



ArcelorMittal

The need for a policy design
that provides a positive incentive to
low carbon investments and innovation

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The right policy design is key for low carbon investments and innovation

- The aim of policy should be to provide a positive incentive to low carbon investments & innovation. This includes:
 - Steel production
 - CCU projects
 - Development of new industrial sector symbioses
- The policy design is priority 1:
 - + A carbon price will provide a positive incentive, based on a well designed policy
 - A carbon price will provide a negative incentive, based on a bad designed policy
- More sector targeted policies must be developed – with an improved design of ETS

The design of ETS needs improvement, to provide a more effective incentive for sectors

This ETS design post 2020 can **stop the decarbonisation of the fossil/coal energy sector** by the huge reservation of the auctioning share

In the future power market, fossil fuel will no longer set prices all the time: the **ETS signal to consumers becomes meaningless or too low**

ETS supply & demand deliver 1 price, which is **by definition too high or too low for most sectors as optimal low-carbon investments signal**

Industry **cannot make a positive investment management for low carbon technologies** - even best plants will be faced with huge shortages

Shortages take away money to invest, eg. in CCU or to become the best

This plan **creates huge carbon leakage and imports** via imported products

For steel production, the best incentive is to have 100% free allocation at the real reachable benchmark level – this is a key requirement

The European steel industry has several CCU technologies ready for industrialisation

- Steel gases to Ethanol
- Steel gases to Methanol
- Steel gases to synthetic nafta
- Carbonated bof-slag

- CCU Technologies have been studied and developed.
- A regulatory framework and incentives to support these technologies is now required
- They are a catalyst for CCS potential

- To avoid the combustion of CO in the steel mill gases for electricity production, ArcelorMittal is engineering a gas fermentation demonstration plant.
- This first industrial pilot plant will convert steel mill gas into ethanol.
- The project name is STEEL to ethANOL = STEELANOL, and it is being co-funded by the European Union www.steelanol.eu

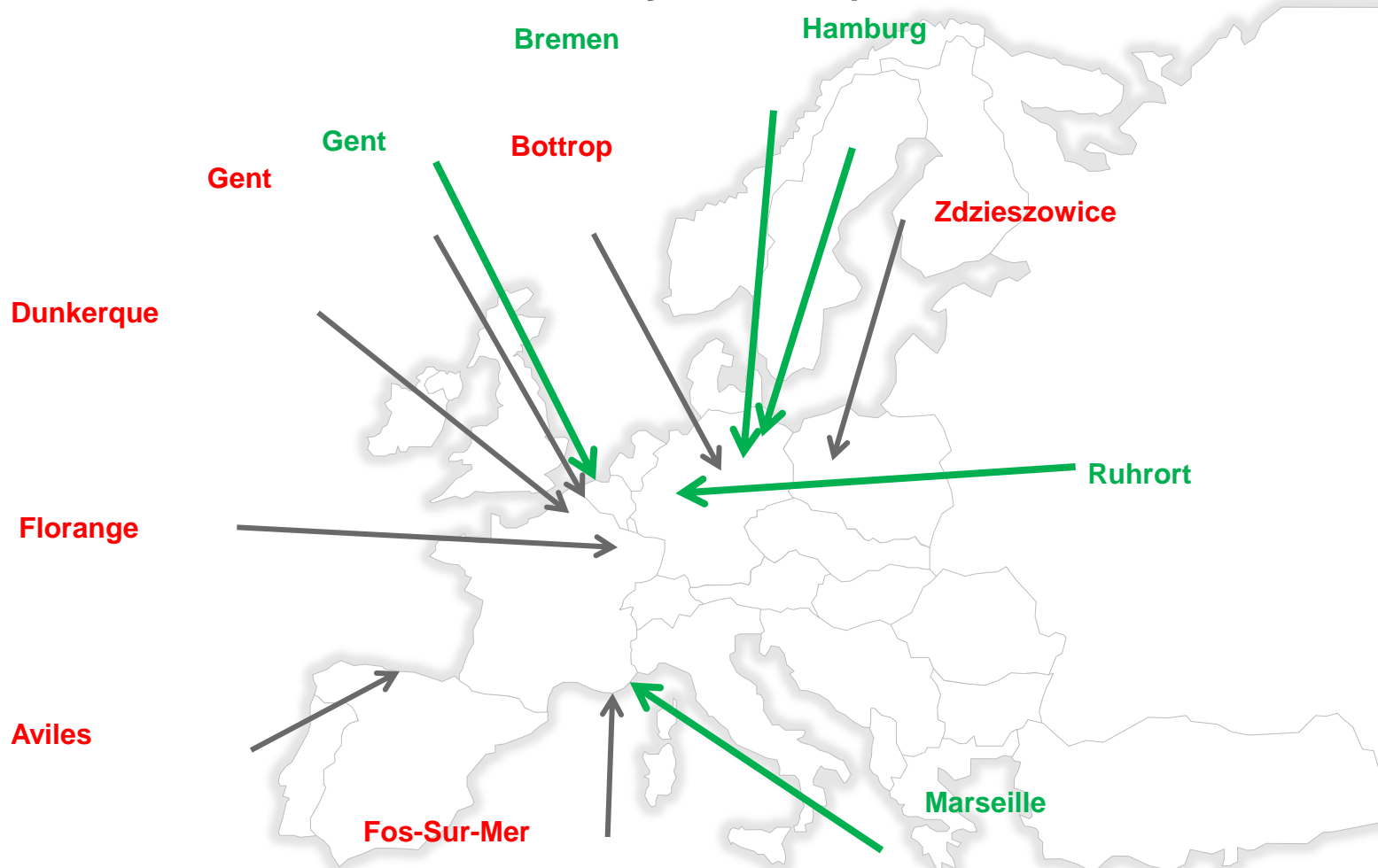


Picture : the gas off take for the steel mill gases, to the fermentation plant have already been installed.

Potential for ArcelorMittal plants in Europe is huge

This potential is even bigger when taking account to massive potential of the industrial sector symbiosis

Steel to Ethanol / Methanol / Synthetic Naphta / etc:



But because of the lack of a regulatory framework ArcelorMittal is not able to invest in Europe

- CCU Chemicals from Steel waste gas has a theoretical potential to replace large parts of the stockfeed of the chemical industry once hydrogen will be available in large quantities
- Already today 10mt/yr of chemicals can be produced from steel waste gas, displacing fossil fuels and reducing CO₂ emissions >20mt/yr
- The European Council and Parliament have recognised the importance of incentivising CCU
- The Commission should develop an incentive program that does deliver the roll out of such technologies, similar to RES – as part of a larger industrial symbiosis to develop the modern economy;
- But at short term:

Regulatory Framework for Quick Start of CCU demonstration projects

- **Innovation requires 3 main roadblocks to be solved**
 - Get market access to the fuel market as alternative fuels under RED
 - Alternative low carbon fuels are an existing market with mandatory obligations of member states to develop capacities. Only when the transport sector is developed it is realistic to develop the “green plastic” market
 - Recognition of CCU under the ETS monitoring guidelines that the CO₂ is no longer emitted but transformed into a liquid/solid form
 - Today only mineral storage is recognised
 - Financing demonstration projects through EIB (InnovFin) and/or NER400
 - EIB InnovFin is already operational is should be made available for those CCU Steelmaking projects
 - Example : STEELANOL project
 - First of a kind investment of 100m€ to produce 50kt/yr Ethanol from steel waste gas is currently pending due to lack of clarity. Without market access to the bio-ethanol market and access to the risk sharing instruments, the project is not financeable