

ECMWF Copernicus Procurement Invitation to Tender



Copernicus Joint Services

Demonstrator Cases to Support Renewable
Energy Transition Across the Mediterranean

Volume II: Specification of Requirements

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1 Introduction

Some of the biggest societal challenges we face are related to climate change and the impact this will have on the environment and on our own activities. Analysis by the Intergovernmental Panel on Climate Change (IPCC) clearly shows that global emissions need to be reduced to net-zero within the next few decades to avoid the most dangerous impacts of climate change. Energy is at the heart of the solution to the climate challenge and as key to economic prosperity.

At present, the Mediterranean region is largely dependent on oil, gas and coal. On average, fossil fuels make up 65% of the energy mix in the Northern Mediterranean states¹ and on the other hand, the Mediterranean basin has untapped potential for the deployment of renewable energy sources.

Renewable energies exploit natural resources such as wind, sunshine, and river flow, among others, to produce electricity with far fewer greenhouse gases and air pollutants emissions. Each type of renewable energy has its own constraints and advantages, and some are better adapted to the Mediterranean region.

There are gaping differences in the share of renewables between Mediterranean countries. For instance, the share of renewables in total energy consumed in 2021 was less than 5% in North Africa, compared to 22% in the EU. In the Middle East, the share of renewables in final energy consumption is less than 1%².

ECMWF and the [Union for the Mediterranean](#) (UfM) have a close partnership with the aim to stimulate the uptake of the Copernicus Climate Change Service (C3S) and the Copernicus Atmosphere Monitoring Service (CAMS) products and services in the Mediterranean region. This Invitation to Tender (ITT) for demonstrator cases is in partnership with the UfM³. UfM's remit includes activities that facilitate and promote regional dialogue, cooperation and regional integration in the fields of Energy and Climate Action in the Mediterranean region⁴. Through advancing towards more secure and sustainable energy models, UfM is helping to foster climate resilient societies. To this end, this ITT seeks to promote the uptake of high-quality environmental and climate datasets, promoting data and information services which can help inform decisions and/or policies with the domain of energy, promoting the transition to a green economy.

Copernicus, including its C3S and CAMS has been implemented to meet societal challenges, including supporting the green transition. Copernicus aims to provide policymakers, businesses, and citizens with high-quality usable information that can support decision making processes. Some examples on the added value of Copernicus data and services for the energy sector can be explored via the Copernicus Energy Hub (CEH): see <https://energy.hub.copernicus.eu/>



Datasets from Copernicus, and those specifically from C3S and CAMS as implemented by ECMWF (on behalf of the European Commission) have been used to support the transition to renewables, including site selection

¹ Source: Observatoire Méditerranéen de l'Énergie (2022) The Mediterranean Energy Perspectives 2022, available at <https://www.ome.org/wp-content/uploads/2023/01/MEP2022-Executive-Summary.pdf>

² Source: International Energy Agency (2022) Modern Renewables data, available at <https://www.iea.org/reports/sdg7-data-and-projections/modern-renewables>

³ <https://ufmsecretariat.org/>

⁴ UfM Member States: <https://ufmsecretariat.org/who-we-are/member-states/>

for renewables, energy production forecasting and life cycle analysis. Examples of how CAMS and C3S data can, and have been used by the renewable energy sector across the Mediterranean have been showcased in a [story map](#)⁵ produced in conjunction with ECMWF and the UfM.

Climate data makes it possible to identify optimal sites to locate renewables and plan for grid extension. Using datasets on wind speed, solar irradiation, or dust transport, it is possible to develop tailored maps to assess the potential yield of wind and solar generation sites. Similarly, in selected mountainous regions, data on snow, ice, and river flow and runoff can support site selection for hydroelectric dams. In addition, seasonal forecasts, and climate projections from C3S have been used in energy models and are being used across Europe to manage energy supply and demand at the seasonal and climate projections time scales. In addition, high quality climate data can aid the assessment of vulnerabilities and associated risks in the new energy mix under present and future climates. Examples of which can include the impacts of wind droughts and efficiency of solar energy production with excessive temperatures.

An example of use of the C3S climate information coming from ERA5 reanalysis and climate projections is the co-development of the Pan European Climate Database (PECDv4.1) together with European Network of Transmission System Operators for Electricity ([ENTSO-E](#)) that will be used for their European Resource Adequacy Assessment (ERAA) studies. While forecasts from CAMS are used by solar power operators in Europe and Northern Africa; for to assist with adapting to adverse conditions linked to dust storms or high aerosol concentrations.

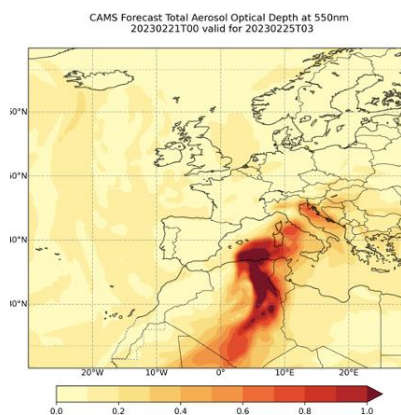


Figure 1: CAMS total aerosol optical depth dataset showing Saharan dust storm

1.1 Introduction to Copernicus

Copernicus is the European Union's (EU) flagship programme for monitoring Earth's environment using satellite and in-situ observations. It delivers operational data and information services through six themed Copernicus Services.

ECMWF implements the Copernicus Climate Change Service and the Copernicus Atmosphere Monitoring Service on behalf of the European Commission. Both CAMS and C3S provide quality assured reference data at European and Global level which allow the development integrated solutions at the regional level and promote the development of new applications and services for the benefit of society.

[C3S](#)⁶ develops and delivers authoritative, quality-assured information about the past, current and future states of the climate in Europe and worldwide. It aims to inform policy development to protect citizens from climate-related hazards such as high-impact weather events, improve the planning of climate adaptation and mitigation strategies for key human and societal activities.

[CAMS](#)⁷ provides consistent and quality-controlled information related to atmospheric compounds and their impacts on air pollution and health, solar energy, greenhouse gases and climate forcing, everywhere in the world.

⁵ <https://stories.ecmwf.int/paving-the-way-for-a-renewable-energy-transition-in-the-mediterranean/index.html>

⁶ <https://climate.copernicus.eu>

⁷ <https://atmosphere.copernicus.eu>

In 2023, Copernicus launched four [Thematic Hubs](#)⁸. These hubs serve as single entry points to data and products generated by different Copernicus services on specific regional or thematic areas. The main objective of these hubs is to streamline user access to the vast data resources provided by Copernicus, in line with the European Commission's long-standing commitment to make this data easily accessible, and to provide examples of how Copernicus datasets can be used, with real-world examples, to help address some of society's key challenges.

1.2 Introduction to the Union for the Mediterranean (UfM)

The [Union for the Mediterranean](#) (UfM) is an intergovernmental organisation that brings together 43 countries to strengthen regional cooperation and dialogue, promote stability and regional integration in the Euro-Mediterranean area. As a direct continuation of the Barcelona Process, the launch of the UfM in 2008 was the reflection of its member states shared political commitment to enhance the Euro-Mediterranean Partnership. The UfM's objective is to reinforce the South-South and North-South cooperation through an operational and inclusive approach.

UfM actions on Energy and Climate Action are framed under the mandate given by its Member States through the following Ministerial Declarations:

- The [UfM Ministerial Declaration on Energy](#) was adopted in Lisbon, in June 2021 to enhance regional cooperation on energy and foster the gradual integration of energy markets, reinforcing the energy exchange and interconnections and removing existing and potential barriers, for the common benefit of the Mediterranean citizens. To do so, one Energy Platform was established with three Working Groups on (i) Gas, (ii) Regional Electricity Market, and (iii) Renewable Energy and Energy Efficiency.
- The [UfM Ministerial Declaration on Environment and Climate Action](#), signed in Cairo in October 2021, agreed on a common agenda to strengthen efforts to urgently tackle the multiple climate and environmental challenges. This commitment reflected the highest possible ambition in accelerating transition towards sustainable, climate-neutral and green economies. The Declaration established the UfM Platform on Environment and Climate Action with two Working Groups (Working Group on Environment and Working Group on Climate Action).

ECMWF and UfM have signed an MoU in October 2021 to further strengthen bilateral cooperation, notably in the fields of technical expertise and activities that boost the uptake and impact of the Copernicus services implemented by ECMWF for the benefit of the UfM, its Member States and citizens in the Mediterranean basin.



2 Contract Summary

This ITT is for “Demonstrator Case” contracts that, based on regional policy and linked energy market insight, will develop and demonstrate solutions to empower users throughout the Mediterranean region to stimulate and facilitate the integration of CAMS and/or C3S data into existing or new solutions to enhance development of renewable energies in the region. Demonstration tools should support decision-making processes, potentially in combination with other Copernicus data, meteorological data (for example those from

⁸ <https://www.copernicus.eu/en/news/news/observer-exploration-copernicus-thematic-hubs>

Destination Earth) and other sectoral, or socio-economic information and data as required. The objective of these contracts is to stimulate innovative ideas for the exploitation of Copernicus data, promote knowledge exchange and community shaping with a goal of supporting the uptake and growth of renewable energy in and across the Mediterranean. Activities shall realise demonstration cases which illustrate potential uptake and inspire other initiatives in the region.

The demonstration cases can be linked to any part of the renewable energy value chain within the Mediterranean region. Example demonstrator cases could:

- Support investment decisions for renewable energy infrastructure projects and aid site selection for renewable energy production;
- Inform operation and maintenance of renewable energy infrastructure;
- Enhance services associated with the supply, distribution, and storage of renewable energies,
- Support electricity grid management activities;
- Underpin policy development for local – regional renewable energy and green transition;
- Assess and monetize the benefits of development of renewable energy mixes for human health and the environment;
- Enhance existing workflows and data services with C3S and / or CAMS data, showcasing the value of operational, quality assured datasets in the domain of renewable energy;
- Promote uptake of data and information services for the renewable energy sector through the provision of dedicated training and knowledge exchange activities.

This ITT seeks to promote the transition to net-zero, enhance national capacities in partner countries, and work towards climate resilience across the Mediterranean.

Working with the UfM, ECMWF promotes with this ITT the empowerment of users in the promotion on the use of CAMS and C3S data in scope of investments in renewable energies in those countries and regions which have reliance on fossil fuels and capacity to transition to a lower carbon future.

To facilitate this, entities from Copernicus contributing countries (Copernicus Participating Countries include all EU Member States, as well as Iceland, Norway and the United Kingdom) are encouraged to lead the bids, partnering with eligible entities based in non-EU / non-Copernicus contributing countries as subcontractors (please refer to Section 3.2.1 of Volume I for details).

The criteria for selection will be:

- Use of one or more C3S and/or CAMS products, possibly in combination with other Copernicus data, meteorological data and other essential information and data on energy infrastructure and demand;
- The ability to contribute with the proposed initiatives and solutions to concrete operational decision-making processes, i.e. in line with the policy objectives of the UfM for the region;
- Ensure the bid is user focused, with defined and committed users (who are included as sub-contractors, or in exceptional circumstances a letter of commitment should be provided).
- Potential for increasing the use, and visibility of C3S/CAMS data and services, community shaping across entities in the Mediterranean and empowerment of key stakeholders / user communities which may lead to the enhancement of renewable energy in the Mediterranean, and
- Quality and value for money of the proposals.

Note that this ITT is for the development of demonstration cases and is not meant to fund research into use of C3S / CAMS products. However, the proposals need to show scientific merit.

Within this ITT, ECMWF aims to select demonstration cases addressing a representative set of at least one C3S and/or CAMS data product or application. The combination of these data products with other

Copernicus data, i.e. other CAMS and C3S data as well as CMEMS ([Copernicus Marine Service](https://marine.copernicus.eu))⁹ and CLMS ([Copernicus Land Monitoring Service](https://land.copernicus.eu/en))¹⁰ data, amongst others, is stimulated.

Notwithstanding the above, bids addressing the needs to develop the uptake of renewables in the Southern Mediterranean regions would be welcome in a first instance.

ECMWF expects individual bids valued between €150,000 and €300,000 to achieve the objectives of this ITT, depending on the scope of the proposed demonstrator cases. Nevertheless, ECMWF may consider Tenders outside of that range if duly justified by the Tenderer and there is clear demonstrable potential impact.

Between 2 (two) and a maximum of 4 (four) contracts will be awarded to the highest-ranking Tenders that have passed the minimum threshold of 60% in the evaluation. Each contract must be led by one prime contractor, which may engage with one or more subcontractors. Tenderers may submit, or may participate in a subcontractor capacity in, more than one Tender. These contracts are expected to commence in a staggered manner between February and April 2025, depending on how negotiations with preferred Tenderers progress. For the purposes of preparing responses, Tenderers should consider 1 March 2025 as the indicative start date for the contract. The actual contract start date, as well as necessary adjustments, will be agreed with the preferred Tenderers during the negotiation phase.

A balance between CAMS and C3S driven demonstrator cases will be considered in the selection process.

A maximum contract duration of 24 months is expected. However, the Tenderer must specify the duration of the activities (up to 24 months) at the proposal stage; ensuring timelines are aligned with scope, key project activities and milestone and availability of resources.

ECMWF promotes gender equality and welcomes proposals with balanced gender mix as well as those which have considered carbon emissions in their project planning.

3 Technical Specification

The Invitation to Tender is open to bidders who are proposing demonstration cases that address needs and requirements from the renewable energy sector within the Mediterranean region.

The ITT targets contractors who are aiming demonstrate value to C3S and / or CAMS data in the renewable energy domain in the Mediterranean region.

3.1 Service Scope and Requirements

The ITT will facilitate demonstration cases, which demonstrate the added value of environmental, energy and climate data from the CAMS and C3S services, implemented by ECMWF, in the domain of renewable energy across, or within specific countries / regions in the Mediterranean. It is a requirement to use C3S and / or CAMS datasets in these demonstrator cases. The demonstration cases can also include other Copernicus datasets which are deemed valuable from other Copernicus thematic information services (e.g. CLMS, CMEMS) as well as imagery provided from the Copernicus Earth Observation missions.

The demonstration case proposals must clearly address:

- User needs and requirements – The proposal should be user focused, with defined and committed users.
- Support UfM's goal to facilitate and promote regional dialogue and cooperation in the fields of Energy and Climate Action.

⁹ <https://marine.copernicus.eu>

¹⁰ <https://land.copernicus.eu/en>

- Clearly demonstrate how the bid aims to promote the uptake of CAMS and C3S data in support of renewable energy production across, or at selected sites in and around the Mediterranean. Eventual geo-political sensitivities shall be avoided, incl. in presentation of borders.
- Detail how C3S and, or CAMS, and if appropriate other Copernicus datasets will be used within the demonstrator case. The use of data and its processing should be clearly articulate in the proposal.
- Articulate the expected benefits of the demonstration case being proposed.

Output from these demonstration cases will be published in the Copernicus Energy Hub, showcasing how C3S, CAMS and potentially, other datasets from Copernicus can support renewable energy sectors in and across the Mediterranean Basin.

3.2 C3S and CAMS Data Products

C3S and CAMS products have been used to support the production of renewable energy within Europe and beyond. The Climate Data Store and Atmosphere Data Store contain datasets relevant to the renewable energy sector and their use will provide additional insight throughout the life cycle of various renewable energy projects. Tenderers are encouraged to explore the relevant data stores prior to bidding.

Tenderers are expected to be domain experts, demonstrating deep understanding of the renewable energy sector and demonstrate how environmental and climate data products can enhance data services leading to uptake of renewable in the target region. The tenders should have sound knowledge of our data products and ability to handle / process data offered. The tender should showcase how products in either, or both the Climate Data Store¹¹ & Atmosphere Data store¹² can be used to meet the objectives of this tender. Examples of how C3S products have been used by renewable energy application can be found [here](#)¹³.

In addition to the datasets available now, two user-oriented datasets for the energy sector are soon to be published by C3S and will be available in the Climate Data Store:

1. Climate and energy variables data at ENTSO-E PECD (Pan European Climate Dataset) scale for the historical stream (from 1980 to 2021 using ERA5 reanalysis) and CMIP6 projections (from 2015 to 2065), using SSP2-4.5 only (version 4.1) will be available Q3 2024 (expected publication date). A further updated scheduled for Q4 2024 that provides additional scenarios. A description of the dataset developed to support ENTSO-E can be found in the footnote of this page¹⁴.
2. C3S will update climate-relevant indicators for the energy sector (including air temperature, precipitation, incoming solar radiation, wind speed at 10 m and 100 m, and mean sea level air pressure) and energy indicators (namely electricity demand and power generation from various sources: wind (both onshore and offshore), solar and hydro (run-of-river and reservoir) power). The current C3S Energy operational service, published in the CDS is composed of two main streams: [historical \(1979-present\)](#), and [projections \(covering the period 2005-2100\)](#). The projections dataset produces reference climate variables based on CMIP5 and the European regional climate model experiment, CORDEX. Energy variables are generated by transforming the climate variables using a combination of statistical models and physically based data. At the time of issuing this tender it is expected that the C3S Energy service will release a new catalogue entry in Q4 2024, providing global coverage and using the most recent CMIP6 projections as well as an operation data service using multi-model seasonal forecast.

¹¹ <https://cds.climate.copernicus.eu/cdsapp#!/home>

¹² <https://ads.atmosphere.copernicus.eu#!/home>

¹³ <https://climate.copernicus.eu/c3s-data-know-which-way-wind-blows>

¹⁴ <https://climate.copernicus.eu/c3s2412-enhanced-operational-services-energy-sector>

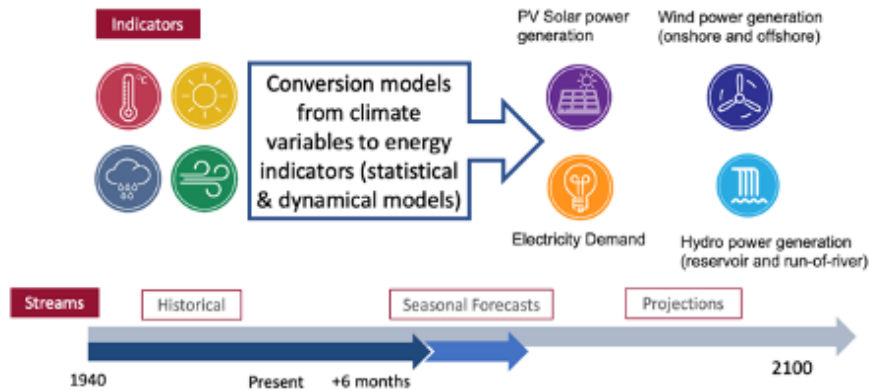


Figure 2: Overview of the C3S indicators and ECV's for the energy sector soon to be made available in the CDS

3.3 Technical Description

The proposal must provide a technical description of the “Demonstration Case”. The description shall cover, as a minimum, the following aspects:

- Overall aims and objectives of the demonstration case, including expected impacts, such as addressing key challenges in the uptake of green energy infrastructure.
- Input data product(s) used and any required infrastructure in the implementation of the demonstrator case. This must specifically address the requirement to use C3S and / or CAMS products. In addition, the proposed activities can also include any other Copernicus data, and other third-party datasets, such as sectoral data, meteorological dataset as well as socio-economic data required to undertake the proposed demonstrator case.
- Details of the target geographical area(s), stakeholder analysis and first assessment of user needs and requirements.
- Outline technical design including information flow (including value chain) and community shaping actions.
- Communication and outreach strategy, including how the contract will manage key stakeholders and promote outcomes of the contract.

3.4 Work Package 1 (WP1): User Engagement and Demonstration Case Definition

The tenderer shall describe the activities in sufficient detail to allow ECMWF to evaluate the plans and activities that will be included in the demonstration case contract. Example demonstrator cases are provided in Chapter 2. The tenderer is expected to clearly identify the users, service and functional requirements that make up the activities, and, according to the activities proposed, and outline how user interactions will be managed.

This activity shall also define how the tenderer will assess the impact of the activities. This initial period (up to 6 months) of the contract will provide comprehensive plans how CAMS and/or C3S products and services will empower user communities and enhance current workflows and services and help to close the current information / service gap. This planning phase shall address expected challenges, benefits and, where appropriate include stakeholder engagement activities that will be implemented in the implementation phase (WP2).

Minimum required deliverables include:

- User requirements analysis document, outlining the key actionable requirements (user, data, service requirements) that define the activity, including intelligence on targeted users and stakeholders, including regional policy drivers. This document will be used by ECMWF to capture new requirements

/ gaps for datasets and services; therefore, it is imperative that the requirements are clearly defined with sufficient granularity to allow ECMWF to assess the impact and feasibility of their implementation. User requirements shall be made available for ingestion into the User Requirements Database (URDB) for C3S and CAMS in collaborating with the respective user intelligence contractor.

- Service specification and Implementation plan, providing a detailed overview of the timeline, methodology and activities that will be implemented under the contract and including full assessment of risks, stakeholders, and user engagement plans, as well as resources. This report is also needing to detail the expected impacts of the contracted activities and a preliminary plan of how the actions can be sustained operationally beyond the end of the contract.

3.5 Work package 2 (WP2): Implementation

The Successful Tenderer shall implement the activities as detailed in WP1; developing the value-added datasets and services, which build on C3S and / or CAMS datasets, that are underpinned by the requirements defined in the user and stakeholder analysis.

WP2 must have the specific implementation tasks organised into a single work package, with tasks, milestones, deliverables, and a Gantt chart. The deliverables and milestones included in the WP will be dependent on the scope and activities being implemented in the contract.

There are no universal mandatory deliverables – the tenderer needs to define this at the proposal stage. The tenderer must consider the nature of the task being undertaken and respond accordingly.

Milestones must be aligned to key developments in the implementation of the demonstration case, for example ‘data processing complete’, or ‘demonstrator service launched’.

3.6 Work Package 3 (WP3): Communication and User Outreach

Communication and user outreach is an integral part of the tender. The communication activities should put the contractors at the core of the outreach efforts ensuring that the contracted activities are contributing to ECMWF and UfM’s strategic and tactical goals of promoting uptake and awareness of C3S/CAMS services and capacity of renewable energy across the Mediterranean basin.

This work package must include communication and outreach activities organised into a single work package, with specific tasks, milestones, deliverables, summarized in a Gantt chart.

Deliverables must include, but are not limited to:

- Detailed communication and user outreach plan (by month 6 of the contract) – this deliverable will inform ECMWF how the contract will develop a strategy and materials for awareness raising, including both wide and targeted user outreach and promotion. This deliverable will:
 - Detail how the contract will raise awareness and promote the use of C3S and or CAMS products, as well as other Copernicus data services, to a potential users, e.g. regional and national energy policies, key infrastructure stakeholders, etc., as well as other stakeholder in the UfM member states such as policy makers.
 - Detail how the contract will allow ECMWF and UfM to communicate the activities and expected impacts arising from the contract.
- Public summary of demonstration case for publication on the Copernicus Energy Hub website.
- In addition to the above deliverables, the final report should contain a detailed overview of the ‘communication and user outreach activities’ performed in this contract, detailing the scope, stakeholders and impact of the WP3 activities. This final report shall be delivered at the end of the contract and is included under WP0.

The communication and user outreach plan will include an overview of the activities, use of data from ECMWF Copernicus services / products, links to the relevant policy objectives of the UfM and expected impacts of the demonstration case activities. The plan will be updated over the duration of the contract. The communication and user outreach plan can include development of web material (both for increased stakeholder engagement, service development and publicity); use of social media channels to engage with stakeholders and make publicity of contractual outcomes, and other promotion material that will be used to raise awareness and promote the impacts as achieved through the funded action. The plan will also inform ECMWF communication and user outreach teams about key activities, milestones and impacts that have communication potential over the duration of the contract. This plan must also address targeted user outreach activities toward its regional users, or other national and regional administrations in the appropriate national languages. Eventual translation costs shall be accounted for.

By user outreach in this section, we mean targeted communication efforts to specific groups of potential users with concrete needs in opposite to a broad audience.

Deliverables are expected over the duration of the contract to include web material, promotional material (as defined in the communication plan) and demonstration case summary report for publication on the UfM and [Copernicus Energy Hub use case web pages](#)¹⁵. The tenderer needs to define the deliverables at the proposal stage considering the tasks being undertaken in their work package. Developed material shall be in English as well as in at least one of the local languages of the countries covered.

The contract is expected to deliver a minimum of one ‘demonstration case’, a publishable summary of how the activities have demonstrated value – this should include how C3S/CAMS products and services have been used to enhance existing workflows or develop novel services, in the case of technical development activities; the processing steps undertaken, the added value to users or impacts related to new operating practices arising from the funded activity.

In addition, at least one user testimonial shall be provided before month 18 of the contract. The successful Tenderer may be asked as well to provide further input for the development of user stories.

Milestones must be aligned to key activities, or events, in the contract, for example ‘end user training day’, or ‘training material published’.

A mandatory milestone in this work package will be the participation, and presentation and/or a training of the demonstrator case, at one UfM/ECMWF event (i.e., user day with UfM targeting regional stakeholders from relevant line ministries and civil society, etc.,) as agreed by ECMWF. The venue will be in the Mediterranean region and participation is expected. In addition, attendance at the annual CAMS and C3S general assemblies, may be requested by ECMWF.

Other deliverables must be defined by the tenderer at the proposal stage. The tenderer must consider the nature of the task being undertaken in their work package and respond accordingly.

3.7 Work Package 0 (WPO): Management and Coordination

The following management aspects shall be described in the technical proposal:

Meetings:

- Kick-off meeting.
- Regular progress review meetings (by videoconference).

¹⁵ <https://energy.hub.copernicus.eu/inspiring-stories-and-use-cases>

- ECMWF and UfM will organise an event to showcase the demonstrator cases. The Contractor is expected to attend this meeting and contribute to showcasing the outcomes of the contract and participate to discussions related to the topic of this ITT.

Quality assurance and control: the quality of reports and Deliverables shall be equivalent to the standard of peer-reviewed publications. The timely delivery as well as final quality check of the deliverables shall be ensured by the prime contractor (in terms of content, use of ECMWF reporting templates for deliverables and reports (Microsoft Word), format, deliverable numbering and naming, typos...); all reports in this contract shall be in English. Unless otherwise specified the specific contract Deliverables shall be made available to ECMWF in electronic format.

Communication management (incl. external and internal communication). Any external communication activity must be agreed with the ECMWF Copernicus Communication team in advance. This includes, but not exhaustively, communication planning, branding and visual style, media outreach, website, and social media activity, externally facing text and graphical content and events. Agreed activity would also need to be evaluated and reported on once complete so that success measures and KPIs could be provided to the European Commission (cf. Clause 2.4.6 of the Framework Agreement).

Set of Key Performance Indicators (KPIs) suitable for monitor contract performance. The proposed KPIs shall be SMART (specific, measurable, actionable, realistic and time bound). For the website / data portal accessibility, indicators allowing the collection of statistics such as the number of user views and user country must be tracked.

Risk Management: The proposal shall include a risk register that describes identified risks for each work package, along with a mitigation strategy for each of the identified risks. Besides risks linked to objectives, resources and deadlines, geo-political risk shall be covered. These latter shall be kept to the absolute minimum.

This mitigation strategy shall be composed of both preventive and corrective measures. The risk register shall be updated regularly by the Contractor, and any update (related to new risks, likelihood, or impact) shall be reported during the progress review meeting, as well as part of the quarterly and annual implementation reports.

Resources planning and tracking using the appropriate tools.

Subcontractor management, including conflict resolution, e.g. the prime contractor is responsible for settling disagreements, although advice/approval from ECMWF may be sought on the subject. A list of subcontractors describing their contribution and key personnel shall be provided, as well as backup names for all key positions in the contract. Tenderers shall describe how the Agreement; in particular, Clause 2.9 on Sub-contracting has been flowed down to all their subcontractors.

Management of personal data and how this meets the requirements of Clause 2.8 on Personal Data Protection and Annex 6 of the Agreement.

The required deliverables under WPO include short implementation reports to be delivered on quarterly basis, an annual implementation plan for the coming year (TBC on a case-by-case basis), as well as the final report to be delivered at the end of the contract. In particular:

- The Quarterly Implementation Reports shall summarize in 1 page the technical progress achieved in the last quarter. Potential updates related to KPIs, risk register or deliverables planning may also be included. In such case, the report shall not exceed 3 pages in total.
 - The quarterly report of Q2 and Q4 of the year shall be accompanied by a financial report of the last 2 quarters and the last year respectively.
- Annual implementation plan includes the objectives and highlights expected in the coming year,

overview of planned technical activities, overview of communication and outreach activities, as well as overview of management activities, such as risk management approach, indicative resource planning, quality control activities, etc. Deliverables and milestones planning shall also be included.

- Final implementation report shall contain comprehensive information on the implementation of the demonstration case throughout its term, including description of results generated and achievements. It shall also contain all the financial information of the demonstration case, including potential audits and recoveries.

For all the above-mentioned deliverables, the Contractor shall use specific templates, which will be provided by ECMWF in due time ahead of the delivery due date.

WPO Deliverables		
Deliverable #	Title	Due
D155b.0.1.1-YYYY.QQ	Quarterly Implementation Report (including relevant financial reporting in Q2 and Q4 of the year)	On 15/04, 15/07, 15/10 and 15/01
D155b.0.1.2	Final Implementation report (including relevant financial report)	end of contract
D155b.0.2.1-YYYY	Annual Implementation Plan (for the coming year)	Annually on 30/09 (TBC depending on the contract start date)
D155b.0.3.1-YYYY	Copy of prime contractor's general financial statements and audit report YYYY (YYYY being the Year n-1)	Annually (no-cost associated)

WPO Milestones			
Milestone #	Title	Means of verification	Due
M155b.0.1.1-MX	Progress review meetings with ECMWF	Minutes of meeting	Monthly
M155b.0.1.2	Kick-off Meeting	Minutes of meeting	M1

4 General Requirements

4.1 Implementation Schedule

The Tenderer shall provide a detailed implementation plan of proposed activities for the full contract period.

4.2 Deliverables and Milestones

Deliverables should be consistent with the technical requirements specified in Section 3. A deliverable is a substantial, tangible or intangible good or service produced as a result of the contract. In other words, a deliverable is an outcome produced in response to the specific objectives of the contract. Deliverables are subject to acceptance by the technical and contract management officers at ECMWF. (for deliverables quality assurance and control requirements, please see also Section 3.7)

Each Deliverable shall be listed in the Deliverable List tab of Volume IIIA with an associated resource allocation (in person-months) and relevant price. The total of these allocated resources shall amount to the requested budget associated with payroll (in cost and prices tab of Volume IIIA).

Milestones should be designed as markers of demonstrable progress in service development and/or quality of service delivery, as applicable. They should not duplicate deliverables, neither have associated resource allocation, contrary to the deliverables.

Tenderers shall complete the relevant table in Volume IIIA as part of their bid, including there the details, schedule and concrete delivery/completion due date of all deliverables and milestones under each work package.

4.3 Documents and Reports

All project reports shall be produced in English. Unless otherwise specified in the specific contract, deliverables shall be made available to ECMWF in electronic format (Microsoft Word/PDF/Microsoft Excel or compatible), via the Copernicus Deliverables Repository portal; the details will be agreed at the negotiation stage with the preferred bidders.

4.4 Communication

The Successful Tenderer shall support ECMWF in its communication activities for the Copernicus services, where they are related to the activities described in this ITT. Additional activities such as Copernicus website news items, Copernicus brochures and flyers, may be discussed on a case-by-case basis during the contract implementation. For communication management requirements, please see also Section 3.7.

4.5 Data and IPR

It is a condition of EU funding for Copernicus that ownership of any datasets/software developed with Copernicus funding passes from the suppliers to the European Union via ECMWF. Ownership will pass from the date of creation of the datasets/software. Suppliers will be granted a non-exclusive licence to use the datasets/software which they have provided to Copernicus for any purpose.

All software and products used by the Successful Tenderer to produce the Copernicus datasets/software will remain the property of the Successful Tenderer, except for those components which are acquired or created specifically for Copernicus purposes, with Copernicus funding, and which are separable and useable in isolation from the rest of the Successful Tenderers' production system. The identity and ownership of such exceptional components will be passed to the European Union annually. The Successful Tenderer will be granted a non-exclusive licence to use them for any purpose.

4.6 Payment Plan

Tenderers can propose a Payment Plan in ITT Volume IIIA "Pricing and deliverables" (cf. Excel spreadsheet "Payment Plan preparation"):

The Payment Milestones should relate to the deliverables and milestones delivered during the corresponding Payment Milestone period (e.g. the payment covering the period January-June would only relate to the deliverables and milestones whose due dates are part of the same period). The recommended frequency of payments is on semestrial basis (i.e. two payments per year).

In case of request for a payment at contract signature, please note that this should be duly substantiated (e.g. in terms of necessary investment prior to implementation or during first weeks/months for ensuring the initial set up of the project). It is necessary to relate this payment to activities subject to other Payment Milestones.

5 Tender Format and Content

General guidelines for the tender are described in Volume IIIB. This section describes specific requirements to prepare the proposal for this tender, along with guidelines for minimum content expected to be included in the proposal, additional to the content described in the general guidelines of Volume IIIB. This is not an exhaustive description, and additional information may be necessary depending on the Tenderers' response.

5.1 Page Limits

As a guideline, it is expected that individual sections of the Tenderers' response do not exceed the page limits listed below. These are advisory limits and should be followed wherever possible, to avoid excessive or wordy responses.

<i>Section</i>	<i>Page Limit</i>
<i>Executive Summary</i>	2
<i>Track Record</i>	2 (for general) and 2 (per entity)
<i>Quality of Resources to be Deployed</i>	2 (excluding Table 1 in Volume IIIB and CVs with a maximum length of 2 pages each)
<i>Technical Solution Proposed</i>	20 (Table 2 in Volume IIIB, the section on references, publications, patents and any pre-existing IPR is excluded from the page limit and has no page limit)
<i>Impact and Communication Potential</i>	6 (excluding Figures and Charts)
<i>Management and Implementation</i>	6 (excluding Table 4 and Table 5 in Volume IIIB) + 2 per each work package description (Table 3 in Volume IIIB)
<i>Pricing Table</i>	No limitation

Table 1: Page limits

5.2 Specific Additional Instructions for the Tenderer's Response

The following is a guide to the minimum content expected to be included in each section, additional to the content described in the general guidelines of Volume IIIB. This is not an exhaustive description and additional information may be necessary depending on the Tenderer's response.

5.2.1 Executive Summary

The Tenderer shall provide an executive summary of the proposal, describing the objectives, the delivery team and overview of the service, including timeframes and an overview of the expected impacts realised by the contract.

5.2.2 Track Record

The Tenderer shall demonstrate for itself and for any proposed subcontractors that they have experience with relevant service, or projects in the public or private sector at national or international level. ECMWF may ask for evidence of performance in the form of certificates issued or countersigned by the competent authority.

5.2.3 Quality of Resources to be Deployed

The Tenderer shall propose a team providing the skills required for providing operational services that meet the technical requirements set out in Section 3. The team shall include a Service Manager with at least five years of experience in management of large-scale projects. The Tenderer shall describe the experience of the Service Manager and the technical project team in performing activities related to the various aspects of this tender.

For this tender, Tenderers are expected to prove their ability to combine excellent knowledge the renewable energy sector and climate information to support demonstrable use of Copernicus Datasets to meet the aims and objectives outlined in this ITT.

5.2.4 Technical Solution Proposed

The Tenderer shall give a short background to the proposed solution to demonstrate understanding of that solution and of the Copernicus context. This section shall also include information on any other third-party suppliers that are used as part of the technical solution, and a statement of compliance for each requirement formulated throughout this document, describing how the proposed solution maps to the requirements.

5.2.5 Impact and Communication Potential

The Tenderer shall demonstrate how the proposal will enhance the development of climate services in the Mediterranean region, articulating the expected impacts that the proposal will have if it is successful. In addition, the ITT seeks to empower users in those countries and regions from non-EU countries, which are UfM member states, which have reliance on fossil fuels and capacity to transition to a lower carbon future. Please refer to the eligibility criteria detailed in Section 2.

5.2.6 Implementation Aspects

Tenderers shall provide a detailed implementation plan of proposed activities for up to a maximum duration of 24 months. Deliverables should be consistent with the technical requirements specified in Section 3. The number of milestones is not restricted, but they should be designed as markers of demonstrable progress in service development and/or quality of service delivery. Adjustments to the proposed implementation plan can be made on an annual basis depending on needs for service evolution, changed user requirements, or other requirements as agreed between the European Commission and ECMWF.

Tenderers are invited to make proposals that they consider necessary for the effective management and implementation of the contract, considering the elements described under Section 3.7 on management and coordination requirements for this ITT.

5.3 Diversity and Inclusion

If multiple Tenderers present equally qualified Tenders (discrepancy lower than 1%), ECMWF will take into consideration the diversity and gender balance of each Tenderer's organisation as a tiebreaker when making the final decision. We recognise that diversity and a collaborative environment are essential for advancing scientific discovery and innovation, and we are dedicated to creating a culture that encourages and supports the contributions of individuals from all backgrounds. As part of this commitment, we encourage Tenders from Tenderers who share our values and demonstrate a commitment to diversity and inclusion in their own organisations. We believe that working with suppliers who support our efforts to create a more inclusive and diverse community is key to achieving our goals and driving progress forward in all our areas of activities. Therefore, the Centre encourages all potential Tenderers to take these values into consideration when submitting proposals.

6 Additional Information

6.1 Acronyms

ADS	Atmosphere Data Store
CAMS	Copernicus Atmosphere Monitoring Service
C3S	Copernicus Climate Change Service

CDS	Climate Data Store
CMEMS	Copernicus Marine Service
CLMS	Copernicus Land Monitoring Service
CEH	Copernicus Energy Hub
CTH	Copernicus Thematic Hub
EC	European Commission
ECMWF	European Centre for Medium-range Weather Forecasts
ITT	Invitation To Tender
KE	Knowledge Exchange
MoU	Memorandum of Understanding
SIS	Sectoral Information System
UfM	Union for the Mediterranean
WP	Work Package