This project has received funding from the European Union under grant agreement NUMBER — 882151 — GREENSTEEL

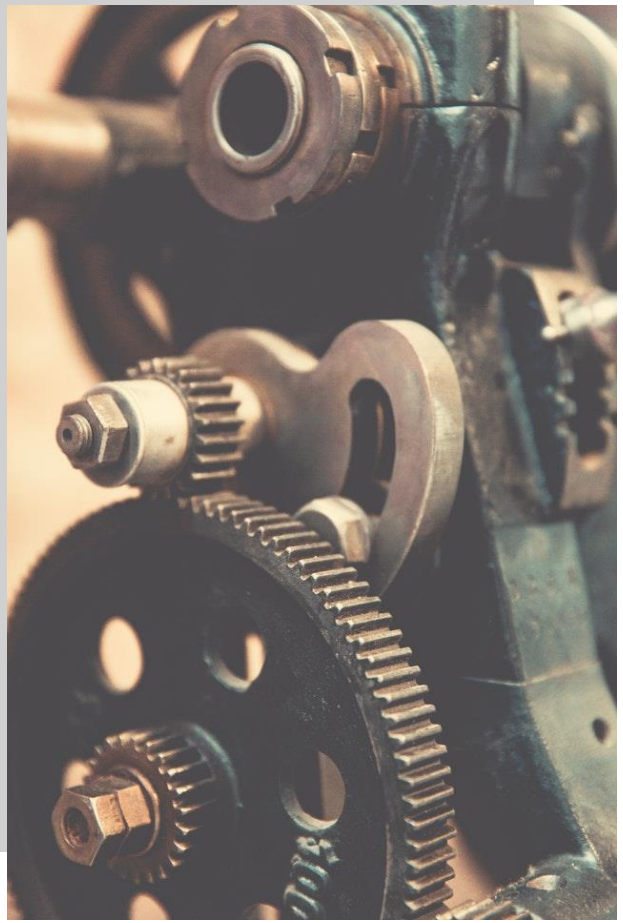
Skills and Jobs in the Future-Proven Steel Industry
ESSA mid-term conference

Some messages from GREENSTEEL

Milan Elkerbout, CEPS, 27 May 2021

Ambitious 2030 and 2050 goals

- At least -55% net by 2030
- Some industrial emissions reductions needed: also in steel?
- Time horizon overlaps with sectoral investment cycle
- By 2050: deep transformation



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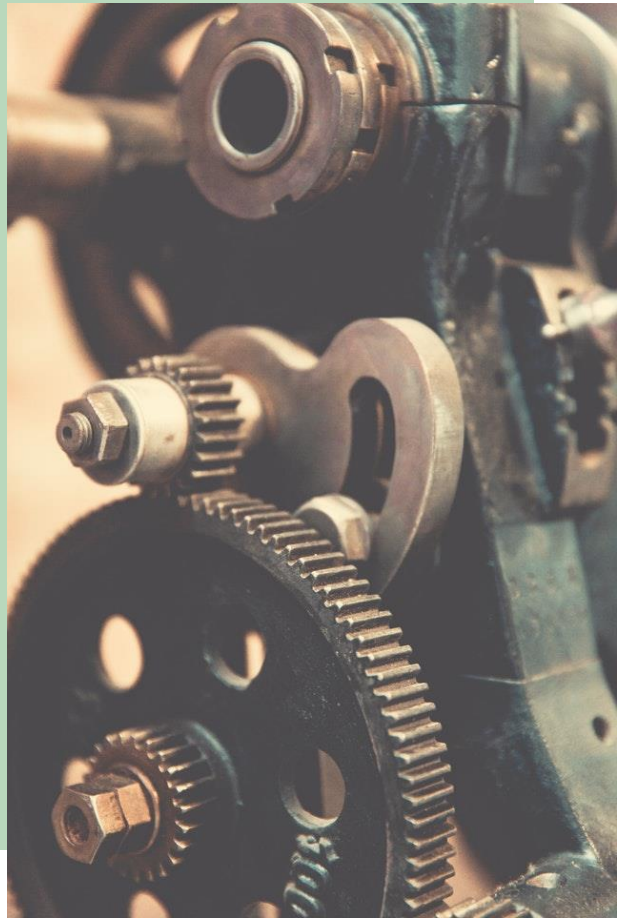
Different paths to climate neutrality

- Massive electrification and renewables
- Less virgin steel, more circularity
- DRI & hydrogen
  - Green: even more RES-E
  - Blue: depends on CCS
  - Other types possible
- CCUS: value chain emerging



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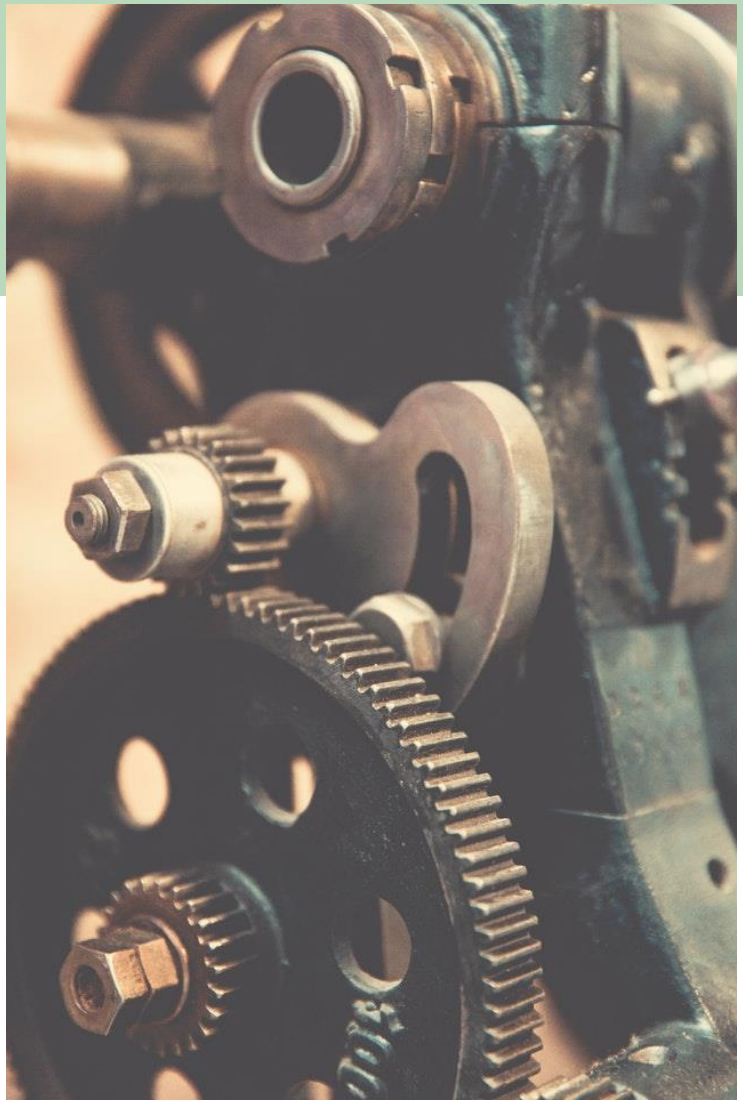

What does it mean for skills?

- Just transition
  - Reskilling and upskilling
    - Inevitability of continued transition next 3-4 decades
    - Life-long learning and support for workforce
    - More horizontal profiles?
- New skills for a climate neutral, circular steel sector
  - New value chains (H2 and CCUS)
  - CCUS can retain more conventional sites
  - Less mining, more digitalization

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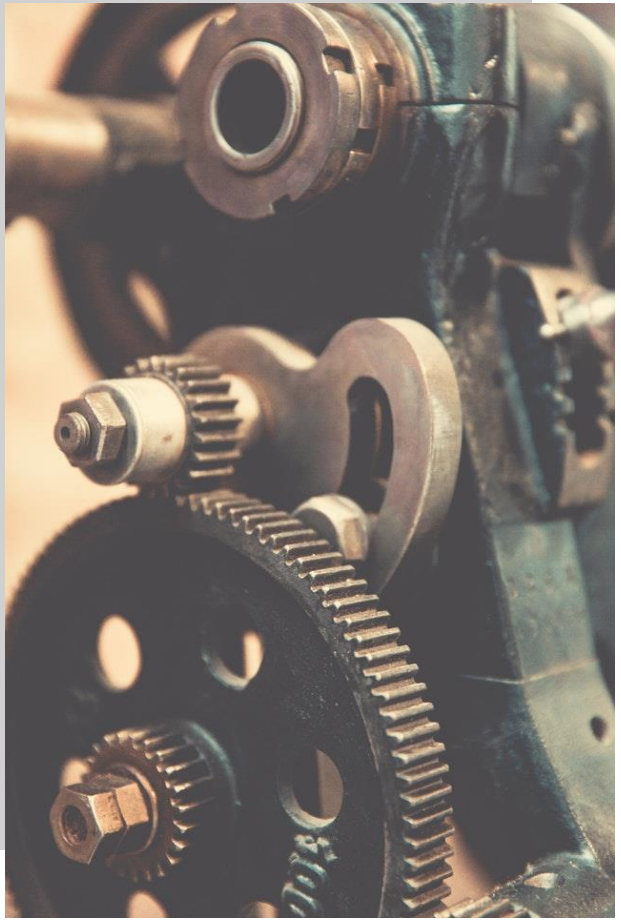
Three findings for future skills

1. **New production methods will emerge:**
   - **DRI with H2 – CCUS**
   - Future: more experimental steelmaking? (molten oxide electrolysis)
   - Increased **circularity**: more jobs in industrial **deconstruction**
2. Steel will integrate with **new value chains**
   - **Hydrogen** (including RES-E) and **CCUS**
   - Negative emissions: CDR (**BECCS**)
   - More **demand for green steel** in products
3. **Digitalization**: to improve efficiency and competitiveness of future clean steelmaking, rather than to improve energy efficiency in current production
   - **Big data**: to support quality assurance, can make the industry more competitive irrespective of decarbonization, but may be extra important with new steelmaking technology
   - **IoT, robotics, AI**: increased efficiency, optimization
   - **Additive manufacturing** -> increased quality combined with climate neutrality can create specific demand for new steel types, supports EU competitiveness



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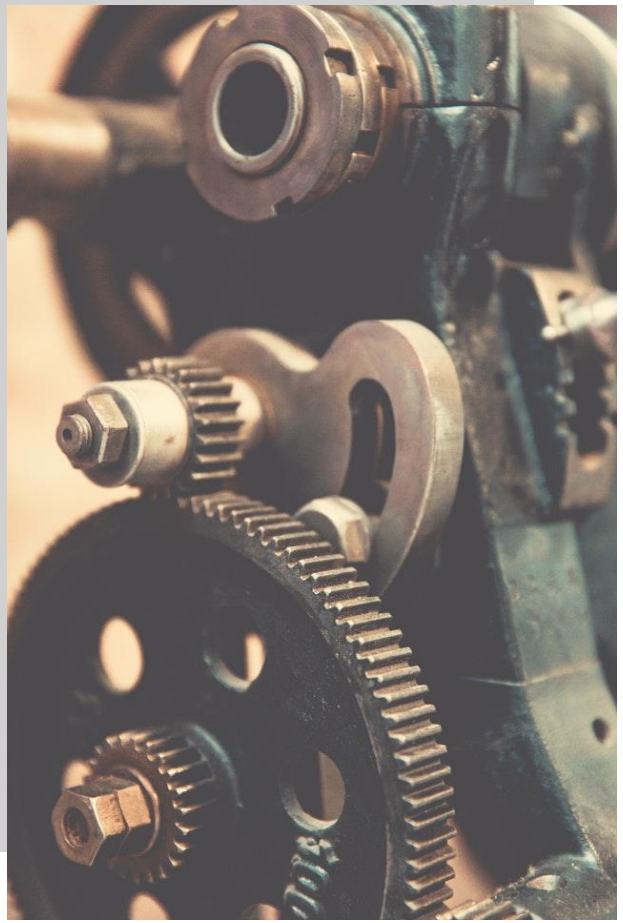
Main barriers to improve future skills?

- Challenge to balance investment in reskilling and upskilling with industrial transformation
- Regional dimension adds challenge to steel sector transformation
  - Optimal steelmaking locations can change significantly
  - If demand for basic materials goes down: which sites should close?



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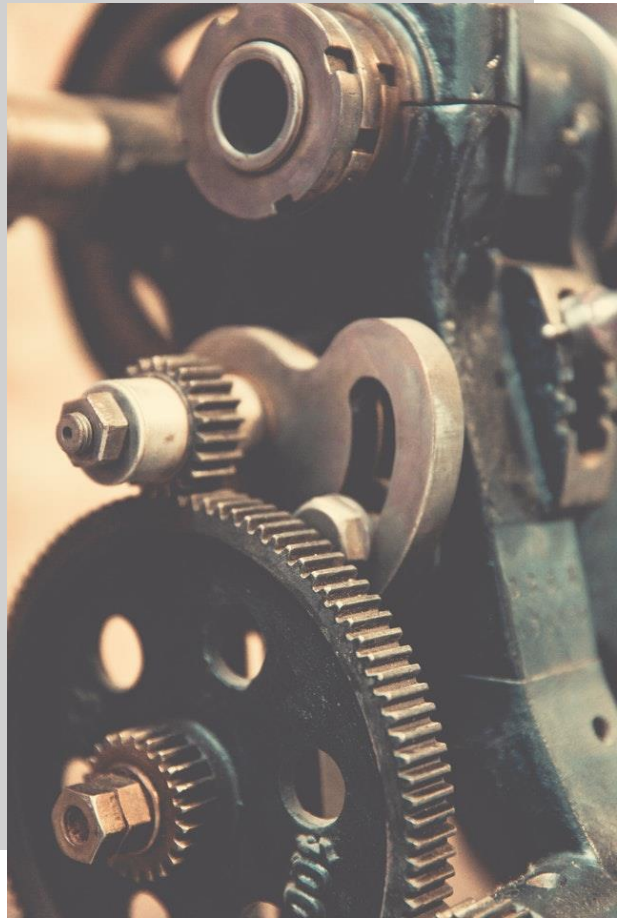
What can ESSA learn from GreenSteel?

- Extensive analysis of **technological pathways** for decarbonization
- Analysis of **financing** and **investment** needs
- **Policy options** to enable transformation to climate neutrality

➢ *Project and publications will be finished this summer*



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Thank you

milan.elkerbout@ceps.eu

Twitter: @milanelkerbout