

Gas As An Integral Part of the EU Decarbonisation Strategy: Which Sources, Challenges And Perspectives

FSR Energy – Policy Workshop Session Iv The Evolving Building Heating Sector: Electrification, Hybrid Heating, Or Hydrogen?

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Overview of presentation

 How can <u>natural gas</u> reduce heating emissions, today?

 What are the longer-term prospects for *'green / clean' gas* (renewable and decarbonised) in buildings / heating?





Q: What if replacement rate increased by 25% (2015-2030)?

A: Minus 18,5% emissions in heating sector

How? Switch to a mix of:

 Condensing boilers

Heat pumps

- Hybrids (hybrid heat pumps and solar thermal)
- Micro-CHP & fuel cells

Efficiency improvements in gas heating: Condensing + others ECOFYS



district heating (DH) considers only new connections
heat pumps (HP, hydronic) do not include sanitary heat pumps and heat pumps for cooling purposes



Efficiency improvements in gas heating: Hybrid heating

Example of hybrid heat pump

- Efficient condensing boiler
- Heat pump, reversible

Introducing renewable heating <u>in</u> <u>existing</u> buildings





Green gas in heating sector: understanding heat demand

) = high heat demand + low supply of solar (and wind) electricity
→ long-term storage needed → value-added of gas





Green gas in heating sector: Focus on decarbonizing energy carriers

- We need to work on decarbonising <u>both</u> gas and electricity.
- Maybe counter-intuitive, but shifting from gas boiler to heat pump does not <u>not necessarilly</u> reduce CO2 emissions from heating.
- Variables to consider:
 - Efficiency of gas boiler (hybrids?)
 - Share of renewable and decarbonised gases in grid
 - Carbon-intensity of local grid (EED uses default PEF of 2.1, but this is an EU average)
 - Carbon-intensity of marginal generation units
 - Heat pump COP (Coefficient of Performance)



Green gas in heating sector An AND, AND, & AND strategy

- Starting to decarbonize gas is <u>not</u> Business As Usual: Still need to pursue other no-regret options!
 - Modernize installed stock hybrid heating systems
 - AND Implement nZEB for new buildings
 - AND Lower heat demand of existing buildings
 - AND Accelerate decarbonization of power sector

EHI's #Build2050 initiative – need for a comprehensive approach, break silos approach





Green gas in heating sector EHI key messages

| Modernise the installed stock of boilers. Much is possible. | EHI welcomes focus on renewable and decarbonized gas in 2020 'Gas Package'. Green gas has key longer-term role to play in energy transition. |
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| Gas DSOs and TSOs to draft longer-term roadmaps for a changing gas mix / gas quality in 2030, 2040 and 2050. | EHI is assessing implications of changing gas mix / quality on end- user heating appliances. Let's not forget about consumers and the installed stock of boilers! |