



ACCESS BASS

ACTIVITY DESCRIPTION

“SMART AND RESILIENT ENERGY SYSTEMS”

THEMATIC CALL FOR PROPOSALS

Prepared by	ESA
Reference	ESA-CICA-SO-2026-3470
Issue/Revision	1.0
Date of Issue	29/09/2026
Status	Final



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Table of Acronyms

ACCESS	Accelerating Commercialisation and Competitiveness of the European Space Sector
AoF	Authorisation of Funding
APQ	Activity Pitch Questionnaire
BASS	ESA Business Applications and Space Solutions
CER	Critical Entities Resilience Directive
DSO	Distribution System Operator
DTR	Dynamic Thermal Rating
ESA	European Space Agency
TSO	Transmission System Operator
EU	European Union
MVP	Minimum Viable Product
NIS2	Network and Information Security Directive 2
OSIP	Open Space Innovation Platform
PSI	Project Security Instruction
SatCom	Satellite Communications
SatEO	Satellite Earth Observation
SatNav	Satellite Navigation
UAV	Unmanned Aerial Vehicle

1. OVERVIEW

This document presents an overview of “**Smart and Resilient Energy Systems**”, thematic call for proposals issued under the ACCESS Programme BASS Element. The call offers the opportunity to companies to bring forward their business propositions for the development of space-based services and technologies to improve anticipatory, operational, and strategic resilience of electricity grids, with a strong focus on critical infrastructure protection, climate resilience, and emergency preparedness. This call has been prepared based on user requirements provided by [ELES d.o.o.](#), the Slovenian Transmission and Distribution System Operator.

2. BACKGROUND AND RATIONALE

European electricity networks are facing growing challenges driven by climate change, increasing penetration of weather-dependent renewable generation, and rising cyber-physical security risks. Extreme weather events such as storms, floods, wildfires, snow, icing and landslides are becoming more frequent and severe, increasing operational risks across transmission and distribution infrastructure and placing greater demands on forecasting, asset management, maintenance and emergency response activities.

At the same time, the energy transition is introducing higher levels of variability and uncertainty into electricity systems. Increasing renewable generation, more dynamic power flows and growing cross-border electricity exchanges require network operators to make increasingly complex operational decisions whilst maintaining system stability, resilience and security of supply. Accurate forecasting improved environmental awareness and enhanced operational decision-support capabilities are therefore becoming essential components of modern grid operation.

The Call for Proposals has been developed in collaboration with ELES, Slovenia's combined Transmission System Operator (TSO) and Distribution System Operator (DSO), and aims to stimulate the development of operational, scalable and interoperable services capable of integrating space-enabled capabilities into utility environments. ELES is designated as a critical entity under the national implementation of the EU CER Directive¹ and has identified a range of operational challenges where space-enabled services may contribute to improved resilience, reliability and operational efficiency across electricity networks.

To support the development of integrated solutions and align with ELES's implementation priorities, the Call is organised around three complementary solution clusters:

A. Cluster A: Forecasting & Grid Operations
Focused on forecasting, balancing, optimisation, contingency planning, climate and weather risk assessment, and operational decision-making across electricity networks.

¹ [Directive \(EU\) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC \[2022\] OJ L333/164.](#)

B. Cluster B: Dynamic Thermal Rating Enhancement

Focused on improving Dynamic Thermal Rating capabilities through enhanced environmental monitoring, forecasting and operational decision support.

C. Cluster C: Asset Intelligence, Digital Twin & Situational Awareness

Focused on predictive maintenance, infrastructure monitoring, digital twin enhancement, asset intelligence and operational situational awareness across electricity networks.

3. OBJECTIVES OF THE CALL

The Call for Proposals addresses the following priority operational challenges identified by ELES and invites the development of integrated solutions aligned with one of the defined solution clusters.

- **Cluster A: Forecasting & Grid Operations**

Modern electricity networks require advanced forecasting, planning and decision-support capabilities to support renewable integration, maintain system stability and optimise network utilisation. Areas of interest include renewable generation forecasting, load-flow prediction, contingency planning for unplanned outages, cross-border scheduling and balancing coordination, seasonal and long-term capacity planning, climate and weather risk assessment, and strategic outage mitigation planning. Solutions should improve operational awareness, forecasting accuracy and decision-support capabilities while strengthening both operational performance and long-term network resilience.

- **Cluster B: Dynamic Thermal Rating Enhancement**

ELES operates the SUMO Dynamic Thermal Rating (DTR) system and is seeking improved environmental monitoring and forecasting capabilities to enhance the utilisation of existing transmission infrastructure. Areas of interest include enhanced monitoring and forecasting of wind speed, wind direction, ambient temperature and solar irradiance, together with historical environmental analysis and support for congestion management and transmission capacity optimisation. Solutions should improve the accuracy, reliability and operational value of Dynamic Thermal Rating calculations, particularly across Alpine and pre-Alpine transmission corridors.

- **Cluster C: Asset Intelligence, Digital Twin & Situational Awareness**

Network operators require improved visibility of infrastructure condition, environmental threats and operational risks to support effective asset management and resilient network operations.

Areas of interest include predictive maintenance, asset prioritisation, digital twin enrichment, natural hazard monitoring, infrastructure condition monitoring, emergency situational awareness, obstacle and encroachment detection, vegetation and corridor monitoring, cross-domain resilience dashboards and smart-grid assessment activities. Solutions should integrate Earth Observation, artificial intelligence, advanced analytics and digital twin capabilities to improve asset intelligence, infrastructure monitoring and operational awareness across the electricity network.

4. SPACE ASSETS AND DIGITAL TECHNOLOGIES

Applicants are encouraged to explore the use of space assets and associated digital technologies where they provide added value in addressing the operational challenges identified in this Call. The examples below are indicative and do not prescribe any specific technical approach. Space enabled services can significantly enhance electricity grid operations across multiple domains:

- **SatEO** enables large-scale, near-real-time or latency-dependent monitoring of hazards such as floods, storms, wildfires, landslides, snow and icing events, as well as vegetation encroachment, construction activities and asset surroundings. These capabilities complement local inspections, drone operations, and GIS-based monitoring, while improving crisis awareness, emergency response coordination and long-term climate resilience planning. Satellite enhanced forecasting improves the spatial and temporal resolution of weather-driven inputs (solar irradiance, wind fields, ambient temperature), directly supporting renewable generation forecasting, load flow prediction, and dynamic thermal rating.
- **SatCom** enables the provision of ubiquitous connectivity to enhance the communication links, connectivity of IoT devices and networks of sensors, support of remote locations. Additionally, satellite communications can provide real-time, long-range communications with infrastructure monitoring systems (i.e. UAVs/robots) enabling remote operation while assisting enabling technologies such as digital twins. Finally, SatCom can be used as a secure backup communication solution during emergencies or in the event of degraded terrestrial networks, enhancing operational continuity and coordination during large-scale disruptions or crisis events.
- **SatNav** supports precise asset localisation and positioning across transmission and distribution networks, enabling improved infrastructure management, inspection activities and the integration of geospatial information. Satellite-based timing services also provide accurate synchronisation for grid monitoring, telecommunications and operational systems, supporting reliable operation, event analysis and operational continuity, particularly during disturbances affecting critical infrastructure.

5. SCOPE OF THE CALL

The proposals submitted under this Call for Proposals shall align with the operational challenge areas identified by ELES, addressing one or more of the use cases described in Section 3. Proposed solutions are expected to leverage space assets and associated digital technologies to enhance situational awareness for critical grid events, strengthen operational resilience, improve infrastructure monitoring and asset integrity management, and support secure and effective response to disruptive incidents.

The operational needs addressed by this call support ELES's resilience and cybersecurity responsibilities as a critical entity under the EU regulatory framework such as [CER](#) and [NIS2](#) Directives.

The Bidder has two options for addressing use-cases in their proposal: either address the ELES use-cases document included in the website ([available on the website](#)) or address other use-cases and requirements related to the Call by involving other customers or users directly.

For proposals addressing the ELES use cases, interaction between the bidding consortium and ELES will be facilitated by ESA during the proposal preparation process. Therefore, bidders are not required to provide a letter of interest from ELES at the Outline Proposal stage.

For proposals addressing other use cases and requirements, the bidder must involve customers or users and provide letters of interest from these potential customers as evidence of their support, which should be attached to the Outline Proposal (the second step in the application process).

In both cases, the Bidder must have identified a concrete business opportunity and have a credible commercial plan; this includes e.g. the identification of potential customers, a good understanding of the targeted market, a relevant analysis of competitors. Both options will be considered equally in the evaluation process.

The service provider shall be identified and be part of the bidding team to ensure the commercial operational roll-out of the proposed service following completion of a pilot project.

This Call for Proposals covers two types of activities:

1. **Proof of Concept Studies:** which provide the preparatory framework to identify, analyse and define new potentially sustainable services.

They aim to reduce risks and validate the market opportunity by designing the service concept, engaging users, and developing a Minimum Viable Product (MVP). In the context of this call for proposals, an MVP is defined as the simplest usable version

of a service or application, containing only the essential features needed to test the riskiest business assumptions, such as hypotheses about customer needs or willingness to pay.

The starting point is the identification of a significant potential business opportunity for a space-based application or service, with preliminary customer/user interest, and initial positive considerations on the technical feasibility.

The expected outcome is the confirmation that the proposed solution is both technically feasible and economically viable, with key technical and business assumptions validated through the development of an MVP and supported by strong customer interest and early commercial traction.

2. **Pilot Projects:** dedicated to the implementation and demonstration of pre-operational services. They focus on integrating, developing, and testing the service or application with customers in the primary target market. The pilot demonstrates the solution in a real operational setting, confirming the value-propositions of the proposed solution.

The starting point is the confirmation that the proposed space-based application or service is both technically feasible and economically viable with demonstrated customers' interest, established partnerships for commercialisation, and a credible commercialisation strategy backed by a solid financial plan.

The expected outcome is a fully operational service supported by key customers, ideally achieving initial sales with identified clients, while demonstrating a clear pathway to commercialisation and potential for scalability, with proven potential to generate socio-economic impact at scale.

6. CONTRACTING APPROACH

The proposals submitted in reply to the call shall be implemented in the context of the Standard Call for Proposals for Downstream Applications in ACCESS BASS.

The Bidder shall first submit an Activity Pitch Questionnaire, and following evaluation, may be invited to submit the Outline and Full Proposal. The APQ enables the Tenderer to present a preliminary concept to ESA in a concise and standardised format. The APQ constitutes the initial step of engagement between the Tenderer and ESA. The APQ allows ESA to quickly take an informed decision on the next steps pointing the Tenderer to the most appropriate activity type (Proof of Concept Study, Pilot Project) and providing support on the further implementation steps. Based on ESA's recommendation, activities may also be structured in phases that include both Proof of Concept Study and Pilot Project tasks.

The APQ template can be downloaded from: <https://business.esa.int/bass-documents>

The Agency will admit for evaluation only (Outline and Full) proposals from a bidding team composed of a company and/or organisations (be it Prime or Subcontractor) residing in any of those states that subscribed to the ACCESS Programme – BASS Element.

To date, these are: **Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, and United Kingdom, Lithuania.**

7. PROCESS AND SCHEDULE

For this Call for Proposals, the submission of the APQ will be open from **29 September 2026** until **27 November 2026 at 13:00 CET**.

7.1 TIMELINE AND PROCEDURE

The Bidder shall submit first an **Activity Pitch Questionnaire**, and following evaluation, may be invited to submit the **Outline Proposal** and subsequent **Full Proposal**. The Activity Pitch Questionnaire (APQ) template provided by ESA shall be used, which is considered as entry point for companies to submit their idea. The details of the APQ can be found here: [Open Space Innovation Platform - OSIP - Channel: Proof of Concept Studies & Pilot Projects](#)



Figure 11: Application steps

This Call is planned to be implemented according to the following stepwise approach.

Step 1: APQ Submission

In Step 1, the interested Bidders are requested to submit their proposal(s) based on a short Activity Pitch Questionnaire (APQ) template made available by ESA that can be downloaded from the Thematic Call website. The pitch should provide the initial idea of what the Bidder would like to propose, elaborated on the basis of the thematic areas and either the use cases proposed by ESA's partners or others selected by the Bidder.

3. Should the bidder wish to cooperate with any of the listed partners in the annexes, they shall give to the Agency the authorisation to distribute the activity pitch questionnaire to these stakeholders by explicitly stating it in the Activity Pitch Questionnaire. Subject to such authorisation, the Agency will follow up distributing the APQ to the bidder's

authorised stakeholder(s) and liaise with them to facilitate interactions with the Bidder. The completed Activity Pitch Questionnaire (APQ) shall be uploaded using the online web submitter, ESA's open space innovation platform (OSIP) in the channel named "[Open Space Innovation Platform - OSIP - Channel: . Proof of Concept Studies & Pilot Projects](#)"

According to the rules of the ACCESS Programme, each tenderer is permitted to submit a maximum of two (2) APQs per calendar year in reply to any BASS Call for proposals. Any submission exceeding this limit shall be deemed inadmissible and automatically rejected, without assessment or further consideration by ESA.

It is strongly recommended that the interested Bidder liaises from the beginning with the relevant ESA Member States Delegates.

APQ Evaluation

Following an assessment of the pitch by ESA, ESA will provide feedback to the company, aiming to provide a reply within 10 working days following the deadline for submission of the pitch.

It is recognised that some interactions with the Bidder may be required, and ESA may therefore consult with the Bidder and may offer support in providing further clarifications, aimed at better shaping the Outline Proposal(s). Dialogue sessions may be organised individually with potential partners prior to Step 2.

ESA may also consult, when necessary, with the relevant National Delegation(s) for orientation and will provide key information (e.g. title, cost, price, subcontractor) to the relevant National Delegation(s).

Subject to a positive evaluation of the pitch and the Bidder having informed the National Delegation(s), the Bidder will be notified by ESA and invited to submit an Outline Proposal.

Step 2: Outline Proposal Submission

In Step 2, the Bidder will submit the Outline Proposal, based on a template provided by ESA, with letter(s) of interest from users/stakeholders and in-principal support from the National Delegations. The Outline Proposal expands upon the pitch with a more extensive level of detail. The Bidder will be allowed 2 months from ESA's approval of the APQ to the submission of their Outline Proposal in the OSIP platform.

Step 3: Full Proposal Submission

In Step 3, subject to a positive assessment from ESA and support from the National Delegations, the Bidder will be invited to submit a Full Proposal on ESA-STAR in accordance with the ACCESS BASS Programme Element. The Bidder will be allowed 4 months from submission of their Outline Proposal to submit their Full Proposal on ESA-STAR.

A letter of Authorisation of Funding (AoF) from the relevant ESA National Delegation is required as part of the Full Proposal. The Bidder is however advised to inform the relevant National Delegation(s) when submitting the Pitch. The details of the National Delegates can be found here: <https://business.esa.int/national-delegations>.

After the Bidder has submitted a Full Proposal with the Authorisation of Funding (AoF) from the relevant National Delegation(s) and following a positive assessment by ESA, the proposed activity will be approved for implementation via Cooperative Agreement².

7.2 EVALUATION CRITERIA

More information for the assessment of the APQ (**Step 1**) and outline proposal (**Step 2**) stages can be found on the OSIP page: [Open Space Innovation Platform - OSIP - Channel: Proof of Concept Studies & Pilot Projects](#).

More information on the evaluation criteria for the final proposals (**Step 3**) can be found within the Cover Letter of the Call for Proposals ([Tender Action Details](#)) under "Letter of invitation".

The evaluation process is non-competitive, as each proposal will be assessed individually on its own merits, according to the evaluation criteria applicable for [PROOF OF CONCEPT STUDIES/PILOT PROJECTS IN ACCESS BASS - DOWNSTREAM APPLICATIONS - STANDARD CALL FOR PROPOSALS](#) (esa star ref.: 4-40034).

8. GENERAL CONDITIONS

The submissions and all correspondence relating to it shall be in English.

The tender shall not contain any Classified Information, whether in the APQ, Outline Proposal or in the Full Proposal. To avoid any confusion with Classified security markings, the unclassified protective marking used by the Tenderer in the proposal shall not contain the terms: "Restricted", "Confidential", or "Secret".

However, should the Tenderer consider necessary to include Classified Information in the tender, the Tenderer shall inform beforehand the ESA Security Officer.

² For more information on the Cooperative Agreement please refer to <https://esastar-publication.sso.esa.int/news/details/11039>

The Tenderers are informed that Classified Information can be shared with ESA only in compliance with the Project Security Instruction (PSI) duly established by the Agency beforehand and subject to the approval by the ESA Member States.

The Agency will treat commercially sensitive or proprietary information confidentially and solely for the purpose of the assessment of the response.

Expenses incurred in the preparation and dispatch of the response to the announcement will not be reimbursed. This includes any expenses connected with a potential dialogue phase. The announcement does not bind the Agency in any way to place a contract. The Agency reserves the right to issue amendments to the announcement.