

Renewable methanol production for the shipping industry



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Document control sheet

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Document Approval

Name	Organisa- tion	Role	Action	Date
G. Mezzetti	ETA	WP Leader	Preparation of the deliverable	22/05/2024
H. Schlösser	ALFE	Coordinator	Approved	27/05/2024

Document History

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Acronym/Abbreviations

D&C	Dissemination and Communication
IEA	International Energy Agency
IMO	International Maritime Organization
IMP	Maritime Institute for Prevention
IPR	Intellectual Property Rights
PEDR	Communication & Dissemination Strategy and Report

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Executive Summary

This document provides an overview of the plan for the “Communication & Dissemination Strategy and Report (PEDR) I” activities of the M²ARE project. The document starts with giving an overview of the project’s main activities and key objectives, and then presents in detail the target audience and stakeholders relevant for M²ARE. After that, the key messages relevant for the project communication are introduced, together with a list of dissemination and communication tools. In the end, the document describes a detailed schedule of activities to be carried out in the period M1 – M21.

1 Introduction

This report is a preliminary plan for the M²ARE project for dissemination, communication, and exploitation. It shows a guideline on how this project will be promoted with the help of the activities to be carried out during the project's lifetime. The strategy contained in this PEDR I has been developed on the project goals and expected impacts. It shows the visual identity of the project, fundamental to make the project recognizable; the events where the project can be presented; the results that all the effort from the partners will produce. Supporting the project identity, website, roll-up, poster, and leaflet will be produced. To make stakeholders' awareness grow about the main topics of the project, two half day workshops, newsletters and press-releases will be shared on the project's website and through social media during the project's lifetime.

2 Project Visual Identity

The following section provides an overview of the M²ARE visual identity, which comprehends logo, fonts, colour palettes and graphic elements. These tools will be used by all partners in the project's related publications and dissemination and communication actions. The blue colour was chosen to stay in line with the idea of the sea, while the boats that appear in the logo and on the website are to represent the maritime sector.



Figure 1: M²ARE project logo



Figure 2: M²ARE project logo variants



Fonts

Amplesoft pro

Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 012345678
(,;:-+~°#|\!€\$%&/?^&@)!*=>?<±µ½¾×÷•€

Regular

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 012345678
(,;:-+~°#|\!€\$%&/?^&@)!*=>?<±µ½¾×÷•€

Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 012345678
(,;:-+~°#|\!€\$%&/?^&@)!*=>?<±µ½¾×÷•€

Figure 3: Fonts and colours codes

Colors



R: 42
G: 59
B: 173
#2A3BAD



R: 53
G: 184
B: 180
#35B8B4



Figure 4: Website logo and image

3 Objectives and Key Messages

The M²ARE first PEDR aims at maximizing the impact of the four main outcomes of the project, as set out in Grant Agreement, which are:

- Expand the technology portfolio for ready to pre-commercial plant investments in synthetic renewable fuel technologies for shipping;
- Support de-risking the technology, boost scale-up of synthetic renewable fuel for shipping and contribute to their market up-take;
- Respond to short- and medium-term needs for renewable fuels in shipping;
- Support the better integration of synthetic renewable fuel technologies in shipping.

To support these goals, the PEDR will implement the following strategy:

- Disseminating information regarding the opportunities and advantages reached in the course of the project and onwards (lasting effects);
- Boosting the transferability of knowledge, exchanging experiences for the increment of learning (RTDs towards industrial partners and end users);
- Gathering useful feedback from all the stakeholders (researchers, industries, policy makers, industrial associations, standardization bodies and committees, other running projects and so on);
- Replicate M²ARE concepts to other processes and geographical areas across Europe (diversification).

In order to do so, the M²ARE project PEDR is characterized by key messages to fulfil the above-mentioned outcomes during the first period (M1 – M21) of dissemination and communication (D&C) activities in which the general efforts will be aimed at raising the knowledge concerning the project:

- Generate **maximum awareness** of the project's results in order to support knowledge transfer, exploitation and uptake;
- **Maximise the impacts** of the project namely ensuring proper scientific and industrial dissemination of the project's achieved results, taking into account the regulatory framework;
- Ensure effective **IPR management**;
- **Catalyse effective exploitation** of the project results aiming to an early uptake within related industries and applied research;

4 Target Audience

M²ARE project will involve specific stakeholders addressing the following target groups, as discussed at the M6 General Assembly Meeting, in line with the Grant Agreement:

- **Policy makers:** European Commission, European Parliament;
- **International Organization:** IEA, IMO, IMP;
- **Bio-CO₂ providers:** Metsä, DSM, Solvay plus biogas / bioethanol companies with direct contacts;
- **H₂ providers:** industrial gas companies, energy companies large European projects (IF, IPCEI);
- **End-users** (ship manufacturers and ports): MAERSK, CMA-CGM, Port of Rotterdam, Damen Shipyards Group, MSC.

Also, an Advisory Board was formed, coordinated by ALFE, composed by external stakeholders to help analysing results and the project progress. An NDA has been established between the Advisory Board and the consortium.

5 Dissemination & Communication Strategy and KPIs

The first months of the project focused on the development of M²ARE's visual identity, together with the launch of the project's website, the making of the LinkedIn page and YouTube page. Also, publicity material as project leaflets to be distributed was created. After this first implementation, D&C activities will mainly focus on raising awareness about the project's results and activities by using several tools such as social media cards and short video-clips for social media.

In the table below the first column shows the communication tools that will be used to share the information about the project while the second column is about the measurement ranges of performance as a reference to follow.

Communication Tool	Key Performance Index
Visual Identity and promotional material: Making of clear and distinct visual identity of the project. It aims to the realization of graphic materials such as leaflets, roll-up, scientific papers etc.) to promote the project at conferences, workshops, and other public events.	<u>Number of brochure/leaflet:</u> < 500 Poor impact 500 – 1000 Good impact > 1000 Excellent impact

Online presence: Making of the website and social accounts to share updates about the project and material easy-to-understand to reach a wide range of stakeholders.	<u>Number of web page visits per year:</u> < 1500 Poor impact 1500 – 3000 Good impact > 3000 Excellent impact <u>Target number of social media followers:</u> 350 in Year 1 550 in Year 2 800 in Year 3
Popular science articles: a series of publications will be uploaded on the project's website, concerning science aspects about the project.	<u>Number of publications:</u> At least 8 publications by M42.

Table 1: Communication tools

Dissemination Tool	Key Performance Index
Scientific publications: Scientific articles published on the website and through other channels.	<u>Number of papers submitted:</u> < 4 Poor impact 4 – 7 Good impact > 8 Excellent impact
Participation to external conferences/events: In order to maximize the outreach of the M ² ARE project's results.	<u>Number of external conference/events to attend:</u> < 4 Poor impact 4 - 8 Good impact > 8 Excellent impact
Online webinars: To maximize the awareness and knowledge about the project to stakeholders.	<u>Number of webinars to be conducted:</u> = 3 Good impact > 3 Excellent impact

Table 2: Dissemination tools

The following table intent is to provide a list of the public deliverables to be submitted within M42:

Deliverable	WP	Due date
D2.1 Delivery of crude MeOH for distillation to CETH	WP2	M4
D2.4 Site Acceptance Test Report - distillation column	WP2	M12

D3.4 Site Acceptance Test Report "GEN2 Reactor"	WP3	M18
D3.8 Assessment for the feasibility of the HED-Methanol as maritime fuel	WP3	M36
D5.1 Documented list of requirements for a technically and environmentally sustainable value chain	WP5	M28
D5.4 Techno-economic assessment	WP5	M40
D5.7 Final environmental life cycle assessment and life cycle costing	WP5	M40
D6.1 Simplified model of methanol process for inclusion into value chain model (Task 5.3)	WP6	M27
D6.3 Comparison of all locations incl. conclusions	WP6	M42
D6.4 Deployment roadmap incl. Business Plan	WP6	M42
D7.1 Communication & dissemination strategy and report (PEDR) I	WP7	M6
D7.2 Communication & dissemination strategy and report (PEDR) II	WP7	M21
D7.3 Communication & dissemination strategy and report (PEDR) III	WP7	M42

Table 3: Public deliverables of the project

In summary, the first 21 months (PEDR I) of the project will focus on the mapping of the availability and locations of the different bio-CO₂ streams across the Europe, willing to define their availability during the year and to investigate the potential presence of impurities in terms of chemical compounds that could interfere with the activity of the methanol synthesis catalyst and also, investigate the impact of such impurities on it in order to define the appropriate gas cleaning treatment for the methanol production at large-scale. These findings will be relevant for the operation of "GEN1" (1st generation) pilot plant with different bio-CO₂ composition, aiming to develop a "GEN2" (2nd generation) plant to produce methanol. During the first 21 months of the project several deliverables will be submitted. Consequently, within M21, most of the work will be focussed on sensibilization about the project instead of dissemination of results.

The main results of the above-mentioned findings will be then disseminated by ETA through different channels of communication as newsletters, press-releases, website, and social media and shared by the partners of the consortium.

6 Relevant Events M1 – M21

The following table intends to list the relevant upcoming events where M²ARE can participate and those events where the project took part during the first six months. The list is non-exhaustive, and partners shall monitor other relevant national or European events arising from the project progresses.

Event name	Period
Fuels for the future 2024 (Berlin, Germany)	January 2024
32 nd European Biomass Conference and Exhibition (Marseille, France)	June 2024
European Hydrogen Week (Brussels, Belgium)	November 2024
Maritime decarbonisation, Europe: conference, awards, and exhibition (Amsterdam, Netherlands)	September 2024
Argus sustainable marine fuels conference (Houston, Texas, US)	September 2024

Table 4: List of events (past and upcoming)

As a preliminary plan, the list of events may be subjected to changes, and the above list will be updated in the PEDR II.

7 D&C Schedule of Activities

The main communication of the project will be based on the publication of newsletters and scientific publications and posts on social media. Strong emphasis will be also given to relevant conferences and events which could be of interest for the M²ARE project. In order to disseminate information and basic knowledge of the project, an important tool for this task is the organization of webinars, that aim to transfer the details about the project in a popular way to people interested in the project. Furthermore, the Advisory Board will gather with the consortium every 6 months online or in person, attending to the General Assembly meetings to analyse the obtained results and to discuss about the workflow of the project.

In the following table a list of activities to be carried out within M21 is presented:

Activity	Time frame
First press release of M²ARE project	M1 – M4
Posts and social media cards on LinkedIn	M1 – M6
Project presentation at the 32 nd European Biomass Conference and Exhibition	M7
News on the website page	M6 – M21

First project's newsletter	M12 – M13
Organization of first webinar	M14 – M15

Table 5: Schedule of D&C activities M1 – M21

During the whole project, a list of different activities must be carried out to ensure the effectiveness of dissemination and communication. The following list of activities gives an overview of the tasks that the project must reach within M42:

- website, leaflets, roll-up and poster;
- 6 newsletters;
- 3 press-releases;
- 2 half day workshops;
- local and international conferences;
- 1 day final project event;
- 8 academic papers;
- educational training;
- 2 – 3 outreached articles.

8 Exploitation Action Plan for the Project's Results

The table below aims at identifying a preliminary way of exploitation as stated during the proposal writing in order to apply these technologies in the most effective way:

	Key Exploitable result	Background (IP)	Means of protection	Exploitation route and benefit
LRGP	New thermally integrated catalytic reactor coupled with condensation water separation device, in a modular system to facilitate extrapolation by numbering-up	Know-how in the design, sizing, and modelling of compact heat exchanger reactors, in optimisation of process synthesis	Secret know-how, industrial design, and patents	It could be adapted and developed for other types of reactions, for other kind of industrial application, in particular in fine chemistry and organic synthesis (polycondensation, esterification, etc.) in partnership with industrial partners in a field of industrial exploitation different.
SSSA	Maritime methanol value chain Management Tool	Knowledge in complex systems (e.g. industrial facilities or VC) modelling, optimization and control	Knowhow, licence, scientific publication	- Further research activity and new projects and initiatives on value chain optimizations, considering both the same value chain (e.g. in different locations and with different constraints) as well as value chains related to other products - Consultancy - Upskilling

CERTH	Know-how on poisoning effect of impurities typical of bio-CO ₂ stream	Knowledge on catalyst poisoning and testing of the deactivation of methanol synthesis catalyst from impurities typical in CO ₂ -containing flue gases. Advanced knowledge on catalyst deactivation and regeneration.	Patent applications, scientific publication	- Licensing - Further research activity and new projects and initiatives on poisoning effect of impurities typical of bio-CO₂ stream - Consultancy
MAN	Compatibility of engine equipment with byproducts of methanol synthesis	Experience in engine design and operation	Industrial know-how, patent, Scientific publication	Knowledge about influence of maritime methanol on maintenance intervals and lifetime of engine components and related sub systems.
ALEC	New generation of Maritime Methanol synthesis	Large scale methanol competence with more than 50 years of experience (patents)	Patents	1. be ready for application in demonstration units best in industrial environments; 2. EP(C) projects for customers; 3. potentially participating in projects (e.g. supply of CO₂, H₂, CAPEX).
ALFE	Know-how about pillow plate reactor and heat exchanger operation	Information, results, tools, experimental set-ups related to the methanol synthesis (incl. publication and patent applications)	Patents know-how	Knowledge about plate heat-exchange reactors can be transferred to other chemical reactions.
ALFE	Pilot plant for GEN 2 methanol process		Patents know-how	After the end of the M ² ARE project, the pilot plant will be an essential tool to: (a) test novel catalyst generations and compare to base case; (b) implement and investigate future process improvements (feedstock quality, reactor operation, heat management, purification systems, ...) and compare to base case; (c) support the feasibility of new commercial process concepts by running dedicated test e.g. at new conditions and compare to the base case (d) troubleshoot commercial plant operation where problems might occur that demand in-depth analysis.

Table 6: Exploitation action plan

9 Conclusions

This document represents a first version of the Dissemination, Exploitation and Communication plan. It covers the period from M1 to M21, hence from 1/12/2023 to 31/08/2025. A second updated version will be submitted by M21; the D&C activity of the consortium will be closely monitored in between.