Climate requirements in procurement
"Procurement possibilities for innovations"

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Swedish Transport Administration
Goal towards carbon neutrality

- 15% reduction: projects finalized at 2020-2024
- 50% from 2030
  - Fossilfree fuels or electric vehicles and working machines
- 30% 2025-2029
Requirements during planning, design and building

*Investments ≥ 50 MSEK / € 5 M*

<table>
<thead>
<tr>
<th>Phase</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasibility study</td>
<td>Requirement on consultant to present measures in the planning phase</td>
</tr>
<tr>
<td>Planning phase</td>
<td>Quantitative requirement (% reduction) in design or D&amp;B contract</td>
</tr>
<tr>
<td>Design phase</td>
<td>Quantitative requirement (%) in construction contract</td>
</tr>
<tr>
<td>Building phase</td>
<td>Climate declaration and EPD (control compliance of requirements)</td>
</tr>
</tbody>
</table>

GHG calculations (Klimatkalkyl) to produce a "CO₂e budget"
Reduced climate impact (design phase), Kiruna project

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reduced emissions CO₂-ekv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changed type of bridge</td>
<td>25 ton</td>
</tr>
<tr>
<td>Narrowed roundabout</td>
<td>1 ton</td>
</tr>
<tr>
<td>Design of ditches</td>
<td>15 ton</td>
</tr>
<tr>
<td>Earth works, peat, contaminated soil</td>
<td>440 ton</td>
</tr>
</tbody>
</table>

Guidance is needed! A guidance project has been initiated by Anläggningsforum.
Goals towards carbon neutrality
## Requirements on materials and fuels from 2018

*Investments <50 MSEK and maintenance contracts*

<table>
<thead>
<tr>
<th>Construction material</th>
<th>Contract ends 2020-2024</th>
<th>Contract ends 2025-2029</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcement steel</td>
<td>$\leq 0.72 \text{ kg CO}_2\text{e/kg steel}$</td>
<td>$\leq 0.52 \text{ kg CO}_2\text{e/kg steel}$</td>
</tr>
<tr>
<td>Construction steel</td>
<td>Environment product declaration type III (EPD) for selected products</td>
<td>EPD for selected products</td>
</tr>
<tr>
<td>Cement</td>
<td>$\leq 0.70 \text{ kg CO}_2\text{e/kg cement}$</td>
<td>$\leq 0.62 \text{ kg CO}_2\text{e/kg}$</td>
</tr>
<tr>
<td>Concrete</td>
<td>$25 %$ reduction $\text{CO}_2\text{e}$ EPD for concrete</td>
<td>$35 %$ reduction $\text{CO}_2\text{e}$ EPD for concrete</td>
</tr>
<tr>
<td>Fuel to vehicles and machines in Metropolitan areas (Stockholm, Gothenburg and Malmö)</td>
<td>$\geq 20%$ 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>


Asphalt production – towards lower carbon footprint

Technical requirements and industrial collaboration makes it possible!
Bonus in asphalt pavement contracts – pilots in 2019

"100 value" per type of asphalt

"Target level"

Bonus is set to 1,14 SEK per kg CO₂eq (120 euro per ton CO₂eq)

Entrepreneur reports per type of asphalt using

Swedish Transport Administration Climate calculation tool for asphalt

EKA

Baseline average production 2015
Level from which bonus is counted = baseline minus 15%
Level of max bonus = baseline minus 25%
Geokalkyl – a forecast of costs and GHG emissions

- Road/railway corridor – environmental, CBA, land use, etc.
- Routes – site specific conditions, design, geology
- Geotechnics – choice of methods
How we procure affects the Sweden of tomorrow

The Swedish Transport Administration is one of Sweden's largest public procurers.

With an assignment volume of around SEK 40 billion per year, the Swedish Transport Administration is the single largest procurer in the Swedish construction industry.

A unique opportunity to influence greater innovation and thereby contribute to the development of the construction industry, and in Sweden!
"If you do what you have always done, you will get what you have always gotten!"

- Anthony Robbins

Insanity: doing the same thing over and over again and expecting different results.

Albert Einstein
Create conditions for innovations

- Early market dialogue and ECI contracts
- Pre-commersial procurement, e.g. electric roads
- Development-promoting procurement, e.g. adaptive lighting or Marieholmstunneln
- B&M contracts
Lighting fixtures with LED, railway yard
Solar electricity

Road tunnel in Enköping 10kW

"Teknikhus" Niemisel
Innovative idea save costs and environment
Två av Svevias inspektionsbilar i Umeå är vätgasdrivna bränslecellsbilar med noll utsläpp.

Upphandling stimulerar till minskad miljöpåverkan.
Electrified, autonomous and digitalized machines within a building project

• In 2021 (*preliminary*) a contractor will build a new road/railway with specific methods specified together with the client
  – As electrified as possible
  – As autonomously as possible
  – As digitized as possible

• If it turns out well future procurements will be written based on functional environmental requirement (CO₂)
Any success formula?

• It is a teamwork
• Allow flexibility – there are uncertainties and complexity (don´t get stuck in endless calculations …)
• Public procurement – not an obstacle but traditions are
• Technical requirements – not an obstacle but people are
• The need for innovation (+ spectacles for the future)
Coming next …

• Pilots 50 % reduction today (the 2030th target)

• Increased cost burden on CO$_2$e – 5 times higher than today!
  $\rightarrow$ 7 SEK per kg CO2

Thank you!