

Hydrogen Classification Model: Carbon Intensity



Teralta classifies the hydrogen we produce based on carbon intensity (CI), a lifecycle assessment (LCA) that applies to all types of hydrogen and is endorsed by the [International Energy Agency](#) (IEA).

- CI quantifies the cleanliness of the energy produced based on the grams of carbon dioxide (CO₂)-equivalent released, to generate a unit of energy
- LCA methodologies have been standardized by the international Standards Organization (ISO)

CI thresholds for hydrogen produced by Teralta are significantly lower than the government recommended standards:

CI Score Comparison (based on gCO₂e/MJ)

Government of BC	Teralta H2 Electrolysis	Teralta H2 SMR	Diesel
< 40.1	0.975	< 36	~90 g CO ₂ e/MJ



“By agreeing to use the emissions intensity of hydrogen, governments can facilitate market and regulatory interoperability.”

International Energy Agency (IEA):

Traditional Hydrogen Classification Models

The ubiquitous “hydrogen rainbow” while visually engaging, is open to interpretation. For example, the [Oxford Scientist](#) hydrogen array incorporates seven different colors, while the Mitsubishi Heavy Industries Group has [12 different types of hydrogen](#) on its colour wheel.

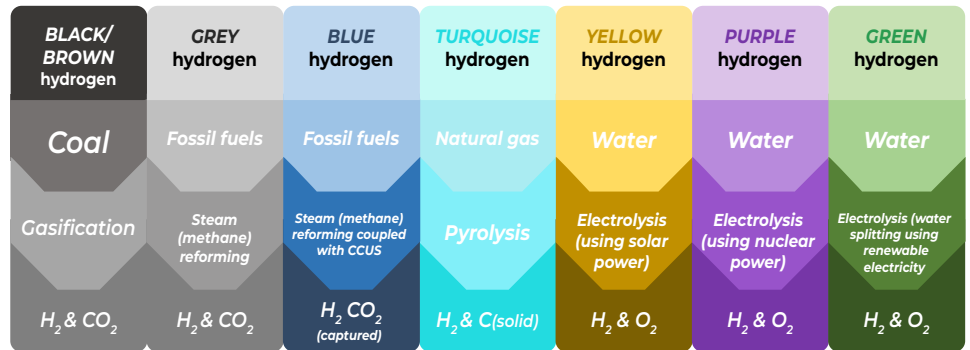
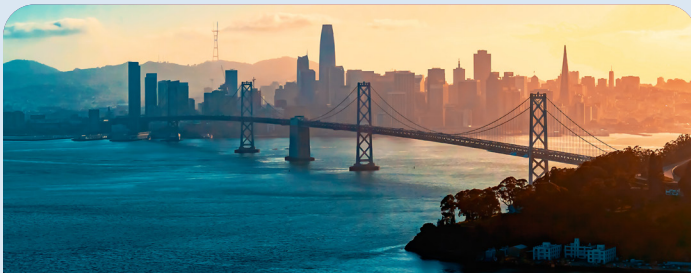


Fig. 1: Oxford Scientist

As the hydrogen market continues to expand rapidly, classification criteria must be standardized and universal.

Unlike traditional, non-standardized classification models, CI benchmarks are typically set by government and regulatory bodies, for example:



California: hydrogen fuels must have a CI score below the annual benchmark established by the [California Air Resources Board \(CARB\)](#).



British Columbia: CI thresholds are set by the [provincial government](#) based on hydrogen production pathways.

Teralta is committed to simplifying the complicated path to clean, utility-scale hydrogen for industrial and commercial use.

If you have any questions or would like more information about Teralta and the work we do, [contact us](#) or [visit our website](#).

