

European Regulation Review

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1: Aragon Hydrogen Foundation, Spain

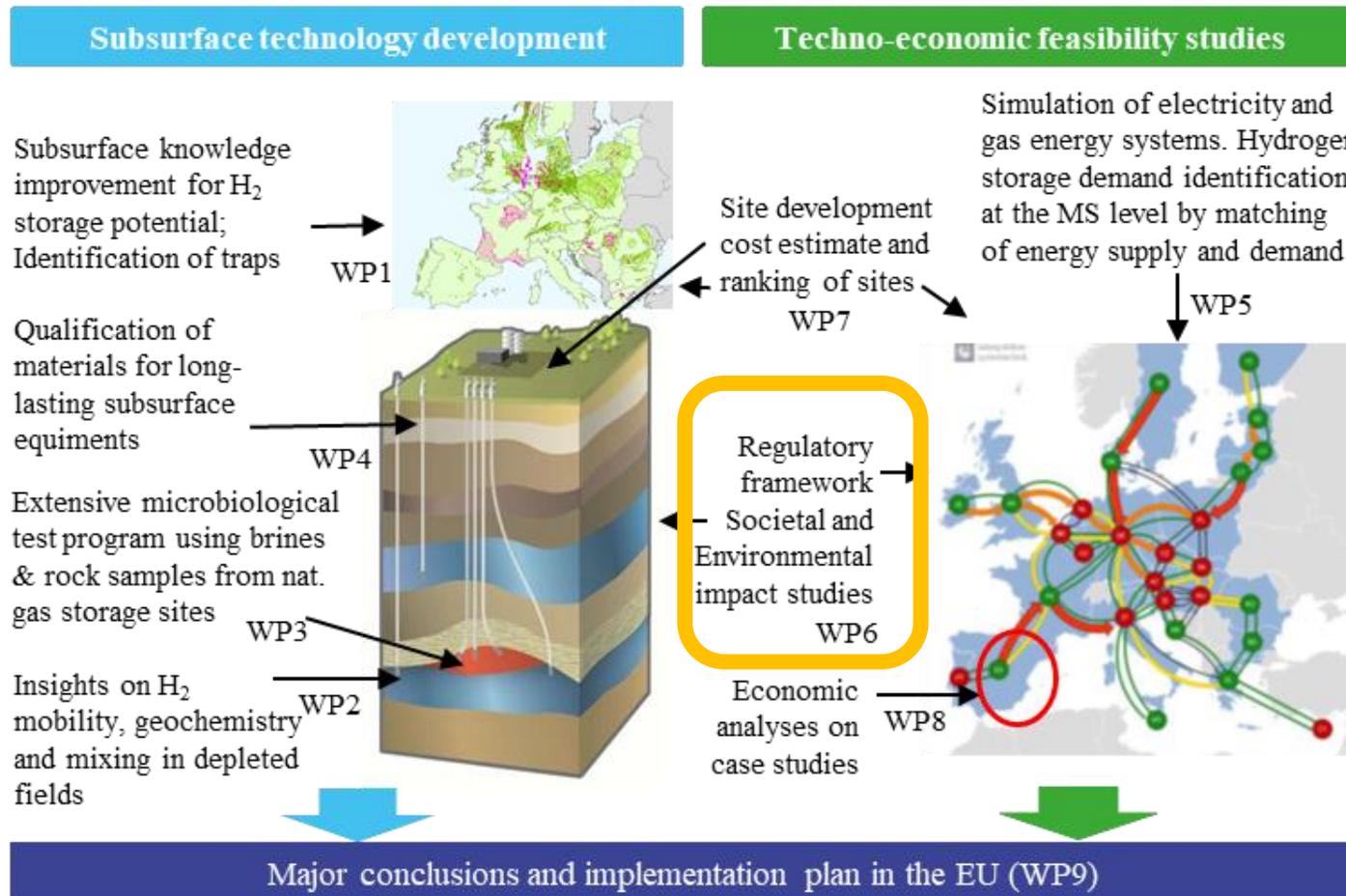
2: Geostock, France



Acknowledgment



1. Introduction



Assessment of the Regulatory Framework

- The legal framework for UHS at the European level was analysed.
- The starting point: existing UGS industry regulations.
- Main objective: to provide a set of recommendations.

<https://hystories.eu/publications-hystories/>

2. Methodology

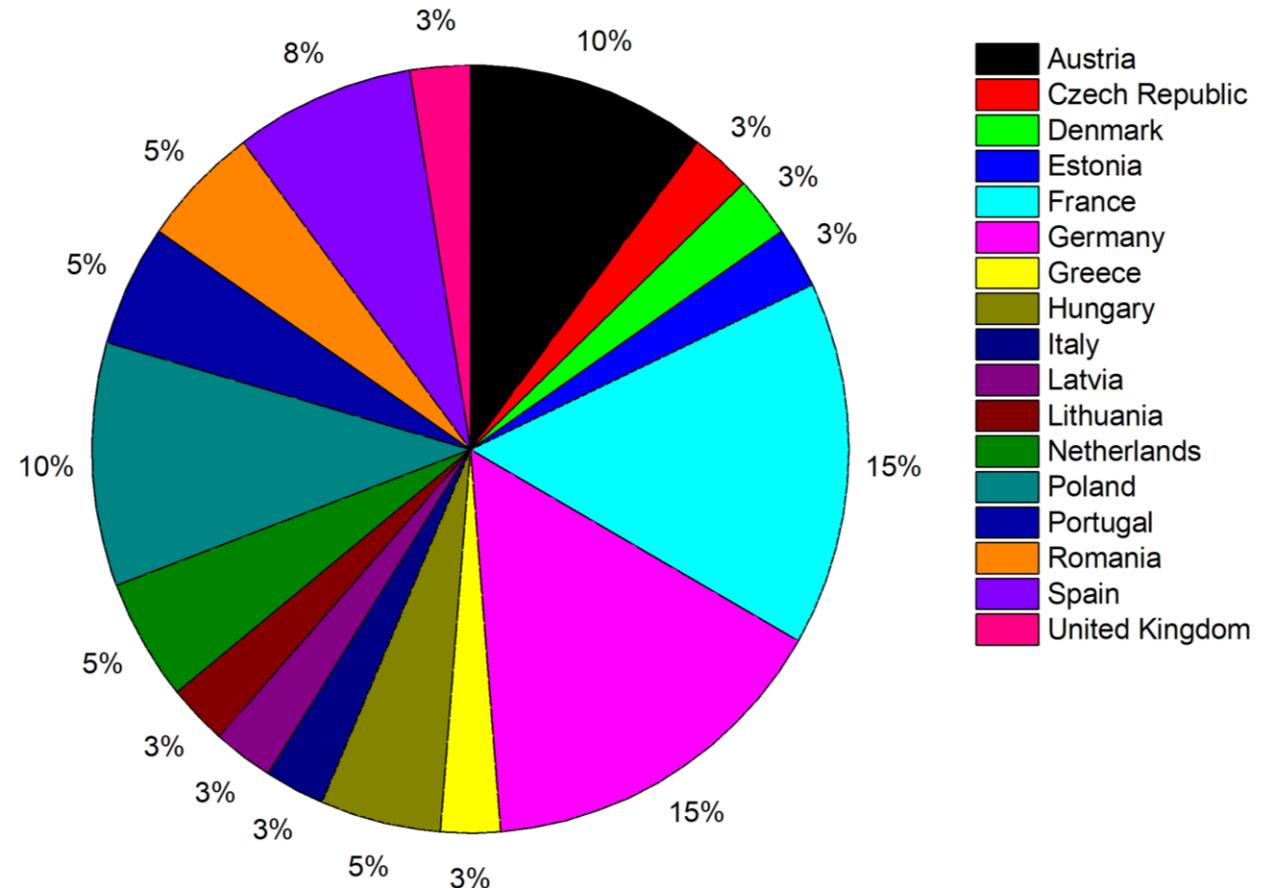
- Different sections:

1. Legal framework
2. Standards related to the integrity of underground storages, and wells
3. Other related issues.

- Hystories 7 partners and 15 third parties

- Hystories Advisory Board consisting into 13 companies (large European gas storage operators, TSO, or manufacturers).

- Identification of applicable permits for France, Germany, Poland and Spain by a questionnaire reviewed by experts.



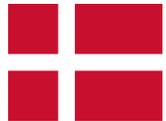
Percentage of responses obtained in the survey for each Member State, a total of 39 responses from 17 different countries. Source: FHa.

LEGISLATION IN FORCE FOR UHS



AUSTRIA

- **The Mining Act:** extension allowing the UHS for scientific research purposes
- Storage pilots: **USC FlexStore** and **USS2030** in Upper Austria.



- **DENMARK**

- Section 23 of the **Danish Subsoil Act**
- Minister for Climate, Energy and Utilities
- Extra requirements for off-shore storage

LEGISLATION IN FORCE FOR UHS



GERMANY

- Federal Mining Act, Federal Emission Control Act, and Water Resources Act
- Federal Ministry of Agriculture, Regions and Tourism
- **Chemical products. Underground Helium Storage operating since 2016.**



UNITED KINGDOM

- Health & Safety law, National and local planning processes, Control of Major Accident Hazards, Environmental and groundwater legislation
- National and local organism
- **Already three solution mined caverns** have been used for hydrogen storage that are permitted and regulated in United Kingdom

LEGISLATION UNDER DEVELOPMENT



FRANCE

- The Mining Code, Décret 2006-648 du 2 juin 2006 relative to mining rights and underground storage rights, The Environment Code, law Ordonnance n° 2021-167, on hydrogen
- Ministry of Mining, Oil and Gas and Ministry of Environment
- **Mining Code cover the chemical product for industrial use. 2021: Hypster and HyGeo projects**



NETHERLANDS

- UGS included in the Dutch Mining Act and Regulations
- Ministry of Economic Affairs and Climate Policy, State Supervision of Mines and Regional authorities
- **2021: HyStock project**

NO UHS LEGISLATION UNDER DEVELOPMENT



PORTUGAL

- Decree-Law No. 140/2006, of July 26,57 which develops the foundations of the organization and functioning of the National Natural Gas System
- Directorate-General for Energy and Geology (public administration body of the Ministry of Environment and Climate Action)
- **UHS is included in National Hydrogen Plan: 2050**



SPAIN

- Law 34/1998 of 7 October 1998 on the hydrocarbons sector, Royal Decree 1184/2020, refer to geological underground storage
- Directorate General for Energy Policy and Mines, part of the Ministry for Ecological Transition and Demographic Challenge, MITECO
- **UHS is included in National Hydrogen Plans: 2050**

NO UHS LEGISLATION UNDER DEVELOPMENT

No specific UGS legislation



CZECH REPUBLIC

- Ministry of Mining



ESTONIA

- Ministry of Economic Affairs and Communications



LITHUANIA*

- Mining Regulatory Body
- Legislation in force CCS technology

**Lithuania has currently launched a project for the construction of an underground gas storage facility, Syderiai Underground Gas Storage*

3. Results: legislation

NO UHS LEGISLATION UNDER DEVELOPMENT

Legislation in force to UGS



GREECE

- Mining Acts, NG Laws
- Central government, at Ministerial level, administration decentralised by the Regional Government



HUNGARY

- Mining Acts, NG Laws
- Ministries of Mining, Oil and Gas Environment and Mining and the Hungarian Geological Survey Hungarian Energy and Public Utility Regulatory Authority.



ITALY

- Law on Hydrocarbons and Mining Activities
- Ministries of Mining and Environment



LATVIA

- Energy Law
- Ministry of Economy



POLAND

- Geological and Mining Law
- Minister of Climate and Environment



ROMANIA

- Electricity and Natural Gas Law
- Ministry of Mining

3. Results: standards

1. The standards developed by the International Organization for Standardization, ISO, for underground gas storage facilities.

- EN 1819-1 Gas infrastructure. Underground gas storage. Part 1: Functional recommendations for storage in aquifers.
- EN 1819-2 Gas infrastructure. Underground gas storage. Part 2: Functional recommendations for storage in oil and gas fields.
- EN 1819-3 Gas infrastructure. Underground gas storage. Part 2: Functional recommendations for storage in solutions-mined salt caverns.
- EN 1819-4 Gas infrastructure. Underground gas storage. Part 2: Functional recommendations for storage in rock caverns.
- EN 1819-5 Gas infrastructure. Gas infrastructure. Functional recommendations for storage in aquifers.
- EN (ISO 16530-1:2017). Petroleum and natural gas industries - Well integrity - Part 1: Life cycle governance.

3. Results: standards

2. Different technical standards from international reference bodies or institutes, in relation to the operation and safety of underground gas storage facilities

- **Drilling, wells, and completion:** API (American Petroleum Institute)
- **Surface pipping, process, etc:** ASME (American Society of Mechanical Engineers)
- **Salt caverns:** SMRI (Solution Mining Research Institute)

3. Specific national standards

- Norsok Standard D-010 Well integrity in drilling and well operations **(Norway)**
- Oil & Gas UK. Well Life Cycle Integrity Guidelines **(United Kingdom)**
- Borehole Sites and Operation Regulations, 1995 **(United Kingdom)**
- OFGEM: Guidance on the regulatory regime for gas storage facilities in Great Britain (version 2) **(United Kingdom)**
- German Federal Association of Natural Gas, Oil and Geoenergy (BVEG), Technical Rule Bohrlochkontrolle. Bohren, Workover, Well Intervention (Well control. Drilling, Workover, Well Intervention), **(Germany)**
- German Federal Association of Natural Gas, Oil and Geoenergy (BVEG), Technical Rule Well Integrity, **(Germany)**

3. Results: permits for France, Germany, Spain and Poland

	1. Authorisation name	2. Entity responsible for granting authorisation permits	3. Reference document	4. Resolution time	5. Is such a licence necessary if the activity takes place on existing underground storage?	6. Control, duration, renewal obligations
Global Authorisations	Exploitation concession					
	Facilities					
	Enviromental Impact					
	Public utility declaration					
	Other					
Well Authorisations	Facilities					
	Public domain concession application					
Plant authorisations	Integrated environmental authorisation					
	Facilities					
	Declaration of public utility					
	Building permit plant					
	Activity licence					
Others						



4. Barriers

- ❖ Great variety of governances involved in UGS/UHS legislation
- ❖ Regional or national regulations that aim at limiting any activity in the underground, not only exploitation but also geological exploration or characterisation.
- ❖ The current legislation does not cover underground storage facilities for the power industry.
- ❖ Finally, the storage of natural gas in certain Member States can be decided independently of the claims of landowners. This is currently not possible for any other type of product, such as hydrogen.

Hystories project consortium



Mineral and Energy
Economy Research
Institute
Polish Academy of Sciences

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Thank you !

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