Sustainable fuels for heavy road transport

Jens Hvid Bang, ITD - Association for the Danish road transport of goods

THE ROAD HAULAGE SECTOR

The Danish Road Haulage sector supported employment of **88,000** jobs in Denmark in 2016.

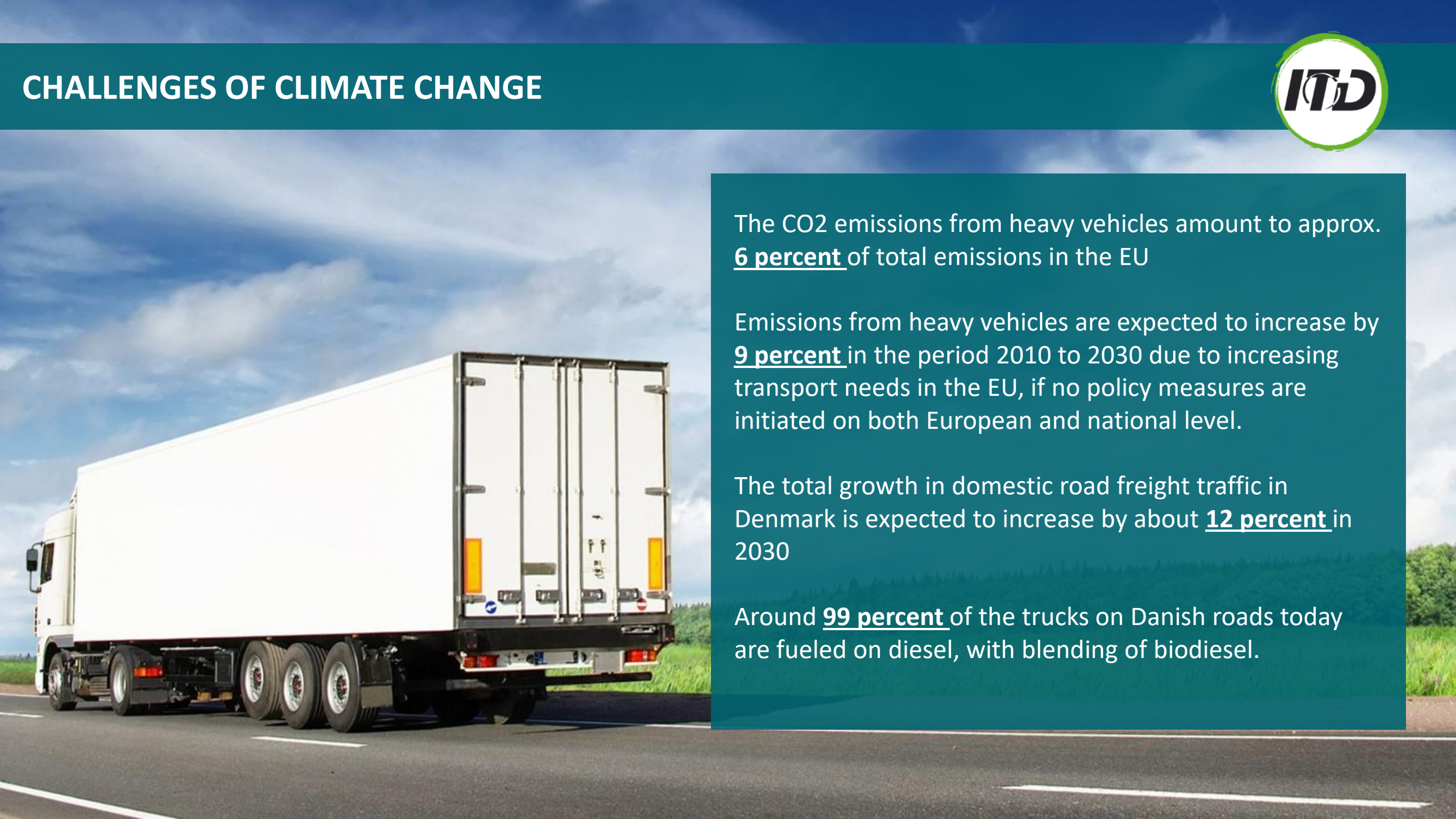
The Danish Road Haulage sector contributes **1.7 percent** of Denmark's Gross Domestic Product (GDP)

When the contribution from subcontractors is included, the industry supported a total contribution to Denmark's GDP of approx. **60 billion DKK** in 2016.

In Denmark there are approx. **4,900** haulage companies, and there are approx. **42,000** trucks.

In the EU the number of trucks is over 6 million.

CHALLENGES OF CLIMATE CHANGE



The CO2 emissions from heavy vehicles amount to approx. **6 percent** of total emissions in the EU

Emissions from heavy vehicles are expected to increase by **9 percent** in the period 2010 to 2030 due to increasing transport needs in the EU, if no policy measures are initiated on both European and national level.

The total growth in domestic road freight traffic in Denmark is expected to increase by about **12 percent** in 2030

Around **99 percent** of the trucks on Danish roads today are fueled on diesel, with blending of biodiesel.

ITD CLIMATE ACTION PLAN – TOWARDS A GREEN FUTURE

We have actively supported the goals of climate neutrality in 2050 and a reduction of 70 percent of emissions in 2030 in Denmark.

We are working on different parameters:

- Optimizing utilization of vehicles and equipment
- Creating green infrastructure
- Increasing demand for green transport
- Getting R&D more applicable in the sector
- Strengthening the cooperation between different modes of transport

- **<u>Alternative fuels</u>**

WORKING WITH GREEN TRANSITION WITHIN THE SECTOR

- The transport and logistics industry has managed to maintain a stable level of CO2 emissions since 1990, despite increasing transport needs. This is largely due to the fact that the industry has become more efficient over the years!
- Especially since the financial crisis in 2008 companies have been able to optimize driving and reduce emissions for transport operations.
- Transport companies are experts at being effecient and minimizing costs.
- This is largely due to the competetiveness within the sector. The sector is charactherized by having a lot of SMEs that compete within the same marked.
- The profit margin for companies are often very low. The main components when determining the price of a transport operation is the price of diesel and the wage of the driver.
- This hampers the willingness to invest in green technologies. Difference between surviving and going bankrupt.

HOW DO WE ACCELERATE THE GREEN TRANSITION?

Companies today want to be green and participate in the greening of our sector.

The main drivers of the green transition is lawmaking and a change in demand for transport.

Today only a small amount of transport buyers are using climate as a parameter when buying transport. However it is slowly gaining some momentum in some markets.

Only by increasing the demand for green transport will we be able to accelerate the green transition.

IS THERE A SILVER BULLET?

We can still achieve reductions in emissions by increasing effectiveness and improving the legal framework of the sector. This could be done e.g. by allowing new configurations of trucks to be used in Europe.

HOWEVER…

The development and usage of alternative fuels is key if we are to meet the goals in 2030 and 2050.

USAGE OF GREEN TECHNOLOGY

There are different markets within the Road Transport Sector – e.g. long international operations, distribution, last mile.

There is no single technology solution today that alone can replace the internal combustion engine and the usage of conventional diesel.

Green technologies are much more expensive than traditional diesel (vehicle and fuel)

What should companies do and buy?

Would an increase in the price of transport be accepted?

DEMAND FOR ALTERNATIVE FUELS IN ROAD TRANSPORT

IMPORTANT: We can safely say that there is no one-size-fits-all solution available at the moment that could dethrone conventional diesel

It is very difficult to answer what exactly should be our focus, but there are a number of questions that should at least be included in the calculation when alternative fuels are discussed.

We have identified four dimensions that in our opinion are important when determining the prevalence of a given technology and propellant (ultimately, it is in fact a political decision).

In addition to these parameters, it is also interesting that different countries go in different directions (depending on geography, the political environment and what resources are available).

This also applies to OEMs.

FOUR DIMENSIONS TO CONSIDER

THE READYNESS OF THE TECHNOLOGY READY

- HOW FAR IS THE TECHNOLOGICAL DEVELOPMENT? HOW LONG IS TECHNOLOGY RELEVANT IN THE MARKET? WHAT TYPES OF TRANSPORT ARE SUITABLE FOR THE TECHNOLOGY? ETC.

THE PRODUCTION OF THE FUEL

- IS DEMAND GREAT ENOUGH TO SECURE PRODUCTION? IS THERE A CONTINUOUS AND ADEQUATE SUPPLY? IS PRODUCTION SUSTAINABLE? ETC.

THE INFRASTRUCTURE FOR ALTERNATIVE FUELS

- DOES IT REQUIRE INVESTMENT IN INFRASTRUCTURE? HOW FAST CAN ANY INFRASTRUCTURE BE ROLLED OUT? IS THE COVERAGE ADEQUATE? ETC.

CONSIDERATIONS FOR TRANSPORT COMPANIES

- DOES IT REQUIRE INVESTMENT IN NEW VEHICLES? WHAT DOES OPERATING COSTS LOOK LIKE? IS THERE A MARKET FOR SELLING THE VEHICLES SUBSEQUENTLY? ETC.

POTENTIAL OF POWER-TO-X AND CLEAN HYDROGEN

- At the moment different technologies are competing to gain market shares.
- Trucks usually last 3-5 years in international transport. A bit longer for other operations.
- Denmark has the necessary prerequisites for large scale investments in Power-to-X and clean hydrogen.
- If Power-to-X is to become successful it depends on the price and availability. Can Power-to-X be used in all modes of transport? Aviation, Maritime, Road.
- Power-to-X can be utilized with existing vehicles and infrastructure if it is in liquid form. Clean hydrogen requires different types of vehicles.
- It is all about upscaling.

QUESTIONS OR REMARKS?

Jens Hvid Bang

+45 5135 5271

E-mail jhb@itd.dk