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Getting EAF's to zero emissions whilst
creating new revenue opportunities



Agenda

Why EAF (intro)

EAF emissions source

Decarbonization of electricity

What about lime?

Revenue opportunities

Personal Bio / research group

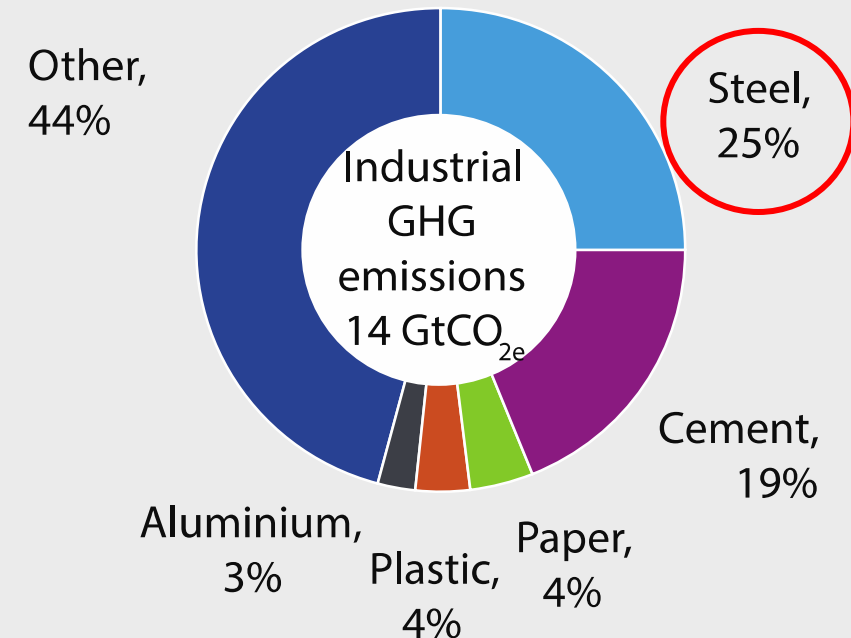
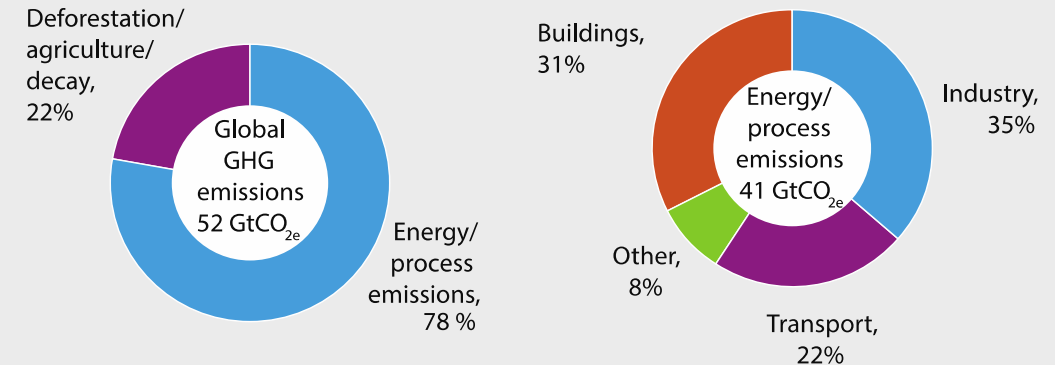


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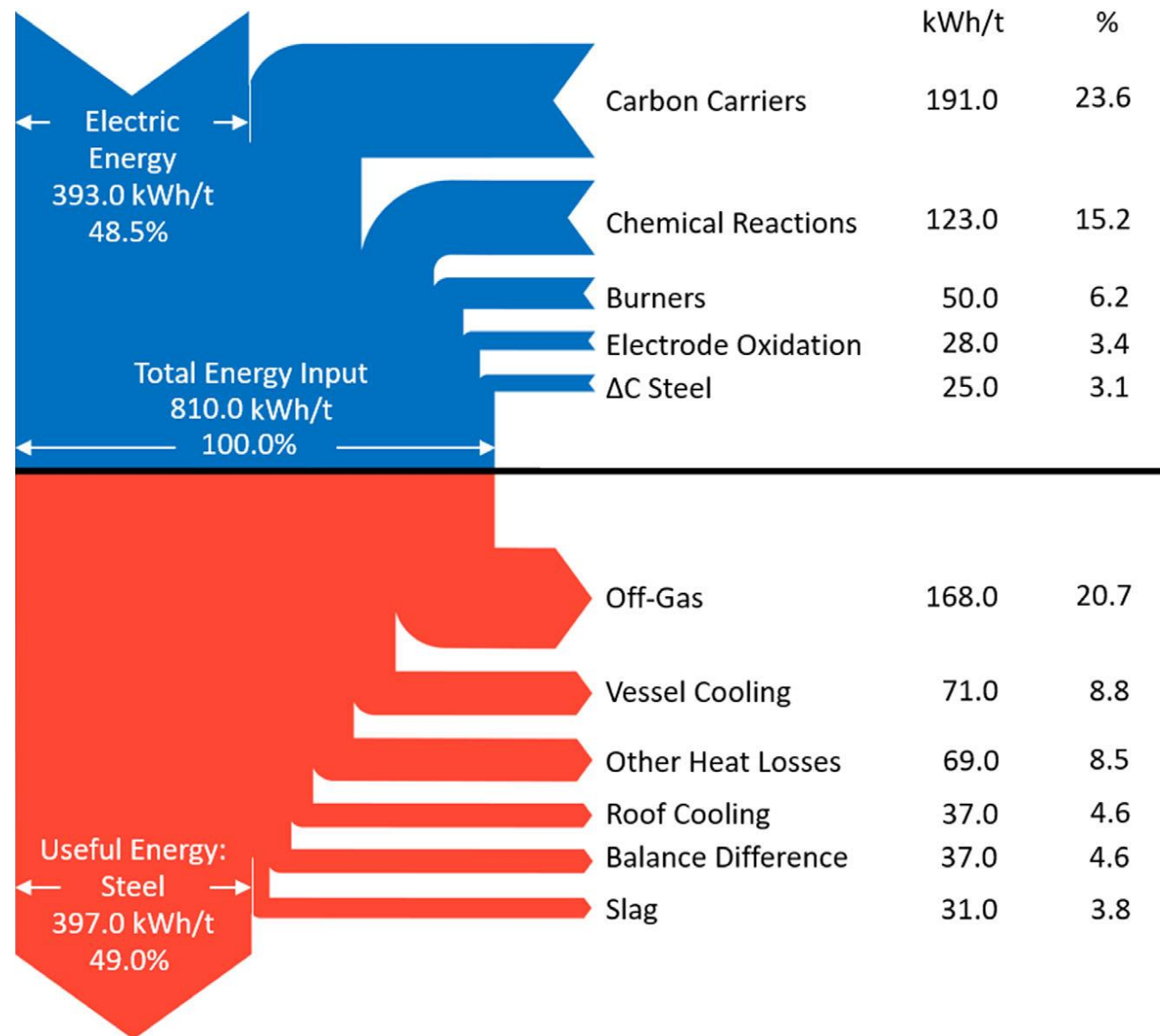


Why EAF

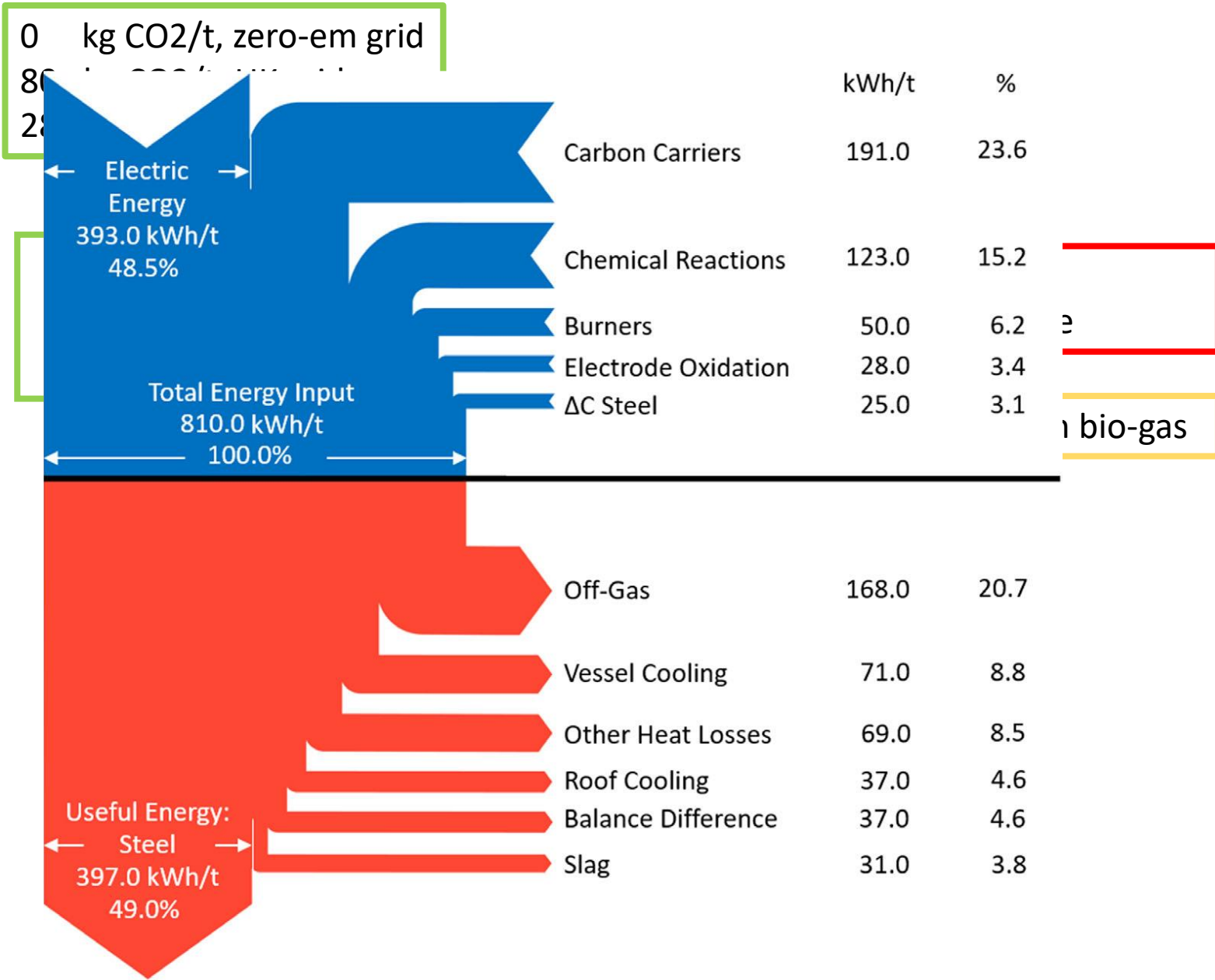
- Steel industry generates 7% of CO₂ emissions per year (IEA 2020)
- EAF only 8% CO₂ of steel and 28% production (400 kg CO₂ /ton steel)
- EU 55% reduction 2030 and net zero 2050



EAF energy consumption / emissions



EAF energy consumption / emissions



What about lime

Residual carbon
could be tackled
with CCS.

OR

Slag could be
valorised,
expanding value
proposition of EAF

Slag valorisation

Modifying flux composition, through lime content and other sources of calcium, produces cementitious slags, **without** modifying steel processing in the EAF.

The produced **slags** can be used directly as replacements of **cement** for concrete.

Challenges for EAF builders and owners

- New design of EAF needs to consider slag as a product
- Optimization of steel AND slag production
- Possibility to have a continued operation

EAF decarbonization and slag valuation research

- Cambridge Electric Cement has proven that modified fluxes in electric furnaces produces cement-like slags.

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Thank you

