Quality Assurance Procedure

PURCHASING AND CONTRACTING PROCESS AND CONTROL

Abstract

This document is a practical guide to the processes and controls governing procurement for the LHC Project. Whilst making reference to the established CERN Purchasing Procedures this document also includes procedures to be followed concerning CFU (Contract Follow-Up), EDMS (Engineering Data Management System) and the Peers' Review.

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1. PURPOSE

This document is a practical guide to the processes and controls governing procurement for the LHC Project once a design has been finalised. It covers the approval process of these procurement documents by a Specification Committee (see "Quality Assurance Policy and Project Organisation" [1]) through to the release of a Price Enquiry, Market Survey and/or Invitation to Tender up to the placing of a contract.

2. SCOPE

This procedure applies to all procurement for the LHC Project and the stages involved in the purchasing procedure. It applies equally to collaborating institutes when procurement is made under CERN’s Financial rules.

3. POLICY

- Ensure that procurement is carried out in conformity with the CERN Purchasing Procedures [2]. A summary is available from the CERN homepage, under Organizational Information, Purchasing Procedures [3] and the main points are found in the chart in Annex I.
- Ensure a selection of valid bidders without bias in favour of any given firm or Member State and obtain the keenest possible competition.
- Ensure the procurement documents are clearly understandable, concise and to the point, define international rather than local standards and concentrate on performance and processes rather than on technical details.
- Assign appropriate references to the documents.
- Check and verify suitability of potential suppliers including those from non-Member States if necessary.
- Verify the bidders' qualification criteria.
- Verify compatibility of returned bids with the Technical Specification.
- Archive documents in the relevant databases.

4. RESPONSIBILITIES

4.1 PROJECT ENGINEERS:

The Project Engineer is the key person responsible for the overall procedure as laid out in section 5.

4.2 GROUP SECRETARIES:

- Create Divisional Request (DR) in CFU if not done by Project Engineer (see section 5.1).
- Verify format of draft documents in order to ensure compatibility with template and guidelines.
- Assign group reference number to documents.
Where possible, enter information into EDMS in order to obtain the EDMS number and LHC Project Document number. (This step, or part of it, may instead be carried out by the LHC Hardware Baseline Team. See section 4.5.)

Once technical documents are finalised, enter them into CFU.

4.3 PURCHASING OFFICER:

- Prepare commercial documents following discussion with the Project Engineer and with reference to the Technical Specification.
- Complete list of potential bidders.
- Send out technical and commercial documents to potential bidders.
- Oversee opening of bids and evaluate bidder conformity with qualification criteria.
- Prepare, if necessary, the adjudication document for approval by Finance Committee.
- Notify firm of Finance Committee approval (many firms agree to start work immediately).
- Prepare contract (generally >750 kCHF) or order (generally <750 kCHF) for signature.

4.4 SPECIFICATION COMMITTEE:

- If required (i.e. if price expected to exceed 200'000 CHF), check and approve technical and commercial documents prepared for procurement in view of coherence, quality assurance and commercial viability.

4.5 LHC HARDWARE BASELINE TEAM:

- Assign, if necessary, EDMS number and LHC Project Document number to technical documents as defined in "Document Types and Naming Conventions" [4].
- Ensure final Technical Specification is stored in the EDMS and is attached to the LHC Hardware Baseline.

4.6 PEERS REVIEW COMMITTEE:

- Review all papers before proposal to the Finance Committee for adjudication.
- Provide supporting information to the Director who will defend the proposal for adjudication in the Finance Committee.

4.7 FINANCE COMMITTEE:

- Agree to or reject the negotiation of contracts with selected suppliers.

5. PROCEDURE

Once the requirements are known, the Project Engineer shall refer to the chart in Annex I to establish the correct procedure to follow based on his cost estimate. The subsequent steps are given below.

The Project Engineer should be aware of the approximate timescale as given in Annex II.
5.1 CREATE A DIVISIONAL REQUEST

Assuming the estimated amount > 100'000 CHF, the Project Engineer (or his Group Secretary) shall create a Divisional Request (DR) in CFU [5].

The DR launches the purchasing procedure which commences with validation by the Divisional Planning Officer (DPO) after which time the DR can no longer be modified.

If above 200'000 CHF Finance Committee requires advance notice (allow up to three months for this).

5.2 CONTACT THE PURCHASING OFFICER

The Project Engineer shall contact the Purchasing Officer to confirm the procedure to follow and launch preparation of the commercial documents.

The name of the Purchasing Officer can be found in the Finance Committee document "Advance Information on Forthcoming Market Surveys and Calls for Tender Expected to Exceed 200'000 Swiss Francs" [3] or via CFU. Otherwise the divisional Purchasing Service will be able to help.

5.3 PREPARE THE TECHNICAL DOCUMENTS

The Project Engineer shall write the technical documents using the templates available on Nice and from the LHC Project QAP homepage [6]. Contact the Group Secretary in order to verify formatting and obtain the relevant reference numbers (Group no., EDMS no. and LHC Project Document no.) as requested in the templates.

The following documents shall be prepared:

**Market Survey** - Technical Description, Qualification Criteria, Technical Questionnaire, preliminary list of firms (this will be completed by SPL Division, the ILOs and Delegates). If a Market Survey has been launched for a particular requirement in the preceding 12 months, it is not necessary to repeat it.

**Invitation to Tender** - Technical Specification, Technical Questionnaire (optional).


Relevant annexes should also be prepared.

The CD-Rom entitled CERN Official Documents shall be included with all tenders and referred to concerning quality assurance, safety and standard purchasing documents.

Drawings must be archived and approved in the CERN Drawing Directory (CDD).

5.4 TECHNICAL AUDITING

According to document CERN/FC/4016 [7], technical auditing of Market Survey and Invitation to Tender documents shall take place whenever the value is estimated to exceed 200'000 CHF.

This applies to any procurement where the CERN financial rules apply, regardless of who is paying.

In the event that a Price Enquiry for prototypes is required prior to a future requirement expected to exceed 200'000 CHF, technical auditing is also recommended. It will be at the discretion of the Chairman of the Specification Committee to decide if a full specification meeting is needed, or if auditing can take place via e-mail.

For the LHC Project, technical auditing is carried out by the LHC Specification Committee. In some cases, however, the SL and ST Specification Committees may replace the LHC Specification Committee after the agreement of the Chairman of the
LHC Specification Committee has been obtained. In such cases, the office of the LHC Specification Committee should receive a copy of the final papers and be kept informed for tender openings and Peer's Committee meetings.

Requirements under 200'000 CHF may also be submitted for technical auditing following a request by the Project Engineer if it is felt that this would be beneficial to the tendering process.

In the case of Market Surveys, it can be decided between the Chairman of the Specification Committee and the relevant Project Engineer as to whether a full meeting will be held, whether technical auditing will be carried out by e-mail, or whether it will be done solely by the Chairman.

5.5 PREPARATION FOR DISTRIBUTION

Once an Invitation to Tender is approved by the LHC Specification Committee, order the necessary copies of the CD-Rom (no. of firms + 5), prepare copies of the drawings for distribution (no. of firms + 5) and prepare 1 paper copy of any additional documents not included in the above.

If drawings are to be provided in an electronic format, they shall be stored on a second CD-Rom.

Keep a reference copy of the CD-Rom(s) and all drawings and papers to be distributed.

All technical documents must be uploaded into CFU, and the Technical Specification must be uploaded into the EDMS and attached to the LHC Hardware Baseline.

The procedure is identical for Market Surveys, except that in most cases the CD-Rom is not distributed.

5.6 BEFORE OPENING OF BIDS

The Project Engineer may wish to organise a bidders' conference.

Any written questions from the firms shall be answered and circulated to all firms without indicating the identity of the questioner.

All formal correspondence between CERN and the firms shall be archived in CFU.

5.7 OPENING OF BIDS

The Project Engineer shall attend the opening of tenders and analyse the replies to establish conforming and non-conforming bids.

CERN openings are not public and all information is strictly confidential.

5.8 CONTRACTS > 750'000 CHF

The Project Engineer shall help the Purchasing Officer to prepare the adjudication document for Finance Committee.

The Project Engineer shall attend the Peer's Review Committee to defend the contract.

5.9 SPECIAL CASES

- Negotiation without or with limited competitive tendering.

In such a case, justifications must be provided, the prior approval of the Head of SPL Division and usually the relevant Director must be obtained, and above 200'000 CHF prior approval by the Finance Committee is necessary.
• Inclusion of non-Member State firms for tendering.
  This requires prior approval of the Head of the SPL Division and the relevant
  Director.
• Tendering without a Market Survey.
  It is acceptable to omit the Market Survey, with the approval of the Head of the
  SPL Division, when the market is restricted and well-known.
  It is also possible in exceptional cases to omit the Market Survey by including the
  Qualification Criteria in the Invitation to Tender.
• Non-Member State collaborations.
  The CERN value of any "contribution" to the LHC Project is determinate when
  considering the financial rules.
  The Technical Specification related to a non-Member State collaboration is archived
  only in the EDMS and not in CFU.

5.10 PREPARATION OF THE CONTRACT

The Project Engineer should refer to Annex III which contains a checklist for
negotiation of the contract.

The final stage is the preparation of a contract which is carried out by SPL Division and
with the help of the Project Engineer. A draft contract is prepared which must be
circulated and approved by the following:
– SPL - Purchasing Officer + Head of Purchasing Service
– Legal Service
– User Division
– Finance Division and SPL Division Leader (only for those documents which have
  passed Finance Committee)
– Internal Audit

Once this circuit is completed, the final version of a contract is drawn up and sent to
the relevant firm for signature.

6. TOOLS FOR CONTRACT FOLLOW-UP

During the tendering process, the negotiation of the contract and the contract
execution, a lot of information is exchanged between CERN and the firm in the form of
mail, e-mails, faxes, etc. Two CERN computer applications, CFU and EDMS, are
available and shall be used to keep track of these exchanges.
• CFU shall be used in all cases where the information exchanged between CERN and
  the firm has financial or legal implications for the tender or for the contract
  execution.
• EDMS shall be used in all cases where the information exchanged between CERN
  and the firm is of a purely technical or administrative nature without financial or
  legal implications.

In case of doubt about the implications of a communication the Project Engineer shall
seek the advice of the Purchasing Officer.
7. RELATED DOCUMENTS

[1] LHC-PM-QA-100.00   Quality Assurance Policy and Project Organisation
[4] LHC-PM-QA-202.00   Document Types and Naming Conventions
[7] CERN/FC/4016        Technical Auditing of CERN Tendering Documents
ANNEX I

Can the requirement be covered by stores items?
- Yes
- No

Order through the stores

> 200 CHF?
- Yes
- No

> 10'000 CHF?
- Yes
- No

Order treated and faxed automatically by the system

Activity code dealt with by the Purchasing Agents?
- Yes
- No

Price Enquiry made by the Purchasing Agents

Price Enquiry made by Divisions or Purchasing Service

One written offer to be sought for purchases < 5000 CHF and at least 3 written offers to be sought for purchases > 5000 CHF

If > 100'000 CHF enter DR in CFU

> 200'000 CHF?
- Yes
- No

Price Enquiry by Purchasing Service. Up to 5 firms. (4 weeks for replies)


> 750'000 CHF?
- Yes
- No

Peers’ Review Committee

Up to 10 firms. Adjudication by Finance Committee if only one offer was sought.

Up to 15 firms. Adjudication by Finance Committee.
ANNEX II
(CAPITALS indicate steps performed by Project Engineer)

CREATION OF DR

Allow < 3 months before:

Announcement in quarterly FC Doc "Advance Information on Forthcoming...."

PREPARATION OF MARKET SURVEY DOCUMENTS

Technical Auditing by E-mail  (Allow ~ 1 week for approval)

Launch of Market Survey  (Allow 1 week)

6 weeks * before:

SELECTION OF FIRMS FOR TENDER  (Allow time to visit firms etc.)

PREPARATION OF INVITATION TO TENDER DOCUMENTS

Technical Auditing in Specification Committee Meeting  (Allow ~ 2 weeks for approval)

Launch of Invitation to Tender  (Allow 1 week)

6 weeks * before:

ASSESSMENT OF TENDERS (Allow time as necessary)

If >750 kCHF, Adjudication by Finance Committee in quarterly meeting

NEGOTIATION OF CONTRACT (Allow time as necessary)

Allow min. 2 months before:

Approval and Signature of Contract **

* to be extended by 4 weeks or by 2 weeks if the periods 15/07 to 15/08 or the end of year holidays respectively are included.

** firms will often agree to start work on simple notification of contract award.
ANNEX III

CHECKLIST FOR NEGOTIATION

The aim of this checklist is to draw attention to matters that have to be clarified and agreed with the firm before the contract is signed. The list is based on the experience of LHC Project Engineers.

SUPPLY OF DRAWINGS BY THE FIRM

There are two types of contract in this respect:

A. CERN supplies a full set of detailed manufacturing drawings.

B. CERN supplies a set of conceptual drawings. These are used as a basis for a full set of detailed drawings made by the firm.

In case A the firm should not produce its own set of drawings or try to copy the CERN drawings into its own CAD system. If changes are required, e.g. to adapt to a specific production process, the firm should make a proposal, the CERN drawing should be modified and the new revision sent to the firm.

In case B the firm should produce a set of drawings using its own CAD system and according to its own standards, with the provision of a space to apply a CERN label (see "Drawing Process-External Drawing"1). In that case it must be clear that CERN will not supply native CAD files.

The chosen solution should be agreed with the firm.

COMMUNICATIONS USING INTERNET

The EDMS system is increasingly used to store all kinds of documents, including those related to contract placement and follow-up. To facilitate the use of EDMS, and avoid the overhead of scanning paper documents, firms have to be able to work with desktop applications and to communicate via the Web and with e-mail. An Internet connection is considered as essential as fax and telephone.

SUPPLY OF DOCUMENTS IN ELECTRONIC FORMAT

The firm should be able to produce documents, such as procedures and reports, in the CERN preferred formats:

• MS Word for texts
• MS Excel for tables and graphs
• MS Project for schedules

In case other applications have to be used, the files should be converted to Acrobat PDF format before delivery to CERN.

LANGUAGE

Contracts may be placed with firms where few people have a good working knowledge of English or French. If this is the case it is recommended to request that an English or French speaking competent person be available for all meetings with the firm during the duration of the contract.

COMMERCIAL CONTACTS

Before negotiating commercial aspects, the Project Engineer should inform and invite a representative from SPL.

1 LHC-PM-QA-306.00 Drawing Process-External Drawing