

NICOLHy - Novel Insulation Concepts For LH2 Storage Tanks

Project deliverable

D7.2 Website and project identities

Project duration	January 2024 – December 2026
Contractual date of delivery	31/03/2024
Date of delivery	28/03/2024
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Editors:	Robert Eberwein (BAM)
Contributors	All consortium partners
Deliverable Status	Approved



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0.0	01.03.2023	Robert Eberwein	First Draft
0.1	26.03.2024	Giordano Emrys Scarponi	Review

Approvals:

Version	Date	Name	Organization
1.0	28.03.2024	Robert Eberwein	BAM

The NICOLHy Consortium

Participant No.	Short name	Country
1 (Coordinator)	BAM	Germany
2	UniBo	Italy
3	DLR	Germany
4	NTNU	Norway
5	NTUA	Greece

Abstract

The website and the project identities are key elements for the project consortium, and for Dissemination, Exploitation, and Communication activities that are based on a uniform corporate design. Within the consortium, these elements create a feeling of affiliation and connection among the partners within the project. For the stakeholders, these elements create a recognition value and familiarity with the project, which gain the overall impact of the several Dissemination, Exploitation, and Communication activities. This deliverable provides details about the visual identity of documents released under the umbrella of NICOLHy. Furthermore, this document provides an overview of the setup and design of the website.

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Abbreviations:

BAM	Bundesanstalt für Materialforschung und -prüfung
DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V.
GA	Grand Agreement
M	Project month
NTNU	Norwegian University of Science and Technology
NTUA	National Technical University of Athens
PU	Public
SAB	Stakeholder Advisory Board
TBD	To be defined
UniBo	Alma Mater Studiorum - Università Di Bologna
VIP	Vacuum Insulation Panel
WP	Work package

1 Introduction

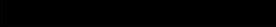
The corporate design is a key element within the project lifetime and beyond, to ensure the identification of project partners and stakeholders with the project. Within the consortium, these elements create a feeling of affiliation and connection of the partners with the project. For the stakeholders, these elements create a recognition value and familiarity with the project, which gain the overall impact of the several Dissemination, Exploitation, and Communication activities.

This deliverable provides details about the visual identity of documents released under the umbrella of NICOLHy. Furthermore, this document provides an overview of the setup and design of the website.

2 Corporate Design

Within this chapter, the corporate design for several elements and documents applicable to the project is described.

2.1 Colours

Color	Application	Colour Example	R	G	B	Hex
Light blue	Background, tables, highlighting, text		36	176	221	24B0DD
Light blue	Background, tables, highlighting, text		39	132	189	2784BD
Yellow	Background, tables, highlighting, text		224	206	20	E0CE14
Black	Text		0	0	0	000000
White	Text		255	255	255	FFFFFF

Colors are embedded in the templates for:

- Microsoft Word (Deliverable_Template_NICOHLHy.docx)
- and PowerPoint (Presentation template_NICOLHy.pptx)

2.2 Logo

The logo is the most important key element due to its very high recognition value.

The project logo contains the project abbreviation, which is underlined by a vacuum insulation panel (VIP). The Logo is shown in with colours (left), in black and white (middle), and in a short version (right). Furthermore, the LOGO size can be adapted to ensure a high resolution appearance in presentations and posters and to use the logo in E-Mails.



Figure 1 NICOLHy logo with colours (left), in black and white (middle), and the short version (right)

2.3 Deliverables

Deliverables are important for Dissemination, Exploitation, and Communication activities. To increase their recognition value and acceptability, the aim is to create a uniform structure for these documents.

This structure contains the:

- Cover sheet
- A documents page with:
 - A document revision history,
 - A document approval,
 - A list of consortium members,
 - The abstract for this document,
- A content page,
- Abbreviations and if useful tables for figures and tables,
- An introduction page,
- Chapters which form the content for the deliverable,
- A Literature overview connected to this deliverable.

The cover sheet shows exemplary Figure 2. It contains the logo, basic information about the deliverable, and the project, as well as the funding relevant information defined in §17 of the Grand Agreement (GA). Details on funding are defined in Appendix 1 of this document.

The cover sheet is the only sheet without a Header and a Footer, that contains information about the Deliverable and the project number which is shown in Figure 3.



NICOLHy - Novel Insulation Concepts For LH2 Storage Tanks

Project deliverable	
D7.1 Kick-off meeting minutes	
Date of the Meeting	<ul style="list-style-type: none"> 15.01.2024 1:00 pm to 6:30 pm 16.01.2024 9:00 am to 12:00 am
Location	<ul style="list-style-type: none"> BAM, FB, Unter den Eichen 44 – 46, 12203 Berlin, House 89, Room 320 Online via Webex
Project duration	January 2024 – December 2026
Contractual date of delivery	31/01/2024
Date of delivery	31/01/2024
Reporting class	SEN
Editors:	...
	...
Contributors	...
Quality Assurance:	...
Deliverable Status	Approved deliverable



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Figure 2 Deliverables cover sheet

Furthermore, Figure 3 shows the documents page with its uniform structure.

D7.1 Kick-off meeting minutes

NICOLHy – GA 101137629

Document Revisions:

Version	Date	Editor	Overview
0.0	18.01.2023	Name Editor 1, Name Editor 2, Name Editor x	First Draft
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Approvals:

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4	NTNU	Norway
5	NTUA	Greece

Abstract

This deliverable contains ...

Figure 3 Deliverables documents page

The standard font for texts is 'Arial', size '12', 'block' formatted.

Figures and tables will be arranged centered and labeled with 'Figure' or 'Table'. Every figure or table must be referenced in the text.

2.4 PowerPoint presentation

For PowerPoint, a template exists that contains the colours described in 2.1, and the Logo described in 2.2. The PowerPoint presentation's first slide is the cover slide presented in Figure 4. The cover slide contains the title, the subtitle and/or name of the speaker, the project logo, and the logo of all participating partners, as well as the Clean Hydrogen Partnership and the EU.

The template for the content of the presentation is shown Figure 5. This slide contains the EU-logo in small.

The last slide of the presentation shows Figure 6. This slide contains 'Thanks for your attention', as well as the funding relevant information defined in §17 of the Grand Agreement (GA). Details on funding are defined in Appendix 1 of this document.



Figure 4 PowerPoint presentation's cover slide

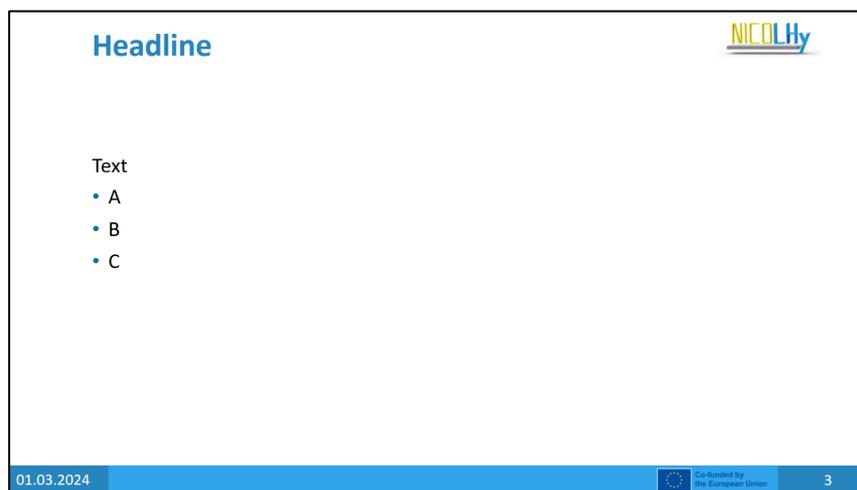


Figure 5 PowerPoint presentation's content slide

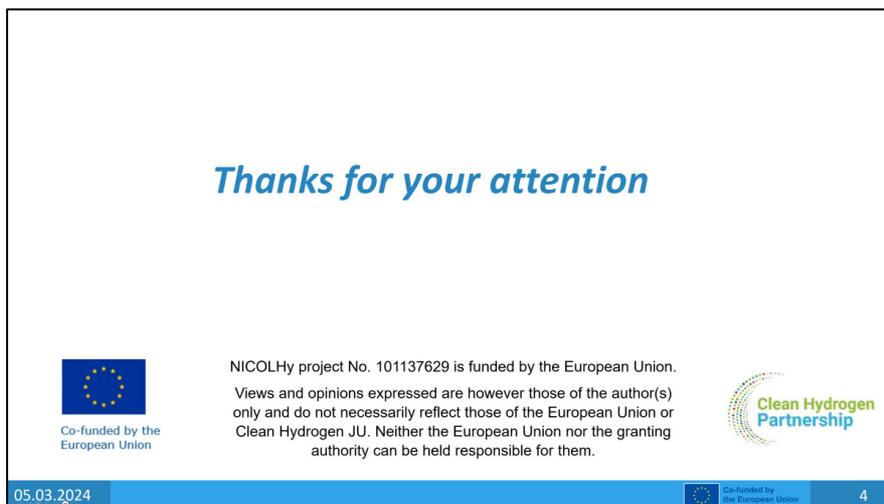


Figure 6 PowerPoint presentation's last slide

3 Website

3.1 Infrastructure

The website is hosted by Strato and realized by a homepage construction kit, which allows a high level of customization, enables easy management and content updates, and provides access to Newsletter subscription. Strato is a German eco-friendly company located in Berlin, with data centers in Berlin and Karlsruhe.

The website for NICOLHy can be accessed via the following links:

- <https://www.nicolhy.eu>
- <https://www.nicolhy.net>
- <https://www.nicolhy.info>

3.2 Structure and Navigation

The website enables the direct communication between the project and the public. The visitors will be continuously informed by news, literature, deliverables, and publications related to the project on the web. Furthermore, the website offers the possibility to subscribe to the newsletter.

To keep this approach as simple as possible for the potential user of the website, the website has a flat structure, where the home page enables access to the sub-pages 'The Project', 'News', 'Resources', 'Consortium', and 'Contact'. Only the sub-page 'Resources' is subdivided into 'Deliverables', 'Publications', and 'Literature'. The overview of the website structure is shown in Figure 7.

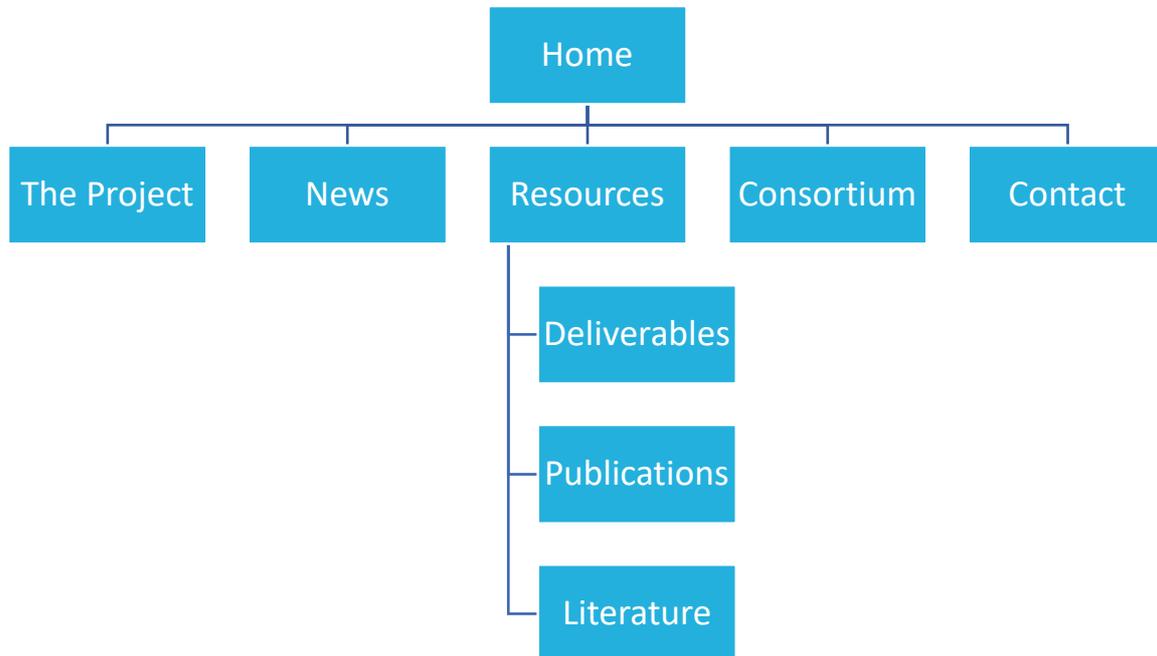


Figure 7 Structure and Navigation within the website

Project funding details are reported on every page-bottom regarding the relevant information defined in §17 of the Grand Agreement (GA). Details on funding are defined in Appendix 1 of this document.

The websites ‘Home’ page shows Figure 8. It is structured in a way to get a fast and simple impression of the project content, objectives, timeline, partners and funding. The ‘home’ page, as well as any other page, enables one to navigate to the sub-pages using the tabs at the top of the page.



Figure 8 The websites page 'Home'

‘The Project’ page presents the content of the project, and its objectives in detail (in a more extended way with respect to the information reported in the ‘Home’ page). Additionally, this page contains a description of the methodology followed in the project. The page shows Figure 9.

The Vision

The NICOLHy project aims to develop a novel insulation concept based on Vacuum Insulation Panels (VIP) that enables the safe, cost- and energy efficient storage of large quantities of liquefied hydrogen (LH2). Such large scale LH2 storage technology is necessary for establishing a hydrogen economy with dimensions between 40.000 m³ and more than 200.000 m³ of LH2. However, new design concepts are needed because the currently available technologies used in small and medium storages today are not suitable for up-scaling. The main problems prohibiting the up-scaling are the long production time due to the process chain, the low failure tolerance and the spherical shape, which reduces the payload in technical applications by up to 50% compared to other shapes. The novel concept will change these conditions by a system which is modular, open-form, time- and cost efficient while production, operation and service, multi-failure tolerant and applicable for onshore and offshore applications. The NICOLHy consortium is ideally suited for this ambitious project. It brings together experts from the fields of cryothermodynamics, marine, chemistry, process, and safety engineering.

Objectives

TO1:
Design a tank, for thermal insulation and its support structure, which is suitable for the large-scale storage of LH2, scalable, energy efficient, sustainable, having low construction and operation costs, and which assumes improved safety standards.

TO2:
Define materials and predict the overall thermal insulation performance.

TO3:
Testing of the novel insulation concept at laboratory scale.

TO4:
Perform safety and risk analysis during operation and fire scenarios.

TO5:
Perform circularity, sustainability and scalability assessment of the developed concept.

NTO1:
Maximize the impact of NICOLHy and accelerate the use of the application.

Methodology

Stakeholder Advisory Board (WP6)
• Industry, policymakers, standardization bodies, (WP6)

Knowledge (WP1)
• State of the art
• Projects (past & ongoing)
• Industry
• Novel insulation concept proposal (WP1)

Project Coordination (WP7)

Insulation design (WP2)
• Material selection
• Thermo-mechanical evaluation
• Performance modelling (WP2)

Proof of concept (WP3)
• Material testing
• Accident scenario testing (fire) (WP3)

Risk analysis (WP4)
• Hazard identification
• Risk analysis & safety barriers (WP4)

Sustainability (WP5)
• Circularity, sustainability, scalability
• Techno-economic analysis
• Gap analysis (WP5)

Implementation (WP1)
• Novel insulation concept
• Design guidelines
• RCS recommendation (WP1)

Patents Regulations Standards (WP6)

Funding

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Do you want to know more?
Register for the Newsletter

Figure 9 The websites page 'The Project'

The news within the project will be published on the **'News'** page shown in Figure 10. The latest key information about the project is published at the top of this page. The News page contains:

- regular updates on the activities and achievements of NICOLHy,
- events within the project and events attended by project partners where NICOLHy is promoted and presented,
- relevant results and research activities of the partners that are strongly related to the project.



Figure 10 The websites page 'News'

Of large relevance for dissemination and exploitation of the project outcomes is the **'Resources'** page, which is subdivided into **'Deliverables'**, **'Publications'**, and **'Literature'**. These pages provide all interested stakeholders with a data repository for project-relevant documents presented from different perspectives. In addition, the literature supports stakeholders with a wide range of background information on the project.

The **'Consortium'** page shown in Figure 11 presents the contributors to the project in detail. Furthermore, the supporters of the project participating in the Stakeholder Advisory Board (SAB) will be presented on this page soon.



Figure 11 The websites page 'Consortium'

The '**Contact**' page contains the contact details of the project consortium, the legal notice for the website, and registration for the newsletter as shown in Figure 12. The latter enables stakeholders to be informed about project results without having to visit the website frequently. For the registration of the newsletter, only the E-Mail address is mandatory. Further information on data management is described in the 'Privacy Policy' available for download on the contact page.



Figure 12 The websites page 'Contact'

3.3 Website optimization

To increase the awareness of the website and the number of visitors, links to the website are published by the websites of participants, and the EU. The website is optimized for:

- Google by representative keywords, and its registration on google,
- The access by browsers on computers, mobile phones, and tablets.

3.4 Performance evaluation

The performance of the website regarding visitors and file downloads for instance can be reviewed by the website host Atrato. An exemplary statistic is presented in Figure 13.

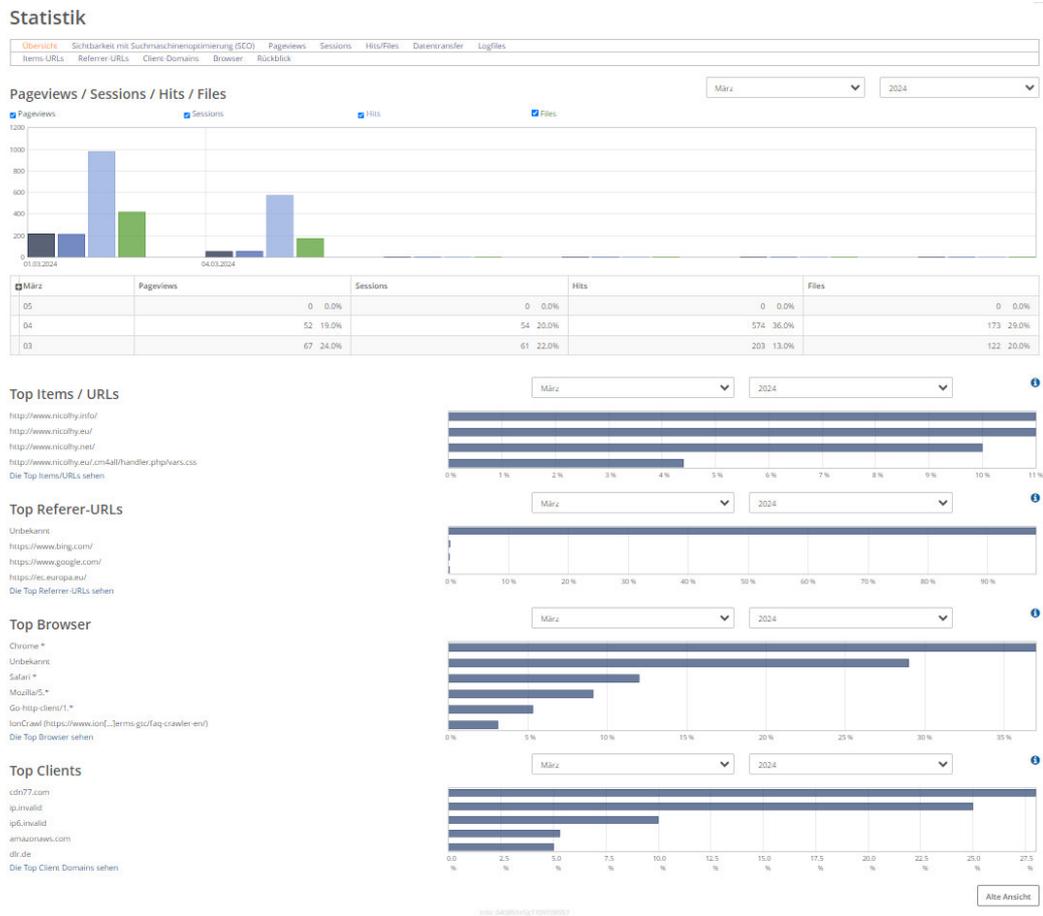


Figure 13 The websites statistics analysed by the website host strato

4 Poster

For the communication of the NICOLHy project within the institutes and for events a poster is designed that informs briefly about the project’s objectives, the State of the Art, the aimed outputs and the aimed key performance indicators. The poster shows Figure 14.

Novel Insulation Concepts For Liquefied Hydrogen Storage Tanks

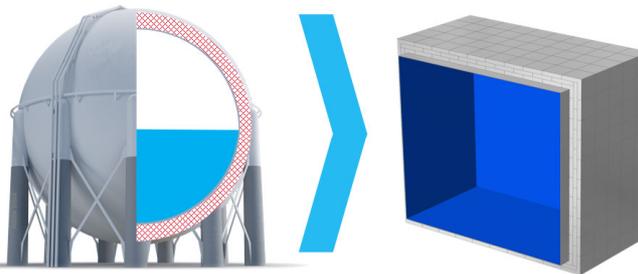


Liquefied Hydrogen (LH2)
could enable CO₂-neutral energy trading on a large scale. The storage of LH2 needs temperatures of -253°C. In order to maintain this condition for a long time with low losses, LH2 tanks require very good thermal insulation.



State of the Art

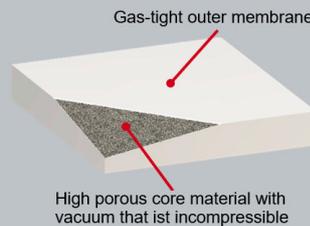
- LH2 tanks have been approved as small and medium-scale storage facilities for several decades.
- The State of the Art comes with several disadvantages which are exemplary:
 - A long production time of more than 3 year based on the production chain,
 - Difficult to scale & expensive,
 - Low fault tolerance.



The NICOLHy Approach

In NICOLHy novel thermal insulation concept for LH2 storages, that based on Vacuum Insulation Panels (VIPs) will be researched and tested.

- This approach increases the:
- Energetic and economic efficiency,
 - Safety and fault tolerance,
 - Scalability,
 - Availability, of tanks.



Project Targets

Application	Targeted tank size	KPI	2020	2030
Stationary offshore tank	200,000 m ³	LH2 tank capex offshore	100 €/kg	<20 €/kg
Ship	40,000 m ³	LH2 boil-off	0.3 %	<0.1 %



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nicolhy.eu

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Figure 14 Poster for the NICOLHy project

Appendix 1 Acknowledgement of funding and support

As reported in the Grant Agreement “any communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support”, report the given funding statements, display the European emblem and Clean hydrogen Partnership logo. Thus, all partners shall include in their communication and dissemination activities the following:

NICOLHy project No. 101137629 is funded by the European Union.



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Moreover, any communication or dissemination activities shall report that despite the care that was taken while preparing the document and output the following disclaimer applies:

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