



DOCUMENT

Announcement of Opportunity for the Electra Mission



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1 ACRONYMS

AIT	Assembly Integration and Testing
AO	Announcement of Opportunity
CDR	Critical Design Review
EOL	End Of Live
EOR	Electric Orbit Rising (EOR)
EQM	Engineering Qualification Model
FM	Flight Model
IOT	In Orbit Test
IPR	Intellectual Property Rights
LEOP	Launch and Early Operation Phase
NoI	Notice of Intent
PFM	Proto-Flight Model
PP	Partnership Programme
RFQ	Request For Quotation
SoW	Statement of Work
TM	Telemetry
TRL	Technology Readiness Level

2 REFERENCE DOCUMENTATION

No reference documents

3 BACKGROUND

Electra is an ESA Partnership Programme (PP) with Industry, in particular OHB-System AG as satellite Prime. The overall objective of the Electra project is to develop, launch and operate/validate in orbit a commercially competitive full Electric platform, with Electric Orbit Rising (EOR) capability, targeting a total payload mass in the range of up to 800 kg and a payload DC power consumption at EOL up to 9.5 kW, with a launch mass in the 3 Tons range. OHB System AG (OHB) is now completing its Platform Development phase.

4 DESCRIPTION OF THE OPPORTUNITY

This Announcement of Opportunity (AO) aims to call for an expression of interest for Missions to be embarked on the developed Electra platform and to identify the best matching Partnership to achieve the project objectives. Ultimately, the selected proponent would enter into a Partnership contract with ESA to complete the project up to flight, including a pre-operation phase validating the various developments, and contract OHB-System AG, the satellite Prime.

This document describes the ESA process and the schedule to be followed in the selection of the referred Mission Implementation for Electra.

5 CONDITIONS FOR THE MISSION

5.1 Technical conditions

The Proponent is expected to make use of the Electra platform, as conceived since the start of the Platform Development phase. This includes a number of specific design solutions which will be made available during the Clarification, Feasibility Assessment (Step 2) to those who have successfully completed the Notice of Intent (Step 1), (see parag. 6.1).

A preliminary set of high level requirements has been defined to specify the envelope for the Payload on board Electra. The resources available are currently estimated at 800 kg mass, and 9.5 kW power consumption and the satellite has been conceived to be operated in a GEO orbital slot. A more detailed set of requirements will be provided in Step 2.

The compatibility of the candidate Payload with Electra will be assessed on the basis of the information provided. The Proponent is therefore requested to provide as much information as possible on P/L accommodation and budgets, as available, through the process.

The Proponent will also be requested to include in his Full Proposal, a complete set of technical requirements (e.g. Mission specific, generic PA, test, etc.)

5.2 Schedule conditions

The Electra Platform CDR process has been initiated by the Agency in April 2019 and should be completed before end 2019. Most of the Platform equipment Flight Hardware will be delivered in 2019 (exceptions are: Batteries to avoid fading due to long activation period, Solar Arrays to avoid long storage and TT&R equipment which is frequency

dependent. The Deployable Radiator and the Electric Propulsion Arm - so called THOR Boom - needed at a later stage of integration, are planned to be delivered in 2020.

The following table provides an indicative schedule of the Electra Mission Implementation, assuming a Payload with limited development.

Electra Mission Implementation Kick Off	March 2020
Electra Satellite PDR	Sept 2020
Electra Satellite CDR	March 2021
Electra Flight Acceptance Review (FAR)	Febr 2023
Electra Launch	April 2023
Electra In Orbit Acceptance (IOAR)	October 2023

Table 1: Electra Mission Implementation Schedule

Through the process, the Proponents shall identify the main schedule milestones with adequate justification and based on their proposed Payload development logic.

5.3 Contractual conditions

This section outlines the main contractual requirements/conditions related to the Mission Implementation.

Currently ESA and the Electra Platform Prime (OHB-System AG) are under contract for the Phase/B2/C/D of the Electra Project, aiming to complete the Platform Design and to procure most of the Platform Flight equipment. Following the selection of the Mission Operator, ESA intends to novate this existing ESA-OHB platform development contract as part of a single contract (Public-Private Partnership) between ESA and this Operator for the full Mission Implementation (i.e. including launch and demonstration of Electra Platform in –orbit).

During the first phase of the AO process, the Proponent is requested to declare his acceptance of the main contractual principles related to the Mission Implementation which are defined below:

- ownership of the tangible assets developed, produced or procured will be left with the Operator (or co-funding private partners);
- The owner of the tangible assets developed, produced or procured will be liable for any claims for compensation under international, national or regional law whatever the legal basis for such claim;
- For IPR, ESA’s General Clauses and Conditions for ESA Contracts Part II (Option B) are applicable, (i.e. Intellectual Property Rights vested in the Mission Operator Provider will remain with the Mission Operator);

Following the down selection as detailed in chapter 6.1.4 of this document, the Agency will issue as part of the RFQ a draft Contract providing more detailed contractual conditions regarding the undertakings of the Agency and the Operator to which the Proponent shall declare his acceptance with any reservations and/or deviations to be clearly indicated and duly justified (if any). Furthermore, ESA will provide visibility on the existing platform development contract to be transferred.

Moreover, in the event of selection as Electra Mission Operator, the Proponent shall, among others:

- Define and maintain the requirements baseline for the Electra Mission implementation,
- Put in place the necessary contractual agreements for the design, development, manufacture, test, launch and early operations of a telecom system based on the Electra, consisting of a satellite and the required ground segment (incl. subcontract OHB as satellite prime based on the novated platform development contract),
- Manage the industrial activities for the Electra Mission Implementation and operations in liaison and coordination with ESA, aiming to a timely launch of the Electra Mission
- Provide the orbital slot, the frequency filing and all necessary coordination work including the space objects registration, in time for the launch and operation of the satellite,
- Provide a launcher suitable for the validation of Electra,
- Operate the satellite System and provide performance evaluation and/or data to ESA as a minimum for the in-orbit validation period (i.e. EOR plus 3-years, following In-Orbit commissioning),

Following the down selection as detailed in chapter 6.1.4 of this document, the Agency will issue as part of the RFQ a Statement of Work (invoked in the contractual baseline documentation) providing more detailed definition of these tasks, as well as deliverables and implementation details to which the Proponent shall declare his compliance and/or deviations to be clearly indicated and duly justified (if any).

5.4 Financial conditions

ESA has provided co-funding to the Electra Platform development under the ARTES Partner Programme. The frame work of Electra foresees the following:

- a) Platform. The satellite operator is expected to contribute to the platform PFM production at an amount equivalent to the procurement of a recurring item (satellite on ground without payload) of the same capability.
- b) Payload procurement and engineering. These activities cover the procurement of the satellite payload(s) and will be fully funded by the satellite operator. In case of innovative elements of the payload(s) to be developed by ESA Member State industry, the Agency will consider co-funding up to 50% of the corresponding activities cost.
- c) Ground segment engineering and Assembly Integration and Testing (AIT) activities. These activities cover the engineering, hardware or software, AIT tasks of the

Ground Control segment. ESA will consider co-funding up to 50% of the innovative activities. The private partners will provide the funding for all the remaining costs entailed in the Ground Control segment.

- d) Launch. All activities related to the satellite launch services including launch campaign will be fully funded by the satellite operator.
- e) Launch and Early Operation Phase (“LEOP”). These activities cover the LEOP as well as the Electric Orbit Raising. Innovative activities, which are crucial for the validation of the platform, during this phase will be considered by ESA for co-funding up to 50%
- f) In Orbit Test (“IOT”) and early operations. These activities cover the testing and validation of functions and performance in orbit. IOT include activities related to the testing and validation of the innovative items up to system level, in which the private partners building the platform will participate. ESA will consider co-funding up to 50% of the total costs associated with the testing and validation of the innovative elements.

The Proponent shall declare his compliance with the breakdown above and/or deviations to be clearly indicated and duly justified (if any). This statement compliance shall be supported by the financial details of the proposals submitted (step 3 and step 6).

6 SELECTION PROCEDURE AND EVALUATION CRITERIA

The selection through this AO will be performed against the criteria defined in section 6.3. Two stages are foreseen in the selection process:

- a first down-selection in which only Outline Proposals having obtained an overall "good" marking (aggregate mark equal or higher than 60) are retained; the evaluation criteria are aimed at defining a ranking of the proposals with the aim of retaining the best matching proposals;
- a final selection based on the assessment of the Full Proposal against the final set of evaluation criteria.

A certain degree of interaction between the Proponents, the Electra industrial team and ESA teams is expected in the early stages of the process to ascertain compatibility of the candidate payload with the Electra main mission.

6.1 Selection procedure

The purpose of the section is to describe the process leading to a final selection, including a number of steps aimed at facilitating the interactions mentioned above. The steps are listed below and explained in more detail in the subsequent paragraphs.

The Agency reserves the right to stop or modify as necessary this process at any time.

- Step 1: Notice of Intent (NoI)
- Step 2: Clarification, Feasibility Assessment
- Step 3: Outline Proposal submission
- Step 4: Initial down-selection
- Step 5: Issue of RFQ (restricted competition)
- Step 6: Full Proposal submission
- Step 7: Final Evaluation

6.1.1 Step 1: Notice of Intent

Following the issuing of this Announcement of Opportunity, interested parties are invited to submit a Notice of Intent providing a first set of information of the proposed mission (as per Annex A) and the corresponding payload, as well as an intended Mission Implementation schedule.

The Notice of Intent shall also provide identification of funding sources, either private or public, in line with the Programme financial conditions. Funding sources should cover all aspects related to the proposed mission, as defined in parag. 5.4, including payload development, payload procurement, launch and in-orbit operations.

Annex A defines the template for the Notice of Intent with required information that shall be submitted by e-mail to the address **electra-mission-AO@esa.int**.

Please note that further communications (provision of initial feedback, possibility of further questions, broadcast of general-interest Q&A) will only be done with Proponents having submitted a Notice of Intent by the deadline defined in section 6.2.

6.1.2 Step 2: Clarification / Feasibility Assessment

The ultimate aim of this step is that sufficient information is available for the Proponent to prepare a timely submission of his Outline proposal.

Upon receipt of the Notice of Intent, ESA will provide more detailed documentation covering technical/schedule and programmatic information. An Outline Proposal template will also be provided.

Together with the above information, ESA will also inform proponents about the number of proponents having submitted a NoI. ESA will also share the list of companies (i.e. entity names) having submitted a NoI with the proponents, provided that all proponents agree to share this (entity) information. For that purpose (i.e. provide entity name information to all proponents), a dedicated statement shall be provided and returned as part of Annex A.

It is recognised that some further interactions with the Proponents will be required (as necessary, with ESA Project Team and/or programme managers, the Electra Satellite Prime, National Delegations). ESA, therefore, offers support to all Proponents with a confirmed interest (by means of the Notice of Intent defined in [Step 1](#)) in providing further clarifications aimed at determining the feasibility of the proposed payload ([Step 2](#)).

6.1.3 Step 3: Outline Proposal submission

By the defined deadline (see calendar in section 6.2) Outline proposals will need to be submitted, with the content defined in the Outline Proposal template provided during [Step 2](#). The submission of the Outline Proposal should represent a full commitment (even if conditional) of the respondent entity to proceed under conditions to be specified.

6.1.4 Step 4: Initial down-selection

The Outline Proposals received by the deadline will be evaluated against the criteria defined in section 6.3. The emphasis in this initial down-selection is to retain proposals that demonstrate their ability to meet the criteria. A particular attention will be given to credibility of the proposals on the financial and schedule aspects. Proposals that have obtained an overall marking equal or higher than "good" (60) will be retained for the next steps.

At this stage the Agency, will prepare inputs as necessary for the ESA Ministerial Council Space19+ and related funding request, if needed, for the Electra program.

6.1.5 Step 5: Issue of a Request for Quotation / restricted competition

Retained Proponents from Step 4 will then receive guidance for the preparation of the full proposal.

The discussion will be established, both with ESA and with the Electra industrial prime.

This dialogue will end once the formal Request for Quotation will be issued.

The RFQ will consist of:

- cover letter
- Special Conditions of Tender
- ESA SoW
- Management Requirements
- Draft contract

6.1.6 Step 6: Full Proposal submission

Full proposal shall be submitted in response to the RFQ.

6.1.7 Step 7: Final Evaluation

The Full proposal will be evaluated against the criteria provided in the RFQ (step 6)

6.2 AO process schedule

The schedule associated to the AO is defined in the following table:

Step	Event	Date
1	Notice of Intent	As early as possible, latest by 28 June 2019
2	Clarification / feasibility assessment	Up to step 3
3	Outline Proposal submission	2 nd September 2019
4	Down selection	16th September 2019
5	Issue of RFQ	2 nd December 2019
6	Full Proposal submission	January 2020
7	Final evaluation	February 2020

Table 2: AO process schedule

6.3 Evaluation criteria

This section identifies the evaluation criteria that will be used for both the down-selection ([Step 4](#)) and (in principle) for the final selection ([Step 7](#)).

6.3.1 Down-selection ([Step 4](#)) evaluation criteria

For the down-selection, the following evaluation criteria will be used:

- Compatibility with Electra (technical + programmatic)
- Risk assessment and proposed mitigation (technical + programmatic)
- Evidence of funding coverage (public and/or private) for all mission elements in line with financial conditions (section 5.4)
- Level of compliance with contractual principles
- Value for Money
- Support to competitiveness of ESA Member State Industry

All criteria will have equal weight in the computation of the total marking.

6.3.2 Final selection (Step 7) evaluation criteria

For the final selection, the RFQ issued by ESA (step 5) will define the evaluation criteria. At the time of issuing this AO, these criteria are expected to be as follows:

Evaluation Criteria		Weight Factor %
1	Technical and commercial experience and competence of company/ies in all areas required for the proposed work and completeness of the team, relevant experience of nominated personnel and adequacy of facilities	TBD
2	Quality of technical proposal. Detailed technical compatibility with Electra platform. Completeness and adequacy of System level concept, suitability of the proposed technical solution, assessment of technical risk as well as adequacy of engineering and product assurance approach vs. project objectives	TBD
3	Adequacy of management and planning for the execution of the entire project (considering Electra programmatic requirements), including evaluation of programmatic risk and proposed risk management. Adequacy and completeness of Work Breakdown Structure and Work Package Descriptions.	TBD
4	Adequacy of costing for the execution of work funded by ESA, including resources allocation, apportionment between cost elements, assessment of financial risk and value for money	TBD
5	Funding request to ESA versus proposed level of innovation and industrial strategic impact	TBD
6	Compliance with tender conditions (other than costing) and acceptance of contract conditions	TBD

The Agency reserves the right to modify the evaluation criteria prior to issuing the RFQ, if deemed necessary.

6.4 Summary of the process

The following diagram summarises the planned process with main inputs from ESA and from the Proponents

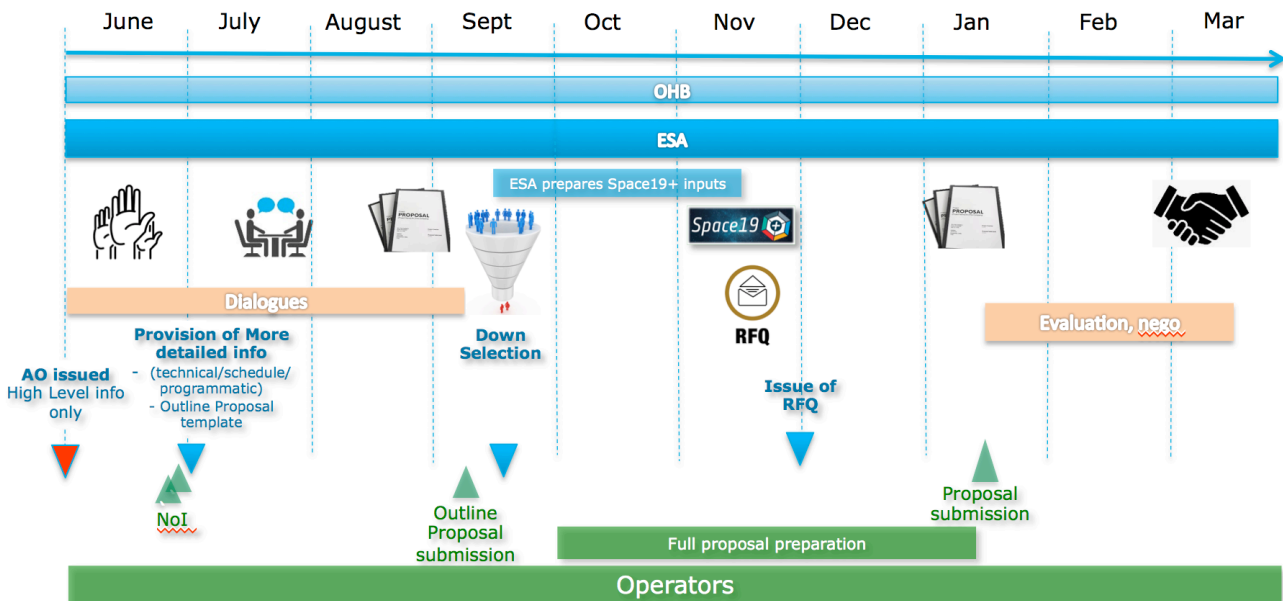


Figure 1: Announcement of Opportunity Process

ANNEX A: NOTICE OF INTENT FORM

Please note that ESA needs to share information contained in your Notice of Intent (and/or Outline Proposal) with OHB, as Platform prime, in order to ensure compatibility of your proposed mission with the Electra platform capabilities. By submitting a NoI, the proponents explicitly acknowledge this exchange of information and will be deemed to have given their consent hereto.

Proponents are also requested to provide some personal data as part of their NoI as requested below. The Agency, while not being subject to national or international laws on Personal Data Protection, ensures a high level of protection of personal data and preserves thereby the dignity and privacy of the individuals concerned (Data Subjects).

The Agency is subject to a Personal Data Protection Framework composed of the below elements and will process and protect the personal data submitted in accordance herewith. The Agency will process the data provided in the NoI for the sole purpose of evaluating the NoI and for inserting required data in the Contract should the proponent be successful.

1. The Principles of Personal Data Protection, as adopted by ESA Council Resolution (ESA/C/CCLXVIII/Res. 2 (Final)) adopted on 13 June 2017;
2. The Rules of Procedure for the Data Protection Supervisory Authority, as adopted by ESA Council Resolution (ESA/C/CCLXVIII/Res. 2 (Final)) adopted on 13 June 2017;
3. The Policy on Personal Data Protection (ESA/C/CCLXVIII/Res. 2 (Final)) adopted by the Director General of ESA on 05 February 2018 and effective on 01 March 2018.

Details of this framework can be found via the link given on EMITS (<http://emits.sso.esa.int/emits/owa/emits.main> under “Reference Documentation” ---> “Administrative Documents”).



To be filled by the Proponent

SUMMARY PAGE

Name of the Proponent company:

Contract manager name:

Technical manager name:

Mailing address:

Tel.:

Fax:

E-mail:

Mailing address:

Tel.:

Fax

E-mail:

Name of the proposed Mission:

Do you agree that ESA shares the name of Proponent companies, with all the companies having submitted the Notification of Intend?

YES / NO (Please leave the preferred reply)

Brief description of the proposed Electra mission Payload:

ELECTRA MISSION IMPLEMENTATION DATA SHEET

The following information shall be provided in the Notice of Intent.

1. Proponent consortium

This section shall identify the company or consortium of companies proposing the Mission, defining the role of each company involved. The different countries involved in case public funding would be required shall be identified.

2. Payload/mission description

This section shall briefly describe the proposed driving mission requirements as well as the payload and associated overall system/mission to fulfil them.

Should the mission also include innovative aspects promoting Satcom technology/services/applications (e.g. Optical, 5G, Safety and Security,...), the proponent is invited to expand on of those innovative aspects.

3. Payload elements

This section shall summarily describe the elements constituting the payload: equipment, antennas and other appendages.

4. Telecommunication and regulatory aspects

This section shall define any requirements associated to direct communication aspects from/to the proposed payload and associated regulatory aspects. The proponent shall be fully responsible all aspects related to compliance with the frequency regulations and licensing associated to the mission.

5. Estimated technical budgets and accommodation

This section shall define the best estimate of the dimensioning technical budgets (i.e. mass, power consumption –average, peak, duty cycle-, volume, power dissipation, thermal constraints). Other technical budgets (e.g. telecommand/telemetry needs, memory, processing) and/or specific accommodation constraints (specific location, orientation, visibility needs), if any, shall be provided at this stage if considered as sizing due to specific mission requirements.

6. Operational constraints

The Proponent shall detail any major operational requirement derived from the proposed Mission implementation

This section shall also indicate any requirement relating to data access restriction (if any)

7. Payload development

This section shall describe the development status of the different P/L constituents. In case the payload include innovative elements to be developed and proposed for support from the Agency:

a. Maturity level and pre-development needs

This section shall identify the current maturity level of the proposed payload (TRL), any existing development plans (e.g. EQM already under way) and unplanned but necessary developments required to reach a PFM or FM stage.

b. Benefits of proposed development and associated beneficiaries

This section shall define the benefits and strategic impact of carrying out the proposed development . Benefits can be direct (e.g. for the company proponent of an innovative equipment) or indirect (e.g. for satellite prime manufacturers, for satellite Operators or Service Providers)..

8. Schedule aspects

This section shall show preliminary schedule information based on a credible Payload development/procurement programme,

9. Funding aspects

This section shall define all funding-related aspects, including mention of contacts already established if any, possibilities for co-funding development and/or cost from private sources (identifying in that case the source: e.g. own company funds, beneficiaries, customers/users/etc).

ROM Cost estimate

Full mission cost assumptions with satellite in Orbit with the following breakdown:

- Space Segment
 - Satellite
 - Payload
- Launch and Insurances
- Other relevant elements

A short description of the funding source private/public for the mission.

Funding request

A ROM estimation of the funding requested to ESA shall be indicated detailing the elements for which the support is requested and in line with the program financial conditions listed in section 5.4

In case ESA is expected to contribute to funding through separate contracts, the ESA programmes that would be the user/beneficiary of that payload and hence the contributor to the funding shall also be identified.

10. Availability of TM data for in-orbit validation

The Proponent shall confirm their compliance to deliver regularly TM data and performance assessment for the Electra platform (during LEOP, EOR and three years of in-orbit operation) as well as for any payload element funded by ESA (during IOT and three years of in-orbit operation).

Confidentiality Undertaking

To: ESA/ ESTEC, e-mail: **electra-mission-AO@esa.int**

We herewith declare that any information and data disclosed by the Agency with respect to this AO, whether orally or in writing shall be considered to be of proprietary nature and therefore be treated strictly confidential.

Hereby we undertake as follows:

1. Not to copy or reproduce or permit the copying or reproduction of proprietary documents or other information or material which is not publicly available (together called “the Material”) obtained from the Agency or OHB-System other than for use in connection with the preparation of our proposal and execution of a contract in case of contract award, and we further undertake not to use nor provide nor disclose nor permit the use, provision or disclosure orally or otherwise, either directly or indirectly of any of the Material nor any copy, summary or extract thereof to any third party other than to:
 - a. Other employees of our organisation assigned to carry out work in connection with the proposal work that have a need to know.
 - b. The relevant staff of the Agency concerned with the AO.
 - c. Employees of other organisations participating in the proposal preparation who have agreed to this Confidentiality Undertaking.
2. Not to use nor to disclose nor communicate either directly or indirectly to any third party any other information whether written or oral acquired during the course of the Project, except with the prior written consent of the Agency.
3. Not to use, without the prior written consent of the Agency any of the Material except for the purposes of the proposal and/or further in case a contract was awarded to us.

Presentation	Electra Starter Kit	EL-SYS-OHB-HO-1001, Issue 01
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(An electronic version of the above marked document will be provided on a specific ftp-server with a dedicated password after this Confidentiality Undertaking has been duly received.)

Necessary access data shall be sent to the email address stated below.

Company

Address

.....



ESA Unclassified – For Official use

Phone No

Email Address

Name of Contact Person

Function of Contact Person

Date: Signature:

To be filled by the Proponent