

INFRASTRUCTURE

FUELS

VEHICLES

LOGISTICS

RESEARCH



On the Road to Climate Neutral Freight Transportation



Freight transportation – for better or worse

Freight transportation by road:

- a necessary condition for growth
- represents 60% of freight transportation in Sweden
- major source of CO₂ emissions



Efficiency at every level

We want to demonstrate how climate impact from freight transportation by road in Sweden can be reduced by:

- increasing efficiency of transportation logistics
- increasing fuel production efficiency
- increasing vehicle efficiency
- increasing use of renewable fuels



Our vision

*Climate neutral freight transportation
by road in Sweden*



Opportunities

- Climate impact from the average Swedish long-distance freight transportation can be cut in half from 2005 to 2025
- Total greenhouse gas pollution from freight transportation by road can be cut by up to 15% in this period, despite increase in traffic
- Historic trend of increased emissions with increased traffic can be reversed

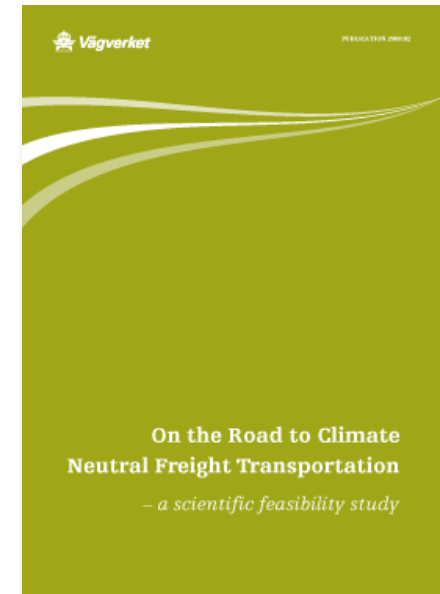


Our Target

Reduce emissions from average Swedish long-distance freight transportation by half already by 2020 (relative to 2005 levels)

Work based on scientific facts

- Study conducted by Chalmers University of Technology – challenges and opportunities





The road forward

Increasing transportation logistics efficiency

- Employ optimal transportation modes in each situation
- Improve use of existing freight capacity
- Expand eco-driving



The road forward

Increasing fuel production efficiency

- Fuels with high lifecycle energy efficiency
- High energy density fuels
- Energy-efficient fuel production with low CO₂ emissions



The road forward

Increasing vehicle efficiency


- Vehicles with lower total energy consumption/
higher energy efficiency
- Additional potential for diesel energy technology
improvements
- Develop new technology, including hybrids



The road forward

Increase use of renewable fuels

- Finite resource – demands resource efficiency from “well to wheel”
- Increase low-blending is most rapid deployment method
- Second generation renewable fuels by 2015



In order to succeed
we need to work together

Expand collaboration among the following parties:

- Separate entities in the transportation sector
- Other market sectors
- Government at all levels
- Research institutions



Commitments from each partner

Concrete commitments:

- Create schedule
- Deliver reports on actions
- Follow up



Partners

- Center for Environment and Sustainability, Chalmers and Gothenburg University, GMV
- FordonsGas
- ICA Sverige AB Logistik
- OKQ8
- Posten Logistik
- Preem AB
- Ragn-Sells
- Renova
- Schenker AB
- Stora Enso Logistics
- Sveriges Åkeriföretag
- Swedish Transport Administration
- Volvo Logistics
- Volvo Trucks

On the road to climate neutral freight transportation



NOVEMBER 2006

The partnership commences. "Vision, target, opportunities, possible commitments?"

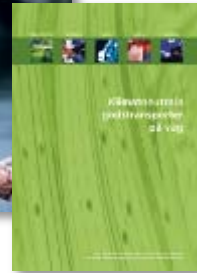
SPRING 2007

Scientific study by Chalmers.



NOVEMBER 7, 2007

Joint final report is presented at Rosenbad in Stockholm.



NOVEMBER 15, 2007

Insert i Dagens Industri calling for additional partners to join.



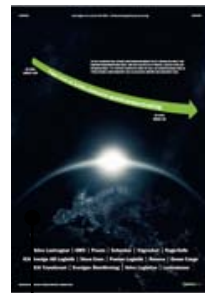
JANUARY 2008

Seminar in conjunction with Klimatgalan (climate gala) in Gothenburg, attracting close to 400 participants.

On the road to climate neutral freight transportation



SEPTEMBER 18, 2008
The partnership is introduced at the European Transport Forum in Brussels.



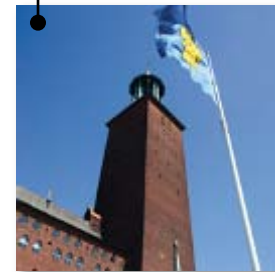
FEBRUARY 2009
Annual climate conference in Stockholm.



MAY 20–22, 2008
Logistik & Transport in Gothenburg (annual logistics and transportation convention). KNEG presents new partners and commitments.



JANUARY 2009
Insert in Dagens Industri.



MAY 2009
Results are presented at Logistik & Transport



On the road to climate neutral freight transportation



SEPTEMBER 8-9 ,2009

Nordic Climate Solutions in Copenhagen. KNEG attends Northern Europe's largest arena for energy, transport and trade with focus on the environment.

MAY 4-6, 2010

Logistik & Transport. KNEG presents new members and results from 2009.



MAY 2010

Insert in Dagens Industri.



Commitments – examples

- Provide training in eco-driving for all vehicle operators
- Increase load relative to load capacity, to reduce transport
- More co-modal transport (road/rail)
- Optimize vehicle routes



Commitments – examples

- Phase out all older vehicles
- Introduce hybrid technology for heavy trucks
- Increase levels in low blends in petrol and diesel
- Initiate research in sustainable transport/logistics

Sample initiatives


- **The Environmental Class 1 diesel
Preem ACP Evolution Diesel**
Preem, Schenker, Posten Logistik, Volvo Trucks and Volvo Logistics
- **Larger and more flexible vehicle combinations**
Stora Enso, Schenker, Volvo Trucks and the Swedish Transport Administration
- **Co-modal Viking Rail**
Volvo Logistics, Volvo Lastvagnar and DB Schenker

Sample initiatives

- **Pilot project for hybrid vehicles**
Ragn-Sells, Renova och Volvo Lastvagnar
- **Climate smart city distribution**
Schenker, Volvo Lastvagnar, Trafikverket, Preem, Posten Logistik, Fordonsgas, Chalmers, DHL, GLC och BRG
- **BiMeTrucks**
Heavy long-haul vehicles powered by liquid biomethane
AB Volvo, FordonsGas, AGA, Eon, Gasföreningen, Biogas Väst/BRG

Result Commitments 2009

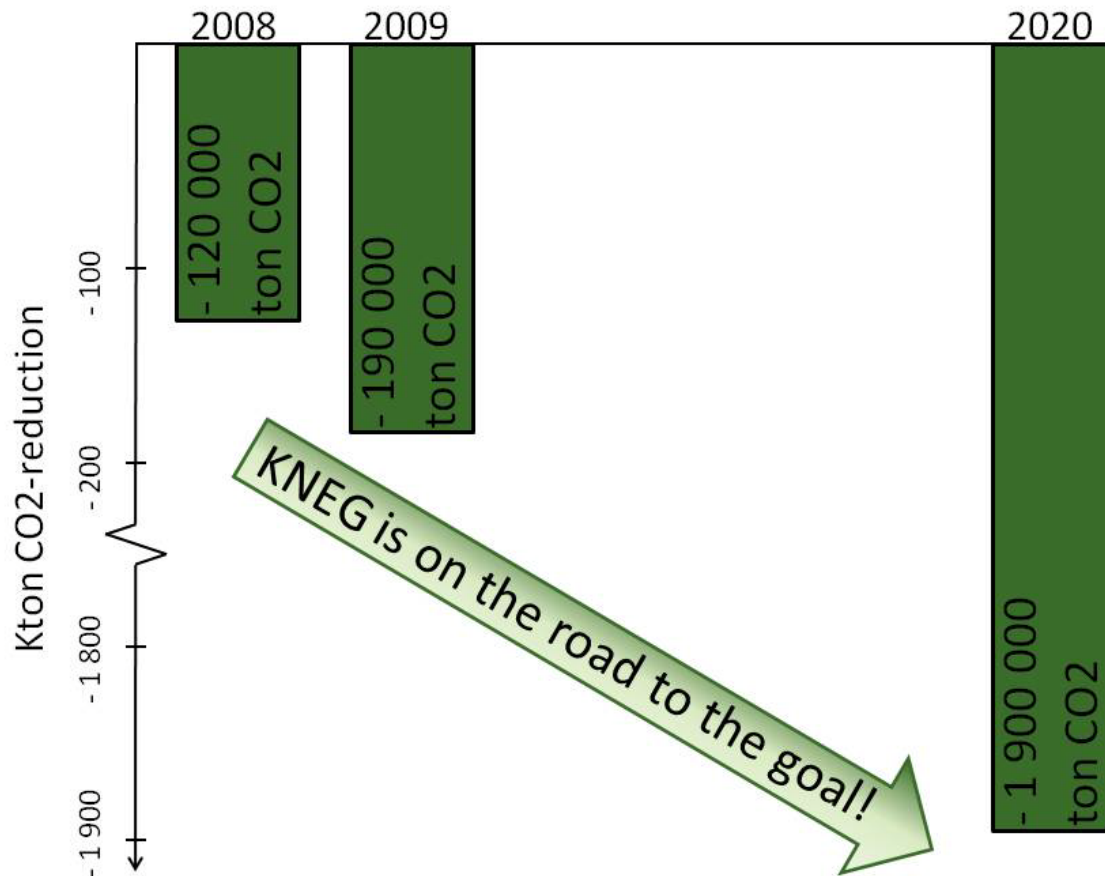
| <u>Commitments per focus area</u> | <u>Emission reduction (ton CO2)</u> |
|--|-------------------------------------|
| More efficient vehicles | 118 760 |
| Increased use of renewable fuels | 48 710 |
| More efficient fuel production | 36 560 |
| More efficient transportation logistics | 22 540 |
| KNEG in total | 226 570 |
| Impact on emissions from the freight transport sector | 190 000 |



190 000 ton CO₂ is equivalent to...

- The annual emission from 3 640 trucks
- 4 % of the total CO₂ emission from Swedish trucks during 2009
- The annual emission from 19 000 Swedes
- 10 % of the annual emission reduction required for KNEG to reach the target

Result 2008 och 2009 - and the road to the goal





Reversing the trend!

- The transport industry is facing its biggest challenge ever.
- Climate-impacting emissions from traffic must be drastically reduced from today's levels.
- And the work has to forge ahead right now. In order to succeed we need to cooperate across borders.
- **That's why we work together!**

Success factors



- Network
- Triple-Helix
- Confidence and credibility
- Communication
- Joint initiatives
- Follow up

Thank You!

www.kneg.org