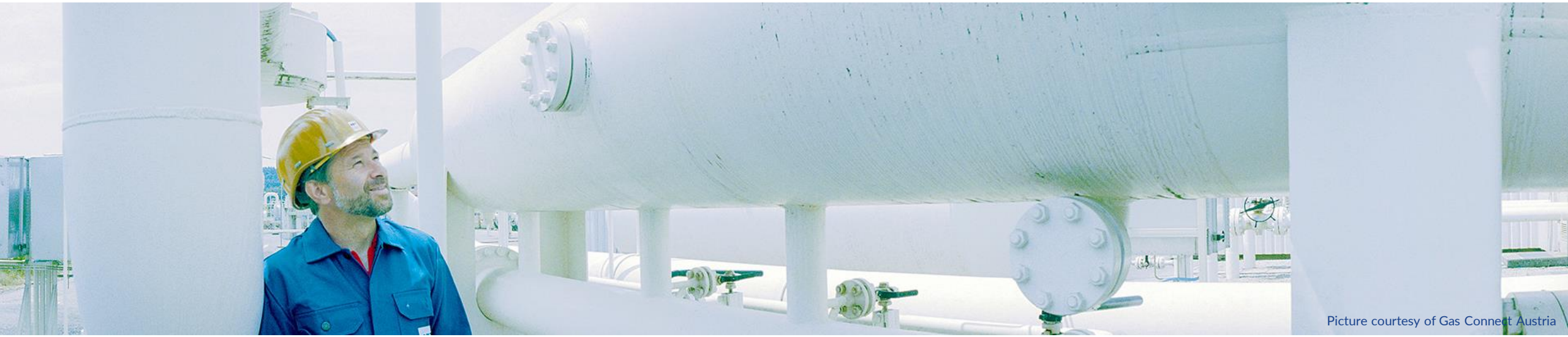

Picture courtesy of Gas Connect Austria

Prime movers' group on Gas Quality and H_2 handling

#11 meeting, 1st October 2021 (10:00 – 13:00 CET)

Online

Agenda

Agenda

Topic	Time
• Welcome and agreement on agenda	10:00 – 10:05
• Group progress during 2021 by R. Puentes, ENTSOG	10:05 – 10:15
• Intervention by **HSE**: "Building the safety case for H2 blends in existing NG appliances" • Presentation by **CEN/GERG**: "Introduction to PNR results – Priority 8: Domestic & commercial appliances" • Open discussion	10:15 – 11:00
• Open discussion introduced by **EHI**: "Way forward - Consultation forum on eco-design and energy label for space and water heaters"	11:00 – 11:45
• Presentation by **EUGINE & EUTURBINES**: "H2-readiness of turbines and engines power plants. A common definition"	11:45 – 12:15
• Presentation by **ENTSOG**: "Prime movers group on Guarantees of Origin"	12:15 – 12:45
• A.O.B. & next steps	12:45 – 13:00

Group progress during 2021

Highlights from 2021 PMG work

- **Discussions held had led us to a better understanding of…**
  - Potential mitigation measures for GQ & H2 handling
  - Sector concerns towards GQ variations and H2 blends
  - Expected H2 developments in each sector
  - Real possibilities for H2 and gas quality management
  - Potential ways to decarbonise the gas value chain
  - Open questions that need to be further discussed
  - Tools that need to be deployed
  - Associations' work and efforts towards decarbonization
  - How regulation can solve (or mitigate) upcoming challenges
- Great progress has also been done in understanding the implications and possibilities of implementing CEN WI proposal (material not publicly available)
- Public material is available at: prime-movers-group-gas-quality-and-hydrogen-handling
- Stakeholders have access to additional material (minutes of meetings, report on regulatory framework needs for implementing WI proposal, etc) via dedicated sharepoint site

Intervention by HSE: “Building the safety case for H2 blends in existing NG appliances”

Presentation by CEN/GERG: “Introduction to PNR results – Priority 8: Domestic & commercial appliances”

Priority 8

End use equipment

Consequences for End use equipment with H2 in NG

Partners

DGC (lead), DNVGL, DBI, Engie, KIWA

GERG
THE EUROPEAN GAS RESEARCH GROUP

OBJECTIVES

- To develop a **status review on the use of H2 and H2NG blends for End Use equipment** above 20% H2
- To clarify the need for amendments and the **need for new standardization. (PNR)**

ISSUES TO BE ADDRESSED

- **Safe operation**
- **Environmental** impact
- **Energy efficiency**
- **Overall performance**s of the end use equipment for the service it is designed for

SCOPE

- **Domestic and commercial**
- **Mobility**

SELECTION OF RESULTS THAT RELATES TO INSTALLATION SAFETY

Report based on 100's of references

CEN H_2 PNR

CEN Hydrogen -H2NG Initiative

GERG

DRAFT DOCUMENT FOR COMMENT

WP8 working document:

End use appliances.

August 2021

GERG

Author names & affiliation:
- Jean Schweitzer DGC
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- Patrick Enzmann, DBI
- Stéphane Carpentier, ENGIE

File: GERG PRN WP8 014 V14

176 pages including annexes

1 Introduction – Objective & scope of the work

2 Résumé and conclusion

3 Method and assumptions

4 Adding H2 to natural gas/Mixing H2 with NG – Theoretical considerations

5 Mixing H2 with NG. Review of the main projects executed so far.

6 Analyse by (horizontal) aspects

7 Analyse by technology groups

8 Prenormative R&D needs

9 100% H2:

10 Overall conclusions

Boilers and water heaters

MAIN CONCLUSIONS

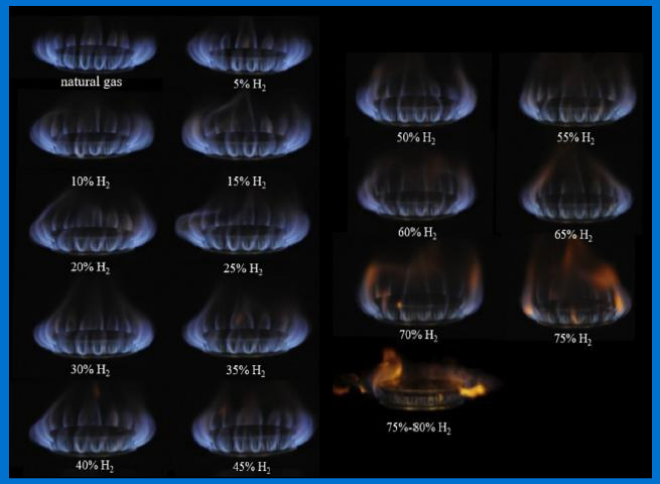
Based on knowledge available so far

- Fully premix appliances (like condensing boilers) have generally **no flame stability issues** (e.g. flash back) before H2 > 50% or more.
- The threshold is lower for atmospheric burners (FB is generally only an issue for H2 > 30% or more)
- No technical issue for **flame detection** with ionization is reported
- **Combustion controls** based on ionization are generally not maintaining the air excess constant with NG/H2 blends.
- **Burner temperature** for fully premix is not an issue (the temperature decreases with H2 until 40/50% H2)
- **Efficiency** is more or less constant
- **NOx** is decreasing (due to air excess increase with H2 injection)
- **CO** can vary and can be a severe issue in case of adjustment

Domestic cookers & catering equipment

MAIN CONCLUSIONS

Based on knowledge available so far



- **Flashback** is generally only happening for H2 > 30% but may occur over longer time of operation
- **Flame visibility** : flame remains visible on a wide range of % H2, although its intensity tends to decrease with % H2
- **Burner temperature** : close to flame port increase with %H2. But short term studies did not find components overheating or damaged (up to 30%)
- Increase of **water heating time** with H2
- **Efficiency**. Contradictory results from literature

Other appliances

MAIN CONCLUSIONS

Based on knowledge available so far

Very poor literature results on other applications:

- Some information from manufacturer suggest that some **PEM FC** commercialized can only cope with up to 6%vol H2 but that coming version will be able to cope with 20%H2.
- **SOFC** systems are supposed to be more compliant with blending (up to 40%H2) but information suggest that a dedicated adaptation of the settings of the FC to incoming gas quality is required which could be problematic on the field.
- We have no information on gas **heat pumps, space heaters, radiant heaters** etc. but THyGA should bring information soon.

A major issue (for premix burners) = Adjustments

WHAT DO WE MEAN BY ADJUSTMENT?

The installers are conforming to the instructions of the manufacturers at the commissioning or maintenance of appliances.
In general, for premix appliances there are target values for CO2 or O2 (air excess) so to have optimal performances (NOx, CO, Emissions)

Example of Manufacturer Manual with instructions to the installer

TABELLE 1: Ventilator-Drehzahlparameter und CO_2-Werte (%)

	PARAMETER - Drehzahl [U/min]							Vorderer Gehäusedeckel geschlossen		
	Prime 1.24	Prime 1.24	Prime 26	Prime 30	Prime 26	Prime 30	P min	CO2% Nenn und Toleranzen		CO max
	DP003*	GP007*	DP003*	DP003*	GP007*	GP007*	GP008*			
	28kW	*24kW*	*26kW*	*30kW*	*20kW*	*24kW*	*4,8kW*	*Pn Max*	*P min*	*ppm*
G20	8300	7300	7800	9150	6200	7300	2200	9,0% (8,8÷9,4)	8,5% (8,1÷8,6)	<250
G30	7700	6800	7500	8700	5800	6800	2200	10,4% (10,2÷10,8)	9,8% (9,2÷9,8)	<250
G31	7700	6800	7500	8700	5800	6800	2200	10,3% (10,2÷10,8)	9,7% (9,2÷9,8)	<250

* Parameter für Drehzahländerung

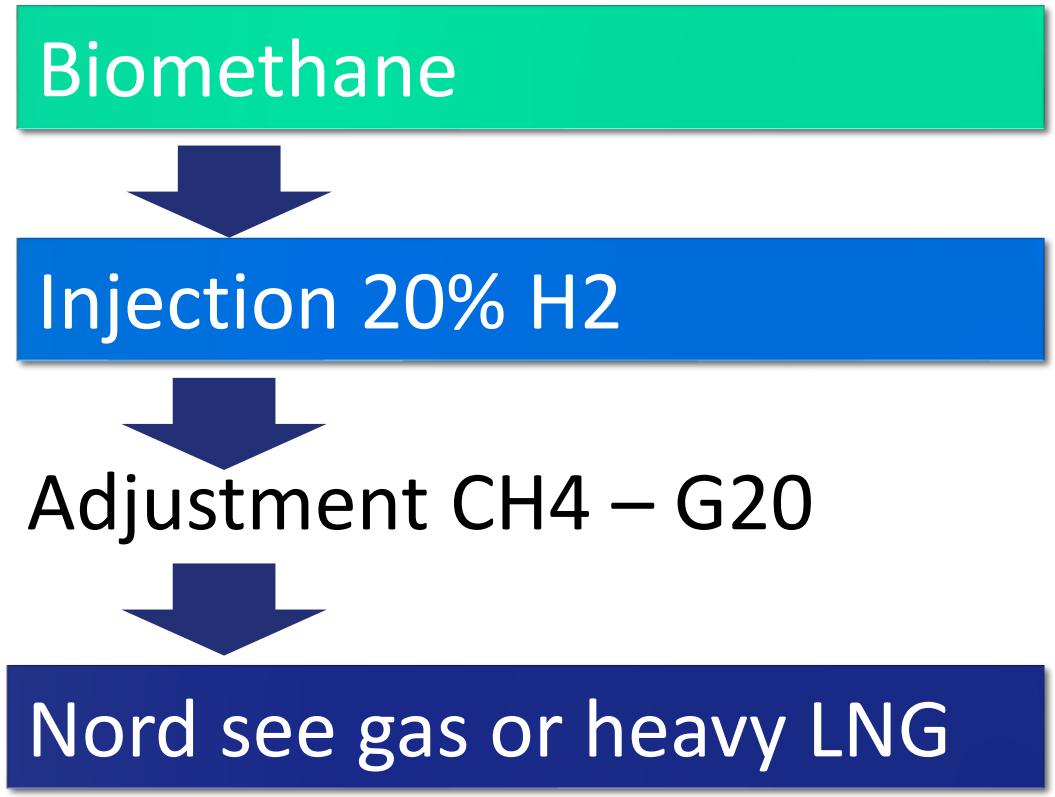
In this example the target value for CO2 shall be 9% with G20 (H gas)

The installer doesn't know the gas composition during commissioning. **The adjustment to the CO2/O2 target is therefore made with the gas in the grid during commissioning.**

A major issue = Adjustments

Possible worse case scenario

GAS QUALITY MAY CHANGE IN A SUDDEN AFTER ADJUSTMENT



Or a NG in the lowest range of Wobbe

Most critical situation =

Appliance set with gas with low Wobbe including H2 and **used later** with high Wobbe gas

(→ bringing combustion close to stoichiometry)

Biomethane

↓

Injection 20% H2

↓

Adjustment CH4 – G20

↓

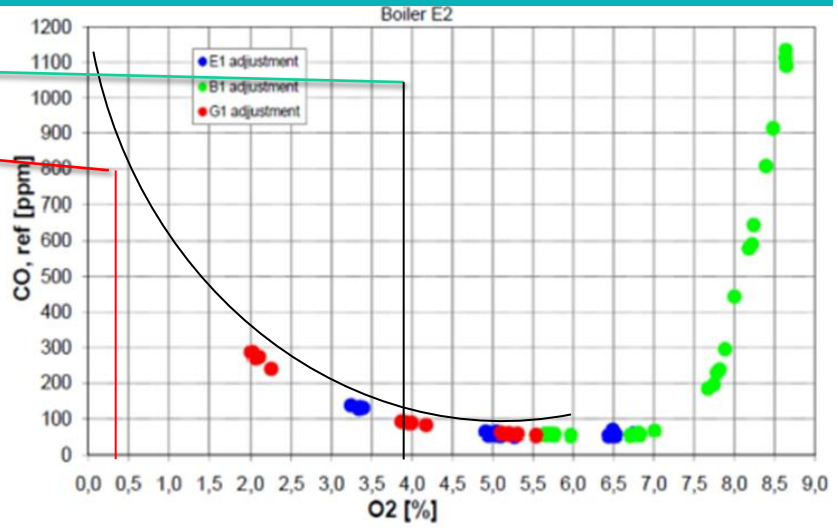
Nord see gas or heavy LNG

Appliance adjusted for CO2 = 9%

	Tair	Patm	Tamb	CO2	O2	CO	NOx	NO2
Low Wobbe + H2	20.5	1017.5	20.5	9.0	3.8	111.3	40.8	14.2
High Wobbe	20.5	1017.4	20.5	11.6	0.4	1024.9	135.2	22.6

Very high CO

Typical CO evolution with air excess (from GASQUAL)



Conscequence for the market:

- **Installers need to be able to assess the % of H2 in the grid during installation and maintenance.**

Or

- **Appliances shall be adjusted for a given gas quality range and adjustment shall be banned**

Pre-normative work to be planed in relation with adjustment of appliances

Adjustments with NG with 20% H2 / Guidelines how to adjust existing appliance locally

- Develop optimized adjustment procedure based on actual information available on gas quality (composition including H2), and range of variation possible (Relating to new Wobbe class system CEN / prime movers?)
- Instruments for letting the installers making a proper adjustment / Cheap H2 sensor
- Demonstrating that O2 (compared to CO2) adjustment is preferable also with H2NG ?
- Using a possible on-line information system from DSO/TSO ?

For new appliances: Development of auto-adaptive controls for H2NG

What scenarios to expect. Existing appliances & new appliances

	NO H2 CERTIFICATION		B: H2 CERTIFICATION (> 2021)		
Type of appliance	Existing technologies that **cannot** cope with 20% H2	Existing technologies that can cope with 20% H2	H2 ready 20%	H2 ready flex (from 20% to 100%) **(with a replacement kit)**	H2 ready 100%
What action is needed	Replacing those by "H2 ready" appliances	Develop a protocol to guarantee that 20% injection is safe.	Develop a standard for 20% H2 ready	Develop a standard for 20%-100% H2 ready	Develop a standard for 100% H2 ready

Product liability and responsibility in case the appliances are used with H2NG.

All appliances (Dom. & Com)

MAIN CONCLUSIONS

MAIN CONCLUSIONS for Existing appliances

From a technical perspective, a future injection of 20% of H2 in **existing natural gas grids** (H & L gas) seems today to be a reasonable hypothesis for the domestic and commercial appliances treated in the study.

There are still uncertainties but, the maybe the main issue today seems to be the **liability and responsibility** when exposing appliances to gases they are not certified for.

Another issue is the **adjustment of appliances** with gas containing hydrogen. Technical solutions are probably possible, but need to be developed maybe in relation with the new gas quality class system?

Sudden variations of H2 % seems not to be an issue, but this conclusion is only valid for boilers & cookers etc. and not for engine-based technologies or FC.

Technical "grey " areas (part of them would be clarified in THyGA) such as: New technologies, Long-term effects, etc.

Some of the limitations of the studies: Impact of H2 on used appliances (including maintenance practice) . We can not extrapolate (with 100% safety) tests results from few 100's appliances on a population > 200 Million.

MAIN CONCLUSIONS for New appliances

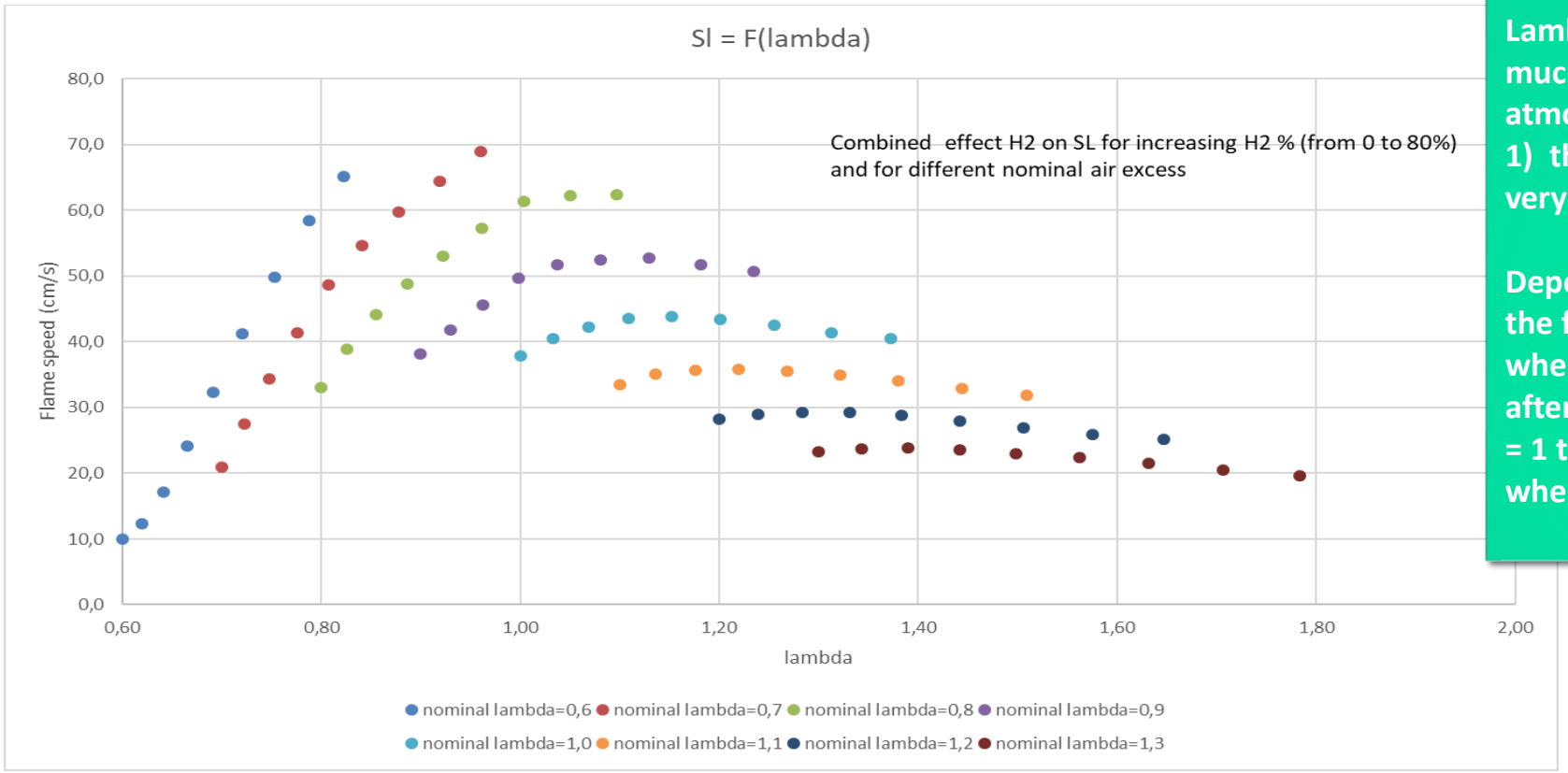
New appliances ("H2 ready") will be covered by a new certification that should guarantee the safety.

The certification of H2 ready appliances needs development of appropriate test methods.

Additional slides

H2 & FLAME SPEED

The flame speed is very much depending on the initial air excess (lambda) in the front flame

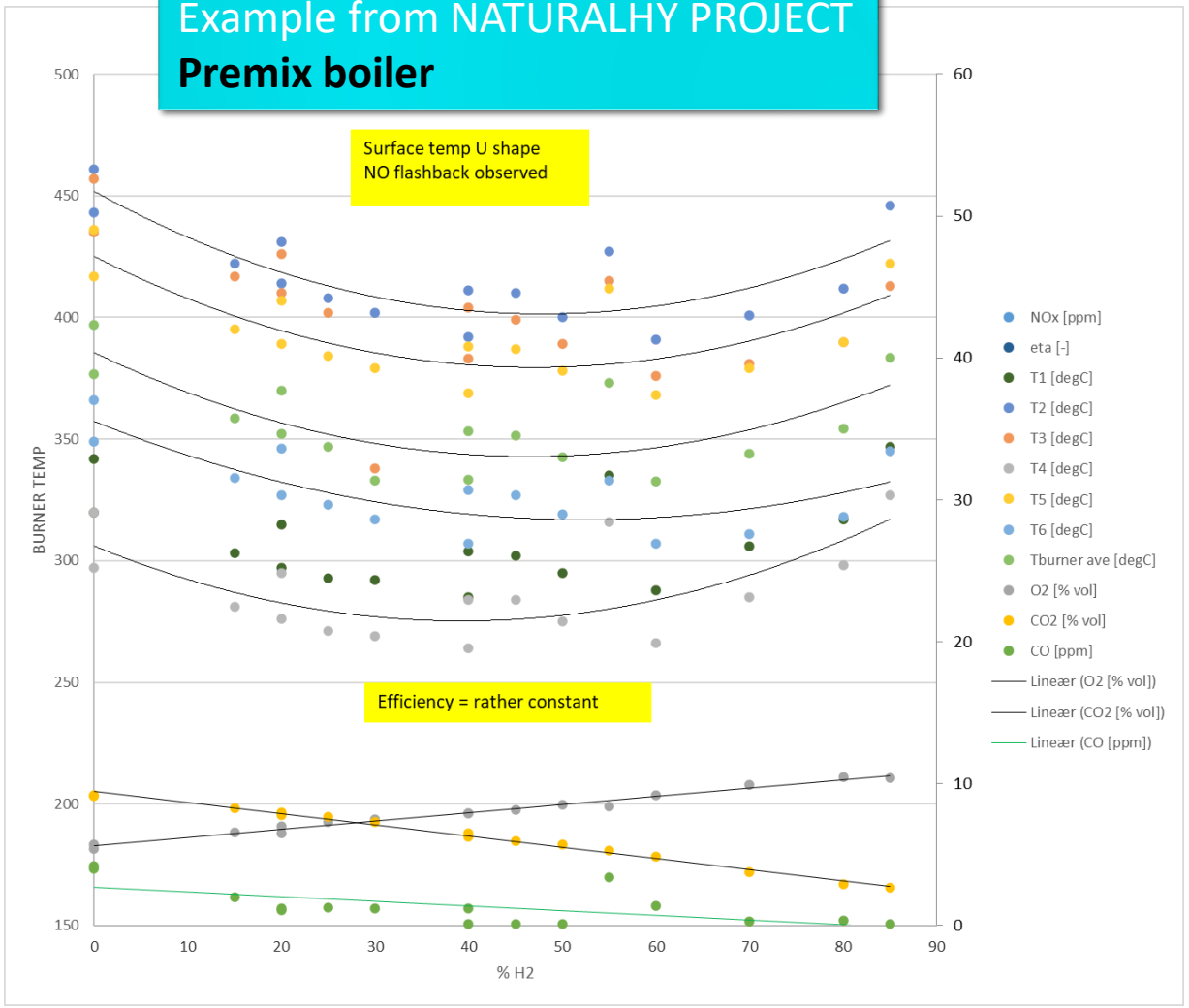


While premix appliances (eg. Lambda = 1,2) are not very much impacted by the H2, for atmospheric burners (Lambda < 1) the flame speed increases very fast with the H2 %

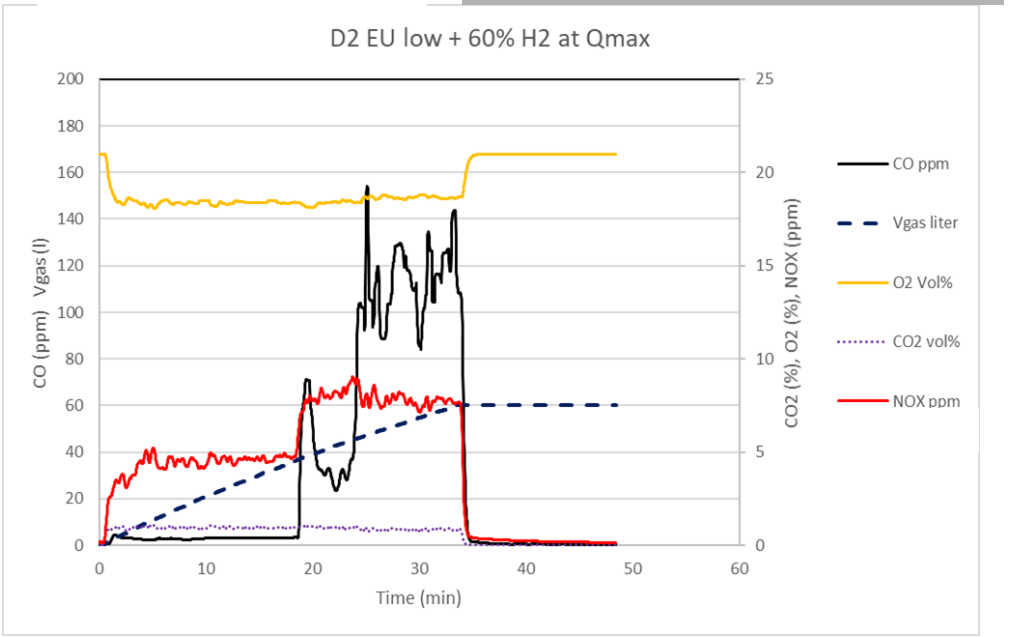
Depending on the burner type the flame speed may increase when injecting H2 AND decrease after a certain % (eg for lambda = 1 the flame speed is reducing when H2 > 40%

BURNER TEMPERATURE & FLASH BACK

Example from NATURALHY PROJECT
Premix boiler



Example from
THyGA PROJECT
Cooking hob



This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No. 874983. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe research.

t = 15 s

t = 5 min

t = 8 min

Test showing FB under following test conditions, Qmax, Pnom, CH4 = 40% H2 = 60%

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THyGA

Flashback evaluation can be tricky!

Open discussion

Open discussion

- What is needed to **involve national safety authorities** in the discussion?

- How to **facilitate the use of installed stock with H2 blends**? Which steps can be taken to ensure appliances safety with H2 blends?

Presentation by EHI: “Way forward - Consultation forum on eco-design and energy label for space and water heaters”

Prime Mover‘s Group

Hydrogen with no carbon emission

ehi
association of the
European Heating Industry

1. Hydrogen with no carbon emission

Questions to be discussed:

- Can we make sure that ecodesign requirements and energy labelling for space and water heaters support hydrogen-ready appliances?
- Do you see any similar problems in your own field regarding ecodesign and energy labelling?
- What impact would the current EC proposal to apply a primary energy factor (PEF) of 1,65 for hydrogen have on your activities?

1. Hydrogen with no carbon emission

➢ **Make the grid accessible for all hydrogen production technologies with low carbon emissions.**

- The draft revision proposals for labeling use a PEF of 1,65 for H2 production, which is not appropriate for H2 in the gas grid. A **conversion coefficient CC** shall be used, as in existing regulations
- The upstream process has to be evaluated on its carbon emission impact.

These are for example :

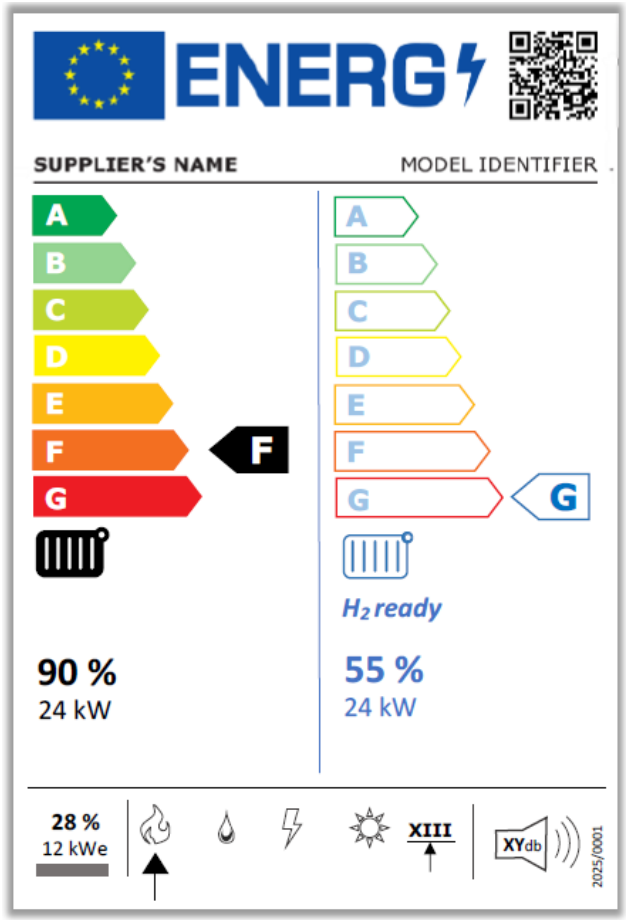
- Electrolysers (using renewable electrical energy)
- Fuel cells like AFC (Alkaline Fuel Cell), PEM (Proton Exchange Membrane Fuel Cell), SOFC (Solid Oxide Fuel Cells), AEM (Alkaline Anion Exchange Membrane fuel cell)
- Pyrolysis
- Hydrogen from biogas made from biomass,
- Hydrogen from biogas made from waste,
- ->fermentation and subsequent steam reforming

➢ Injection of grey hydrogen from natural gas in the grid should only be considered in a transitional phase to help reaching the final target faster.

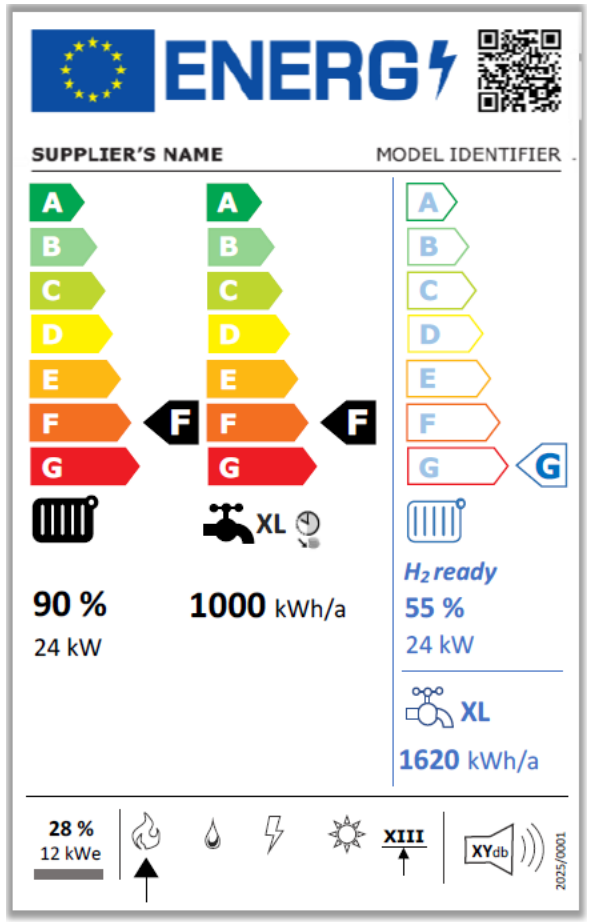
➢ The targets can also be reached faster if the use of hydrogen is getting rewarded.

Proposed Rescaling of the greening of Fuels

Rescaling, greening of fuels (gas-fired space heater, H2-ready)



Rating with natural gas Rating with hydrogen



Rating with natural gas Rating with hydrogen

- EU Commission services propose a **PEF** for hydrogen of 1,65 (natural gas CC = 1,0)
  - **PEF** is assuming 95% fossil - methane steam reforming and 5 % electrolysis
  - This means η_1 and η_4 are divided by 1,65
    - e.g. 96,4% => 58,4%

$$\eta_s = \eta_{son} - \sum F(i) \qquad \eta_{son} = (0{,}85x\ \eta_1 + 0{,}15x\ \eta_4)/CC$$

ehi association of the European Heating Industry

1. Hydrogen with no carbon emission

Conclusion:

- Even with corrected Conversion Coefficient **(CC)**, final energy from primary energy ratio**,** there is no real incentive to change to hydrogen solutions or to change at all!
- The proposal classifies hydrogen energy at the same level as direct electrical heating (see label).
- All actors along the value chain must collaborate immediately developing a strategy and a road map.
- The prime mover‘s group is instrumental to get this process accelerated.
- A single label „H2 ready“ will be more successful than dual scales.

ehi

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European Heating Industry

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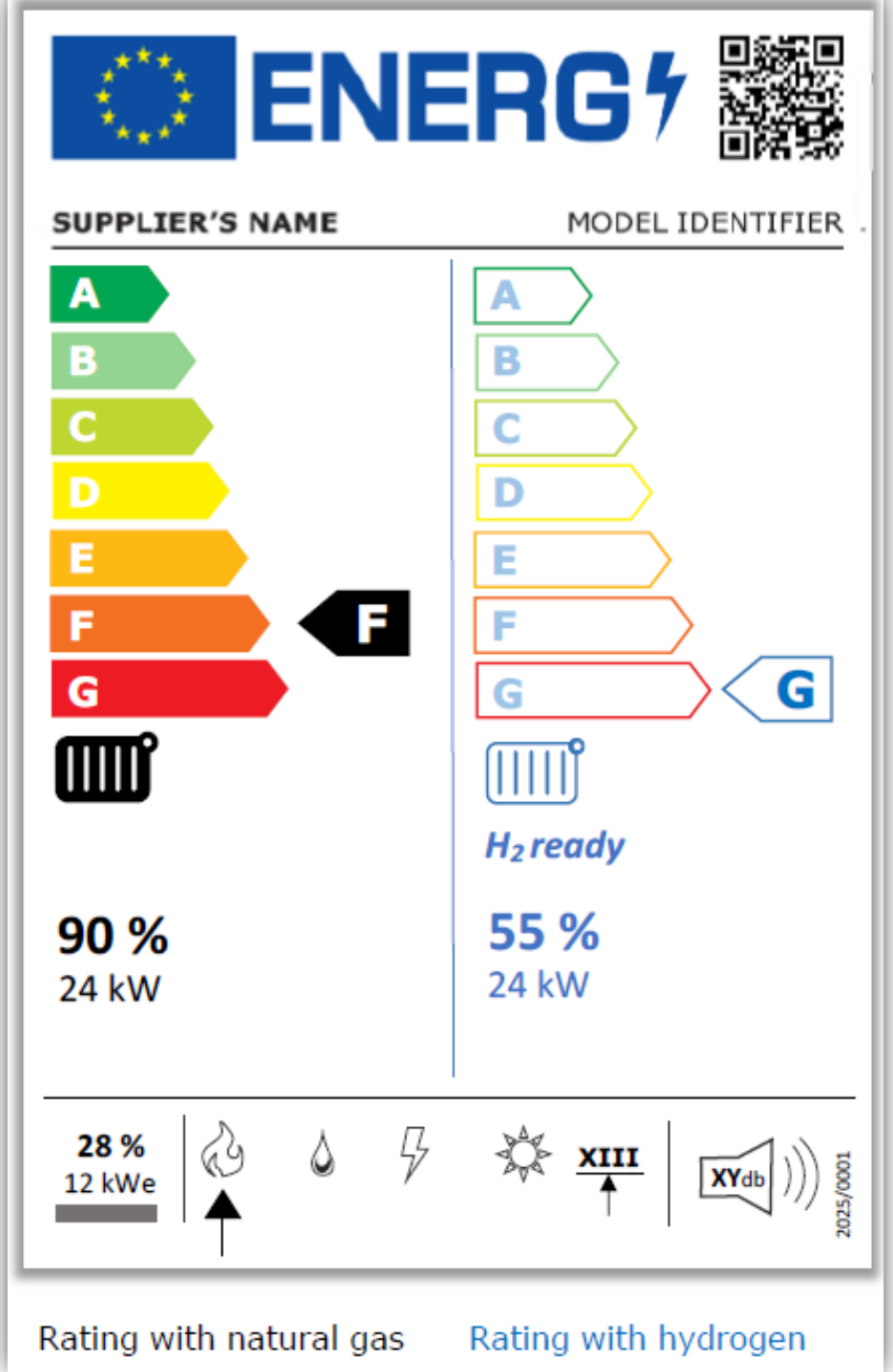
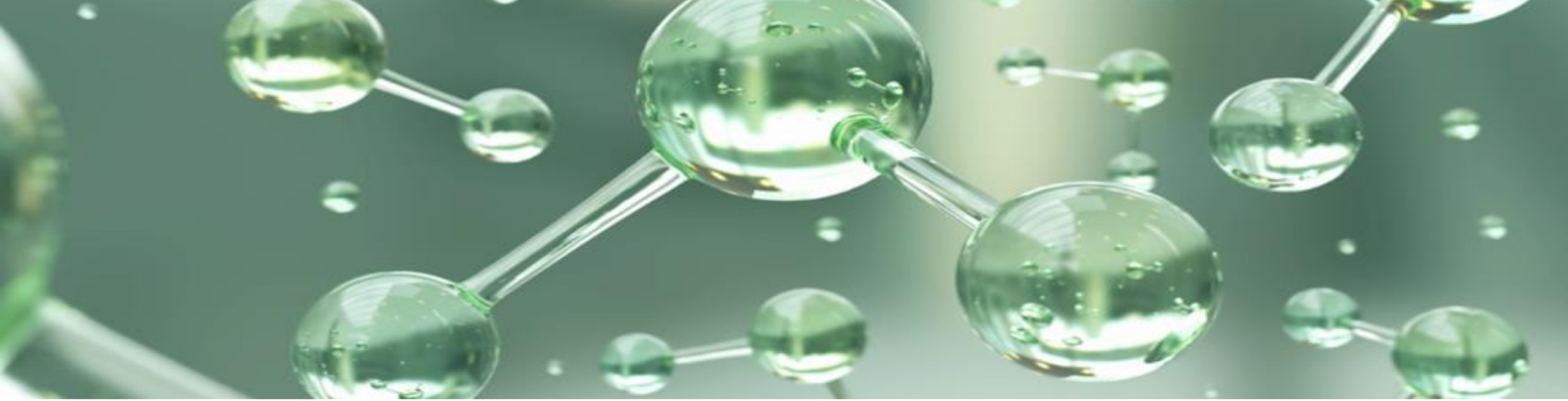
Open discussion



Open discussion

- Can we make sure that ecodesign and energy labelling for space and water heaters **support the hydrogen-ready appliances**?
- Do you see any **similar problems in your own field** regarding ecodesign and energy labelling?
- What **impact has the current EC proposal** on the primary energy factor for hydrogen on your activities?

Presentation by EUGINE & EUTURBINES: “H2-readiness of turbines and engines power plants. A common definition”



H_2 READY
Power Plant

Hydrogen-readiness of gas power plants

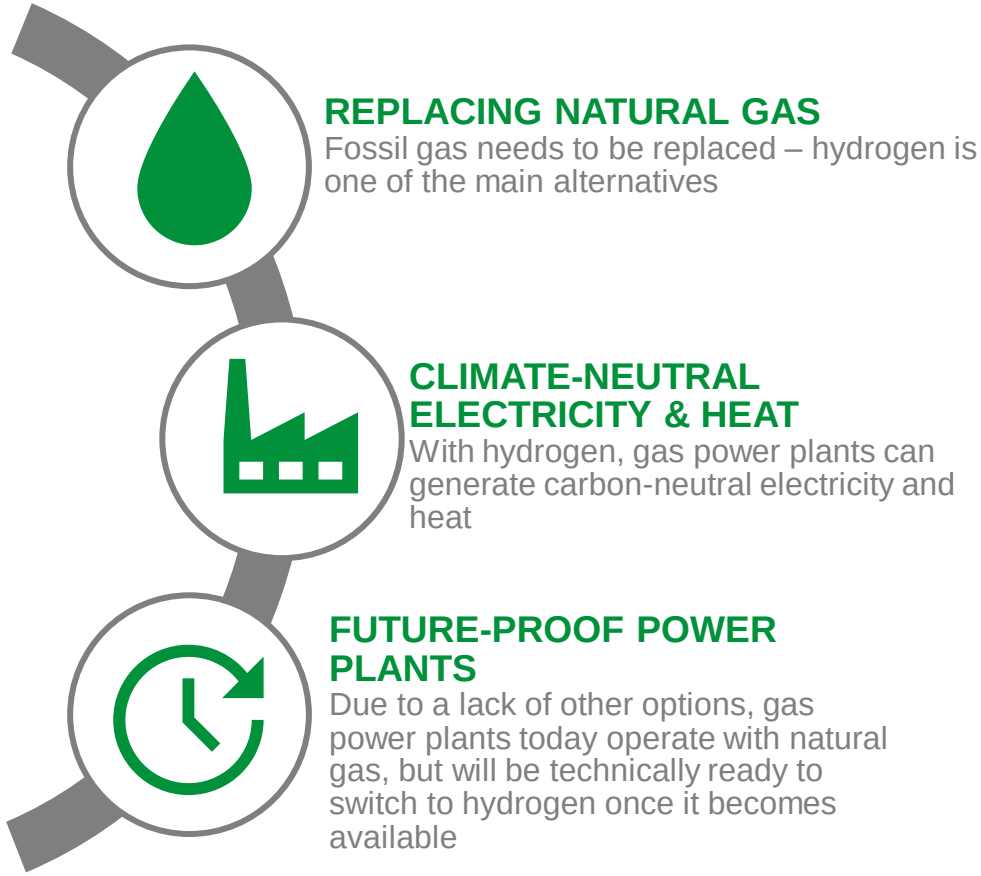
A Common Definition

European Engine Power Plants Association

EUTurbines

A Common Definition of H2-Readiness

Defining technology requirements for tomorrow's needs



REPLACING NATURAL GAS

Fossil gas needs to be replaced – hydrogen is one of the main alternatives

CLIMATE-NEUTRAL ELECTRICITY & HEAT

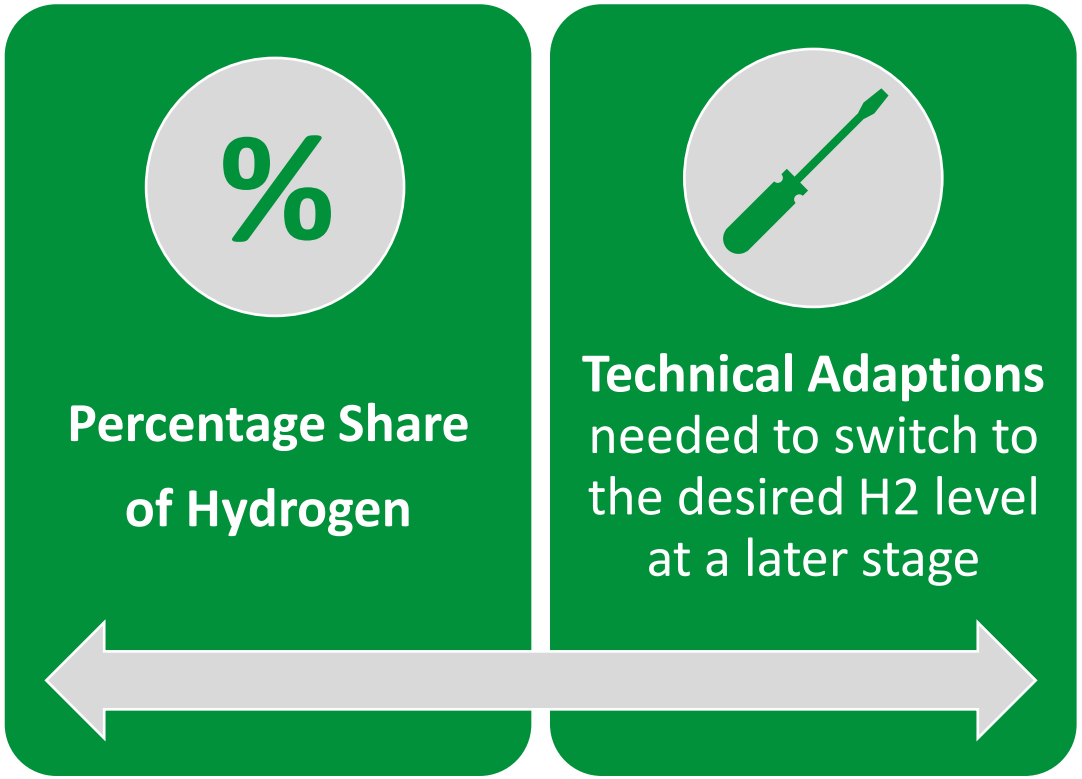
With hydrogen, gas power plants can generate carbon-neutral electricity and heat

FUTURE-PROOF POWER PLANTS

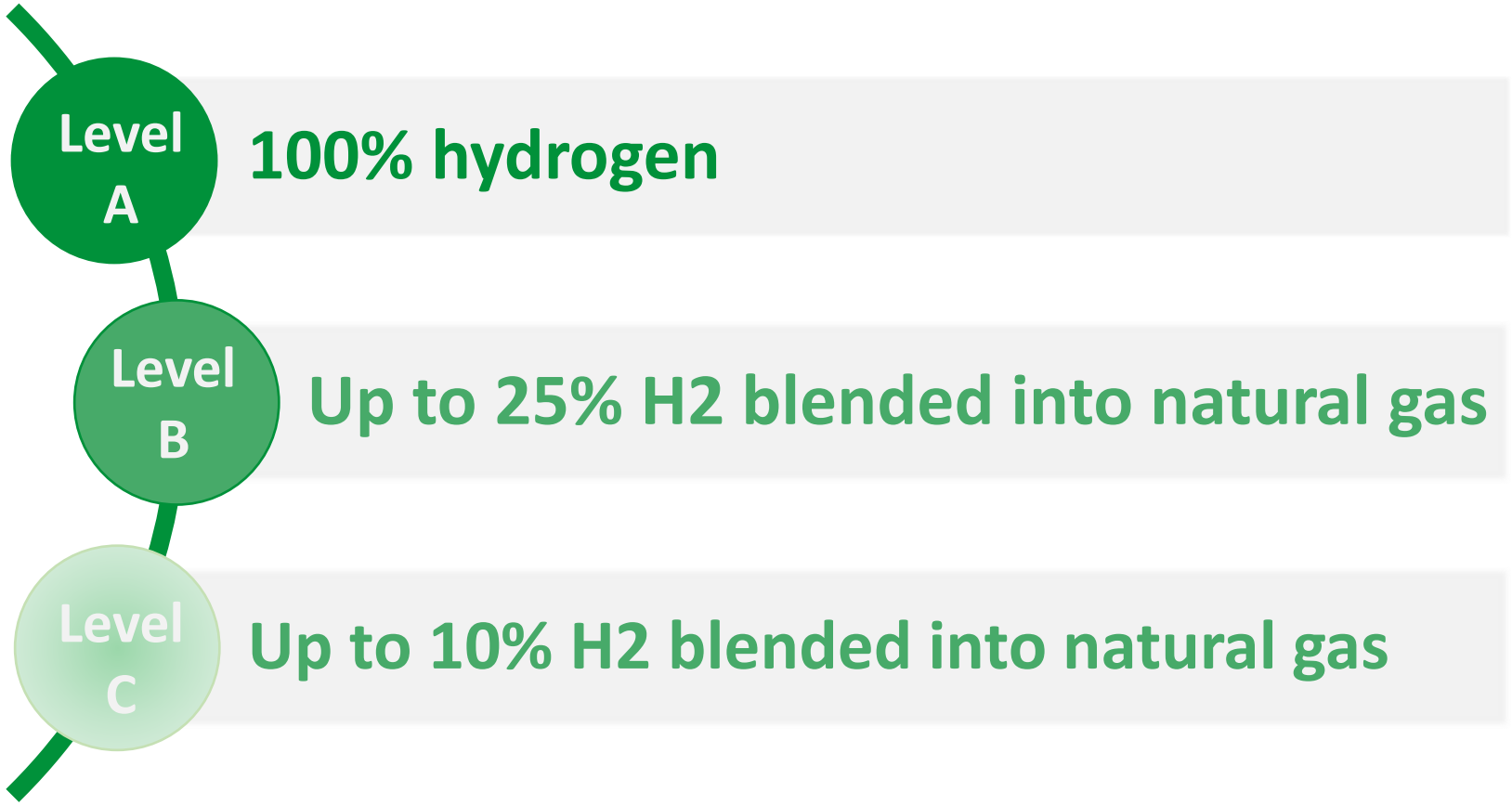
Due to a lack of other options, gas power plants today operate with natural gas, but will be technically ready to switch to hydrogen once it becomes available

Defining H2-Readiness

H2-Readiness of NEW gas power plants:



H2-Readiness Level Related to Shares of Hydrogen



Technical Adaptations

Category 1:
No substantial modifications

Technology suppliers estimate the costs of minor adaptions to be **up to 5%** of the overall costs of building a new power plant

Category 2:
Minor upgrading necessary

Technology suppliers estimate the costs for the minor upgrading efforts **up to 10%** of the overall cost of building a new power plant

Category 3:
Upgrading technically and economically possible

Technology suppliers estimate the costs for this upgrade **up to 20%** (turbine-based) **– up to 30%** (engine-based) of the overall cost of building this power plant

H2-Readiness definition for new gas power plants

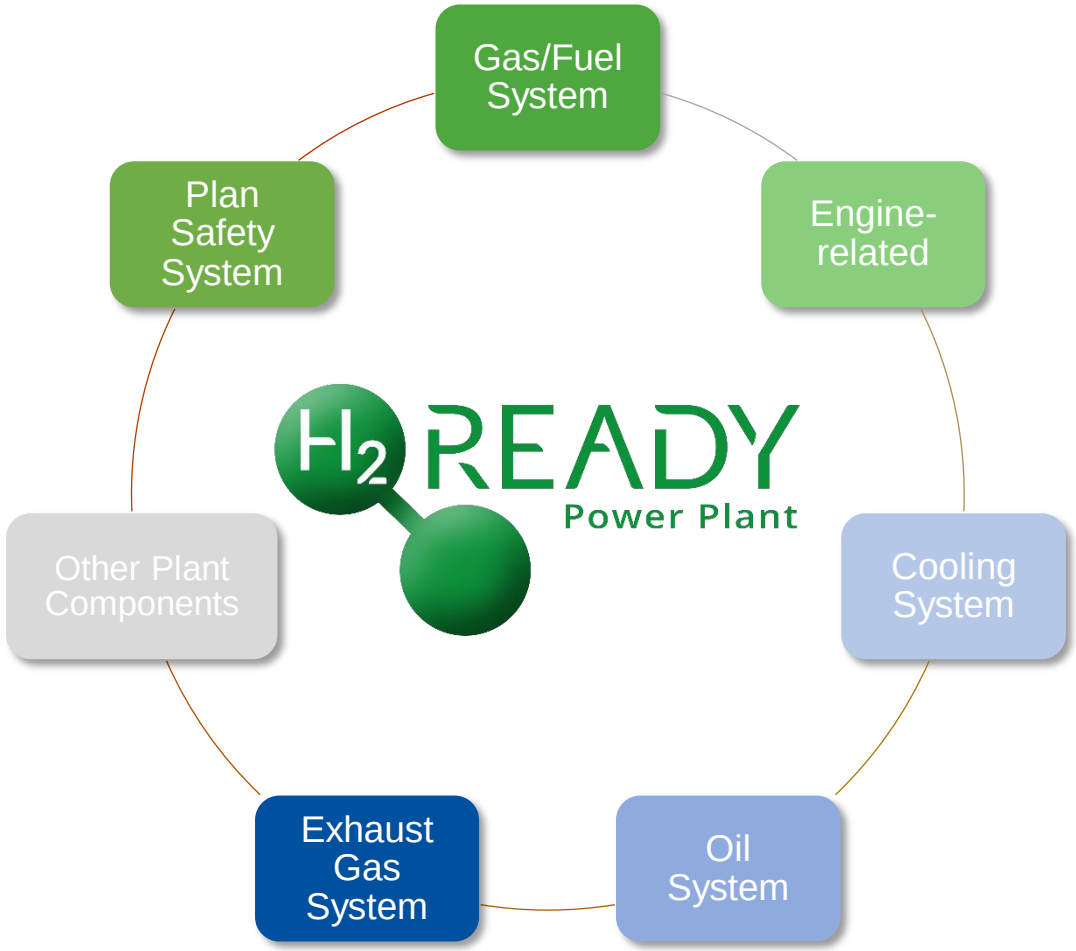
Level A	Level B	Level C
100% H2	**25% H2**	**10% H2**
A1: no substantial modifications	B1: no substantial modifications	C1: no substantial modifications
A2: minor upgrading	B2: minor upgrading	C2: minor upgrading
A3: upgrading possible	B3: upgrading possible	C3: upgrading possible

EUGINE H2-Ready Definition available to download here

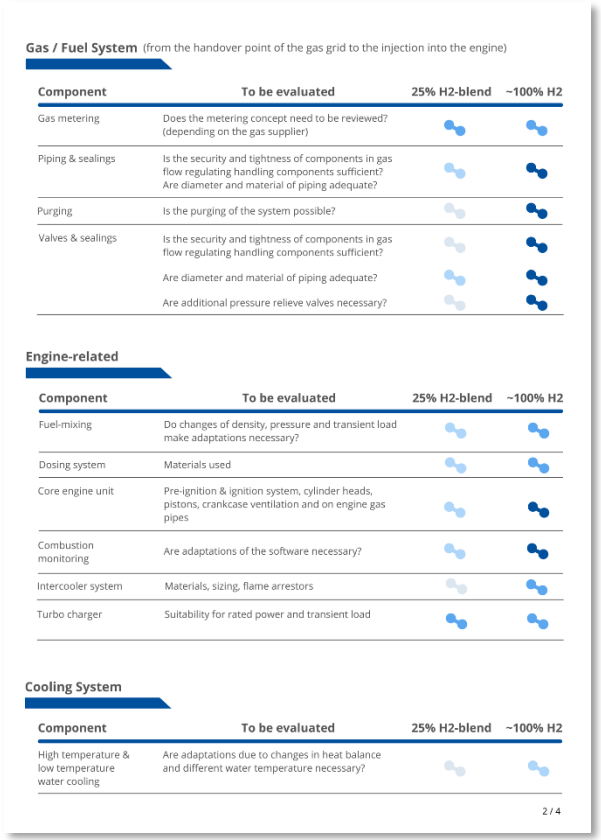
EUTurbines H2-Ready Definition available to download here

H2-Ready Checklist

H2-Readiness of EXISTING engine power plants:



EUGINE Checklist for Existing Plants



Gas / Fuel System (from the handover point of the gas grid to the injection into the engine)

Component	To be evaluated	25% H2-blend	~100% H2
Gas metering	Does the metering concept need to be reviewed? (depending on the gas supplier)		
Piping & sealings	Is the security and tightness of components in gas flow regulating handling components sufficient? Are diameter and material of piping adequate?		
Purging	Is the purging of the system possible?		
Valves & sealings	Is the security and tightness of components in gas flow regulating handling components sufficient?		
	Are diameter and material of piping adequate?		
	Are additional pressure relieve valves necessary?		

Engine-related

Component	To be evaluated	25% H2-blend	~100% H2
Fuel-mixing	Do changes of density, pressure and transient load make adaptations necessary?		
Dosing system	Materials used		
Core engine unit	Pre-ignition & ignition system, cylinder heads, pistons, crankcase ventilation and on engine gas pipes		
Combustion monitoring	Are adaptations of the software necessary?		
Intercooler system	Materials, sizing, flame arrestors		
Turbo charger	Suitability for rated power and transient load		

Cooling System

Component	To be evaluated	25% H2-blend	~100% H2
High temperature & low temperature water cooling	Are adaptations due to changes in heat balance and different water temperature necessary?		

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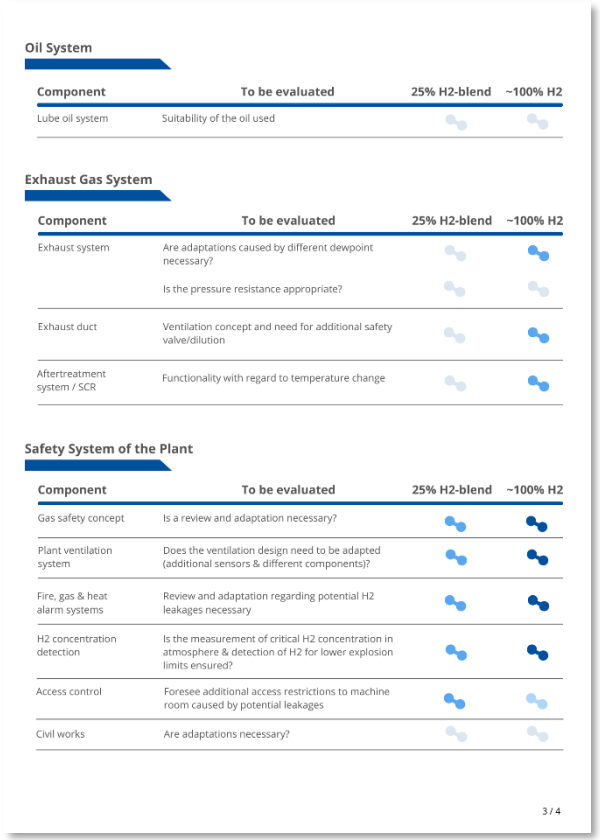


Oil System

Component	To be evaluated	25% H2-blend	~100% H2
Lube oil system	Suitability of the oil used		

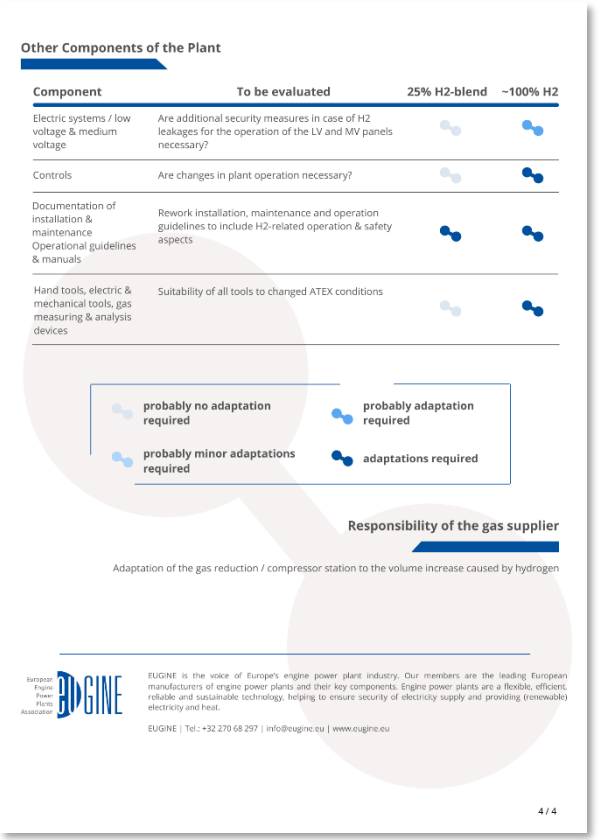
Exhaust Gas System

Component	To be evaluated	25% H2-blend	~100% H2
Exhaust system	Are adaptations caused by different dewpoint necessary?		
	Is the pressure resistance appropriate?		
Exhaust duct	Ventilation concept and need for additional safety valve/dilution		
Aftertreatment system / SCR	Functionality with regard to temperature change		

Safety System of the Plant

Component	To be evaluated	25% H2-blend	~100% H2
Gas safety concept	Is a review and adaptation necessary?		
Plant ventilation system	Does the ventilation design need to be adapted (additional sensors & different components)?		
Fire, gas & heat alarm systems	Review and adaptation regarding potential H2 leakages necessary		
H2 concentration detection	Is the measurement of critical H2 concentration in atmosphere & detection of H2 for lower explosion limits ensured?		
Access control	Foresee additional access restrictions to machine room caused by potential leakages		
Civil works	Are adaptations necessary?		

3 / 4



Other Components of the Plant

Component	To be evaluated	25% H2-blend	~100% H2
Electric systems / low voltage & medium voltage	Are additional security measures in case of H2 leakages for the operation of the LV and MV panels necessary?		
Controls	Are changes in plant operation necessary?		
Documentation of installation & maintenance Operational guidelines & manuals	Rework installation, maintenance and operation guidelines to include H2-related operation & safety aspects		
Hand tools, electric & mechanical tools, gas measuring & analysis devices	Suitability of all tools to changed ATEX conditions		

probably no adaptation required

probably adaptation required

probably minor adaptations required

adaptations required

Responsibility of the gas supplier

Adaptation of the gas reduction / compressor station to the volume increase caused by hydrogen

EUGINE is the voice of Europe's engine power plant industry. Our members are the leading European manufacturers of engine power plants and their key components. Engine power plants are a flexible, efficient, reliable and sustainable technology, helping to ensure security of electricity supply and providing (renewable) electricity and heat.

EUGINE | Tel.: +32 270 68 297 | info@eugine.eu | www.eugine.eu

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Document available to download here.

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Q&A

Presentation by ENTSOG: “Prime movers’ group on Guarantees of Origin”

15/06/2021

Rev1

Guarantees of Origin: vision of ENTSOG and GO Prime Movers

Prime movers group GQ&H2 #11 meeting

Kateryna Dolzhenko,
Market adviser

Brussels

Certification of gases: why do we need it?

Why to promote renewable and low-carbon gases?

- To meet the GHG reduction target of the EU
- In a cost effective, efficient and quick way

What are the challenges for the uptake of renewable and low-carbon gases?

- **Physics.** How to distinguish gases with high climate value from other gases? We cannot physically trace gas molecules in pipelines.
- **Consumers' awareness.** How to inform consumers about production and marketing of gases with high climate value?
- **Sufficient supply of new gases.** How to make producers invest in production?

How to address these challenges?

- **Market for trading climate value of gases and other energy carriers.**
- **EU wide certification system based on Guarantees of Origin (GO).**

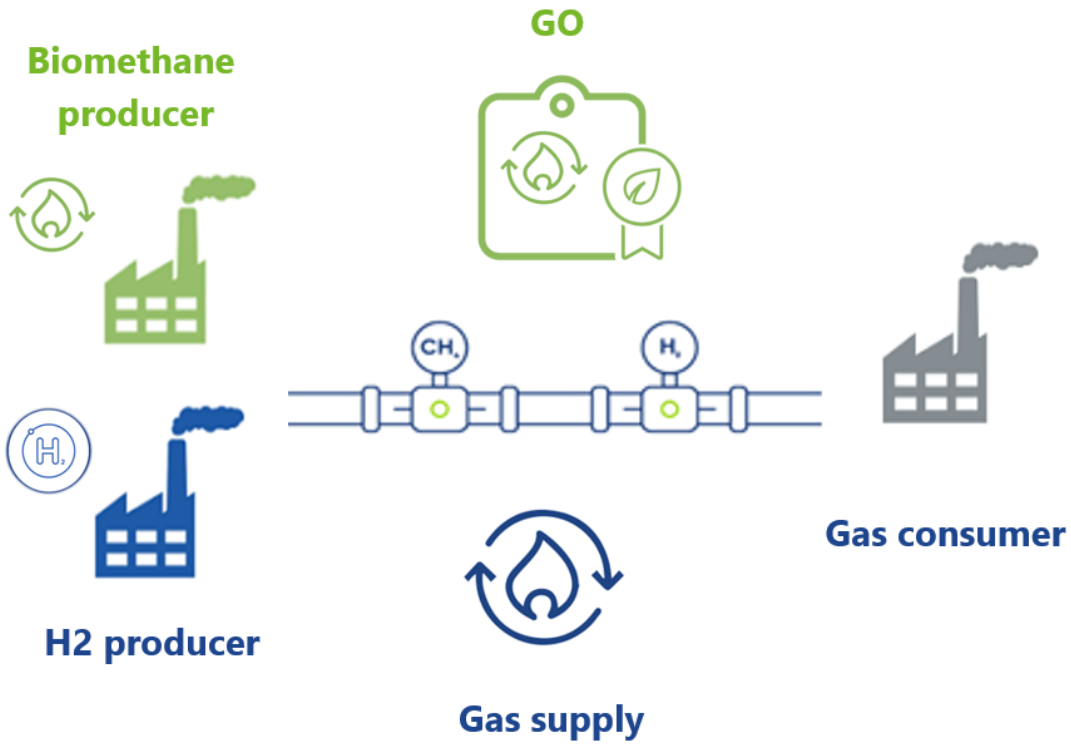


Figure 1. Role of GOs in the gas market

GO system – a gateway to the EU market for renewable and low-carbon gases

GO Prime Movers

*EBA joined in late 2020

Set up of a Prime Movers Group for Guarantees of Origin in 2018/2019 (co-chaired by GIE and ENTSOG)

Why GOs?

GO is:

- an electronic document issued for produced renewable and non-renewable energy to inform the final customer about the origin of the supplied energy – **transparency and informed choice for consumers.**
- based on Articles 2 and 19 of RED II (Renewable Energy Directive 2018/2001/EU) and European Standard CEN - EN 16325 - **single standardized tool for trading climate value across EU Member States.**
- traded separately from the physical energy – **liquidity in the gas market and the best price for the climate value.**
- quickly convertible from one energy carrier to another – **support for the sector coupling.**
- possible use in the EU ETS and for target compliance [?] – **cost-effective and workable decarbonization tool for gas consumers.**

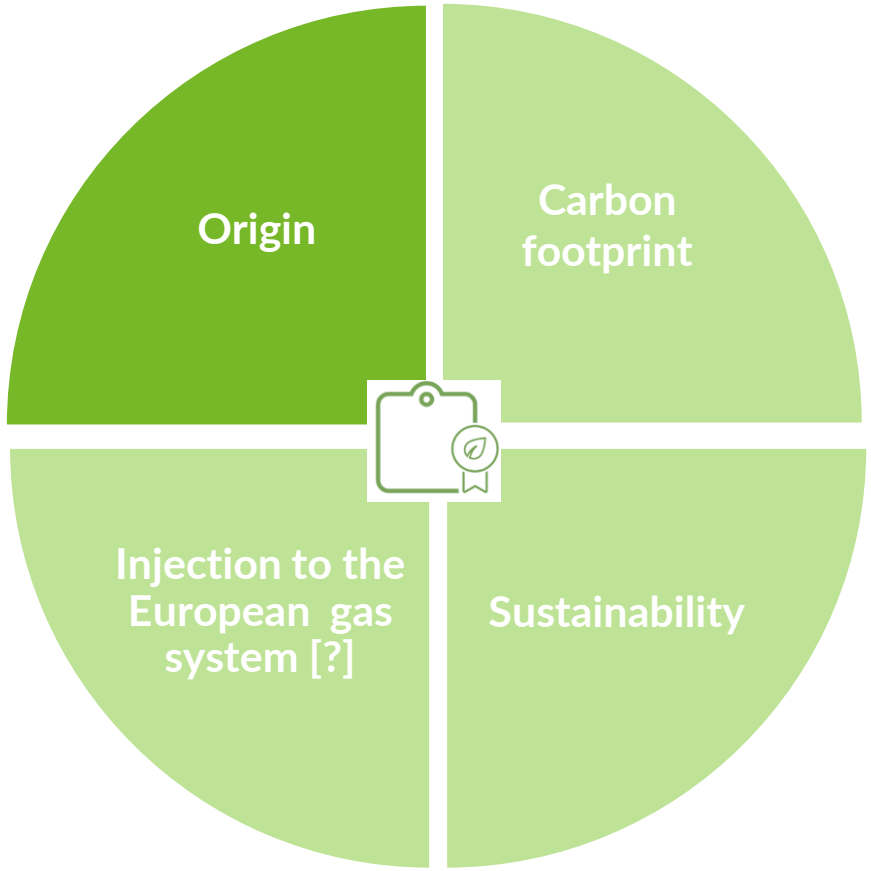


Figure 2. Vision on the GO+

GO - 'single currency' for the EU market of the climate value

Prime Movers' recommendations on GOs: proposals for RED II

1. Clear and straightforward classification of renewable and low-carbon gases (terminology)	• To inform and empower consumers and give certainty to investors in low-carbon gases production. • To ensure consistency and synchronization of terminology.
2. Mandatory issuance of GOs to all types of low-carbon energy which demonstrate GHG emissions savings upon requests of market participants	• To promote low - carbon energy that can provide large volume in a timely manner which will have a massive effect on GHG emissions reduction, in line with the EU Hydrogen and Energy System Integration strategies. • To ensure a level-playing field for various types of energy and technologies.
3. Building the European certification system on the basis of GOs and key principles of the EU internal energy market (e.g. considering the European gas networks as a single logistical facility)	• To give consumers access to the European-wide market-based system (harmonised via the GO Standard EN 16325), raise their awareness and accelerate decarbonisation by incentivising demand. • To build liquid, transparent, and robust markets.
4. Linking sustainability information and GHG emissions/savings with all types of GOs (comparable lifecycle analysis for all energy carriers)	• To facilitate a link between GOs and EU ETS (i.e. Monitoring and Reporting Regulation is under revision). • To ease the market functioning by preventing double disclosure and false claims via GOs and other certificates.

From slides presented at the 34th Madrid Forum (14-15 October 2020), available here.

Prime Movers' recommendations on GOs: proposals for the EU ETS MRR

GO-based System

for the EU market of renewable and low-carbon gases

EBA European Biogas Association

What?

EU-wide system based on Guarantees of Origin (GO) recognized as a tool for tracing the origin of supplied and consumed renewable and low-carbon gases in the Internal Energy Market and the EU ETS.

How?

Use the current **GO system linked with the sustainability certificate** as a purchase record of gases in the EU ETS (see Figure 1 on the right).

Why?

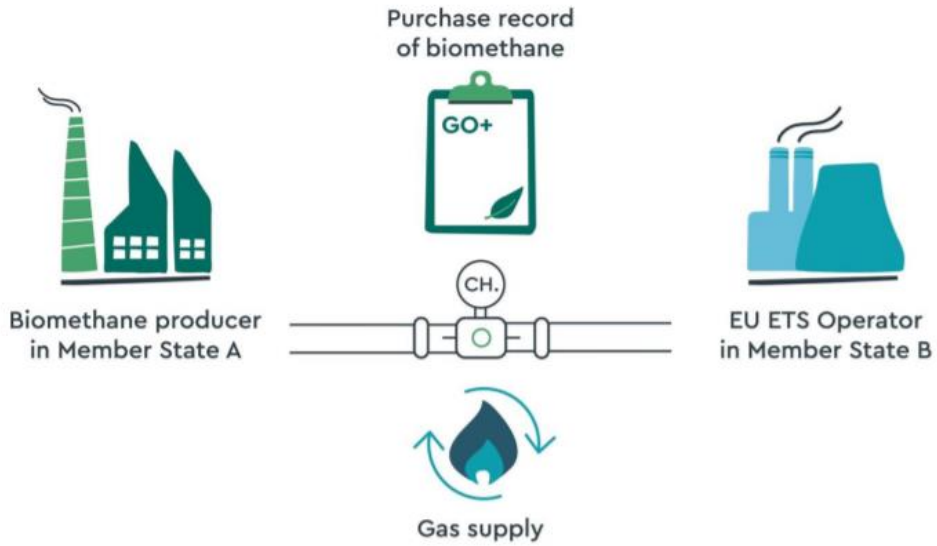
Standardized and cost-effective decarbonization solution for gas consumers, e.g. EU ETS Operators.

The best price for the climate green value via a liquid EU-wide GO market decoupled from the physical market (just as for other carriers).

Workable and harmonized solution for the implementation of the revised EU ETS Monitoring and Reporting Regulation from 1 January 2022 – there is no time to wait for the set-up of specific databases for tracing gas transfers.

We would like to discuss with DG ENER and DG CLIMA a workable solution operational from 1st January 2022.

Figure 1. Example for the use of GOs in the EU ETS sectors



EFET SO YOU CAN RELY ON THE MARKET · gie Gas Infrastructure Europe · eurogas · entsog european network of transmission system operators for gas

From EBA slides presented at the 35th Madrid Forum (29 April 2021), available here.

Recommendations on GOs in practice: ENTSOG comments on the draft implementing rules for voluntary schemes

Proposed rules are not well adapted to the EU gas market.

Areas of concern:

- **unjustified regulatory barriers for trading sustainable gases in the single EU gas market** (tracking of transactions for gaseous fuels, definition of the gas infrastructure, C14 test for the carbon content and gas blending)
- **no need for the industry factor on gas losses**
- **no link between GO & sustainability certificates**

Recommendation

Introduce a dedicated Article on the use of the mass balance system on the gas infrastructure

This will:

- *recognize status of the EU gas infrastructure as a single logistical facility and indicate how the mass balance should be achieved and calculated for such infrastructure*
- *ease the link between GOs and other certification tools for the benefit of the whole energy market and wider society*

ENTSOG's consultation response is available here.

Thank you for your attention

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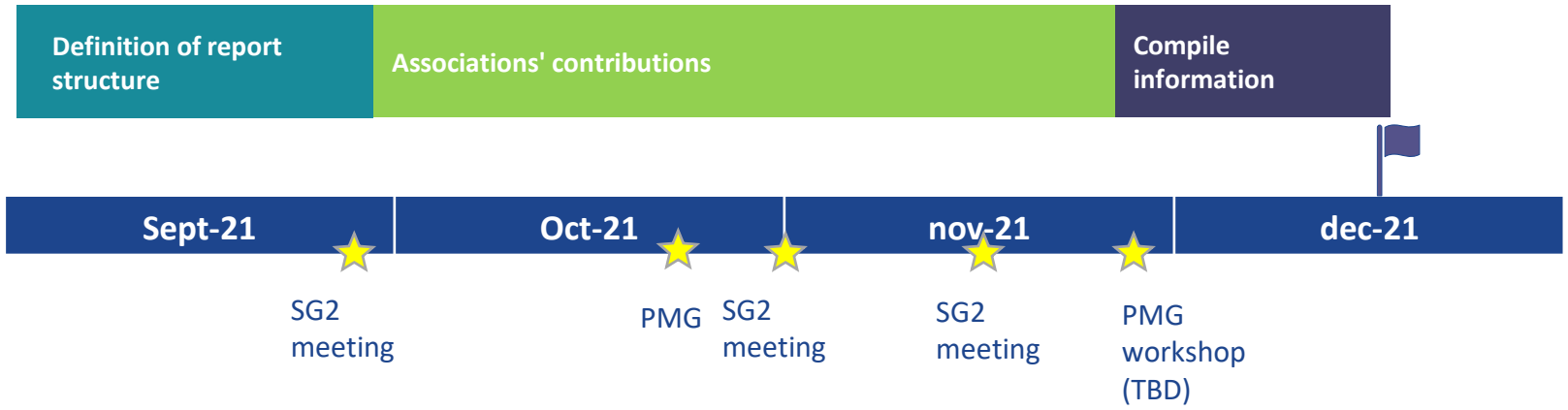
Q&A

A.O.B. & next steps

Timeline Q4 2021

- 1 more ‘plenary’ meeting is foreseen on 25th October
- A hybrid workshop is being planned for 25th November as closure of the PMG (details to be defined)
- SG2 work will continue until end November to finalise the ‘roadmap’



Roadmap part II. Process set up proposal

Contents

- Proposed table of contents for the report
- For each scenario, challenges, solutions and recommendations are expected to be provided for each sector
- The following sectors are included: Residential & commercial appliances, chemical industry, power generation (engines & turbines), mobility sector. Gas network operators, UGS

Modality of participation for PMG-SG2 deliverable roadmap part II

- **Modality 1**: once information from roadmap part I is compiled, association commits to **check the part of the report referring to its sector** within the timeline

- **Modality 2**: includes modality 1 plus is willing to **provide more information** about its sector within the timeline

Note: In both cases SG2 chairing team will compile in a WORD document the inputs provided by the different associations for part I. Please note that both modalities include a certain degree of commitment from your side. **Final deliverable expected by mid-November so all inputs have to be submitted before that time**

Thank you for your attention

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