administration. The end of the Cold War and the expectation of much steeper cuts in the defense budget accelerated these trends. Early in 1994, then Secretary of Defense William Perry launched a major new series of acquisition reform initiatives aimed at achieving a defense acquisition system that would be more flexible, lower cost, smaller, and more agile. In doing so, he explicitly pinpointed three items as being among the most important drivers of the DoD “regulatory cost premium” paid for defense procurements: the government collection of certified cost or pricing data as required by the Truth in Negotiations Act (TINA), the imposition of burdensome government-unique cost accounting and reporting systems, and government cost oversight and audits.

These initiatives spurred a growing interest in PBA among acquisition reform advocates. In their view, DoD had, over the years, developed a culture and procedures that required contractors to provide more cost data than were necessary to make informed decisions on what price should be paid for a particular weapon system. This bureaucracy created additional work not only for contractors, which had to collect and provide cost data at excruciating levels of detail, but also for DoD evaluators, who had to analyze everything submitted in each contractor’s proposal. Proponents of PBA argued that it would alleviate these problems by offering shorter schedules, higher quality, and reduced costs. PBA would allow the government to lower the price it pays for goods and services by way of the following mechanisms:

- **Reduced overhead burden.** DoD’s reduced need for cost analysis, proposal evaluation, audits, cost data collection, and contract management and oversight would save overhead costs. Contractors would see a reduction in overhead costs for proposal preparation, cost collection and reporting, and support to DoD contract management and oversight.

- **Share in savings.** Contractors could retain a portion of any savings achieved through implementing greater efficiencies as additional profit under a fixed-price contract, which would increase their incentive to further lower costs over time.
- **Enhanced civil-military integration.** More civil/commercial competitors would be attracted, which would encourage greater competition, and there would be greater access to lower-cost nondevelopmental items and innovative civil/commercial technologies (see pp. 10–14).

Based on these potential benefits, DoD and Congress took limited steps in the 1980s and 1990s to implement aspects of PBA in some major weapon programs. In October 1998, then Under Secretary of Defense for Acquisition, Technology, and Logistics (USD [AT&L]) Jacques S. Gansler commissioned a major internal study to analyze implementation of PBA on a much broader DoD-wide basis. The resulting PBA study group published a report at the end of 1999 that included numerous detailed implementation recommendations (Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 1999b). Late in 2000, Gansler circulated a memorandum for the secretaries of the military departments supporting the PBA study group's report and strongly endorsing the more extensive use of PBA throughout DoD<sup>1</sup> (Gansler, 2000). The focus on PBA remained strong following the November 2000 presidential election; PBA was seen as a key acquisition tool supporting the Bush administration's goals of transforming the U.S. military.

Despite these initiatives, however, PBA remains controversial. Many people in the acquisition community continue to question the means and scale of PBA's claimed benefits. Critics have also advanced a significant list of challenges and potential pitfalls arising from PBA, including the following:

---

<sup>1</sup> As we discuss in the report, there was some disagreement among the participants on the final recommendations.

- The lack of adequate market indicators (especially competition) for military-unique products.
- A workload shift from the contractor in proposal preparation to the DoD cost and price analysts who must determine a “fair and reasonable” price based solely on “market” information.
- The government’s greater difficulty in assessing the credibility of contractors’ pricing methodology.
- The increased risk of “excessive profits” or “price gouging.”
- The requirement for major statutory changes for full implementation (see pp. 14–18).

The most compelling critique of PBA, however, is that it assumes a market structure and market dynamics that do not exist in the defense marketplace for truly noncivilian commercial items, particularly for sole-source defense-unique items.

Unfortunately, a lack of empirical data about the implementation of PBA has made it difficult for policymakers to know whether PBA ultimately holds the benefits that are claimed for it and what challenges truly exist. This study was carried out to provide more concrete data for policymakers and to promote a better understanding of how DoD can best use PBA approaches.

## Research Approach

The researchers conducted structured interviews with government cost estimators, contracting officers, other senior acquisition officials representing all four major Air Force product centers, other Air Force stakeholders, and numerous private-sector officials representing defense contractors involved in major PBA-like programs. The researchers also reviewed more than 30 case studies of programs with important PBA-like features. Seven major questions about the benefits and challenges of PBA were examined:

1. Is there documented evidence that prices paid for major DoD weapon systems or defense-unique items have been reduced through the use of PBA as compared with CBA?
2. Is there documented or anecdotal evidence that PBA has reduced contractor overhead rates or charges?
3. Is there evidence that using PBA rather than CBA has shortened the acquisition process?
4. Is there evidence that the DoD acquisition workload has been reduced through the use of PBA?
5. Is there evidence that additional competitors (at the prime, sub-contractor, or supplier levels), particularly companies that do not normally do business with DoD, have participated in DoD procurements as a result of PBA?
6. Is there documented evidence that the use of PBA has measurably increased contractor incentives to reduce cost through commercial-like incentive mechanisms?
7. What are the lessons learned for the future application of PBA? (See pp. 26–28.)

## Findings

The researchers found that, overall, it is extremely difficult to prove that PBA results in significant savings in either cost or time compared with CBA. It is even more difficult to quantify such savings. Specific findings are as follows:

- **It is difficult to precisely measure the effects of PBA on cost or schedule in most major DoD acquisition reform pilot programs.** PBA has not been implemented as a lone policy initiative on such programs but, rather, in conjunction with a variety of other reform measures. It is nearly impossible to isolate the effects solely attributable to PBA from the effects of companion measures or other aspects of programs that are totally unrelated to PBA. DoD provides no direction for tracking cost or schedule savings from PBA or, indeed, any other acquisition reform

measure, in a systematic and a methodologically convincing way. Consequently, such data are not collected by either DoD or by contractors (see pp. 56–60).

- **While most contracting experts believe that at least some overhead and contract management savings accrue from PBA, little compelling quantifiable evidence is available to back up the claim.** Potential overhead and contract management savings from the use of PBA for DoD MDAPs have probably been overstated and are likely to be modest (see pp. 60–70).
- **Although PBA probably shortens some aspects of the contracting and oversight process, no clear quantifiable evidence that PBA is decisive in shortening acquisition schedules was found.** The lack of such evidence largely stems from the fact that the multitude of factors most decisive in influencing acquisition schedules are unaffected by PBA. However, schedule savings appear to have occurred under PBA when pre-priced production lots were coupled with the initial award of a development contract following a multi-contractor R&D competition. In such instances, processing the contracts for the follow-on production lots proved to be a streamlined process because prices had been established earlier under the competitive downselect for development (see pp. 70–78).
- **On certain types of programs with long-term pricing agreements, the elimination of the requirement for TINA certified cost data and the use of PBA reduce both government and contractor workload, but on a small scale.** The scale of these reductions is difficult to quantify. Eliminating the requirement for all cost data of any type, however, does not appear to save workload; and it raises major difficulties for DoD analysts and contracting officers who must make a determination of “fair and reasonable” pricing, especially in sole-source award situations (see pp. 78–83 and 89–95).
- **There is very little convincing evidence that the use of PBA has encouraged greater numbers of civilian commercial firms to compete for DoD contracts for major military-unique items, either on the prime or higher subtier levels.** Therefore,

it appears that PBA has not significantly reduced costs, shortened schedules, or raised quality through the promotion of greater civil-military integration of the industrial base (see pp. 107–124 and 132–135).

- **It is difficult to discern the role of PBA alone in increasing contractor incentives to reduce costs.** PBA-like approaches may lead to reduced prices when combined with competition, the use of cost as an independent variable (CAIV), and mechanisms for allowing the contractor to share in savings. However, PBA itself may be the least important of these measures in reducing costs. PBA does not produce such measures automatically, because the military sector does not have the same competitive market forces that the commercial sector has. Moreover, contractors do not necessarily need PBA to implement these cost-saving measures and incentives (see pp. 107–124 and 128–130).

## Lessons Learned

This study suggests several lessons about the usefulness of PBA in MDAPs:

1. **Most major PBA-like DoD contracts for complex military-unique noncommercial items do (and should) require some contractor cost data.** This is particularly true of items procured in a sole-source environment. Indeed, many commercial firms find it useful to examine cost data from their contractors and subcontractors to ensure that prices are appropriate and to encourage cost-saving measures. The main difficulty in the military sector comes from the need to collect and report certified cost data according to TINA requirements. There is a wide range of options for providing contractor cost data to the government short of full CBA (which implies the use of TINA certified cost or pricing data). Many of these options appear to impose little burden on the con-

tractor and may lead to many of the claimed benefits of PBA (see pp. 135–138).

**2. PBA can be a useful addition to the acquisition manager’s toolbox with respect to large, sole-source, military-unique programs, but it should be used selectively and judiciously.** Contracting officers and other acquisition managers must have the flexibility and authority they need to effectively implement PBA concepts without undue pressure from senior acquisition officials. Specific considerations include the following:

- TINA waivers for programs with recent certified cost or pricing data are often useful, but action is required to clarify recent legislation that may effectively prohibit further use of these waivers in this area (see pp. 88–100 and 135–141).
- Federal Acquisition Regulation Part 12 commercial determinations for large sole-source military-unique systems can be problematic even if offered commercially. DoD should consider issuing more-precise guidelines for commercial determinations in such circumstances (see pp. 114–124 and 142–144).
- DoD’s credibility and its ability to continue interacting in a constructive way with contractors on PBA-type programs require it to honor the terms of agreements negotiated in good faith that establish long-term average-unit procurement price commitments (see pp. 144–145).
- The pricing of multiple follow-on production lots in the absence of a clear option to obtain updated cost or pricing data from the contractor raises major challenges for DoD contracting officers tasked with establishing “fair and reasonable” prices (see p. 146).
- Large quantity changes not anticipated in procurement price agreements raise pricing challenges for DoD contracting officers (see pp. 147–148).
- Nonrecurring development and new production prices for significantly modified new variants of items covered by long-term pricing agreements can prove problematic (see pp. 148–149).

- Experience suggests that it is important to carefully assess and include the costs of spare parts, peripherals, and weapon system support when negotiating prices on PBA-like contracts (see p. 149).
3. **Specific characteristics may make some programs potentially appropriate candidates for PBA.** Such programs should have
    - A high level of either direct or indirect contractor competition, preferably at the program’s beginning and throughout its life cycle.
    - Clearly defined and stable system performance requirements.
    - Relatively low technological risk during development and production.
    - Relatively high commercial-component content with “real” market pricing information available.
    - Adequate cost and/or price data for similar programs or products that are available to DoD cost and price analysts (see pp. 159-160).
  4. **If PBA is more widely adopted, DoD cost estimating and contracting communities will have to become less reliant on certified contractor cost and pricing data.** They will need to develop new methodologies based on parametric analysis or other approaches, which may be less reliable or defensible in determining what is a “fair and reasonable” price for DoD procurements (see pp. 151–154).