

Project title

STORE&GO

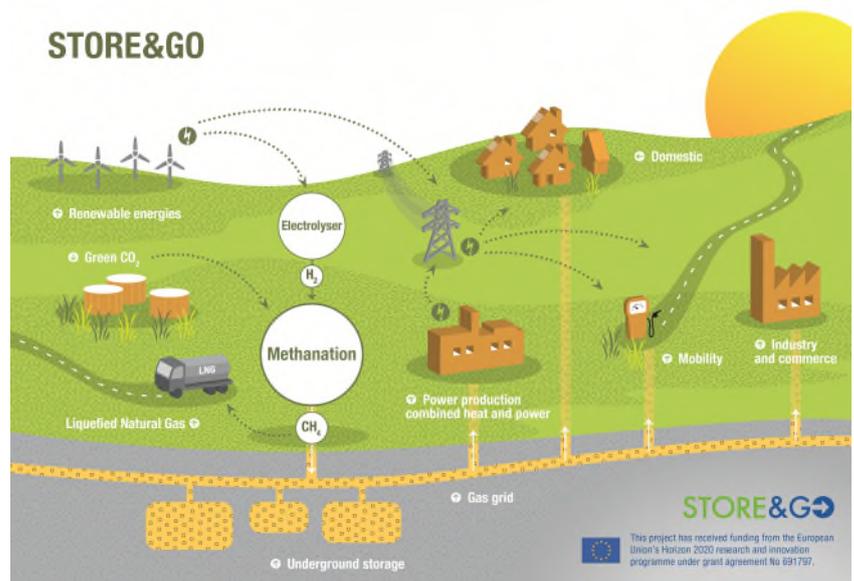
“Innovative Large Scale Energy STORagE Technologies & Power-to-Gas Concepts after Optimisation”

Motivation

- The integration of large amounts of renewable energy sources poses technological difficulties, as sources like wind and solar are volatile and generate electricity intermittently. Thus, at times there will be a surplus of energy when there is no demand for it, and vice versa there will be at times high demand when there is not enough renewable energy available.
- Chemical energy carriers like synthetic gases provide high energy density and the existing gas infrastructure offers the highest storage capacities within our energy system.
- The generation of synthetic natural gas (SNG) by Power-to-Gas technologies (PtG), i.e. electrolysis plus methanation plants provides huge potentials for shaping a secure energy supply of the future, based on renewable electricity.
- While the technical feasibility has been shown in several research projects, the Horizon 2020 project STORE&GO aims to bring the technology to a level ready to be integrated in the daily operation of European energy grids.

Approach

- The project is based on the demonstration of three different Power-to-Gas concepts in Germany (Falkenhagen), Switzerland (Solothurn) and Italy (Troia), each concept involving innovative methanation technologies adapted for the respective demonstration site.
- The operation focusses on the integration of these Power-to-Gas plants into the power, heat and gas grids for further transport and distribution.
- This way, renewable methane can be fed into the existing natural gas grid in a climate-neutral way without any restrictions, and can thus be made available for a broad range of customer applications.



Goals

About 70 million industrial and private customers in Europe are currently supplied by a gas grid 2.2 million km in length. All of them being potential customers of renewable gases. In STORE&GO not only the operation of different Power-to-Gas technologies has been demonstrated, but the plant operation complemented by extensive research activities in technological, economic and legal areas. These activities help to reduce barriers for the market entry and to accelerate the market uptake of Power-to-Gas energy storage technologies.

Within the STORE&GO project, **GW**I leads Task 8.3 and conducted an extensive study on the availability of green and grey CO₂ in Europe and the resulting future potential for synthetic methane. GWI's final public report no. D8.9 entitled “Report on an EU-wide potential analysis of power-to-gas locations coupled to local CO₂ and renewable energy sources” can be found online (e.g. on the GWI web page <https://www.gwi-essen.de/institut/veroeffentlichungen/abschlussberichte/> and on <https://www.storeandgo.info/>).

Project duration	Funding	grant agreement No
03/2016 – 02/2020	EU Horizon 2020 (Call LCE09)	691797

Project partners	Project site	Contact
27 partners (see below)	https://www.storeandgo.info/	Dr. Johannes Schaffert +49-201-3618235 schaffert@gwi-essen.de



1	Deutscher Verein des Gas- und Wasserfaches e. V.	DVGW	Germany
2	E.ON Gas Storage GmbH	EGS	Germany
3	Regio Energie Solothurn	RES	Switzerland
4	Engineering Ingegneria Informatica SPA	ENG	Italy
5	HSR Hochschule für Technik Rapperswil	HSR	Switzerland
6	Politecnico di Torino	POLITO	Italy
7	Energieinstitut an der Johannes Kepler Universität Linz	EIL	Austria
8	Rijksuniversiteit Groningen	RUG	Netherlands
9	ATMOSTAT	ATM	France
10	Commissariat à l'Énergie Atomique et aux Énergies Alternatives	CEA	France
11	CLIMEWORKS	CW	Switzerland
12	DBI Gas- und Umwelttechnik GmbH	DBI	Germany
13	Studio Tecnico BFP	BFP	Italy
14	Stichting Energieonderzoek Centrum Nederland	ECN	Netherlands
15	Stichting Energy Delta Institute	EDI	Netherlands
16	Electrochaea GmbH	ELEC	Germany
17	Eidgenössische Materialprüfungs- und Forschungsanstalt	EMPA	Switzerland
18	Ecole Polytechnique Fédérale de Lausanne	EPFL	Switzerland
19	Stichting Energy Valley	EV	Netherlands
20	Gaswärme-Institut Essen e. V.	GWI	Germany
21	Hanzehogeschool Groningen Stichting	HANZE	Netherlands
22	IREN Energia SPA	IREN	Italy
23	Karlsruher Institut für Technologie	KIT	Germany
24	Schweizerischer Verein des Gas- und Wasserfaches	SVGW	Switzerland
25	ThyssenKrupp Industrial Solutions AG	TKIS	Germany
26	Comune di Troia	TROIA	Italy
27	HYSYTECH s.r.l.	HST	Italy