HI WEST 7 (Less-Advanced)

HySoW Storage and connection Pipe in South-west France

Reasons for grouping [ENTSOG]

The project group consists of a hydrogen storage project in Lacq together with a transmission pipeline in the South of France divide in two sections:

- Bayonne/Larrau-Bordeaux
- Lussagnet - Cruzy

The project will enable hydrogen storage in France and potentially in neighbouring countries.

Objective of the group [Promoter]

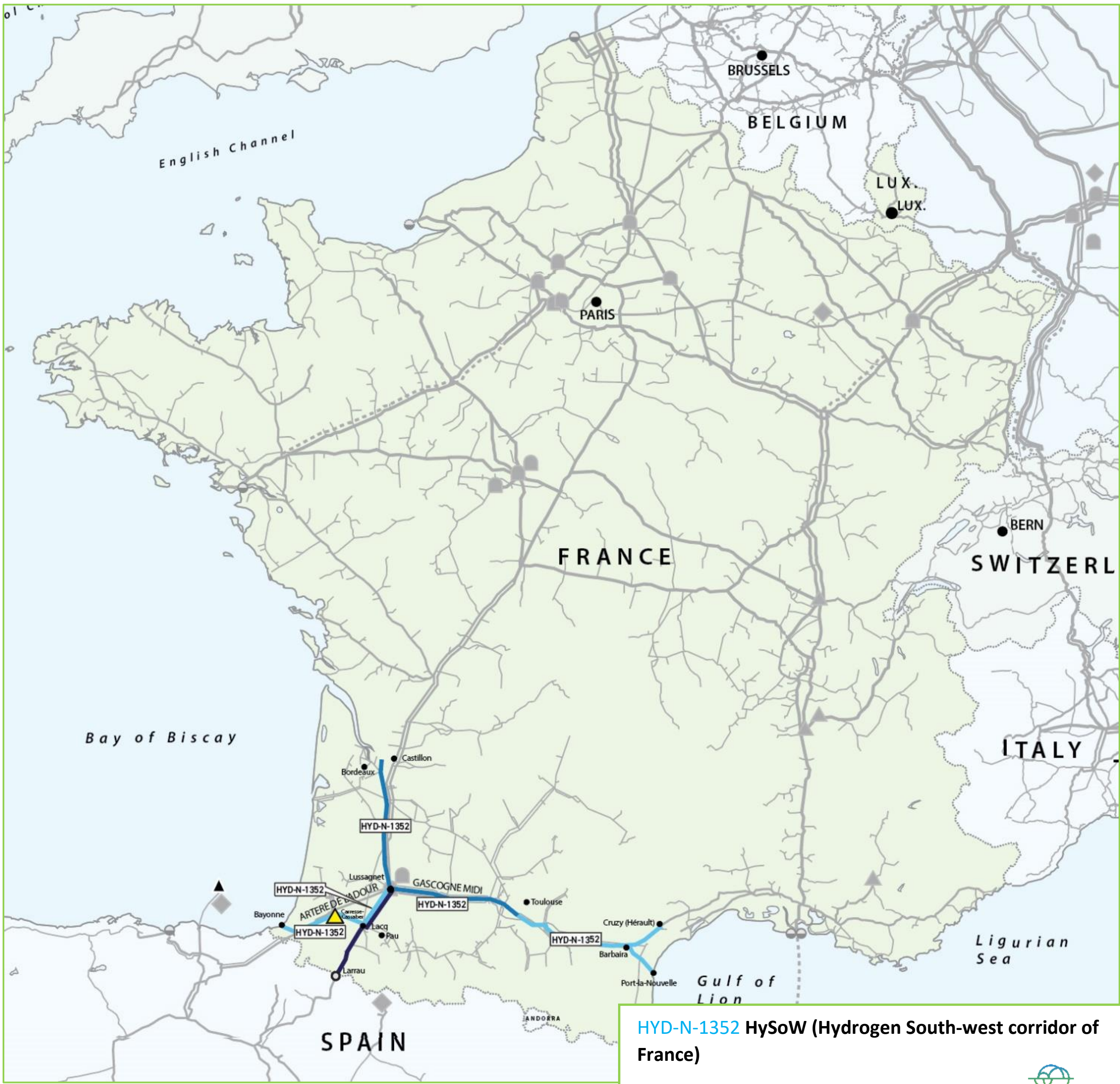
The HySoW project, Hydrogen South-west Corridor of France, a lever for decarbonisation and reindustrialisation of territories and a component of future French and European energy sovereignty.

The energy crisis in Europe, exacerbated by the war in Ukraine, has severely tested our energy systems. The new geopolitical realities of the market have forced states to secure their supplies and radically accelerate the ecological transition, placing energy infrastructure more than ever at the heart of energy sovereignty strategies.

The Hydrogen South-west Corridor of France project, known as HySoW, led by Teréga, is part of this objective. Its ambition is to develop low-carbon and renewable hydrogen storage and transport infrastructures by 2030, making it possible to interconnect and decarbonise the major industrial and mobility centres of the Occitanie and Nouvelle-Aquitaine regions to the hydrogen flows produced locally as well as those coming from the South of Europe and the Atlantic coast (French production and imports), while providing greater security of supply to the entire system thanks to hydrogen storage.

The corridor will be composed of about 600 kilometres of pipelines, of which about 30% can be converted from natural gas to hydrogen, allowing the transit of 16 TWh/year of decarbonised hydrogen throughout the South-West. The infrastructure will allow bi-directional East-West and West-East hydrogen flows between Marseille and Bordeaux, while supplying the territories of Toulouse, the industrial pole of Lacq and the ports of Bayonne, Bordeaux and Port-La-Nouvelle. The project will be structured around major hydrogen storage facilities in salt caverns in Nouvelle-Aquitaine with a capacity of 500 GWh in 2030, which could be increased to more than 1 TWh by 2050.

The HySoW project is an enabler for the "green energy corridor" H2Med project, announced last December by the French, Spanish and Portuguese heads of state and government at the Euromed Summit and supported by the European Commission. It is one of the first pillars of the Mediterranean part of the future European Hydrogen Backbone.



HYD-N-1352 **HySoW (Hydrogen South-west corridor of France)**

Comm. Year **2029**

A. Project group technical information [Promoter/ ENTSOG]

Project technical information [Promoter]

Hydrogen Transmission

TYNDP Project code	Section name	New / Repurposing	Nominal Diameter [mm]	Section Length [km]	Compressor power [MW]
HYD-N-1352	Barbaira-Port la Nouvelle pipeline	New	150	61	
HYD-N-1352	Lussagnet-Castillon pipeline	Repurposing	700	128	
HYD-N-1352	Lussagnet (CS)-Hydrogen saline Storage-Bayonne pipeline	New	400-600	175	12
HYD-N-1352	Cruzy-Barbaira (CS)-Toulouse-Lussagnet pipeline	Mix	500-600	175 + 120	15

Storage

TYNDP Project code	Maximum Injection rate [GWh/d]	Maximum Withdrawal rate [GWh/d]	Working gas volume [GWh]	Geometrical Volume [m3]
HYD-N-1352	5,7	5,7	500	2 232 000

Capacity increment [ENTSOG]

TYNDP Project code	Point name	Operator	From system	To system	Capacity increment [GWh/d]	Comm. year
HYD-N-1352	H2_ST_FR	TERÉGA	H2_ST_FR	FRh2	5,7	2029
HYD-N-1352	H2_ST_FR	TERÉGA	FRh2	H2_ST_FR	5,7	2029

B. Project Cost Information

During the TYNDP 2022 Project Data Collection, promoters were asked to indicate whether their costs were confidential or not. The following tables display the non-confidential costs provided by the promoters (as of December 2022, end of PCI project collection). The amounts provided can differ from the figures used by the project promoters in other contexts, where costs can be updated and/or evaluated using different methodologies or assumptions.

[ENTSOG]

TYNDP Project code	CAPEX [M€]	CAPEX range [%]	OPEX [M€]	OPEX range [%]
HYD-N-1352	1222	50%	15,8	50%

Description of the cost and range [Promoter]

The CAPEX and OPEX estimates are based on the results of the pre-feasibility studies.

Based on the status of the studies to date and the information gathered at this stage, the CAPEX and OPEX cost estimates are Class 5, in the range of 50% for CAPEX and 50% for OPEX.

C. Project Benefits [ENTSOG]

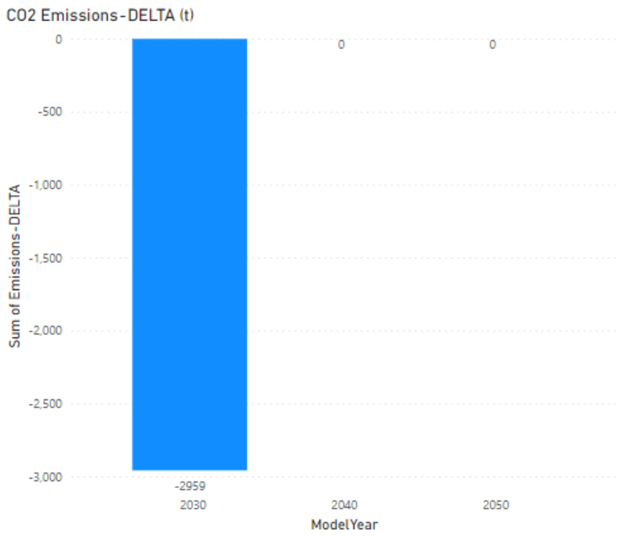
C.1 Summary of benefits

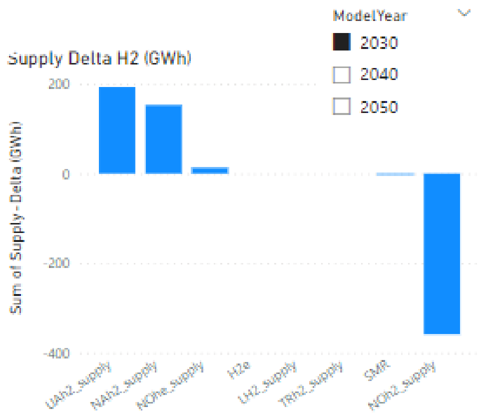
This section provides a summarised analysis by ENTSOG of the main benefits stemming from the realisation of the overall group. More details on the indicators are available in Annex D of TYNDP 2022[1].

Distributed Energy

Sustainability benefits

In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO2 emissions by 2,96 kt in 2030. This can be explained as the project group will enable the replacement of blue hydrogen imports from Norway, only considered as blue in 2030 with green hydrogen supplies.

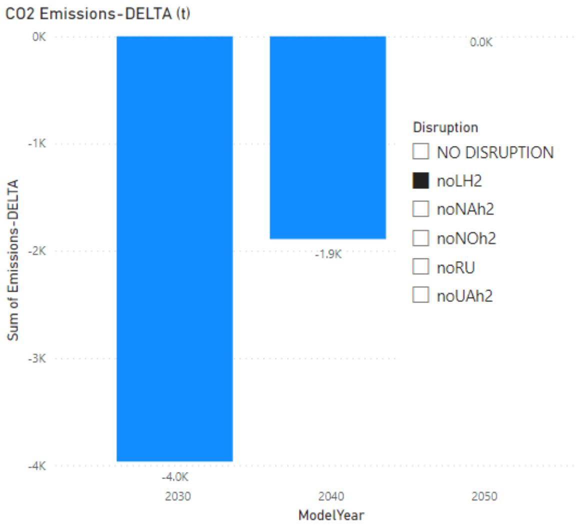


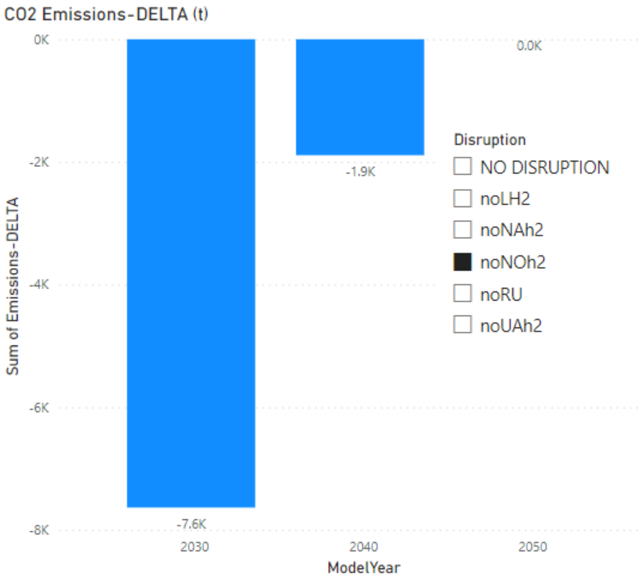


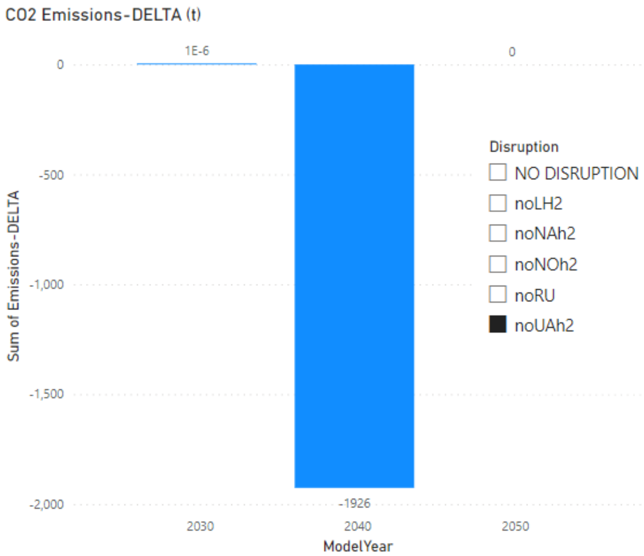
In addition, in higher sustainability are expected under disruption cases, in 2030 and 2040, due to the lower supply availability, project group will decrease overall CO2 emissions by reducing SMRs use.

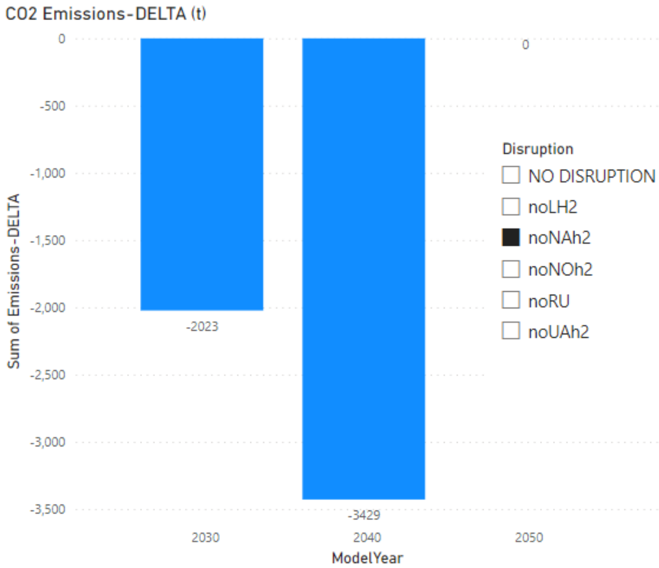
[1] TYNDP 2022 Annex D
https://www.entsog.eu/sites/default/files/2023-04/ENTSOG_TYNDP_2022_Annex_D_Methodology_230411.pdf

NoLH2: Liquid imports disruption/ 2. noNOh2 : Norway disruption / 3. noUAh2 : Ukraine disruption/ 4. noNAh2 : North Africa disruption









Security of Supply:[2]

[2] *As for the hydrogen system there is no existing infrastructure level available yet, ENTSOG has identified a possible hydrogen network according to the information provided by promoters in their project submission for the TYNDP/PCI process (i.e., H2*

> Reference case:

No security of supply benefits observed under reference case (summer/winter average demand).

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

> Climatic stress cases:

Under climatic stress cases (peak day, 2-weeks and 2-weeks dunkelflaute), the project group does not show additional SoS benefits.

> Disruption cases (S-1):

Under yearly disruption cases, the project group does not show additional SoS benefits.

> Single largest capacity disruption (SLCD):

Project group reduces the risk of demand curtailment under SLCD in Europe from 2030.

Benefits 100% - 20% 20% - 5% 5% - 0%

Infrastructure level). Therefore, the System Assessment shows the results that could be reached (for different timestamps) under the hypothesis of a full commissioning of the H2 infrastructure projects that were submitted by project promoters but that are not yet in place. Therefore, even in configurations where no demand curtailment is identified (e.g., average winter in 2030) these results should not be read as an absence of H2 infrastructure needs for the given scenario. On the contrary, the full availability of the planned infrastructures composing the H2 infrastructure level is assumed to avoid the potential demand curtailment.

SLCD Benefits - 2030 - Distributed Energy

SLCD Benefits - 2040 - Distributed Energy

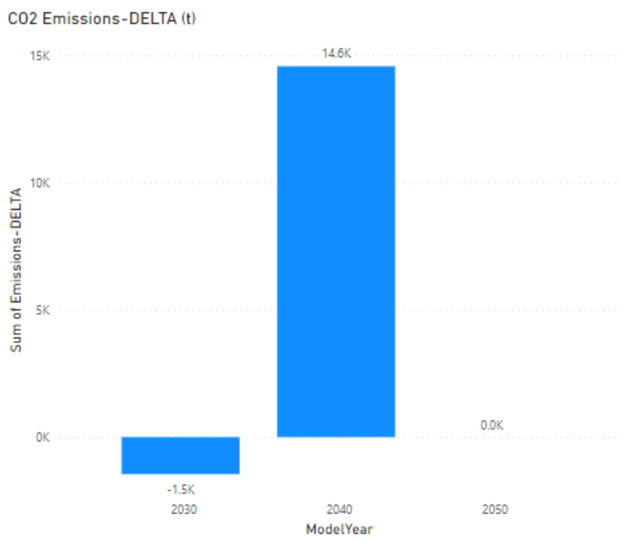
SLCD Benefits - 2050 - Distributed Energy

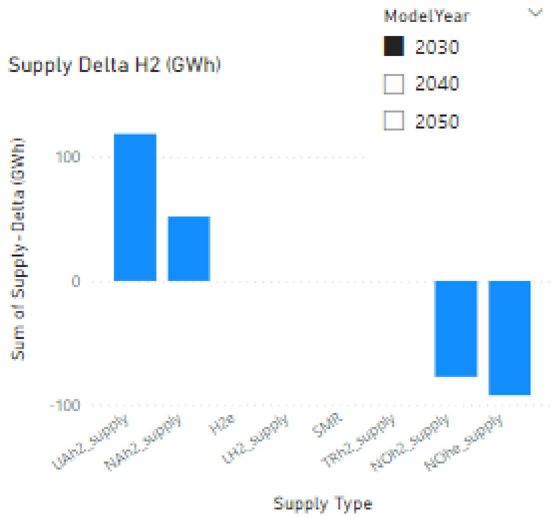
Global Ambition

Sustainability

In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO2 emissions by 1,5 kt in 2030. This can be explained as the project group will enable the replacement of blue hydrogen imports with green hydrogen supplies, as project group enables also storage of green supplies.

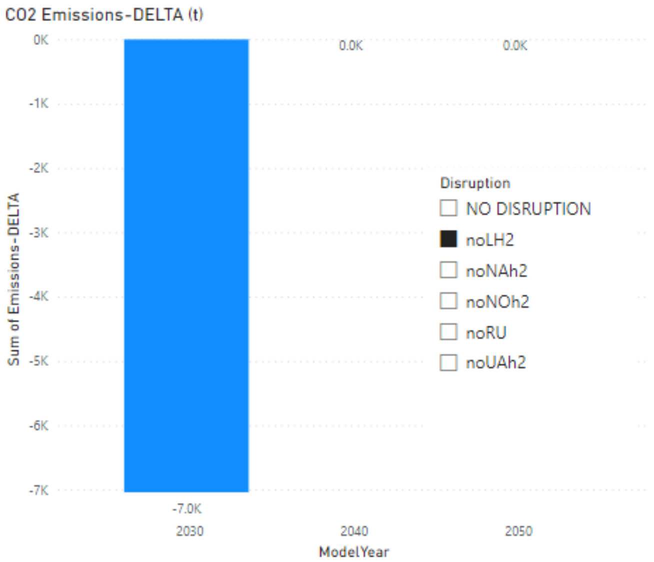
In addition, in 2040, triggered by the higher hydrogen demand in Global Ambition Scenario, project group will increase overall CO2 emissions savings by increasing SMRs, and hence, reducing demand curtailment.

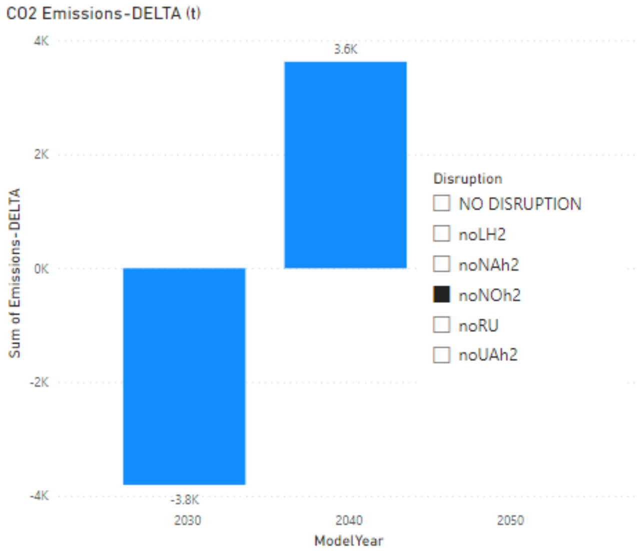


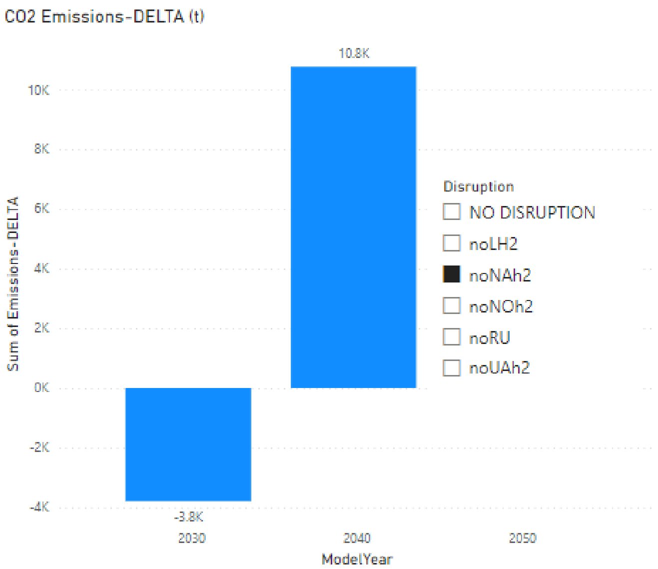


Similar trend is expected under yearly supply disruption in 2030 and 2040 for liquid imports, Norwegian and North African supply disruptions.

1. *NoLH2: Liquid imports disruption/ 2. noNOh2 : Norway disruption / 3. noNAh2 : North Africa disruption*







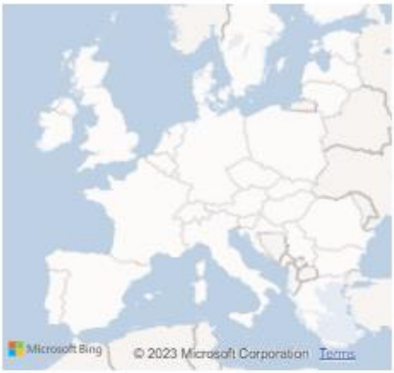
Security of supply benefits

> Reference case:

No security of supply benefits observed under reference case (summer/winter average demand).

2030 GA- Benefits

2040 GA- Benefits



2050 GA- Benefits

> Climatic stress cases:

Under climatic stress cases (peak day, 2-weeks and 2-weeks dunkelflaute), project group does not show additional SoS benefits.

> Disruption cases (S-1):

Under yearly disruption cases, project group does not show additional SoS benefits.

> Single largest capacity disruption (SLCD):

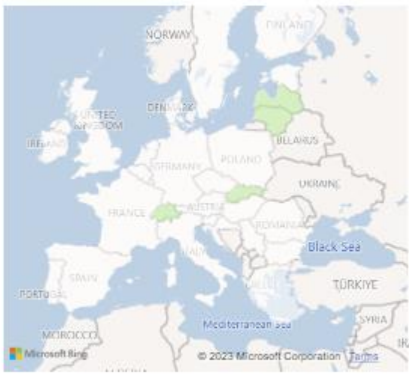
Project group reduces the risk of demand curtailment under SLCD in Europe mainly in 2030 and 2040.

Benefits 100% - 20% 20% - 5% 5% - 0%

SLCD Benefits - 2030 - Global Ambition

SLCD Benefits - 2040 - Global Ambition

SLCD Benefits - 2050 - Global Ambition



C.2 Quantitative benefits [ENTSOG]

The following tables display all the benefits quantified by ENTSOG through specific indicators and stemming from the realisation of the considered project group.

CO2 Emissions:

ModelYear	Disruption	Scenario	Unit	Emissions-DELTA	Emissions-PLUS	Emissions-MINUS
2030	NO DISRUPTION	DE	tonne	-2958,96	538677299	538680258
2030	noLH2	DE	tonne	-3965,25	540175890,2	540179855,5
2030	noNAh2	DE	tonne	-2023,22	539785356,1	539787379,3
2030	noNOh2	DE	tonne	-7634,91	538877197,8	538884832,7
2030	noUAh2	DE	tonne	0,00	539378771,9	539378771,9
2030	NO DISRUPTION	GA	tonne	-1454,66	592910448,4	592911903,1
2030	noLH2	GA	tonne	-7040,14	594817481,2	594824521,3
2030	noNAh2	GA	tonne	-3797,36	594141433,2	594145230,5
2030	noNOh2	GA	tonne	-3802,43	593310994,3	593314796,7
2030	noUAh2	GA	tonne	0,00	593627617,9	593627617,9
2040	NO DISRUPTION	DE	tonne	0,00	392077044	392077044
2040	noLH2	DE	tonne	-1890,53	392213883,4	392215773,9
2040	noNAh2	DE	tonne	-3428,89	392188097,7	392191526,6
2040	noNOh2	DE	tonne	-1890,53	392144022,6	392145913,2
2040	noUAh2	DE	tonne	-1926,03	392399182,9	392401108,9
2040	NO DISRUPTION	GA	tonne	14564,09	396523251,6	396508687,5
2040	noLH2	GA	tonne	0,00	397455196,7	397455196,7
2040	noNAh2	GA	tonne	10766,25	397301976,6	397291210,4
2040	noNOh2	GA	tonne	3626,02	397450977,1	397447351,1
2040	noUAh2	GA	tonne	0,00	397478498,3	397478498,3
2050	NO DISRUPTION	DE	tonne	0,00	232557734,8	232557734,8
2050	noLH2	DE	tonne	0,00	232557734,8	232557734,8
2050	noNAh2	DE	tonne	0,00	232557734,8	232557734,8
2050	noNOh2	DE	tonne	0,00	232557734,8	232557734,8
2050	noRU	DE	tonne	0,00	232557734,8	232557734,8
2050	noUAh2	DE	tonne	0,00	232557734,8	232557734,8
2050	NO DISRUPTION	GA	tonne	0,00	228306706,5	228306706,5
2050	noLH2	GA	tonne	0,00	228306706,5	228306706,5
2050	noNAh2	GA	tonne	0,00	228306706,5	228306706,5
2050	noNOh2	GA	tonne	0,00	228306706,5	228306706,5
2050	noRU	GA	tonne	0,00	228306706,5	228306706,5
2050	noUAh2	GA	tonne	0,00	228306706,5	228306706,5

Curtailment Rate (SLCD):

Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Belgium	-1%	-1%	-2%	-1%	-1%	0%
Czechia	-1%	0%	-2%	-2%	-2%	0%
Estonia	-1%	-1%	-2%	-1%	-2%	0%
Finland	-1%	-1%	-2%	-1%	-2%	0%
Germany	0%	0%	-2%	-1%	-1%	0%
Latvia	-1%	-1%	-2%	-1%	-1%	-1%
Lithuania	-1%	-1%	-2%	-1%	-1%	-1%
Poland	-1%	-1%	-2%	-1%	-1%	0%
Portugal	-1%	-1%	-2%	-1%	0%	-1%
Slovenia	0%	0%	-2%	-1%	-1%	0%
Sweden	-1%	-1%	-2%	-1%	-2%	-1%
Switzerland	0%	0%	-2%	-1%	-1%	-1%
France	-1%	-1%	-2%	-1%	-1%	0%
The Netherlands	0%	0%	-2%	-1%	-2%	0%
Austria	-1%	-1%	-1%	-1%	-2%	0%
Croatia	0%	0%	-1%	-1%	0%	0%
Denmark	-1%	-1%	-1%	-1%	-1%	0%
Italy	0%	-1%	-1%	-1%	-2%	0%
Slovakia	-1%	-1%	-1%	0%	0%	-1%
Spain	-1%	-1%	-1%	-1%	-2%	0%
Hungary	-1%	0%	-1%	-1%	0%	-1%
Greece	-1%	0%	-1%	0%	0%	0%
Bulgaria	-1%	0%	0%	0%	0%	0%

Curtailment Rate (Climatic Stress):

SimulationPeriod	Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Average2W	Austria	0%	0%	0%	0%	0%	0%
Average2W	Belgium	0%	0%	0%	0%	0%	0%
Average2W	Bulgaria	0%	0%	0%	-1%	0%	0%
Average2W	Croatia	0%	0%	0%	0%	0%	0%
Average2W	Cyprus	0%	0%	0%	0%	0%	0%
Average2W	Czechia	0%	-1%	0%	0%	0%	0%
Average2W	Denmark	0%	-1%	0%	-1%	0%	0%
Average2W	Estonia	0%	0%	0%	0%	0%	0%
Average2W	Finland	0%	0%	0%	0%	0%	0%
Average2W	France	0%	-1%	0%	0%	0%	0%
Average2W	Germany	0%	0%	0%	0%	0%	0%
Average2W	Greece	0%	0%	0%	0%	0%	0%
Average2W	Hungary	0%	-1%	0%	0%	0%	0%
Average2W	Ireland	0%	0%	0%	0%	0%	0%
Average2W	Italy	0%	0%	0%	0%	0%	0%
Average2W	Latvia	0%	0%	0%	0%	0%	0%
Average2W	Lithuania	0%	0%	0%	0%	0%	0%

Average2W	Luxembourg	0%	0%	0%	0%	0%	0%
Average2W	Malta	0%	0%	0%	0%	0%	0%
Average2W	Poland	0%	0%	0%	0%	0%	0%
Average2W	Portugal	0%	0%	0%	0%	0%	0%
Average2W	Romania	0%	0%	0%	0%	0%	0%
Average2W	Serbia	0%	0%	0%	0%	0%	0%
Average2W	Slovakia	0%	0%	0%	0%	0%	0%
Average2W	Slovenia	0%	0%	0%	-1%	0%	0%
Average2W	Spain	0%	0%	0%	0%	0%	0%
Average2W	Sweden	0%	-1%	0%	0%	0%	0%
Average2W	Switzerland	0%	0%	0%	0%	0%	0%
Average2W	The Netherlands	0%	0%	0%	-1%	0%	0%
Average2W	United Kingdom	0%	0%	0%	0%	0%	0%
Average2WDF	Austria	0%	0%	0%	-1%	0%	0%
Average2WDF	Belgium	0%	0%	0%	0%	0%	0%
Average2WDF	Bulgaria	0%	0%	0%	0%	0%	0%
Average2WDF	Croatia	0%	0%	0%	0%	0%	0%
Average2WDF	Cyprus	0%	0%	0%	0%	0%	0%
Average2WDF	Czechia	0%	-1%	0%	0%	0%	0%
Average2WDF	Denmark	0%	-1%	0%	0%	0%	0%
Average2WDF	Estonia	0%	0%	0%	0%	0%	0%
Average2WDF	Finland	0%	0%	0%	-1%	0%	0%
Average2WDF	France	0%	-1%	0%	0%	0%	0%
Average2WDF	Germany	0%	0%	0%	0%	0%	0%
Average2WDF	Greece	0%	0%	0%	0%	0%	0%
Average2WDF	Hungary	0%	-1%	0%	0%	0%	0%
Average2WDF	Ireland	0%	0%	0%	0%	0%	0%
Average2WDF	Italy	0%	0%	0%	0%	0%	0%
Average2WDF	Latvia	0%	0%	0%	0%	0%	0%
Average2WDF	Lithuania	0%	0%	0%	0%	0%	0%
Average2WDF	Luxembourg	0%	0%	0%	0%	0%	0%
Average2WDF	Malta	0%	0%	0%	0%	0%	0%
Average2WDF	Poland	0%	0%	0%	0%	0%	0%
Average2WDF	Portugal	0%	0%	0%	0%	0%	0%
Average2WDF	Romania	0%	0%	0%	0%	0%	0%
Average2WDF	Serbia	0%	0%	0%	0%	0%	0%
Average2WDF	Slovakia	-1%	0%	0%	0%	0%	0%
Average2WDF	Slovenia	0%	0%	0%	0%	0%	0%
Average2WDF	Spain	0%	0%	0%	0%	0%	0%
Average2WDF	Sweden	0%	-1%	0%	0%	0%	0%
Average2WDF	Switzerland	0%	0%	0%	0%	0%	-1%
Average2WDF	The Netherlands	0%	0%	0%	0%	0%	0%
Average2WDF	United Kingdom	0%	0%	0%	0%	0%	0%
DC	Austria	0%	-1%	0%	0%	0%	0%
DC	Belgium	0%	0%	0%	0%	0%	0%

DC	Bulgaria	0%	0%	0%	0%	0%	0%
DC	Croatia	0%	0%	0%	0%	0%	0%
DC	Cyprus	0%	0%	0%	0%	0%	0%
DC	Czechia	0%	0%	0%	0%	0%	0%
DC	Denmark	0%	0%	0%	0%	0%	0%
DC	Estonia	0%	0%	0%	0%	0%	0%
DC	Finland	0%	0%	0%	0%	0%	0%
DC	France	0%	0%	-1%	0%	0%	0%
DC	Germany	0%	0%	0%	0%	0%	0%
DC	Greece	0%	0%	-1%	0%	0%	0%
DC	Hungary	0%	0%	0%	0%	0%	0%
DC	Ireland	0%	0%	0%	0%	0%	0%
DC	Italy	0%	0%	0%	0%	0%	0%
DC	Latvia	0%	0%	0%	0%	0%	0%
DC	Lithuania	0%	0%	0%	0%	0%	0%
DC	Luxembourg	0%	0%	0%	0%	0%	0%
DC	Malta	0%	0%	0%	0%	0%	0%
DC	Poland	0%	0%	0%	0%	0%	0%
DC	Portugal	0%	0%	0%	0%	0%	0%
DC	Romania	0%	0%	0%	0%	0%	0%
DC	Serbia	0%	0%	0%	0%	0%	0%
DC	Slovakia	0%	-1%	0%	0%	0%	0%
DC	Slovenia	0%	0%	0%	0%	0%	0%
DC	Spain	0%	-1%	0%	0%	0%	0%
DC	Sweden	0%	0%	0%	0%	0%	0%
DC	Switzerland	0%	0%	0%	0%	-1%	0%
DC	The Netherlands	0%	0%	0%	0%	0%	0%
DC	United Kingdom	0%	0%	0%	0%	0%	0%

D. Environmental Impact [Promoter]

Any hydrogen infrastructure has an impact on its surroundings. This impact is of particular relevance when crossing some environmentally sensitive areas. Mitigation measures are taken by the promoters to reduce this impact and comply with the EU and National regulations.

TYNDP Code	Type of infrastructure	Surface of impact	Environmentally sensitive area
HYD-N-1352	Hydrogen pipelines	660 km	New pipeline sections : The network could pass through protected natural areas and urban/industrial zones. Repurposed pipeline sections : Minimal environmental impacts expected due to repurposing of pipeline or locally limited interferences. CS will be implemented in areas where its impact will be as low as possible for the neighborhood considering noise for example.
HYD-N-1352	Storage facilities	180 000 m²	Cavities will be designed in a diapir which has been in operation for decades by our partner : the group SALINS. Many environmental studies have been done in the area and this area is also under legal requirements due to the salted activities operation. The main sensitive issue linked to the development of these new cavities will be linked to the water and brine management during the phases development. The other one will be the possible environmental impact on the area necessary to build the plant dedicated to the hydrogen treatment. All the new development will be submitted to authorities to be approved and will benefit from specific impact studies.

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
HYD-N-1352	Industrial Safety Measures Specific design studies regarding safety and mitigation options (Maintenance equipment, mechanical protections, monitoring systems) Environmental Impacts (ecological, human, societal, industrial and economical) Specific study by engineering consultant to analyze and propose	The costs related to industrial safety measures and environmental impact studies are included in the project CAPEX and OPEX.	

	the best corridor (minimum impact). Measuring all the impact and looking for solutions to avoid, reduce or compensate. (fauna flora, water, protected aeras…)		

Environmental Impact explained [Promoter]

As presented above, the HySoW project comprises three types of infrastructure.

1/ Newly built pipelines:
Teréga has a good track record in limiting the environmental impact of new pipelines. The mitigation measures are included in the cost calculation and respect the principle of avoidance / reduction / compensation sequence. The specific study carried out by an engineering consultant at the early stage of the FEED allows the project layout to be adapted (to avoid sensitive areas) and the necessary mitigation and compensation measures to be identified.
In France, the specific environmental requirements defined by this study will be followed by the French authorities throughout the lifetime of the project.
In addition, the explicit support of the region and key stakeholders will further reduce the risk of public and local opposition.

2/ Repurposed pipelines:
One of the main advantages of redeploying pipelines is that the impact on the environment and biodiversity is limited because the pipelines are already in place.
To manage the parts of the project to be converted, Teréga will use its expertise of more than 70 years in carrying out natural gas transmission and storage infrastructures and facilities.

The application of the "Avoid / Reduce / Compensate" sequence will enable us to keep environmental impacts to a minimum during the construction and lifetime of the HySoW project.
Specific studies carried out by engineering consultants during the FEED phase will enable us to find the optimum route from an environmental point of view and to identify the necessary reduction or compensation measures.
Where risks persist, mitigation measures will be implemented in accordance with our business guidelines.
In France, the environmental requirements demanded by the French authorities will be complied with. We are working closely with government departments to convert our pipelines as thoroughly as possible.

The hydrogen compressor stations (CS) at Lussagnet and Barbaira will be built on existing CS methane sites, which will simplify the environmental impact assessment. The "avoid/reduce/compensate" principle will also be applied.

3/ Storages facilities:
The development of salt cavities will be done in accordance with our requirements. As previously mentioned a particular attention will be paid to the water and brine management during the leaching phases to design cavities.
Due to its experience in underground storage and its good track record on this kind of operation, and the partnership made with the SALINS group, expert in

the operation of salt mines, Teréga will be able to anticipate and manage all the environmental aspects of this kind of infrastructure development. All of the operations and phases of the project will be discussed with the administration to anticipate the integration of legal requirements.

E. Other benefits [Promoter]

Missing benefits are all benefits of a project which may not be captured by ENTSOG analysis.

As a necessary condition a missing benefit cannot have discrepancies with the benefits already covered by the assessment run by ENTSOG and this condition needs to be proved and justified.

Description of Other benefits [Promoter]

Due to the significant differences in scale between storage and transport projects, the proposed CBA methodology does not really capture the benefits of the hydrogen storage projects such as HySoW.

In order to provide meaningful insights, **Teréga conducted an alternative Cost Benefit Analysis (CBA)**, in particular with regard to GHG savings and security of supply (SoS) criterias.

HySoW will play an essential role for the decarbonisation of hard-to-abate sectors in the South-West of France and beyond, e.g.:

- Aeronautical sector in Toulouse
- Petrochemicals in Lacq
- Industrial and mobility clients in Bordeaux and Bayonne port areas (and possibly into Spain in the medium/long-term)
- Serving demand across the future H2Med corridor (including by storing volumes delivered through H2Med)
- Decarbonization of harbour areas and ecosystems : Bayonne Bordeaux & Port La Nouvelle

We have found that HySoW will avoid more than 7.7 MtCO2eq per year by 2030*.

Also, HySoW and particularly due to its storage capacities, will provide significant flexibility and security of supply benefits to the wider hydrogen system, significantly reducing the risk of curtailment of hydrogen demand in its zone and across the H2Med corridor:

- Large-scale storage will allow demand and supply shocks associated with climatic stress situations to be accommodated and smoothed.

- Improves the utilisation and system efficiency for both the hydrogen and electricity sectors and acts as a source of flexibility

As a result, the reduction in curtailed hydrogen demand is greater than 800 GWh HHV per year*.

In terms of **Competition**, the project will provide open access to all production facilities and off-takers in its area, providing an effective interconnection of clusters (e.g. in Port-la-Nouvelle, Bordeaux, Lacq …) and into the wider European hydrogen network.

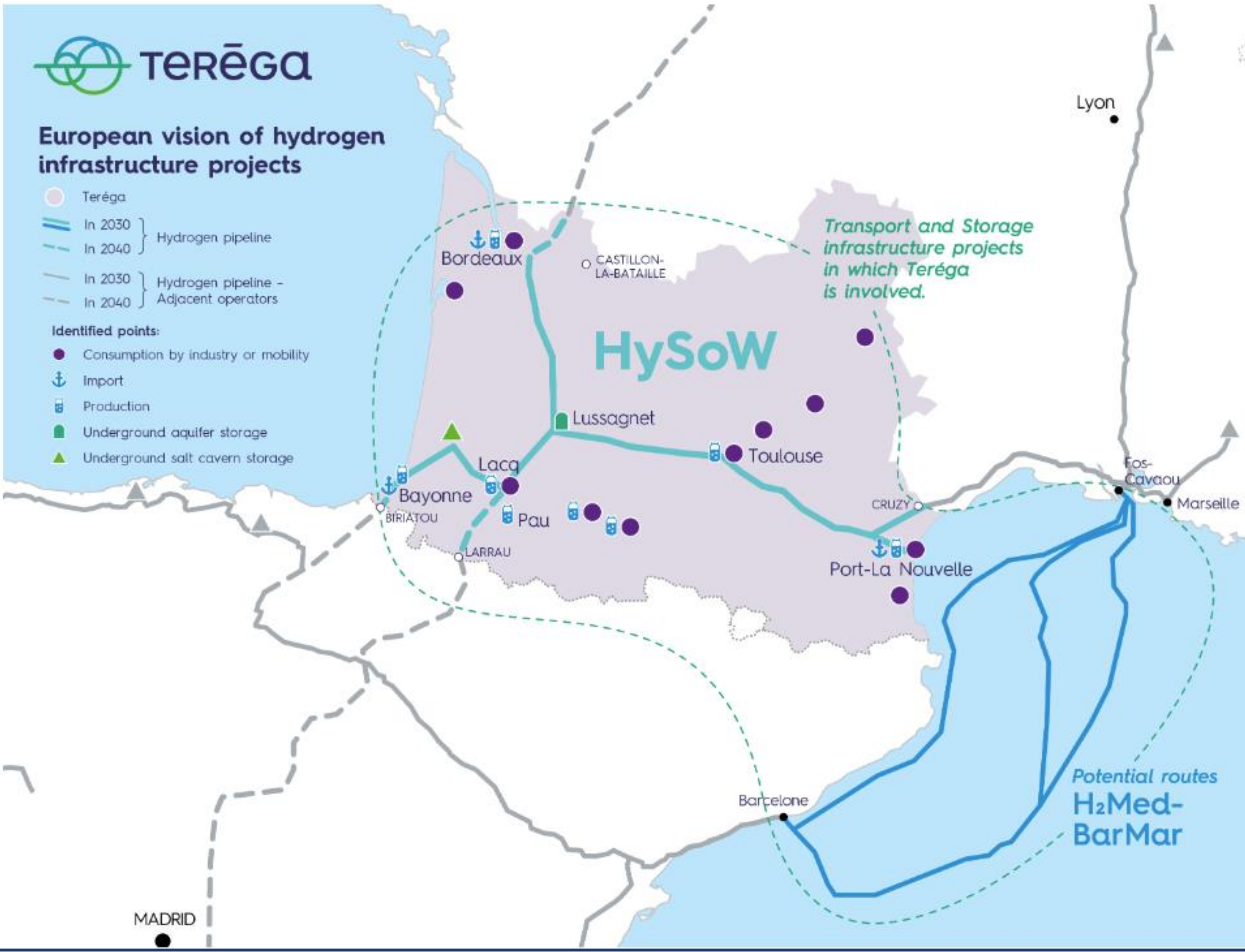
Flexibility offered thanks to HySoW storage further drives cost efficiency and promotes a competitive supply of low carbon and renewable hydrogen.

Finally, in terms of **Market Integration**, HySoW allows for a scaled up and more efficient operation of the emerging hydrogen system and possible spill-overs into improving RES dispatch

- HySoW incentivises optimal investment into hydrogen and RES production capacities
- HySoW allows enhanced smoothing of demand and supply profiles driving price alignment and reducing constraints

**How did we calculate GHG savings and avoided curtailed demand ?*

We used daily profiles of electricity production based on renewable electricity to produce renewable hydrogen.
We then modelled daily demand profiles for hydrogen, dominated mainly by industry and mobility.
By differentiating between the two, we defined the days of injection and withdrawal from storage.
Lastly, by carrying out iterations with and without the project (counterfactual) and by considering a fuel switch, we were able to determine the GHG savings and the avoidance of the curtailed demand.



F. Useful links [Promoter]

Useful links:

https://www.terega.fr/en/hysow-hyrogen-south-west-corridor-of-france-un-projet-dinfrastructures-de

https://www.h2inframap.eu/