European Commission

Standards supporting European policy and legislation

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Brussels, HIPS-NET Meeting

23.06.2015

Joint Research Centre

Outline

- Standards – what are they and who makes them
- Policy aspects of standardisation
- Role of European Commission/JRC

Standards

Recognised ISDO's": ISO, IEC, CEN, CENELEC, ITU , ETSI

a)‘international standard’

b)‘**European standard’ means a standard adopted by a European standardization organization**: CEN, CENELEC & ETSI

c)‘**harmonised standard’** means a European standard adopted on the basis of a **request made by the Commission** for the application of Union harmonisation legislation;

d)‘national standard’

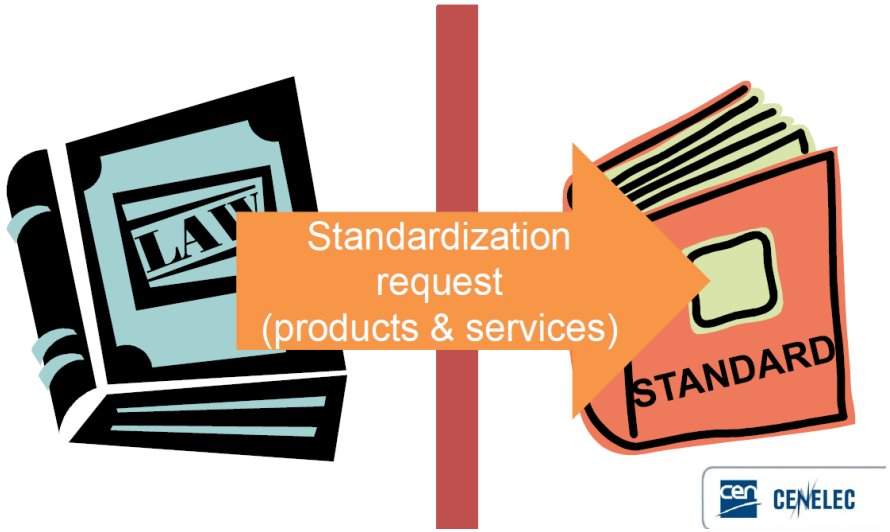
(definitions Regulation EU 1025/2012)

European Standards

Regulation (EU) 1025/2012:

Standards are voluntary, industry led, market driven and play an important role supporting regulations and policies

European Commission does not develop standards but can issue standardization requests, formally known as mandates. The mandate is issued to the European SDOs.



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Legislative and normative processes

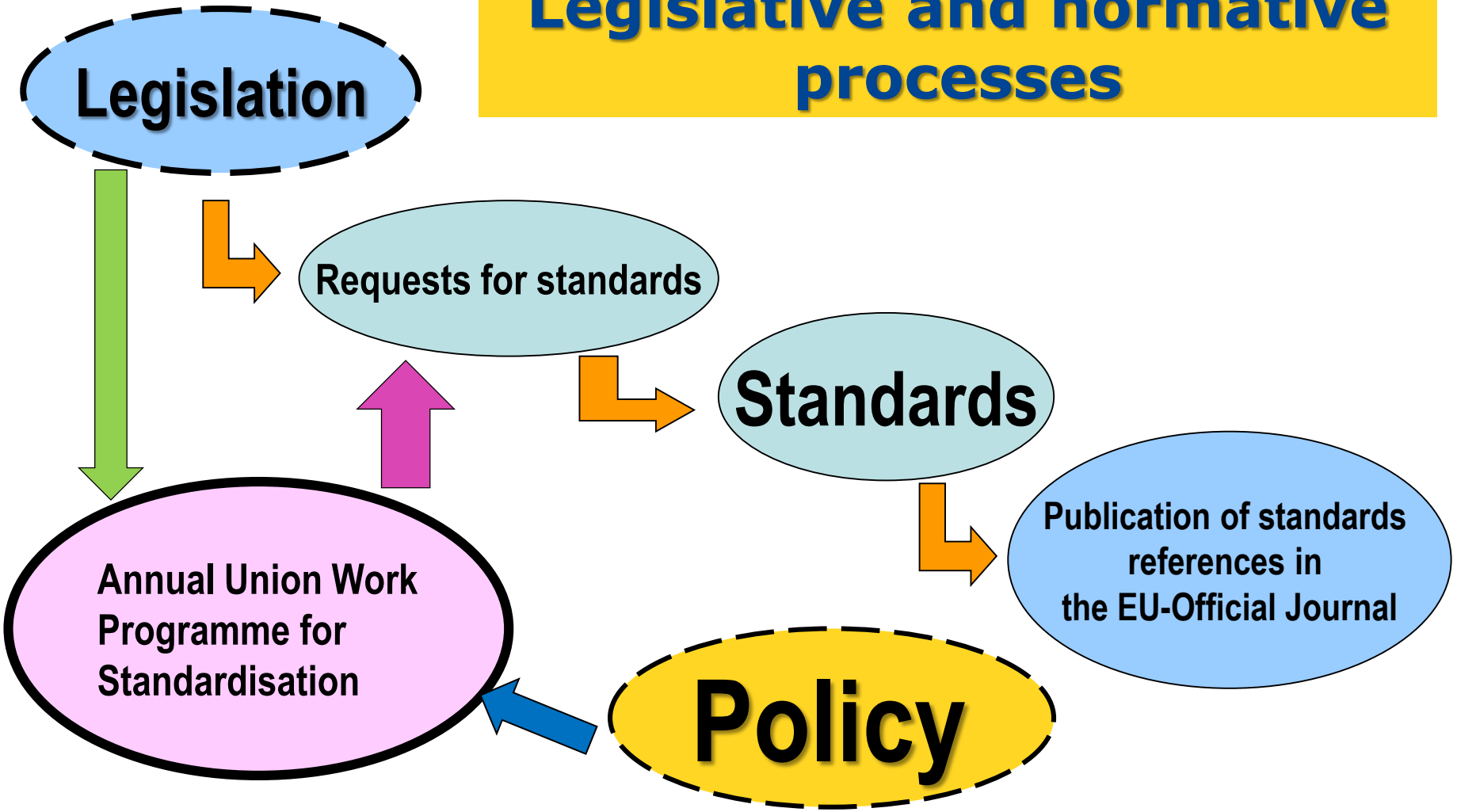

Figure: DG GROW

Annual Union work programme for standardisation

Identifying strategic priorities for European standardisation

WP 2017 (COM(2016)357)

Figure: DG GROW

AUWP 2017 – Action 5

Increase of renewable energies in the power mix contributes to energy security and reduction of greenhouse gas emissions. Injection of renewable electrolytic hydrogen into the NG grid allows to exploit the huge storage capacity of the NG grid and to link the gas and power grids, enhancing energy security, and to decarbonise the transport, heat and industrial sectors.

To enable this, new and/or updated European standards on interoperability between grids, on safe admixture of hydrogen to the NG grid, on gas quality and on compatibility with end-use appliances are needed.

- standardisation aspects of electrolysers for grid balancing
- standardisation aspects of hydrogen admixture to natural gas grid: safety, gas quality, …
- standardisation aspects related to gas fuelled appliances

Policy Context

- The Innovation Union, 2010
- The Standardization Regulation, EU 1025/2012
- Horizon 2020
- Single Market Communication 550/2015
- Joint Initiative on Standardization 357/2016

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Policy Context

Regulation 1291/2013 establishing "Horizon2020":

"Stronger support will be given to the market take-up of innovation, including by the public sector. This will include more proof-of concept, piloting and demonstration. It will involve a better use of the potential of research infrastructures, **as well as setting technical standards…"**

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Energy Union 5 pillars

1. **Energy security**, solidarity and trust
2. A fully **integrated** European **energy market**
3. **Energy efficiency** contributing to moderation of demand
4. **Decarbonising** the economy
5. **Research, Innovation and Competitiveness**

- **an upgraded Strategic Energy Technology Plan (SET Plan)**
- a Strategic Transport R&I agenda (STRIA)
- an initiative on EU global Technology and Innovation Leadership on energy and climate to boost growth and jobs (TILI)

SET-Plan

A comprehensive European energy R&I agenda for solutions to cost-effectively accelerate the energy transition

"Special emphasis should be put on power-to-gas and other technologies allowing the storage and transport of large amounts of electricity from variable renewables over long distances."

"Develop standards and interfaces to insert storage technologies in the energy system"

https://setis.ec.europa.eu/set-plan-process/integrated-roadmap-and-action-plan

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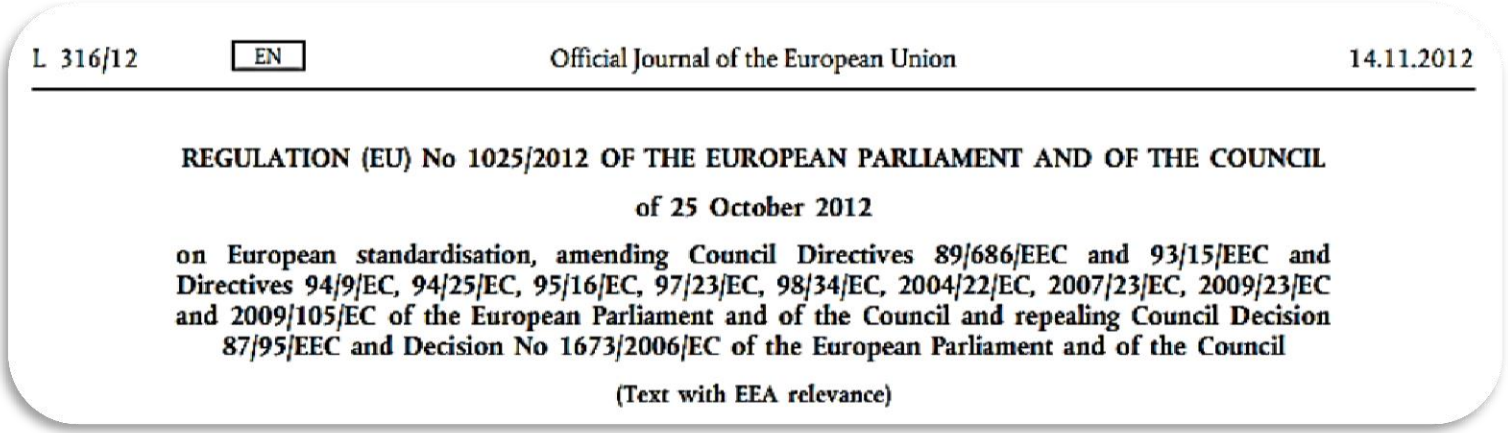
Role of the JRC



L 316/12 EN Official Journal of the European Union 14.11.2012

REGULATION (EU) No 1025/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 25 October 2012

on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council

(Text with EEA relevance)

Art. 9: … the Commission's research facilities shall '[…] provide European standardisation organisations with scientific input, in their areas of expertise, to ensure that European standards take into account economic competitiveness and societal needs such as environmental sustainability and safety and security concerns'.

Role of the JRC

- Support to standardisation, strengthened in Horizon 2020
- Pre-normative research
- **Science for Standards Initiative**
- **MoU with CEN/CENELEC/ETSI**

Standardisation is in 70 % of the JRC work programme!

- Enable the generation of comparable results for deriving the scientific evidence base for policy interventions
- Develop fit-for-purpose performance-based standards to enable smart(er) regulation *(20 % of EU legislation refers to standards)*

Putting Science into Standards

Anticipation:

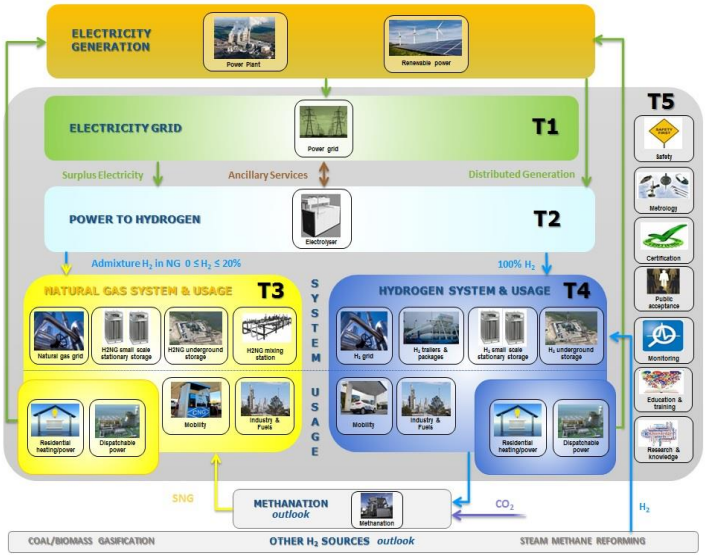
- How to speed up the standardization process?
- Facilitate the anticipation of industry needs by:
    - Focussing on the science underpinning industrial developments.
    - Involving all stakeholders including the ESOs, industry, research and policy.
    - Focussing on concrete themes where rapid progress is required, e.g. eco-innovation (the subject of last year's workshop), power to hydrogen and HCNG, batteries…..
    - Organising initiatives including workshops, short studies, and in-depth foresight analysis

SFEM/WG Hydrogen

JRC-EARTO-CEN/CENELEC workshop on Putting Science into Standards « Power to Gas and HCNG », Oct. 2014

CEN/CENELEC Sector Forum Energy Management (SFEM) WG on Hydrogen, jointly convened with the JRC (Feb.-Nov. 2015)

Establishment of a dedicated European standardization technical committee (CEN/CENELEC TC 6)



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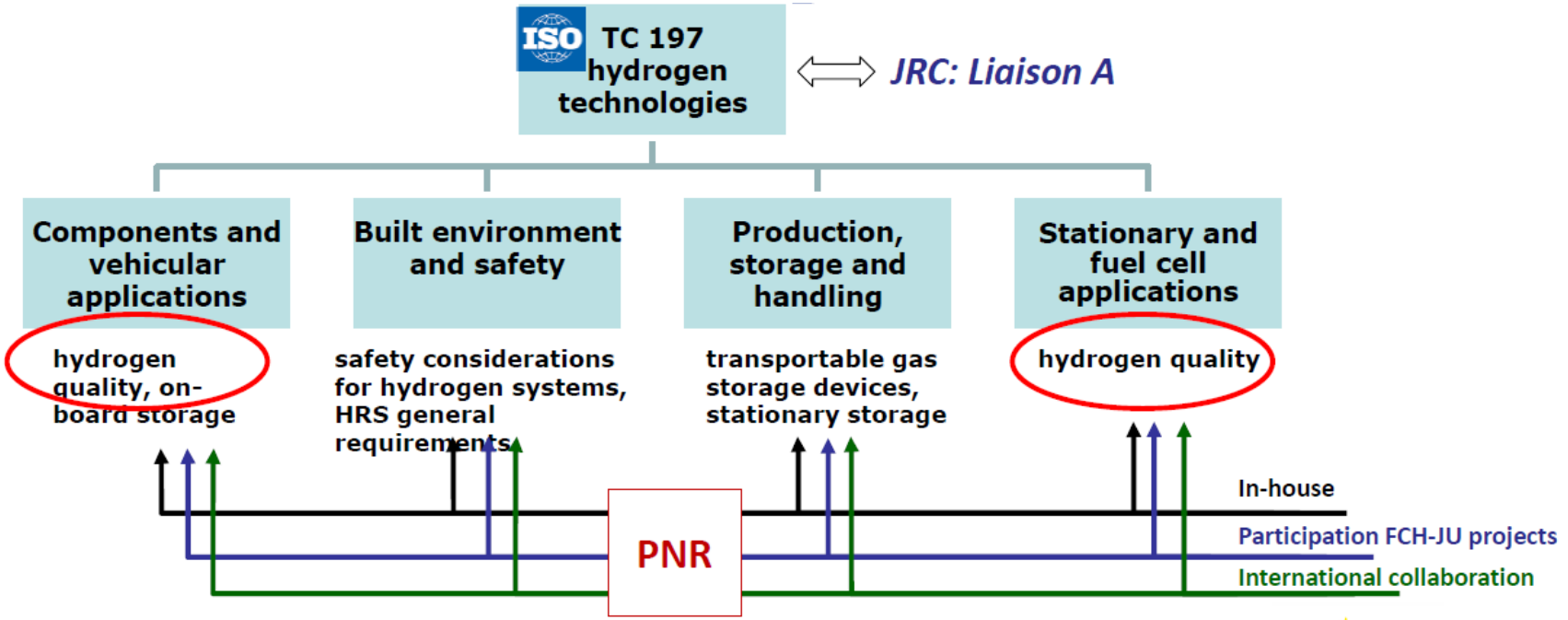
JRC support to EU and global standards



similar for IEC TC 105

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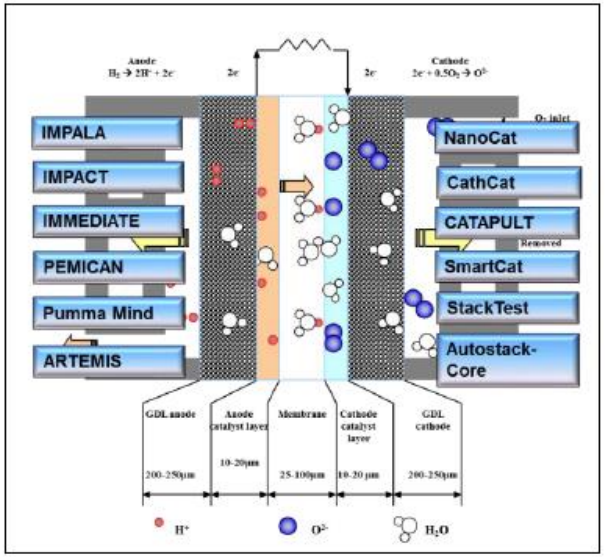
JRC support to EU and global standards



VOLKSWAGEN

DAIMLER

Fraunhofer ISE

ICG Montpellier cnrs

fumatech
Funktionelle Membranen und Anlagentechnologie

DLR Deutsches Zentrum für Luft- und Raumfahrt
German Aerospace Center

IRD

Johnson Matthey Fuel Cells

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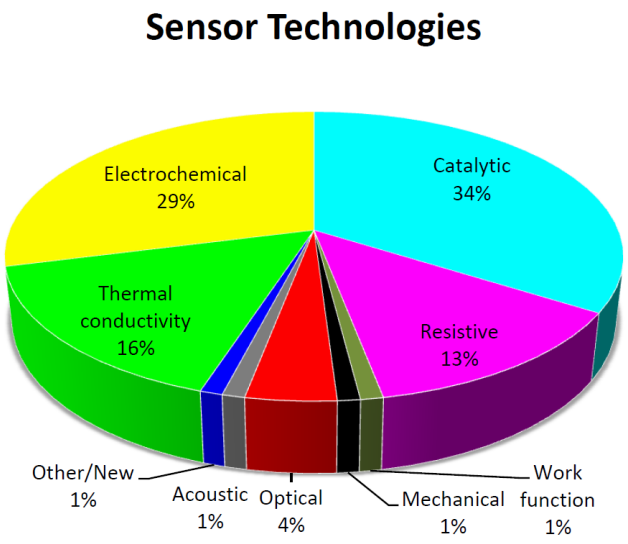
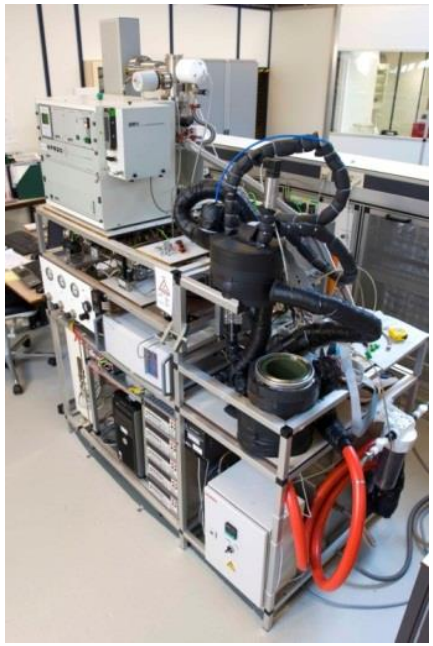
Pre-normative research - Sensors



H2Sense

Performance characterisation of hydrogen safety sensors

- Effect of environmental parameters
- Response time
- Lifetime and effect of deployment conditions
- Testing methodology
- Recommendations for standardisation



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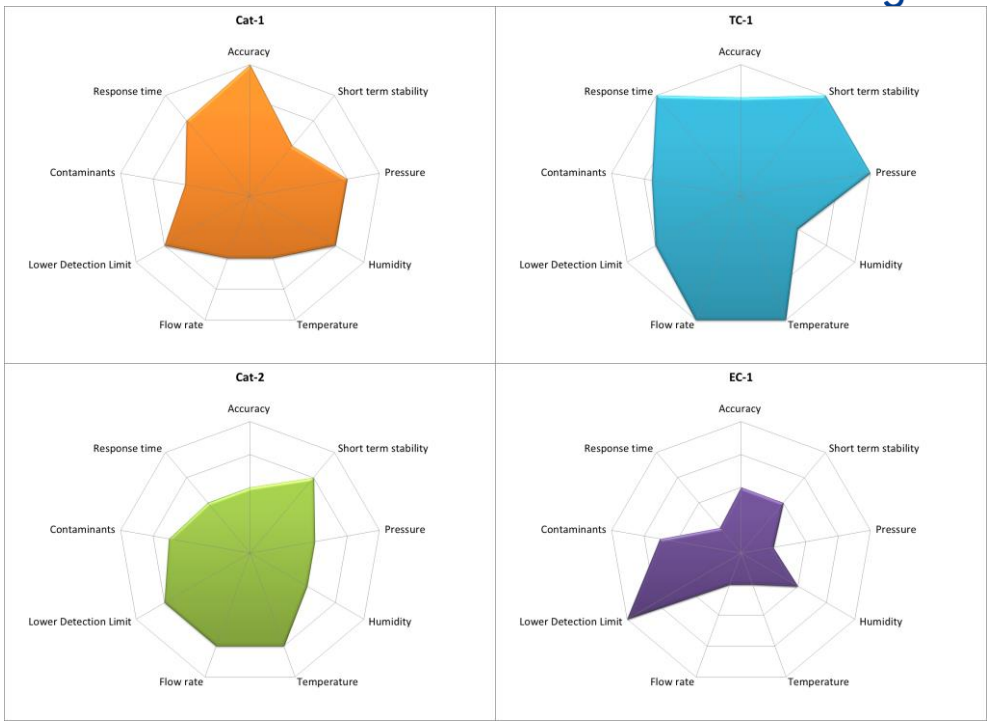
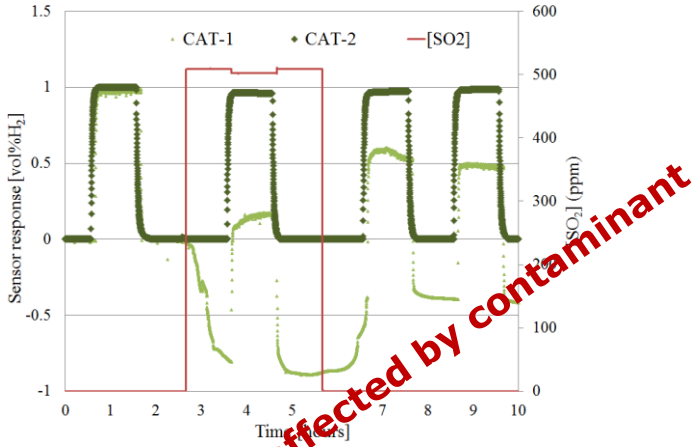
Guidance to end-users

Hyindoor





International cooperation

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Future aims

- **Sensors for H2 concentration in NG**
- Guidelines for the deployment of sensors

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Testing Hydrogen Safety Sensors

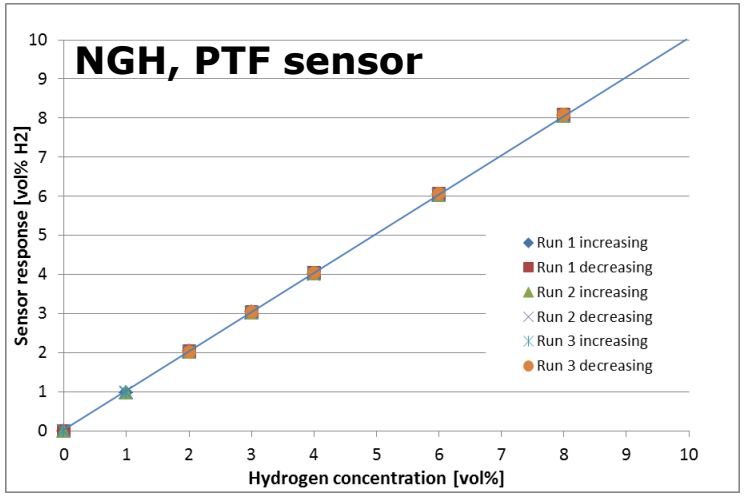
Safety sensors may be able to measure the concentration of hydrogen in natural gas

→ Measurement should be **fast, accurate and repeatable**

Broad range of composition of natural gas:

Testing with model mixtures of H- and L-type NG

H-type: higher calorific value
L-type: 10% inert gas (nitrogen)



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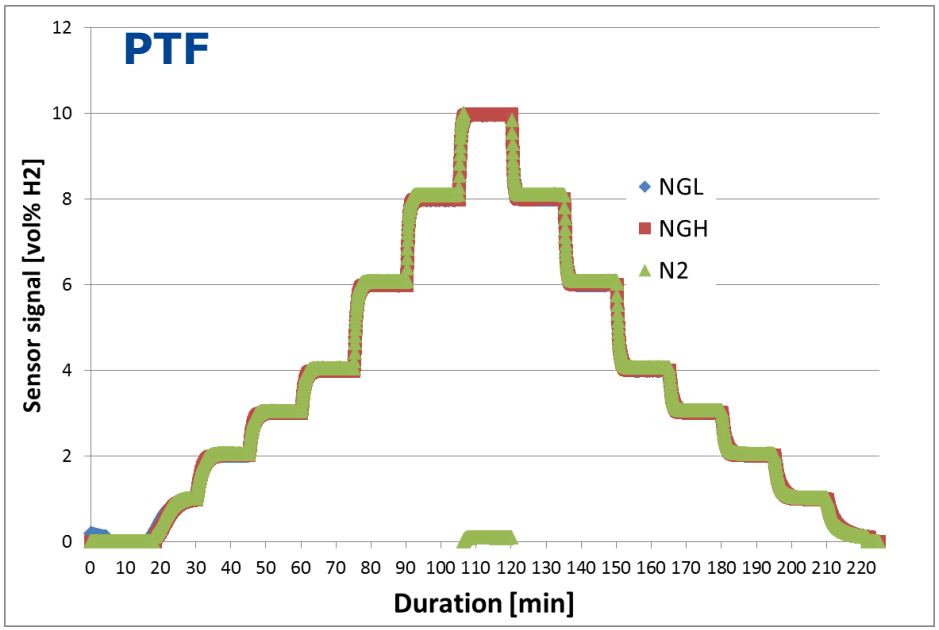

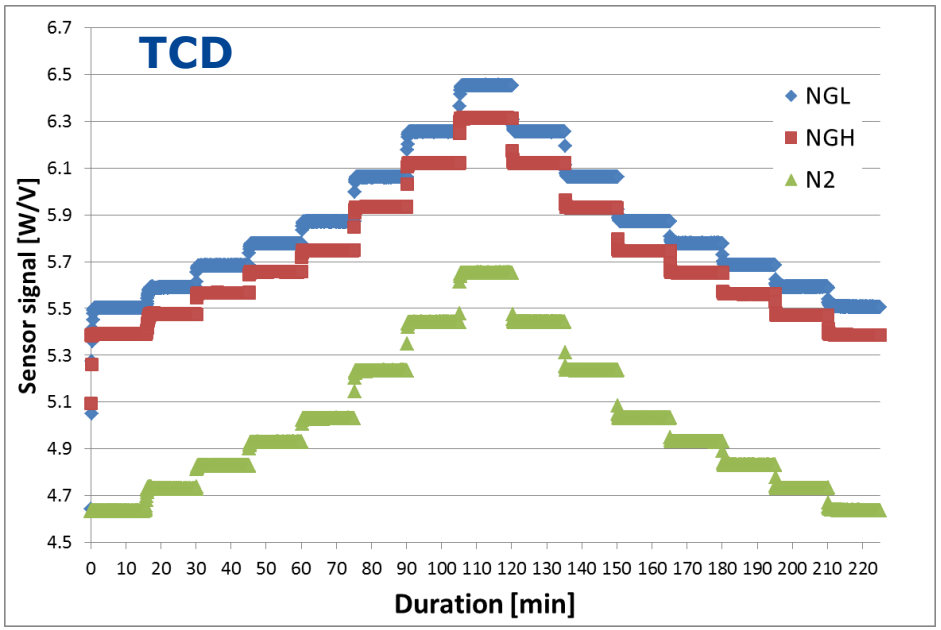

PTF sensor signal independent of gas matrix

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Image: Fotolia.com

Test results

	Accuracy	Repeatability	Response time	Influence of gas matrix	Cost
TC					
PTF					
EC					

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Questions?

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Image: Fotolia.com

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Standards

'Standard' means a **technical specification, adopted by a recognized standardization body**, for repeated or continuous application, **with which compliance is not compulsory**

Unless normative reference by legislation, regulation, directive,…

Figure: DG GROW

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European vs International standards

ISO

Vienna agreement

CEN

IEC

Dresden agreement

CENELEC

ITU

ETSI

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ENERGY UNION

A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy

COM(2015)80

The Energy Union in fifteen action points

14. The EU needs to develop a forward-looking, energy and climate-related R&I strategy to maintain European technological leadership and expand export opportunities.

- The Commission will propose a **European energy R&I approach**, comprising an upgraded **Strategic Energy Technology Plan** and a strategic transport R&I agenda, with a limited number of essential priorities and clear objectives, in 2015-2016.

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