European Commission

Webinar series

Decarbonising energy-intensive industries: challenge or opportunity for coal regions?

Initiative for coal regions in transition

29 June 2021

Housekeeping guidelines

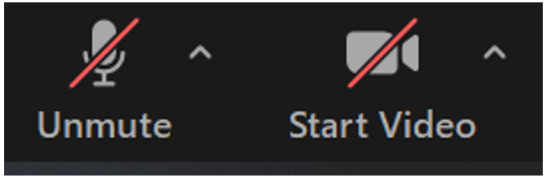
Questions and comments

Use the chat to share your **questions**. We will take them at the end.

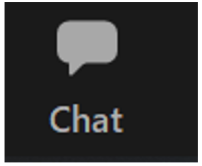
Recording

Keep in mind that the meeting will be **recorded**

During this meeting you'll be **muted** and your **video will be off**.



Use the **chat** to share your comments and questions.



For technical support: private message to Martin Freire

European Commission

Agenda

01 **Introduction**

Timon Wehnert, Head Berlin Office,, Research Unit Structural Change and Innovation, Wuppertal Institute

02 **Toolkit: Decarbonising energy-intensive industries**

Jannis Beutel, Junior Researcher Research Unit Structural Change and Innovation, Wuppertal Institute

03 **In4Climate.NRW and green steel**

Dr. Hans-Jörn Weddige, Head of Climate Funds Strategies, Center of Decarbonisation, thyssenkrupp

04 **Strategic planning in Malopolska, Poland**

Bożena Pietras-Goc
Senior Expert at the Department of Sustainable Development at the Marshall's Office of the Malopolska Region

05 **Q&A and discussion**

Initiative for coal regions in transition – Support materials

Available online: coalregions.eu

12 current practice case studies

Toolkits

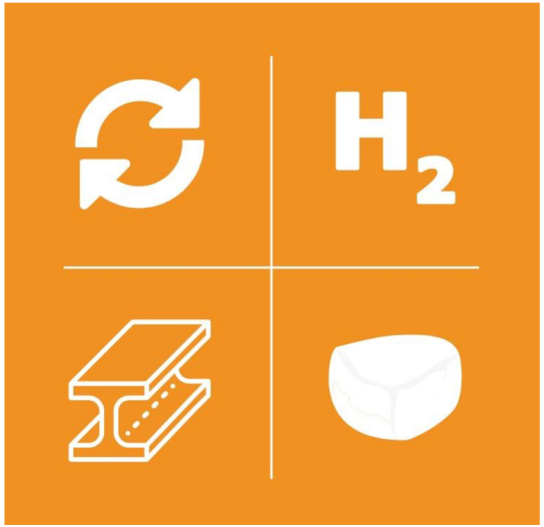
- Transition strategies
- Governance of transitions
- Sustainable employment and welfare support
- Environmental rehabilitation and repurposing
- **NEW** - Technology options
- **UPCOMING** - Transition financing

Overview

Technology options for industries in a climate-neutral economy

Re-use of coal-fired power plants

Decarbonising energy-intensive industries

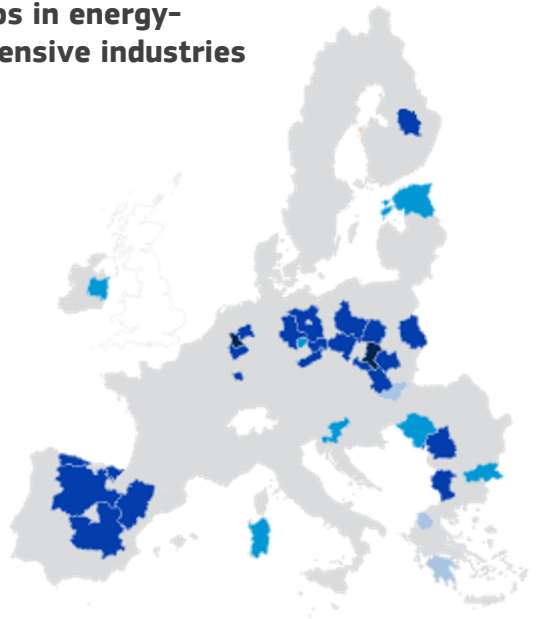


Hydrogen

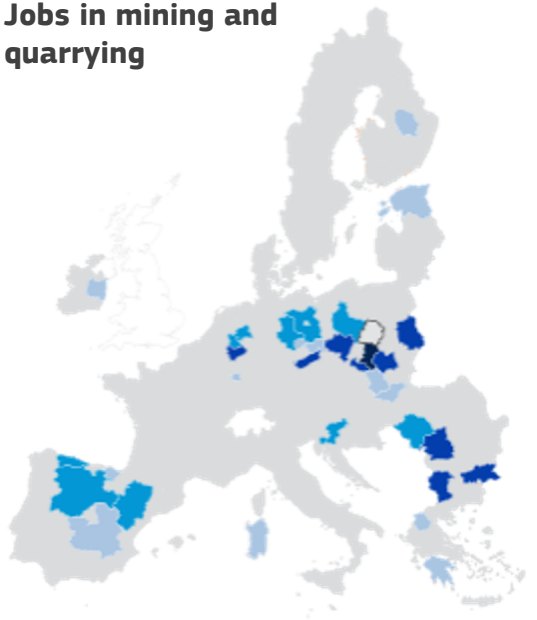
Non-energy uses of coal

Decarbonising energy-intensive industries

Jobs in energy-intensive industries



Jobs in mining and quarrying



Number of persons employed

- 50,001-100,000
- 10,001-50,000
- 5,001-10,000
- 1,001-5,000
- 1-1,000
- Data not available

Indicators for energy-intensive industry per NUTS2 region : manufacturing of basic metals, other non-metallic mineral products, chemicals and chemical products, paper and paper products. Source: Eurostat

Decarbonising energy-intensive industries

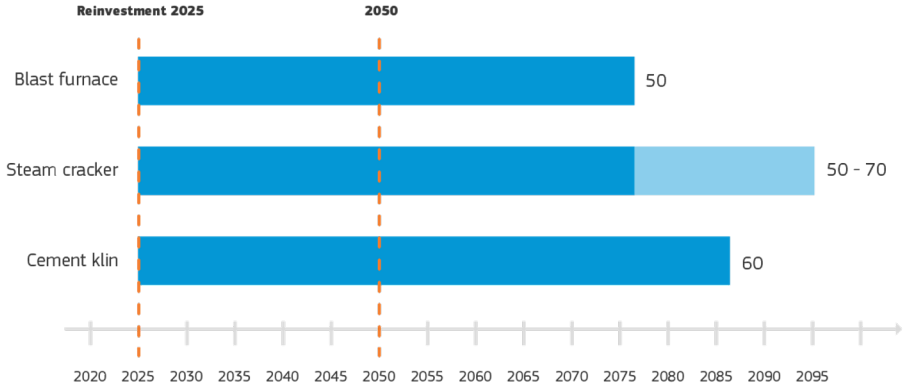
Challenges

- Long investment cycles in many energy-intensive industries
- The need for new technologies and production processes
- Immaturity of zero-carbon technologies and high potential costs

Opportunities

- Significant investments improve the competitiveness of businesses in the mid- to long-term
- Industrial jobs remain in the regions

Technical life time of primary production plan in the steel, chemical and cement sectors



European Commission

Decarbonising energy-intensive industries: Steel production

Decarbonising primary steel-making processes requires.

- the development of **new technologies**
- massive investments in **new production facilities**
- large amounts of (clean) hydrogen as a feedstock.

Technology option	CO_2 reduction potential (compared to conventional blast furnace route)	Expected technical maturity
Direct reduction with hydrogen and smelting in an electric arc furnace (H-DRI)	-97%	2025-2030
Alcaline iron electrolysis (Electrowinning)	-87%	Only after 2050
CO_2 capture and utilisation (CCU) of waste gases from integrated blast furnaces	-50%	2025-2030

Technology options to decarbonise steel production

Current practice cases

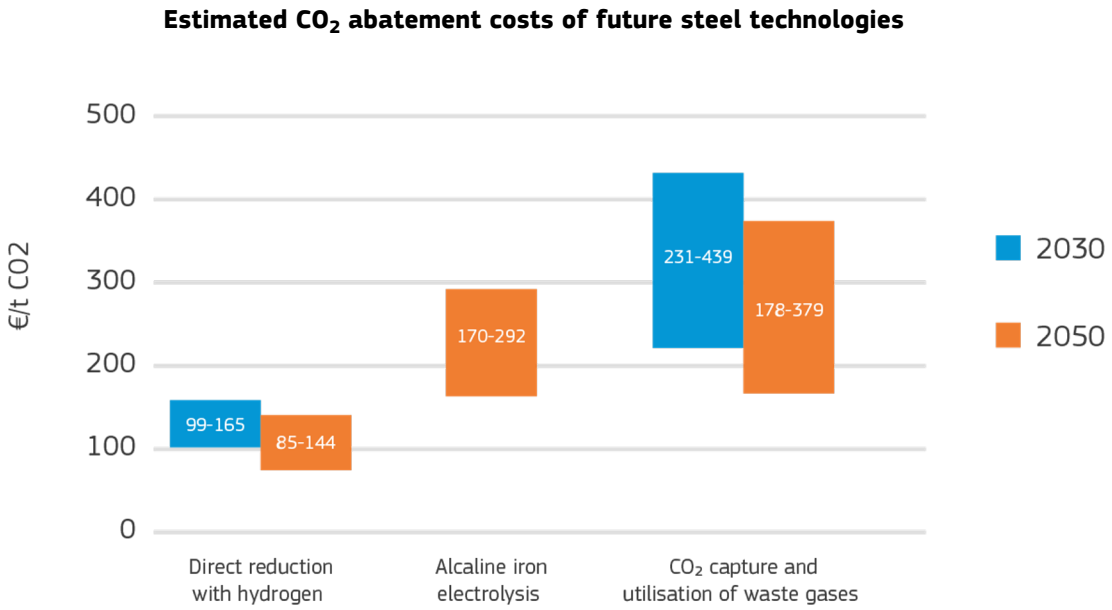
HYBRIT-PROJECT IN LULEA, SWEDEN
Direct reduction with hydrogen and smelting in the electric arc furnace (H-DRI)

SIDERWIN IN MAIZIÈRES-LÈS-METZ, FRANCE
Alcaline iron electrolysis (Electrowinning)

CARBON2CHEM® IN DUISBURG, GERMANY
CCU of waste gases from integrated blast furnaces

European Commission

Technology options to decarbonise steel production

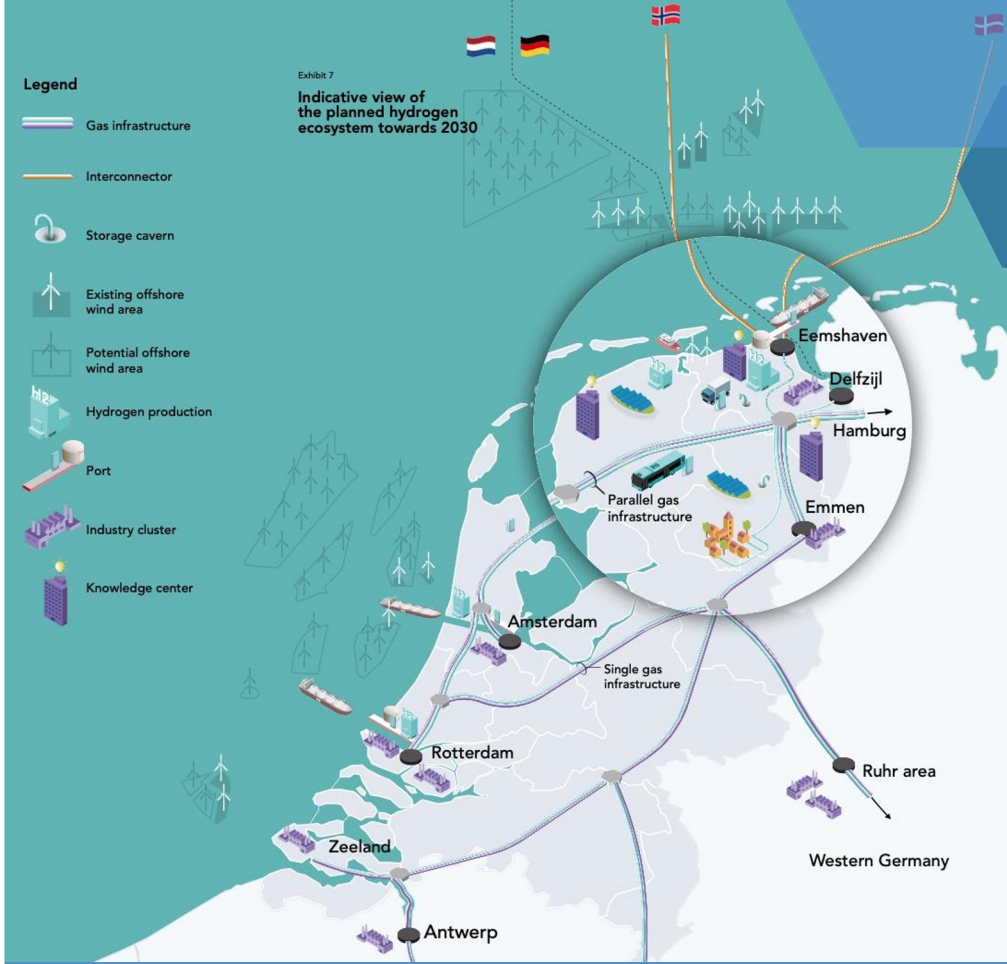


A regional hydrogen strategy as a starting point for industry transition

High investment costs and long lead times require regions to rapidly develop regional (hydrogen) strategies.

Key questions are:

- what will be the **hydrogen demand** in the region?
- what is the potential to produce **clean hydrogen** in the region?
- what can **future hydrogen** infrastructure look like?



REGIONAL HYDROGEN STRATEGY IN NORTHERN NETHERLANDS

Thank you.

secretariat@coalregions.eu

Website

#CoalRegionsEU

Twitter: @Energy4Europe

DG Energy's YouTube channels

Strategic planning in Malopolska, Poland

Bożena Pietras-Goc
Senior Expert at the Department of Sustainable Development at the Marshall's Office of the Malopolska Region

05 Discussion