

ECS4DRES

“Electronic Components and Systems for flexible, coordinated and resilient Distributed Renewable Energy Systems”

Project co-funded by the Chips Joint Undertaking under the

Topic 4 – Electronic Control Systems (ECS) for management &
control of decentralized energy supply & storage

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Description:
(max 5 lines) This document contains the description of the project presentation launched on the [ECS4DRES webpage](#) on June 26 2025. Furthermore, a dissemination article was produced by GREENFLUX and published on November 12 2024 via the webpage of GREENFLUX.

Type:	R =Document, report; DEM =Demonstrator, pilot, prototype; DEC =Websites, patent filings, videos, etc; DATA = Data sets, microdata, etc; DMP = Data Management Plan; OTHER		
Dissemination Level:	PU	Public - fully open	x
	SEN	Sensitive, limited under the conditions of the Grant Agreement	

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History of Changes		
Version	Publication Date	Change
00-01	07.12.2024	Initial version- Start deliverable creation process
00-02	12.11.2024	Information about dissemination article added
00-03	21.06.2025	Information about reviewed project video added
00-40	26.06.2025	Final Draft for approval available
00-50	37.06.2025	Final Draft approved version
01-00	30.06.2025	Submitted Version – End deliverable creation process

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1. Introduction

This deliverable presents the pictures and text of the ECS4DRES video presentation and the ECS4DRES dissemination article from GREENFLUX.

Infineon Technologies AG in its role as project coordinator of ECS4DRES was responsible for creating the project video. But it was jointly created by University of Granada and Infineon Technologies AG in close collaboration with the consortium. The project video was launched on the [ECS4DRES webpage](#) on June 26 2025 (Figure 1).

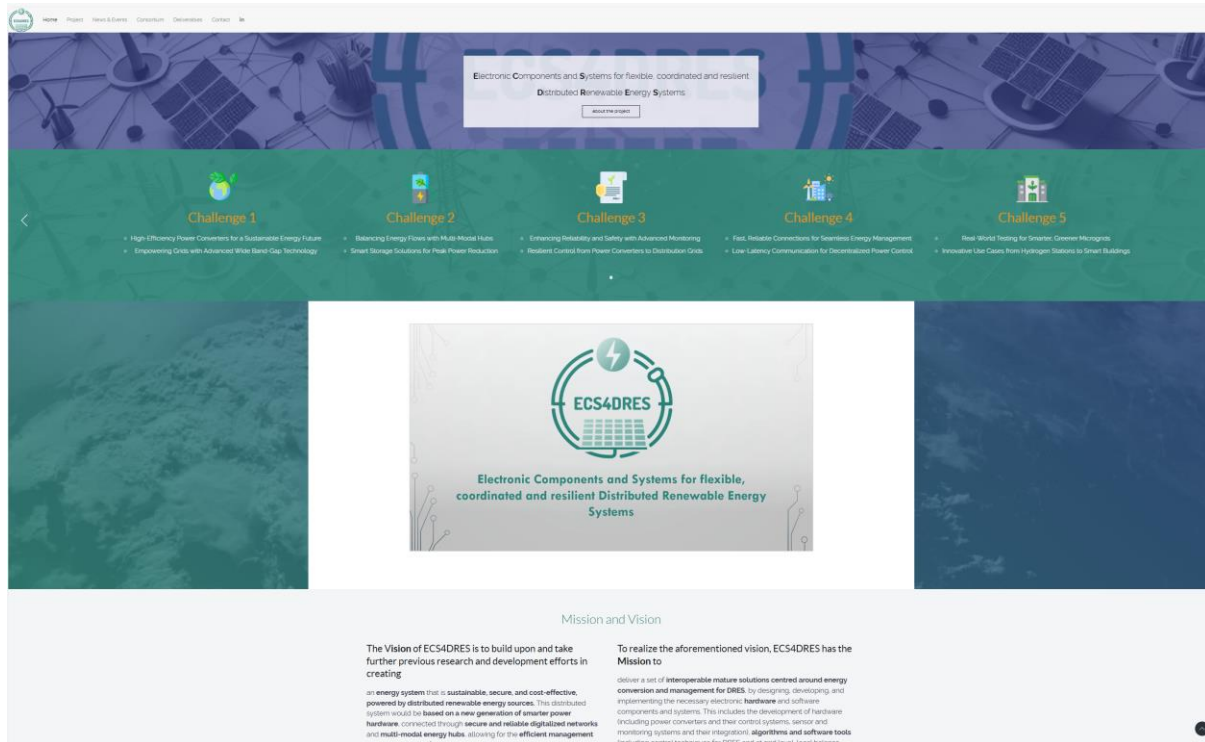


Figure 1: Screen of the webpage from ECS4DRES with video presentation

The dissemination article from GREENFLUX was published on the [GREENFLUX webpage](#) on November 12 2024. In this project GREENFLUX will aim to optimise the use of available capacity and better align energy consumption with production by developing and testing innovative smart-charging algorithms. For the screens of the dissemination article, please refer to chapter 3.

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2. ECS4DRES project video

This chapter contains the description of the project video presentation, produced jointly by University of Granada and Infineon Technologies AG and launched on June 26 2025 via [ECS4DRES webpage](#).

The following table shows the content of the published video presentation (image and associated spoken text which is also shown in the video as under title).

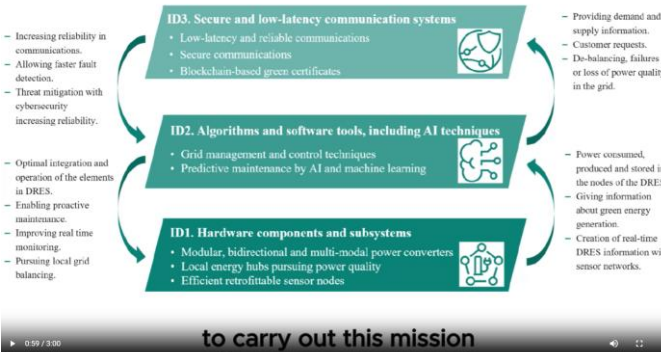
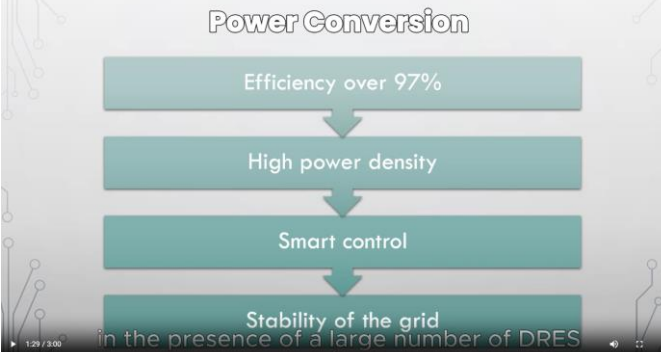
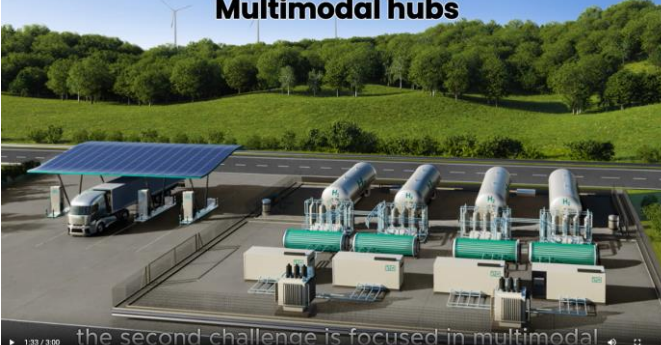
Table 1: Overview slides of video presentation and text

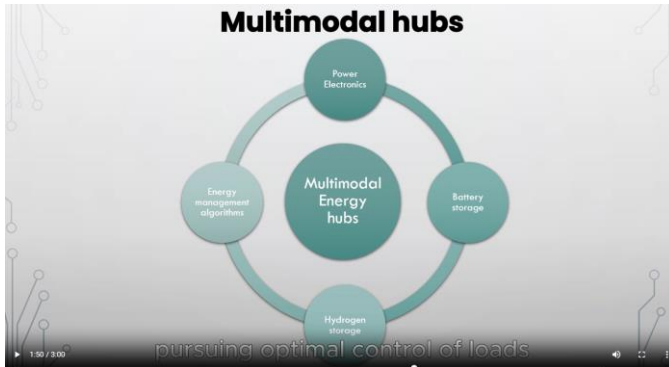
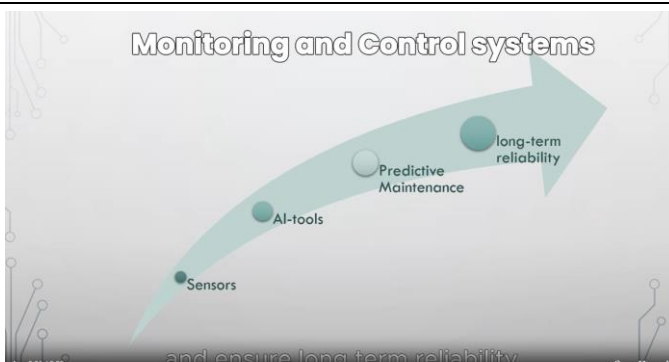
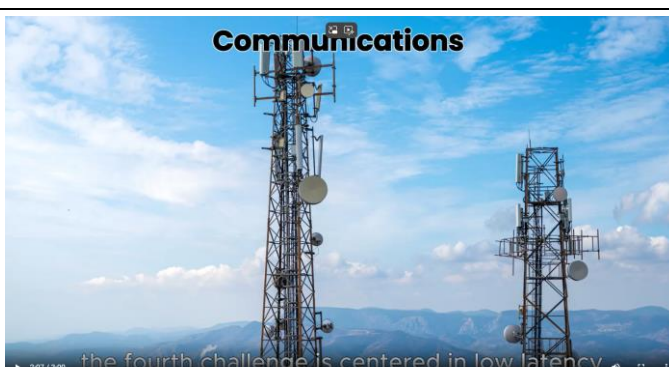
Slide No.	Picture	Text
1		
2		In a world facing urgent energy challenges the need for cleaner and more resilient energy systems has never been greater.
3		Renewable energy sources such as solar and wind along with other alternatives like green hydrogen can help address this issue through distributed energy generation. However,

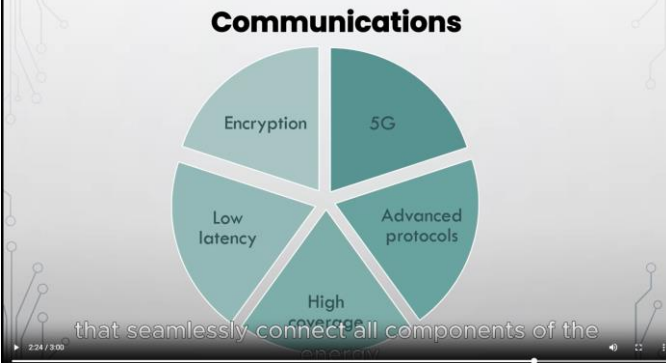
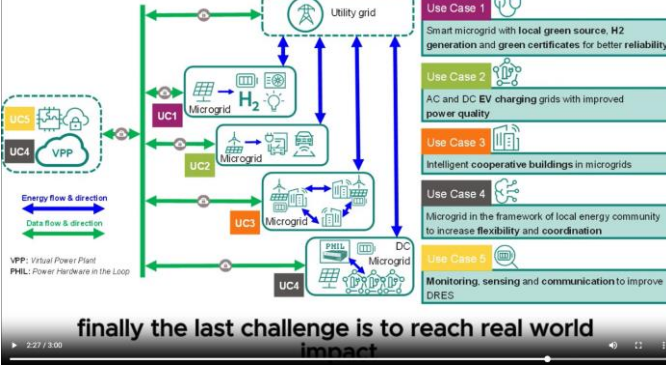
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4		several challenges arise when integrating these systems into the current grid.
5		The ECS4DRES project aims to deliver a set of interoperable mature solutions centered around energy conversion and management by designing, developing and implementing the necessary electronic hardware and software components and systems.
6		The project consortium brings together 27 partners from Germany, Italy, Spain, Slovakia and the Netherlands...
7		representing a diverse mix of industry leaders, research institutions and small to medium sized companies. This collaboration ensures that the project benefits from a broad spectrum of expertise combining academic insights with realistic scenarios.

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8	 ID3. Secure and low-latency communication systems - Low-latency and reliable communications - Secure communications - Blockchain-based green certificates ID2. Algorithms and software tools, including AI techniques - Grid management and control techniques - Predictive maintenance by AI and machine learning ID1. Hardware components and subsystems - Modular, bidirectional and multi-modal power converters - Local energy hubs pursuing power quality - Efficient retrofittable sensor nodes to carry out this mission	To carry out this mission ECS4DRES will strive to reach objectives in three innovation domains hardware components and subsystems, algorithms and software tools and secure and low latency communication systems. More technically ECS4DRES focuses on addressing five key challenges:
9	 Power Conversion first challenge is to achieve an advanced power	First challenge is to achieve an advanced power conversion by developing power converters
10	 Power Conversion Efficiency over 97% High power density Smart control Stability of the grid in the presence of a large number of DRES	with efficiency above 97% and high power density along with control functions aimed at improving the stability of power converter in the presence of a large number of DRES.
11	 Multimodal hubs the second challenge is focused in multimodal	The second challenge is focused in multimodal energy hubs to address local energy imbalances by implementing energy sharing between multiple sources.

12		The multimodal energy hub concept utilizes power electronic equipment, battery storage and hydrogen storage combined with smart energy management algorithms pursuing optimal control of loads.
13		The third challenge consists of monitoring and control systems.
14		ECS4DRES is designing smart sensors and AI driven tools to monitor and predict energy system behaviors enabling predictive maintenance to reduce operational downtime and ensure long term reliability.
15		The fourth challenge is centered in low latency and secure communication systems for managing distributed energy systems.

16		This project is harnessing cutting edge technologies such as 5G advanced wireless protocols and blockchain. These solutions will create low latency, high coverage networks that seamlessly connect all components of the energy ecosystem.
17		Finally, the last challenge is to reach real world impact and validation so five use cases are proposed to integrate the developments into realistic scenarios including microgrids powered by green hydrogen, advanced EV charging networks and energy communities.
18		In conclusion this project aims to develop technologies for distributed energy systems in the fields of power electronics, sensors and secure communication with a focus on innovation and collaboration. ECS4DRES is setting the stage for energy systems that meet the demands of today while securing the sustainability of tomorrow.

3. ECS4DRES dissemination article from GREENFLUX

The dissemination article from GREENFLUX was published on November 12 2024 via the webpage of GREENFLUX (<https://www.greenflux.com/expertise/blogs/innovations-in-smart-charging-and-energy-consumption/>). The content is shown in Figure 2 to Figure 5.

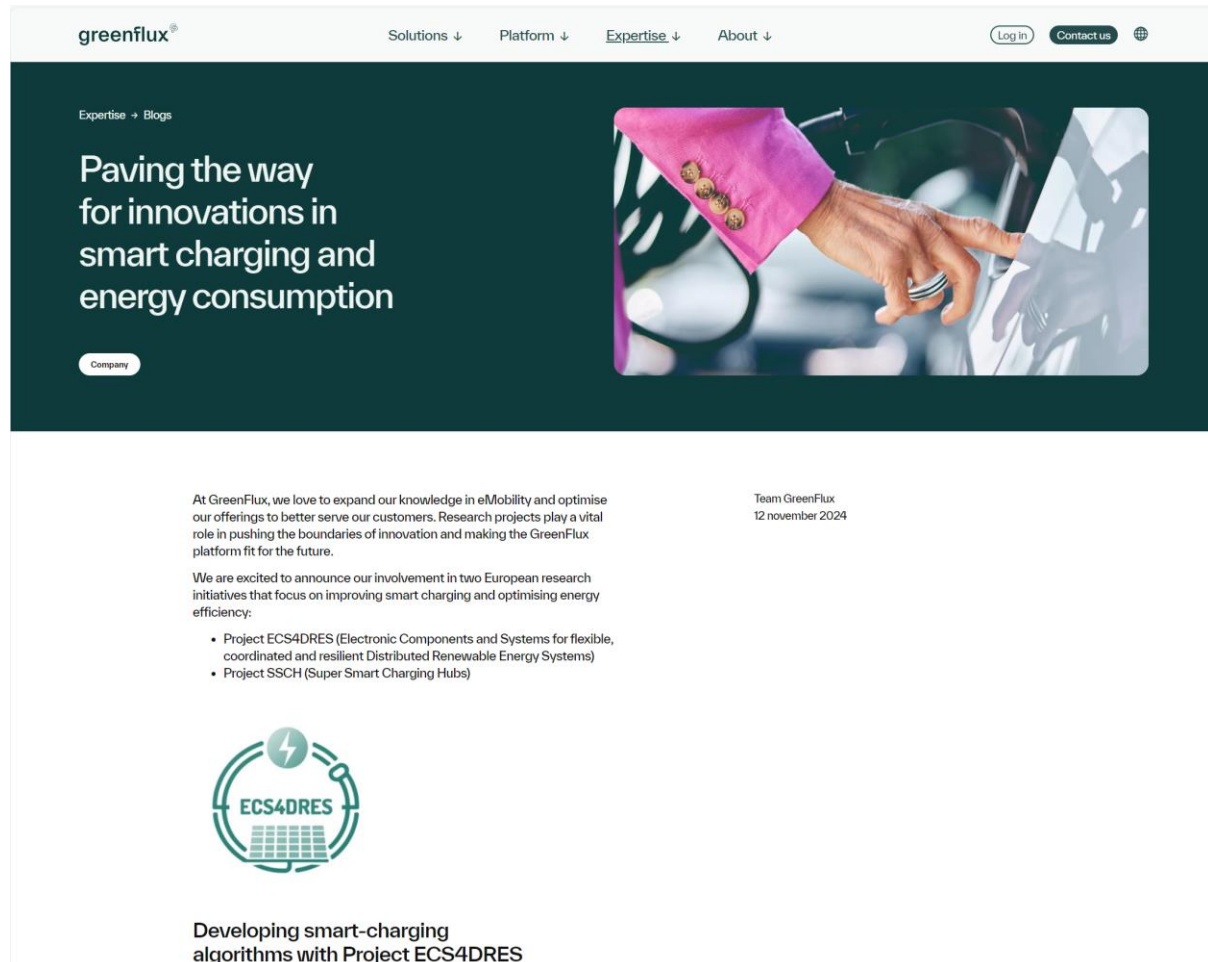


Figure 2: Screen of the webpage from GREENFLUX with the dissemination article (Part 1)

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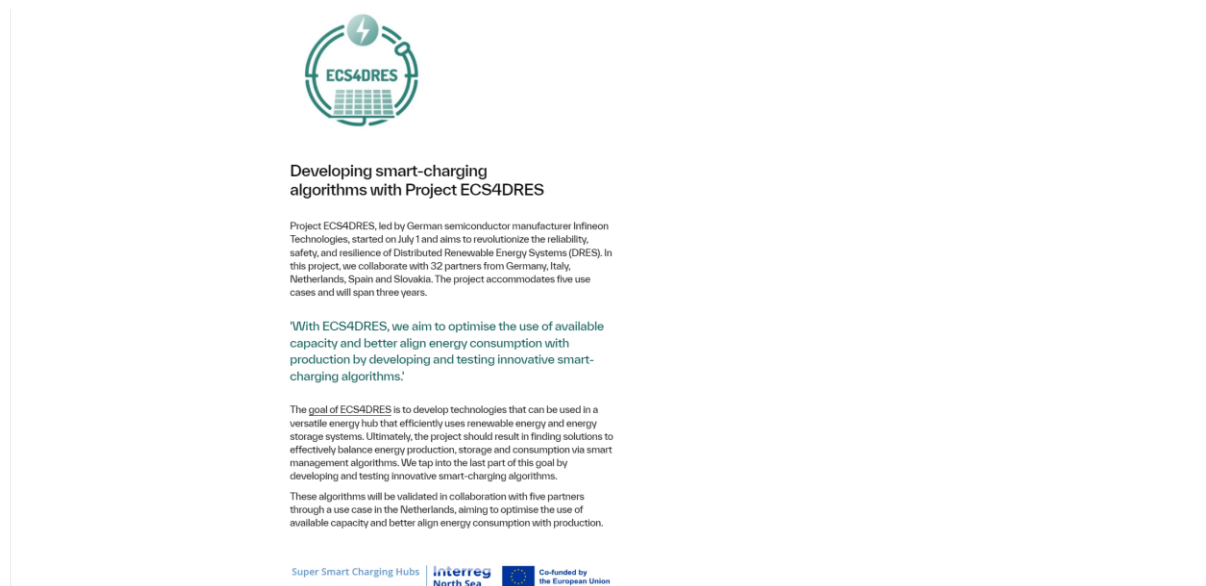


Figure 3: Screen of the webpage from GREENFLUX with the dissemination article (Part 2)

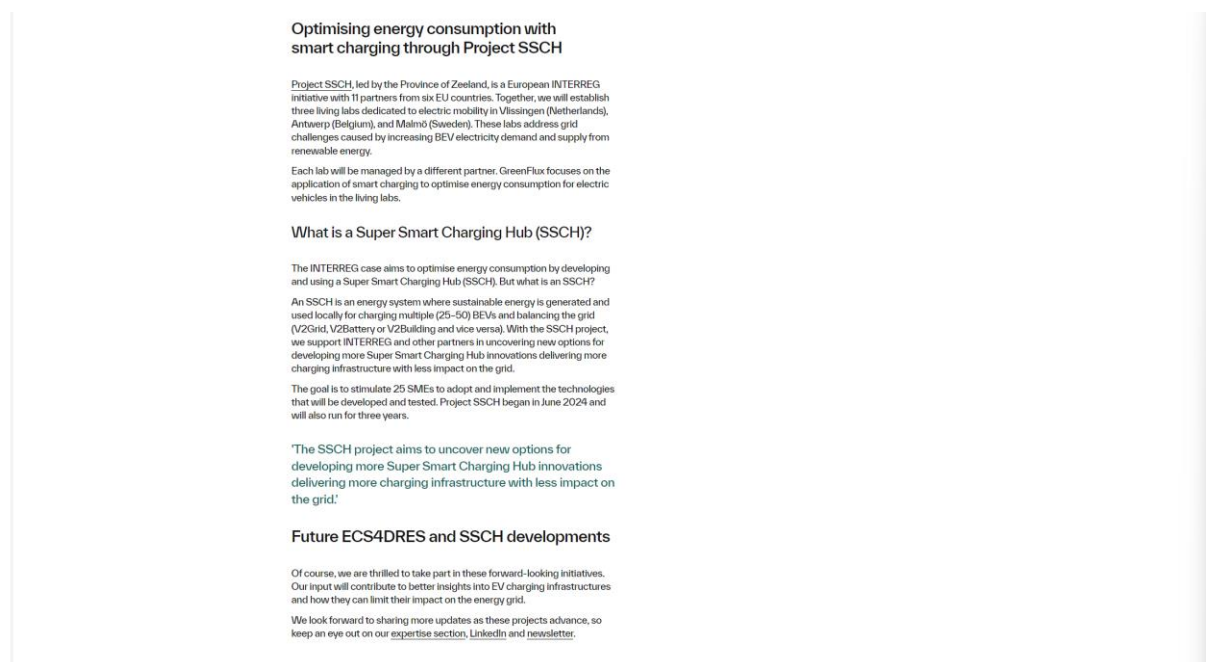


Figure 4: Screen of the webpage from GREENFLUX with the dissemination article (Part 3)

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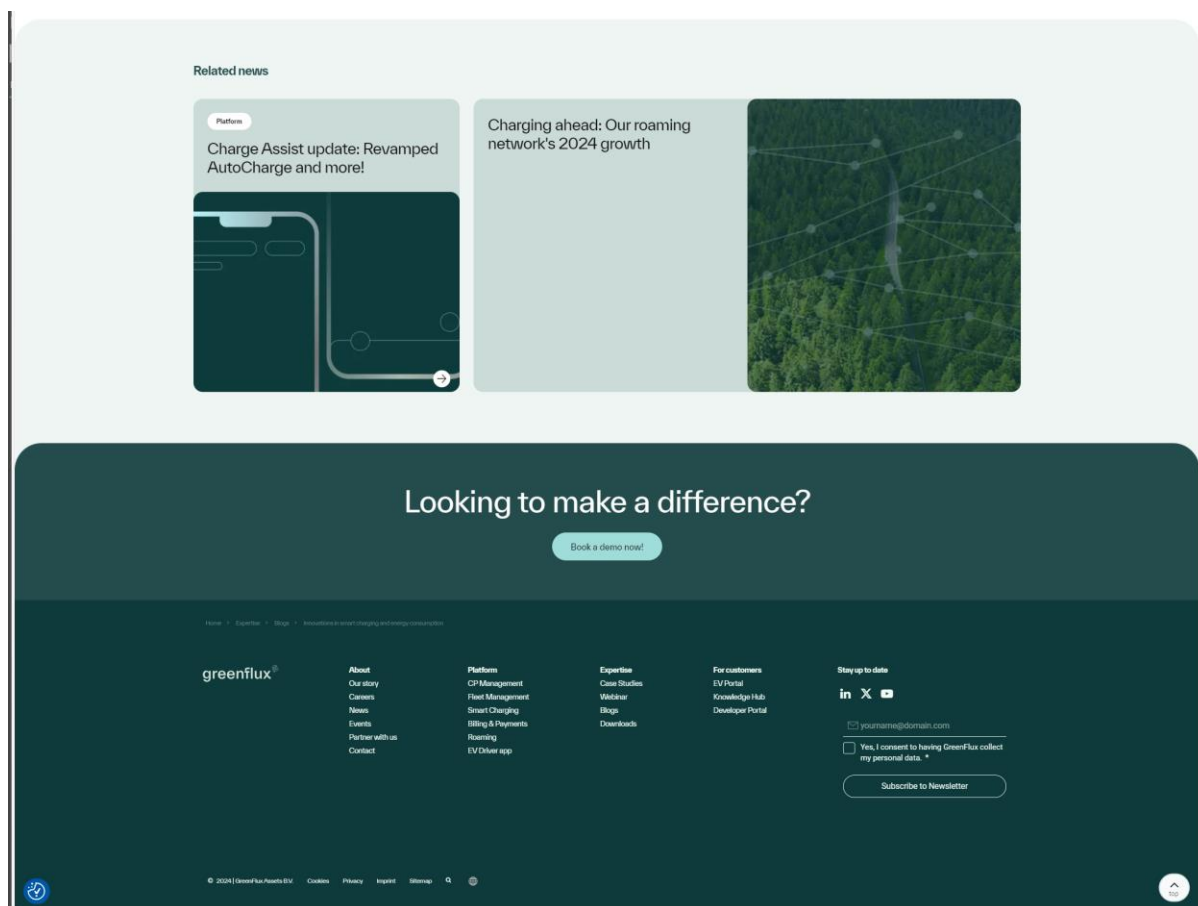


Figure 5: Screen of the webpage from GREENFLUX with the dissemination article (Part 4)

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4. Conclusions

The dissemination article and the project video presentation are part of the projects dissemination and communication activities.

The dissemination article will raise awareness of the project and inform the public about the innovative research project ECS4DRES. In addition, the first video presentation complements the communication of general information about the ECS4DRES project to the public. It is distributed via the projects' webpage and its social media channel LinkedIn in order to increase its reach.

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