Embedding climate mitigation into procurement

Håkan Johansson
Coordinator climate mitigation
hakan.johansson@trafikverket.se
Why requirements to reduce GHG?

• National goal that Sweden shall be climate neutral 2045 at latest.
• Ambition from the Government - be the first fossil free welfare state in the world.
• The Transport Administration shall according to its instruction contribute to national climate goal.
• GHG emissions from infrastructure (building, operation and maintenance) in a lifecycle perspective stands for 5-10 percent of the total emissions from road- and rail transport system.
• Transport Administration has the power to change these emissions through procurement.
From goals to action

• Staring point – the goal in the Climate act decided by the Parliament Sweden shall not have any net emissions of GHG emissions 2045.

• The Transport Administration set a long term goal and two intermediate goals:
  – a long term goal of a climate neutral infrastructure by the latest 2045
  – 30 percent reduction of GHG emissions to 2025 and 15 percent reduction to 2020 compared to 2015

• Impact assessment together with industry showed the goals could be achieved at no or low extra cost.

• Goals implemented in procurement from 2016.
Requirements in procurement of planning, design and building

≥50 MSEK (≥€5M)
- Requirement on consultant to present measures in the planning phase, Climate calculation
- Quantitative requirement on consultant or turnkey (design) contract, Climate calculation
- Quantitative requirement on construction contract, Climate calculation
- Climate declaration to control compliance of requirements to reduce GHG emissions

<50 MSEK (<€5M) and maintenance
- Requirement on consultant to present measures in the design phase
- Requirements on materials and energy in construction contract
- Control of compliance of requirements on materials and energy, EPD and fuel declaration

Measurement selection study
Planning phase
Design phase
Building phase
Requirements in design and building 2016-
investment projects ≥50 MSEK

• Transport Administration defines a baseline for the project using Klimatkalkyl (referring to emission levels year 2015).

• In the procurement a requirement is given to reduce the GHG emissions with x percent compared to the baseline. On average:
  – 15 percent reduction by 2020 compared to 2015
  – 30 percent reduction by 2025 compared to 2020

• If significant change of scope of works, the baseline will be updated. The percentage reduction requirement will however be retained.
Requirements in design and building 2016-
investment projects ≥50 MSEK

• At the end of the project, the contractor must demonstrate that the requirement has been achieved through a climate declaration.

• Performance of project specific materials has to be demonstrated through EPD. Always the case for concrete, reinforcement steel, construction steel and fuels.

• Bonus model presented in procurement for larger GHG reduction than required. Bonus paid at climate declaration.
Klimatkalkyl: Enables efficient and consistent approaches to calculate GHG emissions and energy use for infrastructure in a life cycle perspective

- Owned and developed by the STA
- Builds on existing data, simple to use
- Used from early planning phase to final infrastructure with increased level of accuracy
- From 2015, climate calculations required for new investment measures ≥ 50 MSEK
- Since February 2016, the climate calculation model has also been applied for requirements to reduce GHG for new investment measures ≥ 50 MSEK
Requirements in procurement of investment projects larger than 50 MSEK (€5M)

- 18 percent reduction on average
- Total minimum reduction 89 000 tonnes

Road 44
Road 44 Lidköping – Källby
First project with climate requirements

Turnkey contract with design and building of:

• Re-construction and widening of road 184 to 2+2 road on a 1.6 km stretch.

• New construction of 7 km 2+1-road new road 44 i a stretch south of village Filsbäck.

• New construction of 7 concrete bridges and 2 soil-steel composite bridges.

• Re-construction and new building of 3.5 km local roads and a number of private roads and walking and cycling roads.
Procurement – Road 44

- 1:th project med climate requirements.
- The request for tender was sent out March 2016
- Base line 6990 tonnes CO2 eq.
- 0 percent reduction.
- Bonus for reductions up to 10 percent.
- For 10 percent reduction a bonus of 1% of contract value.
- No penalty.
- The baseline climate calculation was given in the request.
- Skanska was given the contract worth 232 MSEK (€23M)
Measures the entrepreneur carries out

Measures in design
• Reduce amount excavation and filling
• Optimise non-bound superstructure
• Optimise pavement

Measures in building phase
• Choice of fuels (HVO100 instead of diesel)
• Choice of suppliers (reinforcement steel)
• Choice of material (plastic pipes instead of concrete)

Reduction 14 percent compared to updated baseline
## Requirements on materials and fuels from 2018

*in smaller investment measures (<50MSEK) and in all maintenance contracts*

<table>
<thead>
<tr>
<th>Product/material</th>
<th>Contract ends 2020-2024</th>
<th>Contract ends 2025-2029</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcement steel</td>
<td>≤ 0,72 kg CO$_2$e/kg steel</td>
<td>≤ 0,52 kg CO$_2$e/kg steel</td>
</tr>
<tr>
<td>Construction steel</td>
<td>Environment product declaration type III (EPD) for selected products</td>
<td>Environment product declaration type III (EPD) for selected products</td>
</tr>
<tr>
<td>Cement</td>
<td>≤ 0,70 kg CO$_2$e/kg cement</td>
<td>≤ 0,62 kg CO$_2$e/kg</td>
</tr>
<tr>
<td>Concrete</td>
<td>25 % reduction CO$_2$e Environment product declaration type III (EPD) for concrete</td>
<td>35 % reduction CO$_2$e Environment product declaration type III (EPD) for concrete</td>
</tr>
<tr>
<td>Fuel to vehicles and machines in Metropolitan areas (Stockholm, Gothenburg and Malmö)</td>
<td>At least 20 percent of energy use for vehicles and machines shall be renewable electricity or sustainable fuels not included in reduction duty (for example HVO100 or B100).</td>
<td></td>
</tr>
</tbody>
</table>
More climate mitigation measures

*That the Transport Administration carries out*

- Long term planning in line with climate objectives.
  - Scenarios and prognosis how transport can meet climate objectives
- Urban environment agreements
  - Support infrastructure public transport cycling incentives sustainable cites
- Climate neutral road ferry operation in 2045
- Only buying renewable electricity from 2018.
- Strategy for electric production in the infrastructure 2018.
- Pilot on biodiverse energy production 2018-2019.
- Climate requirements on procured transports.
- Eco driving mandatory for driving licence.
- Speed cameras (ATC) which also contributes to lower emissions.
- And more....
What happens next?

Extending to greater part of procurements

• Climate requirements in procurement of pavement contracts in 2019.
• Climate requirements in procurement of summer and winter maintenance contracts in 2019.
• Requirements for climate performance and EPD in procurement on railway materials 2016-

Evaluation and R&D, examples

• Control Station 2018 with evaluation of requirements and development of goals and requirements beyond 2030.
• Research on transformative changes needed to reach climate neutral infrastructure, Mistra Carbon Exit.