

Virtual
global
cemfuels
SEMINAR & EXHIBITION



Status of alternative fuels in the global cement industry

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February 2021

Welcome to CemBR – Cement Business Research



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Reports – Multi client:

Bespoke Research:

- Client defined scope and requirements

CemBR Intelligence Platforms:

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Coming soon:

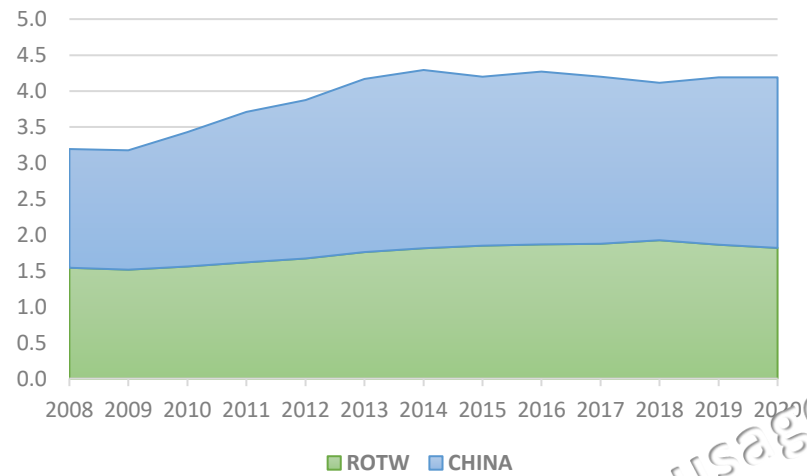
- CemETS™
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Coming soon:

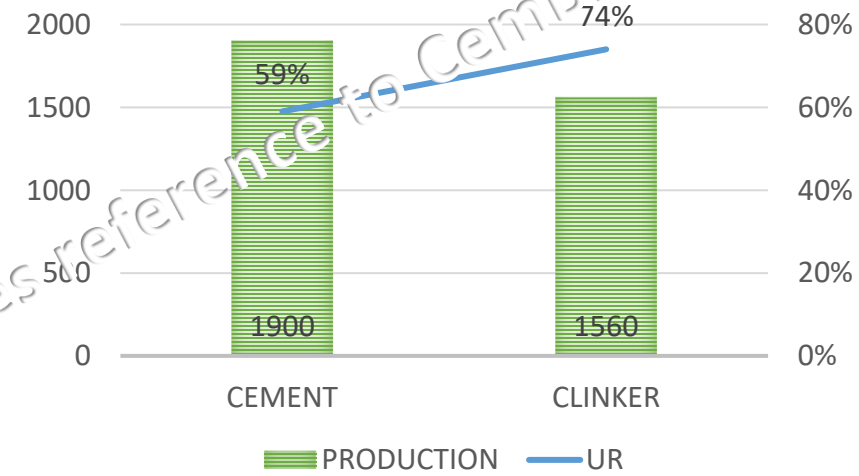
- CemBR Knowledge Warehouse

GLOBAL CEMENT – Estimates for 2020:

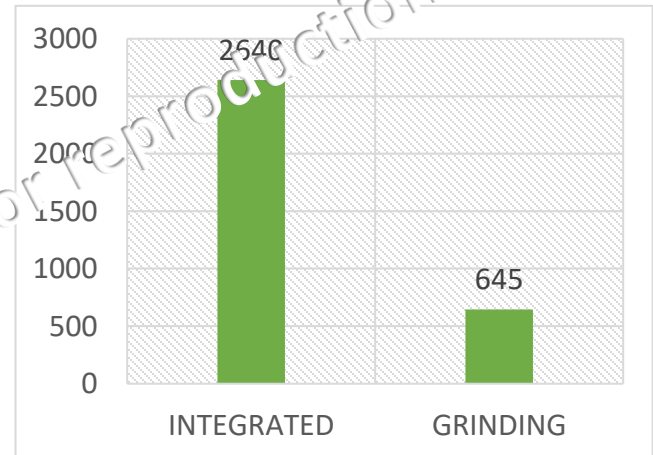
Global cement consumption in billion tonnes



Global production in million tonnes (ex-China)



Cement capacity in million tonnes (ex-China)

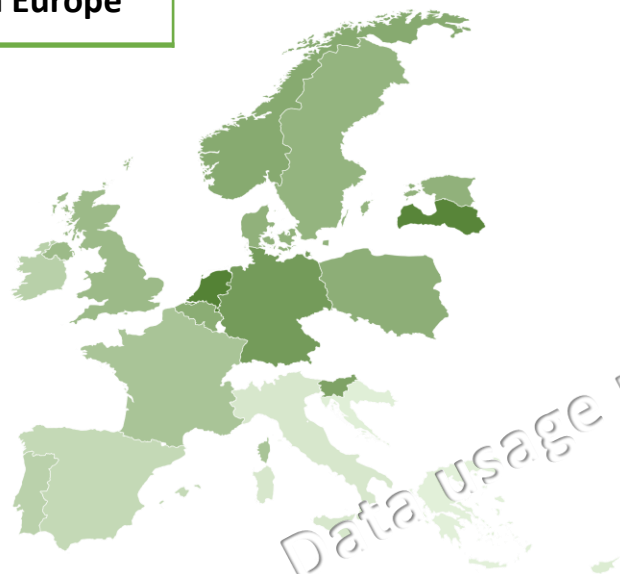


Number of plants (ex-China)



CEMENT AND ALTERNATIVE FUELS: Current usage

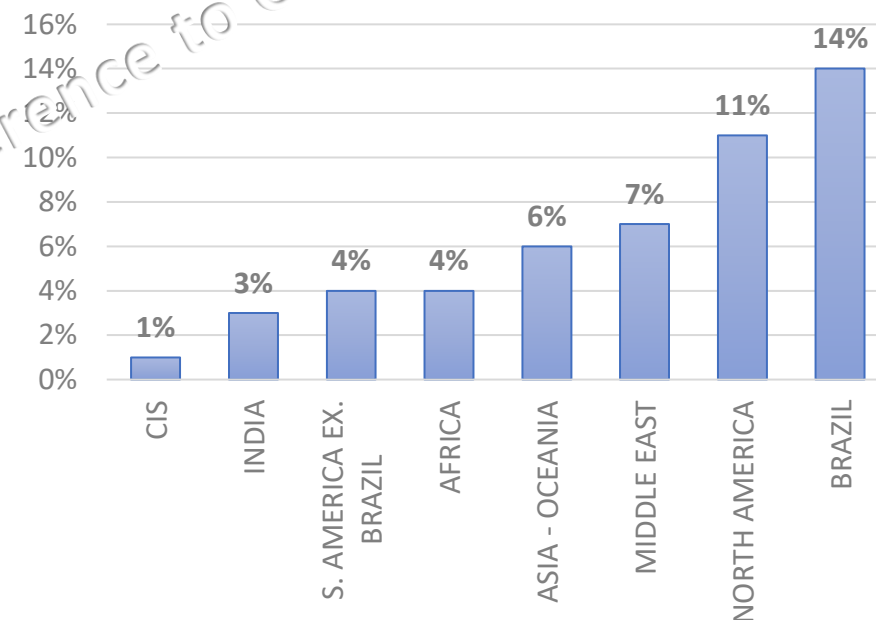
Estimated substitution in Europe



Source: CemBR report: EU ETS & Cement

Estimated substitution: 30%

Estimated substitution - Other regions



Source: CemBR central database

Alternative Fuels substitution: mainly a European game so far!

IMPACT OF ALTERNATIVE FUELS: The Profit imperative

Alternative Fuels substitution is mainly a European game so far – WHY?

Indicator	Characteristics
Cultural	The person that produces the waste is responsible for its disposal
Legislation	Making waste disposal a high cost activity
Industry structure	High cost waste disposal encourages Waste Management Industry (WMI) formation
Propensity to use AFs	AFs at lower cost than fossil fuels, in some cases negative cost (paid to burn it)

An example of a European (EU – ETS) cement plant – impact on EBITDA

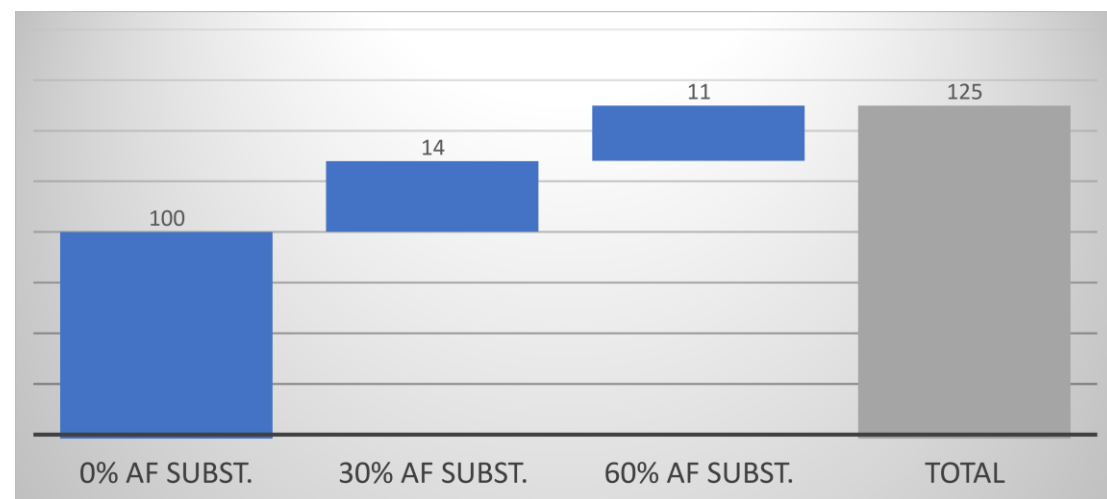
INDICATOR	VALUE	EXPRESSED IN
PLANT HISTORICAL ACTIVITY LEVEL	800	KTPA CLINKER
PLANT FIXED COSTS TOTAL	12	EUR MILLION/ANNUM
CLINKER TO CEMENT RATIO	0.8	
FUEL CONSUMPTION	2.7	GJ/T CLINKER
ALTERNATIVE FUEL COST	40	% OF FOSSIL/GJ
FOSSIL FUEL COST	96	KG CO ₂ /GJ
ALTERNATIVE FUEL CO ₂	80	KG CO ₂ /GJ
BIOMASS FACTOR OF ALTERNATIVE FUEL	50	%

ASSUMPTIONS:

75% UR

ONLY DOMESTIC SALES

CARBON AT EURO 25 PER TONNE



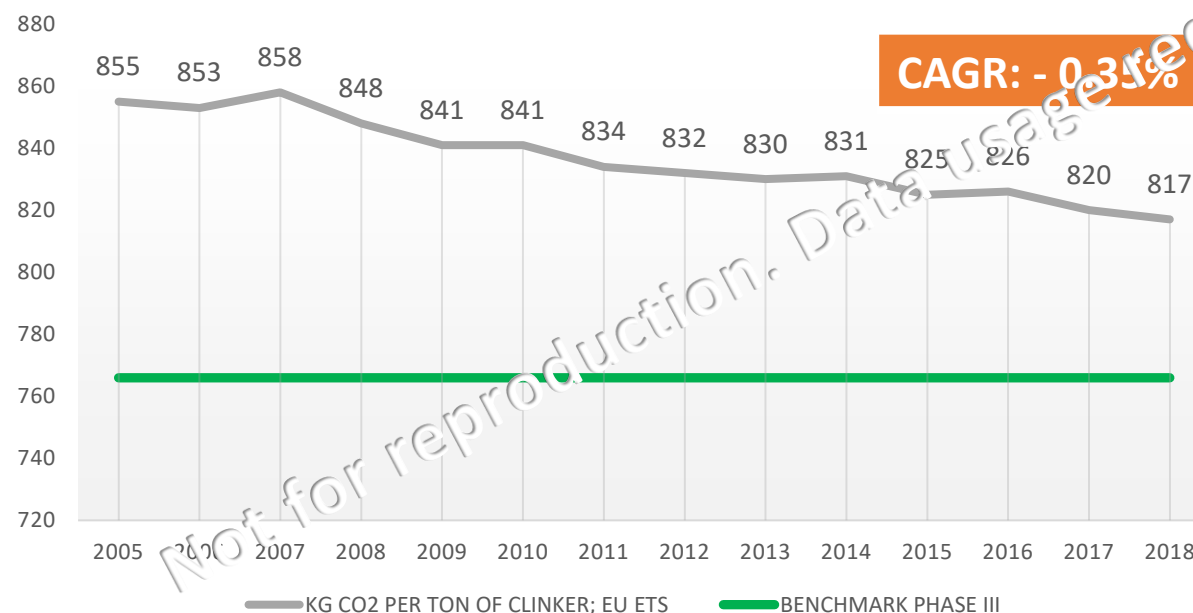
IMPACT OF ALTERNATIVE FUELS: The Carbon dilemma

Alternative fuels:

They produce carbon

Only biomass based fuels are exempt from EU ETS

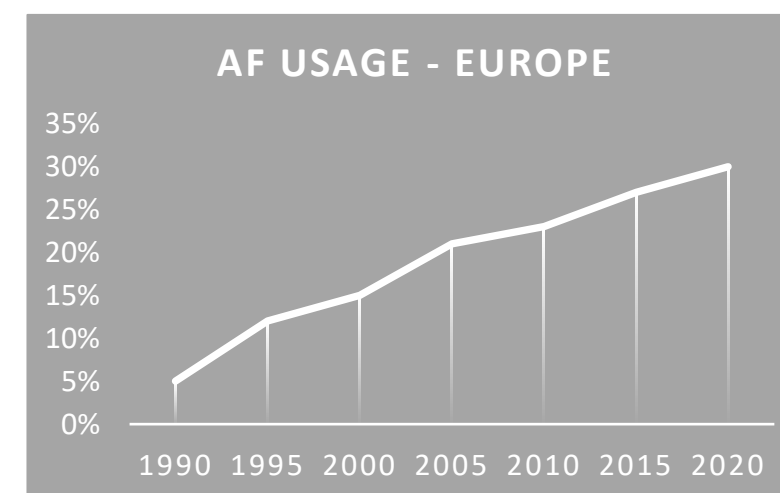
EU ETS – Kg CO₂ PER TONNE OF CLINKER



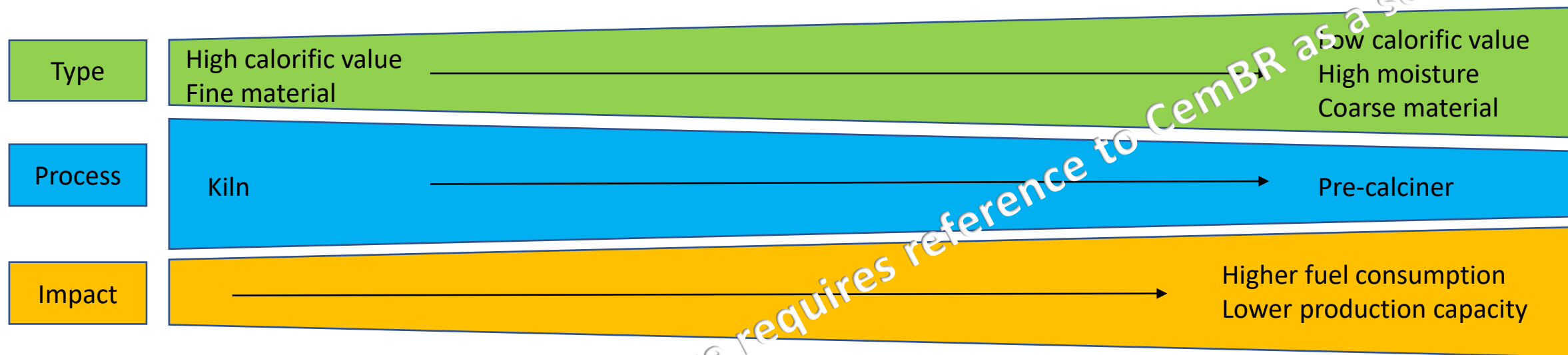
Source: CemBR report: EU ETS & Cement

ALTERNATIVE FUEL	GJ/T	BIOMASS %
TIRES	28	30
WASTE OIL	30	0
PAPER	5	100
PLASTIC	23	0
WOOD WASTE	18	100
ANIMAL MEAL	18	100
REFUSE DERIVED FUEL	18	50
SOLVENTS	25	0
SEWAGE SLUDGE (WET)	3	100
OIL SLUDGE	5	0

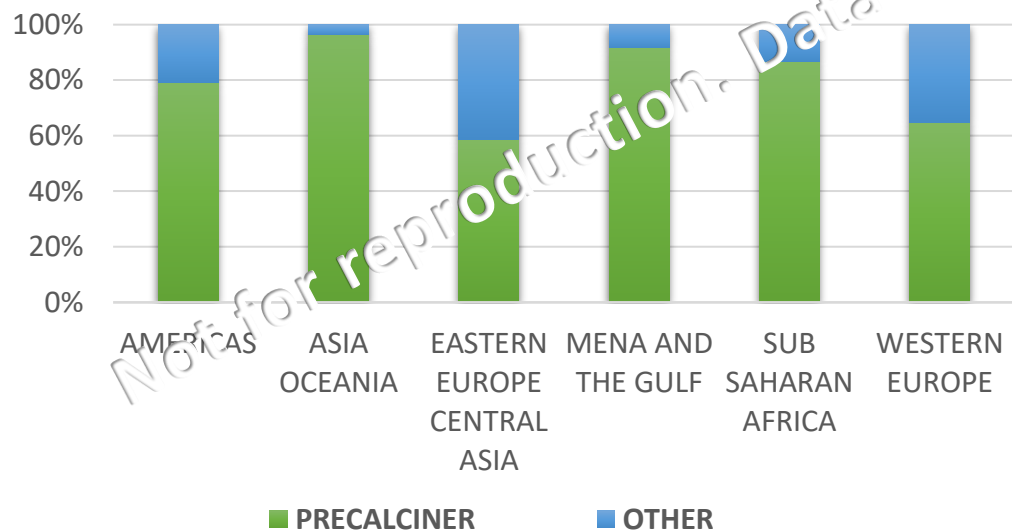
Source: CemBR EU ETS & CEMENT report



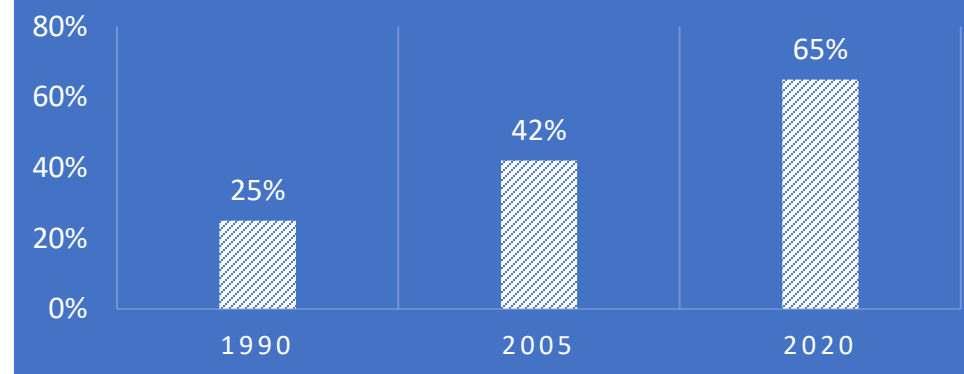
IMPACT OF ALTERNATIVE FUELS: The technology continuum – The Good, the Bad, and the Ugly!



Global capacity (ex – China)



WESTERN EUROPE - PRE CALCINER CAPACITY



ISSUES WITH ALTERNATIVE FUELS:

Outside Europe:

Cultural issues

Waste Management Industries nascent and inefficient

Lack of legislation – e.g. landfill tax

Public perception – licence to operate

In some cases: very low cost of fossil fuels

In Europe:

Understanding of local Waste Management Industry

- Grasp the economics
- Win - win arrangements
- Understand other users of waste stream

Supplier credibility

Supply reliability

Supplier commitment – long term involvement

For all cement producers – globally

Grasping of technical issues

Preparedness of cement assets

Understanding of impact on carbon reduction

Access to “green” funding

Some “blue sky” thinking on AFs:

Biohydrogen/hydrogen

Green electricity fired kilns

CONCLUSIONS:

Messages:

Using AFs appears a compelling proposition for the cement industry as

- It reduces fuel costs (in regions/countries where conditions allow)
- Is environmentally attractive as it impacts carbon emissions and reduces waste....but

AF usage at very low levels outside Europe

Cultural, legislation, public perception, and WMI issues have limited the usage of AFs outside Europe

So far, cost reduction has been the main driver behind AFs. Phase IV of EU ETS may change this (in Europe).

Technical impact requires careful asset configuration, operational expertise, and CAPEX

Reliable supply of high quality, consistent, and appropriate AFs is a global issue

The “bottom line” for cement producer interested in AFs:

AF usage in cement is not a “free lunch” proposition

It requires long-term commitment, resources, and expertise from cement producers

[Select a country](#)[Country dashboard](#)[Market and economic data](#)[Manufacturing facilities data](#)

Welcome to the CGC™

(CemBR Global Compendium)

The CGC™ is a most comprehensive, up to date and accurate cement-related database and intelligence platform.



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