

Twenty European Institutions working towards the introduction of Hydrogen as an energy carrier in Europe

HySOCIETY

“An innovative (accompanying) measure aiming to support the introduction of a safe and dependable hydrogen-based society in Europe”

www.hysociety.net

Project running time: Feb 2003 – Jan 2005

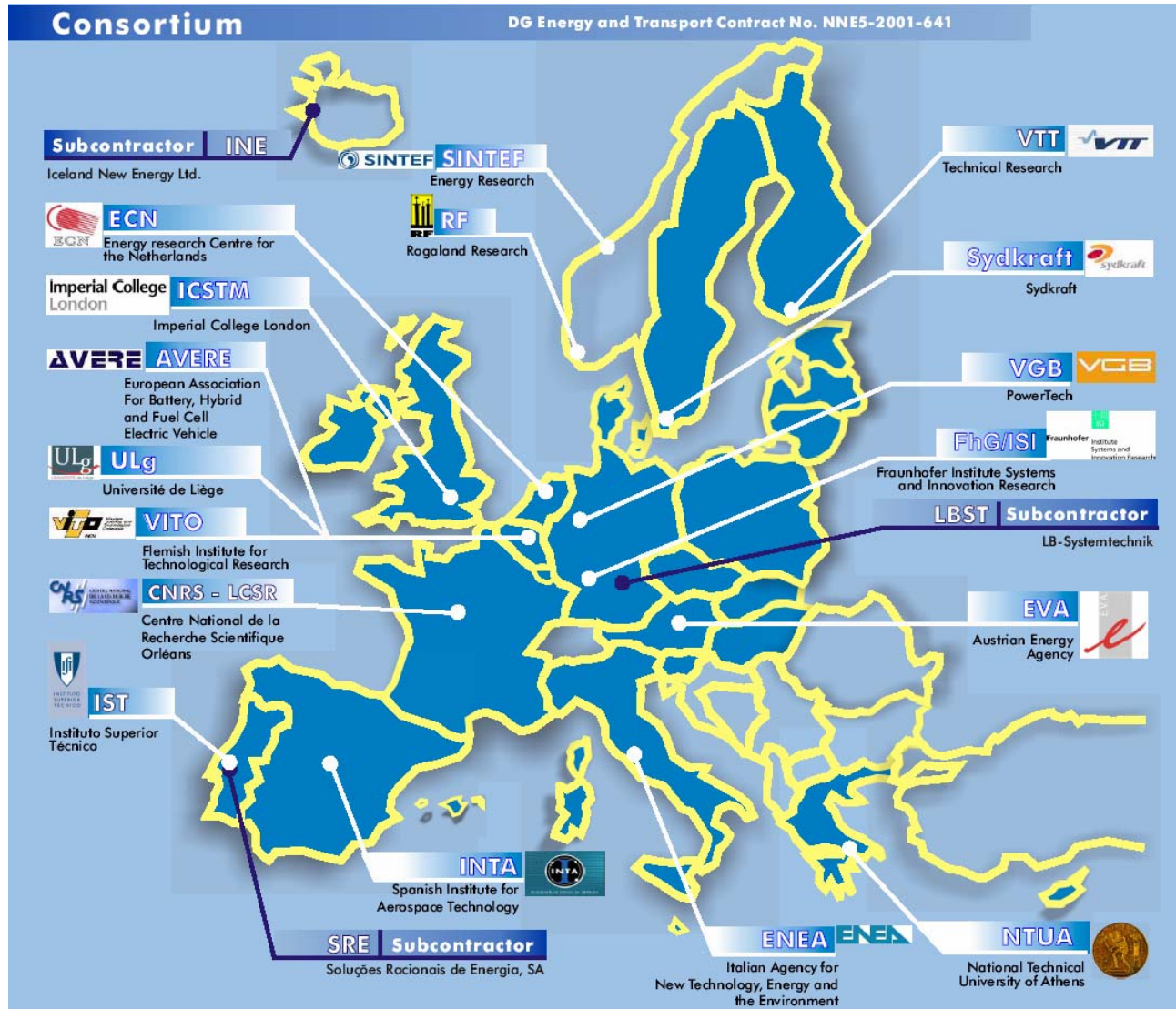


Directorate-General Energy and Transport

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HY SOCIETY

HySOCIETY – What it does/did?

- **Addresses the non-technical barriers to the deployment of hydrogen energy systems.**
- Deliver lines of **action on codes and standards**, **measures for addressing infrastructure build-up** and **dissemination of information to different sectors of society** such as the general public, decision makers and business leaders.
- **Review the social, economic and environmental impacts of hydrogen technologies** in an effort to...
- **Highlight the opportunities for establishing a clean, safe, efficient hydrogen energy system in Europe.**



WP3 - Dissemination Strategies

Deliverable D10

Measures for codes, standards and regulations for safe (and efficient) deployment of hydrogen in European Union

available for download at

www.hysociety.net

European Hydrogen and Fuel Cell Technology Platform, IG-RCS
Workshop on Regulations, Codes and Standards for H₂/FC Technologies



Description of Targets

- **Ensuring safety** in all stages **is** often seen as **the paramount prerequisite for** the development of **standards** and **regulations**.

Description of Targets

- However, as such they cannot provide safety, as
- **“you cannot ordain safety”**, because **safety is not the result of numerous, comprehensive, and exhaustive standards and regulations.**
- Rather **safety is the result of sound engineering, extensive testing, well-trained employees, uncomplicated procedures and good support with some reasonable rules which can be followed.**
- **“You can make products and systems as safe as you want, yet accidents and mishaps will occur.”**
- by **Ulrich Schmidtchen**, Safety of Hydrogen Standards and Regulations, Presented at EVA Symposium, 31. March 2004)

Mission Statement

- Timely introduction and **well-coordinated development of common, harmonised codes and standards** can simultaneously **increase safety and nurture emerging innovations** for the **successful and rapid penetration of hydrogen as an energy carrier**.
- **Prevent market segregation and delay “lock-in” effects**, i.e. standards dictate compliant technology and prevent innovations

Vocabulary & Definitions

- **Code:** *any system or collection of rules and regulations*
- **Standard:**
 - 1.) *an object, considered by an authority or by general consent as a basis of comparison;*
 - 2.) *anything as a rule or principle that is used as a basis of comparison (=norm)*
- **Regulation:** *a rule or order prescribed by authority, as to regulate conduct*

• Source: Webster's Encyclopedic Unabridged Dictionary of the English Language, New Revised Edition, Gramercy Books, New York, 1996.

Codes (of practice)

- When we are dealing with the increasing complexity of technology, **codes and standards are essential elements that facilitate safe and efficient exploitation of the new innovations.**
- Starting with the codes of practice that **usually explain the basic functions for safe handling** and problem-preventive maintenance, we can guarantee trouble-free operation.
- In theory, those codes can be different for each product or at least for each manufacturer, but usually they **share at least some basic elements that are built around the generic features and functionality** of the technology, and **build a common understanding among the people** how to deal with this type of product or system.

Codes (of practice)

- Good examples of this level of coding can be found around us everywhere, like in automotive technology, where **the order and functionality of the basic controls in a passenger car are not even written down in any code**, still the **common philosophy is shared throughout the industry**.

Codes (of practice)

- This evolution **may not produce the best and most ergonomic or intuitive solution**, but after sometime the overwhelming prevalence of “The Practise” may make all attempts to change the philosophy futile.
- Furthermore, it can even create potential hazards, as **people are so used to the “common code” that they cannot easily accept any new**, especially if they need to deal with the new set hastily, and maybe even in an emergency situation, without any possibility of familiarising themselves with it.

Standards

- Should the technology **interface with other systems** or **use common elements** shared by different platforms, we need more **precise descriptions of the codes that are guaranteeing the compatibility** of the related items.
- Those **need to be based on a written text, agreed in its scope and contents** by those that have developed it and are using it to design and manufacture products and systems in that given field of technology.
- Practical examples are proliferating everywhere

Regulations

- Regulations are treated as the **highest level of coding**
- They **contain descriptions of the physical and operational features** of the given technology or product, and **also performance standards and limit values** (tolerances) to be followed, and **implicit restrictions for the use of non-standard or non-compliant items or systems.**
- Furthermore, **regulations have legally compelling power.**

Regulations

- Usually standards are enough for business use, but **regulations are needed to ensure that human safety and/or environmental compatibility are not unduly compromised** by the given product or system.
- A practical example can be **exhaust emissions from motor vehicles** that **need to be measured and compared to the applicable limit values to gain compliance with the regulation and get permit for starting the series production and sales** of that given vehicle.

Regulations

- Creates a **transparent system for acceptance of the performance of a given product** without the necessity of deep expertise of all parties involved with the specific technology.
- Furthermore, it **gives the possibility for the political (or any other similar) system to act as a referee between consumers and industry**, ensuring that the societal needs are fulfilled and not compromised, and efficiently prevents actions that are in contrast with them.

HySOCIETY – List of Actions

- ***Action 11: Address urgent gaps in common CSR for infrastructure and permitting filling stations***
- Initiate actions at EU level to devise a uniform and harmonised procedure for the permitting process and for the establishment of a hydrogen refueling station.
- The lack of such guidelines or regulations at national and international levels will unduly delay every project undertaken in the short term, namely vital demonstration projects.

HySOCIETY – List of Actions

- ***Action 12: Favour a performance-oriented approach in the creation of new CSR's***
- Advocate a performance-oriented approach to establish codes, standards and regulations.
- This would mean that rather than prescribing the physical characteristics of the product, the standard or regulation should define how it must perform.
- The closer the standards describe the present technology or physical characteristics of it, the more the “lock-in” effect that is likely to be created which may in turn endanger innovative product development.

HySOCIETY – List of Actions

- ***Action 13: Promote international cooperation and disseminate ongoing efforts on codes and standards***
- Continue to encourage joint international work with the primary objective of recognising common areas in order to avoid the development of separate legal frameworks and the potential consequence of the segregation of markets.
- Address the regulation process for the development of codes and standards, including
 - support for the evaluation of the technical and operational characteristics of hydrogen technologies,
 - incorporation of hydrogen safety issues into existing and proposed standards
- Make provisions for the widespread dissemination of information on codes and standards development and establish a mechanism for the inspections. These procedures should be under constant revision in parallel with technology development.