

# Pricing – Cost Assurance and Analysis Service (CAAS) Estimates

## Constraints

None.

## Authoritative Guidance Summary

1. Cost Assurance and Analysis Service (CAAS) provide a range of services for the Defence Equipment and Support (DE&S) and the wider Ministry of Defence (MOD). More detailed information can be obtained through the customer pages of the [CAAS website](#).
2. CAAS estimate the cost of a product or service in advance of the activity being undertaken when contracts are to be placed non-competitively. As part of this activity, CAAS investigate the company tender detailing the quoted direct and indirect costs together with estimating allowances, risk and profit. Before deciding to involve CAAS you must consult the [Pricing – Team Approach](#) guidance in the Commercial Toolkit.
3. Estimating uncertainty, allowances and risks are a key consideration when estimating the cost and agreeing a fair and reasonable price for a contract. The main uncertainty is contained within the basic estimate and is linked to issues such as escalation, breaks in production, tail-off cost, design growth, loading or capacity, warranty or guarantee, over provisioning and insurance excess. These are described under Authoritative Guidance.
4. Profit is the reward for capital invested and risk. The Government Profit Formula provides the mechanism by which contractors undertaking non-competitive Government contracts are rewarded for both the capital invested and risk.
5. The CAAS investigation is a core element of the pricing process. Acquisition teams should seek to agree a price closely based on the CAAS most likely or recommended price for final settlement. Where negotiations result in an outcome above the most likely level recommended by CAAS, this should be referred to the relevant commercial 1\* / Head of Commercial in writing for a final decision about the price.

## Authoritative Guidance

### Additional Services Provided By CAAS

6. CAAS provide a range of services such as the investigation and agreement of charging rates, production of cost forecasts, the analysis of supplier tenders and the certification of recorded costs.

7. CAAS have established a network of Customer Relationship Managers and Gateways to coordinate work across the organisation and allocate tasks to the appropriate field offices based on a priority matrix. Tasking is normally initiated by sending a [DEFFORM 122 \(Tasking Form\)](#) to the appropriate CAAS Gateway detailing the nature of the investigation required (contract price investigation, overheads, Cost of Production to Capital Employed (CP:CE) ratio etc.). You can find a list of contacts on the [CAAS Intranet site](#). However, in deciding whether to involve CAAS and before submitting a DEFFORM 122 (Tasking Form) you must consult the [Pricing – Team Approach](#) guidance in the Commercial Toolkit.

### Estimating - Cost Engineering Services

8. Cost Engineering is perhaps the most widely used direct service. CAAS are commissioned by commercial officers in acquisition teams to ascertain the expected cost of a product or service in advance of the activity being undertaken when contracts are to be placed non-competitively. CAAS do not normally negotiate the price, but can agree prime cost elements if specifically requested.

9. A contractor will submit its tender detailing the quoted direct and indirect costs together with Basic Estimates, Allowances, Risk and profit. The quote will be reviewed by CAAS, taking account of the company's model, Questionnaire on Method of Allocating Costs (QMAC), planned workload, utilisation factors, labour mix, resources, productivity, planned investment, product groups, the Government Accounting Conventions (GAC) and the agreed charging rates. The tenderers cost build-up should align with the planned project technical milestones or outputs thereby adhering to the principal of matching costs to revenues.

### Uncertainty and Allowances

10. One of the key considerations, when estimating the cost and agreeing a fair and reasonable price for a contract, is the degree of uncertainty within the basic estimate and the risk events that may occur. In any project there will be events, practices or activities that, although they will invariably take place, are subject to a level of uncertainty which can be quantified through the production of three point estimates, the application of estimating allowances and the use of Monte Carlo analysis techniques. This is distinct from risk events, which although identified and possible, may or may not occur. When a potential contractor has legitimate commercial concerns about specific risks, these should be evaluated and entered on a Risk or Joint Risk Register.

11. The general practice is to place all such events in a joint risk register and generate estimated costs based on the probability of each validated risk occurring. The register should also include favourable risks or opportunities arising from improved techniques, practices, cost savings or technology, in order to satisfy Equality of Information requirements. Where risks are identified the contractor should also identify appropriate risk mitigation activities in the tender submission. Examples of uncertainties, allowances and risks that may be encountered are outlined below.

## **Basic Estimate Uncertainty**

12. Any estimate for a specified activity is subject to a degree of uncertainty due to normal variability. For example; changing spark plugs on an engine could take say between 30 minutes if all went as well as could be, up to 1 hour if things went badly (e.g. the plugs were all rusted in). In practice the most likely time would be 40 minutes as normally at least one will be difficult to remove. This does not take account of events such as a spark plug breaking and having to be removed by specialist means – this would be classed as a risk event.

13. A contractor-produced estimate could, theoretically, lie at any point across this range depending on the approach of the estimator. It is therefore vital that a true 'most likely cost' be established to ensure the MOD does not pay too much and that, by applying its professional skills in completing the task, the contractor has the opportunity to make a reasonable profit. This is one of the functions of the CAAS investigation.

## **Escalation**

14. An allowance added to the basic cost estimate to cater for variations in wage rates and / or prices of materials and subcontracts that are expected to occur during the currency of the contract as a result of general economic conditions.

15. MOD policy is to seek to negotiate FIRM prices for contracts of up to five years duration and for contracts of longer duration when this can be done without placing either the contractor or the MOD at unconscionable risk. Where FIRM prices cannot be agreed, it may be appropriate to agree a FIXED price with Variation of Price (VOP). Expert advice must be sought from Defence Analytical Services and the Advice Director of Economic and Statistical Advice (DASA DESA) on the appropriate indices.

## **Break in Production**

16. An allowance to cover the eventuality of additional costs arising from disruption to a production run.

17. It is the contractor's responsibility to minimise the incidence of such disruptions. Disruptions caused by MOD modifications are priced as they occur. Any request for such an allowance should therefore be declined and the contractor advised that should such delays occur which result in additional costs, such costs

will be for the contractor's account. It should be noted that this is distinct from the step back in learner encountered on a follow on production run which is a recognised effect. For example, if the MOD order a specific batch of 100 items to be made over one year followed by a further batch two years later, the initial items in the second batch will take longer to produce than the last items in the first batch as operators and management re-learn the production process.

### **Tail-Off Cost (End of Line Effect)**

18. An allowance to cover the possible extra cost associated with the later stages of a production run. Extra cost may arise due to lower productivity when a work force is aware of the lack of future work. Contractors tend to employ this argument to justify using a lower level of productivity as a basis for their estimate.

19. It is the contractor's responsibility to keep his facilities adequately loaded and to ensure output from his employees is maintained. You should therefore resist and requests for such an allowance.

### **Design Growth**

20. An allowance to cover the likely cost of modifications arising from growth or refinement of the design expected to occur during the currency of a contract.

21. Design and / or development contracts are generally agreed against a User Requirements Document (URD) and System Requirements Document (SRD) (as opposed to a standard defined by drawings). Modifications should not arise unless authorised by the MOD, in which case a separate price would be agreed as an 'extra'.

22. This allowance should be assessed against the nature of the requirement and the extent to which the potential additional cost may have been covered by the basic estimate.

### **Loading or Capacity**

23. An allowance to protect the contractor against the under recovery of overheads should these have to be recovered against a smaller direct labour base than assumed when fixing a price, as a result of unforeseen reductions in workload.

24. When estimating forward overhead rates, CAAS assess the size of the direct labour base against which the contractors indirect cost will be recovered. The longer the duration of the contract the more difficult this can be.

25. It is the contractor's responsibility to keep its facility loaded and a forward order book is just as likely to increase as decrease.

26. Such requests should be resisted. If an impasse is reached, appropriate provisional overhead rates may be used for the later years of the contract, until such time as the uncertainties have diminished and firm rates can be agreed without reservations.

## Warranty or Guarantee

27. An allowance to cover the cost of rectifying defects in manufacture or design that come to light after acceptance of the goods. Contractors often charge rework, warranty and guarantee costs against overheads and there may be such an allowance in the overheads. Requests for such allowances should, therefore, be discussed with CAAS as to whether they are allowable as a legitimate direct charge.

28. If a known design or quality concern exists it should be evaluated on the risk register.

## Over Provisioning

29. An allowance to cover the costs of items which it is necessary for good reasons to over provision and which may be left over at the conclusion of the contract.

30. Claims in respect of items in general use should not normally be considered on the grounds that any surplus items can be used elsewhere. However, where there is a legitimate case for over provisioning some items the cost should be included within the basic materials prices. The MOD should then claim property in any surpluses and require the contractor to provide an inventory of items added to its Public Stores Account.

## Insurance Excess

31. An allowance to protect against any costs the contractor may have to bear under the 'Excess Clause' of his general insurance policy in the event of an insured incident occurring during, and in connection with, the performance of the contract.

32. The Government Accounting Conventions (GACs) accept insurance costs for buildings, staff etc. as a legitimate overhead expense. The GACs disallow protection against loss of profit. If a genuine risk exists as a result of the contract the contractor should seek to mitigate this and include it on the risk register. Requests for such allowances should, therefore, be discussed with CAAS as to whether they are allowable.

## Profit

33. Profit is the reward for capital invested and risk. Having finalised the estimation of costs CAAS in consultation with the acquisition team will need to address profit. The Government Profit Formula provides the mechanism by which contractors undertaking non-competitive Government contracts are rewarded for both the capital invested and risk. CAAS in consultation with the acquisition team apply the profit formula to individual contracts by calculating the contractor's own Cost of Production to Capital Employed (CP:CE) ratio. This is then used to express the capital based element of the formula in terms of cost of production. When this is added to the cost based part of the formula it gives the total profit rate on the contract expressed as a percentage of cost of production.

34. Profit is not payable in cases such as Joint Venture Agreements where both the MOD and the Contractor benefit from the work and where costs are shared in agreed proportions between the MOD and the contractor.

## **Pricing Process**

35. The CAAS investigation is a core element of the pricing process. Initially CAAS will consult acquisition teams and other stakeholders as appropriate and will advise immediately if they anticipate any difficulty in meeting reporting timescales proposed. During the investigation itself, CAAS will regularly update customers on the progress of the task. About two-thirds of the way through the investigation there is a requirement to provide a simple one-page Progress Report to the customer defining the main emerging issues. This gives the customer the opportunity to consider his negotiating approach and to possibly direct CAAS to investigate a particular issue before the investigation closes. There should be no major surprises in the delivered Main report.

36. At the conclusion of the investigation CAAS produce a Pricing Report made up of a Price Negotiation Summary at Part 1, Findings at Part 2 and Supporting Issues at Part 3. The Summary lays out, a standard format, a three-point price negotiation range that will give:

- a. a suggested start (or minimum) negotiation price;
- b. a recommended (or most likely) price for final settlement; and
- c. a suggested upper (or maximum) price.

37. The investigating officer will seek to include an assessment of the suggested start negotiation price or opening bid, by providing some credible supporting arguments. The Summary will also include a 'Difference Analysis' listing the main pricing differences in descending order of price importance. These differences are then addressed in the later text of the report to present a negotiating position.

38. It should be noted that the principal reasons revealed by post costing for cost underruns against the agreed contract price include:

- a. the inclusion of risk events and allowances which, in the event, prove unnecessary;
- b. reduction in the number of man hours;
- c. changes to the make / buy plan;
- d. inappropriate VOP arrangements because, for example, the contractor buys materials earlier or buys at a firm price.

39. In the first two instances cited above, most often the CAAS recommendation is close to the actual outturn. Changes to the make / buy plan invariably lead to work being outsourced at lower cost.

40. One conclusion that can be drawn from this data is that the MOD must be robust in its negotiation of non-competitive prices, and adhere more rigidly to the estimates proposed by CAAS. The aim of the MOD's negotiators should be to agree

a price closely based on the CAAS recommended or most likely price for final settlement. The CAAS investigation is a core element of the pricing process. Where negotiations result in an outcome where the price includes estimates above the most likely level recommended by CAAS, this should be referred to the relevant Commercial 1\* / Head of Commercial in writing for a final decision about the price. In submitting the case the acquisition team must be satisfied that the allowances included in the costs are consistent and justifiable with the CAAS most likely recommendation. In some cases, genuine disagreement between negotiators, possibly based on uncertainty on how to meet the output required by the contract, could point to a Target Cost Incentive Fee (TCIF) arrangement representing the better way forward.

## Essential Reading

- [Pricing - Charging Rates topic](#)
- [Pricing - Non-Competitive - An Overview topic](#)
- [Pricing - Team Approach topic](#)
- [Pricing - NAPNOC topic](#)
- [Pricing - Government Profit Formula topic](#)
- [Pricing – Variation of Price topic](#)

## Further Reading

- [Pricing - Equality Of Information topic](#)
- [Office of Government Commerce \(OGC\) website](#)