



› BOF2UREA

CCU Innovation Fund - CO2 Value Europe | Eijk, S. (Soledad) van

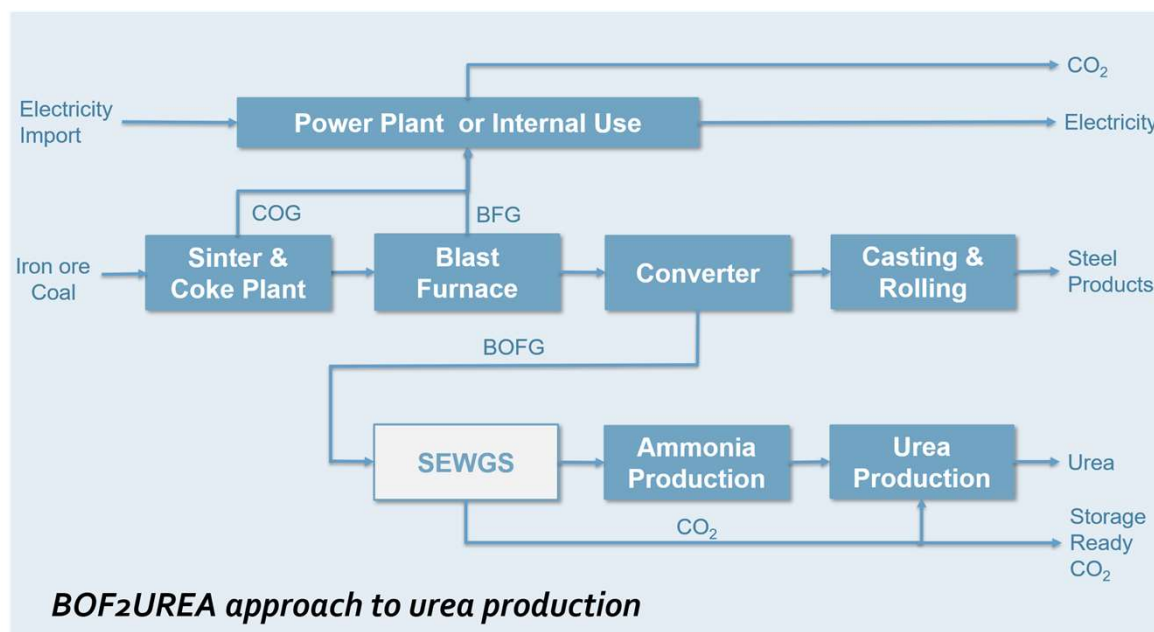


ECN › TNO

innovation
for life

BOF2UREA: THE CONCEPT

- › Utilization of CO₂ in Urea
- › CO₂ Capture in the Iron and Steel Industry



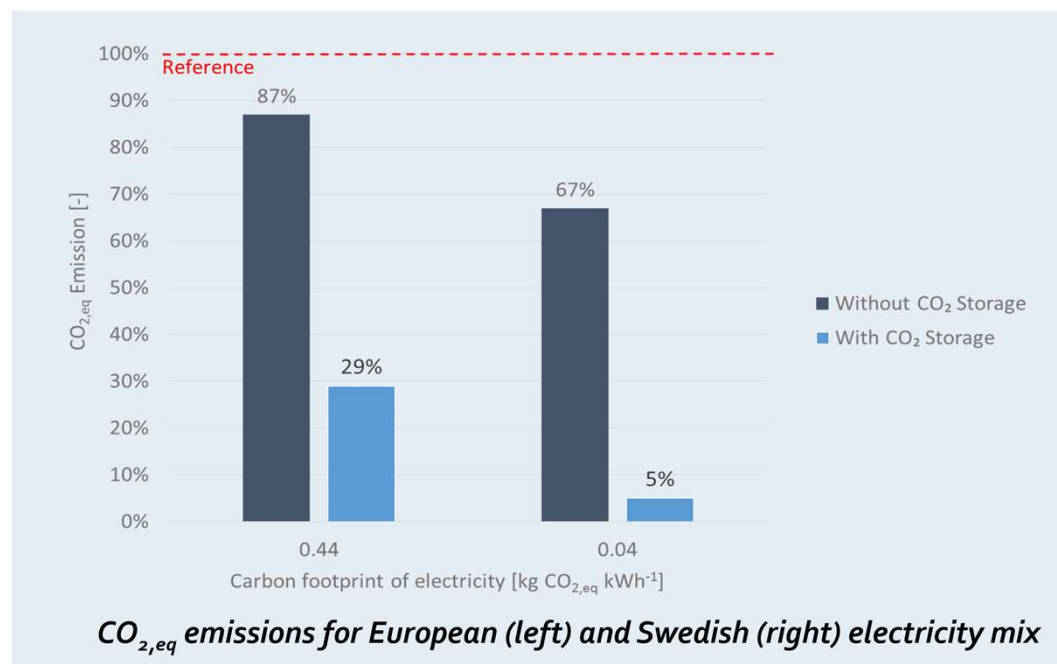
BOF Gas is a mixture of CO, CO₂, H₂, H₂O and N₂

In SEWGS the mixture is converted and separated in a CO₂ product and H₂ product

Urea and Ammonia is established
SEWGS is demonstrated at TRL6

BOF2UREA: ENVIRONMENT

- Up to 95% of CO₂ is avoided with CO₂ storage and a renewable electricity mix



BOF2UREA: MARKET & ECONOMICS



- › Steel production in Europe ~110 Mt/y (large plant capacity of 6-7 Mt/y)
 - › Resulting in urea production potential of **~5 Mt/y**
 - › And 11 Mt/y of storage ready CO₂
- › World urea consumption is about **180 Mt/y**
- › Conclusion: **Market conform option with a significant CO₂ reduction potential**

CAPEX ~ 120 M(€)
Positive IRR (>5%)

BOF2UREA: NEXT STEPS

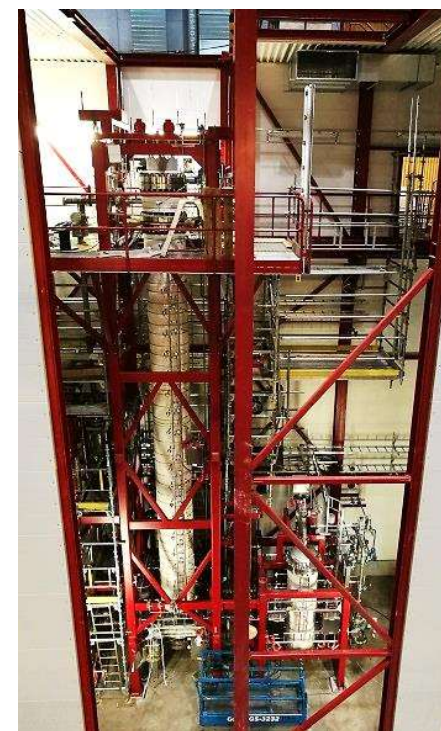
- › Currently: Feasibility and viability has been established
- › Next steps:
 - › FEED Study
 - › Demonstrating SEWGS for bankability (TRL7)
- › To increase IRR
 - › Partly CAPEX subsidy needed
- › First step: only part of the investment upfront (~30 M€)

Acknowledgements

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Radboud University



A nighttime photograph of a city street. On the left is a multi-story brick building with many lit windows. On the right is a modern building with a curved facade and large glass windows, some of which are illuminated with a green light. In the center, a road curves into a tunnel-like structure. Long, horizontal light trails in green and yellow are visible across the middle of the image, suggesting motion from a vehicle or light source. The overall scene is a blend of old and new urban architecture.

› **THANK YOU FOR YOUR
ATTENTION**

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