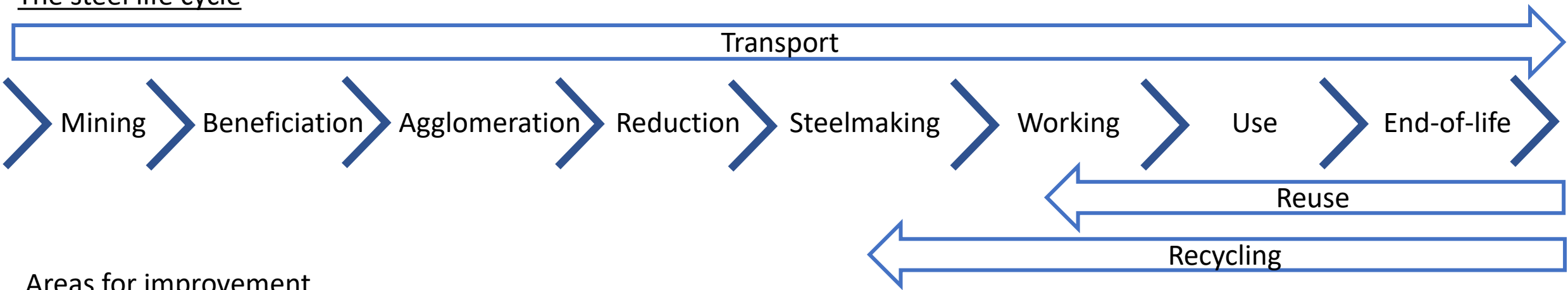


# Assessment of existing standards

Rutger Gyllenram  
Wenjing Wei  
Kobolde & Partners AB  
2.0

# The steel life cycle



## Areas for improvement

Decarbonising electricity generation – using CCS, wind, solar, combustion, nuclear, hydro power, other

Replacing fossil reductants and fuels with hydrogen, biogenic material and low emission electricity throughout the lifecycle

Decarbonise road, rail, sea and air-transport

Electrify site transport

Bio carbon

Hydrogen

Bio carbon

Hydrogen

Bio (+CCS)

Electricity

Electricity

Improving mass and energy yield (efficiency) throughout the lifecycle

Improve material yield in every step (theoretical optimum/actual material use)

Improve energy yield in every step (theoretical optimum/actual energy use)

Use of explosives

Ore/sinter/pellet quality

BF-TGR

Scrap alloying

Light-weight

Identify, clean and sort scrap

Durability

Applying carbon capture transport usage and storage (CCS)

# Organisations



International  
Organization for  
Standardization

Consensus  
Experts from national committees  
1 country 1 vote



EUROPEAN COMMITTEE  
FOR STANDARDIZATION

Consensus  
Experts from national committees  
Proportional voting power

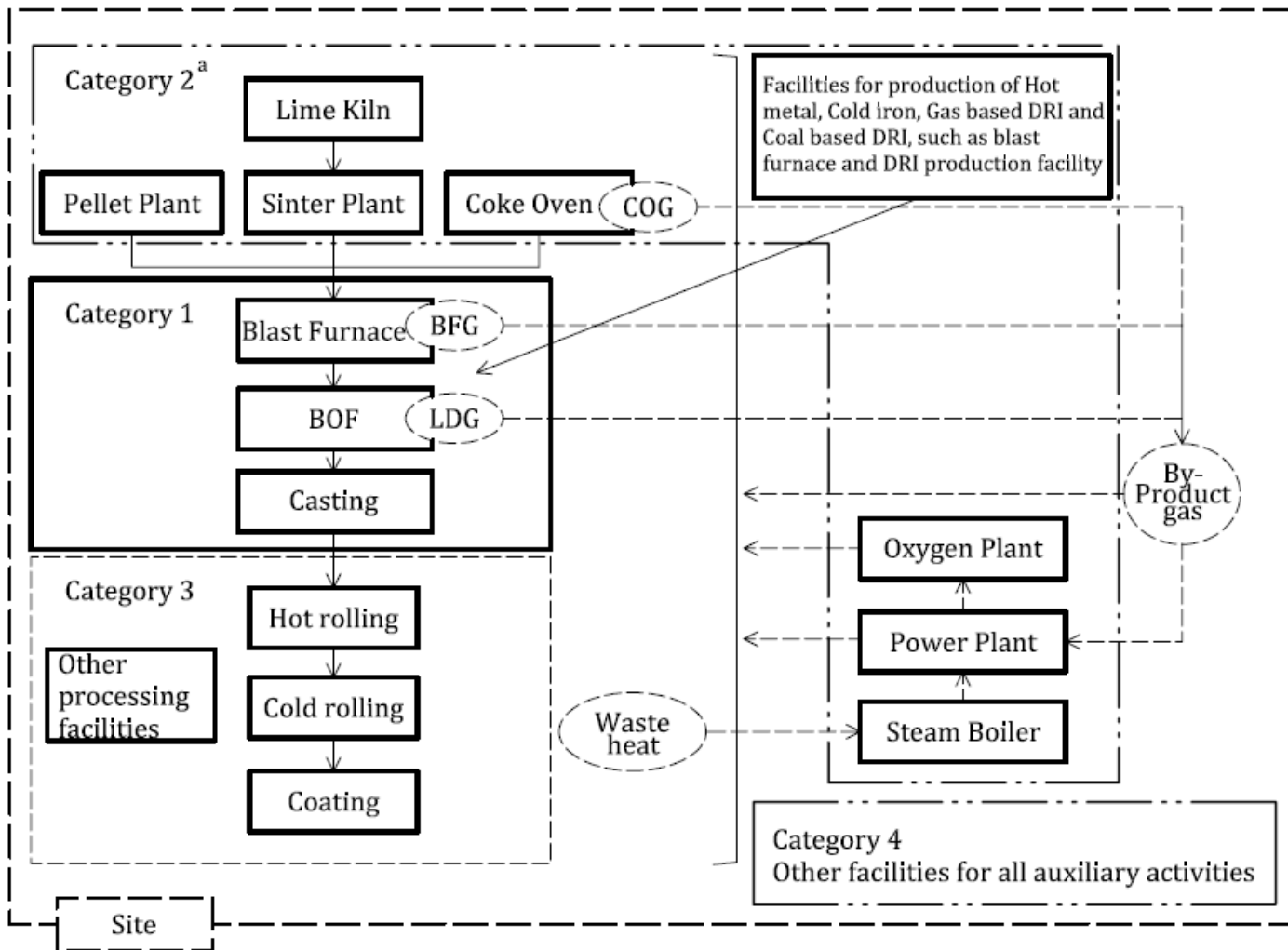


Consensus  
Experts from committee members  
1 member 1 vote

# Selection of standards

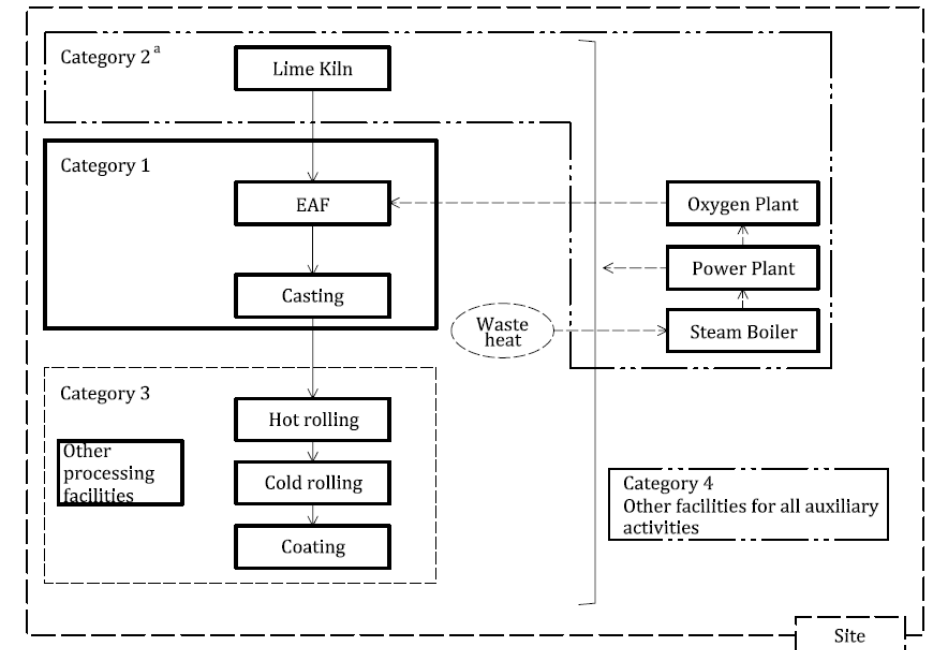
Product LCA/EPD/PCR Standards	Org GHG Quantification/Reporting	General
LCA: ISO 14044	All org: ISO 14064 series	Climate action: ISO 14080
Labels type II: ISO 14021 EPD Labels type III: ISO 14025	Guidance to ISO 14064-1: ISO/TR 14069	GHG mgmt. incl. investments and financing: ISO 14097
PCR/Building materials: ISO 21930, EN 15804, prEN17662 (Steel, Al)	Energy intensive industries: ISO 14694-1, EN 19694	Carbon Neutrality: ISO/DIS 14068
LCI Steel Industry: ISO 20915	BF-plants: ISO 14064-1	Green debt instruments: ISO/DIS 14030
Single impact (GHG): ISO 14067	EAF-plants: ISO 14064-2	Net zero guidelines: ISO/IWA 42:2022
Recycled content in energy related products: EN 45557	DR-EAF-plants: ISO 14064-3 (ISO 14064-4 guidance on all 14064)	Requirements and guidelines for sectoral transition plans: ISO NWIP 2023

LCA: Life Cycle Assessment, EPD: Environmental Product Declaration, PCR: Product Category Rules, LCI: Life Cycle Inventory, GHG: GreenHouse Gases  
BF: Blast Furnace, EAF: Electric Arc Furnace, DR: Direct Reduction, TR: Technical Report, DIS: Draft International Standard, WD: Working Draft,  
NWIP: New Work Item Proposal

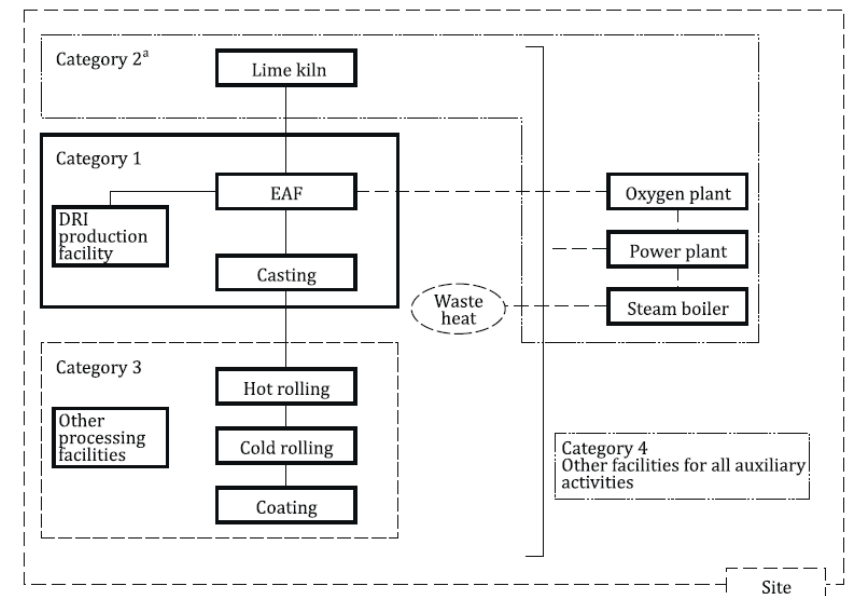


<sup>a</sup> Equipment that can be outsourced. **ISO 14404-1 Blast furnace**

# GHG Site Reporting



<sup>a</sup> Equipment that can be outsourced. **ISO 14404-2 EAF**



**ISO 14404-3 DR-EAF**

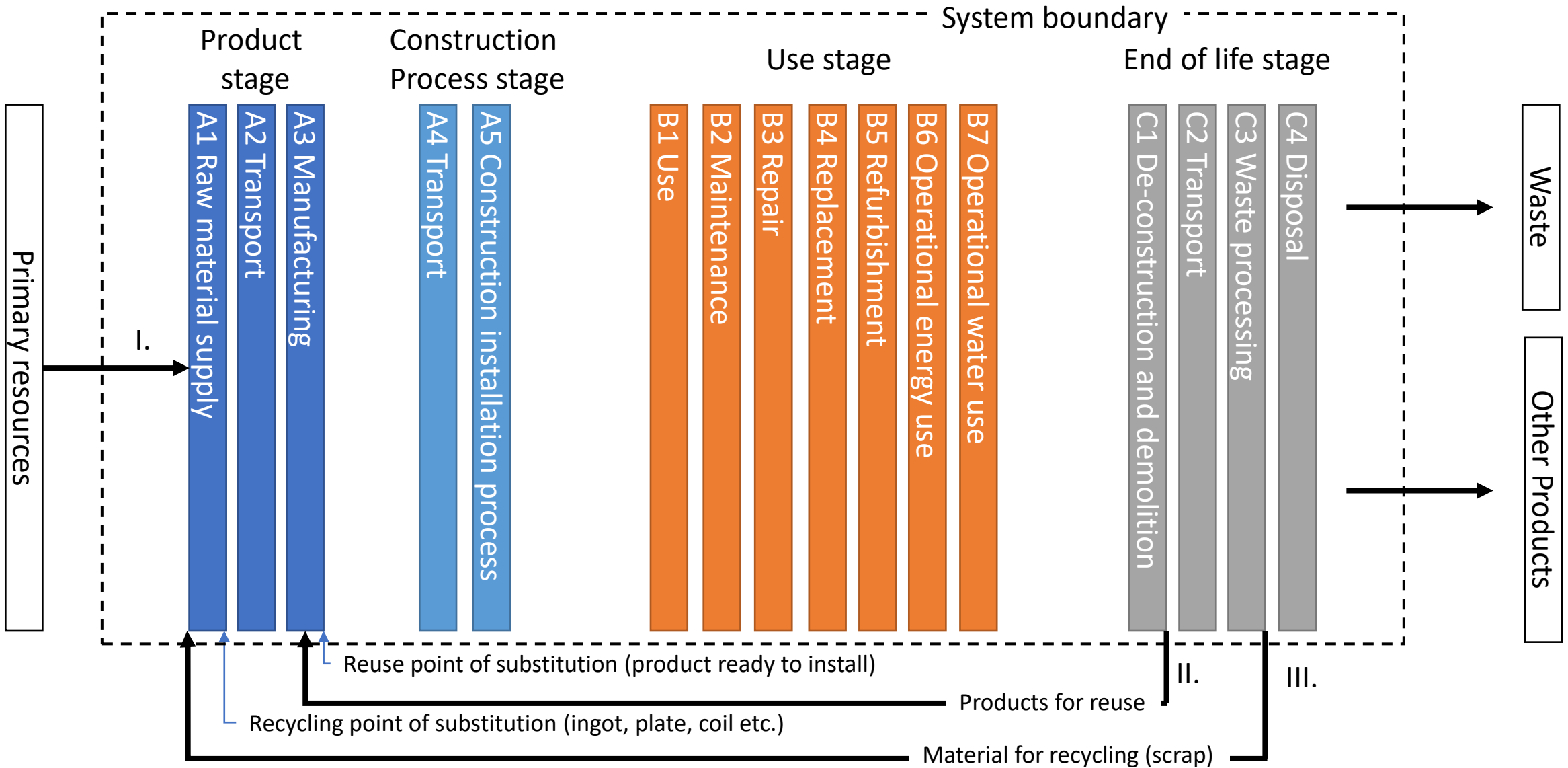
EN 15804  
Boundary

Every model  
reported  
separately.  
No Sum

EPD Types

Product Reporting

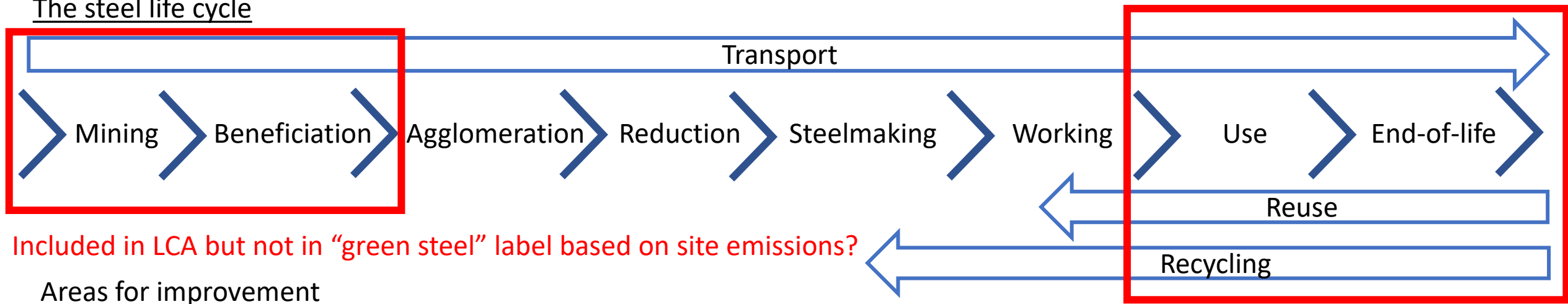
BUILDING ASSESSMENT INFORMATION														
BUILDING LIFE CYCLE INFORMATION														SUPPLEMENTARY INFORMATION BEYOND BUILDING LIFE CYCLE
A1 - A3 PRODUCT STAGE			A4 - A5 CONSTRUCTION PROCESS STAGE		B1 - B7 USE STAGE					C1 - C4 END OF LIFE STAGE				D BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement *	Refurbishment	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery, recycling, potential
scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario
Mand.										Mand. <sup>b</sup>	Mand. <sup>b</sup>	Mand. <sup>b</sup>	Mand. <sup>b</sup>	Mandatory <sup>b</sup>
Mand.			Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Mand.	Mand.	Mand.	Mand.	Mandatory
Mand.			Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mandatory



### D Benefits and loads beyond the system boundary (according to EN 15804 and prEN 17662)

Module D shows the net benefit as avoided emissions of reusing a product or recycling material up to the point of substitution, taking into account resource use, the deterioration in quality and fraction of recycled material. See prEN17662 annex F.

# The steel life cycle



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# What to expect from the EU?



	Product	Organisation	Roadmap	Cooperation	Procurement	Finance
Product Environmental Footprint PEF	X					
Organisational Environmental Footprint, OEF		X				
ILCD Database	X					
Green Steel for Europe (GPP)			X	X	X	
EU Taxonomy						X
Construction Product Regulation, CPR	X					
Eco-design directive	X					