



Solar-Based Membrane Reactor for Syngas Production

D1.8 Second Version of Revised Project Management Plan

WP1 – Project Management, Coordination & Dissemination

30.04.2026



**Funded by
the European Union**

Disclaimer

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About the Project

SOMMER aims to develop and demonstrate an innovative carbon-neutral process for syngas production by directly integrating solar energy into a catalytic membrane reactor, facilitating the decomposition of H₂O and CO₂ (e.g., captured from carbon-emitting industries or through direct air capture). This approach enables SOMMER to overcome reliance on fossil-based energy for syngas production, utilizing CO₂ instead of natural gas as a feedstock. Syngas, a critical intermediate for the chemical industry, prompts SOMMER to encompass the entire value chain - from CO₂ provision in a cement plant to syngas formation and further processing into valuable products like DME or methanol. The core of SOMMER's technology is the optimized energy integration of a novel thermochemical conversion process of CO₂ and H₂O in a single step. This process is supported by highly selective catalysts, a dual-phase composite membrane, and a concentrated solar-thermal plant fulfilling the thermal energy demand. The key outcomes of SOMMER involve the experimental demonstration and evaluation of the innovative solar-powered membrane technology. Additionally, it focuses on developing high-performance, cost-effective membranes as pivotal components, elevating the technology to new heights. SOMMER's strategy involves advancing membrane manufacturing through slip-casting, a more mature approach, and additive manufacturing to optimize the effective membrane surface area in the reactor. The concept anticipates future advantages, allowing prolonged and flexible operation by seamlessly switching between two operational cases: I) Purely solar approach at 1500 °C and II) a biogas-supported approach at 900 °C. Furthermore, SOMMER aims to identify the technological, ecological, and economical potential for flexible and highly efficient solar syngas production, contributing to the formulation of a detailed roadmap and providing a foundation for pre-commercialization through subsequent R&D development activities.

DLR	Deutsches Zentrum Für Luft - und Raumfahrt e.V.	DE	
FZJ	Forschungszentrum Jülich GmbH	DE	
IREC	Fundacio Institut De Recerca De L'Energia De Catalunya	ES	
HTE	HTE GmbH The High Throughput Experimentation Company	DE	
CSIC	Agencia Estatal Consejo Superior De Investigaciones Científicas	ES	
MAM HW	Morgan Advanced Materials Haldenwanger GmbH	DE	
TITAN	TITAN Cement Company S.A.	GR	
BASF*	BASF SE	DE	

*Associated Partner

Document Summary

The present document, Deliverable D1.8, titled "*Second Version of Revised Project Management Plan*," serves as an updated administrative guide for the EU SOMMER project. Developed within WP1, this revision builds upon the original Project Management Plan (D1.1) and the first updated version of the Project Management Plan (D1.6) by evaluating the project management strategy and assessing its implementation so far. It incorporates any necessary adjustments while ensuring continued alignment with the project's objectives and requirements. This deliverable updates the original guidelines, decision-making structures, work plans, and management approaches, reflecting the actual progress and current project status.

Changes with Respect to the DoA

The only change with respect to the DoA, as per D1.1, is that the duration of WP5 has been adjusted to 44 months to align with the Gantt chart and the defined duration of Task 5.3 in the Grant Agreement. This adjustment corrects a typographical error in the Work Package description in the Grant Agreement. Additionally, the duration of WP4 has been extended by three months to accommodate the completion of the work required for Deliverable D4.1 – *Model of Solar Membrane Module*.

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1. Introduction

This document, D1.8 – Second version of revised Project Management Plan, presents a comprehensive update to the project management strategy initially outlined in D1.1 – Project Management Plan and the updated first version of revised Project Management Plan (D1.6). In D1.1, key information concerning the implementation of the SOMMER project was outlined, including detailed guidelines and procedures. That document remains the central administrative and procedural reference for the project. It encompasses:

- The organizational structure, including defined roles, responsibilities of consortium partners, and decision-making bodies with their respective mandates;
- A detailed work plan, with timelines, milestones, deliverables, tasks, Work Breakdown Structure (WBS), and a Gantt chart;
- Communication procedures, both internal and external;
- Guidelines for monitoring technical and financial progress, including regular reporting mechanisms.

This current revision reflects the project's actual implementation thus far and confirms that the foundational project management strategy remains effective, with no substantial changes required at this point.

2. General Assessment of the Project Management Strategy

Since the inception of the project, the management structures and processes described in D1.1 have proven to be both robust and appropriate. Evidence of this includes:

2.1. Strong Governance and Coordination Structures

Project management bodies are well established and operate effectively. Responsibilities and roles are clearly assigned at all project levels. Regular meetings, in alignment with the D1.1 and Grant Agreement (GA), ensure close monitoring of progress and timely identification of risks—none of which have emerged as critical to date.

2.2. Quality Assurance and Deliverable Management

Standardized review procedures and templates have been effectively implemented. Deliverables are prepared, reviewed, and submitted on time, aligning with the **WBS** and **Gantt chart** as outlined in D1.1. Deliverable formats are consistent and have been positively received by the consortium and reviewers. Some delays were encountered as part of the technical implementation of project tasks. A risk assessment and mitigation strategy were set up by the coordinators and the responsible partners. The work plan and risk associated with each work plan and timeline for implementation was communicated with the EU project officer as well as among the consortium partners to meet the extension of the requested extension period.

2.3. Internal Communication

The internal communication platform, **TeamSite**, has functioned exceptionally well overall. Although some initial login and accessibility issues were encountered—mainly due to organizational security settings—these were resolved early in the project. Since then, TeamSite has proven to be an effective hub for documentation, file sharing, announcements, and team coordination. Users across the consortium have expressed satisfaction with its usability and efficiency.

2.4. External Communication and Dissemination

The SOMMER website (<https://sommer-project.eu/>) and LinkedIn page (<https://www.linkedin.com/company/103495523/admin/dashboard/>) have provided strong visibility and outreach for the project. Engagement with target groups has been growing steadily, with 176 followers on LinkedIn as of now.

2.5. Meetings and Coordination

The **General Assembly** has met regularly every **six weeks**, ensuring a dynamic and engaged project environment. These meetings have been productive, fostering quick decisions and effective follow-up actions. Additionally, Work Package (WP)-relevant meetings have occurred frequently, on-demand but no longer than every three months, ensuring detailed coordination at the WP level.

3. Governance Structure – Personnel Updates

There has been no change in the structure of the project consortium: it continues to consist of four Research Centers (DLR, FZJ, IREC, and CSIC) and four Industrial Partners (hte, MAM, HW, and TITAN), including one Associate Partner (BASF).

However, updates to deputy/proxy representatives have been made:

- For TITAN, S. Mastrogiannis has replaced M. Katsiotis as both the main member of the General Assembly and the SOMMER Exploitation Committee.

The completed and updated representatives for the SOMMER General Assembly and Exploitation Committee are shown in Table 1 and, respectively.

Table 1: Updated SOMMER General Assembly Representatives

No.	Organisation	Member	Deputy / Proxy
1	DLR	N. Neumann	A. Eltayeb
2	FZJ	S. Baumann	W. Meulenberg
3	IREC	M. Torrell	N. Kostretsova
4	Hte	S. Schunk	I. Jevtovikj
5	CSIC	M. Balaguer	A. Carrillo
6	MAM HW	M. Rozumek	F. Luthardt
7	TITAN	S. Mastrogiannis	A. Tsoukalou

Table 2: Updated SOMMER Exploitation Committee

No.	Organisation	Member	Deputy / Proxy
1	DLR	A. Eltayeb	N. Neumann
2	FZJ	S. Baumann (FZJ)	M. Torrell (IREC)
	IREC		
	CSIC		
3	Hte	S. Schunk	I. Jevtovikj
4	MAM HW	F. Luthardt	M. Rozumek
5	TITAN	S. Mastrogiannis	A. Tsoukalou

4. Deliverables and Milestones

As per the schedule defined in the DoA and D1.1, the following deliverables have been successfully completed and submitted on time:

- D1.1 – Project Management Plan with Gantt Chart and Work Breakdown Structure
- D1.2 – Quality Management Plan
- D1.3 – Launch of project's website, protected acronym, electronic communications network and social media account.
- D1.4 – Data Management Plan
- D1.5 – Dissemination and Exploitation Plan
- D3.1 – Definition of operational parameters of solar membrane reactor operation (pressure and temperature range), as well as gas compositions
- D3.2 – Selection of most advantageous approach for pO₂ reduction for case i operation
- D3.3 – Definition of downstream process parameters
- D2.1 – Identification of suitable material system for membranes and catalysts
- D1.6 – First version of revised project management plan
- D2.2 – Membrane manufacturing per slip-casting in lab-scale size using the most promising identified material candidates established
- D2.3 – Membrane manufacturing per 3D-printing in lab-scale size using the most promising identified material candidates established
- D2.4 – Oxygen permeability data of (first generation) membrane samples ready
- D2.5 – Definition of multi-layer catalytic membrane material and microstructure for scaled-up membrane units for operation in the solar membrane reactor
- D4.1 – Model of solar membrane module completed and verified
- D1.7 – Dissemination and exploitation plan updates
- D4.2 – Design of solar interface completed
- D5.1 – Model of solar membrane reactor design finalized
- D2.7 – Report on mechanical stability of slip-casted and 3D-printed membranes samples at high temperature

One Deliverable was completed and submitted with a delay of 3 months: D4.1 – Model of solar membrane module completed and verified; and one Deliverable is still in process with delay: D2.6 – Kinetics measurement data of most promising catalytic membrane assemblies collected

In both cases a strict time line and risk assessment was set up to identify potential interferences with other deliverables and milestones of the project. A close communication within the consortium and with the EU project officer ensured a solid time management and risk association.

Deliverable **D2.1** serves as confirmation for **Milestone MS1** achievement; **D4.1** proofed the achievement of **Milestone MS2**; **D3.2** and **D5.1** combined showed the achievement of **Milestone MS3**. Milestone MS4 and MS5 are currently delayed. A task force was set up to speed up the achievement of these milestones through close collaboration. Regular meetings within the associated WP ensure a close monitoring of the progress.

All deliverables submitted to date have adhered to the established formats and templates, ensuring clarity and consistency throughout the project's implementation so far.

5. Work Breakdown Structure and Gantt Chart

The original Work Breakdown Structure (WBS) and Gantt Chart, as presented in D1.1, remain unchanged and continue to serve as the backbone for planning and task distribution. The Gantt Chart timeline remains on track, with activities being executed according to their scheduled timelines and dependencies. This structured and visual approach has been instrumental in maintaining progress and coordination across the consortium. All planning tools—including the WBS, Gantt Chart, templates, and TeamSite—remain essential for visualizing progress, understanding dependencies, and supporting effective resource planning, with minor scheduling adjustments made as needed without affecting the overall timeline.

6. Conclusion

In conclusion, the original project management framework, as defined in deliverable D1.1, continues to serve the SOMMER project well. Its comprehensive and standardized structure has enabled efficient coordination, effective risk monitoring, and timely delivery of project outcomes. No substantial changes are necessary at this point, although adjustments will be made immediately should the need arise in the future.

According to the GA, this deliverable D1.8 presents the last formal revision of the management plan. However, the consortium remains committed to proactive adaptation: any significant developments impacting project execution will be promptly documented and communicated.