Swerea MEFOS
– Research for a sustainable industry

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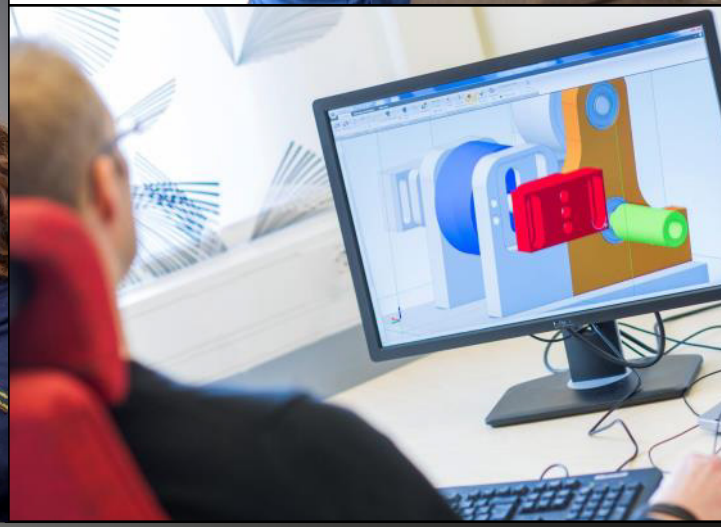
swedish research

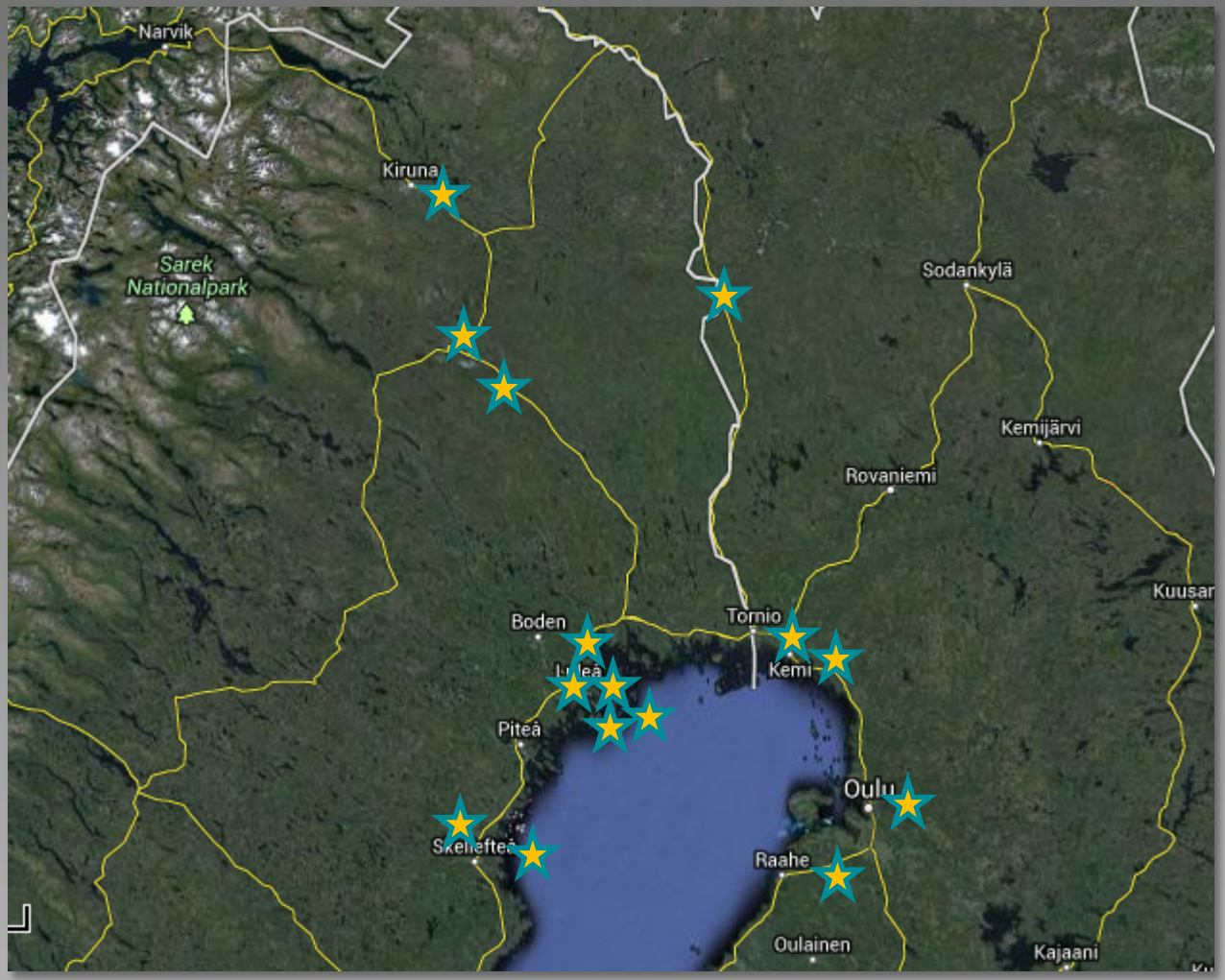
From simulation to pilot and industrial scale





An Arctic metallurgical center



Improved battery recycling

- **Litium ion batteries**
  Developing a concept for recycling in a circular large-scale system.

- **Alkali batteries**
  Developing a process for recycling both zinc *and* manganese.

Turning process gases into products
– cost efficient CO_2 reduction

Reforming blast furnace gas into hydrogen

- Nine partners from five countries.
- Our part 75 million kronor (four years).

From residual steel gases to methanol

- Eleven partners from six countries
- Our part approx. 42 million kronor (four years)

Swerea MEFOS design, build and run the pilot equipment to test and verify the methods.

Usable slag and cleaner steel by vanadium extraction

Vanadium in Swedish LD slag is worth more than one billion SEK.

In the VILD project, Swerea MEFOS, together with SSAB, LKAB and SSAB Merox, has developed different process concepts in which products containing vanadium may be produced (and the vanadium is extracted).

Potential environmental benefits of more than 1 million tonnes CO2 and 2 TWh each year for the Swedish steel industry.

Wood rolling may increase value of Swedish forest products

An interdisciplinary research project by Swerea MEFOS, LTU and Sveaskog showing that rolling equipment for steel can be used to process wood. With the method forest products can gain new characteristics and the refinement process can be automated.

Beneficial effects:

- Automation makes processing of forest products cheaper, more efficient and consistent.
- Softer wood, like pine, can become as hard as oak.

Reduced CO_2 emissions from steelmaking

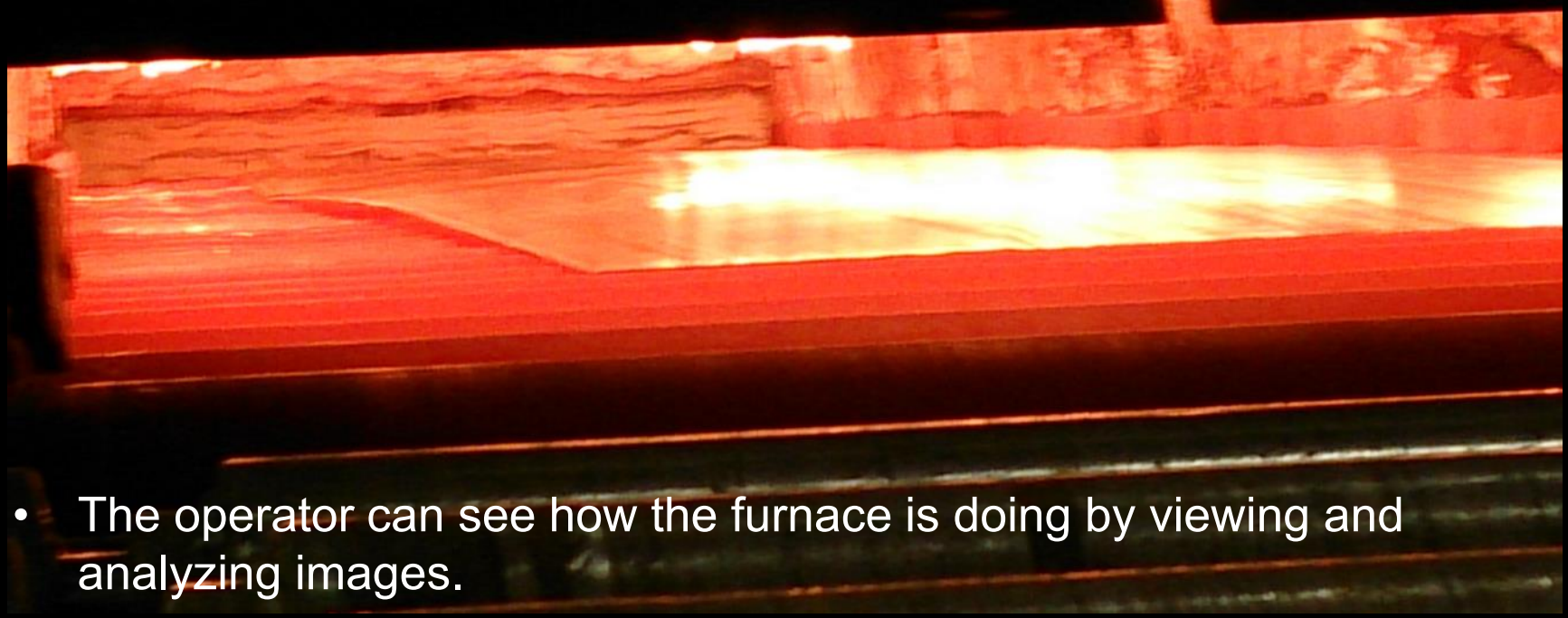
Former research projects

- Analysed the potential of different tested concepts for reducing the CO2 emissions.
- Investigated coordination effects using process integration.

- **Ongoing projects**
  - Investigating if biomass can be used instead of fossil coal when producing steel.
  - Design of biocoal for different processes.
  - Evaluate biomass as a possible development path (access, prices, logistics etc.)
  - Studies of how Swedish forest can be used.

Image analysis for temperature control in heat treatment of plate

- We have developed a convenient, simple image analysis system to help Swebor Stål assure the quality of boron stel products.



- The operator can see how the furnace is doing by viewing and analyzing images.

The Swerea Group

- Independent, non-profit organization
- 550 employees
- 600 member companies

Owners

- Industry 57 %
  450 companies through five owner-associations

- RISE 43 %
  The Swedish state via the Ministry of Enterprise and Innovation

Our people

Industrial experience

15 experts with over 10 years industrial experience

Post graduates

23 PhD, 6 lic.
5 professors

We are Swerea MEFOS

57 researchers/project managers
20 engineers, technicians
10 support

Scientific Work for Industrial Use
www.swerea.se