HyLaw - EU-level activities, conclusions and European Framework.

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HyLaw National Workshop – Brussels, Belgium

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Grant Agreement No 737977

Legal & administrative processes hamper the uptake of FCH technologies

Today: Increasing deployment and appetite for fuel cells and hydrogen (FCH) technologies across Europe: more products better performance, reduced cost.

BUT :

- Existing regulatory legal framework e.g. planning, safety, installation, operation – often only reflect conventional technology and is therefore insufficient
- Non adapted measures - additional costs and time, resource intensive… For ex. lengthy and costly permitting requirements to install a hydrogen refuelling station in most European countries

This represents a barrier to scale up fuel cell and hydrogen deployment

Objectives

Policy	Market
Identify regulatory barriers (and best practices) and advocate for better regulation to support the uptake of fuel cell and hydrogen technologies	**Describe legal and administrative processes** which apply when deploying key Hydrogen technologies (coherent, user friendly, online database)

Scope

~60 Legal and administrative processes; 20 hydrogen applications in 8 categories

Categories of applications
1. Production of hydrogen
2. Storage of hydrogen
3. Transport and distribution of hydrogen
4. Hydrogen as a fuel and refueling infrastructure for mobility purposes
5. Vehicles
6. Electricity grid issues
7. Gas grid issues
8. Stationary power; fuel cells (other issues than gas grid and electricity)

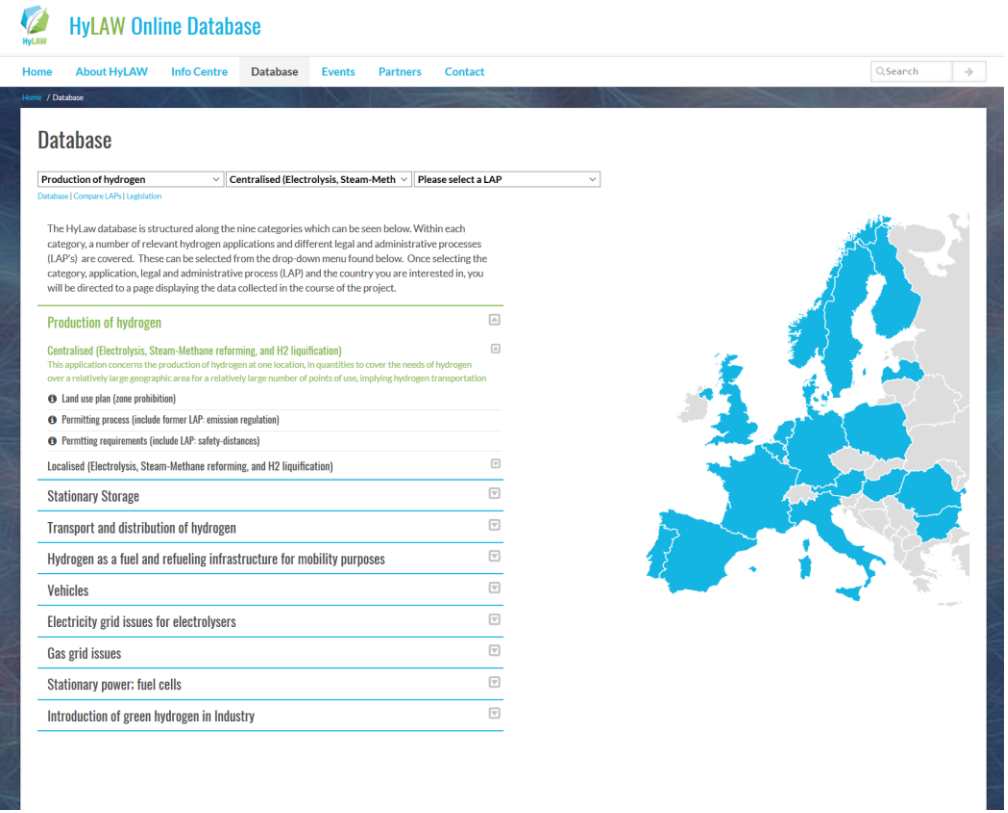
Geographical coverage

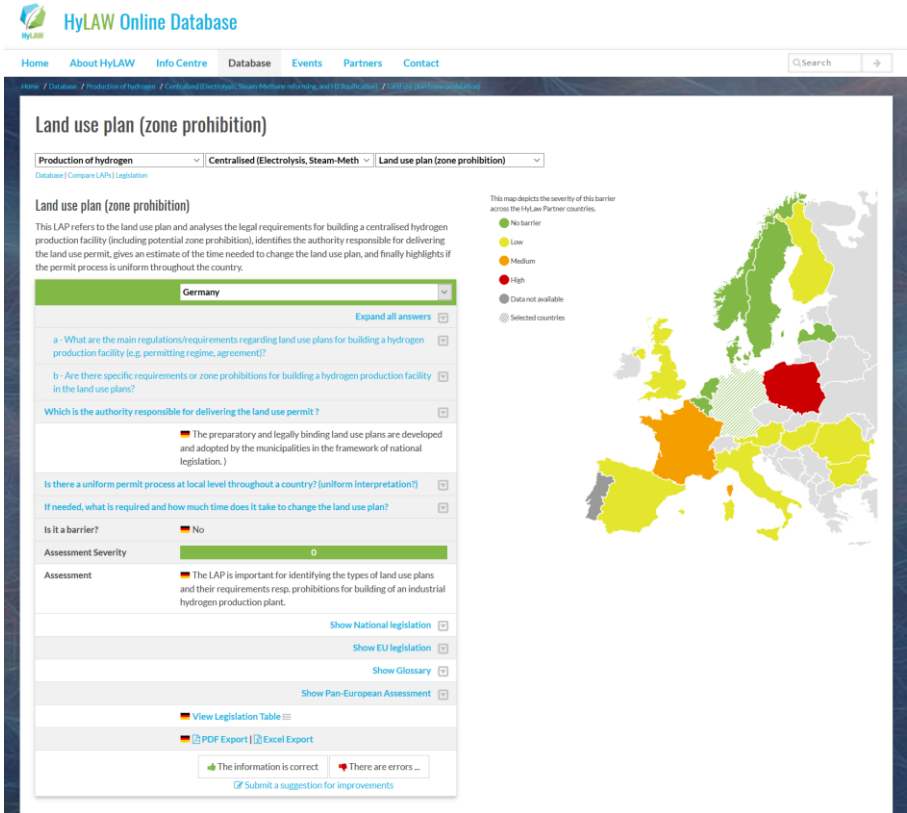
- HyLaw's covered 17 EU Countries + Norway.

- 23 Partners contributed to the work, providing details on the legal and administrative processes applicable in their countries

HyLaw – Online Database preview

- Website ready: www.HyLaw.eu
- Database is online on www.hylaw.eu/database and contains information and comparative assessments across various European Countries





HyLAW: EU level activities

- D4.1: Detailed **cross-country analysis:** For each process
  - Presentation of the problem
  - Assessment of root causes
  - Recommendations
- D 4.2: **List of legal barriers**, prioritized by degree of severity (Estimated November)
- D 4.4. **List of the most relevant EU legislation**

www.hylaw.eu/info-centre

HyLAW: Policy Papers

- **Policy papers:** Key messages and recommendations
  - National Policy Papers for each country (Estimated September – October)
  - Horizontal (for each application) policy papers (estimated November)
  - EU Policy paper (Estimated November)

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The HyLaw consortium has analysed the applicable legal and administrative processes in all the countries covered and has produced a set of analytical reports which seek to shed more light on the sources of regulatory barriers and the impact they have on the timely delivery of hydrogen technologies. We are happy to make them publicly available below:

National policy papers

Building on the content of the database, National policy present the state of play of the Hydrogen Regulatory environment in each country and detail country specific recommendations.

Austria	Germany	Poland
Belgium	Hungary (HU)	Portugal
Bulgaria	Italy	Romania
Denmark (EN) (DK)	Latvia	Spain (EN) (ES)
Finland	Netherlands	Sweden
France	Norway	United Kingdom

EU policy paper

Analytical reports and other deliverables

HyLaw Workshops: Disseminating results and recommendations

- All planned events: www.HyLaw.eu/events
- Contact organizer if interested in participating, you are welcome!

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EU Workshop

A HyLaw EU workshop is scheduled to take place in Brussels on the **6th of December 2018** – for details, contact Alexandru Floristean: a.floristean@hydrogeneurope.eu.

Country	City	Location	Date	Contact Person	Contact Email
EU	Brussels	Hydrogen Europe, Avenue de la Toison d' Or 56- 60	06/12/2018	Alexandru Floristean	a.floristean@hydrogeneurope.eu

National Workshops

A key national workshop will be organised in each country to present the results of the HyLaw project . Please check below for a schedule of events.

Country	City	Location	Date	Contact Person	Contact Email
AT	Vienna	AEA Executive Committee	06/11/2018	Alfred Schuch	Alfred.Schuch@energyagency.at
BE	Brussels	Avenue de la Toison d' Or 56- 60	23/10/2018	Isabel Francois	isabel.francois@waterstofnet.eu
BG	Sofia	Sofia	06/11/2018	Daria Vladikova	d.vladikova@bas.bg
DK	Copenhagen	Danish Energy Association	25/09/2018	Chris Holst Preuss	TLJ@brintbranchen.dk
FI	Espoo	Dedicated Hydrogen Seminar	07/11/2018	Mikko Kotisaari	mikko.kotisaari@vtt.fi
FR	Paris	To be announced	06/11/2018	Christelle Werquin	Christelle.werquin@afhypac.org
DE	Berlin	Dedicated Workshop	08/11/2018	Dennitsa Nozharova	dennitsa.nozharova@encon-europe.de
HU	Budapest	MTA TTK building, XI.district Budapest, Magyar Tudósok krt. 2.	27/09/2018	Mayer Zoltan	mayer.zoltan@hfc-hungary.org
IT	Milan	National Forum on FC&H technologies, 2018	25/10/2018	Viviana Cigolotti	viviana.cigolotti@enea.it
LV	Riga	The Environment and Energy trade fair	19-21/10/2018	Dainis Boss	dainis@h2lv.eu
NL	The Hague	Dedicated HyLaw Workshop	09/11/2018	Remco Perotti	remco.perotti@nen.nl
NO	Oslo	Citybox, Prinsens gate 6	11/10/2018	Heidi Bull-Berg	Heidi.bull-berg@sintef.no
PL	Warshaw	HyLaw National Workshop	21/11/2018	Marcin Blesznowski	marcin.blesznowski@ien.com.pl
RO	Băile Govora, Vâlcea	Energy Storage Symposium	24-26/10/2018	Ioan Iordache	office@h2romania.ro
ES	Madrid	CDTI (Centro para el Desarrollo Tecnológico Industrial)	18/09/2018	Miguel Zarzuela	mzarzuela@hidrogenoaragon.org
SE	Stockholm	Tändstickspalatset, Västra Trädgårdsgatan 15, Stockholm	20/11/2018	Bjorn Aronsson	bjorn.aronsson@vatgas.se
UK	London	London City Hall	08/11/2018	Emma Fenton	Emma.Fenton@london.gov.uk

Production and Storage of Hydrogen
EU level Considerations (1)

- Production and Storage of Hydrogen – obligations set by **EU legislation**:
  - Risk Assessments (SEVESO Directive).
  - Health and Safety requirements and conformity assessment procedures, (ATEX Directive).
  - Integrated Environmental obligations, (IED)
  - Environmental Impact Assessment procedures, (SEA and EIA Directives).
  - Others
- Transposed into national law.
  - Large room for discretion in application (do they apply or not / under what conditions)
  - Differences in efficiency of procedures.

Production and Storage of Hydrogen
EU level Considerations (2)

- Horizontal (EU) problem:
  - Hydrogen production: same obligations irrespective of production method
  - SEA/EIA and IED obligations – (interpretation of industrial scale) – possible effect on small scale production (is it relevant?)

Directives designed to regulate large scale, chemical, emission emitting industrial processes but end up applying also to small scale, non-emitting processes.

- National level problem (each MS):
  - Permitting process is long, costly and its outcome is uncertain

Transport and Distribution of Hydrogen
EU level Considerations

Apart from some local restrictions, no major, EU wide issues

Relevant Legislation:

- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
  - Directive 2008/68/EC on the inland transport of dangerous goods.
- Directive 2010/35/EU of 16 June 2010 on transportable pressure equipment
- REACH Regulation (Regulation (EU) No 453/2010)

Standards for compressed hydrogen receptacles would need to be adapted to world with a higher demand for Hydrogen

Hydrogen as Fuel and HRS
EU level Considerations (1)

A guarantee of origin system for green and low carbon hydrogen at European level is essential

- CertifHy : EU-wide guarantee of origin (GoO) scheme for low-carbon and renewable (green) hydrogen.
  - Separate the renewable character of the hydrogen (proven by the GoO) from the movement of the actual molecules
    - Allowed under the RED II subject to conditions

Hydrogen as Fuel and HRS
EU level Considerations (2)

Infrastructure development encouraged at EU level
Common standards and definitions

- Alternative Fuels Directive (Directive 2014/94/EU)
  - Minimum requirements for the building-up of alternative fuels infrastructure (HRS are optional for MS)
    - Mandatory in AFID 2?
  - Technical specifications for hydrogen refuelling points
    - Reference to existing standards
      - ISO/TS 20100 - Gaseous Hydrogen Fuelling
      - ISO 14687-2 – Hydrogen Fuel
      - ISO/DIS 17268 - Gaseous hydrogen motor vehicle refuelling connection devices
- Fuels Quality Directive
  - Defines renewable transport fuels (Definition also in RED II)

Hydrogen as Fuel and HRS
EU level Considerations (3)

Consumption of hydrogen (as a fuel) encouraged at EU level

- Mandatory targets for the overall share of energy from renewable sources: Renewable Energy Directive (RED)
  - RED II: Gross final consumption 32% renewable by 2030
  - RED II: Transport sector 14% renewable by 2030
    - Renewable liquid and gaseous transport fuels of non-biological origin (RFNBO) **taken into account when used as intermediate product for the production of conventional fuels.**
    - Additionality: new (renewable) hydrogen production capacity needed for calculating the target under conditions

Hydrogen Vehicles
EU level Considerations

Type approval and registration of hydrogen road vehicles appears to be quite clear and well regulated

- Classes M (passenger cars and busses), N (trucks), O (trailers),
  - Type approval:
    - Directive 2007/46 (Framework Directive)
    - Regulation 79/2009 (Harmonized safety requirements for hydrogen-powered vehicles)
    - Regulation 692 / 2008 revised by Regulation 630/2012
    - Regulation (EU) No 406/2010 (technical specifications and test procedures);
  - Registration
    - Directive 1999/37/EC on the registration documents of vehicles, amended by Directive 2003/127/EC
  - Incentives for ownership of hydrogen:
    - Directive 2009/33 (Clean vehicles Directive)
  - Many others: See D4.4. (www.hylaw.eu/info-centre)

Hydrogen Vehicles
Horizontal (International) considerations

"Type approval" of Hydrogen fuel cell vessels is highly complicated due to the absence of rules

- Maritime (sea-going) vessels
  - International code for safety of ships using gases or other low-flash point fuels (**IGF Code)**
  - Type approval based on Alternative Design Assessment regulated by the convention of life at Sea (SOLAS II)
- Inland Vessels:
  - Directive 2016/1629/EU empowers CESNI (Comité Européen pour l'Élaboration de Standards dans le Domaine de Navigation Intérieure – CESNI) to develop standards in the field of inland navigation

Electricity Grid for Electrolizers and P2G facilities
EU level Considerations

There is no clear and unequivocal legal position for P2G facilities recognized across both e-grid and gas grid networks

- The **electricity grid** regulatory framework is generally supportive of hydrogen production from grid connected electrolyser systems*
- However, no provision for P2G systems under either e-grid or gas grid common rules. No MS has an established and coherent regulatory approach to P2G systems.
- P2G operate 'by exception' or under a delineated / time specified demonstration programme (unique set of arrangements and negotiations across multiple regulatory and safety agencies

Gas Grid Issues
EU level Considerations

There are fundamental barriers severely constrain or prevent H2 injection in EU Gas Grids

- Diverging H2 concentration levels in the gas grid
- Diverging H2 concentration levels at injection level (pre-mixing or not)
- Arrangements based on calorific value / Wobbe Index
- No remuneration / payment frameworks

The framework for permitting Power to Gas (P2G) plant and grid connection / injection requirements between the hydrogen supplier and the gas grid operators **should be included within relevant EU regulatory frameworks** to ensure comparable treatment across the EU.

Stationary Power
EU level Considerations

There is no common EU framework for installation of FC micro-CHP units, however, no significant operational barriers were identified

- Stationary fuel cells enjoy the same treatment as any other heating appliances working on gas in regards to gas network connection.
  - Regulation (EU) 2016/426

Large Scale (industrial) stationary power fuel cells not covered by HyLaw, however, would the EU ETS apply to Solid Oxide Fuel Cells producing over 20 MW of power?

Thank you for your attention

Questions?

HyLAW
Hydrogen law

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