

HECATE

  
CLEAN AVIATION



# WP11 - Management, Communication, Dissemination and Exploitation

## D11.6/D95: PEDR - Plan for the Communication and Dissemination of Results – 1<sup>st</sup> update

### Public

Lead beneficiary: CAI

Due date: 30/06/2024; Actual submission date: 09/07/2024

<b>Grant Agreement number</b>	101101961
<b>Project acronym</b>	HECATE
<b>Project title</b>	Hybrid Electric regional Aircraft distribution Technologies
<b>Funding scheme</b>	HORIZON JU Innovation Actions
<b>Start date of the project</b>	01/01/2023
<b>Duration</b>	36 months
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# Executive summary

This document D11.6/D95 updates, as a stand-alone document, the “Plan for Communication and Dissemination of Results” for the European co-funded project HECATE, including the project’s communication and dissemination strategy and the action plan for the project. The plan will be further updated at the end of the project at M36 (D11.9/D98). In addition, reports on the occurred dissemination activities will be part of the periodic reporting at M24.

Proper project dissemination and communication is key to ensure the maximum impact of HECATE, while ensuring the special points of vigilance with regards to communication rules of Clean Aviation projects. The main goal of the planned communication activities is to increase the visibility of the project among selected communities and target groups, from local to European and International levels, in order to promote the implementation and exploitation of project results, always considering confidentiality and IPR aspects. All consortium partners will contribute to HECATE dissemination, according to their foreseen role and effort, using all available tools and channels.

This deliverable outlines the project communication and dissemination strategy in terms of identification and description of the communication/dissemination key elements:

- objectives (why, mission & vision)
- subjects (what)
- target audience (to whom)
- timing (when)
- tools and channels (how)
- responsibilities for dissemination (who will perform dissemination)

This deliverable provides the general rules for performing dissemination activities (whereas the detailed procedures are described in D11.2 “Project and Risks Management Plan”), describes how to evaluate and assess the impact of dissemination activities. It also provides a description of the specific actions planned for the whole project duration. This deliverable avoids any duplication of content from the deliverable D11.5/D11.7: Plan for exploitation of results (confidential document due at M6, and M18) while it’s clearly linked to the following achieved milestones:

- MS11.4: Initial communication set
- MS11.6: HECATE presentation video

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### Document information

<b>Document Name</b>	PEDR - Plan for the Communication and Dissemination of Results – 1 <sup>st</sup> update
<b>Version</b>	V1
<b>Version Date</b>	04/07/2024
<b>Author/ Owner</b>	J. Keranen (LUP), I. Castro Álvarez (CAI)
<b>Dissemination level</b>	Public

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<b>Other (Quality)</b>	J. Keranen	LUP	04/07/2024

### Documents history

Version	Date	Modification	Name (Organization)
V1	23/04/2024	Updated version based on M6 report	Keranen (LUP)
V1.2	19/06/2024	Coordinator's inputs	Castro Álvarez (CAI)
V1.3	04/07/2024	Final updates from partners	Keranen (LUP)

### Distribution list

Full name or group
HECATE SC
CAJU project officer
All public

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## Glossary

Acronym	Signification
CA	Consortium Agreement
CAJU	Clean Aviation Joint Undertaking
DoA	Description of Action
DOI	Digital Object Identifier
GA	Grant Agreement
PCDR	Plan for the Communication and Dissemination of Results
PEOR	Plan for Exploitation of Results
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
RTO	Research and Technology Organizations

# 1. Introduction

## 1.1. HECATE in brief

### 1.1.1. HECATE in a nutshell

Table 1: HECATE in a nutshell

Data	HECATE
Acronym – title	<b>HECATE</b> – Hybrid ElectriC regional Aircraft distribution TEchnologies
GA number	101101961
Call topic	CLEAN-AVIATION-2022-01-HER-03
Starting date	01/01/2023
Duration	36 Months
Number of partners	37 incl. one affiliate
Total estimated eligible costs (EU)	45 159 602.50 EUR
Total estimated eligible costs (EU+UK)	53 248 925 EUR
Maximum EU requested contribution	34 210 348 EUR
Total IKAAs to be engaged by CAJU members	50 663 419 EUR
Maximum UKRI requested contribution	5 984 186 EUR
Project Coordinator	Ignacio Castro (CAI)
Technical Coordinator	Jérôme Valire (SEP)
PMO	Jetta Keranen (LUP)
Communication Officer	Peggy Favier (LUP)
Cordis webpage	<a href="https://cordis.europa.eu/project/id/101101961">https://cordis.europa.eu/project/id/101101961</a>
Project website	<a href="https://hecate-project.eu/">https://hecate-project.eu/</a>
Zenodo community	<a href="https://zenodo.org/communities/hecate">https://zenodo.org/communities/hecate</a>

### 1.1.2. Project summary

Aviation needs to meet the ambitious targets of the European Green Deal. This means a step change is needed towards hybrid electric regional aircraft to significantly reduce the fuel burn. This can only be accomplished with power distribution networks that can safely handle the high power and high voltage levels, ultimately up to several Megawatt.

The HECATE project will address the associated challenges of system weight and power density, high voltage challenges with lightning, arcing and electromagnetic interference as well as optimized thermal management, in addition to digitizing the design process with digital twins.

This will lead to transformative technology bricks, which are holistically optimized at system integration architecture level. The HECATE project will demonstrate a >500 kW architecture in a copper bird at TRL5. This will provide a clearer understanding of high voltage challenges and how to mitigate them, with a scalability roadmap towards CAJU Phase 2 flight demonstration and exploitation in a 2035 new built Hybrid Electric Regional aircraft. On the long term, the results will be beneficial to all HEP aircraft platforms.

Also, environmental impact and LCA will be assessed. For optimal alignment and ensuring certifiability, HECATE will establish relationships with other Clean Aviation projects (e.g. HERA and HE-ART for the definition of the electrical architecture and power/voltage/current levels) and authorities and standards groups (e.g. EASA, EUROCAE). As a set of key enabling technologies that are well integrated, HECATE will contribute to the Clean Aviation SRIA and its expected impacts, and fully fulfill the call's expected outcomes.

The 37-member consortium mobilizes key EU based industries throughout the entire existing supply chain: from aircraft OEMs to system integrators, to system and subsystems suppliers, 5 of which are SMEs. 17 RTOs, complement and reinforce the industries, which also ensures knowledge gained is embedded in future research and education programs. HECATE requests 34 210 348 € of grant to EU and 5 984 186 € to UKRI.

## 1.2. Context and scope of this deliverable

This deliverable first aims at creating a graphic identity and various communications media channels.

As a visual tool to which anyone can refer to, graphic identity plays a significant role in the way the project presents itself, both at the internal and at the external level. Indeed, the several components of this tool convey the project purpose, spirit and ambitions and will

allow, not only the scientific and industrial community, but also the general public to easily identify the HECATE project through its specific design codes.

This deliverable also formalizes the release of various communication tools listed in MS11.4 (poster, kakemono and the project public website).

Together with the corporate ID and the above-mentioned media mirroring news on project achievements, these elements definitely play a symbolic role in creating a notion of identification and are essential corner stones of the project communication, recognized as a key in order to ensure the maximum impact of HECATE project. They are daily instruments of the visibility of HECATE project on the selected communities and target groups, from local to European and international levels, but also for partners daily internal exchanges, and team spirit.

All partners of the consortium contribute to the news and updates set in the associated website and feed CAJU social media.



Figure 1: CAJU main communication channels.

All printed supports files are available in HD on the website and in EMDESK internal platform (version with regular margins included for professional printing), and can be printed on demand by partners, but also used for EC services.




The website with clear connection to CAJU LinkedIn page and HECATE ZENODO community, will provide a living window on HECATE.

For the first months of the HECATE project, the content of the website mainly described the project goals, approach, and expected applications. Afterwards, it has been regularly fed with news and events (including major achievements, participation to congresses/fairs), scientific publications, press releases and other relevant announcements. The website includes also an updated list, and links to the journal and conference papers, conference and workshop presentations, as well as to public deliverables, as seen in section 4.5.4.

Secondly, as the project progresses, HECATE aims to optimise the “use of results” via appropriate communication on the project’s goals, disseminations on hands-on results to the European and International scientific community, as well as to the Clean Aviation members. This maximizes the exploitation potential of the new developed technologies, disseminate the capabilities of the HEP potential and foster the collaboration between OEMs but also airlines for operating these aircraft, along with increasing the competitiveness of the involved actors.

For clarity, the specific definitions regarding communication, dissemination and exploitation, as understood from the EC point of view<sup>1</sup> are given in the below table.

Table 2: Standard EC definitions regarding communication, dissemination and exploitation

	Communication	Dissemination	Exploitation
What 	Strategic and targeted measures to communicate about 1) <b>project</b> (action), and 2) its <b>results</b> via press releases, newsletters, internet & social media,...	Public disclosure of the <b>project results</b> by any appropriate means (conferences, publications, workshops, summer schools, etc.)	Use of results in <b>further research</b> activities (outside the project), or in developing, creating and marketing a <b>product</b> or <b>process</b> , or in creating and providing a <b>service</b> , or in <b>standardization</b> activities.
Why 	<b>Inform</b> and <b>engage</b> with <b>society</b> ,  to show the <b>impact</b> and <b>benefits</b> of EU-funded R&I activities	Describe and ensure <b>results available for others</b> (enabling take-up and use)	<b>Make concrete use of research</b> results (not restricted to commercial use)
To whom 	<b>Multiple audiences</b>  Beyond the project’s own community incl. media and the broad public	<b>Specialist audiences</b>  Groups that may use the results in their own work, including peer (research/academic) groups, industry, students, professional organisations, policy-makers,...	<b>Project partners &amp; user groups outside</b> the project

<sup>1</sup> <https://www.iprhelpdesk.eu/sites/default/files/EU-IPR-Brochure-Boosting-Impact-C-D-E.pdf>

Formal obligations in terms of Communication and Dissemination are specified notably in Art. 17 of the GA, CA articles 8.3/8.5. In summary:

- **Acknowledgement, logos and notion of EU partnership**
- **Basic dissemination rules**
- **Open access obligation**

To this the consortium added acknowledgment to UKRI logo and funding (see D11.2 PRMP).

**For IPR and exploitation**, Obligations are defined in GA Article 16 and Annex 5, in particular for CAJU projects, *"the beneficiaries must comply with their best effort obligation to exploit the results and any additional exploitation obligations imposed by the call conditions for up to 10 years after the end of the action"*. Note that initial and updated catalogue of HECATE results and exploitation plan, related background and access rights (covered in the Consortium Agreement), together with the exploitation intentions, are provided in the confidential deliverables D11.5/D11.7 PEDR.

The steering and tracking of these activities are monitored in two specific tasks (WP11.3 and WP11.4), coordinated by CAI with the support of LUP.

**Both plans (plans for communication and dissemination, as well that of exploitation) will be updated at the end of the project at M36.**

### 1.3. Specific philosophy of communication and dissemination in Clean Aviation projects

**Communication** activities aim to reach out to society as a whole. However, to maximize impact, said activities need to be tailored per target group. To account for this fact, the different means to be used throughout the action are detailed in this document.

In principle Clean Aviation communication activities present more regulations than another standard EU research project. For this reason, the number of KPIs and media directly implemented is also, by essence, more limited than in a standard Horizon Europe research project. Nonetheless the consortium has strived to achieve these ambitious objectives in compliance with all requirements.

As such, and on top of the necessary disclaimer and acknowledgement imposed by the GA, beneficiaries are aware that the CAJU shall be consulted for publication or communication actions.

Language: It is important to highlight that all communication supports are created in English, but flexibility is given to partners to translate them.

**Dissemination** activities will also comply with the EC GA and HECATE CA requirements for permission before making public announcements on project activities. These publication rules and applicable delay for review and approval are detailed in D11.2. Moreover, they will only occur once the results have been protected by IPR measures.

The **management of IPR** is strictly ruled by the Consortium Agreement (CA), section 8 – Results, section 9 – Access Rights, and Attachment 1 – Background included. The CA covers the provisions related to the management of IPR including ownership, protection and publication of knowledge, access rights to knowledge and pre-existing know-how as well as questions of confidentiality, liability and dispute settlement.

It is worth noticing the instrumental role of specific deliverables, in particular from WP1, WP8 and WP10, e.g., the Technology Roadmap and Environmental Impact (as part of D10.1), Impact Monitoring Assessment reports (D10.2 to 10.7), and of course HECATE Final Presentation (D11.8). However, only few of these are public deliverables and therefore they cannot directly serve dissemination purposes in HECATE.

Finally, the present plan will also largely consider projects engaged for cross-fertilization and cooperation (as set under Cooperation Plan D11.11, and related MS11.5, as well as D11.12 Interface control document) to align not only on strategies and technical interphases but also on dissemination activities (e.g. participation to conferences, workshops, common messages...).

## 2. Activities and channels, planned audience, KPIs

### 2.1. Objectives and stakes

The planned dissemination activities foreseen in the project aim to create and animate a “HECATE Community” in which the project achievements and results can be easily and promptly disseminated.

HECATE dissemination is conceived as a continuous process involving all consortium partners the CAJU itself, and somehow consortia signatory of the Cooperation Agreement. During the lifetime of the project and beyond; various tools and channels are foreseen for dissemination of results, as depicted in Error! Reference source not found.. All dissemination activities will be recorded and communicated to the relevant stakeholders

(CAJU, EC/Cordis, etc.) via SYGMA/ F&T of the EC and PLANES (reporting platform of CAJU) but also possibly in unofficial reporting (i.e., e-mails to CAJU PO of communication services).

Table 3: Communication tools implemented for HECATE during and after the project

COMMUNICATION TOOLS / ACTIVITIES	DURING THE PROJECT	AFTER THE PROJECT
<b>Project general presentations</b>	✓	✓
<b>Project website*</b>	✓	
<b>Social media: posts on CAJU and partners' pages</b>	✓	✓
<b>Roll-up banner, general poster</b> (no updates)	✓	✓
<b>Project video animation</b> (update at project end)	✓	✓
<b>Video interviews of HECATE stakeholders</b> (posted on HECATE website)	✓	
<b>Press release</b>	✓	✓
DISSEMINATION OF KNOWLEDGE	DURING THE PROJECT	AFTER THE PROJECT
<b>Scientific poster presentation</b>	✓	✓
<b>Presentations at conferences</b>	✓	✓
<b>Lectures</b>	✓	✓
<b>Scientific papers, journals</b>	✓	✓
<b>Workshops, seminars, webinars, stakeholder panels</b>	✓	
<b>Industrial exhibitions and fairs</b>	✓	✓
PhD exchanges	✓	
Dissemination activities related to <b>technology transfer**</b>		✓

\*GA contractual obligations for the domain name purchase, hosting/ maintenance limited to the project duration

\*\* see measures described in Exploitation Plans (D11.5 and updates later in D11.7 and D11.10)

## 2.2. Building on synergies

HECATE by nature will have profound connections with a variety of running or upcoming actions, with which the project will also liaise to **foster dissemination**.

In line with the global objectives of the CAJU, HECATE is committed to supporting a strong and continuous cooperation, alignment, and technological exchanges with several initiatives and projects, as well as enabling technologies beyond aerospace, for the greater enhancement and progression of academic knowledge, industrial capability, and the value chain for high-value engineering and manufacturing in Europe.

*For Clean Aviation programme, the frequency and type of interactions with the relevant projects have been defined and agreed with the other consortia in the first 6 months of the project (notably via the Cooperation plan for Clean Aviation projects) and updated throughout the action as a function of projects' needs.*

The consortium will ensure a continuous exchange of information through virtual or face to face meeting to discuss technology development, achievements and communication and dissemination opportunities in advance of tourn points, whenever possible. To ensure the right level of alignment, cooperation and technological exchange at different levels with the right stakeholders identified below, HECATE has dedicated a specific set of activities captured in WP11.4 'Synergies and cross-fertilization'.

### 2.2.1. Emerging projects

#### Clean Aviation:

Table 4: Possible synergies with emerging Clean Aviation projects (Call 1 and Call 2)

Project	Technical dependencies	HECATE contribution	HECATE benefit
<b>Call 1</b>			
<b>HE-ART</b>	Between electric propulsion and electric distribution	HECATE will ensure the stability and power quality of KHVDC guaranteeing the correct operation of the motor drive, and the power management algorithms.	HECATE will benefit from the specifications, optimization and definition of the electrical propulsion needs for KHVDC to design the primary propulsive distribution based on the required power and interfaces.

<b>AMBER</b>	Alignment between the electrical distribution system and propulsion systems.	HECATE will provide electrical distribution requirements, KHVDC/HVDC specifications and EMI/EMC certification related information.	HECATE will ensure its potential integration with a tested fuel cell and propulsion system coming from AMBER project.
<b>HERA</b>	With the definition and trade-off activities related to the electrical architecture.	HECATE will provide information on technologies and digital twins.	HECATE will receive the requirements to ensure relevance within HER.
<b>NEWBORN</b>	To share a connection between the electric distribution system and the fuel cell.	HECATE will provide electrical distribution requirements, KHVDC/HVDC specifications and EMI/EMC certification related information.	HECATE will ensure its potential integration within a tested fuel cell system coming from NEWBORN project.
<b>HERWINGT</b>	Connection with the wing structural, system and functional requirements.	HECATE will provide the electrical requirements for the wing.	Ensure HECATE potential integration with the current under development wing within HER pillar.
<b>CONCERTO</b>	Connection to ease and develop a path towards certification.	Information on the electrical distribution system, its requirements and HECATE preliminary certification plan.	Increase and ease path towards a successful certification for HECATE technologies.
<b>Thema4HERA</b>	With thermal management for electric/electronic components.	HECATE will provide information on the thermal loads and thermal requirements of the distribution.	HECATE electric distribution technologies are thermally managed within the limits. Thema4HERA will provide electrical requirements for their equipment.
<b>Call 2</b>			

<b>ODE4HERA</b>	Connection with the development of digital twin for the electrical distribution.	HECATE will potentially provide information on models and methodologies of the electrical distribution for digital development.	HECATE expects to receive multi-domain methodology harmonisation approaches that contribute to higher level of integration of DT with synergetic programs.
<b>HERFUSE</b>	Connection between HECATE technologies and the fuselage mounting and space requirements.	HECATE will provide dimensions of technology bricks.	HECATE expects to fix potential volume, size and installations gaps.

### Horizon Europe opportunities

In accordance with other Clean Aviation projects and in coordination with JU, HECATE is ready to contribute and deliver, according to conditions set in the CA, a consolidated set of requirements, technological development, implementation strategies and exploitation, interfaces to tackle and demonstration criteria to apply to Horizon Europe opportunities.

They are essential for an effective 2035 EIS of HECATE supported aircraft configurations, such as those envisioned through the HER-01 to 04 (HE-ART, AMBER, TheMA4HERA, HECATE), TRA-01 (HERA) and TRA-03 (CONCERTO) programs, at low GHG emission and then high impact against competitors offering probably less GHG reduction but more aggressive solutions on sustainable aircraft performance yet at the edge of technology. The key Horizon Europe areas complementing and relevant for a technical coordination with HECATE and with other Clean Aviation projects linked to HECATE:

Table 5: Possible synergies with emerging Horizon Europe projects

	Horizon Europe opportunity	HECATE opportunity
Cluster V	On-board systems, flight technologies and structural solutions not specifically addressed in Clean Aviation such as mechanical systems and avionics solutions	Electrical distribution to secondary systems may present interesting opportunities to interconnect requirements and systems integration potentials between the electrical system and loads.

	Socio-economic studies on global mobility in the inter-modal and multi-modal future operative scenarios as well as, the scientific analysis of emissions both CO2 and not-CO2	Input for any decision on the actual launch of a real aircraft programme at low GHG emissions and the guidance for lawmakers to decide any financial support and market action to promote HECATE early adoption thus contributing to meet SBA target.
Cluster VI	Innovative solutions on materials	HECATE requires a full set of very low or very high thermal and electrically conductive materials as well as sustainable processes for their disposal and re-cycling
	Industrialization solutions	Step from the design to the production requires a deep analysis and "scale-up" including several and combined technologies of assembly, defect monitoring, automation, control of heterogeneous data by means of artificial intelligence, robotics and Industry 4.0

New high performances of enabling technologies useful to HECATE need proportionally sized and advanced testing facilities for their validation that in some cases are not available in Europe. In coordination with Clean Aviation JU, HECATE will support bringing to the European Strategic Forum for Research Infrastructures (ESFRI) such strategical need for Europe and eventually plan recovery actions. At a broader level, HECATE will support any Clean Aviation interactions with European Research Council (ERC) and European Innovation Council (EIC). Respectively, with ERC to have the support of fundamental science in putting the basis for solving the very difficult HECATE technological targets, with EIC to seek any exploitation path of HECATE and hybrid-electric propulsion solution beyond the aeronautics or to make them available to newcomers.

### BEPA23 Partnership

HECATE foresees potential synergies with BEPA (Batteries European Partnership Association), acknowledged to be a strategic objective for EU. LDO is for instance a member of this partnership to pursue needs suitable to aviation, making sure that those are included in BEPA SRIA and topics. The current development path in BEPA is marginal for aeronautical applications, however, improvements should tackle very elemental battery items and chemistry towards:

- Safety that today follows EUCAR classification not immediately equivalent to aviation requirements,

- The battery management system so far conceived for automotive and civil application that are by far the reference market of batteries but not complying aviation safety rules,
- Energy density, recharging time, durability lower than aviation optimal target for regional or larger aircraft.

Improvements to performance and safety of batteries, will simplify their integration on aircraft, and result in lower volume and weight penalties, i.e., better aircraft efficiency and stronger impact offered by regional aircraft.

### 2.2.2. On-going relevant projects

The HECATE partners are currently working on relevant projects whose results will be leveraged to enhance the HECATE's outcomes. Those projects have been identified and described in the DoA, where a description of the expected benefit to the HECATE project is also provided - the Table 3 below lists the projects that will be still running in parallel with HECATE for possible synergies.

Table 6: Possible synergies with National or international research and innovation activities still active

Project	Description/ Benefits/ Relation to HECATE
<b>ADENEAS (H2020) 2021 -2024</b>	"ADVANCED Data and power Electrical Network Architectures and Systems": H2020 program in which Collins Aerospace is performing architectures, energy management and power conversion optimization to meet H2050 objectives utilizing artificial intelligence design tools, enabling technologies for intra-aircraft data communication and for power network and a cooling system. <i>Benefits to HECATE: power conversion for the secondary distribution, high integration technologies"</i>
<b>ORCHESTRA (H2020 EU project) 2020 - 2024</b>	Optimised Electric Network Architectures and Systems for More Electric Aircraft <i>Benefits to HECATE: The ORCHESTRA project combines leading European Partners to deliver the main Technological Building Blocks for the development of future Much More Hybrid-Electric Regional Aircraft, including electrical architectures, power management and control, experimental and virtual testing, that will be also further developed in HECATE project.</i>
<b>IMOTHEP (H2020) 2020-2024</b>	IMOTHEP is an ambitious 4.5-year technological programme whose top-level objective is to assess the actual potential offered by hybrid electric propulsion (HEP) as a promising option to achieve a step increase in aircraft efficiency <i>Benefits for HECATE: The project will identify key enablers and technology gaps for HEP development, as well as required tools, infrastructures and regulatory adaptations. These will define a final sector-wide roadmap for HEP maturation.</i>

<p><b>TRANSFORM ECSEL-2020-1-IA 2021-24</b></p>	<p>Trusted European SiC Value Chain for a Greener Economy: Advanced SiC power electronics technology for automotive applications</p> <p><i>Benefits to HECATE: Reliability estimation and PHM based on numerical models - perfect starting point for development of digital twins"</i></p>
<p><b>EPROPTECH DGAC/ 20-24</b></p>	<p>Project full title: Electrical Propulsion Technology</p> <p><i>Benefits to HECATE: First integration of a full electric propulsive chain</i></p>
<p><b>HighSpin HE (granted) / 22-26</b></p>	<p>High-Voltage Spinel LNMO Silicon-Graphite Cells and Modules for Automotive and Aeronautic Transport Applications: develop high-performing, safe and sustainable generation 3b battery material, cells and modules with a short industrialisation pathway, demonstrate for automotive and aeronautic transport applications. AIT: coordination, cell upscaling and aeronautic module design.</p> <p><i>Benefits: Expertise on designing light weight, high energy battery modules for aeronautic applications.</i></p>

### 2.3. Strategy

Disseminating knowledge and results is a crucial part of HECATE. To have an impact on ongoing and future initiatives and activities in HEP for regional aircraft and related disruptive configurations and prepare CA phase 2 and commercial exploitation, it is important to raise awareness about the outcomes of the project and attract interest from relevant research communities, potential industrial players including SMEs and policy makers.

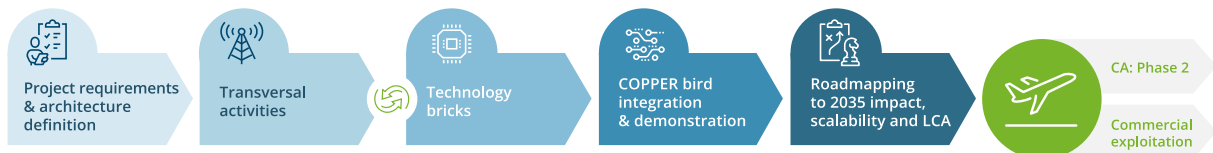


Figure 2: HECATE outline towards CA Phase 2 and commercial exploitation

The definition of the dissemination targets will be an ongoing activity of WP11.4 throughout the project. It will be based on a dual approach: on the one hand, integrating both the consortium partners’ inputs and specificities, and on the other hand complementing their inputs by challenging them with market and ecosystem considerations.

The consortium gathers a large diversity of partners with different backgrounds and positions along the value chain. Each partner already has its own dissemination and communication networks and habits, targeting its most relevant audience and potential consumers. A first essential phase for the project target definition was thus build upon **these existing networks and the numerous synergies reminded above.**

This included a phase of data collection from the consortium partners to identify their audiences and associated dissemination channels, such as:

- Identification of conferences and events in which the partners are usually active, and the audience they target through these events.
- Identification of publications that are relevant for the HECATE partners.
- Self-declared identification of the key customers and decision makers.
- Self-declared identification of preferred communication media and tools from partners and from CAJU.

This data collection enhanced partners' engagement and ensured that the project efforts are in line with their expectations. Moreover, it also contributed to the aggregation and analysis of different partners' approaches to identify common opportunities but also potential gaps.

The strategy of the HECATE dissemination plan greatly benefitted from the balanced consortium composition, gathering research institutes and industry partners including SMEs, their expertise and respective networks, combined with the specific added value of L-UP in terms of communication.

The implementation of all complementary actions described hereafter will be regularly reviewed the Steering Committee, and will contribute to the achievement of the KPIs defined.

Table 7 and Table 8 summarise the dissemination strategy targeting both specialist audiences and the general public for the HECATE project. For each category, we formulated specific objectives, KPIs including target values whenever relevant. An evaluation of the corresponding results will be included in the project technical reports and/or in the subsequent communication and dissemination plans. [The Table 9 below gives the KPI status at M18 for dissemination and communication activities. In addition, in Table 10, the envisaged participation in scientific conferences, and workshops are given for the upcoming period, together with the identified partner involved.](#)

[The detailed actions are recorded on the F&T portal of HECATE.](#)

A detailed presentation of all activities and tools is presented in the following chapters.

Specialist audience	Specific groups	Aim	KPIs and target/range values
<b>Scientific community and students</b>	Universities, engineering schools, establishments or institutes, national associations (in particular EUROCAE, EASN...).	<p>Raise awareness and understanding regarding HECATE concept and results.</p> <p>Transferring and adopting results, stimulating new research collaboration, educating and training students/researchers, coordinating with ongoing and future programmes to maximize impact and create synergies.</p> <p>Avoid duplication of research and development activities, benefit from other road mapping activities under development (e.g. IMOTHEP)</p>	<p><b>Scientific publications:</b> Total: &gt; 20, including at least 5 co-authored by at least two HECATE partners (joint publications). (See examples of foreseen topics and targeted journals in Annex)</p> <p><b>Conferences/Workshops/Events</b> (either with poster presentation or presentations): Total &gt; 10 (topic and targeted conferences listed in Annex)</p> <p><b>Cross-fertilization with other ongoing projects, in particular CA projects but also H2020 or HEU projects (in part. Cluster V, and Cluster VI):</b> 2 joint participations or joint organisations of event</p> <p><b>Exchanges between researchers/PhD/master students from different HECATE partners in the framework of the project:</b> Total 3 entity couples proposing activities</p> <p><b>Visits between HECATE partners in the framework of the project, and PhD Post-Doc Students exchanges:</b> Total 3 entity couples proposing activities</p> <p><b>University lectures based on content developed in the project:</b> Total 3 entities proposing activities during the project, and 3 one year after the project end (see Annex for details)</p>
			<p><b>Public workshops organized:</b> Total 3</p> <p>[UGR on numerical EMC (M24); CAI on electrical power distribution technologies (M32); SEP on integration &amp; demonstration (M36)]</p>
<b>Industry, including SMEs</b>	European industries, such as OEMS, network of sub-contractors, airlines, relevant SMEs;	<p>Ensure take-up and use of project results in further research (internal and / or collaborative) or in future development of products, processes and services, in particular Clean Aviation Phase 2.</p> <p>Increase acceptance of the HV, aircraft electrification technologies enabled, and adoption from potential users.</p>	<p><b>Consultancy services to industrial companies planned within one year beyond the project end:</b> Total 3 entities proposing activities (monitored in the HECATE exploitation plan)</p> <p><b>Press release:</b> at least 3 common press releases, further press releases of individual partners on specific results.</p>
<b>Standardization bodies, policy</b>	Regulation and certification bodies, EASA	Contribute to shaping policy recommendations and future research roadmaps.	<p><b>Providing inputs to standardization organizations:</b> at least 5 Working Groups addressed by partners (see Annex for details) (monitored in the HECATE exploitation plan)</p>

<p><b>makers, and stakeholders</b></p>		<p>Interaction with experts and key opinion leaders to define decision-making strategies and to create synergies</p> <p>Ensure certification path</p>	<p><b>Involvement through final public workshop:</b> <i>Invitations for 3 entities (or persons) to the last of the three abovementioned workshops).</i></p> <p><b>Dissemination through national or European associations:</b> &gt; 5 associations addressed (see Annex)</p> <p><b>CAJU members:</b> <i>15 of our partners are already members to CAJU and participate as such to Steering Board of this joint Undertaking. 4 extra ones committed to join the membership by the end of the project. EASA involvement in most WPs (except WP8-WP9-WP11) as third party.</i></p>
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Table 7: HECATE dissemination strategy towards specialist target groups, including objectives, KPIs and strategies to achieve the targets.

Non-specialist audience	Aim	KPIs and target/range values
<p>General public, citizens</p>	<p>Scientific popularization of HECATE concept and approach, HECATE technologies, HECATE results, via:</p> <ul style="list-style-type: none"> <li>• Generate interest for an optimal exploitation of the project results.</li> <li>• Increase public awareness and underpin public acceptance of the HEP technologies and of aviation in general.</li> <li>• Improve the visibility of EU funding for research and innovation projects.</li> </ul>	<p><b>Corporate ID designed</b> at project start.</p> <p><b>Poster, kakemono, and general project presentation</b> available by M6.</p> <p><b>Website statistics*:</b></p> <ul style="list-style-type: none"> <li>• Nb. of visitors: &gt; 1000</li> <li>• Nb. of website sessions &gt; 500 per year</li> <li>• Number of pages visited per session: 2 on average</li> <li>• Average session duration per visit: &gt; 2 minutes</li> </ul> <p><b>Number of references of HECATE in other websites:</b> <i>minimum 5</i></p> <p><b>Social media:</b> <i>presence on at least two social media platforms (LinkedIn via CAJU and partners' page, YouTube via L-UP channel). No specific HECATE community/page thus.</i></p> <p><b>YouTube:</b></p> <ul style="list-style-type: none"> <li>• <b>Video posted</b> (via L-UP channel): <i>minimum 10 videos released about HECATE (video animation, and video interviews of all WPLEaders, and possibly CAJU Project Officer)</i></li> <li>• <b>Views of HECATE videos:</b> <i>500 views in total.</i></li> </ul>

Table 8: HECATE communication strategy towards a non-specialist audience, including objectives, KPIs and strategies to achieve the targets.

\*Note that website statistics are subject to natural fluctuation depending on the level of activity on social media by partners and CAJU (push-information from social media vs. pull-information from website, especially due to absence of RSS feed).

Table 9: Assessment of HECATE communication and dissemination KPIs at M18.

KPIs and target/range (cumulative) values per specialized audience	Whole project	M6 (OBJ)	M12 (OBJ)	M18 (OBJ)	M24 (OBJ)	M36 (OBJ)	Performance at M6	Performance at M12	Performance at M18	Comments/ Examples
<b>Scientific community and students</b>										
<b>Scientific publications</b>	> 20, including at least 5 co-authored by at least two HECATE partners (joint publications)	-	-	5	10	20	NA	4 articles published, 4 planned	8 articles published (4 co-authored), 13 planned	See Annex of D11.4 for the initially planned journals
<b>Conferences (poster/ oral presentation)</b>	> 10	-	2	4	6	10	NA	4 conferences carried out, 3 planned	18 conference communications (poster or presentation) carried out, 15 planned	See Annex of D11.4 for the initially planned events
<b>Cross-fertilization with other ongoing projects, in particular CA projects but also H2020 or HEU projects (in part. Cluster V, and Cluster VI)</b>	2 joint participations or joint organization of event	-	-	-	-	2	NA	1: H2020 IMOTHEP-CAJU event on 29-30 Nov 2023. NB. Cross presentations/ clustering activities are reported in the Dissemination registrar (by CAI, AD, SEP etc.).	1. Idem	
<b>Exchanges between researchers/PhD/master students from different HECATE partners in the framework of the project</b>	3 entity couples proposing activities	-	-	1	2	3	NA	-	1. CAI-ECMS/ AD/ AHV	
<b>Visits between HECATE partners in the framework of the project, and PhD Post-Doc Students exchanges</b>	3 entity couples proposing activities	-	-	1	2	3	1. UBT/ HSG (WP3.5 at M2) 2. TUIL/SEP (WP2.4 at M6)	3. UBT/ HSG (WP3.5 at M7) 4. NLR/ADS (WP7 at M7) 5. PWR (WUST)/SEP (WP2 at M10) 6. TUL/SEP (WP10 at M12 LCA analysis) 7. TUIL/SEP (WP2.4 at 11)	8. LDO/UNISA (WP1 (Requirements & Architecture) and WP8.4 at M13, preliminary design of fuel cell system to be integrated with the battery pack) 9. AHV/ AD (WP4 at M13) 10. UNIT/ UNOTT (WP1 at M14) 11. TUL/ECMS/HSG (WP10 at M15) 12. NLR/ AD/ UGR (WP7 at M15) 13. PWR (WUST)/SEP (WP2 at M21)	

KPIs and target/range (cumulative) values per specialized audience	Whole project	M6 (OBJ)	M12 (OBJ)	M18 (OBJ)	M24 (OBJ)	M36 (OBJ)	Performance at M6	Performance at M12	Performance at M18
<b>University lectures/ teaching courses/ modules</b> based on content developed in the project	3 entities proposing activities during the project, and 3 one year after the project end	-	-	1	2	3+3	NA	<p>1. UPM: A module inside the master course "High frequency magnetics design". The module covers electro-magnetic and thermal FEM simulations and their mutual coupling. They plan to further develop this module for the next school year</p> <p>2. UBT: The HECATE content is integrated into a lecture at UBT, enriching both the theoretical and practical aspects of a master's lecture. It focuses on additive manufacturing technologies and explores their diverse applications, incorporating the HECATE topic and its associated technology as a key component of the course material.</p> <p>3. UNICAMP: Optimal energy management for aeronautic application based on model predictive control at M12</p> <p>4. UNISA: the application of UNISA expertise on hydrogen technologies within WP8.4 is recalled in the "Hydrogen energy and propulsion systems" class (master degree in mechanical engineering). The actual interest of the aviation sector in such technologies is particularly highlighted.</p>	<p>5. UNISA: the application of UNISA expertise on model-based design of fuel cell systems within WP8.4 is recalled in the "Hybrid Vehicles" class. The actual interest of the aviation sector in such methodology is particularly highlighted.</p> <p>6. AHV: Training course on clearance and wet creepage test developments in preparation (incl. impact of the environment (clean/dry, clean/wet, polluted, wet) on the flashover voltage).</p>
<b>Public workshops organized</b> (sci / industry presence)	3	-	-	-	1	3	NA	-	Work shop UGR: Numerical EMC planned in Nov 2024 (M23)
<b>Industry, including SMEs</b>									
<b>Consultancy services to industrial companies</b> planned within one year beyond the project end (transfer of knowledge outside the CA)	3 entities proposing activities	-	-	-	-	3	NA	1. UPM: the design of the high frequency transformers in the applications related with EV chargers (they can't specify the partner company, due to the NDA)	2. AHV: Development of creepage testing rig can be used within consultancy services for future testing. Understanding into the streamer inception could be developed further in commercial projects.
<b>Press release</b>	At least 3 common press releases, further press releases of individual partners on specific results	1	-	-	2	3	1. Press release from the kick off	1. Press release from the kick off	2. Press release for the PDR at M18

KPIs and target/range (cumulative) values per specialized audience	Whole project	M6 (OBJ)	M12 (OBJ)	M18 (OBJ)	M24 (OBJ)	M36 (OBJ)	Performance at M6	Performance at M12	Performance at M18
<b>Standardization bodies, policy makers, and stakeholders</b>									
<b>Providing inputs to standardization organizations</b>	<i>At least 5 Working Groups addressed by partners</i>	-	-	1	3	5	NA	1. AHV: ASD D2/WG1 developing guidelines on design / test of HV components 2. AHV: SAE AE10 High Voltage standards committee 3. LDO: AE-7/AE-10 committees on "Electrical Power Management"	4. AHV: Pollution testing required calculation and spraying technique development to be circulated within SAE AE7 committee 5. AD: Member of WG116 developing guidelines for Aircraft High Voltage Power Quality 6. UC3M: IEEE-DEI Society for development of new standard for Transport Electrification in collaboration with NEMA
<b>Involvement (of these actors) through final public workshop</b>	<i>Invitations for 3 entities (or persons) to the last HECATE workshop</i>	-	-	-	-	3	NA	-	-
<b>Dissemination through national or European associations</b>	<i>&gt; 5 associations addressed</i>	-	-	1	3	5	NA	-	1. EASN (AD, CAIT, AERTEC), 2. IEEE (UNICAMP, UC3M), 3. American Chamber of Commerce Ireland (CAI)
<b>CAJU members</b> (15 of our partners are already members to CAJU)	<i>4 extra ones committed to join the membership by the end of the project.</i>	-	-	-	-	4 memberships/ applications filed in	NA	1.UPM 2. IRT	3. UNOTT
<b>EASA involvement</b>	<i>EASA involvement in most WPs (except WP8-WP9-WP11) as third party.</i>	WP1/7 - Initial discussions	WP1/7 - D1.5/D7.1	WP1/7 - D1.5/D7.1 WP9/10 - Initial discussions	WP1/7/9/10 - D1.5/D7.1/D1.7/D10.8/D10.9	WP1/7/9/10 - D1.5/D7.1/D1.7/D10.8/D10.9/D9.6/D10.1/D1.5/D7.3	1. WP1/7 - Initial discussions	1. WP1/7 – D1.5/7.1	1. Updates in the selected deliverables as per new defined PID in progress. D1.5 and D7.1 reviewed by EASA. Initial discussion on involvement on WP9/10 on going.

KPIs and target/range (cumulative) values per specialized audience	Whole project	M6 (OBJ)	M12 (OBJ)	M18 (OBJ)	M24 (OBJ)	M36 (OBJ)	Performance at M6	Performance at M12	Performance at M18
<b>General public, citizens</b>									
<b>HECATE corporate ID set</b>	Poster, kakemono, and general project presentation available by M6	All 3 tools available	-	-	-	-	1. Poster 2. Kakemono 3. General presentation	1/2/3: Idem	1/2/3: Idem
<b>Website</b>	<ul style="list-style-type: none"> <li>Nb. of visitors: &gt; 1000</li> <li>Nb. of website sessions &gt; 500/year</li> <li>Number of pages visited per session: 2 on average / Average session duration per visit: &gt; 2 minutes</li> <li>Number of references of HECATE in other websites: minimum 5</li> </ul>	Website to be created at M6.	• ~100	• ~330	• ~660	• >1000	NA	<ul style="list-style-type: none"> <li>364 visitors</li> <li>480 sessions (France, Spain, Germany, Italy, Poland,..)</li> <li>2.8 pages/ &gt; 5 min</li> <li>3 references to HECATE in CAI, NLR, AAU, and LUP websites</li> </ul>	• 705 visitors (341 new)
			• 250	• 500	• 750	• 1000			• 971 sessions (491 new: UK, Spain, France, Germany,..)
			• 2 pages/ > 2 min	• 2 pages/ > 2 min	• 2 pages/ > 2 min	• 2 pages/ > 2 min			• 5.45 pages/ > 2min50 min
<b>Social media presence:</b> Presence on LinkedIn via CAJU and partners' page, YouTube via L-UP channel	YouTube: <ul style="list-style-type: none"> <li>Video posted: &gt;10 videos about HECATE (video animation, and video interviews of all WPLeaders, and possibly CAJU Project Officer)</li> <li>Views of HECATE videos: 500 views in total</li> </ul>	• 1 (website teaser)	• 3 (+HECATE video, interview)	• 4	• 6	• 10	1. Teaser video for HECATE website released (69 views))	1. Teaser 2: HECATE video	1. Teaser 2: HECATE video 3. CAI video
			• 50	• 100	• 150	• 250			• 500

Table 10: Future scientific conferences, and workshops identified by HECATE partners to be interesting to participate. Please see also Annex for a general list by topic.

Event	Start date	End date	Venue	Link
Farnborough Airshow	22/07/2024	26/07/2024	Farnborough, UK	<a href="https://www.farnboroughinternational.org/">https://www.farnboroughinternational.org/</a>
AIAA AVIATION Forum	29/07/2024	02/08/2024	Las Vegas, NV, USA	<a href="https://www.aiaa.org/aviation?utm_campaign=Aviation2024&amp;utm_medium=email&amp;_hsmi=280432089&amp;utm_content=280432089&amp;utm_source=hs_email">https://www.aiaa.org/aviation?utm_campaign=Aviation2024&amp;utm_medium=email&amp;_hsmi=280432089&amp;utm_content=280432089&amp;utm_source=hs_email</a>
International Symposium and Exhibition on Electromagnetic Compatibility EMC EUROPE 2024	02/09/2024	05/09/2024	Bruges, Belgium	<a href="https://emceurope2024.org/">https://emceurope2024.org/</a>
IEEE ECCE-Europe 2024	02/09/2024	06/09/2024	Germany	<a href="https://www.ieee-ecce.org/2024/ecce-europe-2024">https://www.ieee-ecce.org/2024/ecce-europe-2024</a>
ICAS 2024 Congress of the International Council of the Aeronautical Sciences	09/09/2024	13/09/2024	Florence, Italy	<a href="https://www.icas.org">https://www.icas.org</a>
Int. Conf. Noise & Vibration Eng. (ISMA2024)	09/09/2024	11/09/2024	Leuven, Belgium	<a href="https://www.isma-isaac.be/isma2024/schedule/">https://www.isma-isaac.be/isma2024/schedule/</a>
ISABE 2024 - The International Society for Air Breathing Engines	22/09/2024	27/09/2024	Toulouse, France	<a href="https://www.isabe.org/">https://www.isabe.org/</a>
69th IEEE Holm Conference on Electrical Contacts hosting the 32nd International Conference on Electrical Contacts	06/10/2024	10/10/2024	Annapolis, Maryland, USA	<a href="https://ieee-holm.org/">https://ieee-holm.org/</a>
International EASN Conference 2024	08/10/2024	11/10/2024	Thessaloniki, Greece	<a href="https://easnconference.eu/">https://easnconference.eu/</a>
Electric & Hybrid Aerospace Technology Symposium (EHAT)	30/10/2024	31/10/2024	Frankfurt, Germany	<a href="https://www.electricandhybrid-aerospace-technology.com/en/">https://www.electricandhybrid-aerospace-technology.com/en/</a>
Formnext 2024	19/11/2024	22/11/2024	Frankfurt, Germany	<a href="https://formnext.mesago.com/frankfurt/en/expo-convention.html">https://formnext.mesago.com/frankfurt/en/expo-convention.html</a>
IEEE - Electrical Systems for Aircraft, Railway, Ship Propulsion and Road Vehicles (ESARS) and International Transportation Electrification Conference (ITEC)	26/11/2024	29/11/2024	Naples, Italy	<a href="https://www.esars.eu/esars2023/">https://www.esars.eu/esars2023/</a>
CDC 2024 - Conference on Decision and Control, Polytopic Lyapunov Functions are not Straightforward for Minimum Dwell-Time Switched Affine Systems	16/12/2024	19/12/2024	Milan, Italy	<a href="https://cdc2024.ieeecss.org/">https://cdc2024.ieeecss.org/</a>
AIAA SciTech 2025	06/01/2025	10/01/2025	Orlando, Florida, USA	
Aerospace Aviation Congress Interdisciplinary International (AACII)	12/02/2025	12/02/2025	Nuremberg, Germany	<a href="https://aacii.space/">https://aacii.space/</a>
SAE AeroTech Conference & Exhibition	06/05/2025	08/05/2025	Vancouver, Canada	
IEEE Applied Power Electronics Conference - APEC 2025	16/3/2025	20/3/2025	Atlanta, GA	<a href="https://apec-conf.org/">https://apec-conf.org/</a>
Annual Conference of the IEEE Industrial Electronics Society (IECON)	03/11/2024	06/11/2024	Chicago, IL, USA	<a href="https://www.iecon-2024.org/">https://www.iecon-2024.org/</a>
VII Spanish Symposium on Electromagnetic Compatibility	19/11/2024	21/11/2024	Seville, Spain	<a href="https://www.jornadasemc.es/">https://www.jornadasemc.es/</a>

Event	Start date	End date	Venue	Link
27th International Conference on Electrical Machines and Systems (ICEMS2024)	26/11/2024	29/11/2024	Fukuoka, Japan	<a href="https://www.icems2024.com/">https://www.icems2024.com/</a>
2025 IEEE EIC	2025	2025		
Aerospace Technology Institute Conference 2024	08/10/2024	09/10/2024	ICC, Wales	<a href="https://www.ati.org.uk/conference/">https://www.ati.org.uk/conference/</a>
Power Conversion and Intelligent Motion - PCIM2025	06/05/2025	08/05/2025	Nuremberg, Germany	<a href="https://pcim.mesago.com/nuernberg/en.html">https://pcim.mesago.com/nuernberg/en.html</a>

As for data management, and exploitation (see D11.3 and D11.5), a dedicated dashboard for all communication and dissemination actions and impact has been set up by L-UP, and is regularly updated based on partners' inputs. The document is stored in the project-internal shared platform *EMDESK WP11 > Dissemination, Communication*. The structure of the Excel file reflects to the best extent possible the format of the content to be inserted in the EC SyGMA and PLANES portal, used for reporting on all communication and dissemination activities.

Besides another important monitoring file is the "Get Together" which lists of all dissemination events a priori of interest for HECATE community as seen in Table 10 (see chapter 5.3 participation to events).

### 3. Timing of communication and dissemination activities

Communication and dissemination activities are planned in accordance with the project progress. In general, while a number of communication actions take place in the first half of the project, the most significant dissemination activities take place as soon as more research results will be available. The communication and dissemination will follow the **AIDA model**: **Awareness** to attract the attention of the target audience, **Interest** of the target audience, **Desire** of the target audience to know more about the project, and **Action** to lead the target audience towards getting involved in the project's events and to promote its results to facilitate their exploitation. According to this principle, three phases are scheduled.

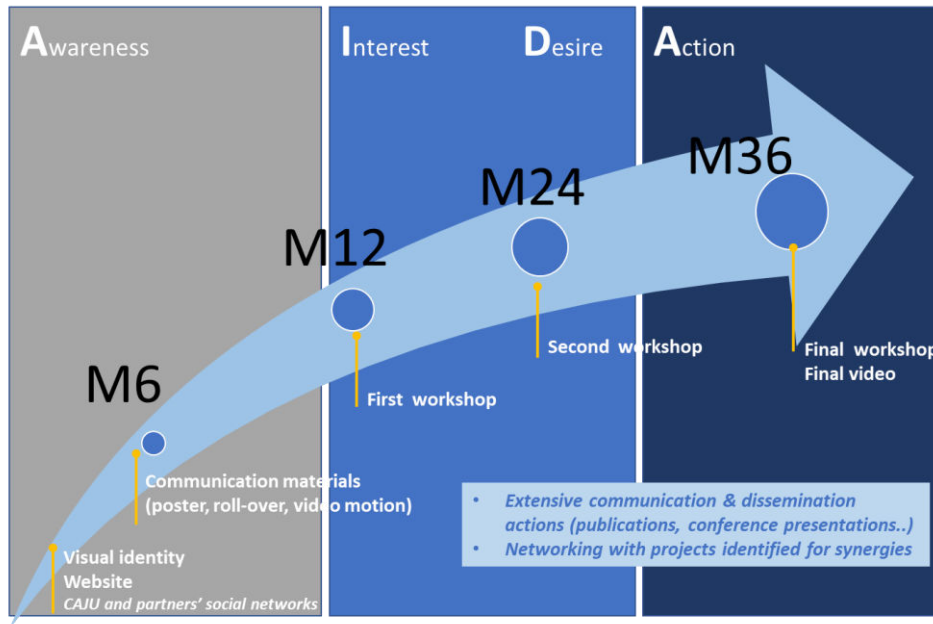


Figure 3: Timing of communication and dissemination activities planned in HECATE

**Initial phase (Awareness) (M1 – M10~12):** Focused on increasing the visibility of the project and mobilising stakeholders and multipliers. In this phase, the main activities will be related to the implementation of the communication and dissemination tools (visual identity, communication set), preparation of dissemination material, general presentation of the HECATE project, distribution of initial press release, publishable abstracts and progress resumes, update of the website with news.

**Intermediate phase (Interest/Desire) (M10~12 – M24~M30):** focused on disseminating available initial data and evidences on scientific advances and technological results incl. preliminary roadmap. Each partner will contribute at specific levels according to his expertise and business activities, focused on informing and engaging the targeted stakeholders notably via workshops when preliminary results become available. Project results and their future applications are presented in journals and conferences to specialized audience, in order to stimulate the interaction with the concerned scientific and industrial community and determine the expectations of the stakeholders. *This phase specifically engage with projects engaged for cross-fertilization and cooperation (as set under MS11.11).*

**Final phase (Action) (M30-M36):** focused on encouraging further use of the HECATE outcomes in terms of direct exploitation but also further research prospects, etc. In this phase, actions will be intensified to discuss with extended group of stakeholders (notably CAJU members, but also projects in the CoA), in view of CA Phase 2.

In the following sections we describe the communication and main dissemination activities planned for the project. Some of these activities have already been carried out, whereas most of them are in progress.

## 4. Communication

The development of a visual identity (logo) and graphic chart, ensures that project outputs are consistent and easily recognizable.

Both elements go together and are meant to be used for any internal and external communication support generated for the HECATE project: communication-dissemination material, project website, visuals but also the different project templates (such as Word and PowerPoint supports).

Indeed, these supports are very important for exchanges between partners, with the European Commission and with third parties, and having a common layout also guarantee a professional and consistent look.

They can be equally downloaded from the EMDESK WP11 folder or from the public website ([www.hecate-project.eu](http://www.hecate-project.eu)).

### 4.1. Logo

The step of creating the project logo was essential to position the project in a distinctive, original and aesthetic graphic universe. Note that a logo was already in place at the proposal stage, see below, but the consortium reworked it following the first PCC meeting and the requirements set on Logo and graphic identity applicable to projects co-funded by Clean Aviation.



Figure 4: HECATE historical logo

Several project briefings were carried out between L-UP / CAI on one side, and L-UP / communication agency on the other side. Guided by **CAJU corporate communication guidelines** (shared in March 2023), the project pitch and identified keywords are as follow:

**Topical Key words:** hybrid electric regional aircraft, electric distribution technologies, high voltage, electric, regional aircraft, distribution technologies, high voltage, digital twin, life cycle assessment

**General values:** greener aviation, electrification of aviation, environment

Based on the values of the project, multiple graphic tracks and associated logos were proposed (>3 different ones) by the communication agency. Then several validation loops were carried out for the maturation of the defined track.

The logo chosen for the project is the following:



Figure 5: HECATE official logo

This logo is available in .png, .jpg, .pdf, and .eps formats for the use of consortium members (also HD for likely print purposes). All extensions are stored to be downloaded by partners in EMDESK WP11 folder.

## 4.2. Graphic identity

The graphic chart to be used in all HECATE communication supports was created in line with the “spirit” conveyed by the logo. The graphical chart is implemented on all project documents/ templates and digital media:

- All Word documents developed within the framework of the HECATE project and documents to be submitted to the EC (e.g. deliverables).
- PowerPoint presentations to be used for communication and dissemination activities to be carried out by each participant within the framework of the project, but also for internal consortium meetings (technical and management ones), review meetings with the EC/JU.
- Press releases about HECATE on consortium partners’ websites and social media.
- Project website, and videos (animation and video interviews).

Indeed, these supports are very important for exchanges between partners, with the European Commission and with third parties, and having a common layout also guarantee a professional and consistent look. They can be downloaded by partners from the EMDESK WP11 folder. Particular attention was paid to the readability and clarity of symbols, the selection of harmonized fonts, tones vis-à-vis the different supports to be applied, etc.

Below are screenshots of the chart applied to project document templates, equally respecting CAJU requirements and general templates.

The screenshot shows a Word document template for a HECATE project. The top left features the HECATE logo and 'CLEAN AVIATION' text. The main title is 'WPX - Title' followed by 'DX.X: Title'. Below this, it specifies 'Dissemination level: Sensitive or Public' and lists 'Lead beneficiary', 'Due date', and 'Actual submission date'. A table provides project details:

Grant Agreement number	101101961
Project acronym	HECATE
Project title	Hybrid Electric regional Aircraft distribution Technologies
Funding scheme	HORIZON JU Innovation Actions
Start date of the project	01/01/2023
Duration	36 months
Project coordinator (organization)	Ignacio Castro Álvarez (COLLINS AEROSPACE IRELAND Ltd)
E-mail	<a href="mailto:ignacio.castro@collins.com">ignacio.castro@collins.com</a>
Phone	+353 (87) 352 2698
Project website address	Hecate-project.eu

To the right, a 'Table of contents' lists sections like 'Executive summary', 'Introduction', 'Work performed', 'Investigations and results on activity X and Y', 'Deviations and corrective actions', 'Connected milestones', 'Conclusions and next steps', 'References', and 'Appendix'. It also includes 'List of figures' and 'List of tables'. A 'Glossary' table is shown with columns for 'Acronym' and 'Signification'.

Figure 6: HECATE Word document template

The screenshot shows a PowerPoint presentation template. The first slide is a blue title slide with the HECATE logo and 'CLEAN AVIATION' text. It features the text 'Project Public Overview' and 'Date, Location' with a placeholder for 'Speaker: Full Name (Organisation)'. The second slide is a green and blue 'Summary' slide with three key points:

- p.3** The people
- p.5** Brief project introduction
- p.16** Contacts

The bottom of the slide contains logos for HECATE, CLEAN AVIATION, and the European Union, along with the text 'Co-funded by the European Union' and 'EUROPEAN PARTNERSHIP'. A footer at the bottom right shows 'D11.6: COMMUNICATION - PUBLIC - GA-101101961' and the number '2'.

Figure 7: HECATE PowerPoint document template

### 4.3. General public presentation of the project

Delivery date: June 2023 (M6 – Initial version)

For any potential audience, a general public presentation of the project has been produced (validated by the SC, as per the rules detailed above) and made available for partners on EMDESK > WP11- Communication & Dissemination, and also on <https://hecate-project.eu/comkit/>, to efficiently inform about HECATE in its early stages of development. It describes the motivation and objectives, the approach and ambition, the consortium as well as the potential impact of the project. An updated version of this presentation will be produced during the last year of the project to highlight the achieved results. This official presentation will be useful for partners both internally, for them to show the goals/progress of the project within their organisations, as well as externally to contribute to the project dissemination through communications in the media, for presentations at fairs and conferences, and for clients or meetings with external stakeholders. In absence of modification, except the speaker introduction, these do not require further validation of the SC. Any wished change shall be submitted to an official review process (see D11.1).

A major and comprehensive final update will be produced at M36 (D11.8).

### Public overview



Figure 8: Extract of HECATE public overview (updated in 2024)

## 4.4. Communication set

Delivery date: June 2023 (M6)

Even with the most recent digital communication channels available to us, traditional visual materials are of prime importance for research projects; the traditional essential toolbox for scientist and managers to disseminate results, in particular during conferences and fairs/exhibitions, will be composed of the following components:

- A Kakemono.
- A Poster.

The dissemination set files are available in HD in EMDESK internal platform. File versions including regular margins (“BAT” Files” are provided for professional printing for partners own use or for the EC/CAJU if required, while “web” versions are available for download by a larger audience on the public website (under the page “results”>” Com’ Kit”).

### Kakemono

The main objective of the HECATE kakemono (also designated as “roll-up banner”) is to provide a snapshot of the project and its consortium. It will be used at conferences and other relevant events.

The advantages of using a roll-up banner for the project are the following:

- Cost-effective way to grab attention of the target audience;
- Eye-catching way to show off the project logo.
- Easy to assemble.
- Compact in size which makes it easy to use, display and store.
- Portable and transportable.
- Durable and reusable.

The roll-up banner format is 80 x 200 cm. Unlike leaflets or detailed project presentations, the roll-up banner only provides “high level” information to satisfy the requirements listed above. Practically speaking, the kakemono should be readable at a distance of 4 meters (for visitors at fairs passing by the stand, or attendees looking for a workshop room at main entry, etc.)



Figure 9: HECATE kakemono (updated in 2024)

**Poster**

The main objective of the HECATE general poster (see Figure 9) is briefly illustrating the project, its context, objectives, and the consortium during conferences and workshops, for scientists involved. It has been designed for standard formats required by conferences organizers (usually 60 x 90 cm, marginally 80 x 120 cm which was preferred for HECATE). Although partners may print as many copies as necessary depending on their needs, the usage of electronic distribution is recommended mainly for environmental reasons.





Figure 11: HECATE poster mock-up (updated in 2024)

### CA project sheet

HECATE consortium has prepared the Clean Aviation Project Sheet for communication purposes (see Figure below for extracts) with 4 sections:

- Project general information
- Details on the consortium
- Ambition, innovation, roadmap, impact
- Summary of main results

The sheet is available also on HECATE website at <https://hecate-project.eu/comkit/>. It will be updated regularly.



**SECTION1 - PROJECT GENERAL INFO**

<b>Project Acronym:</b>	<b>HECATE</b>
<b>Project Full Title:</b>	<b>Hybrid Electric regional Aircraft distribution Technologies</b>
<b>Total Project Cost (-€)</b>	45.159.602,50 €
<b>EC Funding (€)</b>	34.210.348,00 €
<b>Starting date</b>	01/2023
<b>End date</b>	12/2025
<b>Project OFFICIAL LOGO</b>	
<b>Project website/ social Media Channel</b>	<a href="https://hecate-project.eu/">https://hecate-project.eu/</a>
<b>Project details from EU Cordis (link):</b>	
<a href="#">Hybrid Electric regional Aircraft distribution Technologies   HECATE   Project   Fact sheet   HORIZON   CORDIS   European Commission (europa.eu)</a>	

ROADMAP & TIMELINE			
KEY PROJECT MILESTONES			
Milestones NAME	TIME	Description	Is there any Hardware /mock-up expected that can be displayed in major events ?
M1 - "Power Converter Specifications Completed"	06.2023	Achieved- Power Converter specifications and requirements successfully defined, completed and documented, enabling the progress toward product design and development.	NO
M2 - "Impact Monitoring Dashboard"	06.2023	Achieved- A comprehensive dashboard, accounting for all Key technological Performance Indicators towards programme aims is created and successfully updated. Achieved- Preliminary Design review completed for the specific test bench, where the full electrical architecture will be integrated, accounting for the Interface Control Document of all individual equipment composing the global system.	NO
M3 - "Test Bench PDR"	12.2023	Maturation of the Secondary Distribution technology brick, to provide power to the rest of the loads of the aircraft, to a TRL4 level.	NO
M4 - "Secondary distribution specifications"	02.2024	Maturation of the Primary Distribution technology brick, to supply power to the electrical propulsion system, to a TRL4 level.	NO
M5 - "Primary distribution critical design review completed"	10.2024	Maturation of the Power Conversion technology brick, to ensure power is delivered at the required voltage levels within electrical distribution and to the loads, to a TRL4 level.	NO
M6 - "Power Converters critical design review completed"	12.2024	The integration of all different subsystems at TRL-5 into an approved and validated test bench with a final reporting certifying integration and compliance as per the agreed Interface Control Document of each technology brick.	NO
M7 - "Electrical Sub-Systems Integrated"	09.2025		NO

**SECTION2 - CONSORTIUM DETAILS**

CONSORTIUM INFO			
Beneficiary Name	Company Type (SME, R&D, IND, UTM)	Country	Main task in the project
1-COLLINS AEROSPACE IRELAND, LIMITED	IND	IE	Coordinator. Design of power electronics, electrical distribution and architectures, digitalization, and verification & validation
2-SAFRAN ELECTRICAL & POWER	IND	FR	Design, manufacturing and integration of component and system for "more electrical" aircraft including global electrical system testing
3-LEONARDO - SOCIETA PER AZIONI	IND	IT	Aircraft manufacturer: specify, design, develop, test and certify HER platform
4-AIRBUS DEFENCE AND SPACE SA	IND	ES	Aircraft manufacturer: specify, design, develop, test, and certify HER platform
5-IRT ANTOINE DE SAINT EXUPERY	RTO	FR	Modelling: Weight reduction, thermal and electromagnetic interferences/ compatibility (EMC/EMI) modelling of electrical wiring interconnection systems (EWIS)
6-HS ELEKTRONIK SYSTEME GMBH	IND	DE	Design and manufacturing of electrical power distribution architecture systems, packaging through additive manufacturing, Solid-State Power Controller (SSPC) and Digital Twin (DT) & Predictive Health Monitoring (PHM) related technologies
7-SAFRAN SA	IND	FR	Design, manufacturing and integration of component and system for "more electrical" aircraft including global electrical system testing
8-SAFRAN AEROSYSTEMS	IND	FR	Design, manufacturing and integration of component and system for "more electrical" aircraft including global electrical system testing
9-ADVANCED LABORATORY ON EMBEDDED SYSTEMS SRL	IND	IT	Digitalization of power electronics and electrical distribution modules
10-STICHTING KONINKLIJK NEDERLANDS LUCHT - EN RUIMTEVAARTCENTRUM	RTO	NL	Thermal and electromagnetic interference/ compatibility (EMI/EMC) modelling of electrical wiring interconnection systems (EWIS)

MAIN RESULTS	
<p>HECATE has finalised the top level requirement definition, and it is currently in the design phase of the technology having some of the first PDRs already occurring. The setting and requirement phase defines the means and tools for efficient collaboration between partners and the baseline requirements that will define the electrical architecture and the design of the technology bricks. During this first year, HECATE has achieved the next key milestones:</p> <ol style="list-style-type: none"> <li>The definition of the top-level requirements.</li> <li>The definition of the electrical distribution architecture,</li> <li>The definition of the requirements for the design of primary distribution, power converters and power management. With a preliminary design review completed for Primary Distribution, and Power Management and Control System.</li> <li>The definition of a validation and verification strategy towards the final validation in a test bench (copper bird) at the end of 2025, with a successful Preliminary Design Review completed for said test bench.</li> <li>An Impact Monitoring process has been defined where certain KPIs and a technology roadmap, towards project objectives and Clean Aviation program aims, is outlined.</li> <li>The definition of interactions with other Clean Aviation programs aiming towards a common platform under the regional pillar.</li> <li>The implementation of tools, mechanisms, and rules for the collaboration of all partners. With both a legal framework defined, and an operational process outlined.</li> </ol>	
<p>Figure 1: HECATE electrical power system (EPS) architecture</p>	

Figure 12: HECATE CA project sheet

## 4.5. Project public website

### 4.5.1. Main objective and target audience

The main objective of the HECATE website is to provide updated online public information about the project, its goals and progress, the consortium partners and their communication and dissemination activities. The link to the website is: [www.hecate-project.eu](http://www.hecate-project.eu)

The ".eu" domain has been used to highlight the European initiative underlying the activities of the project. The name of the domain was registered and the website will be maintained for minimum 3 years, as per the GA requirements.

The project public website targets both the general public and specialist audiences: scientific community, education industry, media, policy makers.

A specific teaser (motion of 30' duration) was developed to widely promote the website publication (see [specific teaser video](#)) posted on Youtube and the partners and CAJU LinkedIn Page, see chapter 2.4).

#### 4.5.2. Elaboration and administration

The public website architecture and content of each page was validated by the consortium. L-UP (webmaster), under the supervision of CAI, is in charge of the management of the website contents and will provide regular updates upon with inputs of partners (public information on progress and dissemination activities).

In order to maximize its visibility, free or affordable methods to increase page ranking on search engines are used. Google Analytics 4 utilities are employed to monitor the website access: number of visitors, duration of the visits, geographical area, and the most visited pages of the website, etc. This will be a critical point in order to optimize the website activity.

These webpages are best viewed with the following browsers:

- Microsoft Edge 113 or higher
- Mozilla Firefox 63 or higher
- Google Chrome 70 or higher

Apart from the public area, a link leads to the internal/private secured platform EMDESK set up by L-UP at project start and accessible to partners only. All confidential project documents have been uploaded and will be kept available in the platform to enable the exchange of information and reporting activities.

#### 4.5.3. Architecture

The design of the website respects the traditional structure and organization in terms of intuitiveness, but it has been also optimized to get satisfactory responsiveness (size-ability and verticality of information display adapted to different screens size, from mobile phone to laptops). Special care was brought to the quality of the embedded pictures and illustrations (High Definition). Whenever relevant, 2D/ 3D animation have been brought to catch the reader attention on key facts, figures and concepts. While emphasizing the core knowledge (HECATE objectives, challenges) and the side knowledge (publications...) based on results, the sitemap of the HECATE website has been designed as follows (architecture's menu):

- **Home**

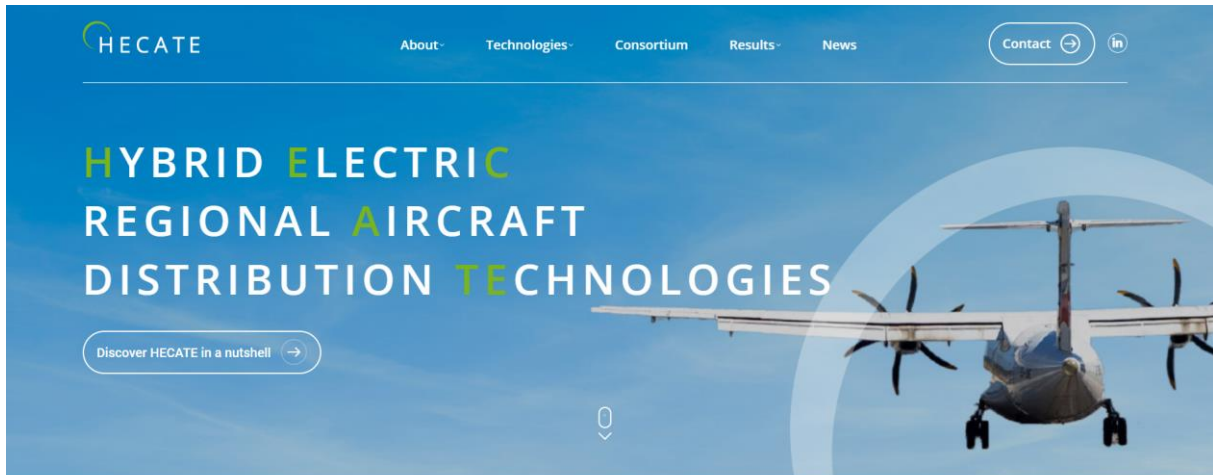
- **About**
  - In a nutshell
  - Context and Objectives
  - Approach
  - Impact
- **Technologies**
  - Electric architecture
  - Primary distribution
  - Secondary distribution
  - Power conversion
  - Power management and control system
  - Cables and connectors
  - EMI/EMC
  - Digital Twin
- **Consortium**
- **Results**
  - Communication kit
  - Publications
  - Synergies
  - Glossary
- **News**
- **Contact**
- **IMPRINT – DISCLAIMER – GDPR**

The following section will briefly describe the content of the main pages, with some screen shots but we invite the reader to consult the online version. The website went live on 30/06/2023 and was announced in a [specific teaser video](#) posted on Youtube.

#### 4.5.4. Website content

##### Homepage

The homepage contains a short introduction to the HECATE main objectives and the project consortium. The four latest pieces of news are also displayed on the homepage, within a carousel, and access triggered through a roll-over mode.



## NEW HIGH-VOLTAGE ELECTRIC POWER

Figure 13: Page "Home"

Direct access from the home have been created to 6 key (sub) pages of the projects:

- "About > In a nut shell"
- "Objectives"
- "Technologies"
- "Results"
- "Consortium"
- "Com' kit "

In the footer of any pages, direct accesses to the Zenodo Community (<https://zenodo.org/communities/hecate/>), and contact area of the project are provided ([contact@hecate-project.eu](mailto:contact@hecate-project.eu)), redirected to the Coordinator (CAI), and the PMO/Dissemination Manager (L-UP). Access to information on imprint (including full contact details for maintenance issues and queries), copyright, disclaimer and GDPR policy is also accessible from the footer, to fulfil regulations in place.

### Page "In a nutshell" in menu "About"

This page briefly presents the scope of the project together with the information summarizing HECATE in a snapshot. Similar information display is being used in the kakemono developed for conferences and congresses



Figure 14: Page “In a nutshell”

### Page “Partners” in menu “Consortium”

The 37 partners of the HECATE consortium are represented in a dynamic way, and includes a map to visualize the distribution of partners across Europe. Visitors can click directly on a partner’s logo to be re-directed to the partner organization/lab homepage, but also sort out the partners per expertise brought to the project.



Figure 15: Page “Consortium “ and specific filter per expertise displayed

### MENU “TECHNOLOGIES”

In this menu, specific pages are dedicated to the four main disruptive areas of innovation of HECATE. The partners will have a possibility to describe and showcase their innovative

technologies developed within the project as well as their assessment on said technologies.



Contacteur (©Cyril Abad - CAPA pictures- Safran)

## PRIMARY DISTRIBUTION

The step change to hybrid electric propulsion requires the primary distribution to supply power to the electrical propulsion system. In order to meet stringent aviation safety constraints, it is necessary to develop different types of components capable of protecting the network under high voltage and high current.

The electrical components are required to be lighter and more compact for the primary distribution, which is fundamental to enable Hybrid Electric Regional Aircraft.

HECATE defines:

1. Electromechanical contactors for **KHVDC**
2. Solid state switches for high power with **SIC** technology
3. Pyro-fuse for high breaking capability
4. Insulation Monitoring device

## SECONDARY DISTRIBUTION

For next-generation aircraft platforms, there is an essential requirement for higher voltage and higher power distribution components that satisfy safety and functional requirements while optimizing power-density, efficient control, and power management. The overall secondary distribution system needs to fulfil an extended range of functions and characteristics such as flexibility, reconfigurability, prognostics and health management.

Figure 16: Page "Technologies "

### Pages "Com' KIT" and "Publications" in menu "Results"

This page provides useful documents for the project promotion (official logo, Poster, kakemono) but also official Press Releases.

The list of publications and presentations generated by the consortium partners will be available on the page "list of publications" (including also links to the corresponding DOI files), knowing that all Open access publication will be also uploaded on the specific ZENODO community. Public deliverables to be released will be also displayed here (and be naturally available on EC Cordis Website).

## HECATE PUBLICATIONS

Partners will disseminate results through publications and active participation to conferences and standardization working groups. Please note that a specific [Zenodo Community](#) has been created to share open access publications.

HECATE will also organise a series of events targeting different audiences, from scientific to industry to general public. We will promote each event once the exact dates and venues are defined, so please stay tuned (on this website and [Clean Aviation LinkedIn page](#)).

### Journal and conference papers

- > Cabello, R. et al, Subcell Finite-Difference Time-Domain Implementation for Narrow Slots on Conductive Panels, Appl. Sci. 2023, 13, 8949, DOI: <https://doi.org/10.3390/app13158949>, [link](#)
- > Izquierdo, D. et al, Electrical | Distribution System LCA for Future Regional Aircraft – Preliminary Definition of Methodology, Aerospace 2023, 10, 920, DOI: <https://doi.org/10.3390/aerospace10110920>, [link](#)
- > Tan, S. et al, Junction Temperature Estimation Technologies of IGBT Modules in Converter-Based Applications, Proceedings of IECON 2023-49th Annual Conference of the IEEE Industrial Electronics Society, 16-19 Oct. 2023, DOI: <https://ieeexplore.ieee.org/document/10312676>, [link](#)
- > Russo A. et al, Adaptive Bounded Integral Control With Enhanced Anti-Windup Design, IEEE Control Systems Letters, vol. 7, pp. 1861-1866, 2023, DOI: 10.1109/LCSYS.2023.3282378, [link](#)



### Conference and workshop presentations

- > Hybrid Regional Aircraft Challenges, Industrials Research Meeting – IRM2023-ETSII, March 16, 2023, Madrid (SP) – Airbus-UPM: [LINK](#)
- > Junction Temperature Estimation Technologies of IGBT Modules in Converter-based Applications, 49th Ann. Conf. IEE Ind Electr Soc – IECON 2023, Oct 16-19, 2023, Singapore – Aalborg University: [LINK](#)
- > Design guidelines of a battery-to-HVDC power converter for hybrid electric regional aircraft, Int. Conf. More Electric Aircraft Towards greener aviation – MEA2024, Feb 7-8, 2024, Toulouse, France – Technalia: [LINK](#)

### Public deliverables

- > D11.3: Data Management Plan [LINK](#)
- > D11.4: Plan for the Communication and Dissemination of Results (M6) [LINK](#)

Figure 17: Page "Publications" and Com' kit

## Page "Glossary" in menu "Results"

A glossary has been set up, consolidating all acronyms that are used on the different website pages. It will be naturally updated along the project, accordingly to the new content provided to the website.

An **interactive** functionality has been brought in its elaboration, so that visitors are automatically redirected to the relevant definition (in a separate navigator page) when scrolling over the acronym on a page.

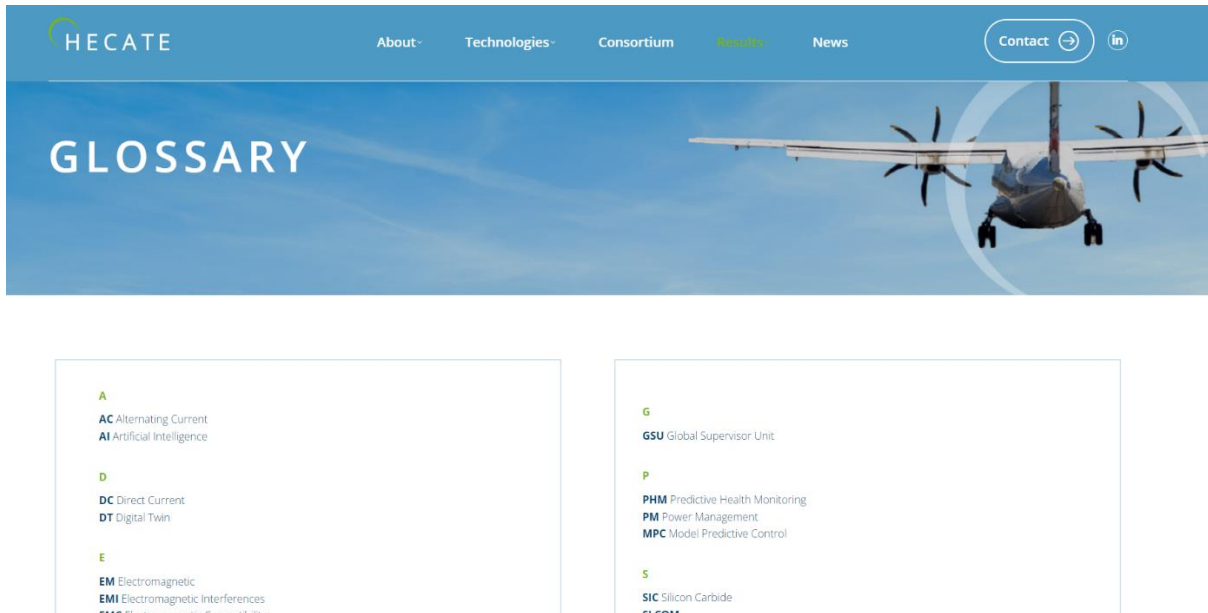


Figure 18: Page "Glossary"

### Page "News"

This page provides the list of the project-related pieces of news in a reverse chronological order (i.e. most recent items are located on top of the page). It will provide regularly public information on progress and dissemination activities (publications, participation to congresses, release of communication material: poster, kakemono...). As a general process, this news will be duplicated on the social media from CAJU and partners. But this latter will naturally be fed with more spontaneous insights of the project (see related KPIs in chapter 2.3). Call for posts news on the websites and on LinkedIn CAJU page are called at least on a monthly basis during PMC meetings to showcase dynamically results. CAJU validation will be sought when needed.

Periodically L-UP will also prepare mini video interviews of project stakeholders (project coordinator, partners, related projects' coordinators, CAJU Project Officer...) and spotlight on partners to give more insights on the contributors and also possibly end-users or decision makers.

The news can be sorted out per category (News/ Events/ Publications/ Uncategorized), and the 3 most recent ones will be displayed on a carousel on the home page.

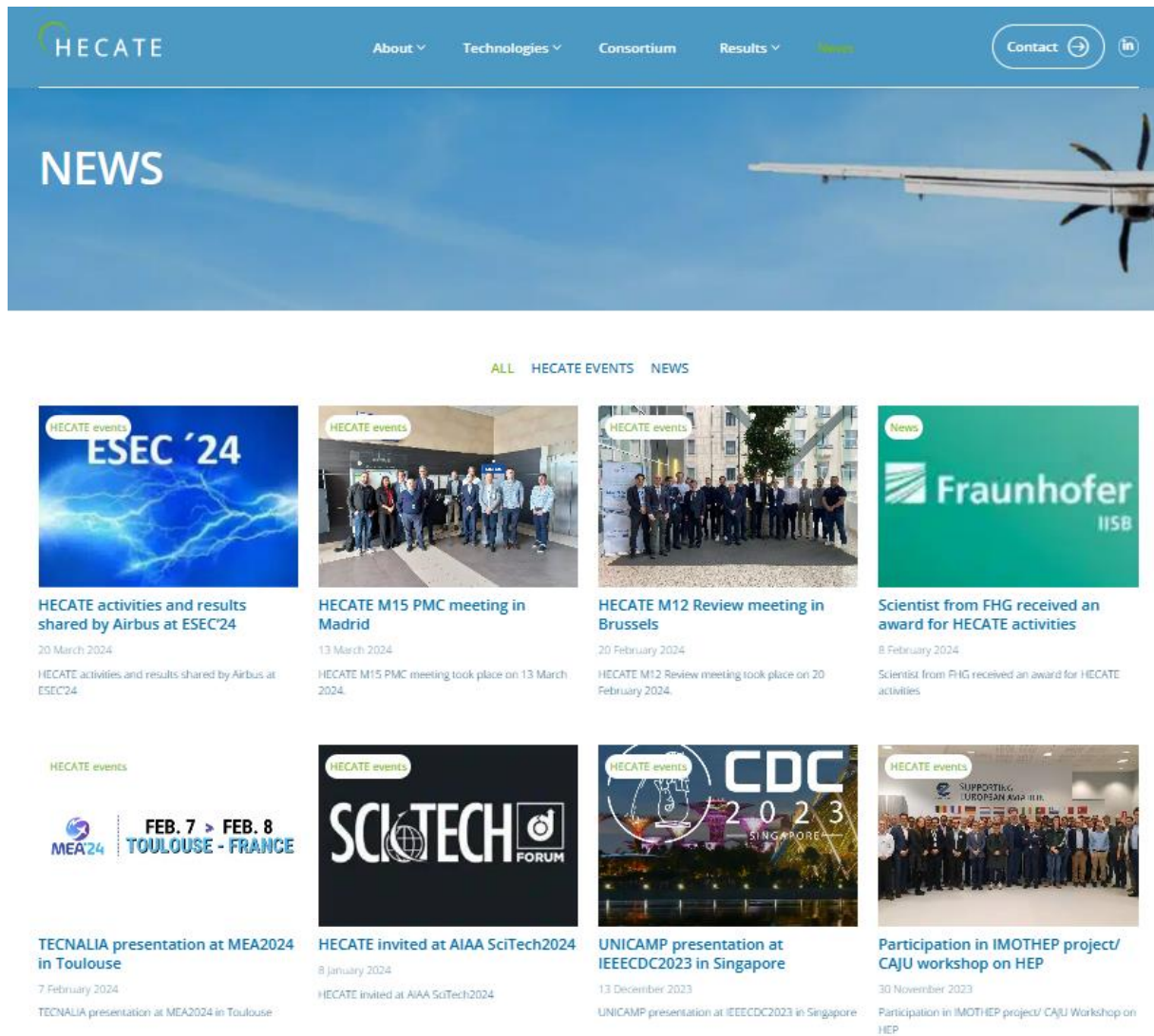


Figure 19: Page "News"

#### 4.5.5. WEBSITE SEO and statistics

To maximize the visibility of HECATE's website, free or inexpensive methods to increase page ranking on search engines are used. The visitor statistics are monitored with Google Analytics 4: number of visitors, visit duration, geographical area, most visited pages of the website, etc. This information is critical to optimize the website activity.

By default, a natural referencing: Each page has a unique title tag in the header section of the page's HTML code, with the following perimeter:

- Plan the correct marking out (Hn).
- Optimised images (webp format + weight).
- Integrate TITLE + META from the first reading of contents (professional search of key words or follow up of traffic would require a specific agency support otherwise).

- Interface with Google analytics 4.
- Validate that the weight of the pages is acceptable for Google and be sure that they can come out in Google images.
- Check that the responsive version is well read/interpreted by robots.

This already naturally benefits the ranking of the project web pages in search engines.

To improve the efficient of this natural referencing and go further, the SEO is optimized thanks to a page/ subpage specific descriptor: optimised TILTE+META accordingly to the requested number of characters (max. 160 characters).

Note that L-UP, as responsible for HECATE website set-up and maintenance, will monitor the statistics of the website in compliance with the EU GDPR, and be the so called designated “controller”. The tools “Google Analytics 4” and “search console” will be used for this purpose.

#### 4.6. Social media

No dedicated social media page was set up for HECATE, in compliance with CA lasted requirements. Therefore, the Coordination team counts on partners’ effort to share specific public content advertised on our website, through partners’ official social media, but also CAJU official LinkedIn Page.

#### 4.7. Project presentation video

A video (2D/3D motion design with maximum length of 3 minutes) giving a short overview about the project activities and goals was created at M10 of the project (achieving the MS11.6 HECATE video, due at M9). This motion is publicly shared on HECATE project website (<https://hecate-project.eu/>) and on Youtube ([https://youtu.be/SvzbY27K\\_0Q](https://youtu.be/SvzbY27K_0Q)), and can be also used as reference for workshops and conferences presentations. The mini video will be updated at project end with a brief sequence on results achieved. The below figure presents some screen shots from the video.

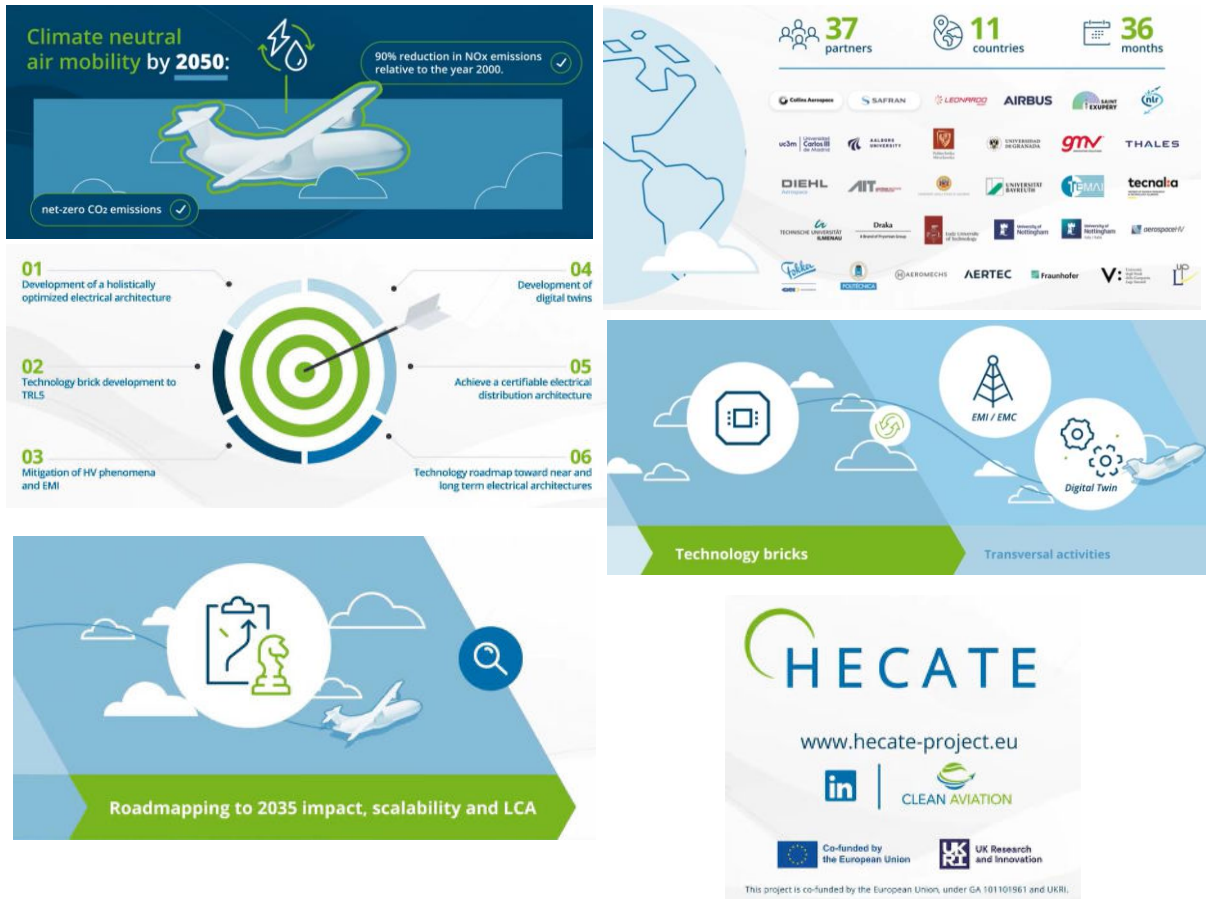


Figure 20: HECATE mini-video

#### 4.8. Press releases

Publication of periodic press releases (at the occasion of major project events) to local, national and international media, contributions to specialised magazines (e.g. Aviation Week etc.) will be implemented.

A first general press release was prepared to announce the project Kick-Off, published on CAI public website in January 2023, and shared on other partners' websites and social media. See for instance publications from the Coordinator on LinkedIn and Twitter (but many other partners also relayed it) :

[https://www.linkedin.com/posts/collins-aerospace\\_collins-to-coordinate-development-of-new-activity-7024405596913209345-Ut1T?utm\\_source=share&utm\\_medium=member\\_desktop](https://www.linkedin.com/posts/collins-aerospace_collins-to-coordinate-development-of-new-activity-7024405596913209345-Ut1T?utm_source=share&utm_medium=member_desktop)

<https://twitter.com/CollinsAero/status/1618639905885659138?s=20&t=DrCuuokdF4Vz-67tdvwfiQ%20&%20https://www.linkedin.com/feed/update/urn:li:activity:7024405596913209345>

The press release is stored on EMDESK > WP11 Communication & Dissemination, and in the project internet site. It was also aiming at the following pitch targets, discussed with WPLeaders:

Table 11: List of HECATE initial press release in 2023

Outlet	Publication Date	Link
FINN	Jan. 27	<a href="#">Collins Aerospace to lead clean aviation programme -</a>
Simple Flying	Jan. 27	<a href="#">Collins Aerospace To Head High Voltage Electric Propulsion Project HECATE -</a>
Avio News	Jan. 27	<a href="#">Collins to coordinate development of new high-voltage distribution technologies</a>
CAPA	Jan. 27	<a href="#">Collins to coordinate development of new power distribution technologies for HECATE project</a>
Times Aerospace	Jan. 27	<a href="#">Collins Aerospace to coordinate the development of clean aviation programme HECATE</a>
ADS Advance	Jan. 27	<a href="#">Collins to coordinate electric power tech development for HECATE -</a>
Flight Global	Feb. 2	<a href="#">Collins-led HECATE project looks to harness 'magic' as part of electrification push</a>
Avionics International	Feb. 3	<a href="#">Collins Leads Effort to Develop Power Distribution Technologies for Electric Aircraft -</a>
Future Flight	Feb. 6	<a href="#">Net Zero Research and Development Projects Proliferate as Europe Chases a Clean Aviation Future</a>

Press release are foreseen in the future in possible other magazines like Woodrow Bellamy; Air insight, Flug Review, Flieger Magazine, Aerobuzz, AIN, Aviation Week, The Air Current, Le Journal de l'aviation, Air & Cosmos.

Finally, it shall be highlighted that CA also published at project results publication official factsheets on selected projects on Clean Aviation Website.

## 5. Dissemination

A list of possible conferences of particular relevance to present HECATE in front of different scientific/industrial communities has already been established by the consortium partners.

It is key to identify and prioritise the events in which a representation from the HECATE project (partners and topics) is desirable. This list (see Get Together) will be revised on a quarterly basis with the PMC/SC to orchestrate maximum impact of the project cluster through shared participation. Project outcomes of significant impact and relevance for REG and other aviation segments (UAM and SMR) will be published as either scientific papers or scientific journal articles. Comprehensive subtopics may also be published as scientific or educational books. Targeted journals or magazines for publication are summarised in the Annex.

The project achievements will be showcased in the general project presentation, which will be regularly updated. The kakemono and poster provided by L-UP will also serve to support communication at targeted conferences.

### 5.1. Big picture of scientific dissemination

Figure 18 shows the big picture of HECATE’s research results and data protection, dissemination, and open access dealt within the related project work packages. After a first decision to disseminate and share results vs. protect/exploit, the public articles and other dissemination items and/or public research data will be available in full open access through HECATE ZENODO community (trusted repository conform to FAIR – see D11.3 DMP).

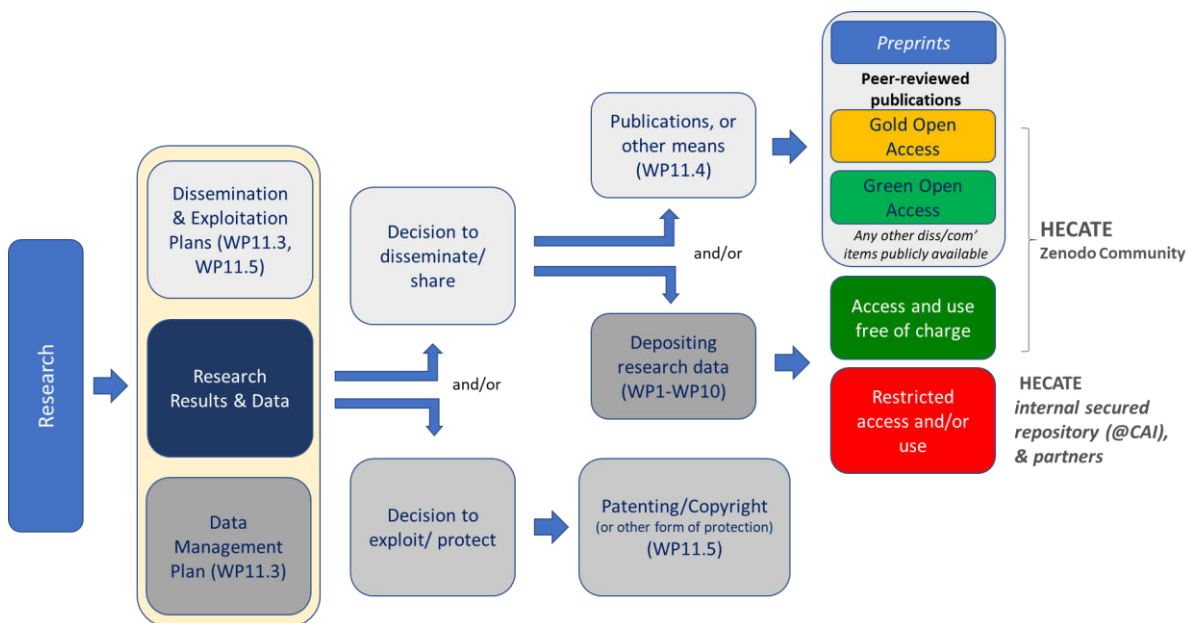


Figure 21: HECATE Dissemination and Exploitation strategy for R&D outputs

The validation process to be followed within the consortium before project-related information can be published is detailed in the D11.1 (Project and risks management plan) in conformity with the CA and GA.

## 5.2. Open Access platform: ZENODO

Following the EC requirements, HECATE's peer-reviewed publications with the linked bibliographic metadata (DOI), as well as research data required to validate the results will be uploaded to **open-access** platforms. The recommended open-access platform for HECATE partners is ZENODO, where the HECATE Community has been created (under <https://zenodo.org/communities/hecate/>). Preferably, the ZENODO Community will be used, unless open access is provided directly by the journal.

Other open data items (non-peer-reviewed publications, oral presentations, technical reports, data file posters, press releases, working documents, etc.) will also be made publicly available whenever possible.

The partners will, to the maximum extent possible, deposit research data in a clear and transparent manner and take measures to allow any user to access, mine, exploit, reproduce and disseminate those data. The standards of data storage, access and management are detailed in the Data Management Plan (DMP – D11.3) at M6.

The DMP will ensure that the research data and outputs are compatible with the “**FAIR**”<sup>2</sup> principles (Findability, Accessibility, Interoperability, Reusability). Given the high volume of data collected and produced (e.g. inventories, test methodology, models), a specific secured central repository will be permanently maintained by CAI while the internal secured repository implemented by L-UP (EMDESK), and hosting project documentation (deliverables, minutes, reporting, contractual and financial documentation). Finalised deliverables will be also stored on PLANES/ F&T portal, and public ones on the HECATE website (see 4.5.4). The server implemented by L-UP for communication/ website will remain operative at least until the project end (upon GA obligations).

## 5.3. Activities

### 5.3.1. Organisation of specific workshops

To address the different target groups, **3 public workshops will be organized** under UGR, CAI and SEP lead, with the support of L-UP. They will be combined with major scientific/industrials events or Clean Aviation Forum to optimize synergies, sharing and

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<sup>2</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/oa\\_pilot/h2020-hi-oa-data-mgt\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf)

exchanging of best practices for HEP, but also more largely for regional but also UAM, and SMR segments.

Table 12: List of specific workshops

Workshop #	Month	Topic and target audience	Responsible
1- Dedicated workshop combined to a conference	M24	Topic: Numerical EMC (possibly joint workshop with sister projects). This workshop is planned to be organised linked to VII Spanish Symposium on Electromagnetic Compatibility ( <a href="http://www.jornadasemc.es">www.jornadasemc.es</a> ) from 19 to 21 of November 2024 at Seville (Spain) <i>Research community</i>	UGR
2- International workshop combined to a conference	M32	Topic: Electrical power distribution technologies <i>Research community, Industry, End users</i>	CAI
3 - Final workshop	M36	Topic: Demonstration <i>Aviation professionals</i>	SEP

### 5.3.2. Lectures

As some of the HECATE consortium partners are research entities performing educational activities (UPM, UBT, UNICAMP, UNISA, UC3M, UNOTT, FHG, AAU, etc.), some results and conclusions of the HECATE project will be included in student lessons and lectures (see 2.3). The main aim is to inform about latest developments and newest scientific knowledge regarding the potential of HEP for REG segments, but also Digital Twins.

### 5.3.3. Publications and participation to events

#### Conferences, events, trade fairs

A list of international events will be established by the consortium partners as particularly relevant to attend and present HECATE. A preliminary list of targeted international conferences and trade fairs has already been drawn up during proposal preparation (see Annex) and is now gathered under a regularly updated “Get Together file” (see Table 10 above). Indeed, to avoid redundancy between partner participation and ensure the best possible coverage in terms of dissemination strategy, L-UP/CAI will regularly communicate this file to all partners to list and prioritise the events where HECATE will or should be represented. The complete file includes information on the deadlines for submission of abstracts/papers and envisaged/desirable representation from HECATE (partners and topics), which - in case of dissemination outside the EU or UK (if planned and noted in the GA) - must be communicated to the CAJU PO for approval in due time. This list will be

updated quarterly. Based on this list, HECATE will inform its community through the news section of the project website about the events the consortium partners will attend. For some important sector events, the HECATE consortium will decide to jointly participate with related projects, e.g. via special sessions or shared booth at fairs, to reach out to a wider audience and optimise impact

### Scientific publications and presentations

Project outcomes of significant impact and relevance will be published as either scientific papers or scientific journal articles (examples of topics and targeted journals were already listed in the project proposal, and reported in Annex). However, partners will be encouraged to pass on project information to their media contacts to augment the project visibility, not only to professionals but also to a larger audience.

The project achievements will also be published in presentations. This may also include communication to other relevant industries, providing access to national and international dissemination channels to increase awareness of HECATE's findings and their potential impact.

Attendance and public supports will be advertised on the website (in a news and in the page "publication") and ZENODO whenever relevant.

The list of publications can be found in the F&T portal, and in the HECATE website (see 4.5.4).

## 6. Conclusions and next steps

This deliverable describes the updated strategy of the consortium for HECATE's communication, and dissemination, including the main tools, measures and KPIs.

The comprehensive communication kit (logo, graphical chart, website, traditional hard copy communication media) have been produced.

This set has been complemented by a general project overview presentation to efficiently inform about HECATE in its early stages of development. Also, a project sheet is prepared regularly for the Clean Aviation Joint Undertaking communications.

The HECATE consortium partners will continuously update the website, in particular through the section "News" which is a traditional conveyor of the project life. Other sections are also enriched during the project, namely the "publications" part for journal and conference papers, conference and workshop presentations, and public deliverables.

A project presentation video completed the communication kit of the project and will be revised at project end.

This deliverable, D11.4 “Plan for Communication and Dissemination of results”, will be updated at M36 as to form the D11.9, the final version, to adapt the strategies as the project evolves and starts producing outputs. In parallel, and as for exploitation and impact, communication, and dissemination activities will also be reported as part of the periodic reports.

All of the activities will ensure that a targeted but also a general audience is informed about the progress made within HECATE.

## 7. Annex

Table 13: HECATE Preliminary Communication and Dissemination Plan (source: DoA)

Dissemination towards scientific community and students
Papers and scientific publications foreseen by HECATE
<p><b>Topics:</b> <i>Concept design of HER battery system, Innovative supervisory control, Optimal Energy Distribution Systems, Digital twin model and simulation of the secondary distribution for electric aircraft, Reliable PHM methodology for HVDC converters, Electro-Magnetic Compatibility (EMC), Finite-Difference Time-Domain (FDTD), Power conversion circuit topologies, Power conversion and EMI mitigation techniques, Packaging and integration of power converters, Controls, and modulation techniques for power conversion, System-level architectures, and trade-studies for power distribution, safety critical modular architectures, lifecycle models of power converters; next generation of power converters for aerospace, Next generation of SSPC modules for aerospace going HVDC, Advanced electrical power distribution system architecture for future regional hybrid-electric aircraft, Advanced electro-thermal models of magnetic components, AI application to enhance the modelling, Multivariable optimizations, customized magnetic designs, Plasma Physics; Switchgear, Digital Twin, AI for Digital Twin,</i></p> <p><b>Targeted journals:</b></p> <ul style="list-style-type: none"> <li>- Journals of the Institute of Electrical and Electronics Engineers (IEEE) (<i>Transactions on Power Electronics, Transactions on Electromagnetic Compatibility, Transactions on Antennas and Propagation, Transactions on Microwave Theory and Techniques, Transaction on Industrial Electronics, Transactions on Industry Applications, Transactions on Transportation Electrification, Transactions on Plasma Science, Journal on Emerging and Selected Topics in Power Electronics</i>)</li> <li>- Elsevier: <i>Aerospace Science and Technology, Propulsion and Power Research Journal, Automatica</i></li> <li>- SAE International Journal of Aerospace; AIAA Journal</li> </ul>

<ul style="list-style-type: none"> <li>- Emerald Aircraft Engineering and Aerospace Technology</li> <li>- International Journal of Robust and Nonlinear Control</li> <li>- Plasma Sources and Technology</li> <li>- Journal of Physics D: Applied Physics</li> </ul>
Participation to conferences, scientific congresses and industrial trade fairs
<p><u>Topic: power electronics</u></p> <p>European Conference on Power Electronics and Applications “EPE” (annual 2023-2025), Applied Power Electronics Conference “APEC” (bi-annual, 2023 and 2025), Power Conversion and Intelligent Motion “PCIM” (annual 2023-2025), IEEE Design Methodologies Conferences (annual, 2023-2025), IEEE Conference on Electrical Contacts “ICEC” (annual, 2023-2025)</p> <p><u>Topic: electromagnetic engineering</u></p> <p>International Symposium and Exhibition on Electromagnetic Compatibility “EMC Europe” (annual 2023-2025), IEEE International Symposium on Antennas and Propagation (annual 2023-2025), IEEE Energy Conversion Congress &amp; Exposition “ECCE” (annual, 2023-2025)</p> <p><u>Topic: thermal assessment of power feeders</u></p> <p>European Conference for AeroSpace Sciences (annual 2023-2025),</p> <p><u>Topic: modelling and optimisation, autonomous systems</u></p> <p>International Conference on Electromagnetic and Multiphysics Modelling and Optimization “NEMO” (annual, 2023-2025), Digital Avionics Systems Conference “DASC” (annual, 2023-2025)</p> <p><u>Topic: electric and hybrid aerospace technologies</u></p> <p>Electric &amp; Hybrid Aerospace Technology Symposium (annual, 2023-2025), AeroTech (bi-annual, 2023 and 2025), IEEE International Transportation Electrification Conference “ITEC” (annual 2023-2025), AIAA Electric Aircraft Technologies Symposium “EATS” (annual, 2023-2025), International EASN Conference (annual, 2023-2025), ICAS Congress (bi-annual, 2024), SAE Aerospace Electrical Interconnect System Symposium “AEISS” (bi-annual, 2024)</p> <p><u>Targeted recurring trade fairs, B2B meetings:</u></p> <p>Paris Airshow (bi-annual 2023 and 2025), Farnborough and or ILA Berlin International Airshows (bi-annual, 2024), AED Days for the Portuguese aeronautics, space and defence ecosystem (annual, 2023-2025)</p>
Dissem. through national or European associations
<p>Institute of Electrical and Electronics Engineers (IEEE) [UGR, UPM, among others]; SAE [CAI, CAIT, ECMS, HSG, SEP]; EUROCAE [CAI, CAIT, ECMS, HSG, SEP]; European Aeronautics Science Network (EASN) [UNOTT, NLR]; Aerospace Valley /ASTEC [SEP]; Business-oriented associations like Irish Development Agency, Science Foundation Ireland including [CAI]; AED Cluster Portugal for Aeronautics, Space and Defence including [GMV]</p>
Teaching courses for high-level students

<p><i>Modules on Bachelors/ Master degrees in Electrical and Electronic Engineering and Aerospace Eng.: Aerospace Electrical and Electronic Engineering - Control of Aerospace Systems - Advanced Propulsion - Aerospace Industry Organization-; Power Systems for Aerospace, Automotive and Marine (UNOTT); Numerical methods in EMC (UGR); General Vision of IMA 1st and 2nd Generation and XKY Operating System (GMV); GMV for technical Schools and universities in Portugal and Brazil (Developing using Xky Operating System)</i></p>
<p>PhD or Post-doc student exchanges</p>
<p>CAI has a proven track record of providing internship experiences for PhD students to gain industrial experience and support cross-engagement of research expertise between industrial and academic programs. CAI would envision university students being supported in participating in industrial exchanges of up to 6 months during HECATE. <i>Topics and partners for potential exchanges: Power conversion design, EMI modelling, analysis and mitigation, Consortium (UNOTT, AAU, UPM.) External entities: University of Manchester.</i></p>
<p>Organization of specific workshops</p>
<p>UGR topic is Numerical EMC (M24); CAI on Electrical power distribution technologies (M32); SEP on integration (M36);</p>
<p><b>Dissemination towards industry and SMEs: training and consultancy</b></p>
<p>UGR, training internally to the consortium ( AD); Dissemination via CAJU forum to stakeholders</p>
<p><b>Dissemination towards policy makers and standardization/regulation bodies</b></p>
<p>Standardisation/ regulation activities</p>
<ul style="list-style-type: none"> <li>- SAE AE-10 High Voltage Committee; SAE <b>AE-7 Aerospace Electrical Power &amp; Equipment</b> Committee</li> <li>- EUROCAE WG-14 Environment: <i>definition of environmental conditions and test procedures for airborne equipment (directly linked to RTCA-DO-160).;</i> EUROCAE WG116 High Voltage Systems and Components in Aviation: <i>new standards are needed for the industry and the certification authorities to develop and certify new designs for electrical and hybrid aircraft, where electrical voltages will be much higher than the current standards. Different aspects of the use of high voltage will need to be evaluated and the WG will need to identify what are the standardisation needs for high voltage;</i> EUROCAE WG113 Hybrid Electric Propulsion: <i>the proposed approach consists to get an overview of various architectures, to define associated technologies (enablers, mandatory, nice to have) and then evaluate major lacks in standards;</i> EUROCAE ED 247 - <i>Technical Standard for Virtual Interoperable Simulation for Tests of Aircraft Systems in Virtual or Hybrid Bench : Exchange with the ED 247 Group regarding results and implications of Virtual Interoperable Simulation for tests out of HECATE IOM simulations (DAS tool FiMoGen) activities.</i></li> <li>- <b>ASD-STAN D2WG1:</b> architecture and constraints [ASD-STAN is an Associated Body to CEN for aerospace standards (DRAKA)]; Contribution to the <b>ARINC 653</b> working group on Integrated Modular Avionics (GMV).</li> </ul>