



Smart Transportation Alliance

2021 Annual Conference  
& Innovation Awards

**Roundtable 1 – Decarbonising transportation infrastructures: Emerging technical solutions and best practices to get the job done**

Mr Patrick Le Pense, Manager at ArcelorMittal Europe – Flat Products

25 November 2021

# Leading the decarbonisation of the steel industry

- Commitment to Paris Agreement, recognizing the need to significantly reduce emissions across the group. First group Climate Action report released May '19
- First 'Climate Action in Europe' report released June' 20, laying out AM roadmap to 2030, in line with the EU's Green Deal:
  - ❑ 35% CO2 reduction target by 2030, and carbon neutrality by 2050
  - ❑ Pioneering, breakthrough carbon-neutral routes for steelmaking
  - ❑ Smart Carbon, and an innovative DRI-based routes
  - ❑ New policy frameworks required to ensure the transition to carbon neutrality is both competitive and possible
- "Creating a low carbon world, the case for a Carbon Border Adjustment" published in April 2020
- Second group Climate Action report expected by end of 2020
- September 2020 – AM announced 2050 group carbon emissions target of net zero



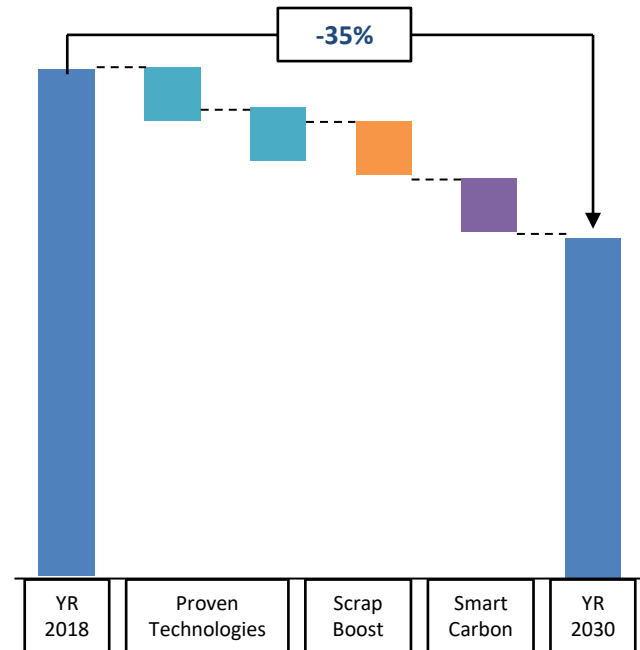
[Download Link: European Climate Action Report](#)



[Download Link: Climate Action Report](#)

# CO2 reduction roadmap for ArcelorMittal Europe – Flat Products

- **2030:** A concrete CO2 plan, delivering the 35% CO2 reduction, has been set based on 3 axes:
  - 1 PROVEN TECHNOLOGIES  
lowest cost
  - 2 SCRAP BOOST  
medium cost
  - 3 SMART CARBON  
highest cost,  
potential to reach CO2 neutral
- **2050:** Both Smart Carbon and Innovative DRI technologies have the potential to reach CO2 neutral. Full deployment will be required.

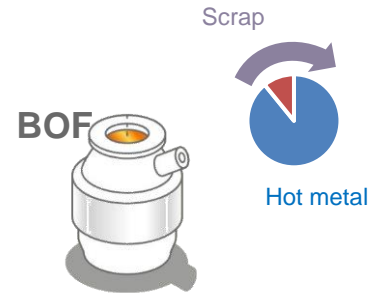


# Axis 1. Proven Technologies

1

PROVEN  
TECHNOLOGIES  
lowest cost

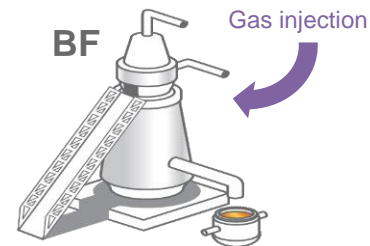
a Lower hot metal  
ratio



Increase amount of scrap  
versus hot metal in BOF

- Target to reach benchmark  
level of ca. 20%

b Gas injection



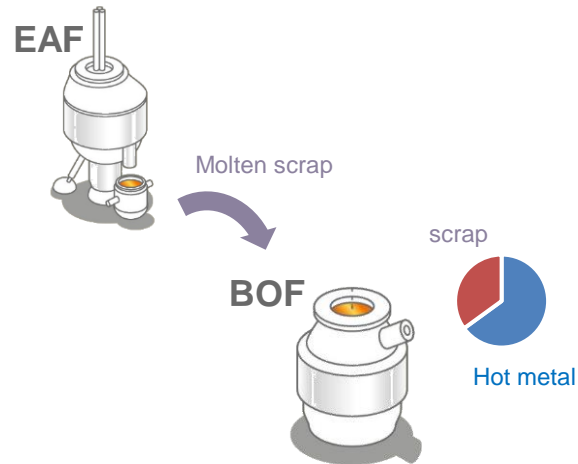
Injection of Coke Oven Gas  
and Natural Gas to replace  
coal

- Also prepares BF for  
potential use of  
hydrogen or biogas in  
the future

# Axis 2. Scrap Boost

2

SCRAP BOOST  
medium cost



Further amount of scrap  
versus hot metal in BOF

- Use pre-melting technology to boost amount of scrap versus hot metal in BOF
- Enables us to go beyond 25% benchmark levels, to reach approximately 30-40%
- Has the potential to use cheap green DRI if it comes available



# What will our roadmap cost, to reach carbon neutrality by 2050?

	Investment needed	
	ArcelorMittal Europe steel footprint	Clean energy infrastructure
<b>Smart Carbon</b>	€15-25 billion	€15-165 <sup>1</sup> billion
<b>Innovative DRI route</b>	€30-40 billion	€40-200 <sup>2</sup> billion

1 Lower end of range leveraging bioenergy and CCS infrastructure; high end of range leveraging green hydrogen infrastructure

2 Lower end of range leveraging CCS and blue hydrogen infrastructure; high end of range leveraging green hydrogen infrastructure



ArcelorMittal

ArcelorMittal green steel offer available since November 2020



ArcelorMittal



# XCarb™

- XCarb™ is a new branding name, with actually 2 initiatives for Flat below this branding name:

**XCarb™**  
Green steel certificate

- All Flat products
- Could be combined with use of High Strength steels to optimize weight & resources

**Started Nov. 2020 for Flat products**

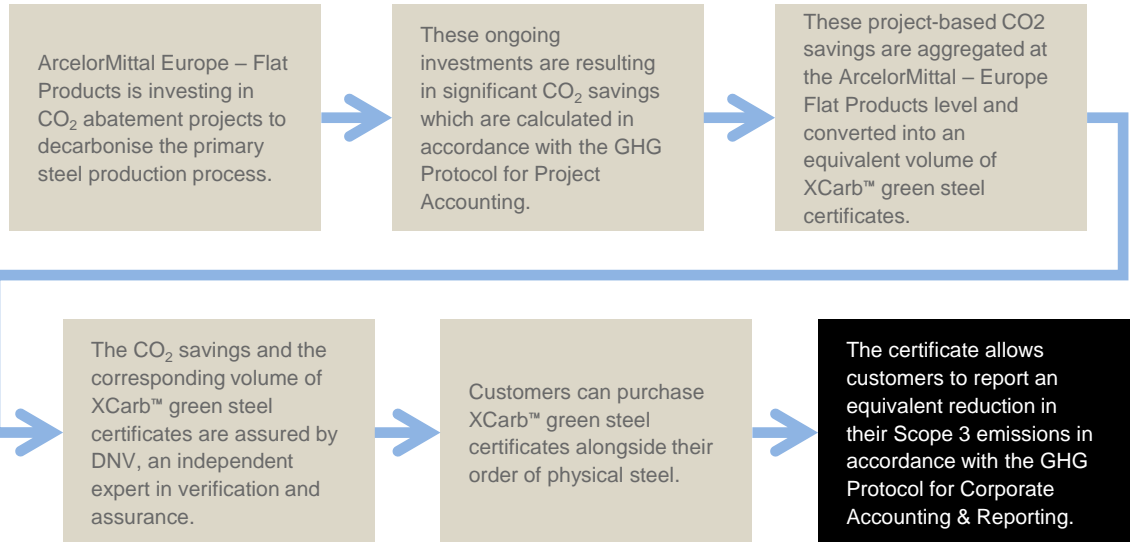
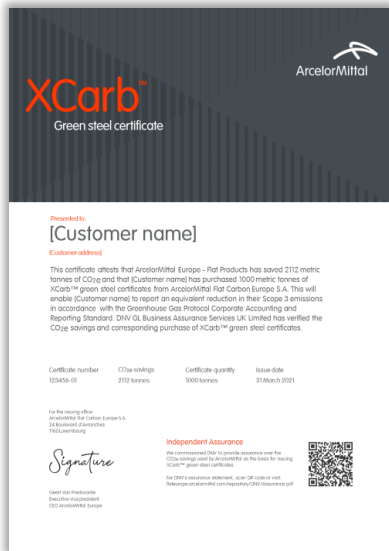
**XCarb™**  
Recycled and renewably produced

- Recycled and renewably produced

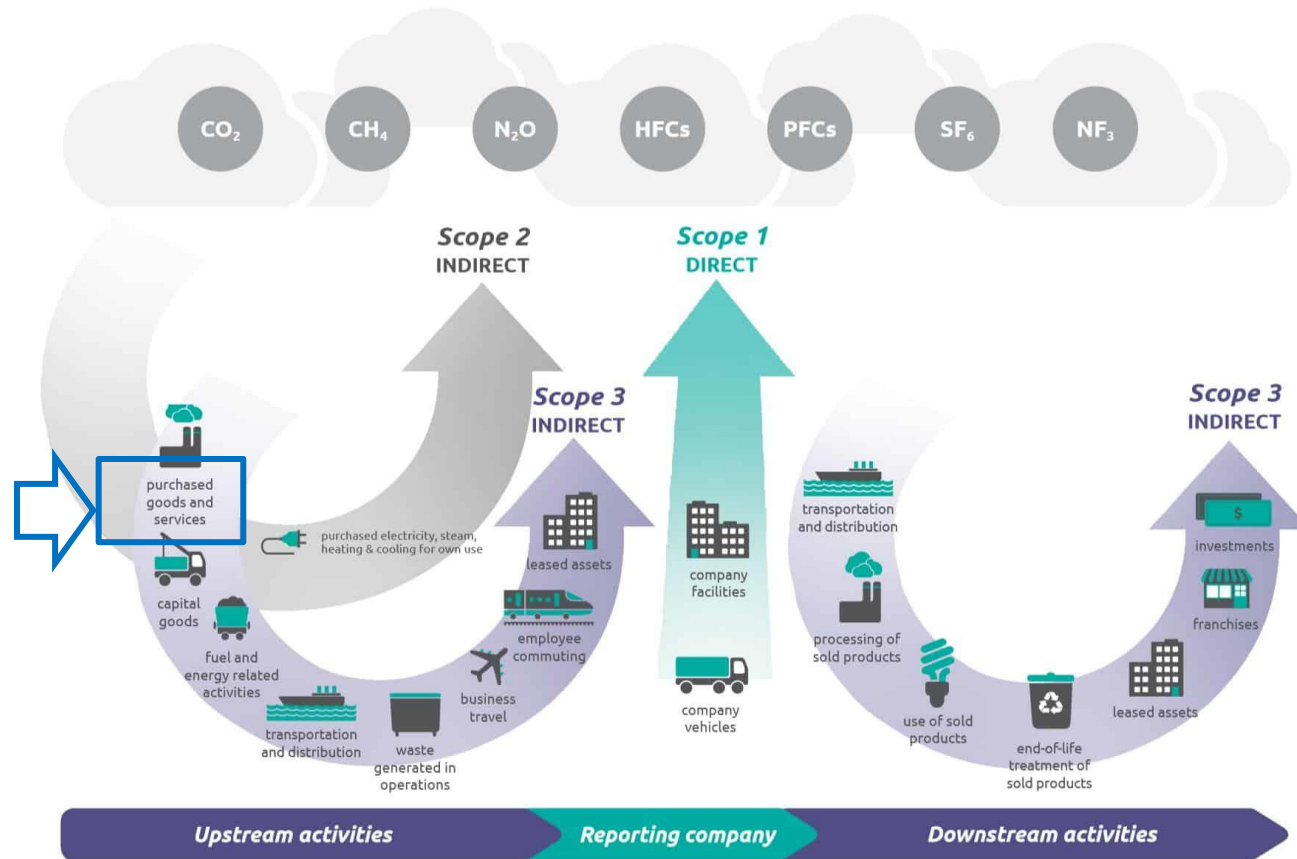
**Started for Long H1 2021  
Planned H1 2022 for Flat**

# XCarb™ green steel certificates – introduction

**XCarb™**  
Green steel certificate



# Green steel certificates support customers to reduce their environmental footprint (as indirect impact Scope 3)





Smart Transportation Alliance

**THANK YOU  
FOR YOUR  
ATTENTION**

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