



Different perspectives on definitions of Green Steel options

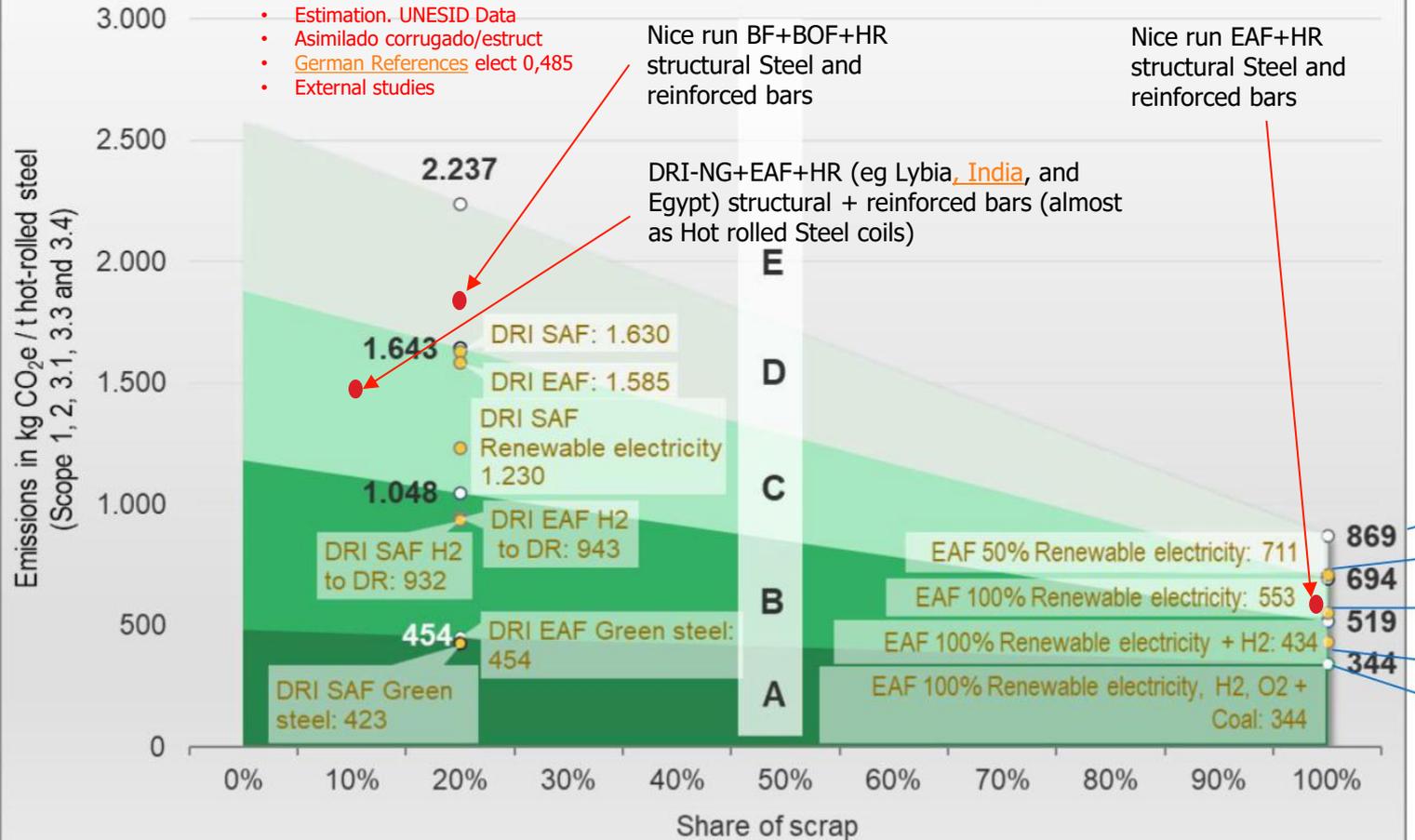
ESTEP Green Steel Definition Workshop
29/01/2025



Green Steel. Why there is no agreement (neither in the EU)?

- ψ EVERYBODY has somehow part of the “reason”.
- ψ NECESITY to transmit GREEN Steel is going to be MORE expensive
- ψ 2 approaches + 100s “of own labelings”.
 - Route (BF decab friendly). E.g. LESS. Highlight “technological improvement/effort, reduce “cheating” with scrap
 - Footprint (EAF friendly). Straightforward footprint & High Alloys (based in actual Alloys). Real recycled priority.
 - From each steel producers (its own nice selfie)
- ψ UNESID Proposal (incorporates both initiatives + more)

Categorisation of virtual reference plants into the classification system for green steel production



Sliding Scale: Certain Steel families

Scope of Carbon Footprint

1. Direct
2. Energy Indirect
 - 3.1. Raw materials + energy
 - 3.3. other energy
 - 3.4. Transport and distribution of raw materials

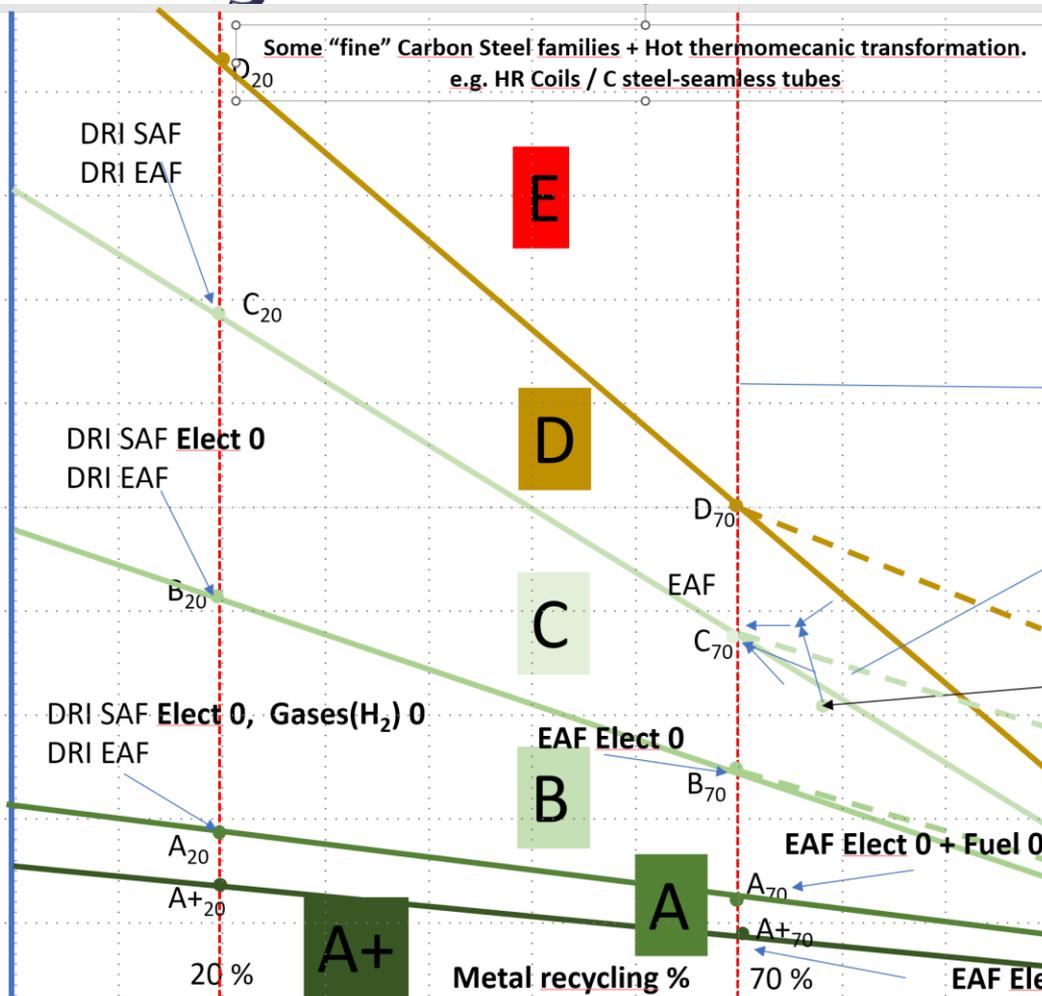
Line of taxonomy values.
Mathematic normalization

Steelmaking plants > 70%
normalised to 70%
EU electricity average emissibility.

Hot processing (correction)

Eg. Actual carbon footprint
Steelmaking+ hot rolling
Label "C"
760 kg CO₂/ts hr
78 % metal recycling

Actual production route. OK
Inputs allocation per Steel family. OK
Arbitrary insumes reallocation, credits for by-products
allocation, arbitrary electricity footprint. KO
General coherence with ETS verification (prior "disconts" and
scope adjustment)



Number

EAFFreenly: Footprint, no more, no less + recycled content

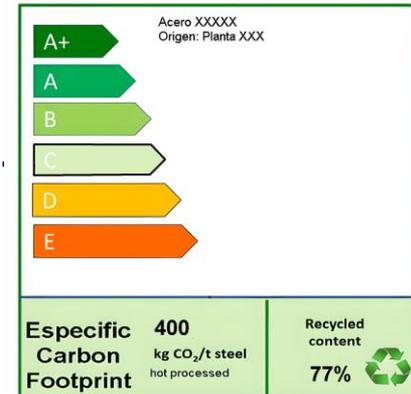
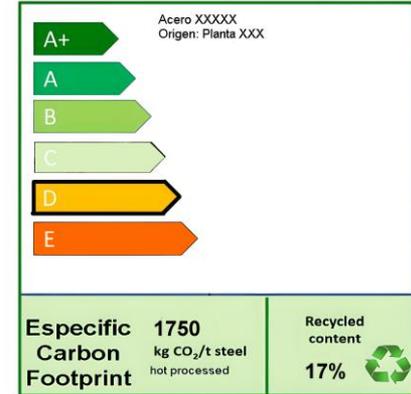
Levels to be set. Label based on values.

Good flat product – from mineral:

- 1750 kg CO₂/ton rolled steel
- 17% recycled
- Level D

Good flat product - EAF:

- 500 kg CO₂/ ton rolled steel (easy with GdO+ sust).
- 23% recycled
- Level B



UNESID Labeling

One of both approaches + offsetting.
(complete labelling)

“LESS”

Steels when in EU both routes are actually competing
(Carbon Steel with very high requirements):

- Flat + high speed train rail + C tubes C seamless +
- ¿maybe Steel for wiredrawing / calibrated bars?)

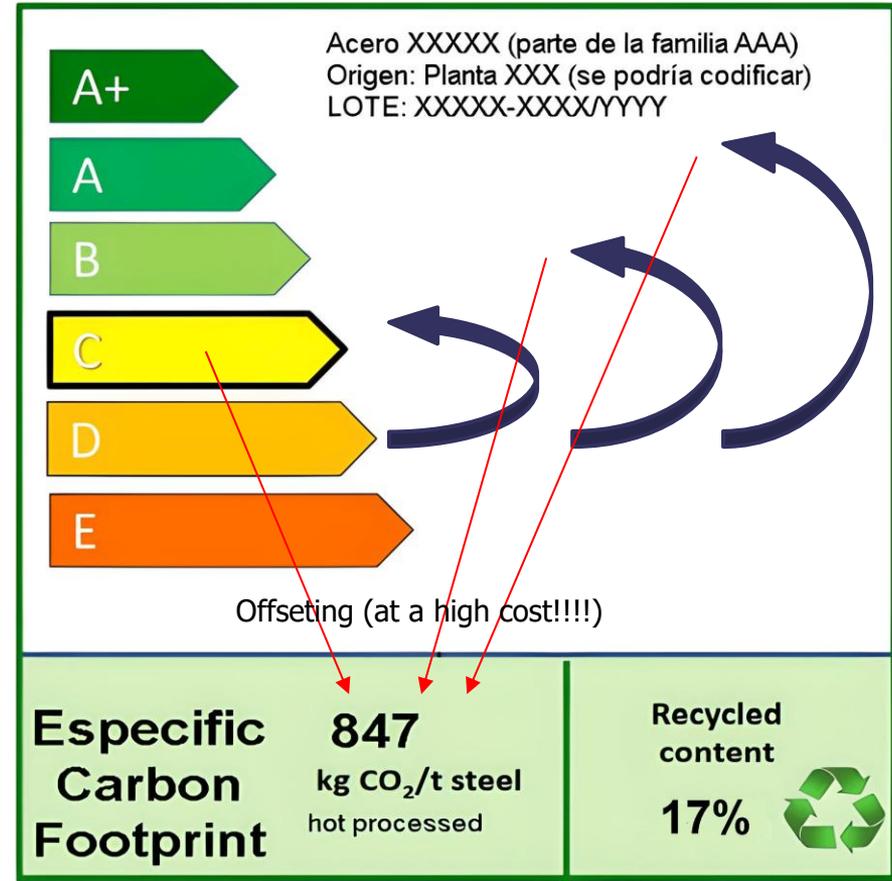
“Footprint” (other families):

- long + special + high alloy

+ offsetting (log)

- And the customers is willing (and even to pay for)!!!!

1. Annihilate of CO₂ ETS allowances
 2. Annihilate CO₂ removals credits
 3. GdO ADITIONALS (above legal or company claims)
- Compensation often used : flights, events, etc.



It might be posible to add the “original” footprint