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Le programme européen pour la recherche et l'innovation





Wébinaire d'information Cluster 5 – Destination 5

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Les informations fournies dans cette présentation sont préliminaires et sujettes à l'adoption finale du programme de travail



Merci de bien vouloir veiller à couper vos micros et caméras, et à laisser le contrôle aux présentateurs



Les questions peuvent être posées par chat

**Ce webinaire est enregistré et sera disponible sur le site
<https://www.horizon-europe.gouv.fr/>**

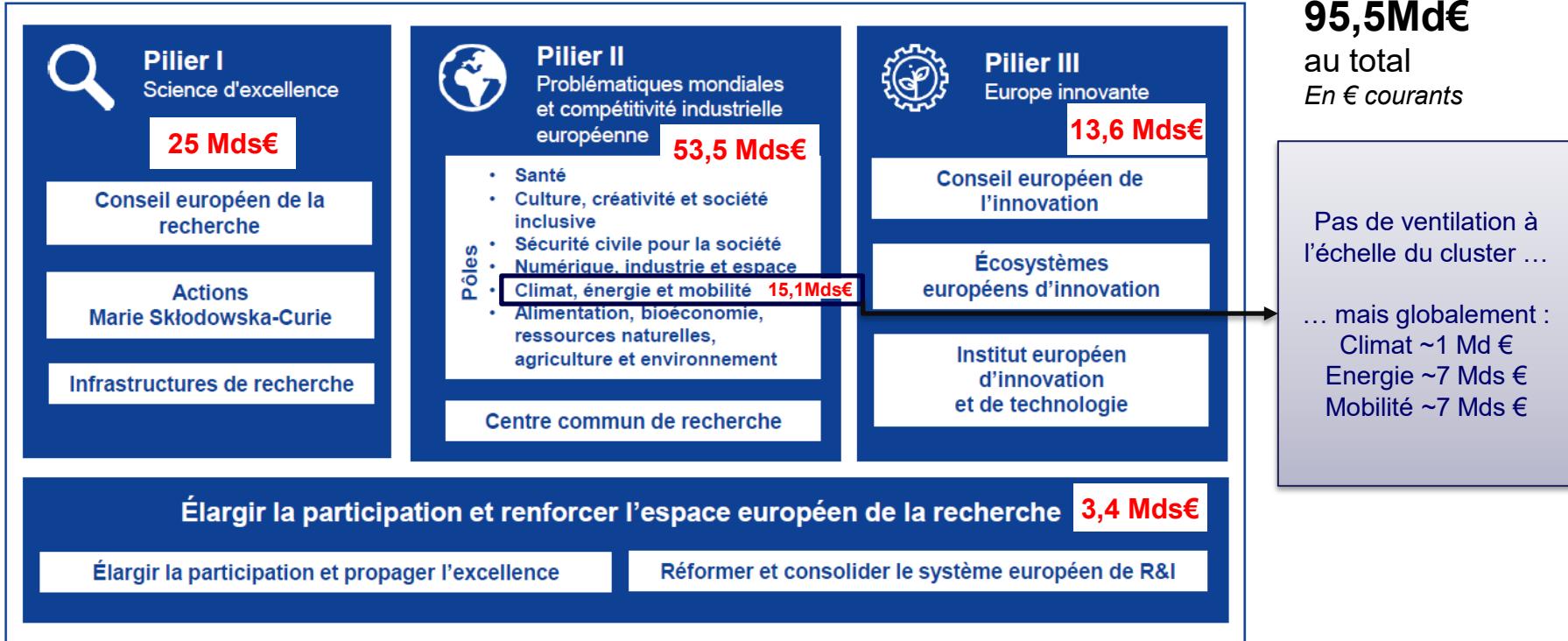
La présentation sera également diffusée aux participants pour information uniquement



1. Cluster 5 - *Climate, Energy and Mobility*



Structuration d'Horizon Europe





Destination 1 - Climate sciences and responses for the transformation towards climate neutrality

Destination 2 – Cross-sectoral solutions for the climate transition

- A competitive and sustainable European battery value chain, **7 + 10** appels
- Emerging breakthrough technologies and climate solutions, **4 + 0** appels
- Citizens and stakeholder engagement, **4 + 0** appels
- Communities and cities, **1 + 1** appels

Destination 3 – Sustainable, secure and competitive energy supply

Destination 4 - Efficient, sustainable and inclusive energy use

Destination 5 – Clean and competitive solutions for all transports modes

- Zero emission road transport, **4 + 4** appels
- Aviation, **2 + 3** appels
- Enabling climate neutral, clean, smart, and competitive waterborne transport, **8 + 6** appels
- Impact of transport on environment and human health, **2 + 1** appels
- Cross-cutting actions, **1 + 0** appel

Destination 6 – Safe, Resilient Transport and Smart Mobility services for passengers and goods

- Connected, Cooperative and Automated Mobility, **6 + 5** appels
- Multimodal and sustainable transport systems for passengers and goods, **3 + 7** appels
- Safety and resilience - per mode and across all transport modes, **4 + 3** appels

Ouverture des 1^{ers} calls :
24/06/2021

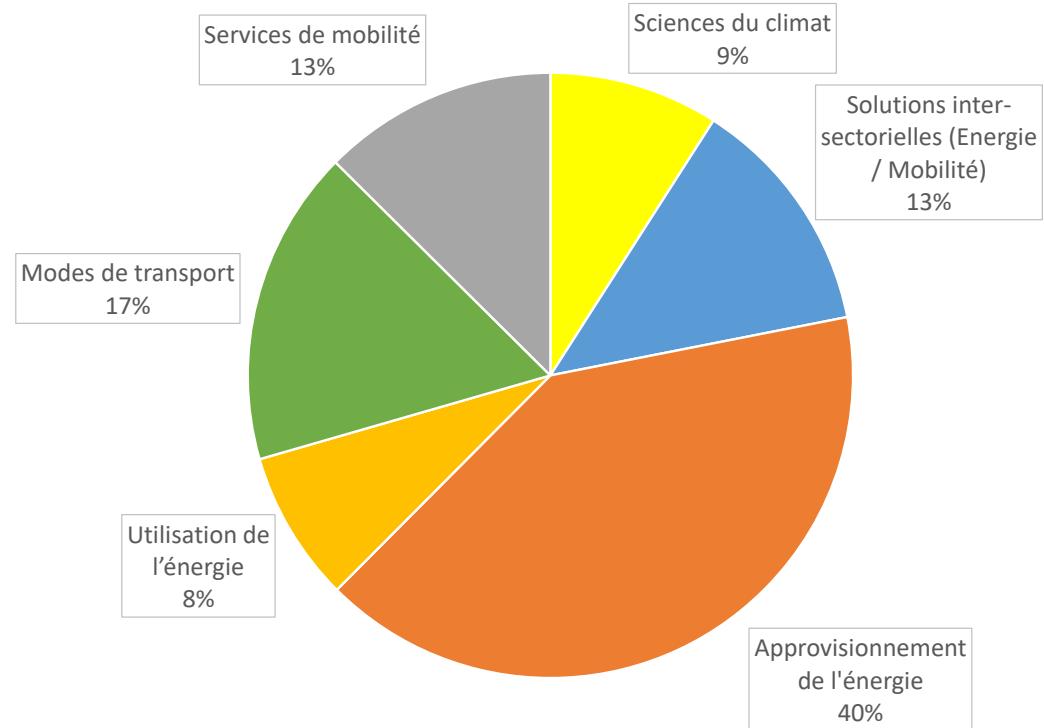
Première clôture : **14/09/2021**

Cluster 5 : Considérations budgétaires

Vue générale

	Budget 2021 (en €million)	Budget 2022 (en €million)
Dest. 1 – Climate science	136	138
Dest. 2 – Cross-sectoral solutions	232	156.5
Dest. 3 – Energy supply	583.8	642.5
Dest. 4 – Energy use	104	140
Dest. 5 – Clean & competitive transport	258	253
Dest. 6 – Safe & resilient transport / smart mobility	167	213
TOTAL	1480.8	1543

Budgets 2021 - 2022 selon les Destinations (en M€)





Cluster 5 : partenariats

Institutional Partnerships	Co-funded Partnerships	Co-programmed Partnerships
<ul style="list-style-type: none">• Transforming Europe's rail system• Integrated Air Traffic Management• Clean Aviation• Clean Hydrogen	<ul style="list-style-type: none">• Driving urban transitions to a sustainable future (DUT)• Clean Energy Transition	<ul style="list-style-type: none">• Built4People People-centric sustainable built environment• Towards zero-emission road transport (2ZERO)• Batteries: Towards a competitive European industrial battery value chain for stationary applications and e-mobility• Zero-emission waterborne transport• Connected, Cooperative and Automated Mobility (CCAM)

*Budgets et topics exclusivement gérés
au sein de chaque partenariat*

*Fonctionnement propre à chaque
partenariat*

*Sujets (« topics ») entièrement intégrés
dans le programme de travail HEU*

+ d'infos : [Candidates for European Partnerships in climate, energy and mobility | European Commission \(europa.eu\)](#)



2. Destination 5, 2021

*Clean and competitive solutions for
all transport modes*



Destination 5 : « Clean and competitive solutions for all transport modes » *Solutions de modes de transport propres et compétitives pour tous les modes de transport*

Objectif (« main impact ») visé : « Vers une mobilité climatiquement neutre et respectueuse de l'environnement grâce à des solutions propres pour tous les modes de transport, tout en augmentant la compétitivité mondiale du secteur des transports de l'UE »

4 domaines traités :

- 5.1 Véhicule routier zéro émission (partenariat co-programmé “2ZERO”)
- 5.2 Aviation (en plus des partenariats institutionnels “JU Clean Aviation” et “Integrated ATM”)
- 5.3 Maritime zéro émission (nouveau partenariat co-programmé “Zero Emission Waterborne Transport”)
- 5.4 Impact du transport sur l'environnement et la santé humaine
- (*Rail → Partenariat institutionnel “Transforming Europe’s rail System”*)

Destination 5 : Les appels de 2021

Version préliminaire du 21 Mai 2021

Topic	Topic title	Type of action	Budget 2021 (en M€)	Expected UE contribution per project (M€)	Expected number of grants	Call opening date	Deadline
HORIZON-CL5-2021-D5-01-01	Nextgen vehicles: Innovative zero emission BEV architectures for regional medium freight haulage (2ZERO)	IA	45	10.00 to 15.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-02	Nextgen EV components: Integration of advanced power electronics and associated controls (2ZERO)	RIA	20	4.00 to 6.00	4	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-03	System approach to achieve optimised Smart EV Charging and V2G flexibility in mass-deployment conditions (2ZERO)	RIA	25	7.00 to 10.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-04	LCA and design for sustainable circularity - holistic approach for zero-emission mobility solutions and related battery value chain (2ZERO & Batteries Partnership)	CSA	4	Around 4.00	1	24/06/2021	14/09/2021
Total Zero-emission road transport				94			
HORIZON-CL5-2021-D5-01-05	Greenhouse gas aviation emissions reduction technologies towards climate neutrality by 2050	RIA	25	2.00 to 6.00	6	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-06	Next generation digital aircraft transformation in design, manufacturing, integration and maintenance	RIA	29	3.00 to 6.00	5	24/06/2021	14/09/2021
Total Aviation				54			

Destination 5 : Les appels de 2021

Version préliminaire du 21 Mai 2021

Topic	Topic title	Type of action	Budget 2021 (en M€)	Expected UE contribution per project (M€)	Expected number of grants	Call opening date	Deadline
HORIZON-CL5-2021-D5-01-07	Enabling the safe and efficient on-board storage and integration within ships of large quantities of ammonia and hydrogen fuels (ZEWWT Partnership)	IA	20	Around 10.00	2	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-08	Enabling the full integration of very high power fuel cells in ship design using co-generation and combined cycle solutions for increased efficiency with multiple fuels (ZEWWT Partnership)	RIA	15	Around 15.00	1	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-09	CSA identifying waterborne sustainable fuel deployment scenarios (ZEWWT Partnership)	CSA	0.5	Around 0.50	1	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-10	Innovative on-board energy saving solutions (ZEWWT Partnership)	RIA	20	Around 5.00	4	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-11	Hyper powered vessel battery charging system (ZEWWT Partnership)	IA	14	Around 7.00	2	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-12	Assessing and preventing methane slip from LNG engines in all conditions within both existing and new vessels (ZEWWT Partnership)	IA	7	Around 7.00	1	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-13	Digital Twin models to enable green ship operations (ZEWWT Partnership)	RIA	7	Around 7.00	1	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-14	Proving the feasibility of a large clean ammonia marine engine (ZEWWT Partnership)	IA	10	Around 10.00	1	24/06/2021	14/09/2021
Total Waterborne				93.5			
HORIZON-CL5-2021-D5-01-15	Development and demonstration of cost affordable and adaptable retrofit solutions for tailpipe and brake polluting emissions	IA	10	4.00 to 5.00	2	24/06/2021	14/09/2021
HORIZON-CL5-2021-D5-01-16	Assessment of noise and particle emissions of L category vehicles from real driving conditions	RIA	5	4.00 to 5.00	1	24/06/2021	14/09/2021
Total Transport - health and environment				15			
HORIZON-CL5-2021-D5-01-17	Support for dissemination events in the field of Transport Research	CSA	1.5	Around 1.50	1	24/06/2021	14/09/2021



D5.1 - Transport routier à zéro-émissions

Transformer le transport routier en une mobilité zéro-émission grâce à un système européen de recherche, d'innovation et industriel de classe mondiale, garantissant que l'**Europe reste le leader mondial** en termes d'innovation, de production et des services liés au transport routier

Les impacts principaux attendus par les sujets sous cette Destination sont les suivants:

- Mise en place accélérée de solutions à **zéro émission échappement**, abordables et contrées sur l'utilisateur (technologies et services) pour la **mobilité routière** dans toute l'Europe
- Des **concept d'infrastructure de recharge** abordables et facile d'utilisation incluant des interactions véhicule-réseau
- Des cas d'application innovants pour l'intégration de véhicules à zéro émission échappement, et des concepts d'infrastructure pour la mobilité routière de personnes et de **marchandises**
- Conception efficace, évaluation et déploiement de concepts innovants pour des véhicules routiers et des **services de mobilité** grâce à des outils et des compétences d'analyse de cycle de vie, dans un contexte d'**économie circulaire**



HORIZON-CL5-2021-D5-01-01

Nextgen vehicles: Innovative zero emission BEV architectures for regional medium freight haulage (2ZERO)

→ Architectures BEV zéro émission innovantes pour le transport régional de marchandises

IA

Budget AAP : 45M€

Budget/projet : 10-15M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

Funding rate 60% (exc. non-profit entities)

TRL 7-8

Scope: The action will focus on validation of full electric N2 (3,5t <12 t) and/or N3-category(>12t) vehicle(s), specific regional, suburban and urban freight transport vehicles seamlessly integrated into fleets.

Expected Outcome:

- Provide innovative, competitive and affordable zero tailpipe emissions vehicles architectures for regional medium freight transport,
- Zero-emission driving range of at least 200 km
- Demonstrate the vehicle's functionality and performance in real world conditions, fast charging concepts
- Achievement of total 10% improvement in overall efficiency over current generation electric vehicles of the same categories
- Etc. ...



HORIZON-CL5-2021-D5-01-02

Nextgen EV components: Integration of advanced power electronics and associated controls (2ZERO)

→ *Intégration de l'électronique de puissance avancée et de commandes associées*

Scope: The introduction of wide bandgap technologies need further efforts for their integration in new on-board architectures, taking into account new powertrain architectures with distributed multiple wheel drive and different voltage levels (400V, 800V and higher).

Expected Outcome:

- Demonstrate a minimum of 20% cost reduction of power electronic modules and inverters for a given power, to increase the overall affordability of EVs in mass production
- Significant advancements in efficiency (reduction of losses by 25%) and thermal performance
- Development of power electronics enabling drastic size and weight reductions for the electric drive
- System-partitioning/-integration: intelligent, redundant and fail-safe topology/system architecture; highly integrated power electronics with component integration and building-block approaches
- Interconnected technologies, thermal management, advanced physics-based simulation tools/models to increase development capabilities

RIA

Budget AAP : 20M€

Budget/projet : 4-6M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 5-6



HORIZON-CL5-2021-D5-01-03

System approach to achieve optimised Smart EV Charging and V2G flexibility in mass-deployment conditions (2ZERO)

→ *Approche système pour obtenir une charge optimisée Smart EV et une flexibilité V2G dans des conditions de déploiement de masse*

RIA

Budget AAP : 25M€

Budget/projet : 7-10M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 5-7

Scope: Proposals are expected to improve the whole user experience (localization, booking, payment and billing process) when charging EVs under different scenarios (on street and in personal parking, in company and public buildings, etc.) and considering different electric vehicle fleets (passenger cars, light and medium commercial duty vehicles).

Expected Outcome:

- Definition of the optimal smart charging concepts able to cope with several million of Electric Vehicles (EV) deployed in different environments.
- Innovative concepts and technologies performances to create affordable, user-friendly **smart and bidirectional (V2X, where X can be G for Grid, H for Home and B for Business) charging solutions**
- In order to achieve a seamless smart charging experience for the EV driver, the connectivity and interoperability between the vehicle and the different players in the EV charging ecosystem should be considered



HORIZON-CL5-2021-D5-01-04

CSA - LCA and design for sustainable circularity - holistic approach for zero-emission mobility solutions and related battery value chain (2ZERO & Batteries Partnership)

→ *Analyse du Cycle de Vie et conception pour une circularité durable – approche holistique pour les solutions de mobilité zéro émission et la chaîne de valeur de batteries associée.*

Scope: In selecting the right technologies for clean and sustainable mobility at a system, vehicle and component level, the ecological footprint and the **impact of technologies upon society** have to be assessed, based on highly reliable data at an early stage of development and planning in a harmonised and comparable way.

Expected Outcome

- Coordinated activities on LCA and Life Cycle Inventory (LCI) at vehicle and cell levels, to develop a unique and shared approach with common methodologies for both zero-emission vehicles and the battery value chain.
- The project's main governance is expected to provide for direct involvement of relevant stakeholders from the **automotive and battery** sectors(DGs JRC, RTD, CLIMA, ENV, ENER and GROW).)
- Close cooperation with past or running EU-funded projects such as the FP7 eLCAr.

CSA

Budget AAP : 4M€

Budget/projet : Around 4M€

Ouverture : 24/06/2021

Deadline : 14/09/2021



D5.2 – Aviation

Accélérer la réduction de tous les impacts et émissions de l'aviation (CO₂ et non-CO₂, incluant la production et le démantèlement, le bruit), développer des technologies pour une réduction significative des émissions de gaz à effet de serre, et maintenir la position de l'Europe en tant que leader global de l'industrie aéronautique

Les activités de R&I aéronautique proposées dans Horizon Europe suivront une approche politique axée sur la neutralité climatique d'ici 2050 et la transformation numérique, et seront mises en œuvre via les trois volets d'activités suivants :

- La **R&I collaborative sous la Destination 5 du programme HEU** se concentre sur les technologies à faible TRL (1-4), notamment la recherche et les technologies fondamentales pré-concurrentielles
- Le **partenariat européen Clean Aviation** (EPCA, ex-Clean Sky) vise à accélérer le développement, l'intégration et la validation de technologies aéronautiques climatiquement neutres (TRL 4-6).
- Le partenariat européen iATM pour la **gestion intégrée du trafic aérien** se concentre sur des solutions qui soutiendront l'évolution de la demande d'utilisation du ciel européen, et sur des attentes accrues concernant la qualité des services ATM et U-Space.

D5.2 – Aviation

Les impacts principaux attendus par les sujets sous cette Destination sont les suivants:

- Des gains disruptifs d'ici 2035, avec **jusqu'à 30 % de réduction de la consommation de carburant et de CO₂** entre les avions actuellement en service et la future génération d'aéronefs
- **Des technologies de rupture** entrant en service d'ici 2035 ainsi qu'en 2050, basées sur de nouveaux vecteurs énergétiques, des architectures hybrides-électriques, une prochaine génération de moteurs à haut rendement et de nouvelles configurations d'avions
- Nouvelles technologies pour réduire considérablement **la pollution atmosphérique locale et le bruit**
- Meilleure compréhension des **impacts climatiques autres que le CO₂**, permettant aux activités de R&I de contribuer plus efficacement aux objectifs climatiques de l'UE
- Maintenir la compétitivité mondiale et le **leadership de l'industrie aéronautique européenne** et de l'ensemble de l'écosystème de l'aviation, y compris la modernisation de la gestion du trafic aérien en tirant parti des services spatiaux
- **Protéger les passagers et augmenter la résilience de l'écosystème aéronautique** aux chocs externes (santé, pandémies, opérations, cyber-sécurité, etc.).
- Fournir un cadre et des outils de planification et d'évaluation axés sur les politiques de l'UE pour une hiérarchisation cohérente de la R&I



HORIZON-CL5-2021-D5-01-05

Greenhouse gas aviation emissions reduction technologies towards climate neutrality by 2050

→ *Technologies de réduction des émissions de gaz à effet de serre de l'aviation vers la neutralité climatique en 2050*

Scope: new low-TRL technologies for reduced life-cycle GHG emissions that will reach TRL4 by 2030 at the latest.

Expected Outcome:

- Deliver transformative technologies that will substantially reduce non-CO₂ emissions. The selection of technologies should be compatible with operational procedures and aligned with a potential inclusion of non-CO₂ emissions in EU and International aviation market-based measures.
- Deliver transformative technologies for aircraft engines, systems and structures that will maximise the life cycle environmental impact reduction.
- Explore new modular aircraft and/or component configurations, optimised for the lowest possible environmental impact and noise footprint at take-off and landing operations, allowing 24/7 operations.
- Deliver improved aircraft performance technologies (including engine, hybrid-electric and electric systems, integrated H2 storage, management systems, light-weight multi-functional materials and structures and/or morphing capabilities).

RIA

Budget AAP : 25M€

Budget/projet : 2-6M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 2-4



HORIZON-CL5-2021-D5-01-06

Next generation digital aircraft transformation in design, manufacturing, integration & maintenance

➔ *Transformation numérique des avions de nouvelle génération dans la conception, la fabrication, l'intégration et la maintenance*

Scope: real digital transformation with a holistic and circular approach for the aviation ecosystem; the topic aims to accelerate the design and manufacturing processes as well as allow flawless entry into service of new aircrafts and systems.

Expected Outcome:

- Deliver **transformative digital technologies** that will allow flawless entry into service of future European aircrafts (including engines, structures and systems) of all platforms
- Advance further technologies that will enable flexible integration of simulation ecosystems in an extended enterprise context and allow multi-disciplinary design, optimisation and uncertainty quantification for commercial aviation
- Deliver new technologies for model-based validation and certification, measurement and prediction of hardware and SW reliability and impact on flight safety for commercial aviation, new standards and alternative methods of compliance
- Reduce the lifecycle greenhouse gas impact of aircraft materials and explore the fastest path towards their economical substitution. Enable a clear path towards a fully circular aircraft

RIA

Budget AAP : 29M€

Budget/projet : 3-6M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 2-4 (6)

D5.3 – Permettre un transport par voie d'eau propre, intelligent et compétitif et neutre pour le climat

Accélérer le développement et préparer le déploiement de solutions neutres pour le climat et propres dans le secteur du transport maritime/fluvial, réduire son impact environnemental, améliorer l'efficacité de son système, tirer parti des solutions numériques et de navigation par satellite de l'UE et contribuer à la compétitivité des secteurs maritimes et fluviaux européens.

Les impacts principaux attendus par les sujets sous cette Destination sont les suivants:

- Déploiement accru et précoce de **carburants neutres pour le climat et électrification importante de la navigation**
- Efficacité énergétique globale accrue et consommation de carburant considérablement réduite des navires
- Permettre des infrastructures portuaires innovantes nécessaires pour parvenir à un transport par voie d'eau à zéro émission
- Permettre des bateaux de **navigation fluviale propres, climatiquement neutres et résilients** avant 2030
- Atteindre une intégration intelligente, efficace, sécurisée et sûre de la navigation maritime et fluviale dans des **chaînes de logistique**, facilitée par une **numérisation et automatisation complète**
- Permettre une **navigation entièrement automatisée** et une connectivité efficace
- Des **industries de transport par voie d'eau compétitives**, y compris le secteur des technologies maritimes européennes actif à l'échelle mondiale, fournissant des technologies vertes et numériques avancées



HORIZON-CL5-2021-D5-01-07

Enabling the safe and efficient on-board storage and integration within ships of large quantities of ammonia and hydrogen fuels (ZEWT)

Partnership

→ Permettre le stockage à bord sûr et efficace et l'intégration dans des navires de grandes quantités d'ammoniac et d'hydrogène

Scope: Projects will address both the **storage of hydrogen and ammonia at capacities exceeding the equivalent of 300 tons of conventional marine fuels** in order to show the use in a realistic environment with practical range and autonomy. The scope extends to the design, testing and overall assessment of on-board systems for these fuels.

Expected Outcome:

- Demonstration of the feasibility to store and use hydrogen based fuels (generally in liquid form) on a medium and large scale (capacities equivalent to +300 tons of conventional marine fuel) in a realistic environment on-board
- Demonstration of the use of these fuels in high power applications with long autonomy
- Demonstration of the applicability, in particular with respect to short sea shipping, IWT vessels (*inland waterways transport*), and the stricter environmental expectations for passenger ships
- Development of pertinent technical rules

IA

Budget AAP : 20M€

Budget/projet : Around 10M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

Funding rate 60% (exc. non-profit entities)

TRL 6-7



HORIZON-CL5-2021-D5-01-08

Enabling the full integration of very high power fuel cells in ship design using co-generation and combined cycle solutions for increased efficiency with multiple fuels (ZEWET Partnership)

→ Permettre l'intégration complète des piles à combustible à très haute puissance dans la conception de navires en utilisant des solutions de cogénération et de cycle combiné pour une efficacité accrue avec plusieurs carburants

Scope: The aim is to prove the use of high-temperature Fuel Cells in a co-generation and combined cycle mode, either on a ship powered uniquely by FCs, or on-board a large ship with high power demand together with other power and thermal energy generation and management systems.

Expected Outcome:

- Technical demonstration of the use of high-power FCs in co-generation and/or combined cycle mode in waterborne transport
- Proof of scaling up, to a target of significantly above 3 MW power output, of fuel cell installations for all shipping applications, including main propulsion of a short sea shipping or inland navigation vessel
- In case of a fuel cell using fossil fuel as input proof of significant efficiency gains (at least 20%) in a realistic environment compared to the conventional use of the fuels with consequent reduction in GHG emissions
- Showing a realistic pathway to the wider use of fuel cell technology in waterborne transport including the assessment of the maturity and resulting mid-term potential of various fuel cell systems

RIA

Budget AAP : 15M€

Budget/projet : Around 15M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

TRL 5



HORIZON-CL5-2021-D5-01-09

CSA identifying waterborne sustainable fuel deployment scenarios (ZEWT Partnership)

➔ CSA identifiant des scénarios de déploiement de carburants durables pour des applications maritimes

Scope: the CSA will identify and monitor the evolution of different waterborne sustainable alternative fuel deployment scenarios, taking into account, the evolution of sustainable fuel supplies, operational costs and capital expenditure, environmental factors as well as distribution and port infrastructure implications.

Activities will be undertaken in close and formal cooperation with the [H2020 STEERER](#) project.

Expected Outcome:

- A full understanding of clean fuel scenarios for different regions including sensitivity analysis of the different variables, consideration of evolving technologies and their applicability to maritime transport
- Development of quantified and dynamic techno-economic models for the uptake of sustainable fuels in a variety of waterborne application cases and for a range of regional conditions
- Support for the transposition of RDI results into commercial and regulatory reality
- Support to identify the impacts on ports derived for the defined scenarios for different regions

CSA

Budget AAP : 0.5M€

Budget/projet : Around 0.5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021



HORIZON-CL5-2021-D5-01-10

Innovative on-board energy saving solutions (ZEW'T Partnership)

→ *Solutions innovantes et embarquées d'économies d'énergie*

RIA

Budget AAP : 20M€

Budget/projet : Around 5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

TRL 5

Scope: RDI efforts will develop **technological solutions for higher efficiency**, reducing fuel consumption as well as increasing performance

Expected Outcome:

- Proof of gains in vessel energy performance and operational efficiency through demonstrators that are applicable to maritime transport and/or inland navigation
- Significant reduction in GHG emissions from waterborne transport
- Enabling the timely on-board application of innovative and green solutions for energy transformation that require significantly higher volumes for storage and equipment
- Deliver at the end of the project deployable energy efficiency solutions (for new builds and for retrofitting) with at least 10% energy savings compared to best available technologies for stand-alone solutions and at least 20% for combined solutions, each on the level of the vessel



HORIZON-CL5-2021-D5-01-11

Hyper powered vessel battery charging system (ZEWT Partnership)

→ *Système de charge de batterie hyper alimenté pour navire*

IA

Budget AAP : 14M€

Budget/projet : Around 7M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

Funding rate 60% (exc. non-profit entities)

TRL 6-7

Scope: Focusing on the ship and shore side interface, R&I will deliver solutions and technology to minimise high power recharging times at port (at least 5 MW), explore the applicability of charging solutions to a variety of batteries and their usefulness for different ship types (new or refitted vessels)

Expected Outcome:

- At least two full scale demonstrators in two European ports showing the practical use for an end-to-end service between these ports (without a proprietary solution, the system needs to be compatible with charging in other ports as well)
- Demonstration and performance assessment in a realistic environment of fast multi-MW recharging systems, leading to an increase in the technical and economic viability of battery electric shipping
- Market analysis and feasibility assessment of the more wide-spread deployment of fast high power electrical charging of vessels in European ports (or at certain offshore facilities), including short sea vessels and ferries
- Demonstrated flexibility regarding different waterborne applications to be served by the same connecting facility



HORIZON-CL5-2021-D5-01-12

Assessing and preventing methane slip from LNG engines in all conditions within both existing and new vessels (ZEW'T Partnership)

➔ *Estimation et prévention des émissions de méthane des moteurs LNG dans toutes les conditions, pour les navires nouveaux et existants*

Scope: Projects will address the current state of the art and the scatter of emissions between different types of LNG-powered engines, develop the most efficient abatement strategies through ICE improvement and/or post-treatment technologies whilst ensuring that negative impacts (on CO₂ and NOx in particular) are avoided.

Expected Outcome:

- At least one full scale demonstrator for full methane slip abatement for a vessel in operation
- Development and practical demonstration of technical abatement solutions both for retrofitted vessels and new builds, covering a range of operational scenarios
- Where still necessary and duly justified quantification of methane slip founded upon both in-situ measurements and consolidated pre-existing validated test results in the public domain addressing a range of LNG engine types and load factors, including dynamic loads as, for example, encountered in manoeuvring

IA

Budget AAP : 7M€

Budget/projet : Around 7M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

Funding rate 60% (exc. non-profit entities)

TRL 7



HORIZON-CL5-2021-D5-01-13

Digital Twin models to enable green ship operations (ZEWT Partnership)

→ *Modèles de jumeaux numériques pour l'exploitation de navires verts*

RIA

Budget AAP : 7M€

Budget/projet : Around 7M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 5

Scope: Activities will address the Digital Twin concept to improve energy efficiency and environmental performance of new buildings and existing vessels, both in maritime and IWT, and considering different ship systems from the early design phase to the end of the life

Expected Outcome:

- Reduced emissions and improved efficiency enabled through development of digital models and tools, proven and quantified through productivity and performance increases based on a proven and efficient environmental impact assessment methodology
- Ensuring the wider applicability and interoperability of digital models for different new and retrofitted ship types, including the link with port digital twin models
- Benchmarking efficiency improvements against other industry sectors and increase the confidence of investors
- In the medium term, enable the development of the “zero emission decision support system” as a contribution to the 55% reduction goals of fuel consumption in 2030



HORIZON-CL5-2021-D5-01-14

Proving the feasibility of a large clean ammonia marine engine (ZEWT Partnership)

→ *Démontrer la faisabilité des moteurs marins à ammoniac à forte cylindrée*

IA

Budget AAP : 10M€

Budget/projet : Around 10M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

Funding rate 60% (exc. non-profit entities)

TRL 6-7

Scope: The aim is to develop, demonstrate and validate in a lab or on-board a multi-cylinder internal combustion engine of at least 10 MW power output running on ammonia as its main fuel, with IMO-Tier III or lower NOx emissions and negligible emissions of SOx, particulates and other harmful substances or odours

Expected Outcome:

- Demonstration and validation of an ammonia-fuelled marine engine with power output in the +10 MW range. The validation shows safe and reliable operation in realistic scenarios and for a range of load cases
- In case of proven feasibility pathways to the uptake of ammonia as a marine fuel for deep sea shipping and high power vessels are set out
- Analysis of pathways to ammonia as a marine fuel through the establishment of regulations and solutions for health and safety issues



D5.4 - Impact des transports sur l'environnement et la santé humaine

Concevoir des moyens plus efficaces afin de réduire les émissions et leurs impacts grâce à l'amélioration des connaissances scientifiques

Les impacts principaux attendus par les sujets sous cette Destination sont les suivants:

- **La réduction des émissions polluantes des véhicules routiers** des flottes automobiles existantes et futures ; la prévention des épisodes de "smog" en Europe et une meilleure compréhension de l'impact de la pollution atmosphérique et sonore sur la santé humaine
- Le meilleur suivi des performances environnementales et **l'application de la réglementation** (détection des dispositifs d'invalidation, des systèmes anti-pollution truqués, etc.) pour les flottes de véhicules de transport, sur route, dans les aéroports ou dans les ports
- **La réduction du bruit** émis par les véhicules routiers de catégorie L.
- Réduire substantiellement **l'impact environnemental global du transport** (ex : en matière de biodiversité, de bruit, de pollution et de déchets)



HORIZON-CL5-2021-D5-01-15

Development and demonstration of cost affordable and adaptable retrofit solutions for tailpipe and brake polluting emissions

→ *Développement et démonstration de solutions de retrofit abordables et adaptables pour les émissions polluantes d'échappement et de freins*

Scope: the proposed research actions should address the reduction of tailpipe emissions of nanoparticles in particular from gasoline and natural gas engines, assess the contribution of brake particles on local air and water quality, **develop low cost retrofit solutions for these emissions and demonstrate existing solution in the field**

Expected Outcome:

- Cleaner urban air and water quality and reduced health impacts and damage to historic buildings due to lower emissions from road transport by 2025
- Affordable and adaptable retrofit solutions to reduce the tailpipe emissions of the existing ICE (NOx, particles)
- Affordable and adaptable retrofit solutions to reduce particle emissions from brakes by over 90%, to reduce health impact for highly exposed groups, and to reduce impact by heavy metals on soil and surface and ground waters
- Reduced noise impact for retrofitted vehicles (exhaust emissions) and rolling stock (emissions from brakes)

IA

Budget AAP : 10M€

Budget/projet : 4-5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021 (70 pages)

TRL 8



HORIZON-CL5-2021-D5-01-16

Assessment of noise and particle emissions of L category vehicles from real driving conditions

→ *Évaluation du bruit et des émissions de particules des véhicules de catégorie L en conditions d'usage réel*

Scope: There proposals should assess how significant the **impact of noise and pollutant emissions** is on **urban environments and health**, examine whether the current regulatory limits are sufficient, propose specific technical improvements in the standard test procedure and to prevent tampering

Expected Outcome:

- In-depth assessment of the noise and pollutant emissions of at least 150 L category vehicles including different brands and geographical coverage
- Measures for mitigating the noise from L category vehicles
- Development of reliable detection techniques for tampered L category vehicles
- Best practices for integrating a growing number of L category vehicles in the urban traffic without increasing the noise and emission pollution

RIA

Budget AAP : 5M€

Budget/projet : 4-5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

TRL 5-6



HORIZON-CL5-2021-D5-01-17

Support for dissemination events in the field of Transport Research

→ *Soutien aux événements de dissémination dans le domaine de la recherche sur les transports*

CSA

Budget AAP : 1.5M€

Budget/projet : Around 1.5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

Scope: The action will prepare and provide support to the Transport Research Arena conference (TRA) to be organised in 2024 gathering transport stakeholders for discussing political, industrial and research issues on a European and global level. The proposal is expected to also organise two competitions for transport research and innovation awards.

Expected Outcome:

- Higher visibility, political and strategic relevance of the transport sector and of the EU policy in the field
- Enhanced dissemination, communication and valorisation of transport R&I objectives, perspectives, strategies and results
- More effective links and exchanges between research and innovation stakeholders and policy makers, to support the development and deployment of innovative solutions in Europe
- Increased attractiveness of transport related studies and reinforce the pursuit of excellence in European transport research and innovation, by giving recognition and visibility to the best achievements



Prochains webinaires organisés par votre PCN Transport

- **14 juin, 10h30-12h – Destination 6** « Services de transport et de mobilité intelligente sûrs et résilients pour les passagers et les marchandises », informations et inscriptions [ici](#)
- **18 juin, 10h30-12h – Destination 2** « Solutions intersectorielles pour la transition climatique », informations et inscriptions [ici](#)

Les précédents webinaires organisés par le MESRI (aspects juridiques, financiers, etc.) sont accessibles en ligne

- <https://www.horizon-europe.gouv.fr/lancement-d-horizon-europe-24506>



Où trouver des infos utiles ?

Le site français Horizon Europe du MESRI

- Les appels
- Les événements
- Les fiches pratiques juridiques & financières

Le site de la Commission européenne

- Les appels (funding & tenders)
- Les statistiques (dashboard)
- Les projets financés (cordis)
- Les événements (funding & tenders).

The screenshot shows the official website for the French National Contact Point (PCN) for the European Research and Innovation program Horizon Europe. The header features the French Ministry of Higher Education, Research, and Innovation logo and the "horizon europe" PCN logo. Below the header, there's a banner with the text "Le site français du programme européen pour la recherche et l'innovation". The main content area includes a sidebar with "A la Une" (Top News) sections: "IP Booster, une initiative de la Commission européenne" (with a graphic of orange arrows), "Vidéos - Les "classes ERC"" (with a graphic of three white arrows pointing right), and "Appel à candidatures PCN Horizon Europe" (with the "horizon europe pcn" logo). Navigation links like "MENU", "AGENDA", and a search icon are visible on the left.



Nous contacter

Pour vos questions relatives aux thématiques Transport du cluster 5

pcn-transport@recherche.gouv.fr

Pour demander votre inscription à la liste de diffusion du PCN Transport

pcn-transport@recherche.gouv.fr

Pour suivre les dernières actualités





Témoignage

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Horizon Europe
Témoignage

10 juin 2021

Silicon Mobility at a Glance

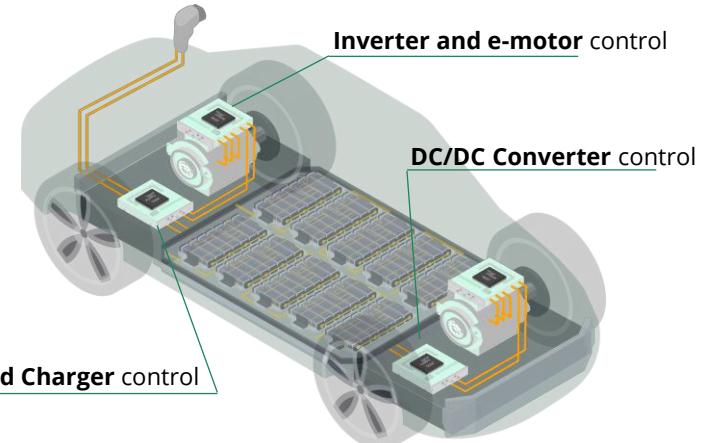
A fabless semiconductor and software automotive company



We are Focus

Improve the efficiency of Electric Vehicles by enabling better and smarter control of electrified powertrain

OLEA® Solution :
FPCU – Automotive **Semiconductor**,
Software Application & Tooling



We are Innovators



FPCU (Field Programmable Control Unit)
Real-time & Safe



25+ patents on
Semiconductor, Safety, Realtime
control systems

We are Experienced



60 peoples, 90% R&D Engineers
60% **Software-System**, 40% **SoC Design**



HQ in **Sophia Antipolis**,
Sales and Support in **Germany, US, China and Japan**.

Retour d'Experience sur les Projets Collaboratifs

Critères

- Un projet qui soutient la feuille de route technologique et produit
- Une claire correspondance entre l'AAP et l'innovation proposée
- Un projet qui entre dans une logique de filière et d'écosystème

Bénéfices

- Co-finance la R&D, accélère les développements, création de PI
- Facilite la collaboration avec des utilisateurs finaux potentiels
- Visibilité: Promeut et diffuse la technologie et le savoir-faire au sein du consortium et au-delà.

Difficultés

- Monter ou rejoindre un consortium : se rapprocher des pôles, les associations, les clients, partenaires et fournisseurs.
- Monter le dossier : prévoir d'y investir du temps et ne pas hésiter à s'appuyer sur des experts externes (cabinets d'aide au financement de l'innovation)
- Être sélectionner : très compétitif

Exemple : Horizon Europe, Cluster 5, Destination 5

- Préparation d'un projet pour CL5-2021-D5-01-02 : Nextgen EV components
- Consortium de 10 partenaires (France, UK, Espagne, Belgique) menés par 4 leaders.
- Représentatif de la chaîne de valeur : techno and service providers, Tier1, OEM, research labs.
- Développement d'un nouvel algorithme de contrôle d'onduleur et de méthode de pronostic/diagnostic.
- Support d'un cabinet en innovation : aide à la récolte des informations, rédaction du dossier, conseil sur la mise en valeur des points forts, etc.
- Sessions de travail régulières jusqu'au dépôt : 3 à 4 réunions d'1h hebdomadaire.



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