

ANNEX 1 SPECIFICATION OF REQUIREMENTS

1 Background and objectives

ECMWF's new data centre

Since 2021, ECMWF has been operating a Data Centre at the Bologna Technopole, Italy. The Bologna Data Centre is staffed by a compact team, including a dedicated operations unit that provides 24/7/365 monitoring of the infrastructure.

The premises comprise five buildings, covering a total area of approximately 12,700 square meters. The building complex consists primarily of computer rooms, technology plants, technical areas, and offices. The available electrical power for the site is 13 MW, and the thermal plant has a cooling capacity of around 10 MW.

The ECMWF Bologna Data Centre plays a pivotal role within the international scientific community and beyond. As ECMWF's sole operational data centre, it hosts both the supercomputing systems that generate weather forecasts and the world's most extensive meteorological archive.

On a continuous daily basis, the Data Centre distributes meteorological data and forecasts to 35 sovereign states and clients across the globe. Ensuring seamless, uninterrupted operation of its systems is therefore imperative.

This operational excellence relies on a resilient, closely monitored infrastructure maintained at peak efficiency. Maintenance, accordingly, is a critical enabler of this reliability.

To guarantee optimal functioning of every component—spanning the entire physical infrastructure including mechanical, electrical, fire detection and suppression, flood prevention, access control, and intrusion protection systems—ECMWF has implemented a preventive maintenance programme structured in two tiers:

- Basic Maintenance
- Specialist Maintenance

Basic Maintenance encompasses all infrastructural elements and demands sector-specific technical expertise, as well as comprehensive knowledge of the ECMWF Data Centre's operational framework.

Specialist Maintenance complements the basic maintenance, and applies to select subsystems requiring advanced and specific technical proficiency regarding the individual components under service.

This Invitation to Tender (ITT) concerns only the Basic Maintenance scope.

Specialist Maintenance will be governed through direct contractual agreements between ECMWF and the original equipment manufacturers (OEMs). The subsystems subject to Specialist Maintenance include:

- Diesel Rotary Uninterruptible Power Supplies (DRUPS)
- Static Uninterruptible Power Supplies (UPSs)
- HVAC Systems (including chillers, dry coolers, air handling units [AHUs], and computer room air handling [CRAH] units)

- Fire Detection Systems
- Fire Suppression Systems

The awarded contractor under this ITT shall be responsible for executing all Basic Maintenance activities as a service, and must closely collaborate with providers of Specialist Maintenance interventions and with ECMWF representatives—ensuring that all operations are conducted in a coherent, integrated, and timely manner.

Objectives of this ITT

The purpose of this ITT is for ECMWF to enter into an agreement with a single provider for delivery of the following main requirements at its facility located within the Tecnopolo di Bologna.

- **Provision of Hard Facility Management Services**, ensuring the ongoing functionality, maintenance, and operation of the site's infrastructure.
- **Provision of a fixed daily technical support service on-site** during working days, with technical personnel specialized in electrical and mechanical systems.
- **Provision of a proximity on call service, 24/7**, out of office hours for electrical and mechanical engineers with a deep knowledge of the ECMWF Data Centre infrastructure
- **Provision of general services on an as-needed basis**, such as adjustment of windows and furnishings, handling of flags, loading and unloading of goods, and disposal of waste at the designated ecological station.
- **Monthly invoicing and detailed reporting**, encompassing a transparent breakdown of consumables, routine and non-routine activities, and any additional cost components.
- **Structured mechanism for future service integration**, allowing for the compliant inclusion of additional Facility Management Services as they may arise.
- **Rapid deployment of supplementary or replacement personnel**, to guarantee continuity in case of emergency or other unforeseen circumstances.

2 Envisaged Timeline for the Implementation

The contract implementation is aimed to start on 1st January 2026. The contract term will be for a period of four (4) years with an option of yearly extensions to a further two (2) years.

Details of implementation are also given in Appendices.

3 Specification of Requirements

3.1 General requirements

The Contractor shall ensure the continuous and optimal operational efficiency of the Data Centre infrastructure by performing all maintenance activities as instructed by ECMWF. This includes identifying and reporting any irregularities or anomalies in system performance and proactively proposing corrective and enhancement measures.

The services expected under the contract will be in the form specific deliverables for Work Packages and optional services that may be commissioned by ECMWF during the contract based on the resources and rates agreed.

Work Packages (WP):

- WP1 - HVAC and water systems maintenance
- WP2 - Electrical systems maintenance
- WP3 - Building maintenance services
- WP4 - Fixed daily technical support service on-site
- WP5 - Proximity on call service
- WP6 - Ad hoc assignments and new projects

Further details of scope and requirements are provided in the following table and appendices referred.

Work Package	Scope and tasks	Requirements and deliverables
General	Produce, agree (with ECMWF's engineering team) and maintain site-specific maintenance annual plan.	<p>The Contractor shall propose and use a dedicated software tool for the planning and management of maintenance activities, and shall populate it with all assets subject to intervention. With this software tool the Contractor will produce and maintain annual site-specific maintenance overview plan, shared with ECMWF representative.</p> <p>ECMWF should have access to the database and tenderer should elaborate in their proposals the details of this software and how ECMWF access will be ensured including retrieving of data after termination of contract.</p> <p>The Contractor shall update the maintenance calendar every two weeks, entering all relevant details for the subsequent two-week period to request authorisation to proceed from ECMWF's engineering team.</p> <p>The plan will cover the basic maintenance (as specified in Section 1) of all the assets, including but not limited to the following:</p> <ul style="list-style-type: none"> • HVAC equipment: <ul style="list-style-type: none"> ○ Chillers; ○ Dry Coolers; ○ Heat pumps; ○ Heat Exchangers; ○ Water pools; ○ Computer Room Air Handling units; ○ Air Handling Units; ○ Air filters; ○ Fancoils; ○ Water wells equipment. • Hydraulic parts: <ul style="list-style-type: none"> ○ Pumps; ○ Water softener; ○ Water filters;

		<ul style="list-style-type: none"> • Electric systems: <ul style="list-style-type: none"> ○ Diesel Rotary UPS; ○ Transformers substations; ○ Medium and low voltage switchboards; ○ Lighting systems ○ Emergency lighting systems; ○ Small power. • CCTV and anti-intrusion systems; • Fire detection system; • Building elements: <ul style="list-style-type: none"> ○ Walls; ○ Safety guardrails and lifelines; ○ Windows, doors, roll-up doors, gates; ○ Raised floors, suspended ceilings.
WP 1: HVAC and water systems maintenance	The tasks and the frequencies are defined in Appendix 1 – Mechanical Maintenance Plan.	<p>The contractor shall provide personnel with appropriate training and experience to perform <u>basic maintenance and repairs</u> on all HVAC systems located at the ECMWF site.</p> <p>All maintenance activities shall be carried out in compliance with the main sectoral regulations, Italian laws and technical standards.</p> <p>By way of example and not limitation, reference is made to the following: Regulation (EU) 2024/573 on F-gases, UNI EN 15780:2011, UNI 11339:2010, Italian Legislative Decree 81/2008 and Presidential Decree D.P.R. 74/2013.</p> <p>The deliverables shall be documented through:</p> <ul style="list-style-type: none"> - technical reports, including photos of the items before and after the maintenance; - updates of the maintenance software database; - transport documents of the spare parts / consumables used.

WP 2: Electrical systems maintenance	<p>The tasks and the frequencies are defined in Appendix 2 – Electrical Maintenance Plan.</p>	<p>The contractor shall provide personnel with appropriate training and experience to perform maintenance and repairs on all the electrical systems located at the ECMWF site. This includes basic maintenance of DRUPS, fire systems, access controls, alarms.</p> <p>All maintenance activities shall be carried out in compliance with the main sectoral regulations, Italian laws and technical standards.</p> <p>By way of example and not limitation, reference is made to the following: Italian Presidential Decree DPR 462/2001, Italian Legislative Decree 81/2008 and Ministerial Decree D.M. 37/2008, technical standards CEI 11-17, CEI 78-17.</p> <p>The deliverables shall be documented through:</p> <ul style="list-style-type: none"> - technical reports, including photos of the items before and after the maintenance; - updates of the maintenance software database; - transport documents of the spare parts / consumables used.
WP 3: Building maintenance services	<p>The tasks and the frequencies are defined in Appendix 3 - Building Maintenance Plan.</p>	<p>The contractor shall provide personnel with appropriate training and experience to perform maintenance and repairs on all the construction elements located at the ECMWF site. E.g. Walls, windows, doors and gates, raised floors and suspended ceiling, glass facades, safety fences, lifelines.</p> <p>All maintenance activities shall be carried out in compliance with the main sectoral regulations, Italian laws and technical standards.</p> <p>The deliverables shall be documented through:</p> <ul style="list-style-type: none"> - technical reports, including photos of the items before and after the maintenance; - datasheet of the goods provided; - updates of the maintenance software database.

WP 4: Fixed daily technical support service on-site	<p>The contractor is required to provide on-site support services with two technicians, on weekdays during the hours between 07:00–18:00 (e.g. Technician A from 07:00 to 12:00 and from 13:00 to 16:00; Technician B from 09:00 to 13:00 and from 14:00 to 18:00).</p> <p><u>The core principle of the service is the flexible deployment of the site-based team. This may include activities such as modifications to existing services and the installation of new equipment, and any other requirements such as furniture assembly/arrangement, handling of ceremonial flags, and loading/unloading of goods.</u></p>	<p>Technicians on duty shall possess:</p> <ul style="list-style-type: none"> • electrical and mechanical skills; • thorough knowledge of the ECMWF site; • the necessary skills to adequately respond to other types of requests in scope of this ITT. <p>CVs of the proposed technicians should be provided with the tender and tenderers should include their proposed methodology for retainment of staff for this work package.</p> <p>Records of the activities carried out and the time spent on each shall be maintained and submitted to ECMWF personnel on a weekly or bi-weekly basis.</p>
WP 5: Proximity on call service (out of working hours)	<p>The Contractor shall maintain a round-the-clock emergency call-out service, available 24 hours a day, 365 days a year, outside the regular site attendance hours.</p> <p>This service must ensure a technician arrives on-site within one hour of the initial contact.</p> <p>To guarantee familiarity with the site's infrastructure and systems, only rostered members of the site-based team shall provide this service.</p> <p>The Contractor is required to submit details outlining the organisation and implementation of this arrangement.</p>	<ul style="list-style-type: none"> • A 24/7 telephone support service shall be provided. • Calls shall be promptly handled, with the activation of operator(s) possessing the required skills and site-specific knowledge. • Operator(s) must arrive on site within one hour of receiving the call. • Emergency management shall include: notifying the on-call ECMWF personnel and carrying out all possible actions to resolve the issue. <p>Detailed reports of the intervention will be provided including at least:</p> <ul style="list-style-type: none"> • timeline since the call received; • names of people involved; • action takes; • goods used to solve the emergency; • outcomes of the actions; • actions to be done in the future / suggested by the Contractor

<p>WP 6: Ad-hoc assignments/new projects</p>	<p>These refer to services that can be commissioned on an as-needed basis.</p> <p>The Contractor may be requested to provide quotations, and if accepted by ECMWF, to carry out additional works. These quotations must be <u>based on the resources and maximum rates agreed as a result of this tender.</u></p> <p>These can be described as building, mechanical and electrical works, e.g.:</p> <ul style="list-style-type: none"> -not included in the deliverables of the work packages 1-5 in this ITT; -requiring additional or different skills -requiring additional person-days or resources; -requiring provision of material and implementation as a stand-alone project <p>The contractor will prepare a technical and financial estimate and submit it to ECMWF. If the work is commissioned by ECMWF, the contractor will develop the detailed executive project and complete the work within the timeframe agreed with ECMWF.</p>	<p>All documentation required under applicable regulations, as well as everything necessary to certify that the work has been carried out in a workmanlike manner (e.g. declaration of conformity, user manuals, schematic updates etc.).</p> <p>Upon acceptance of the quotations by ECMWF, such works shall be executed in a professional and workmanlike manner, accompanied by all documentation required under applicable regulations, including project specifications, declarations of conformity, and user and maintenance manuals for the relevant equipment.</p>
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See separate documents for appendices:

Appendix 1: Building Maintenance Plan

Appendix 2: Electrical Maintenance Plan

Appendix 3: Mechanical Maintenance Plan

Italian translation of these appendices are provided as well for convenience. English versions are the official documents that are formal part of the tender and any subsequent contract.