

Game change in the steel industry

High level Conference Finance for innovation: Towards the ETS Innovation Fund

January 2017

Theo Henrar



If it is not made from steel, it is made with steel
It is a permanent material and a corner stone of the circular economy



Steel industry characteristics

- Capital intensive
- Long investment cycles
- Global competition
- To operate sustainably an average EBITDA of 15% is required
- Potential to decarbonise with existing technologies is limited.
- New technologies are required

The steel industry can contribute to a low carbon and circular economy with 'break-through' technologies

EUROFER
The European Steel Association

A selection of recent developments



2050
A STEEL ROADMAP FOR A
LOW CARBON EUROPE 2050

Transforming CO₂ into useable products

- ArcelorMittal, LanzaTech and Primetals Technologies to develop a biofuel production facility in Gent
- The Carbon2Chem® project of thyssenkrupp Steel Europe to use steel mill gases to generate electricity and to produce valuable chemicals from them

Using hydrogen as reductant rather than carbon

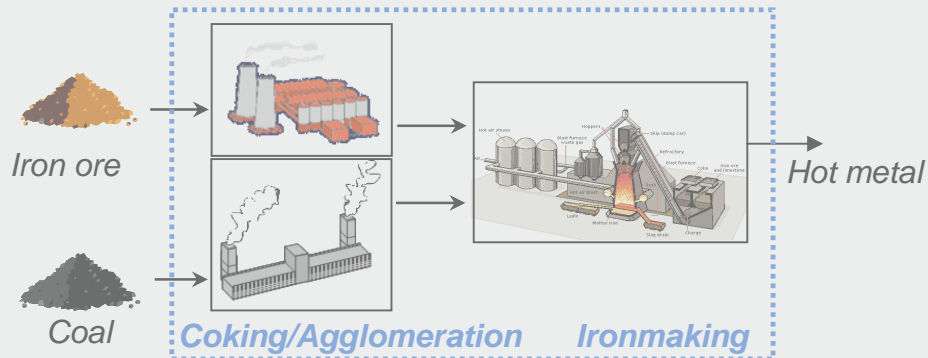
- SSAB, LKAB and Vattenfall initiative for a carbon-dioxide-free steel industry: HYBRIT

Smelting-reduction

- Hisarna: an innovative ironmaking technology developed under the ULCOS (Ultra Low CO₂ Steelmaking) initiative of the European Steel Industry

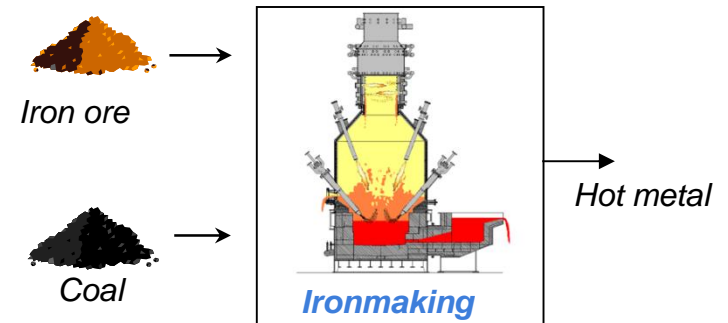
The Hisarna technology has substantial benefits

Blast Furnace Technology



- 1.9 t-CO₂ per ton steel
 - Continuous improvement (no “break through”)
- Strong dependence on import
 - Requires coking coal
 - Prime quality iron ores
- High level of recycling, but limitation on return of Zn in the cycle
- Blast Furnace Technology is available globally

Hisarna Technology



Lower carbon footprint

- 20-35% CO₂ reduction
- 80 % CO₂ reduction with CCS

Less depending on imports

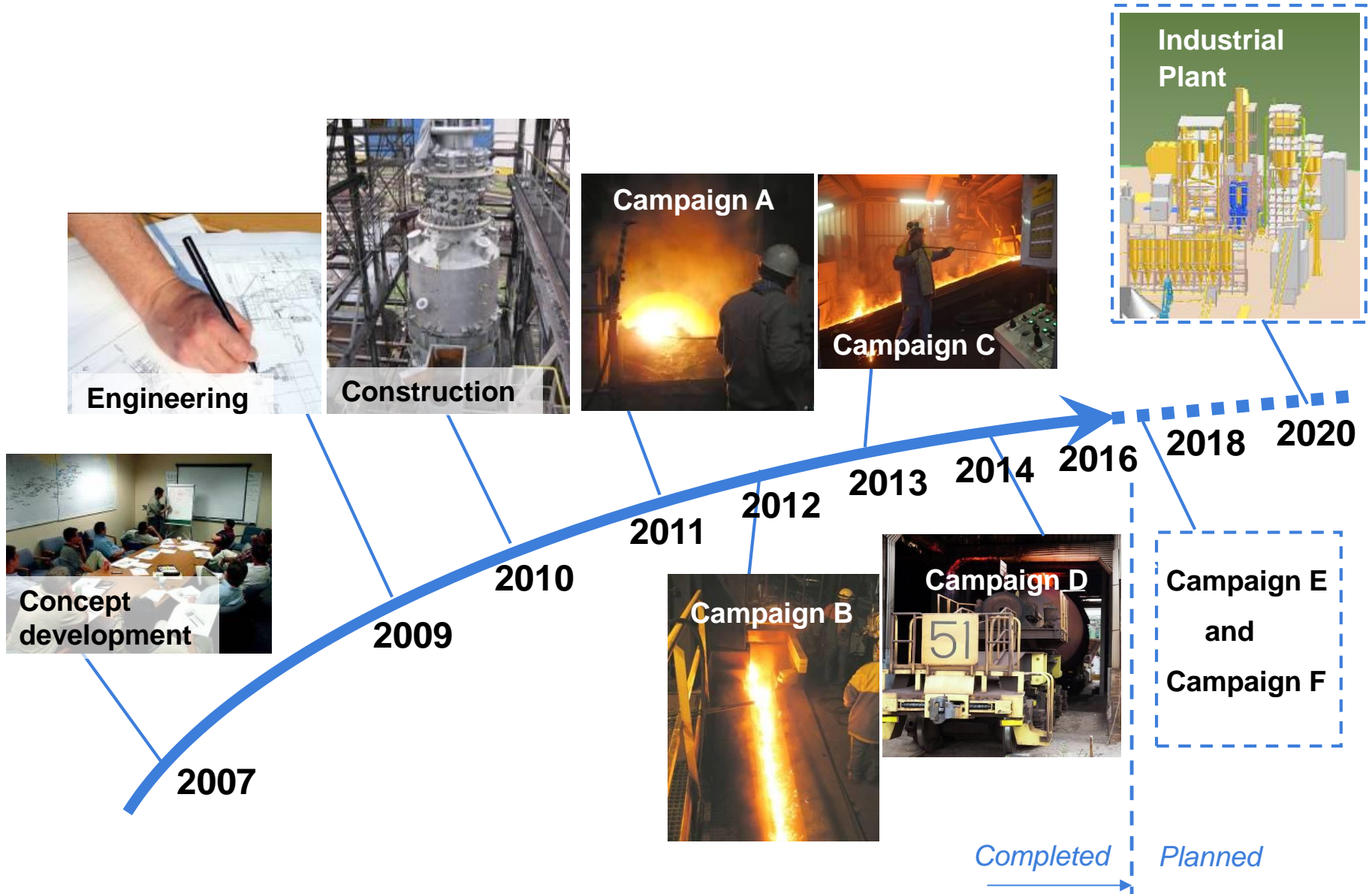
- Non coking coals
- Allows higher levels of “contamination” in iron ore

Circular economy

- Zero waste
- Recycling of high Zn scrap and waste

Innovation leadership for Europe

Hlsarna development



Funding a new initiative becomes more difficult along the way



Too many schemes, all very different

EUROPE

- SILCII
- NER300
- RFCS
- SPIRE
- LIFE
- EUREKA

National

- DEI
- RDA
- WBO
- MIA/EIA
- IPCEI

Regional

- AEB
- Participation Fund

Most of requests rejected

- All requests 2009 – 2011 granted
- 6 out of 8 since 2013 not granted
- Requested in total €52m, granted €24m

Possibilities for co-finance decrease when TRL level increases



Issues

- Innovations have to fit with policy criteria which differ from scheme to scheme
- Requested amount is often too large for funding scheme
- Tendency to revert from grants to risk financing options (=loans) for higher TRL developments. .

What is needed

- A 'one stop shop'
- Real risk sharing financing options
 - Funding in the form of a grant becoming only a loan when the development is successful.
- Governments (EU) to play a role in this risk sharing.
- Upfront clarity about the funding.
 - Making funding dependent on the outcome such as in the NER300 is a disincentive.



TATA STEEL



Do you have questions?

TATA STEEL