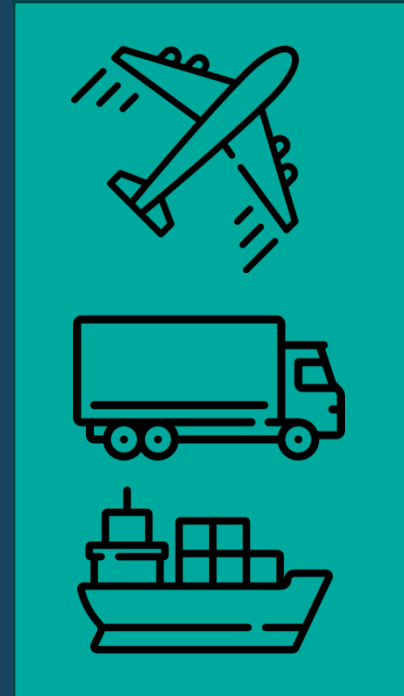


# Geospatial distribution of hydrogen demand and required infrastructure in Europe – scenarios for 2050

Joel Löfving | TechForH2, Chalmers University of Technology | ITEM Geneva 2024-09-17

# Why hydrogen?

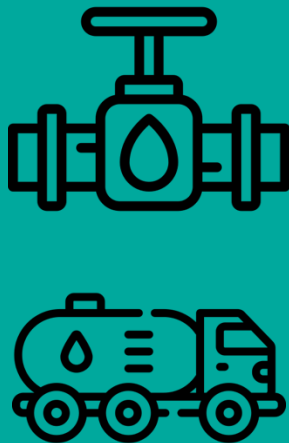
- Opportunity for electrification
- Longer range, shorter refueling times, lower weight
- Complement to batteries and other technologies



# Infrastructure needs



Production



Distribution



Refueling

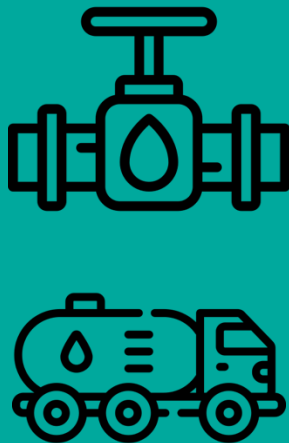


Consumption

# Infrastructure needs



Production



Distribution



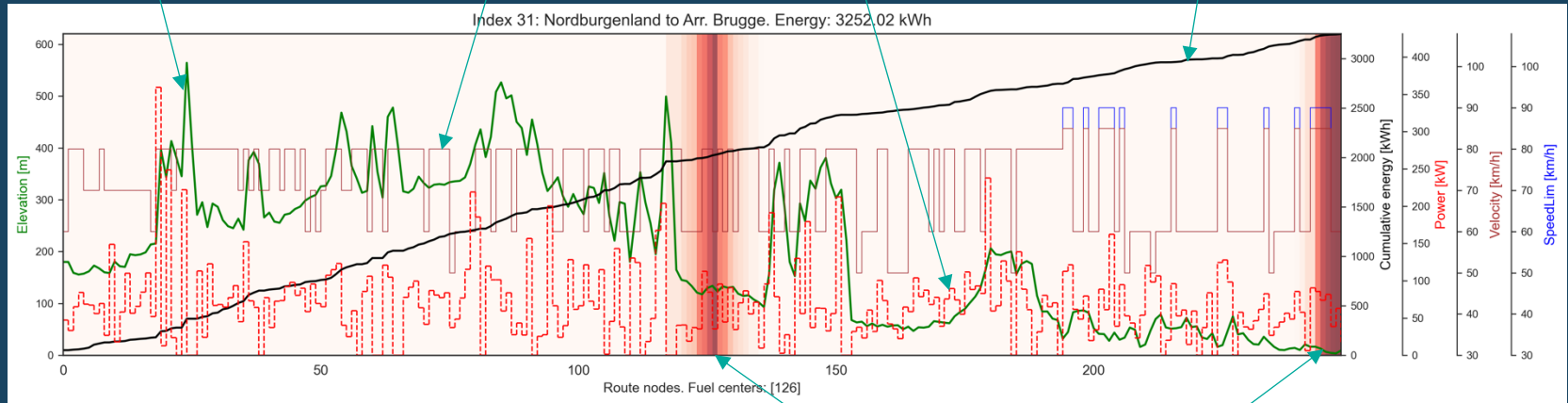
Refueling



Consumption

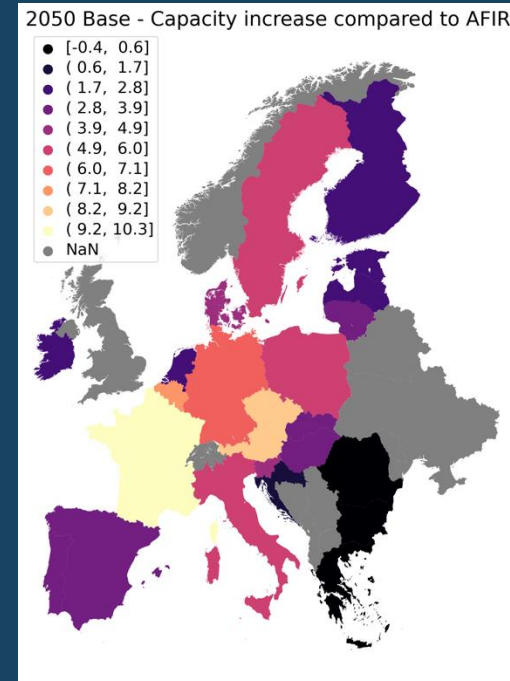
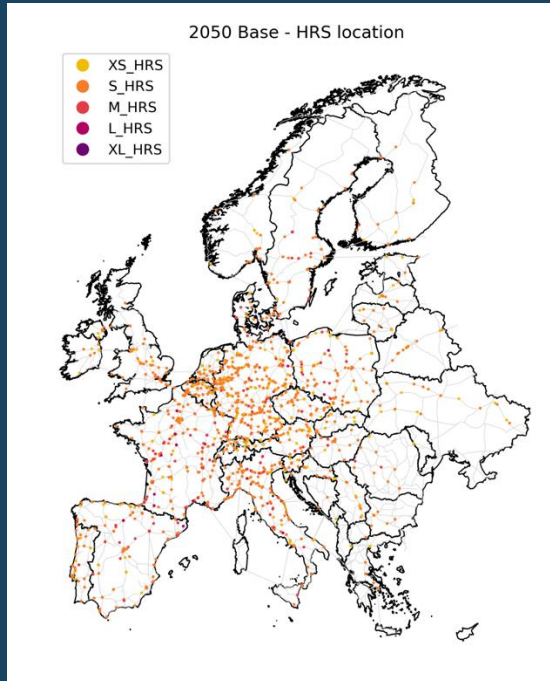
# Fleet refueling simulation

## Single route example:



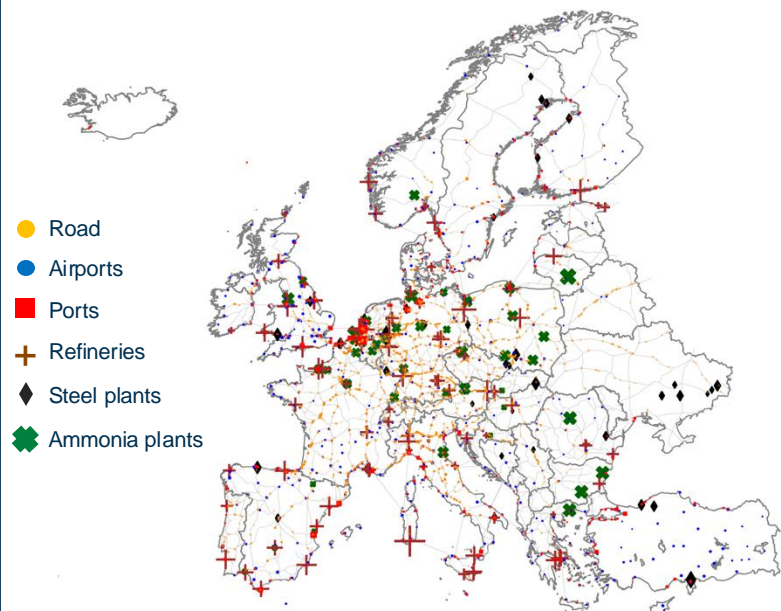
Refueling

# Simulating 600 000 routes: Map of refueling stations



# Comprehensive, geospatial hydrogen demand data for 2050

EU\_policy\_mix Modeled location and level of hydrogen demand from different end uses



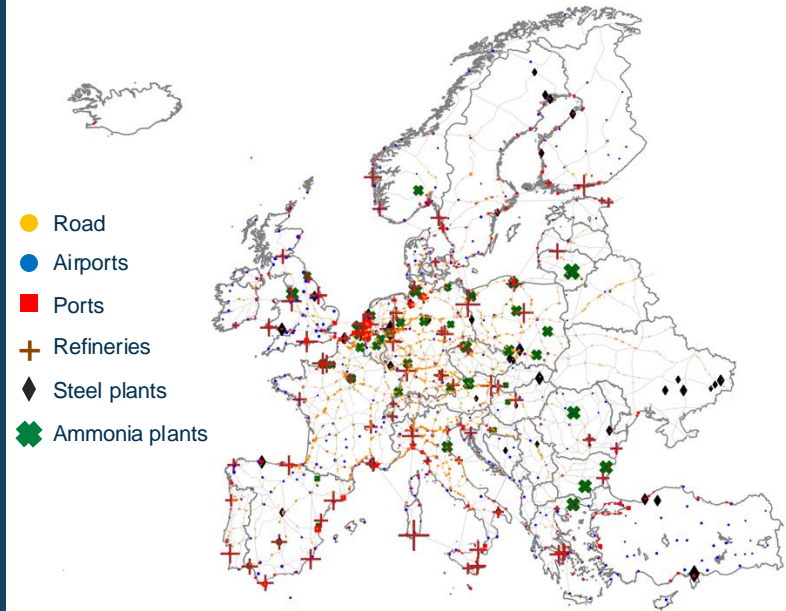
Consumption

# Continuation:

## Cost-optimal ways to roll out hydrogen infrastructure (ESOM)

- Strategies in different contexts, continental -> local perspective
- Analyzing EU policies (ReFuelEU ..., AFIR)
- Adaptation to California

EU\_policy\_mix Modeled location and level of hydrogen demand from different end uses







**CHALMERS**