



D8.3 1st Annual data reporting for the Clean Hydrogen JU

Magtel



PROJECT INFORMATION

GRANT AGREEMENT NUMBER	101137792
PROJECT TITLE	A novel multi-stage steam gasification and syngas purification demonstration plant for waste to hydrogen conversion
PROJECT ACRONYM	HYIELD
FUNDING SCHEME	Horizon Europe
START DATE OF THE PROJECT	01/01/2024
DURATION	48 months
CALL IDENTIFIER	HORIZON-JTI-CLEANH2-2023-1
PROJECT WEBSITE	https://hyield.eu/

DELIVERABLE INFORMATION

DELIVERABLE N° & TITLE	D8.3 1st Annual data reporting for the Clean Hydrogen JU
WP NO.	WP8 Project management
WP LEADER	MAGTEL
DELIVERABLE CREATOR	MAGTEL
CONTRIBUTING PARTNERS	All
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CONTRACTUAL DEADLINE	31 March 2025
DELIVERY DATE TO EC	7 April 2025
DISSEMINATION LEVEL	PUB

DOCUMENT LOG

VERSION	DATE	AUTHOR	DESCRIPTION OF CHANGE
V1.1	24/02/2025	Javier Jiménez Romero	Table of contents, initial version
V1.2	02/03/2025	Marta López Villegas	Data Collection
V1.3	05/03/2025	Javier Jiménez Romero	Data entry on Clean Hydrogen platform
V1.4	31/03/2025	Javier Jiménez Romero	Deliverable writing phase
V2.1	04/04/2025	Javier Jiménez Romero	Complete version ready for review
V2.2	07/04/2025	Laia Mencia (INV)	Final Version approved / Ready for submission

DISCLAIMER



**Co-funded by
the European Union**



The HYIELD project has received funding from the European Union's HORIZON-JTI-CLEANH2-2023-01-05 programme under grant agreement N° 101137792. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

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Acronym Glossary

<i>SRIA: Strategic Research and Innovation Agenda</i>	<i>H2: Hydrogen</i>
<i>FAIR: Findability, Accessible, Interoperable & Reusable</i>	<i>WP: Work package</i>
<i>H2020: Horizon 2020</i>	<i>D8.3: Deliverable 8.3</i>
<i>MW: Mega Watts</i>	<i>GA: Grant Agreement</i>
<i>Kt: Kilo Tons</i>	<i>JU: Joint Undertaking</i>
<i>T: tons</i>	<i>TRUST: Technology Reporting Using Structured Templates</i>
<i>Kg: Kilo grams</i>	

Consortium partners information

	Name	Short name
1	MAGTEL OPERACIONES	MAG
2	CEMEX ESPAÑA OPERACIONES	CMX
3	VEOLIA (ACES)	ACES
4	WASTE-TO-ENERGY ADVANCED SOLUTIONS	WTE
5	H2SITE	H2S
6	MINCATEC	MIN
7	FUNDACIÓ EURECAT	EUT
8	SINTEF AS	SIN
9	ARISTENG SARL	ARI
10	SYNHELION	SYN
11	CETAQUA - CENTRO TECNOLÓGICO DEL AGUA, FUNDACIÓN PRIVADA	CET
12	INVENIAM GROUP	INV
13	LAFARGA	FAR
14	ARCELORMITTAL	ARC
15	ENAGAS	ENG
16	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	CSIC

1. Executive Summary

The 1st Annual data reporting for the Clean Hydrogen JU, Deliverable 8.3 (D8.3) under grant agreement (GA) 101137792, outlines how the HYIELD consortium has fulfilled its reporting obligations in alignment with the Clean Hydrogen Joint Undertaking (JU) requirements. This document details the data collection process, methodologies employed, and the key findings from the reporting period.

As part of the Horizon Europe framework, HYIELD has provided comprehensive data to monitor technological progress against the state-of-the-art and assess the project's contribution to the Clean Hydrogen JU's strategic objectives, targets, and key performance indicators (KPIs). The consortium has submitted its data via the secure online data collection platform managed by the Clean Hydrogen JU, ensuring compliance with the reporting guidelines.

The report encompasses quantitative and qualitative metrics, addressing various aspects of project performance, including technological advancements, environmental impact, efficiency improvements, and alignment with the objectives set out in the Strategic Research and Innovation Agenda (SRIA). The submitted data, by default, remains public, though confidentiality requests have been made for specific sensitive fields in accordance with JU policies.

HYIELD remains committed to transparent and accurate reporting, contributing valuable insights to the broader Clean Hydrogen JU ecosystem. The consortium will continue refining its data collection and reporting mechanisms in future annual submissions to enhance the monitoring of progress and impact within the clean hydrogen sector.

2. Introduction

The 1st Annual data reporting for the Clean Hydrogen JU, Deliverable 8.3 (D8.3) under grant agreement (GA) 101137792, outlines how the HYIELD consortium has fulfilled its reporting obligations in alignment with the Clean Hydrogen Joint Undertaking (JU) requirements. This document details the data collection process, methodologies employed, and the key findings from the reporting period.

The present document is a product of Tasks: T8.5 "Annual reporting for the Clean Hydrogen JU", T8.6 "Updated information on the synergies established with other EU/national/regional programmes", T8.7 "Reporting of project KPIs". These tasks aim to ensure systematic and comprehensive reporting of project progress, financial structures, and key performance indicators (KPIs) throughout the duration of the Horizon Europe-funded project. The document will be updated annually over three years (2024, 2025, and 2026), with deliverables D8.3, D8.4, and D8.5 corresponding to each reporting year respectively.

As part of the Horizon Europe framework, HYIELD has provided comprehensive data to monitor technological progress against the state-of-the-art and assess the project's contribution to the Clean Hydrogen JU's strategic objectives, targets, and key performance indicators (KPIs). The consortium has submitted its data via the secure online data collection platform managed by the Clean Hydrogen JU, ensuring compliance with the reporting guidelines.

The report encompasses quantitative and qualitative metrics, addressing various aspects of project performance, including technological advancements, environmental impact, efficiency improvements, and alignment with the objectives set out in the Strategic Research and Innovation Agenda (SRIA). Additionally, it provides updated insights into synergies established with other EU, national, and regional programmes, including funding structures, financial strategies, and investments outside the direct scope of the Clean Hydrogen JU grant. An evaluation of progress towards project KPIs.

HYIELD remains committed to transparent and accurate reporting, contributing valuable insights to the broader Clean Hydrogen JU ecosystem. The consortium will continue refining its data collection and reporting mechanisms in future annual submissions to enhance the monitoring of progress and impact within the clean hydrogen sector.

2.1. Background

The HYIELD project is funded by the European Commission through its Horizon 2020 program. In this project, various European regions collaborate to enhance their research and innovation activities by co-creating more responsible approaches to innovation. These regions are pioneers in exploring new pathways for regional development.

Europe faces the joint challenge of decarbonising ever newer sectors and applications, whilst also seeking clean waste treatment and valorisation pathways. With over 300Mt of waste generated each year, Europe could produce up to 30Mt of clean hydrogen from waste to accelerate the decarbonisation of challenging sectors like aviation and heavy industry. However, exploiting this energy potential remains a challenge and so far, no robust and cost-effective solutions has been successfully commercialised. HYIELD aims to open a new low-cost pathway for clean hydrogen production and waste disposal. The project proposes a novel multi-stage steam gasification and syngas purification plant concept, which will efficiently convert different organic waste streams into hydrogen and is expected to achieve H₂ 99.97% purity and 62-74% energy conversion efficiency.

The concept includes several beyond state-of-the-art innovations, including a novel process design, waste heat exploitation, Water-Gas-Shift membrane reactor, low-pressure metal hydride storage buffer and IA driven digital twin. The solution will be implemented at 3MW scale in a cement plant in Spain, where the hydrogen will be exploited for cement kiln firing. The demonstrator is expected to

operate for 4,000h over a 15-month testing period with at least 10 different organic waste streams, treating over 3.9kt of dry material and producing 650t of hydrogen. It will also carry out the groundwork for up-scaling post-project locally and across the EU, working closely with industrial partners from the cement, steel, copper and gas sectors. It is forecasted that the solution will be able to deliver a Levelized Cost of Hydrogen of 2.19€/kg at industrial scale (20,000t/year waste treated), far below current electrolyser pathways (>5.5€/kg). The project is led by a consortium of Europe's leading research groups, technology developers and industrial players in the hydrogen sector, from Spain, France, Germany, Norway and Luxembourg.

2.2. Objectives

The objectives of this document are:

- To provide a structured and transparent report on the progress of the HYIELD project, ensuring alignment with Clean Hydrogen JU requirements.
- To monitor technological advancements and assess the project's contribution to the Clean Hydrogen JU's strategic objectives, targets, and key performance indicators (KPIs).
- To submit and document key project data through the designated online data collection platform in compliance with JU guidelines.
- To assess progress towards project KPIs.
- To support continuous improvement in data collection, analysis, and reporting processes for subsequent project years.

3. Clean Hydrogen Platform

3.1. Introduction

The Clean Hydrogen Joint Undertaking (Clean Hydrogen JU) has developed an integrated digital platform known as the "Knowledge Hub." This tool is designed to collect, analyze, and visualize data related to European hydrogen and fuel cell projects.

The main objective of the Knowledge Hub is to serve as a central information repository, facilitating the assessment of technological progress compared to the state of the art and the strategic objectives set out in the Clean Hydrogen JU's Strategic Research and Innovation Agenda (SRIA).

The Knowledge Hub replaces previous platforms like TRUST (Technology Reporting Using Structured Templates) and Project Fiche, consolidating data collection into a more efficient and structured system. Through this platform, funded projects are contractually required to report annually on their progress, providing both qualitative and quantitative data. This information is crucial for conducting comparative analyses, assessing compliance with key performance indicators (KPIs), and supporting evidence-based policy decision-making.

In addition, Clean Hydrogen JU maintains an interactive "Projects Dashboard" that allows stakeholders to access and view up-to-date information on funded projects. This tool enhances transparency and promotes the dissemination of knowledge within the hydrogen and fuel cell community.

The implementation of these digital platforms reflects the Clean Hydrogen JU's commitment to effective knowledge management and transparent communication of advancements in hydrogen technologies across Europe.

The Clean Hydrogen platform is subdivided into different sections, which are shown in Figure 1 and described in the following sections, showing the current status of information about the project that has been completed for the year 2024.



Figure 1. Structure Clean Hydrogen Platform

3.2. Project Overview

This section is automatically fed back from the European platform and shows the general features of the project, both at technical and budgetary level. A summary of the project can be seen in Figure 2 and general project information in Figure 3.

Project Overview

Validated

Send Mass Message

Green hydrogen is receiving increasing interest in Europe as a route to decarbonising many sectors, including energy intensive industry, aviation, and shipping. Whilst significant attention has been paid to the potential to produce green hydrogen from renewable electricity using electrolysis, very significant potential also lies in Europe's waste streams. Europe produces around 300 million tons each year, with the potential to produce 30 million tons of green hydrogen, three times Europe's 2030 target for green hydrogen production. Green hydrogen produced from waste and biomass has been proven extensively at laboratory and pilot scale and several large-scale projects are now under development around the world. The Clean Hydrogen Partnership believes waste-to-hydrogen could offer green hydrogen at lower costs (Levelized Cost of Hydrogen (LCOH)), potentially below 3/kg, compared with around 5-6/kg for electrolysis.

The title of HYIELD is A novel multi-stage steam gasification and syngas purification demonstration plant for waste to hydrogen conversion. The project aims to build Europe's first large-scale waste-to-hydrogen demonstration plant that will produce over 400 tonnes of green hydrogen during the project. Our ambition is to develop a robust and efficiency solution that will pave the way for commercial scale-up and replication across Europe, enabling the closure of landfills and production of low-cost green hydrogen in relevant volumes to help decarbonise sectors such as shipping and heavy industry.

The demonstration plant will utilise WtEnergy Advanced Solutions CleanTech gasification technology and H2Site membrane separation reactor and will be implemented a CEMEX cement factory in Spain, where the green hydrogen will be utilised in cement production.

Figure 2. Summary of the project

Project Information	
Short name HYIELD	Full name A novel multi-stage steam gasification and syngas purification demonstration plant for waste to hydrogen conversion
Project ID 101137792	Funding programme HORIZON
Clean hydrogen JU Max. contribution €9,999,964.63	Project Total Costs €15,512,377.50
End date 31/12/2027	Start date 01/01/2024
Cordis https://cordis.europa.eu/project/id/101137792	Website https://hyield.eu/
Grant Type IA	Project Status SIGNED
Call 2023	Call ID HORIZON-JTI-CLEANH2-2023-1
Call Topic HORIZON-JTI-CLEANH2-2023-01-05	

Figure 3. General information of project

3.3. Project Management

This section shows information related to the contact details of the project officer and the project coordinator. Figure 4 shows both facts.

Project Management

Project Officer	Project Coordinator
Name (eGrants) Luca FEOLA	Name (eGrants) Alvaro SANCHEZ
Knowledge Hub user Luca FEOLA	Email alvaro.sanchez@magtel.es
	Gender M
	Knowledge Hub user Juan Luis Lopez Magdaleno Laia Mencia

Figure 4. Contact details associated with project officer and project coordinator

3.4. Project Classification

This section shows the main research area of the project, its application and technology as well as the pillar to which the project responds. Some information is missing and will be completed as the project progresses. Figure 5 shows the information associated with each of the above-mentioned sections.

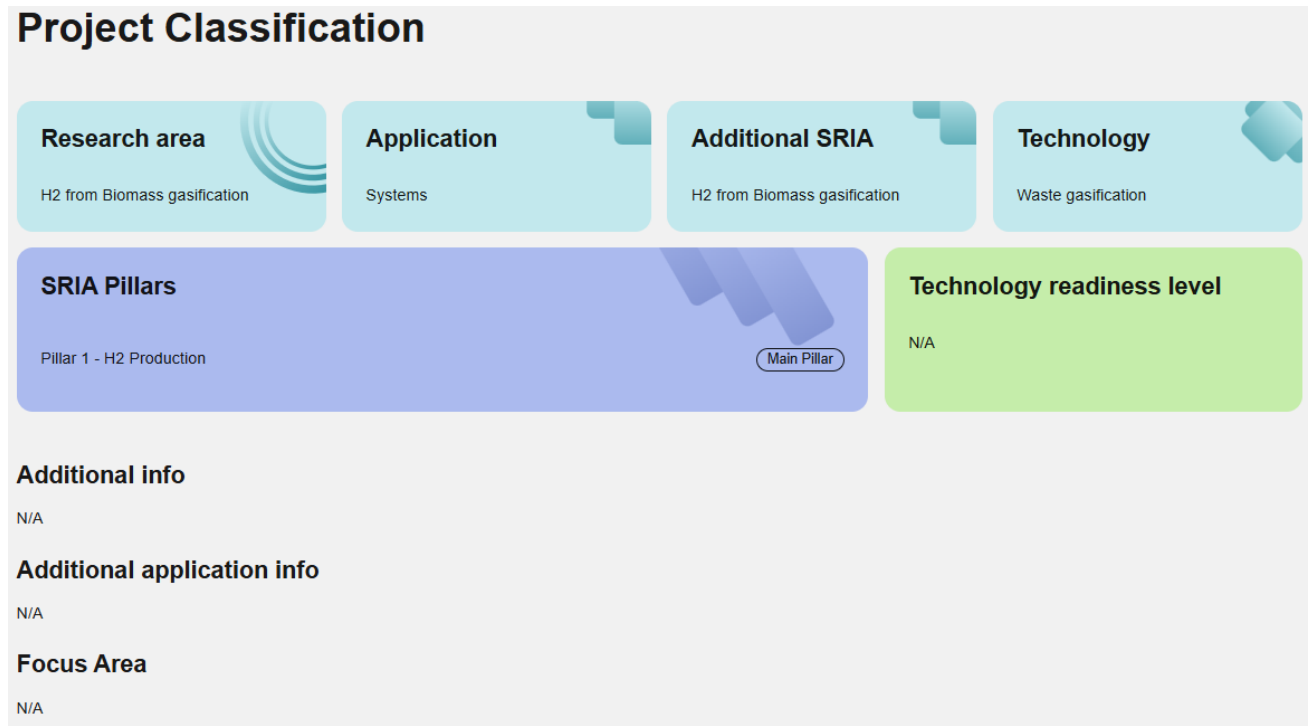


Figure 5. Project Classification information

3.5. Project SRIA Targets

There is still no information related to this section for the 2024 annuity.

3.6. Project Objectives

This section shows the main objectives of the project in terms of: System carbon yield, System capital cost, System operational cost, Conversion efficiency, Operational hours, LCOH at target production, Reactor size and Yearly Hydrogen Production. Figure 6 shows the data for these items.

Project Objectives

System carbon yield

Work in progress



Unit
kg H₂/kg C

Target
0.32

SoA result achieved to date (by others)
0.15

System capital cost

Work in progress



Unit
€/(kg/d)

Target
2.736

SoA result achieved to date (by others)
1.806

System operational cost

Work in progress



Unit
€/kg

Target
0.328

SoA result achieved to date (by others)
0.013

Conversion efficiency

Work in progress



Unit
%

Target
>=50

Full reference for SoA (please provide at least a name for a group / project)
[https://doi.org/10.1016/S0360-5442\(97\)00089-3](https://doi.org/10.1016/S0360-5442(97)00089-3)

Operational hours

Work in progress



Unit
h

Target
>=4000

SoA result achieved to date (by others)
N/A

LCOH at target production

Work in progress



Unit
€/kg

Target
<3

Full reference for SoA (please provide at least a name for a group / project)
<https://doi.org/10.1016/j.biortech.2019.122557>

Reactor size

Work in progress



Unit
MW

Target
>=3

Full reference for SoA (please provide at least a name for a group / project)
N/A

Yearly Hydrogen Production

Work in progress



Unit
t/year

Target
>=180

Full reference for SoA (please provide at least a name for a group / project)
N/A

Figure 6. Project objectives information

3.7. Technology KPI Monitoring

The Technology KPI monitoring is essential for assessing the progress of research and innovation projects supported by the Clean Hydrogen JU. These KPIs allow for comparing the results achieved with the objectives set in the Strategic Research and Innovation Agenda (SRIA).

The technological KPIs are grouped into categories covering various areas (Figure 7). For the HYIELD project these areas are divided into:

- Biogas
- Dissemination and Exploitation
- Results
- Safety

The screenshot displays the 'Technology KPI Monitoring' interface. It is organized into four distinct sections, each with a title and a corresponding KPI value and status:

- Biogas:** The KPI value is 'HYIELD_Biogas' and the status is 'N/A'.
- Dissemination_Exploitation:** The KPI value is 'HYIELD_D&E' and the status is 'Draft'.
- Results:** The KPI value is 'HYIELD_Results' and the status is 'Draft'.
- Safety:** The KPI value is 'HYIELD_Safety' and the status is 'Draft'.

Figure 7. Sections of Technology KPI Monitoring

These indicators facilitate the assessment of project performance, enabling the identification of technological advances, areas for improvement, and contributions to achieving the strategic objectives of the Clean Hydrogen JU. Below is the information relating to these areas.

3.7.1. Biogas

Figure 8 shows the descriptive level parameters of this section, as well as their corresponding description, unit and character type. The described parameters are related to: Area occupied by unit, catalyst, country, deployment date, description of the production unit, hydrogen production method, hydrogen purity of the output of the whole system, nominal hydrogen production capacity, operating pressure, operating temperature, rated system lifetime, secondary energy input/parasitic losses, target application, town and unit volume.

Parameter	Description	Is KPI	Activation year	Unit	Type	Exclude Research Instance	Operation
Area occupied by unit	Dimension of the area on the ground occupied by the hydrogen production unit	X		m2	Decimal		∨
Catalyst(s)	Name and/or description of the reaction catalyst(s)	X			Text		∨
Country	Country in which the unit/system/vehicle/vessel/railcar is located or its licence plates are issued	X			List		∨
Deployment date	Date at which the tank/bunker/electrolyser/unit/station was deployed or first bus/railcar/vehicle/vessel/station/system was put in operation or process started	X			Date - Full date		∨
Description of the production unit	Briefly describe the item being demonstrated and the production process	X			Text		∨
Hydrogen production method	Specify the route by which hydrogen is produced in the production unit	X			List		∨
Hydrogen purity of the output of the whole system	Purity of the hydrogen produced (after drying, oxygen removal and/or other purification step, if applicable) - please specify in the comment field the nature and concentration of the impurities, if known	X		%	Decimal		∨
Nominal hydrogen production capacity	Nominal daily hydrogen production rate (in weight), rated value	X		kg/day	Decimal		∨
Operating pressure	Stack operating pressure	X		bar	Decimal		∨
Operating temperature	Temperature at which the electrolyser (stack) operates	X		°C	Decimal		∨
Rated system lifetime	System lifetime, as rated by the manufacturer - please specify the manufacturer's criterion for "end of life" used for this parameter, if known	✓		y	Decimal		∨
Secondary energy input/parasitic losses	Specify secondary energy source used if applicable, e.g. parasitic loss source	X			Text		∨
Target application	Specify the intended application of the hydrogen produced	X			List		∨
Town	Town, city or village in which the electrolyser is located	X			Text		∨
Unit Volume	Overall unit volume	X		m³	Decimal		∨

Figure 8. Section Biogas: descriptive table

Figure 9 shows the operational level parameters of this section, as well as their corresponding description, unit and character type. The described parameters are related to: Conversion efficiency, Cost of the hydrogen produced, Efficiency degradation rate, Hours of operation, Quantity of hydrogen produced, System availability, System capital cost, System efficiency, System energy use and System operational cost

Parameter	Status	Description	Is KPI	Report at project level	Activation year	Unit	Type	Exclude Research Instance	Operation
Conversion efficiency @ start of timeframe		Energy content of the hydrogen produced vs energy input at start of the timeframe of this data collection exercise	X			%	Decimal		∨
Cost of the hydrogen produced		Average cost of the hydrogen produced, taking into account CAPEX, including O&M and capital costs, over the timeframe of this data collection exercise	X			EUR/kg	Decimal		∨
Efficiency degradation rate		Efficiency degradation in percentage per year within the timeframe of this data collection exercise	X			%/y	Decimal		∨
Hours of operation		Total number of hours that the station/Vehicle/Bus/System/Train has been operating (excluding downtime) over the timeframe of this data collection exercise	X			h	Decimal		∨
Quantity of hydrogen produced		Total amount of hydrogen produced by the stack over the timeframe of this data collection exercise, as measured or as calculated. Please specify whether measured or calculated in the comment field	X			Kg	Decimal		∨
System availability		Percent amount of time that the system was able to operate versus the overall time that they were intended to operate over the timeframe of this data collection exercise	X			%	Decimal		∨
System capital cost		Capital cost of the production plant per nominal daily production (€/kg/d). Capital cost should include all the cost related to all the equipment necessary for the normal operation of the plant.	✓			€/kg/d	Decimal		∨
System efficiency		System energy use per kg of hydrogen produced, excluding compression	X			kWh/kg	Text		∨
System energy use		The energy use here considers both heat and electricity. The System Energy use is based on the efficiency value of 51.7% related to a plant on Anaerobic Digestion based on Steam reforming conversion process. It is considering the LHV as calorific value of the Hydrogen. he best steam reforming case (SR) with AD biogas (58% of CH4) and a plant size is 100 kgH2/day, including PSA system	✓			kWh/kg	Decimal		∨
System operational cost		The value includes the expenditures for biogas and water, electrical and heat consumption, maintenance, spare parts, catalyst, adsorbent material and desulphurization	✓			€/kg H2	Decimal		∨

Figure 9. Section Biogas: operational table

3.7.2. Dissemination and Exploitation

Figure 10 shows the operational level parameters of this section, as well as their corresponding description, unit, character type, visibility, value 2024 and value 2023.

Parameter	Description	Unit	KPI	Input	2024		2023
					Value (2024)	Visibility (2024)	Value (2023)
Business Model / Plan - Market...	Based on the results of the project, was any business model or p...		X	list	No	Public	
Deafflow	Did the project use any type of support provided through the Dea...		X	list	No	Public	
Delivered Dissemination Activit...	How many of the planned dissemination activities delivered withi...		X	list	1-5	Public	
Did the project perform any oth...			X	list	No	Public	
Did the project use any of the s...			X	list	No	Public	
Dissemination Activities in total	How many dissemination activities performed since the beginnin...		X	list	1-5	Public	
Dissemination Activities within ...	How many dissemination activities performed within the timefra...		X	list	3-5	Public	
Do End Users exist?	Was there any exploitation activities towards end users		X	list	No	Public	
Education & Training Activities	How many education and training activities performed by the pro...		X	decimal	0	Public	
EU Institutions / Policy Makers	How many dissemination activities targeted the EU Institutions o...		X	list	0	Public	
Exploitation Activities perform...	How many exploitation activities performed within the timeframe...		X	decimal	0	Public	
Horizon Results Booster	Did the project use any of the services provided by the Horizon R...		X	list	No	Public	
Horizon Results Platform	Did the project submit the exploitable results to the Horizon Res...		X	list	No	Public	
Industry/Business Partners (di...	How many dissemination activities targeted industrial or busines...		X	list	0	Public	
Industry/Business Partners (ex...	Was there any exploitation activities towards industry/business ...		X	list	No	Public	
Innovation Radar	Had any of the results been analysed by the Innovation Radar		X	list	No	Public	
Innovators	Was there any exploitation activities towards innovators		X	list	No	Public	
IPR Activities within the timefra...	Any intellectual property activities performed within the timefra...		X	list	No	Public	
IPR-related Issues	Was the project implementation hindered due to IPR-related issu...		X	list	No	Public	

Lack of Financing	Was the project implementation hindered due to lack of financing	×	list	No	Public
Lack of Labor Skills	Was the project implementation hindered due to lack of labor ski...	×	list	No	Public
Lack of Regulation, Codes or St...	Was the project implementation hindered due to lack of regulatio...	×	list	No	Public
Meetings with stakeholders	In how many meetings did the project arranged/participated to d...	×	decimal	1	Public
On-going Dissemination Activiti...	How many of the planned dissemination activities are still on-goi...	×	list	6-10	Public
OpenAIRE_platform	Did the project participate in the open science platform OpenAIR...	×	list	No	Public
Other Audience		×	list	Click to edit	Public
Other Dissemination Activities	Are there any other dissemination of results activities not includ...	×	decimal	0	Public
Other Exploitation Activities_	Please elaborate on any other exploitation activities within the ti...	×	text	0	Public
Other reasons	Was the project implementation hindered due to other reasons n...	×	text	NO	Public
Other sources	Did the project use any type of support provided through any oth...	×	text	NO	Public
Other Target Audiences	How many dissemination activities targeted other audiences not...	×	list	0	Public
Patent Application	Did the project file/was granted with a patent within the timefra...	×	list	No	Public
Peer-Reviewed Scientific Public...	How many peer-reviewed scientific publications made within the ...	×	decimal	0	Public
Peer-Reviewed Scientific Public...	How many peer-reviewed scientific publications made within the ...	×	decimal	0	Public
Postponed or Cancelled Disse...	How many of the planned dissemination activities were postpon...	×	list	1-2	Public
Potential Investors / Users	Did the project manage to successfully promote the results to po...	×	list	Click to edit	Public
Presentation of results in confe...	How many presentation of the results of the project were perfor...	×	list	1-2	Public
Research Communities	Was there any exploitation activities towards research communit...	×	list	No	Public
Scientific/Research Communiti...	How many dissemination activities targeted the scientific/resear...	×	list	1-2	Public
Society / Specific End-Users C...	How many dissemination activities targeted society or specific e...	×	list	0	Public
Standardisation Bodies (disse...	How many dissemination activities targeted the standardisation ...	×	list	0	Public
Standardisation Bodies (exploit...	Was there any exploitation activities towards standardisation bo...	×	list	No	Public
Steps towards standardisation	Did any of the results participate/contribute in new regulations, c...	×	list	No	Public
Trade Issues	Was the project implementation hindered due to trade issues	×	list	No	Public
Updated/revised D&E plan	Does the project have an updated/revised D&E plan?	×	list	No	Public
		×		Click to edit	Public
Was there any exploitation acti...		×	list	No	Public

Figure 10. Section Dissemination and Exploitation: operational table

3.7.3. Results

Figure 11 shows the operational level parameters of this section, as well as their corresponding description, unit, character type, value 2024 and value 2023.

Parameter	Description	Unit	KPI	Input	2024	2023
					Status: Draft	Status: Accept
					Value (2024)	Value (2023)
Achievement/Result_accompl...	Achievement / Result accomplished		×	text		
Achievement/Result_Type	Achievement / Result Type		×	list		
HRP	Published in Horizon Results Platform		×	list		
IR	Analysed by the Innovation Radar		×	list		
Major difficulties or shortcom...	Major project?difficulties or shortcomings during implementatio...		×	text		Feedstock sourcing, defini
Market Maturity	Market Maturity		×	list		Emerging
Time to impact	Expected time to impact		×	list		1-5 Years
Year_Accomplished	Year Accomplished		×	decimal		

Figure 11. Section Results: operational table

3.7.4. Safety

Figure 12 shows the operational level parameters of this section, as well as their corresponding description, unit and character type.

Parameter	Status	Description	Is KPI	Report at project level	Activation year	Unit	Type	Exclude Research Instance	Operation
Available safety expertise in consortium		Please describe whether there are major gas companies involved, whether there is a long term experience with handling of hydrogen or flammable gases, or the whole consortium including those partners directly handling or designing the hydrogen system are new to the technology.	X				Text		✓
Average Hydrogen Consumption (or Production) Rate		Please provide an average rate of the hydrogen produced or consumed. In the case of a batch/ storage container solution may be easily derived by multiplying inventory of the previous question by the number of refills/ discharges per month	X				List		✓
HELLEN or HIAD database event		Please indicate if the project reported, or has any outstanding hydrogen-related event to be reported, in the Hydrogen Event and Lesson LEarNed (HELLEN) database or the HIAD database	X				List		✓
Hydrogen Storage State		Pressure [bar] x Volume [liter], Please provide the conditions of the Hydrogen inventory within the project. Please do this equally for compressed, liquid and solid storage and finally sum up contributions from storage at different pressure level)	X				List		✓
Incident/Event		Please indicate if the project has had any hydrogen-related event (near-miss, incident, accident) in the reference period	X				List		✓
Management capabilities and pro-active attitude		Please describe whether you have a safety officer named in the project, whether you have developed and you are maintaining a safety plan; do you have established educational and training measures addressing safety issues; do you report any mishaps and derive lessons learnt; do you build on pre-existing knowledge or experts available within or outside the consortium; do you consider to involve the EHSP	X				Text		✓
Maximum Stored Hydrogen Inventory Mass		Please provide the maximum mass of Hydrogen inventory. In case of several sites with hydrogen within the project please provide an indicative figure per relevant location in the comment box	X				List		✓
Number of incidents/events		Please indicate the number of outstanding hydrogen-related events reported, in the Hydrogen Event and Lesson LEarNed (HELLEN) database or the HIAD database in the reference period	X				Decimal		✓
Public visibility, impact of a potential accident		Please indicate the project public visibility or the impact of a potential accident	X				List		✓
Safety Workshops		Number of safety workshops (e.g. on research priorities, risk assessment, end-use safety, etc.)	✓				Decimal		✓
Type of project, "location"		Please select the type of location with the presence of hydrogen	X				List		✓

Figure 12. Section Safety: operational table

3.8. Progress

There is still no information related to this section for the 2024 annuity.

3.9. Patents

There is still no information related to this section for the 2024 annuity.

3.10. HRP Data

There is still no information related to this section for the 2024 annuity.

3.11. Innovation Radar

There is still no information related to this section for the 2024 annuity.

3.12. Information for Posters

There is still no information related to this section for the 2024 annuity.

3.13. Scientific Publications

There is still no information related to this section for the 2024 annuity.

4. Conclusions

The first annual data reporting (Deliverable D8.3) of the HYIELD project marks a critical milestone in the project's alignment with the Clean Hydrogen Joint Undertaking's objectives and expectations. Through comprehensive data gathering, detailed performance metrics, and consistent use of the Clean Hydrogen Knowledge Hub platform, the HYIELD consortium has demonstrated its strong commitment to transparency, accountability, and scientific rigor.

The project has successfully established the foundations for future evaluations by reporting both qualitative and quantitative indicators across key domains such as biogas conversion, system efficiency, hydrogen production, safety, and dissemination activities. These efforts provide valuable insights into the technological progress of the HYIELD system and its potential for contributing to Europe's clean energy transition.

While some sections such as SRIA targets, innovation radar, and scientific publications remain to be populated in future reporting periods, the current deliverable reflects a solid framework for continued monitoring. The use of FAIR data principles further reinforces the project's dedication to making its outcomes accessible, interoperable, and reusable for broader impact within the hydrogen and energy research communities.

Moving forward, the HYIELD project will continue to enhance its reporting mechanisms and technological performance, aiming to meet ambitious KPIs and contribute actively to the development of cost-effective and sustainable hydrogen production from waste. This deliverable sets the stage for subsequent reports and reinforces HYIELD's role in shaping the future of clean hydrogen in Europe.