

Green Freight Experiences Vietnam

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matching transport with climate finance

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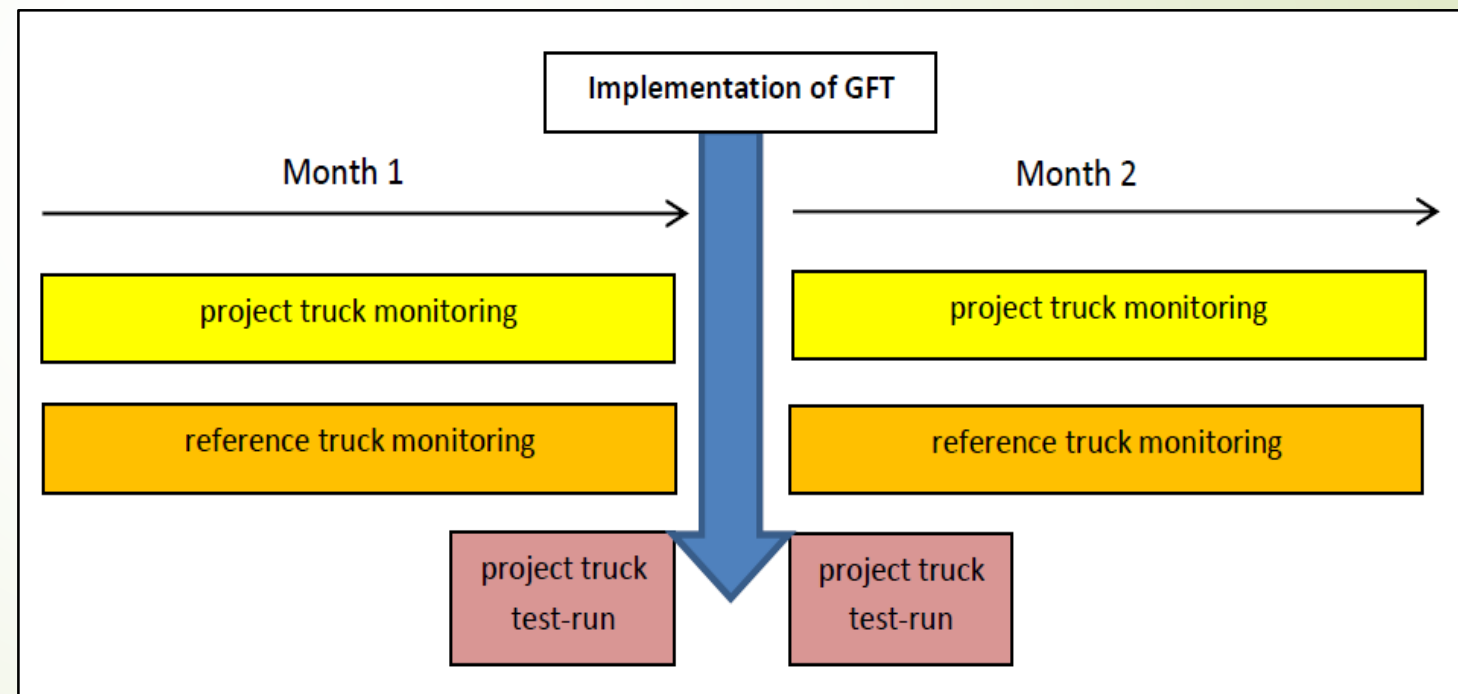
Focus

- Long-haul road based freight transport
- GHG emissions



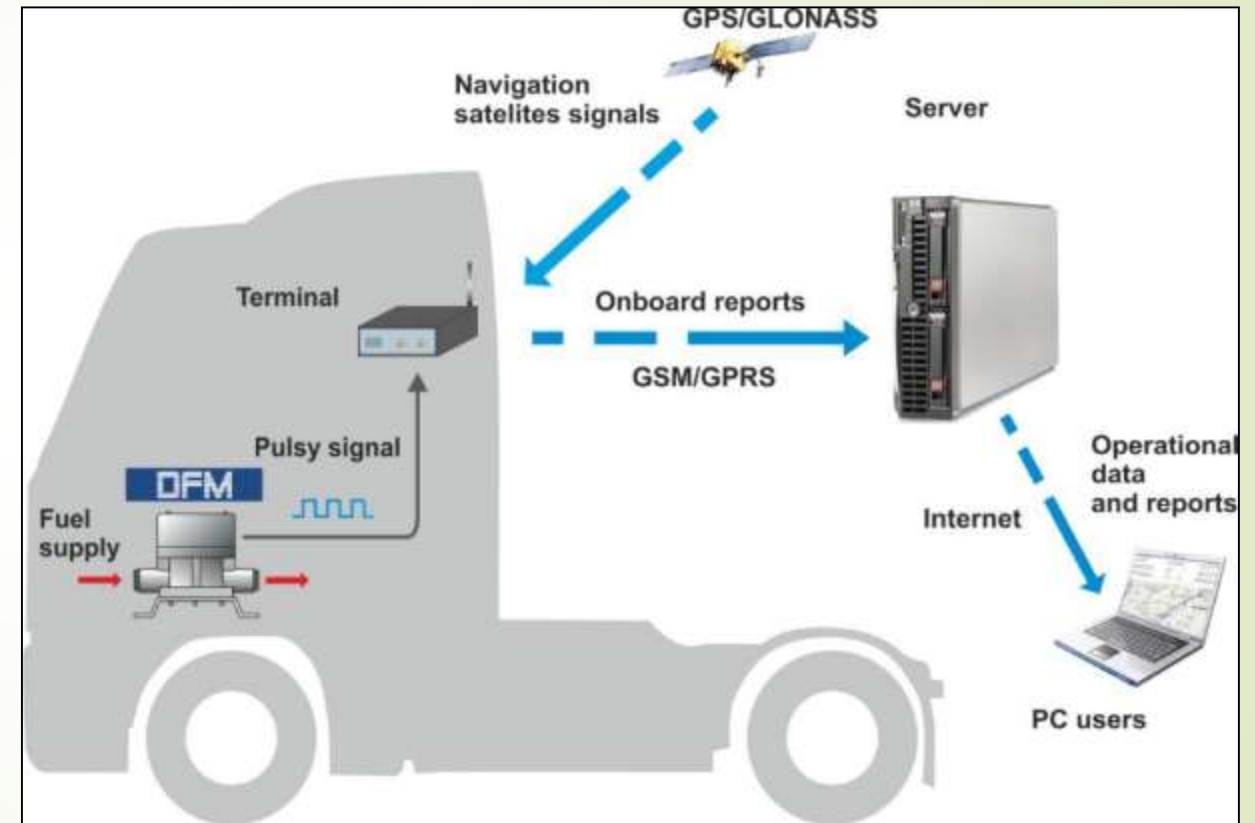
Measurement Concept

- ▶ Measurement is core: In general impacts are overestimated
- ▶ Concept and approach developed by Grütter Consulting
- ▶ 3 approaches:
 - ▶ Normalized test-run
 - ▶ Before-after
 - ▶ Comparison truck



Measurement Method

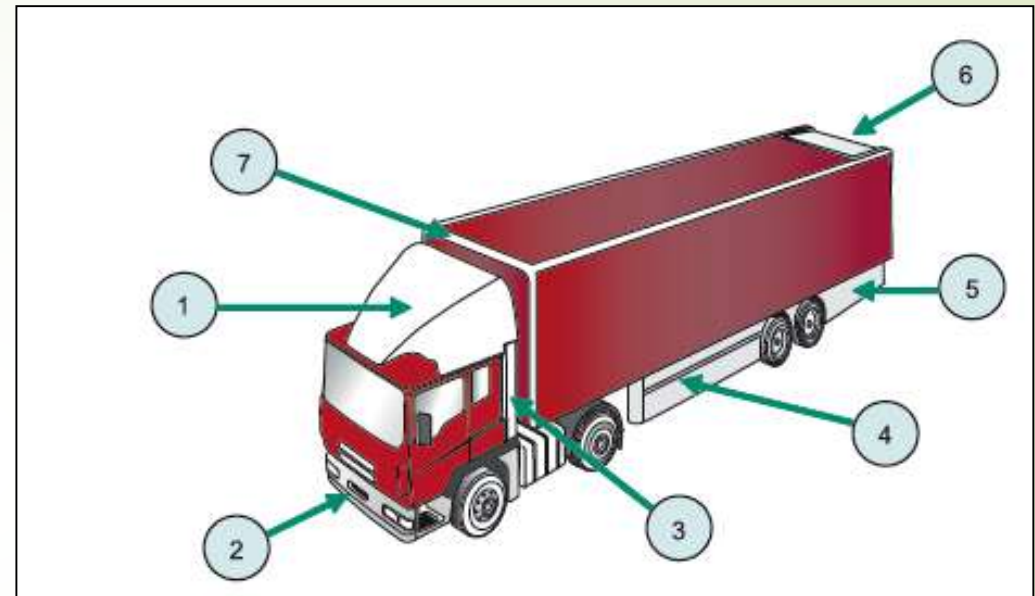
- Fuel → CO₂ emissions
- Normalization: speed and GVW
- Distance / Euro / speed / load factor → BC emissions



Aerodynamics

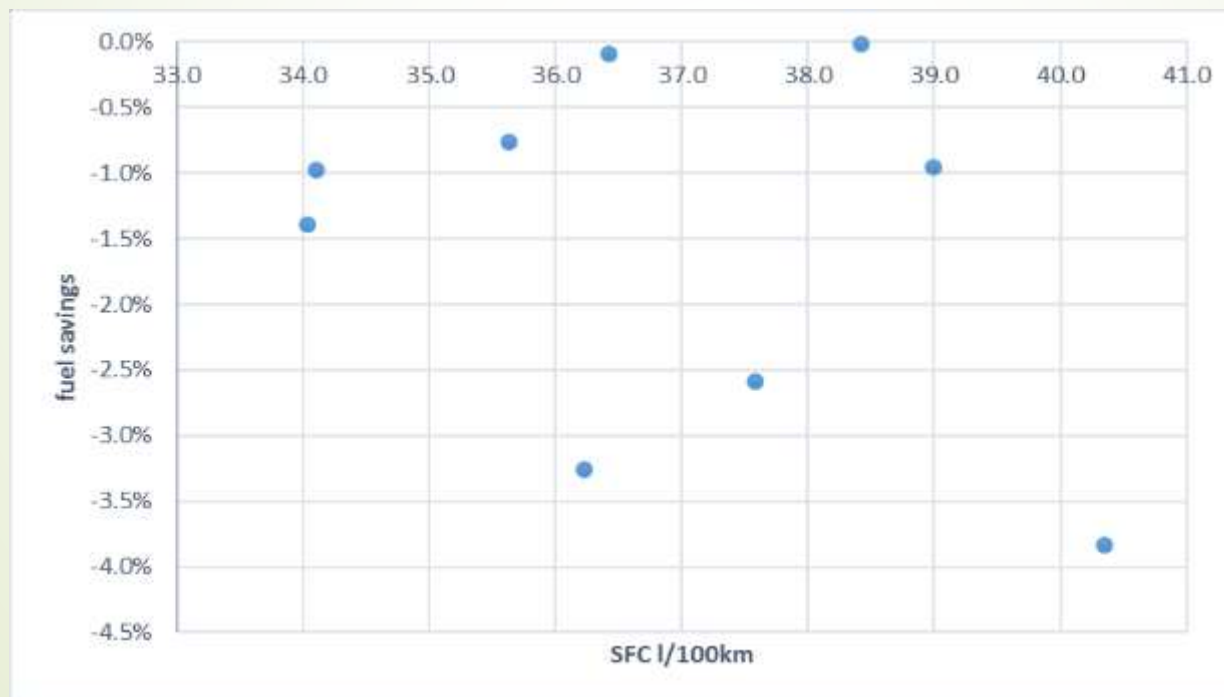


11 trucks equipped with
cab roof deflectors



Aerodynamics Results

- Driving speed: 30-35 km/h
- Fuel and GHG saving: 2-4%

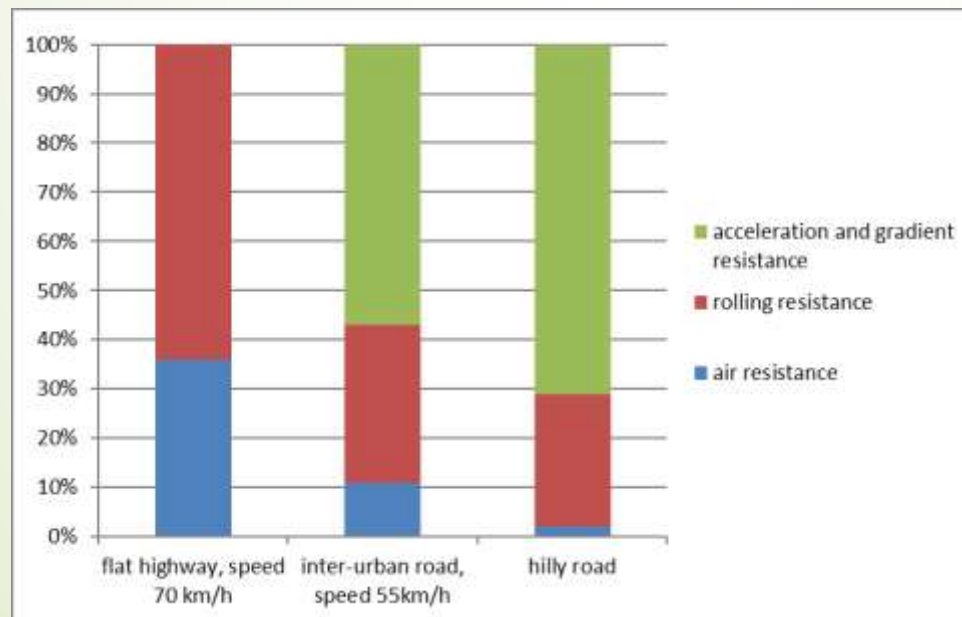


Aerodynamics Cost-Benefit

Parameter	Value
Additional investment truck	1,000 USD
Remaining life-span of truck	5 years
Fuel cost (1.3.2017)	0.65 USD/l
Fuel saving aerodynamic device	2%
Savings fuel per annum	325 USD
Payback time	4 years

- Due to driving speed the only valid aerodynamic equipment is cab deflector and cab extension

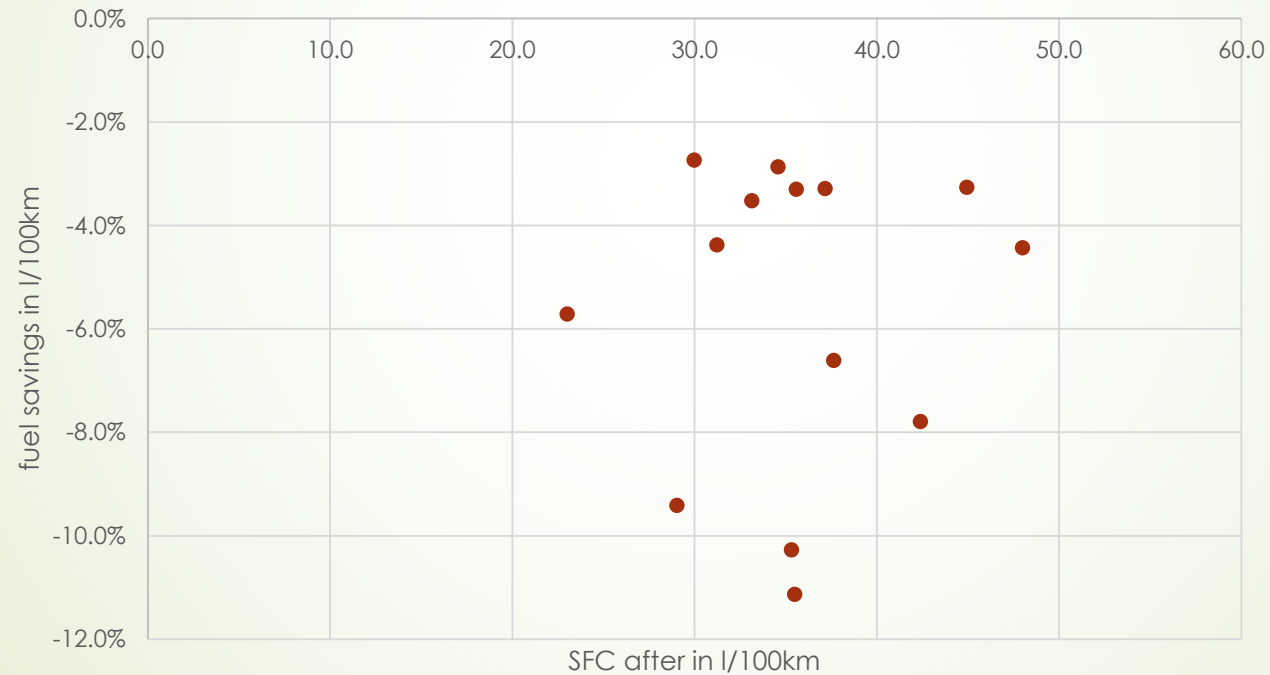
Tyres



15 trucks equipped fully with LRRs (22 units per truck; tube and tubeless tyres)

LRR Results

► Fuel and GHG savings: 4-6%



LRR Cost-Benefit

- ▶ Additional investment per tyre: 40 USD/unit but limited market availability plus rims

Parameter	
Total required investment in LRRs per truck	11,660 USD
Additional investment per truck	880 USD
Lifespan of tires	13 months
Fuel price	0.65 USD/l
Fuel savings through LRRs	6%
Savings fuel per annum	1,300 USD
Payback time	8 months

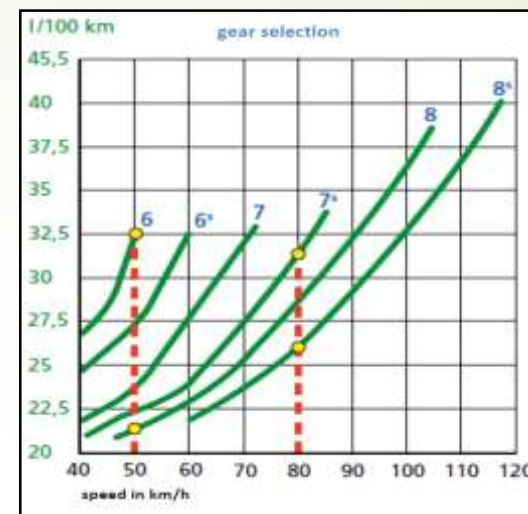
Tyre Inflation



Tyre Inflation Results

- + 1 bar (8 to 9 bar or plus 15 psi)
- 2-3% fuel or GHG savings
- Cost marginal if manual and too high if automatic

Eco Drive



Eco Drive Results

- ▶ 3-5% fuel or GHG savings
- ▶ Sustainability of impact difficult
- ▶ Cost is basically time of driver for trainings and means to ensure sustainable impact

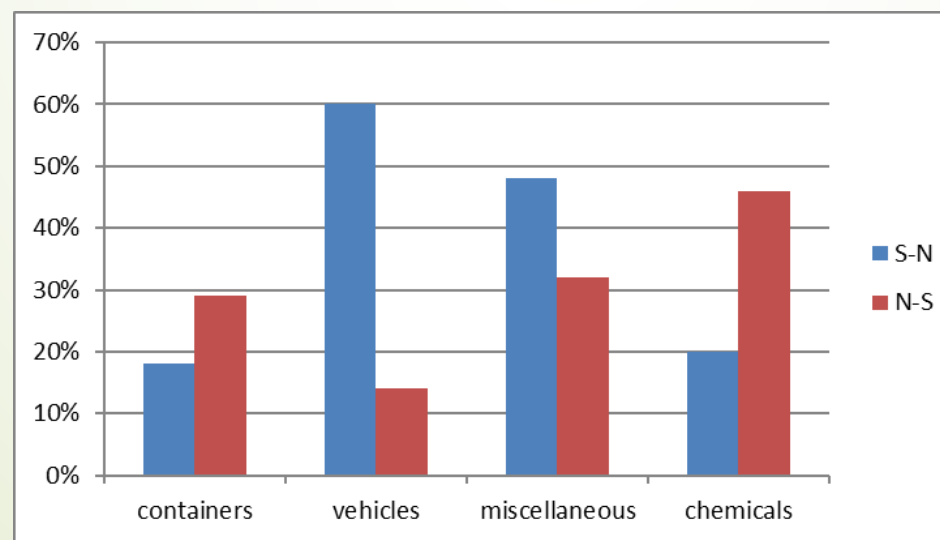
Other Technical Measures

- LNG trucks
- Lighter structures
- Refrigeration units
- Urban trucks: e.g. electric
- Diesel Particle Filters
- Larger trucks
- ICT
- Fuel consumption standards, tyre standards



Logistics Vietnam

- Empty backhaul unweighted 35% but based on tkm 26% i.e. more an issue of shorter distances
- Average load factor unweighted 56% and tkm 69%
- Green freight Label for 3 companies



Empty truck share
relative to direction

Way Forward

- ▶ Combination of measures;
- ▶ Technology upgrading of trucks reducing PM emissions;
- ▶ Requires aggregator institution if financial incentives shall be used if smaller companies shall be included