



(In)Coherence between European hydrogen and energy policies

Ariadne Project

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What's the incoherence?

- **The vision:** EU hydrogen strategy - building up the EU hydrogen market fully based on RES hydrogen by 2050
- **The crisis:** REPower EU target for RES hydrogen - 10 million T domestic + 10 mill T imports
- **Long implementation battle on additionality for RES H2:** DA on RFNBOs (REDII) sets specific criteria for RES hydrogen deployment in the near term (sunset clause additionality, temporal/geographical correlation).
- **Low carbon grey zone:** Gas Package DA in 2024 (?) defining what low carbon gases are.
- **Push for more low carbon:** Gas package/directive Council (FR+7 MS) proposal on LCFNBO's accounting to Renewable energy targets (legally not sound).

What do we need?

- **Quick adoption of REDII DA on RFNBOs** for RES H2 from electrolysis (making grid electricity through additionality as green as possible)
- **Quick adoption of low carbon criteria** under the gas directive (Article 2 and 8) : make them as strict as possible to exclude fossil and nuclear based H2
- **No low carbon gas accounting to REDIII targets** via gas package!!
- **Strong incentives for RES H2 via CfDs for priority sectors only (steel, chemicals, long distance transport)**

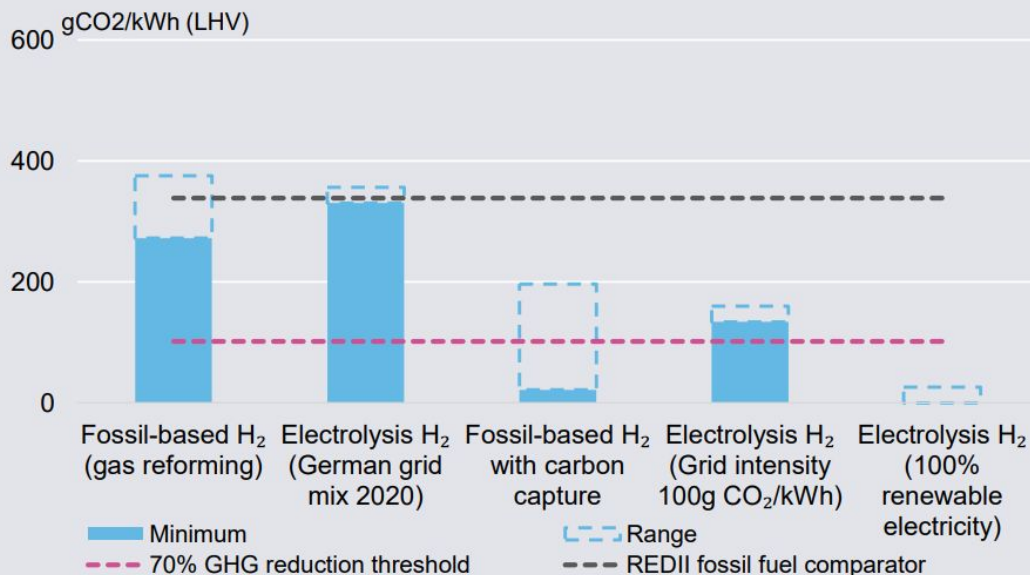
“Low carbon” requires a clear definition

- Needs to be defined under the gas directive and DA related to the gas package
- Take into account full life cycle GHG emissions of low carbon gases (LCA) including methane leakages across the entire supply chain (from extraction/production to transport and end use)
- Include a carbon capture rate of 98% and an upstream methane leakage rate $< 0,3\%$
- Cap the greenhouse gas emissions at 80% compared to fossil fuel comparator from RED2 (94grCO₂eq/MJ)

Technology neutrality does not come at any cost

Getting grey blue needs strict regulation to ensure that low-carbon gases are in fact lower-carbon than fossil gas and meet 70 % GHG reduction threshold

Lifecycle emissions of hydrogen production pathways



Source: Agora Energiewende & Guidehouse (2021), Bellona (2021)

What is needed:

- Strict definition establishing a significant reduction of life cycle emissions (as used in EU Hydrogen Strategy) taking into account gas transmission distances and fugitive emissions
- Carbon capture criteria: we propose 98% capture rate for process emissions in new facilities and >90% capture rates for retrofitted facilities built pre-2020

Current situation:

- Taxonomy threshold of 3kgCo₂ per kg hydrogen (=70 % GHG reduction) not sufficient if static (and not referred to anywhere..)
- No clear reference to life cycle emissions or carbon capture requirements
- No consideration of fugitive emissions

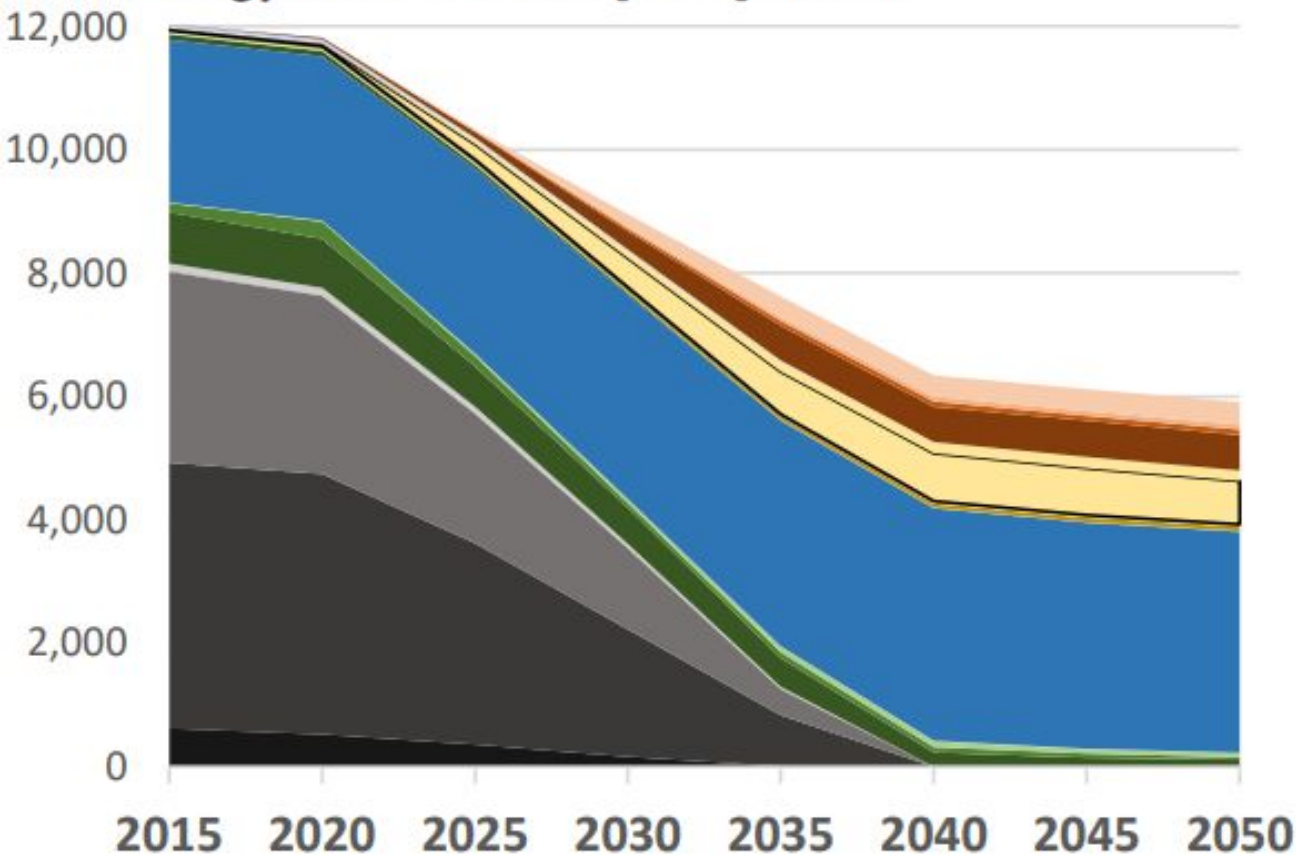
Quick ramp up of renewables based hydrogen through the RFNBO DA

- Push forward the Commission's DA on RFNBOs
 - **Additionality** is key, needs to be safeguarded
 - Transition period until 2027, grandfathering with a ten year sunset clause
 - Strong temporal correlation with hourly matching
- **Support schemes** such as Contracts for Difference (CfD)
 - priority access sectors to renewable hydrogen (steel and chemical industry)



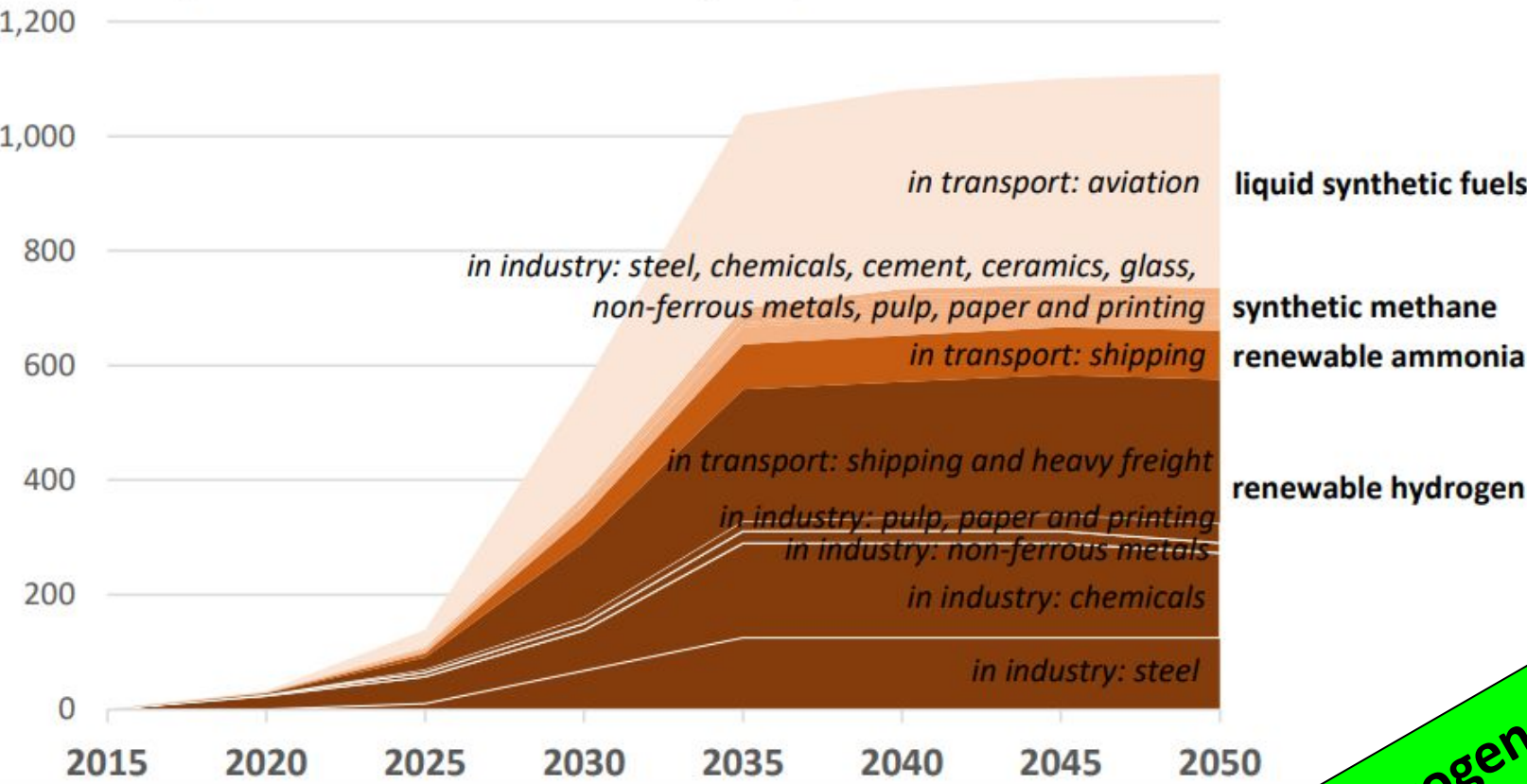
Thank you for your attention!
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Final energy demand EU28 [TWh] - Total



- liquid synthetic fuels
- synthetic methane
- renewable ammonia
- renewable hydrogen
- municipal waste (renewable)
- municipal waste (non-renewable)
- industrial excess heat recovery
- ambient heat captured by heat pumps
- geothermal heat (individual included)
- solar thermal heat (individual included)
- biogas heat
- biomethane heat
- solid biomass
- electricity
- biogas
- biomethane
- liquid biofuels
- solid biomass
- steam
- industrial waste
- fossil gas
- fossil oil products
- coal

Non-fossil gases and fuels demand EU28 [TWh]



Quick renewables based hydrogen ramp up requires incentives for green hydrogen and strict criteria for low carbon gases!

⁷⁵ CAN Europe/EEB: Summaries of PAC scenario workshops and General Assemblies work

