European Space Agency
Space for Electromobility

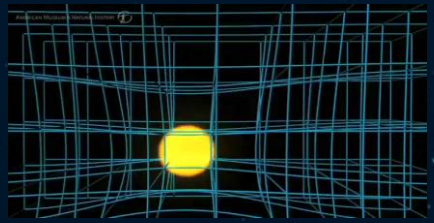
We Are European Space Agency (ESA)

EUROPE'S GATEWAY TO SPACE

WHAT	22 Member States, 5000 employees
WHY	Exploration and use of space for exclusively peaceful purposes
WHERE	HQ in Paris, 7 sites across Europe and a spaceport in French Guiana
HOW MUCH	€7 billion = €12 per European per year

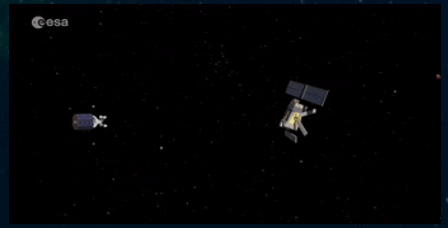
esa space solutions

Science and Exploration

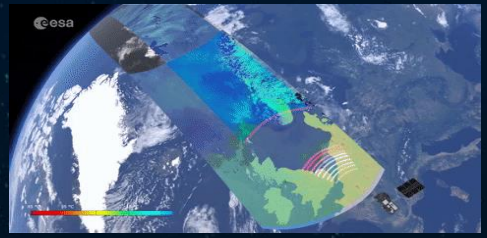


Enabling and Support

Safety and Security



Applications




Space Improves Life on Earth

Business Applications: space-enabled services

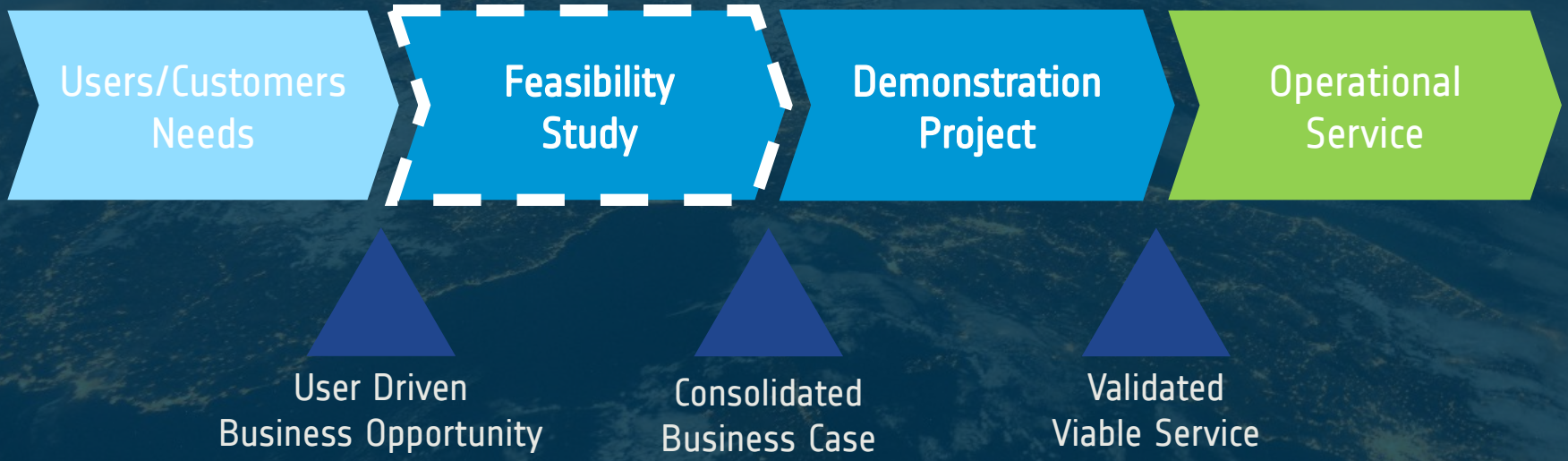
Using **any space asset(s)** and integrating them with terrestrial assets for the **benefit of life on Earth**

What ESA Space Solutions offer

Our aim is to work together to make your idea commercially viable, with:

- Zero-Equity Funding (€50K-€2M+)
- Tailored Project Management Support
- Access to our Network and Partners
- Use of ESA Brand for Credibility

Activity implementation



→ Feasibility Study: Background

9 months duration

up to €200K ESA funding
(80% ESA co-funding)

Feasibility Studies are ESA's funding scheme enabling companies to explore new service and application concepts making use of space capabilities.

- Evaluate economic and technical viability of an operational service.
- Create Proof of Concept for preliminary validation.
- Limited initial investment by companies, particularly attractive for SMEs and start-ups, granting them an easy entry into ESA Business Applications.
- Competitive tendering procedure.
- If successful, possible follow-up support via Demonstration Projects

Space for Electromobility

Theme and Objectives

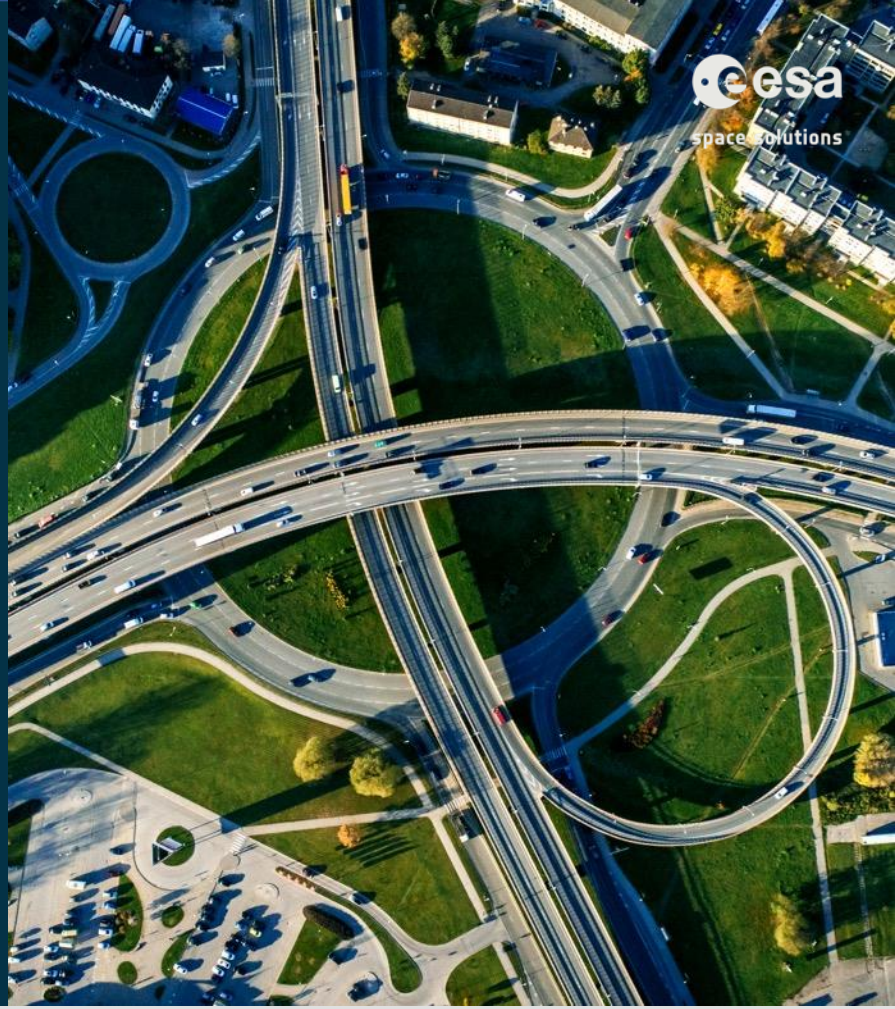
Overarching Theme and Objectives

Space for Electromobility

Space for Electromobility will support the study and development of space-enabled commercial services aiming to support the electrification of transportation.

This refers to supporting electrification infrastructure roll out in rural and urban areas, supporting grid resilience and flexibility, providing services to drivers to encourage EV uptake & V2G applications.

Scope: This call covers both passenger car and heavy-duty transportation value chains. Micromobility* vehicles are not in scope of this activity.



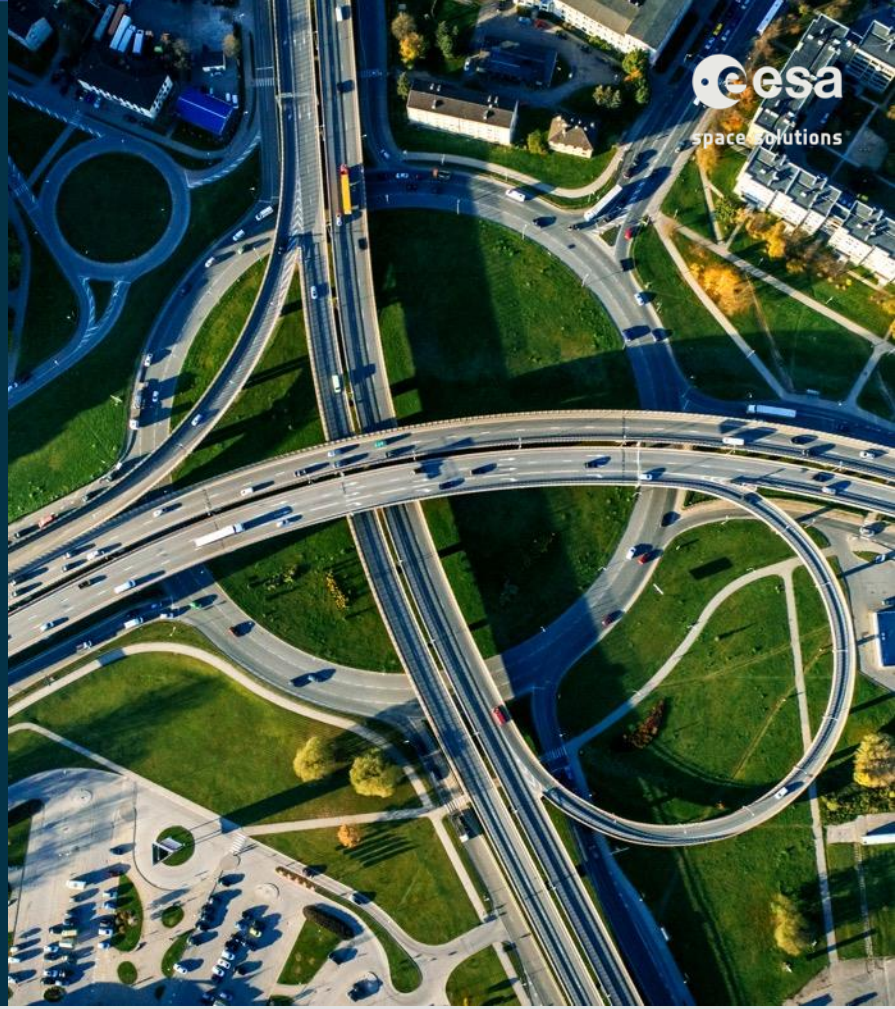
Overarching Theme and Objectives

Why Electromobility?

- Climate Change - Transport is responsible for about a 25% of the EU's total CO2 emissions, with road transport representing the greatest share of this (72% in 2019) .

- Countries and cities are introducing rigorous regulations to reduce emissions (In Great Britain, the zero emissions vehicle (ZEV) mandate requires 80% of new cars and 70% of new vans sold to be zero emission by 2030, increasing to 100% by 2035).

- The continued acceleration of electrification is putting pressure on charging infrastructure and the electric grid network.

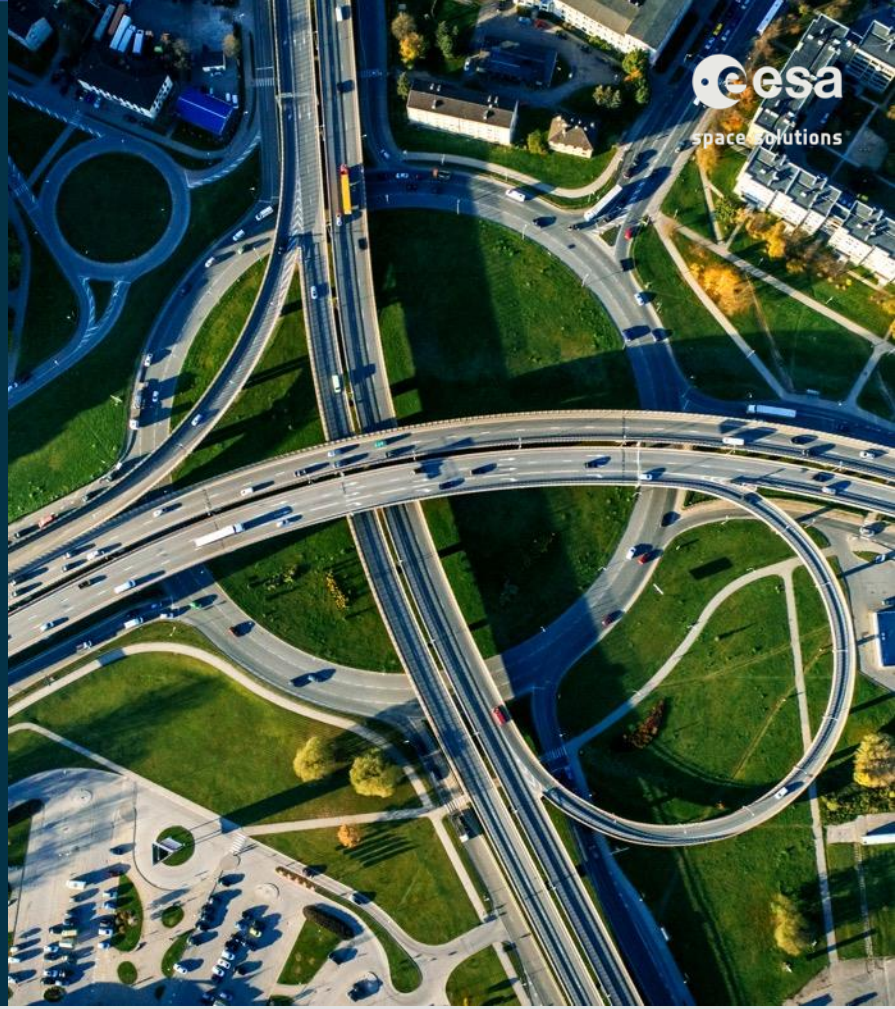


Space for Electromobility

Topics of Relevance

Topics of Relevance 1/2

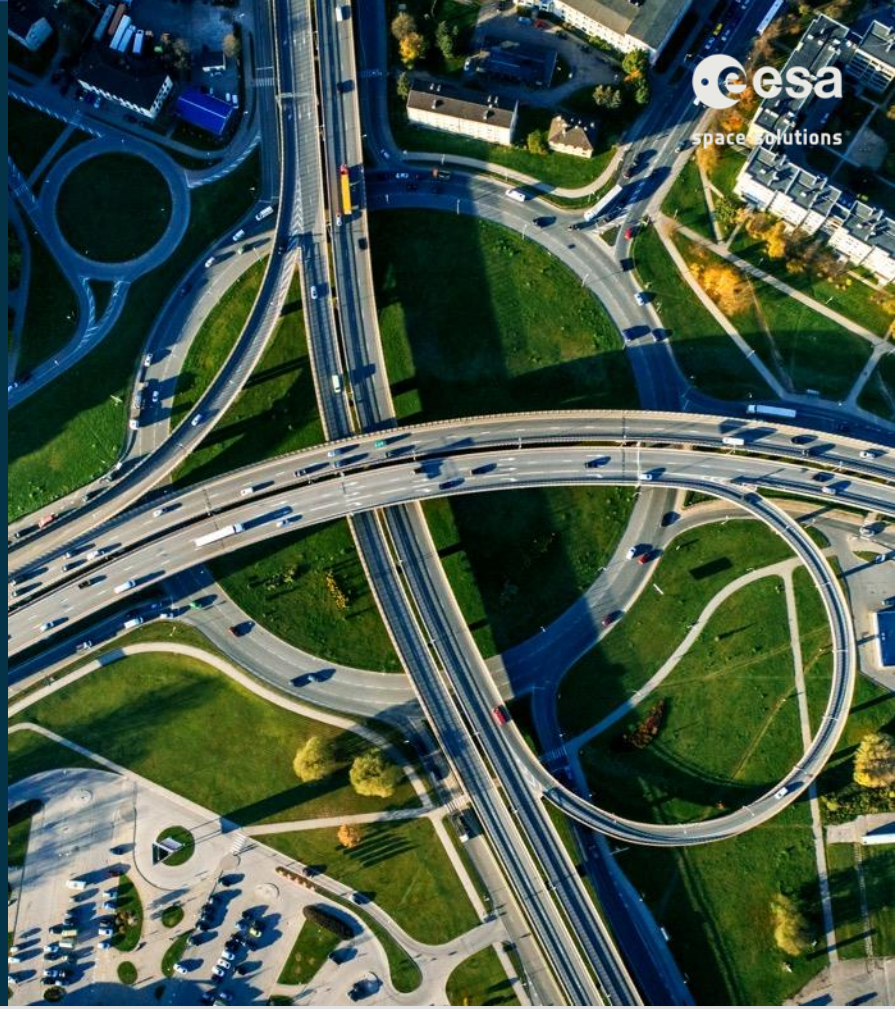
- Innovative applications are needed to support the deployment of EV charging infrastructure in various environments, including rural areas, urban streets, highways, and depots. The goal is to encourage the uptake of electric passenger cars and the electrification of buses, coaches, and trucks.
- Urban Charging: Innovative solutions are needed to identify residential areas that need on-street charging by assessing factors like property types, off-street parking availability, population density, commuting patterns, and proximity to existing charging infrastructure.
- Rural Charging: Equal access to charging stations is crucial for a fair transition to electromobility. Electrification goals for heavy-duty transport, such as buses, coaches, and trucks, require the acceleration of electrification in rural depots. Innovative solutions are needed to map depots, estimate fleet sizes, proximity to high voltage grids, and expected electricity demand. Poor rural digital connectivity can impede EV users from locating and paying for charging.



Topics of Relevance 2/2

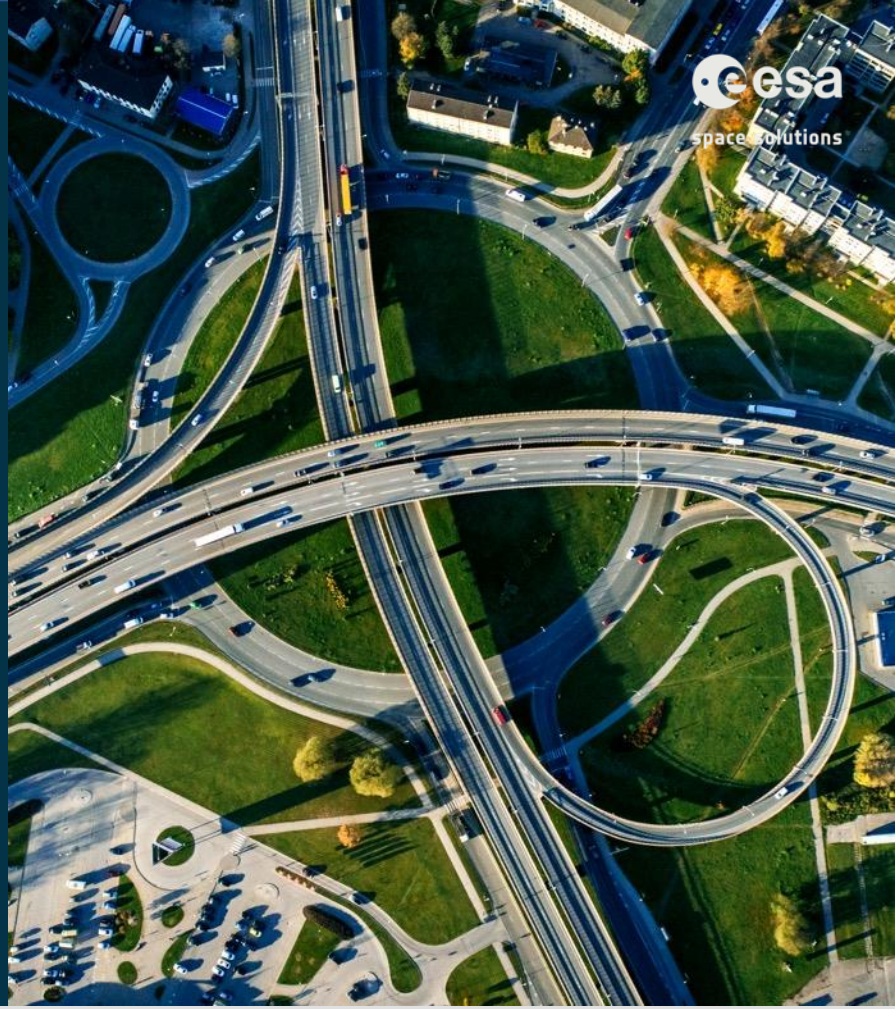
- **Grid Resilience and Flexibility**: Widescale adoption of EVs will increase electricity demand, especially during peak hours, straining existing infrastructure. Improved forecasting and planning capabilities are needed to adapt the electric grid for varying EV charging patterns and integrating renewable energy sources. Smart grid technology and vehicle-to-grid (V2G) capabilities can optimise energy distribution and enhance grid flexibility.

- **Driving EV Uptake**: Innovative services are needed to encourage EV uptake by providing information on charging points, promoting optimal charging behaviour, and encouraging V2G applications. Financial incentives and tax reductions have proven effective, but complementary strategies are also necessary. Better management of urban traffic and innovative services for battery swapping can help reduce downtime and strain on the power grid.



Use Cases

- Support electrification Infrastructure roll out in rural areas and along highways to encourage uptake of electric cars as well as electrification of coaches and trucks – Iveco Bus, West of England Combined Authority and Indian Energy Storage Alliance
- Support the electric grid resilience, flexibility and augmentation for EV purposes by improved forecasting & planning - Indian Energy Storage Alliance
- Help cities to make decisions on where to roll out electric charging stations by developing a tool which can recommend areas needing charging points - West of England Combined Authority
- Services for passenger car drivers to encourage EV uptake, providing information on charging points or battery swapping locations, promoting optimal charging behaviour & encouraging V2G applications.
- The heavy-duty segment is also in need of innovative services to encourage EV uptake. For example, innovative road freight charging solutions, such as the eHighway, can benefit from complimentary services which provide precise localisation, as well as V2X applications which can directly communicate the eHighway's status to the vehicles and vice versa - Die Autobahn
- Services to help cities optimise bus fleet based on urban pollution e.g. direct Electric buses on the most polluted routes - Naples



WEST OF ENGLAND
Combined Authority

West of England - ESA
13 September 2024

WEST
West of England Sustainable Transport

Edward Wardley (Project Manager/EV Infrastructure Officer)

West of England - A great place to live & work

WEST OF ENGLAND
Combined Authority

Total population:
1,172,000

Regional economy worth over
£40bn

52.4%
of working age population educated to NVQ level 4 (degree) or higher

Green ambitions & 17% less carbon emissions pp than national average

Home to over
46,000
businesses

90+
different languages spoken across the region

Most productive city region in England outside London

What we do - WoE combined authority

WEST OF ENGLAND Combined Authority

Create West of England Transport

- City Region Sustainable Transport Settlement (CRSTS), Active Travel, Bus Service Improvement Plan (BSIP), MetroWest, Future Transport Zone, evolving our transport network to move people and freight, and reduce reliance on cars, etc.

Tackling the climate & ecological emergency

- Green Recovery Fund, Pollinator capital of the UK, Retrofit, climate adaptation (flood defences, green energy) etc.

Secure decent jobs & training

- Adult Education Budget, Careers Hub, Skills Connect, Business Support and Growth, Good Employment Charter.

Affordable places to call home

- Bristol Temple Quarter, infrastructure to unlock housing sites, digital infrastructure where people live.

Putting the West of England on the map for national & global success

- Bringing in new investment to region, (Invest Bristol & Bath) attracting international businesses to locate here, cultural development, building our innovation capacity.

But some challenges too

- **Inequalities:** despite our prosperity as a region there are pockets of deprivation & inequalities in access to jobs, training & housing.
- **Congestion:** we have significant congestion that impacts productivity and means poor air quality.
- **Productivity:** we have small firms & micro-businesses where productivity is weak. Like the UK, our productivity has flatlined – skills, infrastructure, technology….can all help.
- **Challenging context:** Pandemic (e.g. significant impact on our culture, transport, tourism & hospitality sectors) and ongoing inflationary pressures.

Our region & partnership

- The Mayoral Combined Authority (MCA) was established in 2017, following agreement of a devolution deal. The second Metro Mayor, Dan Norris, was elected in May 2021.
- The MCA covers Bristol, Bath and North-East Somerset, and South Gloucestershire.
- The West of England Local Enterprise Partnership, a business led Board, **also includes North Somerset.**
- We work with a range of local regional and national partners – bringing in investment, delivering services, and driving economic growth across the region.
- £1bn investment from Government over 30 years.
- We are here to drive the economic prosperity of the region.

EV Charging in the region

There is an existing “own and operated” EV network in the region ‘Revive’. The REVIVE network is jointly operated by the 4 local counsils. The REVIVE network will have 550 charge points by 2026.

We are establishing a new EV network with a further 1200 charge points through the UK Government’s Local Electric Vehicle Infrastructure fund (LEVI). We have been allocated £7.4m which will be match funded by the private sector.

Identifying where on-street charging is required

We want to put EV infrastructure in locations where residents do not have off street parking, such as near tower blocks or in dense terraced residential streets.

We would welcome an automated and accurate tool to identify which residential properties have driveways (and therefore do not require on-street charging points) and which lack driveways (and therefore require on-street charging points).

The Combined Authority is currently reliant on Google Maps and similar tools which lack sufficient definition, and often require a manual check, posing a challenge when it comes to predicting and prioritising demand in a given area or street.

Rural connectivity

Poor rural digital connectivity impedes access to EV charge points.

Rural areas pose three connectivity challenges:

- Consumer Digital Connectivity: Lack of internet connection to locate, access and pay with their phones for charging.
- EVI Network Connectivity: Our network back-office relies on digital connectivity in order to monitor and fix faults. In rural areas this connectivity is often weak or lost completely.
- DNO Connection: We have demand for EVI in many of our rural villages however the connection costs are often cost prohibitive relative to the demand. Resulting in isolated areas when charging is not available.

Value of Space

Satellite positioning and timing:

- GNSS data can be used to provide innovative services to drivers by providing information on locations of charging points and traffic density, as well as giving insights on driver behaviour and supporting route planning.

Satellite communication:

- Satellite communication can provide reliable connectivity in rural and remote areas where terrestrial infrastructure may be limited. This can support innovative services which connect and monitor the status of EV charging infrastructure in rural areas.

Satellite Earth Observation:

- Earth Observation can support with strategic decision-making on infrastructure deployment locations by providing data on topography, land use, weather, accessibility, and environmental risks.

How to Apply

Register	Register by completing online questionnaire on ESA-STAR Registration (minimum 'light registration') (Doing Business with ESA)
Download	Download the official tender documentation (Invitation to Tender) via ESA Star Publication from 27 September
Create	Create 'Bidder Restricted Area' in ESA-STAR Tendering
Write	Write your proposal and obtain Letter of Authorization from National Delegation (https://business.esa.int/national-delegations)
Submit	Submit your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering (Doing Business with ESA) by 29 November

→ Authorisation from National Delegations

- This opportunity is open to companies that intend to develop space-enabled services and products related, but not restricted, to the topics of relevance outlined previously
- To be eligible for funding, your team must be based in one of the following countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Norway, Poland, Portugal, Romania, Slovenia, Sweden, Switzerland and United Kingdom.
- Authorisation of Funding letters from the corresponding National Delegations are required as part of the application: https://business.esa.int/national-delegations)

→ Proposal template

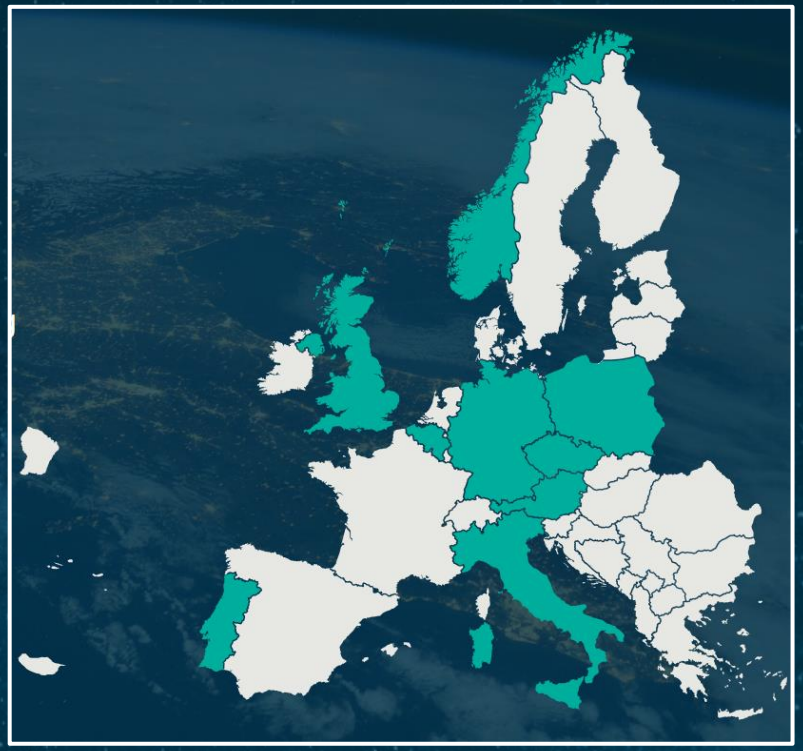
Your Proposal shall include the following information:

1. TECHNICAL PART
2. MANAGEMENT, ADMINISTRATIVE AND IMPLEMENTATION PART
3. FINANCIAL PART
4. CONTRACTUAL PART

A tool at your disposal – The Ambassador Network

Ambassadors are present in 9 countries

They are your local interface for any questions related to the offering of ESA Space solutions.



https://business.esa.int/ambassador-platforms

Thank you!

For more information:

ESA Space Solutions
(https://spacesolutions.esa.int/)

Liz Barrow <Liz.Barrow@esa.int>

After the call goes live in September
Submit Questions through ESA-Star