

Carbon, NG and hydrogen in Metallurgy



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Severstal is the most efficient steel company in the world

Vertical integration is the foundation of our efficiency



35,3%

The highest EBITDA margin in the world in Steel Industry



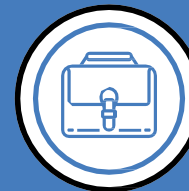
FINANCIAL
2020FY

\$6,870mln
REVENUE

\$2,422 mln
EBITDA



50000
employees



19000
products

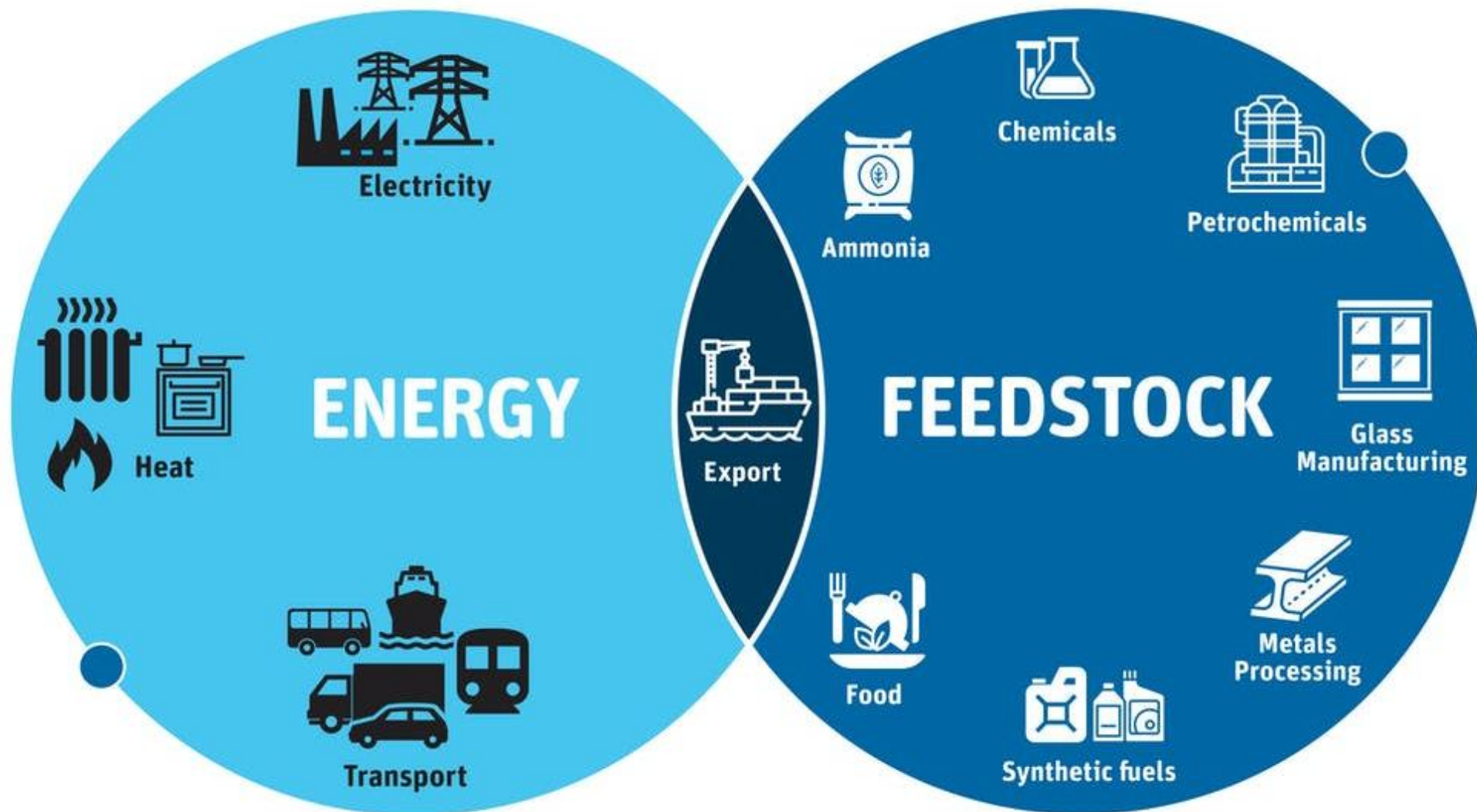


6000
clients



77
countries

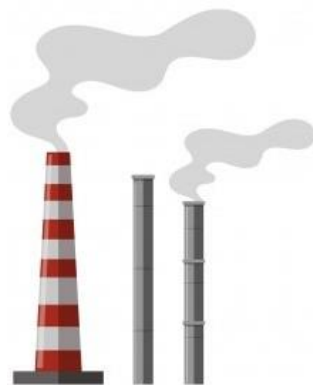
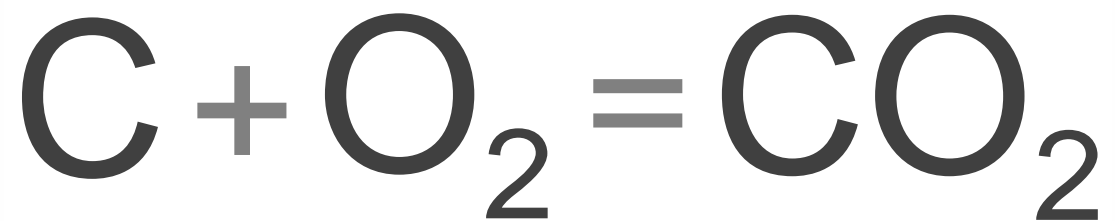
Carbon, NG, Hydrogen – energy unit and feedstock



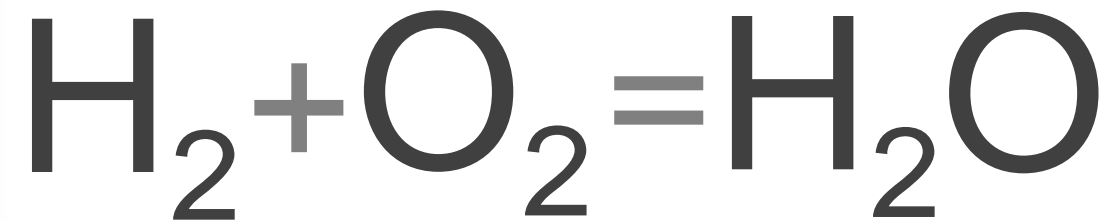
What's new?



DO...



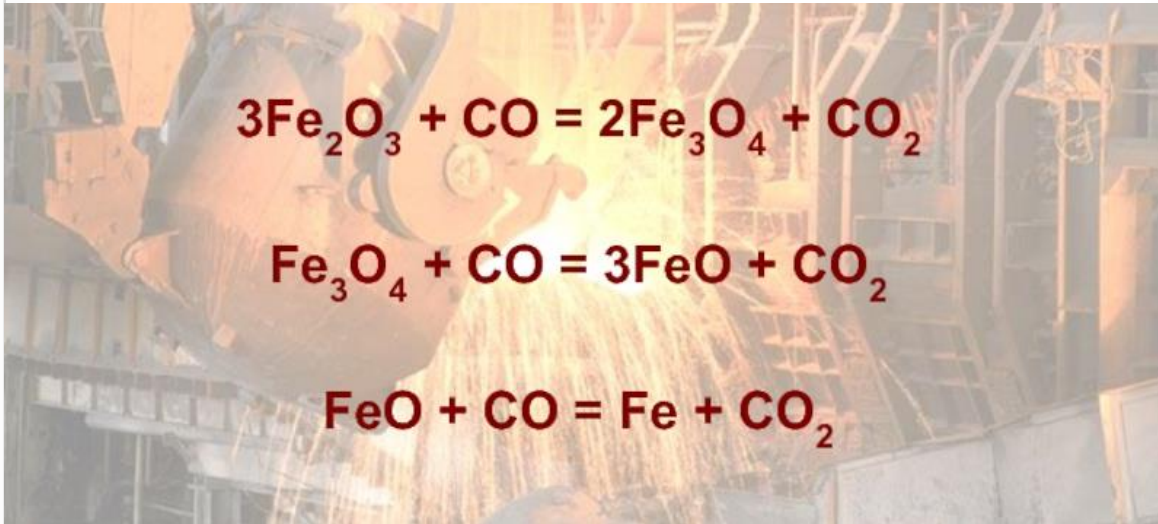
...CAN DO





DO...

Blast furnace chemistry

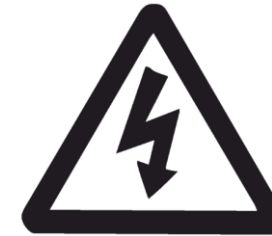


...CAN DO

Hydrogen metallurgy



Ore electrolysis



We need hydrogen no matter whether we choose to decarbonize steelmaking processes, power generation or to utilize CO₂



01

Blast furnace and other steelmaking processes

- Adding hydrogen into BF to reduce emissions
- Switching to hydrogen-rich DRI
- Steel annealing in a hydrogen atmosphere
- Hydrogen from BF and coke oven gas

02

Electricity generation and related processes

- Switching to hydrogen-based power (mixing hydrogen and natural gas)
- Electrolysis based hydrogen

03

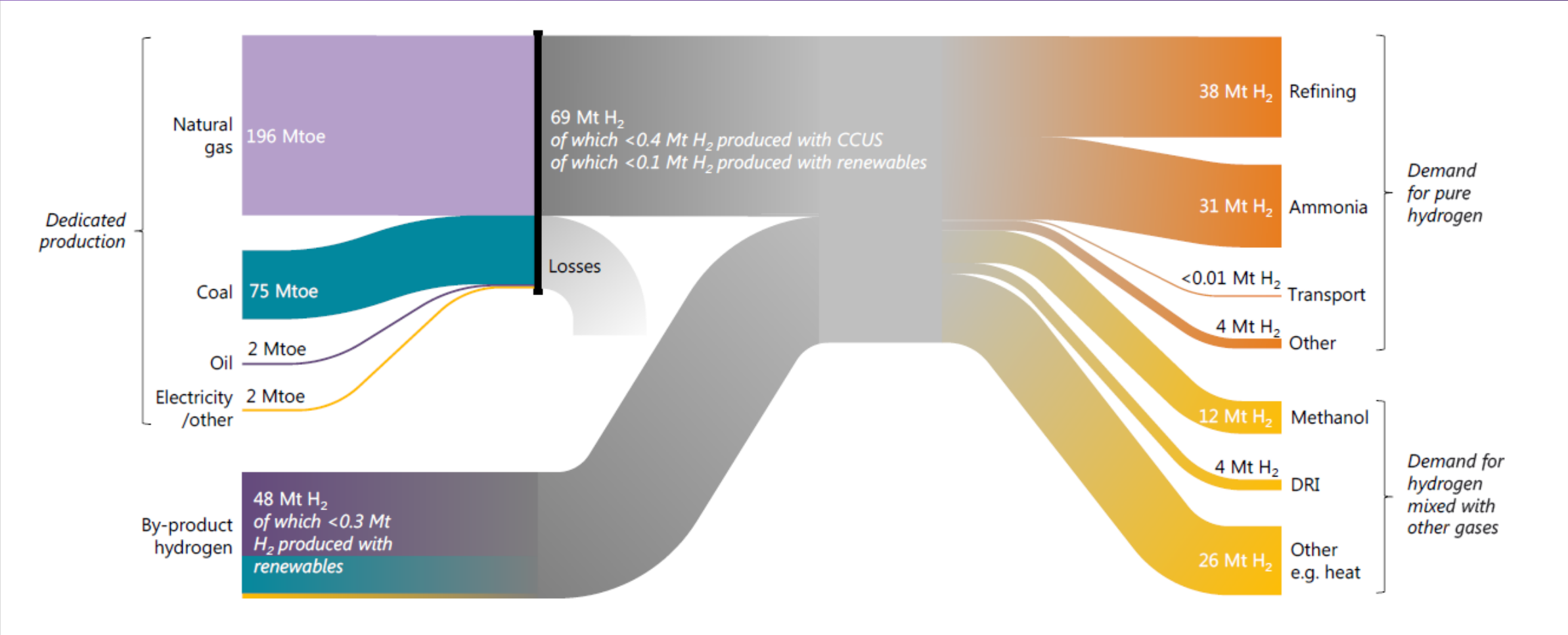
Hydrogen for benzene hydrogenation and CO₂ utilization

- Synthesis of methane via CO₂, H₂ and biocatalyst reaction.
- Benzene hydrogenation producing pure benzene and toluene.

Hydrogen production and usage



There is a lot of potential for DRI based on NG...and finally on low carbon footprint hydrogen





Thank you!

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