Future environmental impacts of hydrogen production and its use in container shipping

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Acknowledgements

At the end of my PhD journey, I would like to express my deepest appreciation to the people whose support was instrumental in helping me complete this thesis.

Arnold, thank you for opening the door to CML for me with your business card five years ago in Beijing. I feel fortunate to have had you as my promoter. You always exemplify what it means to be a distinguished professor—with your keen insight into research, strong sense of responsibility for students and sincere intention to nurture young researchers. It was your guidance that kept this journey on the right track. You are undoubtedly a comprehensive role model I aspire to learn from in my academic career.

Bernhard, no words are enough to express my gratitude. Thank you for meeting me when I had just arrived in the Netherlands, and for guiding me through the Burcht van Leiden. You also led me into the "castle" of LCA. I'm deeply grateful for everything you've done—inviting me to the LCA class and Autumn School, connecting me with potential collaborators, and encouraging me to think about the big picture in a pragmatic way. You've taught me so much—not only about how to conduct research, but also about how to collaborate with others. Every achievement on this journey would not have been possible without your unwavering support.

Sangwon, I also appreciate you for helping me decide the research topic. The talks with you benefited me a lot. I also thank **Nils** for your timely talk to help me decide to narrow down my research objectives. **Marc**, thank you for your help with Activity Browser, both in person and behind the screen. I also need to thank my nice co-authors, **Romain**, **Fayas**, **Frederik**, and **Henk**, for your great help in making my papers possible.

I would also like to thank **Jiawei**, my senior academic brother from my master's study, for your continuous and sincere concern. **Xinpeng**, I truly enjoyed our KFC time and the talks we had; thank you for being there when I was down. **Chengjian**, **Yanan**, **Zhenyang**, **Chen**, **Jinhui**, **Kai**, **Suiting**, **Pengxuan**, **Ruiqi**, **Nethimi**, and **Jie**, thanks for all the meaningful exchanges, your support and kindness, and the good times we shared together. To the sunny souls—**Yuanyuan**, **Nina**, **Emilio**, **Alessia**, and **Jonas**—it has been a true pleasure spending work time with you.

My family, you are always the motivation that keeps me moving forward.

Curriculum Vitae

Shijie Wei was born on 13 November 1994 in Taiyuan, China. After completing his studies at Taiyuan No. 5 Middle School, he enrolled in Inner Mongolia University of Science and Technology, where he pursued a Bachelor's degree in Mining Engineering from September 2013 to July 2017. From September 2017 to July 2020, he pursued a Master's degree in Mining Engineering at China University of Mining and Technology-Beijing. During this period, his research focused on the techno-economic assessment of low-carbon electricity technologies, including coal-fired power plants with carbon capture and storage (CCS) and renewable energy systems, as well as the assessment of CO_2 geological sequestration potential at both basin and city scales. Since February 2021, he has been pursuing a PhD degree at the Institute of Environmental Sciences (CML), Leiden University, under the supervision of Prof. Arnold Tukker and Associate Professor Bernhard Steubing. His research focuses on the life cycle assessment of hydrogen production and utilization in the maritime shipping sector.

List of publications

1. **Wei, S.**, R. Sacchi, A. Tukker, S. Suh and B. Steubing (2024). "Future environmental impacts of global hydrogen production." Energy & Environmental Science **17**(6): 2157-2172.
2. **Wei, S.**, F. M. Kanchiralla, F. Schulte, H. Polinder, A. Tukker and B. Steubing (2026). "Life cycle assessment of hydrogen-based fuels use in internal combustion engines of container ships until 2050." Resources, Conservation and Recycling **226**: 108671.
3. **Wei, S.**, F. M. Kanchiralla, H. Polinder, F. Schulte, A. Tukker and B. Steubing. **"**Environmental impacts of fuel cell use in deep-sea shipping towards 2050." Applied Energy. (Under Review)
4. **Wei, S**., A. Tukker and B. Steubing (2026). "Decarbonizing potential of global container shipping with hydrogen-based fuels." Energy & Environmental Science **19**, 264 – 283.