

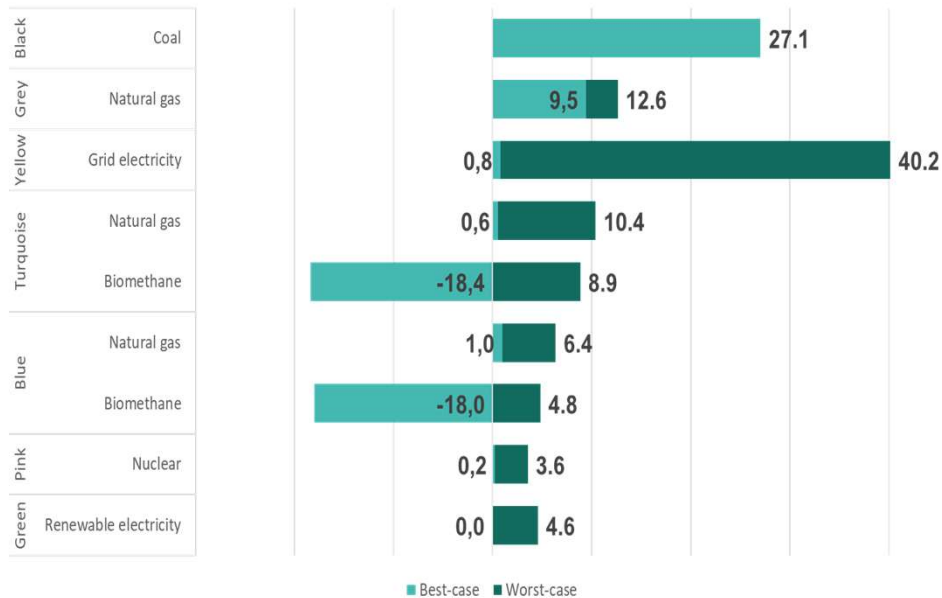
The background of the slide is a complex, abstract digital network. It consists of numerous interconnected nodes and lines, creating a mesh-like structure. The lines are primarily blue and red, with some white highlights, and they appear to be glowing against a dark, almost black background. The network is dense and extends across the entire width of the slide, with some lines appearing thicker and more prominent than others. The overall effect is one of a dynamic, interconnected digital space.

# Digital product passport for Hydrogen

HOW TO GUARANTEE HYDROGEN'S CARBON NEUTRALITY

# Carbon intensities of hydrogen

There is large variability with various „colour” categories



Each production pathway for hydrogen needs to prove its CO2 footprint and depending on regulatory requirements other criteria

Real time, post-feed certification is often required

Different regulatory regime apply to domestic production [taxonomy/ GHG thresholds (all)], RED (RFUNBO, bio etc), gas decarb (low carb) and for trade (same legis + CBAM).

Same approach for Ammonia and especially for derivatives (including carbon accounting)

# Hydrogen certification, harmonisation of emission methodologies and standardization has been identified as an issue



# DPP - demanded by politics... (Intention Green Deal)

- December 2019: **European Green Deal**

"[...] for example, **an electronic product passport** could provide information on a product's origin, composition, repair and disassembly options, and end-of-life handling."

- March 2020: **European Circular Economy Action Plan (CEAP)**.
- December 2020: European Regulation on Batteries and Waste Batteries.

"Each battery shall receive its **own battery passport with an individual identifier**. The battery passport shall be linked to the information on the basic characteristics of each battery type and model [...]."

- December 2021: German coalition agreement
- Circular economy "We introduce **digital product passports**, support companies in the implementation [...]."
- March 2022: Draft **ESPR (Ecodesign Requirement for Sustainable Products)**.
- RED III (13)

(...) Furthermore, to provide access to appropriate supporting evidence for persons concluding renewable power purchase agreements, it should be ensured that any associated guarantees of origin can be transferred to the buyer. In the context of a more flexible energy system and growing consumer demands, there is a **call for a more innovative, digital, technologically advanced and reliable tool to support and document the increasing production of renewable energy. To facilitate digital innovation in this field, Member States should enable issuing guarantees of origin in fractions and with a closer to real time timestamp.**

- New Legislative Framework



# Idea -Harmonization & automated validation

