

# TenSy Grid

Tensors for System Analysis of  
Converter-dominated Power Grids

## D 7.1 Project Website and Visual Identity

By: Fraunhofer IWES



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Supported by:



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## About TenSyGrid

The demand for the power grid in Europe is undergoing profound changes due to an increasing number of decentralized feed-in points and the fluctuating supply from renewable energies. This complexity in interactions between power grid components poses a challenge for maintaining system stability. To address this, the European project TenSyGrid is developing a toolbox for direct stability assessment using multilinear models to capture the complex dynamics of power grid components. The objective is to support grid operators in assessing large power grids primarily powered by renewable energy. The toolbox will be compatible with existing commercial software packages to facilitate integration into current workflows.

## Project Coordinator



## Consortium



## About this document

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PU	Public	X
CO	Confidential. Only for members of the consortium, CETP, EC and Funding agencies	

## Summary

This report outlines the visual identity of the TenSyGrid project, encompassing key elements such as the project logo, design elements and project website. The TenSyGrid website is accessible at [www.tensygrid.eu](http://www.tensygrid.eu). This website aims to provide comprehensive information about the project, including its objectives, consortium members, workplan, non-confidential results and resources and project news.

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## Introduction

This deliverable is part of the TenSyGrid task 7.3 - Results Dissemination, Communication, and Exploitation. Details on the project identity including its logo, design element, TenSyGrid website [www.tensygrid.eu](http://www.tensygrid.eu) and a brief description of internal communication channel are presented in the following sections.

### 1. Project Logo

Project logo serves as the main visual representation of the project's identity. Care has been taken to capture the essence of the project's theme within the logo by the in-house graphic designer of the Fraunhofer IWES. During the project kick-off on 05.12.2024 at Hamburg, four designs for the TenSyGrid logos were presented to the consortium.

The consortium members provided their respective feedback for further improvement, which was applied to prepare a second and a third set of logos. Finally, the partners agreed on the current TenSyGrid logo because of its superior readability, appealing color combination and design (Figure 1). TenSyGrid logo is appropriate for dissemination materials and templates for reports and presentations with its horizontal format.



*Figure 1 Official logo of TenSyGrid*  
Shown logo is copyright of Fraunhofer IWES.

### 2. TenSyGrid Design Element

The main design element for the TenSyGrid is a 2x2 cube (Figure 2). In multilinear models, a 2 x 2 cube typically represents a tensor with two modes or dimensions. This design element harmonises well with the theme of the project.



*Figure 2 Main design element of TenSyGrid*  
Shown design element is copyright of Fraunhofer IWES.

### 3. TenSyGrid Website

TenSyGrid website has been established and can be accessed at [www.tensygrid.eu](http://www.tensygrid.eu). Its purpose is to inform the public about this project selected within the Clean Energy Transition Partnership (CETP) under the Horizon Europe Framework. The website will be updated regularly to reflect the progress of the project and will act as a hub for news and announcements from TenSyGrid. In addition, public summary of confidential deliverables and full non-confidential deliverables of the project will also be available for download on the site. Links to important resources related to TenSyGrid project will be provided at the site.

The company to develop TenSyGrid website was selected after a successful evaluation by the Fraunhofer IWES's departments of the Marketing and Communications and the Procurement, following the best value for money principle. After testing the draft version, the website went online on 18.03.2025. The content of website is published after taking consortium approval on its publication. The fonts and colours used for the website are inspired from the TenSyGrid logo and its design element. Acknowledgement of CETP, logos of CETP, EU and of the funding organisations of the partners are prominently displayed on each page and are visible immediately upon accessing the website on both desktop and mobile devices. TenSyGrid website features the overview of the project, its objectives, members of the consortium along with weblinks of their respective organisations, workplan, results, project publications among others. The information is contained on its five main pages that are:

- Home
- Project
- Resources
- News and Events
- Contact

Website visitors have the option to contact the coordinator via email to [tensygrid@iwes.fraunhofer.de](mailto:tensygrid@iwes.fraunhofer.de).

Data protection policy is also displayed on the website along with the Imprint. Some of the screenshots of TenSyGrid website are presented below.

**Project facts**

TenSyGrid will develop a toolbox with innovative stability analysis methods to facilitate the integration of 100 % renewable energy-based supply while maintaining a safe and stable operation of the power system.

**Project Acronym**  
TenSyGrid

**CETP Call Module**  
TR11 – CM2023-02 Energy system flexibility: renewables production, storage and system integration

**Grant**  
1.41 million €

**Consortium**  
5 beneficiaries from 3 countries (Germany, Spain, and Malta)

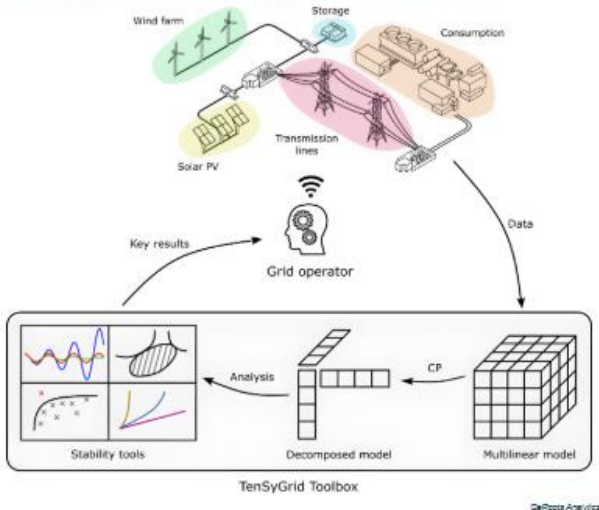
**Project Duration**  
36 months (12.2024-11.2027)

**Coordinator**  
Fraunhofer IWES

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**Tensors for System Analysis of Converter-dominated Power Grids**

**Achieving a safe and reliable power system with 100% renewables**



The nature of the power system is radically changing due to the massive deployment of power electronics required for, among others, renewables integration into the grid. As a result, grid operators are faced with uncertainties when dealing with the new dynamics of low-inertia converter-dominated networks. These uncertainties essentially limit the integration of renewable energy sources due to the conservative limits needed as a precautionary measure to ensure a stable operation. Therefore, Tensors for System Analysis of Converter-dominated Power Grids (TenSyGrid) aims to develop a toolbox with innovative stability analysis methods to facilitate the integration of 100 % renewable energy-based supply while maintaining a safe and stable operation of the power system.

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Home  
Project  
Resources  
News and Events  
Contact

Imprint  
Privacy Policy



Figure 3 Homepage of the TenSyGrid website



Consortium



**Fraunhofer Institute for Wind Energy Systems - Fraunhofer IWES (Coordinator)**

The Fraunhofer Institute for Wind Energy Systems (IWES) conducts application-oriented research for a sustainable future. The focus topics of the Fraunhofer IWES are offshore, hydrogen, test infrastructure and digitalization. The research work in these future-oriented key technologies plays a central role in the innovation process and strengthens the business location for the benefit of our society by transferring the research results to industry. More than 400 employees at nine locations are developing innovative methods to accelerate the expansion of the wind energy and hydrogen economy, minimize risk, and increase cost efficiency. The team integration of Local Energy Systems (LES) participating in TenSyGrid has a special focus in developing new modelling and control techniques to enable the integration of local energy systems to the grid.



**Universitat Politècnica de Catalunya - Barcelona Tech - UPC**

The Polytechnic University of Catalonia (UPC) is a public institution of research and higher education in the fields of engineering, architecture, sciences and technology, and one of the leading technical universities in Europe. The AC/DC grids and electric power conversion group of the research and technology transfer center CITCEA-UPC (co-led by Eduardo Prieto-Araujo) has wide experience in the analysis of modern power systems dominated by renewable generation and power electronics, which they acquired through their participation in several competitive and industrial projects.



**eRoots Analytics - eRoots**

eRoots is a spinoff company of CITCEA-UPC whose aim is to bring the ideas developed there to the market in the form of products. eRoots specializes in performing electrical studies for modern power grids, especially those with numerous converters. One of the other core activities of eRoots is the development of software for grid operators, that is, tools that are both useful for steady-state and dynamic analysis.



**Hamburg University of Applied Sciences - HAW**

The Hamburg University of Applied Sciences (HAW Hamburg) is a higher education and applied research institution located in Hamburg, Germany. The expertise of Gerold Lichtenbergs team at the HAW Hamburg in multilinear modelling is unique in Europe, particularly for applications like controller design and fault diagnosis. Furthermore, they have developed a toolbox for multilinear time-invariant system modelling and controller design (MTI Toolbox). Up to now, the HAW has applied multilinear modelling techniques to small or medium size HVAC systems in various projects. Today, the HAW focuses on extending the multilinear modelling framework to large-scale systems as well as deeper analysis methods.

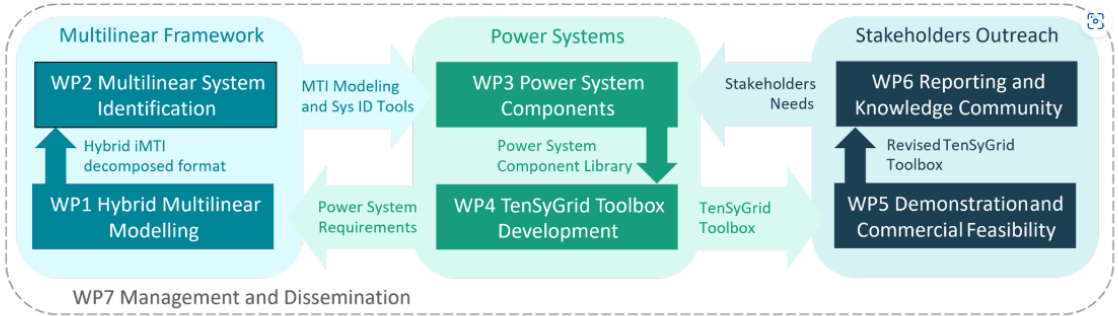


**University of Malta - UM**

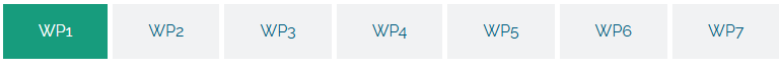
University of Malta (UM) is the leading higher education institution in Malta fostering academic research and a higher education setting in the arts, sciences and the humanities as required for Maltese economic, social and cultural development. The UM TenSyGrid team led by John Licari is actively involved in state-of-the-art research in power systems, microgrids and smart grids, power electronic converters, renewable energy systems for grid integration, and energy storage and electric transportation.

Figure 4 Consortium page within the Project menu at the TenSyGrid website

Work Plan



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WP1 – Hybrid Multilinear Modeling (lead by Fraunhofer IWES)

Extend the multilinear modeling class to hybrid implicit multilinear models with tensor representations which are composable and decomposable. Develop system analysis tools for hybrid implicit multilinear models to enable stability analysis of power systems.

Supported by:



Figure 5 Workplan page within the Project menu at the TenSyGrid website

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TenSyGrid

**CETP Call Module**  
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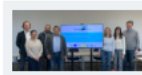
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## News



**Meeting of German Partners with PTJ**  
14. March 2025

The German partners of the TenSyGrid project convened in Hamburg on 14.03.2025, a kick-off with Projektträger Jülich (PTJ), the project management agency of the Federal


[read more >>](#)



**First Consortium Meeting with Advisory Board of TenSyGrid**  
4. February 2025

The inaugural consortium meeting with the advisory board of TenSyGrid took place on 4th February 2025. The board members, representing esteemed institutions such as TU


[read more >>](#)



**Project launch TenSyGrid**  
3. February 2025

Press release: Assessing the stability of power grids with high levels of renewable energy

[read more >>](#)



**TenSyGrid Kick-off in Hamburg**  
5. December 2024

The TenSyGrid kick-off took place in Hamburg on 05.03.2025 at project coordinator Fraunhofer IWES. The meeting commenced with a comprehensive project overview presented by the

[read more >>](#)

## Events

**2025 IEEE PES ISGT EUROPE 2025**  
20 - 23 Oct.

The IEEE PES ISGT (Innovative Smart Grid Technologies) Europe 2025 conference is organized by IEEE Power & Energy Society (PES) and The Foundation for Innovation and Research – Malta (FIR.mt) together with the IEEE Section Malta, on October 20th-23rd, 2025. The organization is also supported by the TenSyGrid project partner - The University of Malta

Place: Malta  
<https://ieee-isgt-europe.org/>

**2025 2nd Bi-monthly WP leaders meeting**  
31 Mar

Project meeting to monitor the progress of the project and discuss open issues.

**2025 CETP Projects onboarding**  
05 Mar

CETP project introduction meetings for the Transition Initiative 1 & 2. Projects coordinators under these TRIs introduce their respective projects.

Figure 6 News & Events page at the TenSyGrid website

## 4. Internal Communication

TenSyGrid project communication channel has been set-up by the Fraunhofer IWES for the exchange of project data, documents and telecommunication. Access to this channel has been provided to all partners. Project meetings have been conducted successfully via this medium. The name of the internal communication channel has been omitted in this public deliverable for confidential data safety reasons.