EU ETS - Free Allocation Rules post 2020

WORKSHOPS FOR COMPETENT AUTHORITIES

SQ sustainable quality consult

ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

BM Update – Attributed emissions

Attributed emissions of the sub-installation

Emissions related to exchangeable electricity consumption

Correction for imported waste gases

Emissions related to electricity production

Correction for exported waste gases

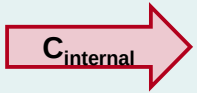
$$AttrEm = DirEm^{*} + Em_{H,import} - Em_{H,export} + WG_{corr,import} - WG_{corr,export} + Em_{el,exch} - Em_{el,produced}$$

Directly attributable emissions as linked to source streams of the MP under the MRR (exceptions for heat and waste gases)

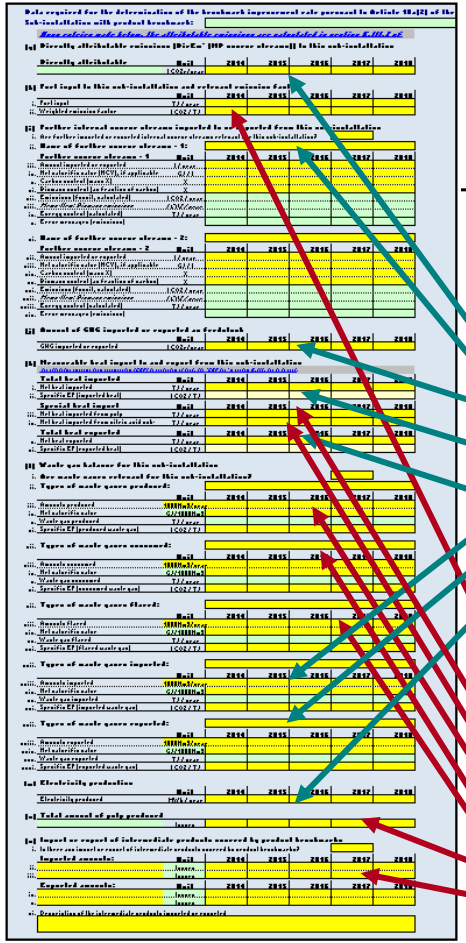
Emissions related to the attribution of measurable heat imported

Emissions related to the attribution of measurable heat exported

Examples – colour codes

Arrow type	Description
	Green arrows are used for source streams found in the MP under the MRR ("MP source streams").
	Grey arrows are used for fuels which are combusted outside the system boundaries of the installation, i.e. not covered by the MP under the MRR.
	Light red arrows are used for "internal source streams" which are not covered by the MP (e.g. because a mass balance is applied over the whole installation).
	Dark blue arrows are used for measurable heat flows.
	Blue arrows are used for products, e.g. product BM products.
	Red arrows are used for electricity flows.

Sheet F

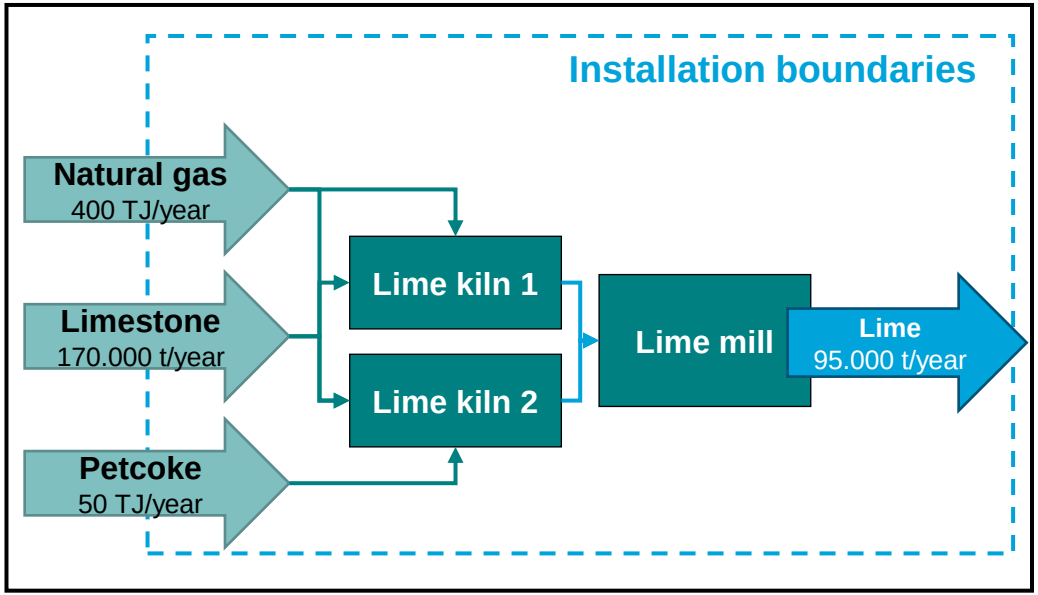


Link to templates

Attributed emissions	Relevant section in the baseline data collection template		Relevant section in the MMP Template		Relevant examples in this section
	Product BM	Fallback BM	Product BM	Fallback BM	
DirEm (MP source streams)*	F.g	G.c	F.e.i	G.c	All
DirEm (Internal source streams)*	F.i	–	F.e.ii	–	WG-1
DirEm (CO_2 feedstock)*	F.j	–	F.e.iii	–	–
$Em_{H,import}$	F.k	G.1.f	F.g	G.1.f	MH(all), WG-3, Elec-2
$Em_{H,export}$	F.k	G.4.e	F.g	G.4.e	MH(all)
$WG_{corr.import}$	F.l	G.4.d	F.h	G.4.d	WG(all)
$WG_{corr.export}$	F.l	–	F.h	–	WG(all)
$Em_{el.exch}$	F.c	–	F.c	–	Elec-1
$Em_{el.prod}$	F.m	–	F.c	–	Elec-2
Parameter: Fuel input	F.h	G.d	F.f	G.d	All
Parameter: Fuel input from waste gases (WG)	F.k	G			
Parameter: Heat produced	–	G			
Parameter: Heat from pulp	F.k	G.			
Parameter: Heat from nitric acid	F.k				
Parameter: Waste gases produced	F.l				
Parameter: Waste gases consumed	F.k				
Parameter: Waste gases flared	F.l				
Parameter: Total pulp produced	F.n				
Parameter: Intermediate products	F.o	–	F.a	–	-

No direct impact on attributed emissions (consistency checks, etc.)

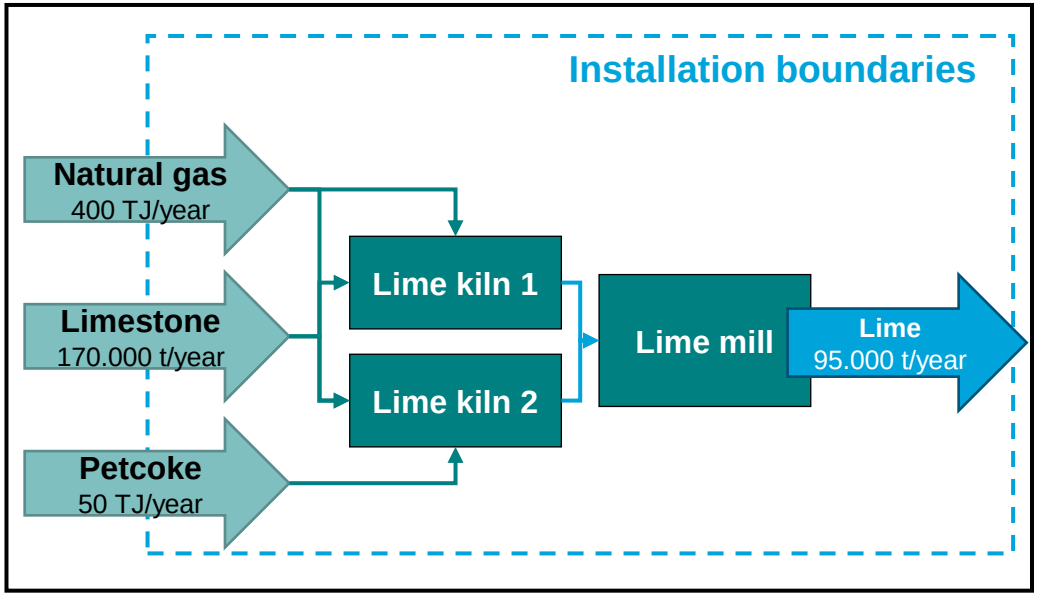
Case study 1



EF Natural gas	56 t CO_2/TJ
EF Petcoke EF	96 t CO_2/TJ
EF Limestone	0.44 t CO_2/t

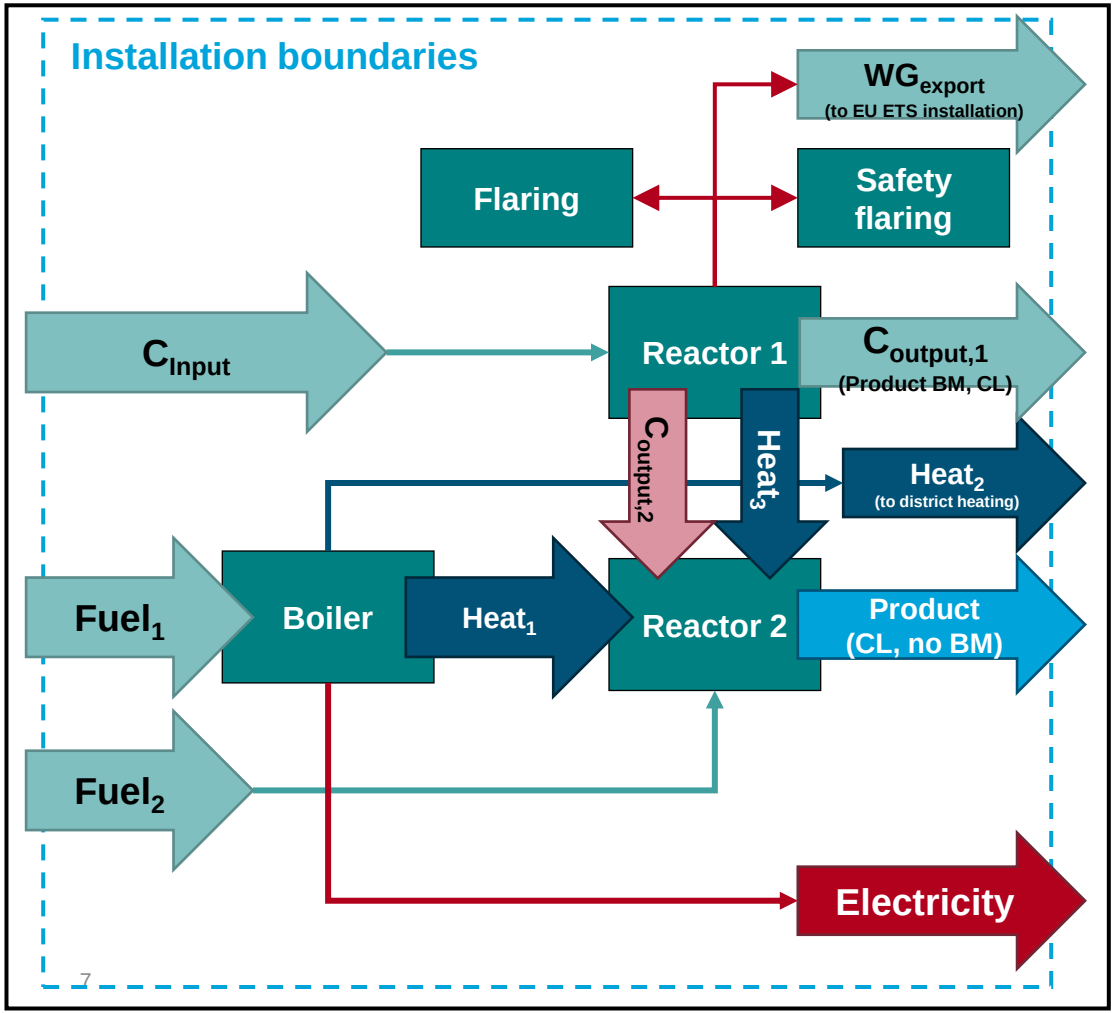
Parameter	Value
Activity level (HAL)	
DirEm* (MP source streams)	
DirEm* (Internal source streams)	
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	
Parameter: Fuel input from WG	
Parameter: Heat produced	
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	

Case study 1



EF Natural gas	56 t CO_2/TJ
EF Petcoke EF	96 t CO_2/TJ
EF Limestone	0.44 t CO_2/t

Parameter	Value
Activity level (HAL)	95.000 t
DirEm* (MP source streams)	102.000 t CO_2
DirEm* (Internal source streams)	
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	450 TJ
Parameter: Fuel input from WG	
Parameter: Heat produced	
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	



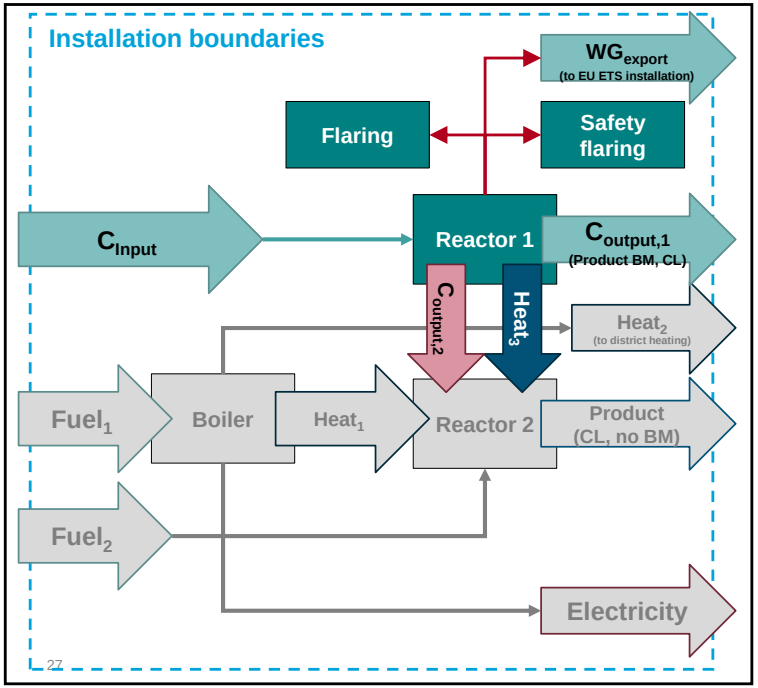
Case study 2

- Identify for all sub-installations:

Parameter	Value
Activity level (HAL)	
DirEm (MP source streams)*	
DirEm (Internal source streams)*	
DirEm (CO_2 feedstock)*	
$Em_{H,import}$	
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	
Parameter: Fuel input from WG	
Parameter: Heat produced	
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	

Case study 2 – solution (1)

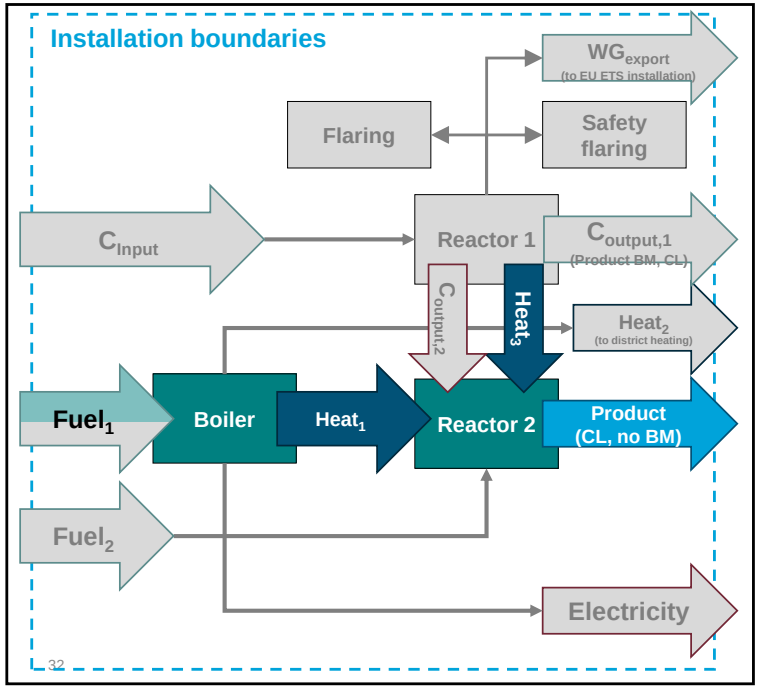
- Sub-installation 1: **Product BM**



Parameter	Value
Activity level (HAL)	AL($C_{output,1}$)
DirEm* (MP source streams)	3.664 x (C_{input} – $C_{output,1}$) [t CO_2e]
DirEm* (Internal source streams)	– 3.664 x $C_{output,2}$ [t CO_2e]
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	
$Em_{H,export}$	– $Heat_3$ [TJ] x BM_{Heat}
$WG_{corr,import}$	
$WG_{corr,export}$	– WG_{export} [TJ] x EF_{NG} x CorrF
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	Fuel(C_{input}) [TJ]
Parameter: Fuel input from WG	
Parameter: Heat produced	
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	WG(export + flaring + safety flaring) [TJ]
Parameter: Waste gases consumed	WG(safety flaring) [TJ]
Parameter: Waste gases flared	WG(Flaring) [TJ]
Parameter: Total pulp produced	
Parameter: Intermediate products	

Case study 2 – solution (2)

- Sub-installation 2: **Heat BM, CL**

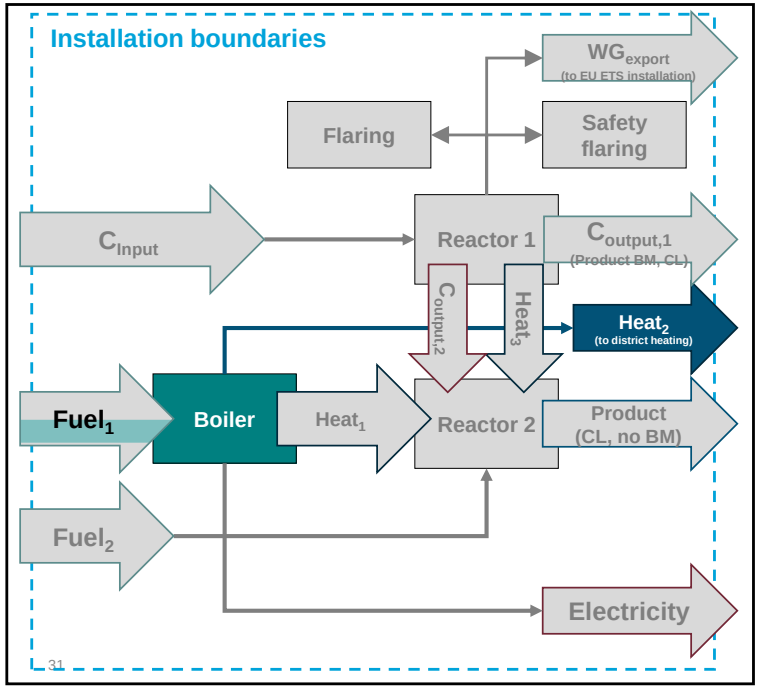


Parameter	Value
Activity level (HAL)	$Heat_1 + Heat_3$ [TJ]
DirEm* (MP source streams)	0
DirEm* (Internal source streams)	
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	+ $Heat_1$ [TJ] x EF_{Heat} + $Heat_3$ [TJ] x BM_{Heat}
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	0
Parameter: Fuel input from WG	
Parameter: Heat produced	+ $Heat_1$ + $Heat_3$ [TJ]
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	

Determined via “CHP Tool”

Case study 2 – solution (3)

- Sub-installation 3: **District heating**

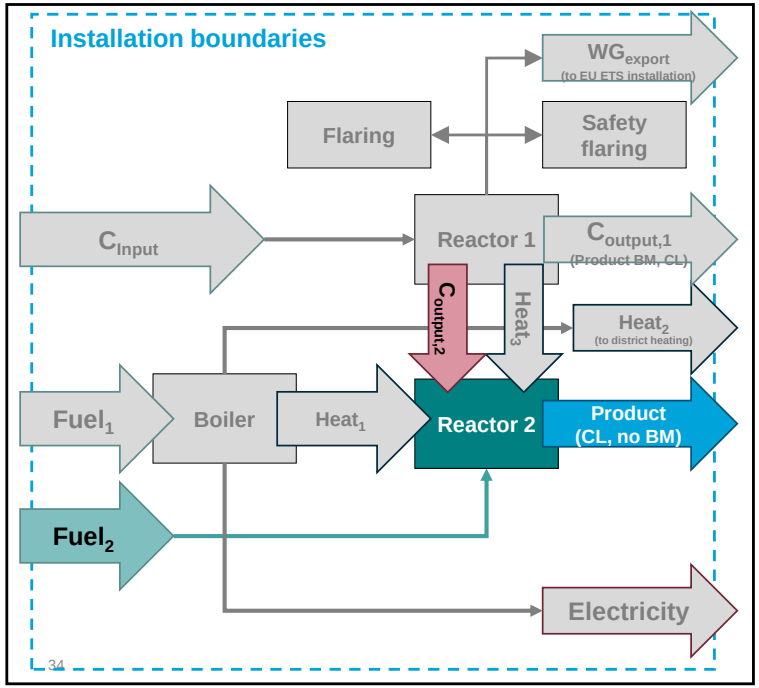


Parameter	Value
Activity level (HAL)	$Heat_2$ [TJ]
DirEm* (MP source streams)	0
DirEm* (Internal source streams)	
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	+ $Heat_2$ [TJ] x EF_{Heat}
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	0
Parameter: Fuel input from WG	
Parameter: Heat produced	$Heat_2$ [TJ]
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	

Determined via “CHP Tool”

Case study 2 – solution (4)

- Sub-installation 4: **Fuel BM, CL**



Parameter	Value
Activity level (HAL)	$Fuel_2$ + Fuel($C_{output,2}$) [TJ]
DirEm* (MP source streams)	$Fuel_2$ x EF_2 [t CO_2e]
DirEm* (Internal source streams)	+ 3.664 x $C_{output,2}$ [t CO_2e]
DirEm* (CO_2 feedstock)	
$Em_{H,import}$	
$Em_{H,export}$	
$WG_{corr,import}$	
$WG_{corr,export}$	
$Em_{el,exch}$	
$Em_{el,prod}$	
Parameter: Fuel input	$Fuel_2$ + Fuel($C_{output,2}$) [TJ]
Parameter: Fuel input from WG	
Parameter: Heat produced	
Parameter: Heat from pulp	
Parameter: Heat from nitric acid	
Parameter: Waste gases produced	
Parameter: Waste gases consumed	
Parameter: Waste gases flared	
Parameter: Total pulp produced	
Parameter: Intermediate products	

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