Get Greener
Greening of Transport Logistics Systems in the Swedish section of the ScanMed Corridor

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Center for Sustainable Road Freight, University of Cambridge
Background

- > 130 greening measures identified by Swiftly Green
- Lack of industry implementation
- Get Greener: “Low hanging fruits in Swiftly Green”

Three case studies

HCT Road  HCT Rail

Traffic infrastructure
Test site Sweden

HCT Truck

Rail tunnel under city of Varberg

HCT Rail
HCT Road

16.5 m vehicle (Diesel)
- MJ: 12
- g CO₂e: 823
- Per km: 0.2
- Per m³km: 13

25.25 m vehicle (Diesel B7)
- MJ: 15
- g CO₂e: 1108
- Per km: 0.2
- Per m³km: 11

34 m vehicle (HVO/LBG)
- MJ: 12
- g CO₂e: 210
- Per km: 0.1
- Per m³km: 2

13.5 m Trailer on rail (Electric.)
- MJ: 2
- g CO₂e: 4
- Per km: 0.024
- Per m³km: 0.1

But*: ->6 g/m³km CO₂e and EU RED

But**: ->6 g/m³km CO₂e and nuclear

* Allocation principles and ILUC may increase emissions even more
** Coal power generation
Results:

HCT Road and renewable fuels

• Gains:
  - Transport efficiency (-13%)
  - Cost savings (-33 %)
  - GHG reductions (-80%)

• Challenges
  - Traffic acceptance
  - Feedstock availability and performance differences

• Future ability to scale
  - HCT Road; feeder to rail & stand alone solution
  - Renewable fuels will play a significant role for HDV
HCT Rail

- 730 m long and heavy trains (LHT)
- Powered by "green electricity" (Svan-labelled)
- ScandFibre Logistics system: Return capacity from the paper industry
- Excess redundant capacity in the system
HCT Rail

- LHT creates small additional GHG savings in relation to regular trains
- Rail is already very sustainable
- Increasing the transportation capacity and reliability on existing rail infrastructure is the main issue
- This is likely to require re-organising of the rail system
Conclusions

• HCT Road and HCT Rail alone or in combination reduces CO$_2$-emissions on a scale that enables the transport sector in Sweden to reach its 2050 emission targets, now

• New business models are needed to ensure sufficient utilization

• Horizontal collaboration, circular resource flows, logistics network re-organising etc. – needed development

• Obstacles: Unclear economic incentives, more clear business cases are needed, lack of transparency, unpredictable regulation, inefficient mechanisms for distributing investment costs across multiple actors etc.
Questions and discussion

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Back-up: Fuels and electricity

Sweden

- HVO
- Electricity
- Methane (LNG, LBG, CNG, BNG)
- Ethanol (ED 95, E85)
- (DME and Methanol)

EU

- Biogas
- Electricity
- Hydrogen

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<tbody>
<tr>
<td>Tall oil (economic allocation)</td>
<td>0%</td>
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<tr>
<td>Tall oil (rest product)</td>
<td>11%</td>
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<tr>
<td>Animal fat</td>
<td>0%</td>
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<tr>
<td>Animal fat (rest product)</td>
<td>66%</td>
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<tr>
<td>Rapeseed oil (energy allocation)</td>
<td>10%</td>
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<tr>
<td>Palm oil (energy allocation)</td>
<td>13%</td>
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<td>HVO 100</td>
<td>100%</td>
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Back-up

Energy use: Road transport Sweden