

# ECMWF Copernicus Procurement

## Invitation to Tender



## Copernicus Climate Change Service Volume II

### Operational Sectoral Information System for the Energy and Wind Storm Insurance Sectors

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## 1 Introduction

ECMWF as the Entrusted Entity for the Copernicus Climate Change Service (C3S) invites tenders for the development of operational services that build upon the experience acquired during the pre-operational phase of the Sectoral Information System (SIS).

During the course of 2016 seven contracts were issued by ECMWF to develop Proof of Concept (POC) demonstrators addressing the needs of specific sectors prioritised by ECMWF. Two contracts were awarded in the energy sector<sup>1</sup> and one on wind storms for the benefit of the insurance sector<sup>2</sup>. Given that, at that time, the Climate Data Store was not yet available, these contracts developed services using platforms and data streams which were largely independent from the C3S data infrastructure.

Operational SIS for the energy and insurance sectors are expected to fulfil the following three top level requirements:

1. To provide a working example of how the data and the tools available on the Climate Data Store (CDS) could be used in specific user relevant contexts.
2. To engage with the users to scope out and document what they need.
3. To provide examples of good practice in the development of climate services.

Contracts will be issued on the following topics:

- Lot 1: operational service for the energy sector;
- Lot 2: operational wind storm service for the insurance sector.

A key requirement of this Invitation to Tender is to ensure that the operational SIS for the energy sector and for the wind storm service are fully compliant with the first of these top level requirements, providing a single framework able to account for the seasonal and multi-decadal data streams generated by the two POC contracts.

Specific objectives and technical requirements are described in section 2 of this document. General performance requirements are presented in section 3 and information about the tender format and content is in section 4.

## 2 Technical requirements

### 2.1 Lot 1: Operational service for the energy sector

#### 2.1.1 Scope of service

The successful Tenderer shall propose and implement an operational energy service which takes note of the POC services that have been developed during the pre-operational phase as well as, and only when applicable, what is available through other European services.

The successful Tenderer will design and implement this service so that it can:

- meet the requirements of the current users, duly recorded in the User Requirement Database (URDB);
- be computationally efficient to run; and

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<sup>1</sup> <http://climate.copernicus.eu/sectoral-information-system#energy>

<sup>2</sup> <http://climate.copernicus.eu/sectoral-information-system#insurance>

- be as simple as possible to maintain and document.

The new service shall be built entirely on the CDS using its tools and the datasets accessible through it. The service shall provide a seamless proposition covering all time ranges from the historical observation and reanalysis to the projection for the end of the century passing through the climate predictions.

### 2.1.2 Specification of work

#### *Task 1: Service definition*

This task will define a strategy for combining and presenting the data and products generated by the POC contracts. As a minimum, the strategy should tackle the provision of information related to the solar, hydropower, and wind production as well as the weather-dependent energy demand per EU country for each time-frame.

The strategy should aim to define and produce a set of parameters that are clear and directly usable by the target users. Every time multiple procedures for calculating the same indicator are required, the contractor shall devise a strategy for generating a single lower complexity product (e.g. multi-model ensemble means, consensus forecast, best-estimate etc.).

The list of products shall, as a minimum, include indicators of renewable energy production (wind, solar and hydro) and non-industrial weather-dependent energy demand at a country level for all time-scales under consideration.

The proposed solution should be built primarily on the climate datasets available through the Climate Data Store (e.g. C3S seasonal prediction, ECMWF reanalyses, C3S gridded observations products, Euro-Cordex simulations, CMIP5 runs...).

Whilst the deliverables are expected within the first few months of the contract, it is anticipated that the successful Tenderer will complete most of this task as part of the tender preparation stage.

#### *Deliverables expected:*

- A document describing the overall strategy and technical implementation plan of each of the products that will become available through the operational energy service, alongside a top level description of how the data will be presented and made accessible to the users.

#### *Task 2: Implementation*

Each product identified in the first task will be produced and made available through the CDS interface. It is expected that in some cases the products will be directly based on data available through the CDS (e.g. climate change impact indicators), whilst in other cases the successful Tenderer will need to implement an operational workflow able to generate the data routinely or on demand (e.g. seasonal prediction of capacity factors).

The main outcome of this task will be the operational provision of all products identified in Task 1 through a dedicated CDS interface. This includes the operational production of the seasonal indicators, the update of the historical one as well as the maintenance and continuous evolution of the climate change indicators. The user interface should build upon the experience of the pre-operational contracts and shall take advantage of the widgets, workflows and tools available on the CDS. Whilst the data provision is likely to be structured on a distributed system the user interface will have to be based on the CDS.

#### *Deliverables expected:*

- The release of an operational set of products addressing the needs of the energy sector users as described in the use-cases elaborated by the POC services.
- The code used for the pre-processing and the post-processing and the operational running of the system as well as the operational manual for running the system.

#### *Task 3: Documentation, user engagement and support*

The successful Tenderer will produce and deliver all the documentation and material needed to allow users to interact with the service effectively.

#### *Deliverables expected:*

- An abstract and a description for each product to be delivered to the CDS; this will be used for the CDS catalogue and will be consistent with the guidelines and templates as prescribed by the Evaluation and Quality Control (EQC) contract.
- A detailed technical document describing the procedure followed in the development of each product; this should be written to peer-review publication standard and should be sufficiently descriptive to allow a scientist in the field to reproduce all that has been implemented in the service.
- A set of frequently asked questions and a knowledge base to facilitate Copernicus User Support to respond to queries from the user community.
- Documentation, videos, tutorials and detailed case studies for outreach purposes.

The successful Tenderer is also expected to organise outreach events in order to promote the operational SIS for the energy sector, engage with the community of target users and provide inputs into the URDB.

#### *Task 4: Technical support*

The successful Tenderer shall guarantee technical support on the datasets and workflow delivered.

The successful Tenderer shall respond within 2 working days (either fix, or establish a timeline to fix) to any technical issue that has the potential to stop the operational generation, provision and dissemination of the data and the services developed as part of this contract.

The successful Tenderer shall provide, within a maximum of 5 working days, support to ECMWF staff for nonservice critical issues.

The successful Tenderer shall also respond and fix, within a maximum of 5 working days, any technical problem than may arise on the data and/or procedure developed as part of this contract.

#### *Deliverables expected:*

- A technical manual to be used for monitoring and first level of support, and to be updated as required.

#### *Task 5: Service evolution*

The natural evolution of the science that is underpinning the services and the accumulations of requests from users could rapidly make the service redundant unless a suitable strategy for its evolution is identified. The successful Tenderer shall implement incremental improvement to the service in response to documented user feedback. They shall also plan to suggest more ambitious service evolution options and report them back to ECMWF for their possible inclusion in future invitations to tender.

### *Deliverables expected:*

- A process to incrementally improve the service provision in response to well documented use-cases.
- A document describing the possible alternatives to make the service evolve. Whenever appropriate these should be linked to the relevant entries into the URDB and should be provided with an estimate of the effort/costs required for their implementation.

### 2.1.3 Contract Implementation Schedule

Activities shall be performed in the context of a framework agreement (maximum 24 months) with annual service contracts. The first service contract is expected to commence in the first quarter of 2018.

Tenderers shall provide a schedule for milestones and deliverables consistent with the use of 12-month service contracts. Tenderers are required to provide a detailed schedule in the tender phase, which will be refined during contract negotiations.

## 2.2 Lot 2: Operational wind storm service for the insurance sector

### 2.2.1 Scope of service

The successful Tenderer shall propose and implement an operational service which builds upon what has been developed for the insurance sector during the pre-operational phase as well as what is available through other European services and programmes.

The successful Tenderer will design and implement this service so that it can:

- meet the requirements of the current users, duly recorded in the URDB;
- be computationally efficient to run; and
- be as simple as possible to maintain and document.

The new service shall be built entirely on the CDS using its tools and the datasets accessible through it.

### 2.2.2 Specification of work

#### *Task 1: Implementation of the service*

Building upon the work done during the POC stage the successful Tenderer shall implement a way of updating the storm catalogue, the storm footprint and the associated indicators on a regular basis. Whenever possible the successful Tenderer shall use the near-real-time reanalysis products to generate reliable estimates of the indicators soon after the event.

Each product will have to be made available primarily through the CDS interface. The successful Tenderer shall rely upon its dataset and modelling framework (e.g. high-resolution regional reanalysis) for the generation of the indicators. The successful Tenderer shall implement any post-processing required by the service as an operational workflow on the CDS rather than relying on external procedures.

The main outcome of this task will be the routine operational provision (i.e. frequent and regular update of the datasets, user support, technical support) of all products identified during the POC

phase. These include level 1 (physical variables), level 2 (damage relevant indicators) and level 3 indicators (damages and loss estimations) as well as the synthetic datasets.

The user interface shall build upon the experience of the POC contract and shall take advantage of the widgets, workflows and tools available on the CDS.

*Deliverables expected:*

- The release of an operational set of products addressing the needs of the insurance sector users as described in the use-cases elaborated by the POC services.
- The code used for the pre-processing and the post-processing and the operational running of the system as well as the operational manual for running the system.

*Task 2: Documentation, user engagement and support*

The successful Tenderer will produce and deliver all the documentation material needed to allow users to interact with the service effectively.

*Deliverables expected:*

This task is expected to produce:

- An abstract and a description for each product to be delivered to the CDS; this will be used for the CDS catalogue and will be consistent with the guidelines and templates as prescribed by the Evaluation and Quality Control (EQC) contract.
- A detailed technical document describing the procedure followed in the development of each product; this should be written to peer-review publication standard and should be sufficiently descriptive to allow a scientist in the field to reproduce all that has been implemented in the service.
- A set of frequently asked questions and a knowledge base to facilitate Copernicus User Support to respond to queries from the users community.
- Documentation, videos, tutorials and detailed case studies for outreach purposes.

The successful Tenderer is also expected to organise outreach events in order to promote the operational SIS for the energy sector, engage with the community of target users and provide inputs into the URDB.

*Task 3: Technical support*

The successful Tenderer shall guarantee technical support on the datasets and workflow delivered.

The successful Tenderer shall respond within 2 working days (either fix or establish a timeline to fix) to any technical issue that has the potential to stop the operational generation, provision and dissemination of the data and the services developed as part of this contract.

The successful Tenderer shall provide, within a maximum of 5 working days, support to ECMWF staff for nonservice critical issues.

*Deliverables expected:*

- A technical manual to be used for monitoring and first level of support, and to be updated as required.

*Task 5: Service evolution*

The natural evolution of the science that is underpinning the services and the accumulations of requests from users could rapidly make the service redundant unless a suitable strategy for its evolution is identified. The successful Tenderer shall implement incremental improvement to the

service in response to documented user feedback. They shall also plan to suggest more ambitious service evolution options and report them back to ECMWF for their possible inclusion in future invitations to tender.

The natural evolution of the science that is underpinning the services and the accumulations of requests from users could rapidly make the service irrelevant unless a suitable strategy for its evolution is identified. The successful Tenderer shall implement incremental improvement to the service in response to documented user feedback. The successful Tenderer shall identify a number of service evolution options and report them back to ECMWF for their possible inclusion in future invitations to tender. Besides the suggestions specific to wind-storms the successful Tenderer shall also consider ways in which the service could evolve to include other relevant perils such as tropical cyclones, floods, hailstones, or others natural hazards.

#### *Deliverables expected:*

- A process to incrementally improve the service provision in response to well documented use-cases.
- A document describing the possible alternatives to make the service evolve. Whenever appropriate these should be linked to the relevant entries into the URDB and should be provided with an estimate of the effort/costs required for their implementation.

### 2.2.3 Contract Implementation Schedule

Activities shall be performed in the context of a framework agreement (maximum 24 months) with annual service contracts. The first service contract is expected to commence in the first quarter of 2018.

Tenderers shall provide a schedule for milestones and deliverables consistent with the use of 12-month service contracts. Tenderers are required to provide a detailed schedule in the proposal phase, which will be refined during contract negotiations.

## 3 General requirements

### 3.1 Implementation Schedule

The successful Tenderer is expected to provide a detailed time plan and schedule as part of the tender response. The proposed time plan and schedule shall address the main tasks, inputs, outputs, intermediate review steps, milestones, deliverables and dates. Regular progress meetings will be held with ECMWF during the contract to assess project status, risks and actions.

ECMWF has to prepare annual Implementation Plans, which must be approved by the European Commission before they can enter into force. The implementation plans will take full stock of service reviews, performed thoroughly on an annual basis, as well as of the continuously evolving user requirements and corresponding service specifications. The successful Tenderer shall therefore provide each year for ECMWF approval an updated detailed plan of proposed activities including Deliverables and Milestones, using the Work Package table template in Volume IIIB, which will form part of this Implementation Plan. The successful Tenderer has to report on a quarterly and annual basis (for more details please see Volume V Framework Agreement for this ITT).

## 3.2 Meetings

ECMWF organises 18-monthly meetings to bring together all C3S service providers. The successful Tenderer is expected to attend these meetings. The successful Tenderer is also expected to attend monthly teleconference meetings to discuss C3S service provision, service evolution and other topics that cut across different aspects of C3S. The cost of attending these meetings shall be covered by the successful Tenderer and shall be included in the tendered price. The cost of organising and attending any additional meetings specific to the service provision shall also be covered by the successful Tenderer and shall be included in the tendered price.

In addition, the successful Tenderer in each lot is expected to participate in technical working meetings with the CDS development team – which will also include C3S and relevant collaborators. These discussions will be convened at regular intervals, and most of them will take place by remote participation. In-person meetings organised for this sole purpose are not anticipated to take place more than once a year. The cost of attending these meetings shall be covered by the successful Tenderer and shall be included in the tendered price.

## 3.3 Deliverables

Expected top level deliverables are outlined in section 2. These can be in the form of documents or reports, data sets or databases, services and user support. Requirements for each type are described in the following subsections.

### 3.3.1 Documents and reports

All contract reports shall be produced in English. The quality of reports and deliverables shall be equivalent to the standard of peer-reviewed publications and practice and the successful Tenderer is expected to demonstrate the implementation of internal quality check procedures in its tender. Unless otherwise specified in the specific contract, deliverables shall be made available to ECMWF in electronic format (PDF/Microsoft Word/Microsoft Excel or compatible).

### 3.3.2 Data sets

It is expected that data sets (including databases) generated or acquired by the successful Tenderer will be delivered via the Climate Data Store. The section below indicates generic requirements for these datasets in terms of standards and conformity.

*Provision of data and products:* Suppliers will make the output of their work available to C3S users via the CDS, by one of two methods:

- a) uploading their data and products to a designated server,
- b) providing them via web services.

In the case of (a), suppliers will have to agree with ECMWF on the data formats to be used. ECMWF will only accept data in formats that follow internationally recognised standards. Such standards must be open (i.e. non-proprietary), managed by a recognised international standardisation body (e.g. ISO, WMO, OGC, etc.), or any de-facto standard. Open source software should also exist that can read and write files of these standards. Serialisation formats (e.g. NetCDF, XML, JSON) should be supported by standard schemas and conventions. All text-based formats should be encoded in UTF-8. ECMWF will implement tools to check the compliance of the provided data and products to the agreed standards before they are added to the CDS.

Examples of case (a) are data uploaded to the CDS in WMO GRIB edition 1 and 2, NetCDF files conforming to CF-1.6, or greater.

In the case of (b), suppliers will have to agree with ECMWF on the protocols to be used to invoke the web services. ECMWF will only accept protocols that follow internationally recognised standards. Such standards must be open (i.e. non-proprietary), managed by a recognised international standardisation process (e.g. ISO, WMO, OGC, etc), or be a de-facto standard such as OpenDAP. ECMWF will consider using bespoke web-based APIs to access the data and products if they implement very simple protocols (e.g. REST), as long as the results returned by these APIs are compatible with (a). It should be noted that requests for these web services will mostly originate from the Climate Data Store itself, as part of a workflow run on behalf of an end-user; ECMWF will therefore need to have the necessary credentials to invoke these services. ECMWF will not provide information on the end user's identity when invoking the web services. ECMWF will nevertheless collect usage statistics for all aspects of C3S.

Examples of case (b) are OGC standards (WMS, WCF, WFS, etc), OpenDAP, etc. Other protocols could be considered as the system evolves.

Every dataset and/or service provided shall be documented using the appropriate metadata standards (e.g. ISO 19115).

*Provision of processing capabilities:* Suppliers will (when appropriate) implement specific web-service-based data manipulation facilities. These will make it possible to run some agreed reduction and/or analysis algorithms directly on the data and products located on the suppliers' systems, and to return the results of said algorithms.

As for data retrievals, invocation of these web services will originate from the Climate Data Store itself as part of a workflow run on behalf of an end user, and ECMWF will need to have the necessary end-user credentials to invoke these services. ECMWF will not provide information on the end user's identity when invoking the web services. ECMWF will nevertheless collect usage statistics.

ECMWF will ensure that these services are invoked in a controlled fashion, to prevent any misuse of the system. This web services will be implemented with OGC's WPS standards or will be based on simple web-based REST API or equivalent. The results returned by these services will have to be in formats compatible with options (a) or (b) described above.

*Data and IPR:* It is a condition of EU funding for C3S that ownership of any datasets developed with C3S funding passes from the suppliers to the EC, via ECMWF. Ownership will pass on delivery of the datasets. In return, the suppliers will be granted a non-exclusive licence to use the datasets which they have provided to C3S for any purpose except one which conflicts with the aims of C3S.

All software and products used by the successful Tenderer to produce the C3S datasets will remain the property of the successful Tenderer, except for those components which are acquired or created specifically for C3S purposes, with C3S 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 EC via ECMWF annually, but in return the successful Tenderer will be granted a non-exclusive licence to use them for any purpose except one which conflicts with the aims of C3S.

Detailed contractual terms, including terms to give effect to the arrangements described above, are set out in the terms and conditions for this ITT (Volume V of the ITT documents).

### 3.3.3 Web services

Whilst a web presence of each contract is expected, this should be functional to the overall objectives of the contract itself. In particular it is expected that the contract-specific web-pages will serve two main functions: user engagement (including documentation) and service delivery. Web services and/or portals developed under this contract shall be fully integrated in the C3S web portal following the guidance provided in the table below. Any visualisation and service delivery component shall be fully integrated with the Climate Data Store.

<i>Activity</i>	<i>Guidance</i>
<i>Design</i>	The existing templates and styles for the main service website ( <a href="http://climate.copernicus.eu">http://climate.copernicus.eu</a> ) must be used. The ECMWF Copernicus web officer will provide these on request.
<i>Domain</i>	There will be no off-platform sites. The name of the microsite must be registered as a sub sub-domain of the main C3S sites ( <a href="http://project.climate.copernicus.eu">http://project.climate.copernicus.eu</a> ). The name will be agreed with the Copernicus web officer and registered by the European Commission once approved.
<i>User journey</i>	The user journey must start on the main C3S website via a dedicated landing page for the contract. The sub sub-domain URL should point to this page.
<i>Content</i>	All corporate and 'About us' content will be published on the main service website and not duplicated on the microsite.
<i>Navigation</i>	A home button should take users to the main websites' homepage.
<i>Logos</i>	Supplier logos should not appear on the microsities. There will be a page on the service main website that reflects the contribution of suppliers.
<i>Reporting</i>	We require monthly Google Analytics reports for the microsities. These should include at minimum: <ul style="list-style-type: none"> <li>• Visits</li> <li>• Unique visits</li> <li>• Bounce rate</li> <li>• Traffic source</li> <li>• Document downloads</li> </ul> There should be an accompanying short explanation of the trends shown by the data.

Table 1: Web services

### 3.3.4 User support

ECMWF has established a centralised Service Desk to provide multi-tiered technical support to all users of C3S data, products, tools and services. The C3S Service Desk is used for ticketing user requests and distributing these requests to specialists as needed. Dedicated staff at ECMWF provides basic support in the form of self-help facilities (FAQs, knowledge bases, tutorials etc.) as well as individualised support on technical queries related to the CDS, data formats, data access etc. In addition, ECMWF staff will provide specialised scientific support to address questions related to its industrial contributions to C3S, e.g. in the areas of global reanalysis and seasonal forecasting.

All C3S contractors are expected to contribute to the delivery of multi-tiered technical support for the data and/or services they provide. Such specialised user support shall take the form of direct response to individual user queries via the C3S Service Desk facility, as well as contributions to FAQs, user guides and knowledge bases.

As part of the bid, Tenderers shall describe the level of user support service on C3S Service Desk tickets (for example, 90% of Tier-2 requests answered within 5 working days), with sufficient flexibility to be improved depending on user requirements. Tenderers shall also address development of user guides and any other form of user support, such as video tutorials, user workshops, etc.

### 3.4 Key Performance Indicators

As part of the bid, the Tenderer shall specify a proposed set of Key Performance Indicators (KPIs) and KPI targets appropriate for the service. The KPIs shall be designed to quantify different aspects of quality of service against the requirements described in this document. These initial specifications shall be refined together with ECMWF before the end of the first calendar quarter of the contract. Contractors shall report to ECMWF on a set of KPIs suitable for monitoring various aspect of service performance, including (but not limited to):

- Data quality
- Service delivery
- Contract management
- User support

The KPIs will be reported in the Quarterly and Annual reports. At the end of each year, a service readiness review shall take place that will include assessment of performance against the set of KPIs.

## 4 Tender format and content

General guidelines for the tender are described in Volume IIIB. Specific requirements to prepare the proposal for this particular tender are described in the next sub-sections.

The Tenderer shall provide an executive summary of the proposal, describing the objectives, team and service level.

### 4.1 Page limits

As a guideline, it is expected that individual sections of the Tenderer’s 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>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>	30 (Table 2 in Volume IIIB, the section on references, publications, patents and any pre-existing IPR are excluded from the page limit and have no page limit)
<i>Management and Implementation</i>	10 (excluding Table 3, Table 5 and Table 6 in Volume IIIB) + 2 per each Work package description (Table 4 in Volume IIIB)
<i>Pricing Table</i>	No limitation

*Table 2: Page limits*

## 4.2 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.

### 4.2.1 Track record

The Tenderer shall demonstrate for itself and for any proposed subcontractors that they have experience with relevant 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.

### 4.2.2 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 2. The team shall include a Service Manager with at least 5 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.

### 4.2.3 Technical solution proposed

The Tenderer shall describe in detail the mechanisms that have been adopted to ensure the user requirements are fully accounted for in the implementation of the service.

The Tenderer shall give a short background to the proposed solution to demonstrate understanding of that solution and of the C3S 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.

### 4.2.4 Management and implementation plan

The Tenderer shall provide a detailed implementation plan of proposed activities for the duration of the framework agreement. Deliverables should be consistent with the technical requirements specified in section 2.

The Tenderer is requested to include management and implementation activities within a dedicated work package (WP 0). 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.

As part of the general project management description the Tenderer shall include, as a minimum, the following elements (this is not an exhaustive list):

- Quarterly, annual and final reports shall be provided in accordance with the Framework Agreement Article 2.3.

- An implementation plan for the year N+1 shall be provided in February of the year N for ECMWF approval.
- Monthly teleconferences with ECMWF and a proposal for involvement of ECMWF in major project reviews shall be provided as part of the management plan.
- A proposed payment plan shall be provided as part of the proposal. The payment plan shall be based on quarterly payments for routine services work packages and shall be based on milestones completion and associated deliverables for development related activities.
- If relevant, a list of sub-contractors and details of their contribution, key personnel, legal names and addresses shall be provided. The Tenderer shall describe how the Framework Agreement, in particular Clause 2.9, has been communicated down to all their sub-contractors.

The table below provides the template to be used by the contractor to describe the complete list of deliverables, milestones and schedules for this work package. All milestones and deliverables shall be numbered as indicated. All document deliverables shall be periodically updated and versioned as described in the table. Tenderers shall provide preliminary versions of the completed tables as part of their bid.

Deliverables for this work package shall include the following reports:

<b>WPO Contractual Obligations Template</b>				
<i>#</i>	<i>Responsible</i>	<i>Nature</i>	<i>Title</i>	<i>Due</i>
D0.y.z-YYYYQQ	Tenderer	Report	Quarterly Implementation Report QQ YYYY <i>QQ YYYY being the previous quarter</i>	Quarterly on 20/01, 20/04, 20/07 and 20/10
D0.y.z-YYYY	Tenderer	Report	Annual Implementation Report YYYY <i>YYYY being the Year n-1</i>	Annually on 28/02
D0.y.z	Tenderer	Report	Final report	60 days after end of contract
D0.y.z-YYYY	Tenderer	Other	Preliminary financial information YYYY <i>YYYY being the Year n-1</i>	Annually on 15/01
D0.y.z-YYYY	Tenderer	Report	Draft Implementation plan YYYY <i>YYYY being the Year n+1</i>	Annually on 28/02
D0.y.z-YYYY	Tenderer	Report	Finalised Implementation plan YYYY <i>YYYY being the Year n+1</i>	Annually on 31/10
D0.y.z-YYYY	Tenderer	Other	Copy of prime contractor's general financial statements and audit report YYYY <i>YYYY being the Year n-1</i>	Annually
D0.y.z-YYYY	Tenderer	Other	Letter from auditor specific to C3S contract YYYY <i>YYYY being the Year n-1</i>	Annually