

Hydrogen and decarbonization of buildings

Gas quality management with
decarbonized gases

30 April 2021, 35th Madrid Forum

ehi

*association of the
European Heating Industry*

EHI Vision to achieve carbon-neutral buildings

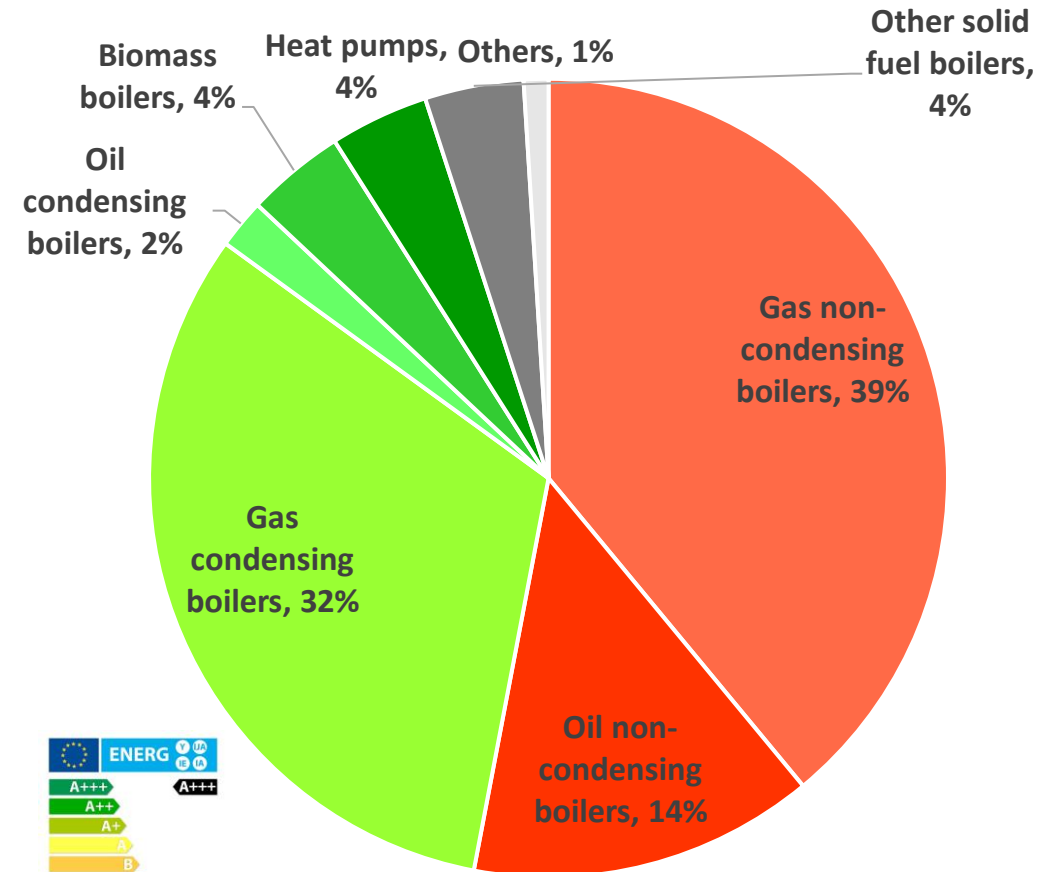
- ▶ **All efficient and renewable-based heating technologies** are needed to achieve carbon neutrality.
- ▶ **Focus of this presentation is on green gases and particularly on hydrogen**, due to the scope of this session.



State of play

- ▶ **Building sector** = single largest source of CO2 emissions in the EU and biggest energy consumer.
- ▶ **Most of EU buildings** today are **connected to gas** grids; 70% of the installed stock of hydronic heaters is gas-fired, and largely inefficient.
- ▶ Hence **replacing the old stock** with new efficient heating technologies working with green gases is an **opportunity to decarbonise buildings cost-efficiently**, along other efficient and renewable solutions.

EU installed stock of heaters in 2019, EHI data



Please note: colours based on the energy label for new heaters

105,7 million space heaters
58% old & inefficient, > 61 million appliances

Green gases in buildings to support Green Deal target

▶ Leaving nobody behind on the road to decarbonized buildings

- Emissions from buildings are hard to abate: very diverse stock and very diverse financial capacities of people
- 'One size fits all' cannot work: multi technology approach to decarbonize all kind of buildings & individual situations, incl. decarbonized fuels
- Additional options for CO2-neutrality at affordable cost to the end user

▶ Optimizing energy system & system cost & sector integration

- Green gases for buildings complement to electrification/ heat pumps and district energy
- Enabling simultaneous decarbonization of heat, transport: support resource adequacy in an electricity system in transformation from dispatchable fossil generation to non-programmable renewables

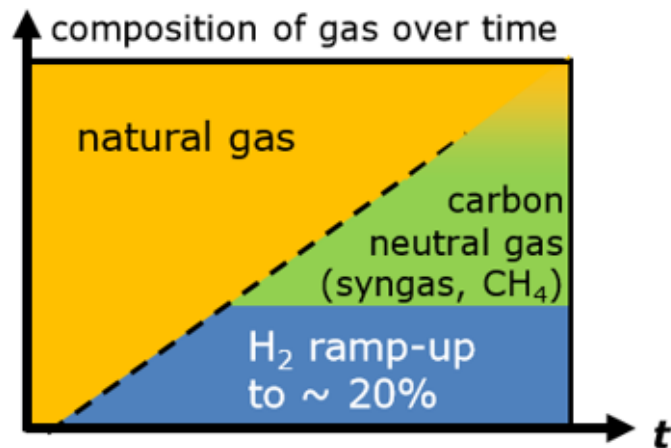
▶ Support ramp-up of hydrogen economy

- Installed boiler stock is ready for blending-in H₂
- Heating sector can create a predictable demand for H₂ and investment certainty for hydrogen producers and infrastructure

---→ Green Deal should consider decarbonized fuels for heating as a decarbonization solution per se and as enabler for higher electrification e.g.: via heat pumps and hybrids.

Our strategy and timeline

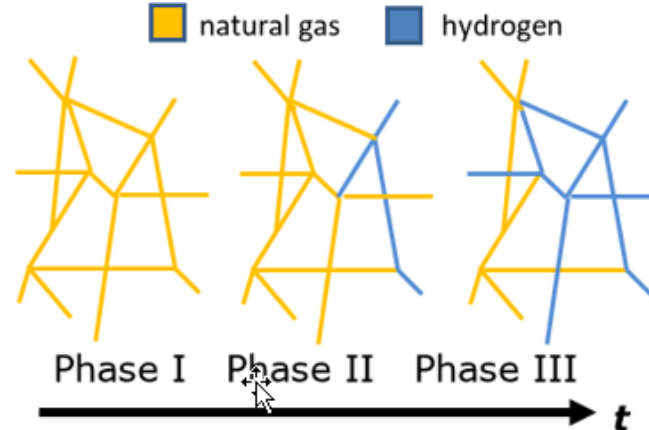
Blending



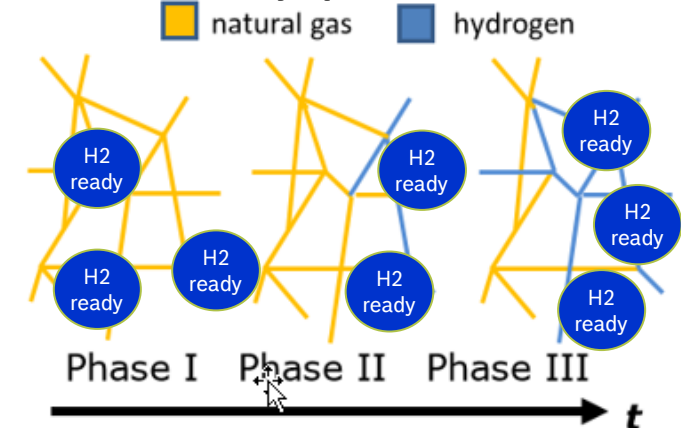
Today

- **All gas end use products** installed in field (>1995) can work with bio methane and bio-LPG and up to 10% H2 blend without any extra cost
- **Many modern condensing boilers** on top can work with **up to 20 vol-% H2 blend** with new certification **without any extra cost**

H2-islands



H2-ready products



2025-2029

- **'20% hydrogen appliance'**: appliance designed and approved to operate safely and efficiently using a gas that has a fluctuating hydrogen content between 0 and 20% by volume.
- **'100% hydrogen-ready appliance'**: gas appliance designed and approved to be installed and to operate on natural gas and, following a conversion and re-commissioning process, can operate safely and efficiently using 100% hydrogen.
- The 100% H2-ready technology will have only a **minor cost effect to the end user** and be a **no regret solution** on the way to CO2-neutrality (domestic H2-ready boiler ~+17%, compared to standard natural gas boiler; price of conversion kit to 100% H2 ~ 13% of boiler price)*
- Ecodesign: all **domestic gas condensing boilers and thermally-driven heat pumps** placed on the market:
 - **from 2025** shall be capable to process up to 20 vol-% H2
 - **from 2029** shall be **ready to be retrofitted from natural gas to 100% hydrogen**

EHI position on the review of the gas market package

- ▶ **Include all gases in the future gas regulatory framework**, i.e.: renewable and decarbonised ones
- ▶ **Enable the use of renewable and decarbonised gases in buildings.** Demand from all economic sectors (i.e. not only heavy-industry and transport) is a key driver for supply; stable and reliable demand for renewable and decarbonised gases in heating, both in blends and in 100% use, will lead to economies of scale and provide security of investments
- ▶ Introduce **EU-wide targets for decarbonised and renewable gases**
- ▶ Introduce **fair technical rules** defining the **interaction between new gases and heaters**, e.g. via gas quality & emission standards, real-time information of gas quality to make blending of hydrogen and biomethane into gas grids possible.
- ▶ Provide **flexibility in the regulatory framework** for Member States, regional and local public authorities, so they can develop scenarios for gas decarbonization based on their needs and their resources.
- ▶ **Renewable gases should count** to achieve the annual target for renewable heating and cooling, set at Member State level

H2-ready product announcements



Backup

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European Heating Industry

EHI brings together manufacturers of heating systems in Europe

SPACE HEATING	WATER HEATING	CONTROLS	EMITTERS	
			UNDERFLOOR HEATING	RADIATORS
<p>125 000 people employed directly by the industry</p>		<p>1 billion € yearly investment in energy efficiency</p>		




The logo for the European Heating Industry (ehi) is centered within a white circle. The letters 'ehi' are rendered in a large, bold, red, lowercase serif font. Below the letters, the text 'association of the European Heating Industry' is written in a smaller, black, lowercase sans-serif font.

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