

# Asphalt production using wood pellets as fuel

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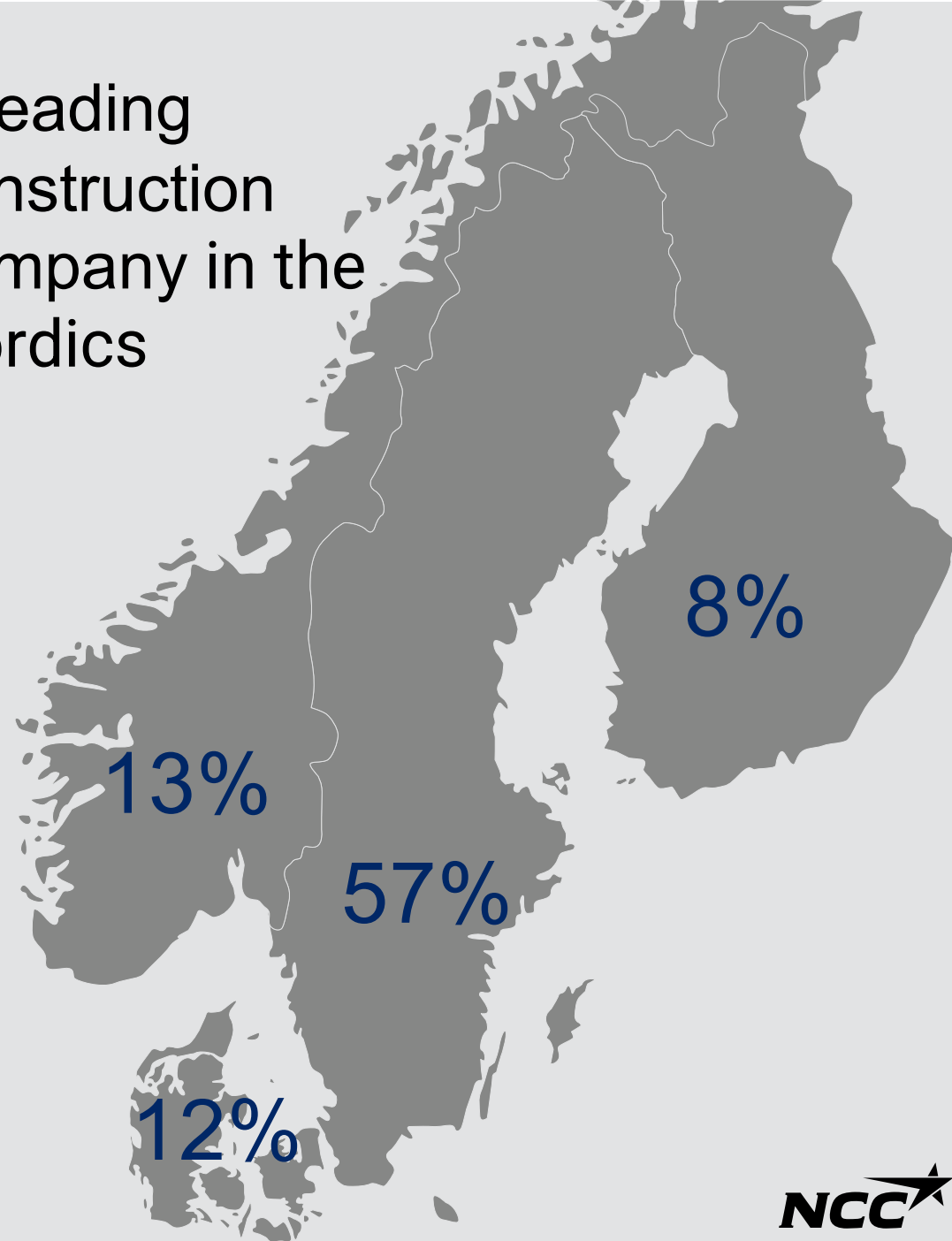


Sales SEK  
**57 Bn**

A leading  
construction  
company in the  
Nordics



Employees  
**12,200**



Net sales, 2023



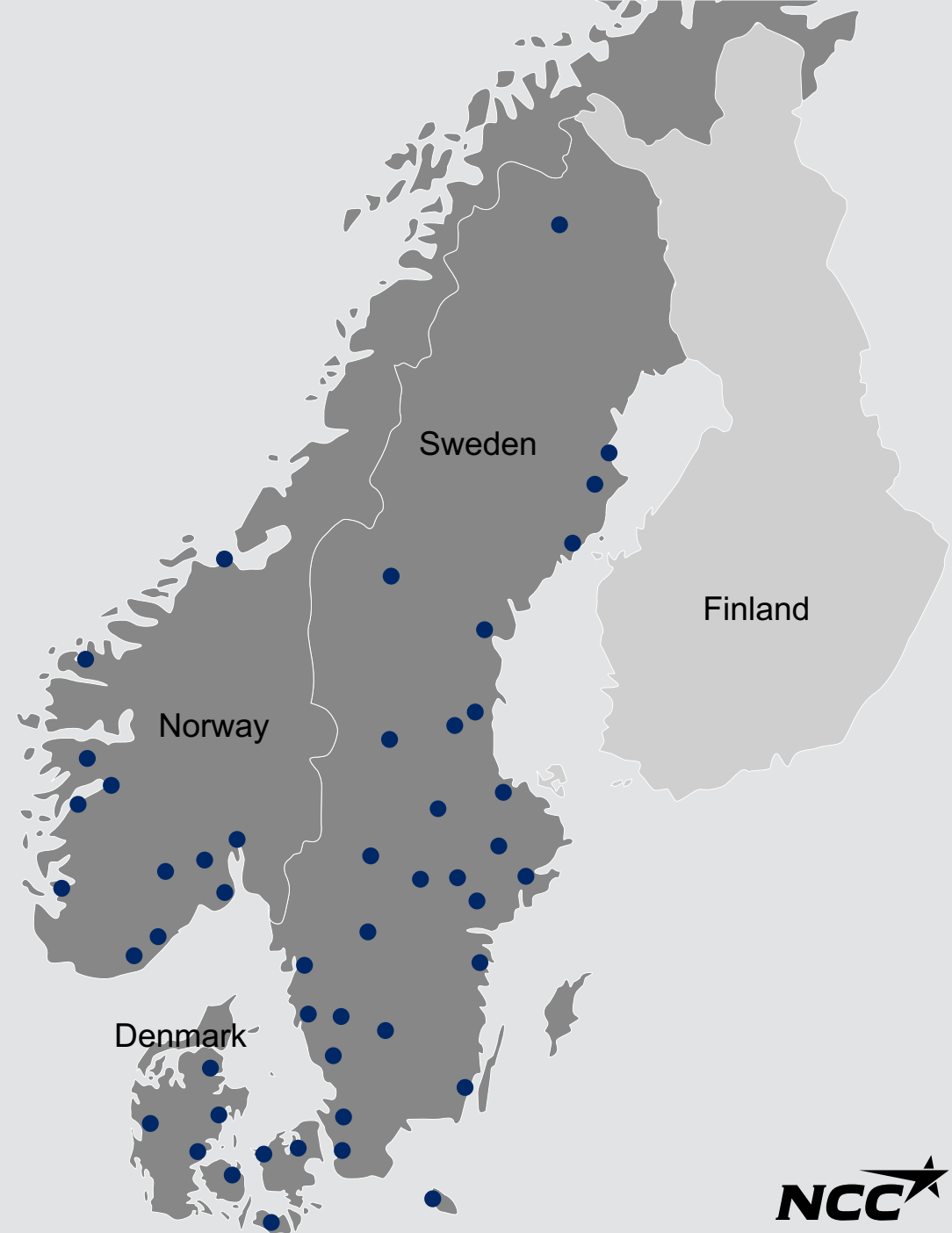
# Our construction scope covers all our three businesses



— Different business logics but with important interconnections and dependencies —

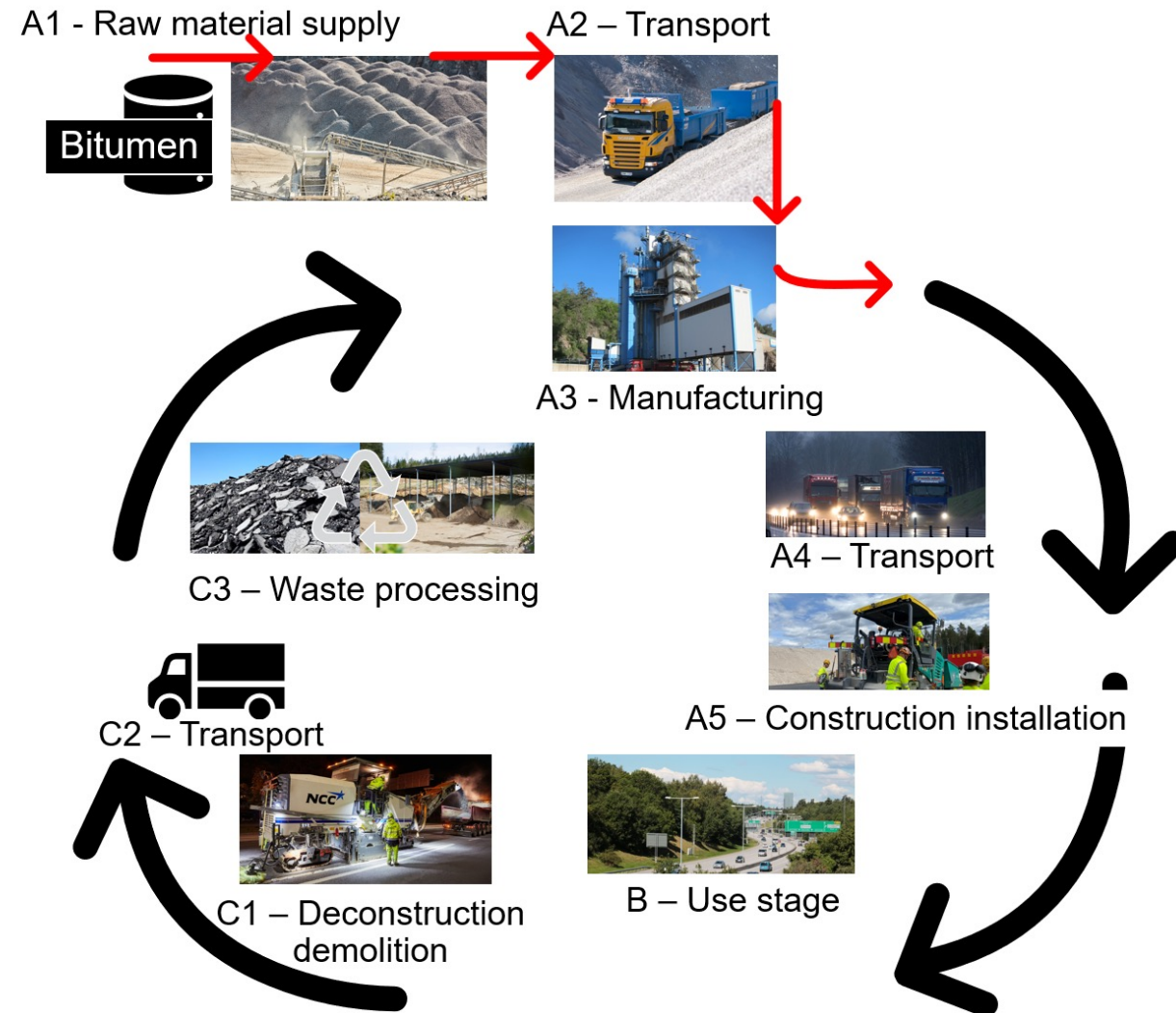
# NCC Industry – division Asphalt

- Develops, produces and sells **asphalt products** for construction and infrastructure projects.
- 51 asphalt plants in Norway, Denmark and Sweden.



# Asphalt mixtures and asphalt pavement

- Asphalt mixtures mainly consist of crushed rock (~95 % by weight) and bitumen (~5 % by weight).
- When returned to the asphalt plant, asphalt pavement is 100 % recyclable.





# Asphalt production – energy intensive

- ~7 liters of diesel (LFO) per ton of asphalt mix
- NCC produces ~5 million tons of asphalt per year



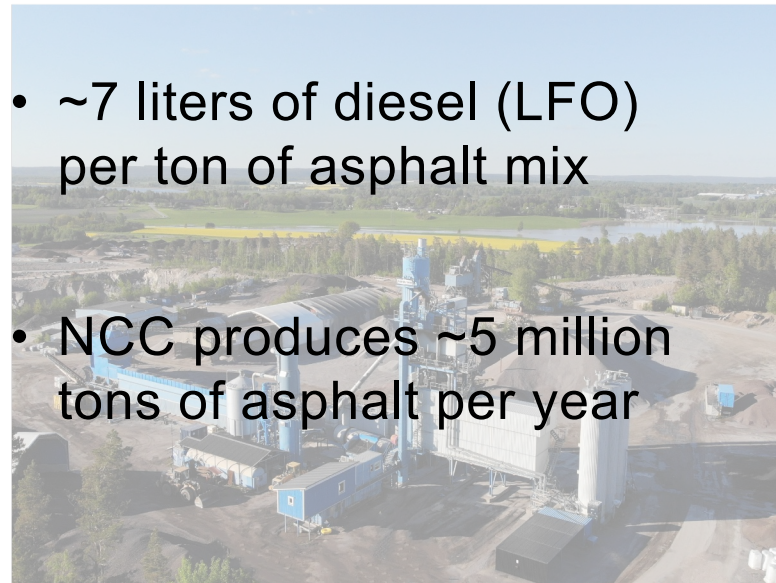
# Asphalt production – energy intensive

- ~7 liters of diesel (LFO) per ton of asphalt mix
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- 342 063 894 kWh
- or
- 342 064 MWh
- or
- 342 GWh

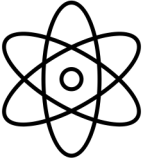
# Asphalt production – energy intensive



- 342 063 894 kWh
- or**
- 342 064 MWh
- or**
- 342 GWh



- 4.6 days production at Swedish nuclear plant, Forsmark

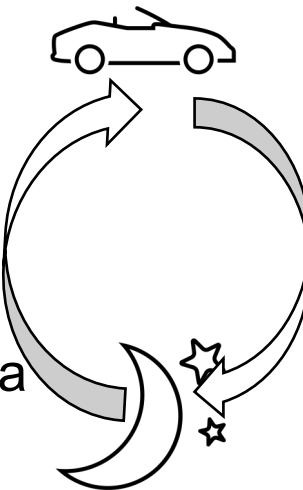


**or**

- Driving 162 887 568.6 km with a Tesla S

**or**

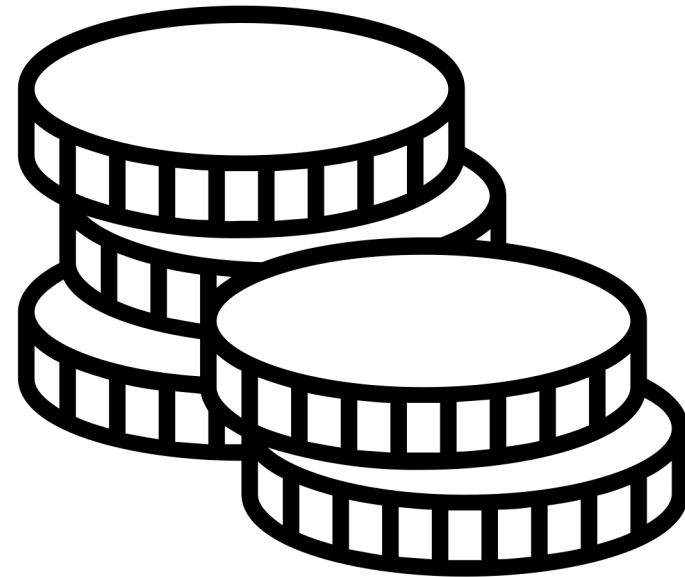
- 2036 round trips to the moon with a Tesla S





# Taxation in Sweden

- No tax on biofuels since 1984.
- A carbon tax on fossil fuels was instituted in 1991, alongside an already existing energy tax.
- The carbon tax provides incentives to reduce energy consumption, improve energy efficiency and increase the use of renewable energy alternatives.



# NCC converts asphalt production to wood pellets

2012 NCC's first  
asphalt plant  
converted to  
pellets.

2016  
NCC  
patent

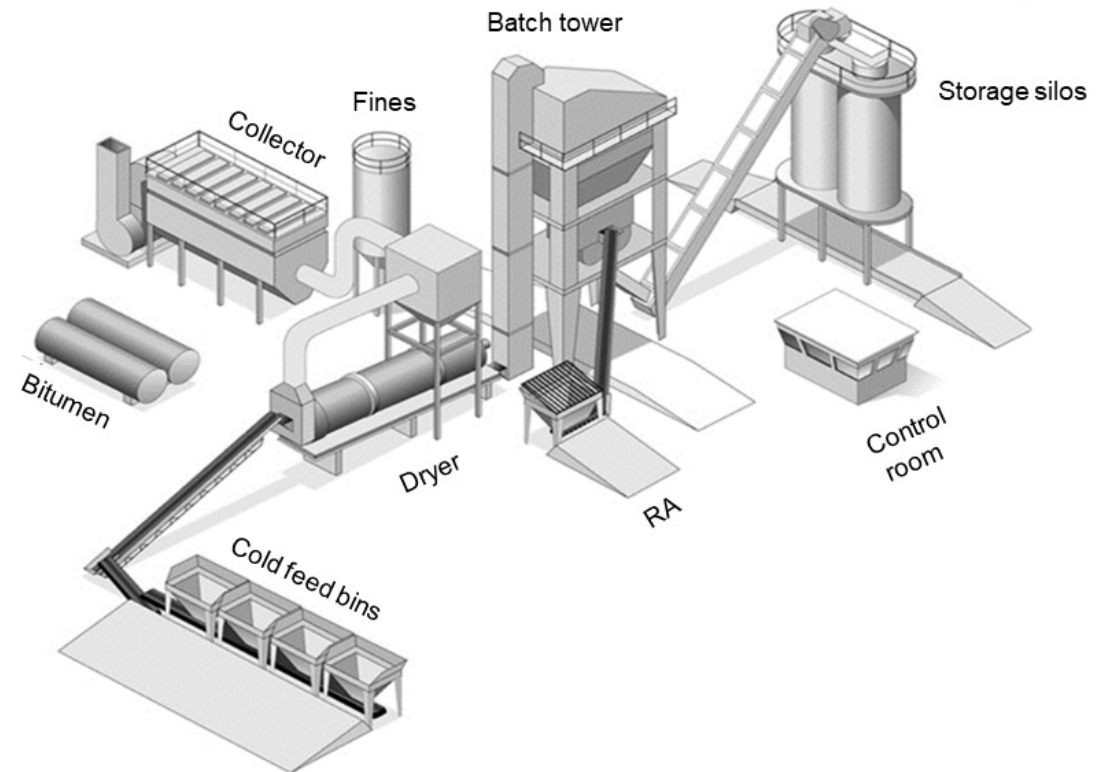
2020 all NCC's Swedish  
asphalt plants converted  
to biofuels.

2019

NCC's first Norwegian  
asphalt plant converted  
to pellets.

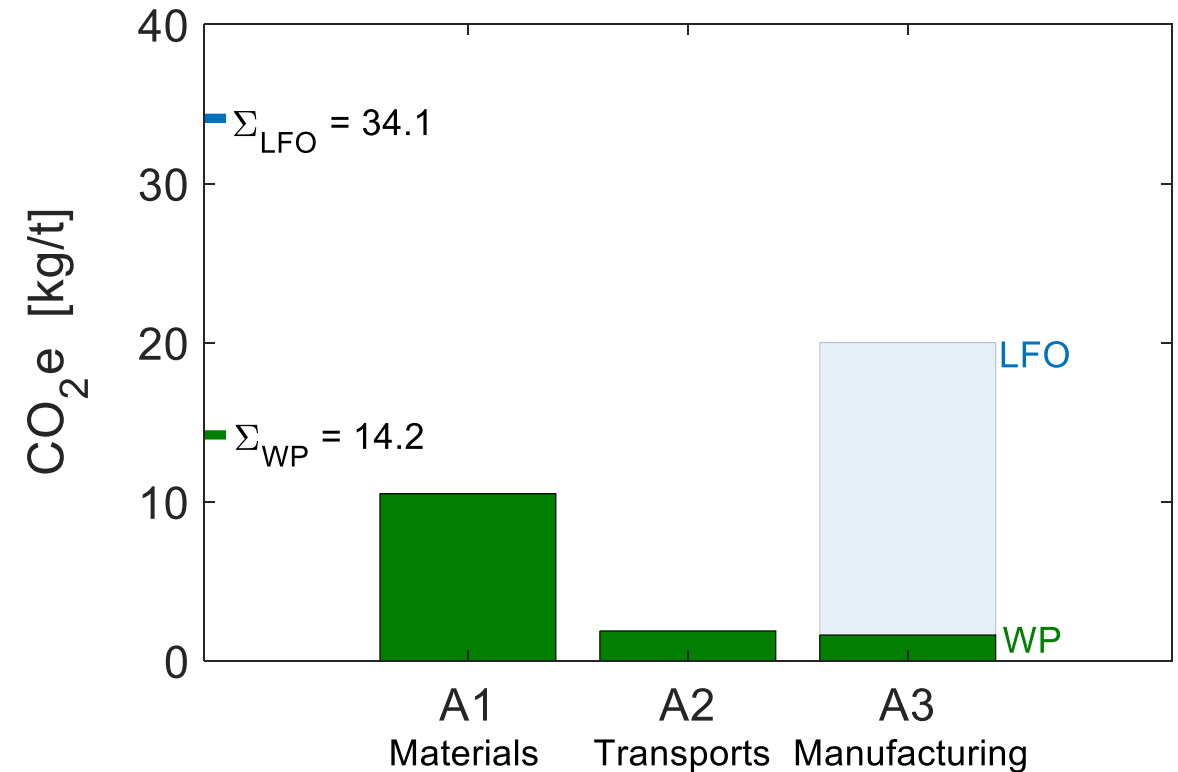
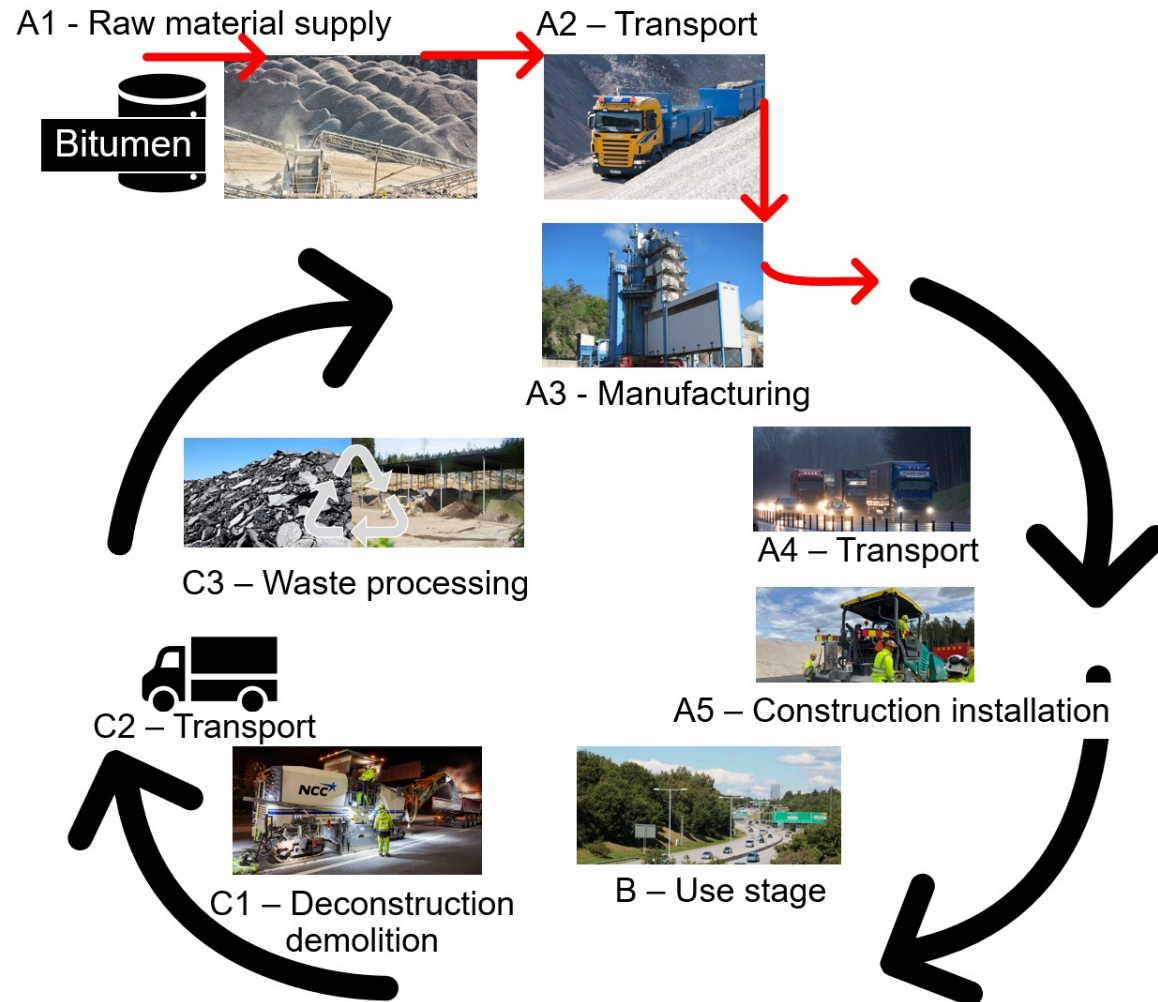
# NCC converts asphalt production to wood pellets

- Due to availability and taxes, NCC has traditionally used different fuels in asphalt production in Sweden, Norway, and Denmark.
- Significant technical challenges: energy efficiency, combustion, handling and logistics etc.
- NCC has developed a patent for operating asphalt plants using pellets.





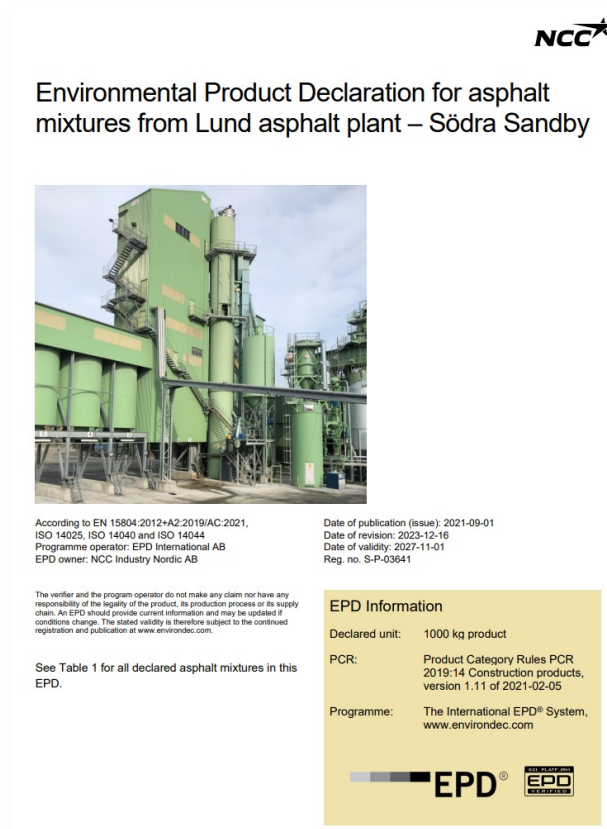
# Most CO<sub>2</sub>e emissions occur in the early phases of the life cycle



# CO<sub>2</sub>e reduction requirements from the Swedish Transport Administration

Requirements asphalt mixtures:

- Production stages A1-A3
- CO<sub>2</sub>e shall be declared in an EPD (Environmental Product Declaration)



An EPD is a third party verified document. It presents the environmental performance of a product from a life cycle perspective, in a transparent, objective and standardized way.

EPDs from NCC are published at: [www.environdec.com](http://www.environdec.com)



- Energy optimization
- Cutting the use of fossil fuels
- Saving natural resources



Recycled stone materials

Moisture reduction

WMA/LTA

Biofuels

RA

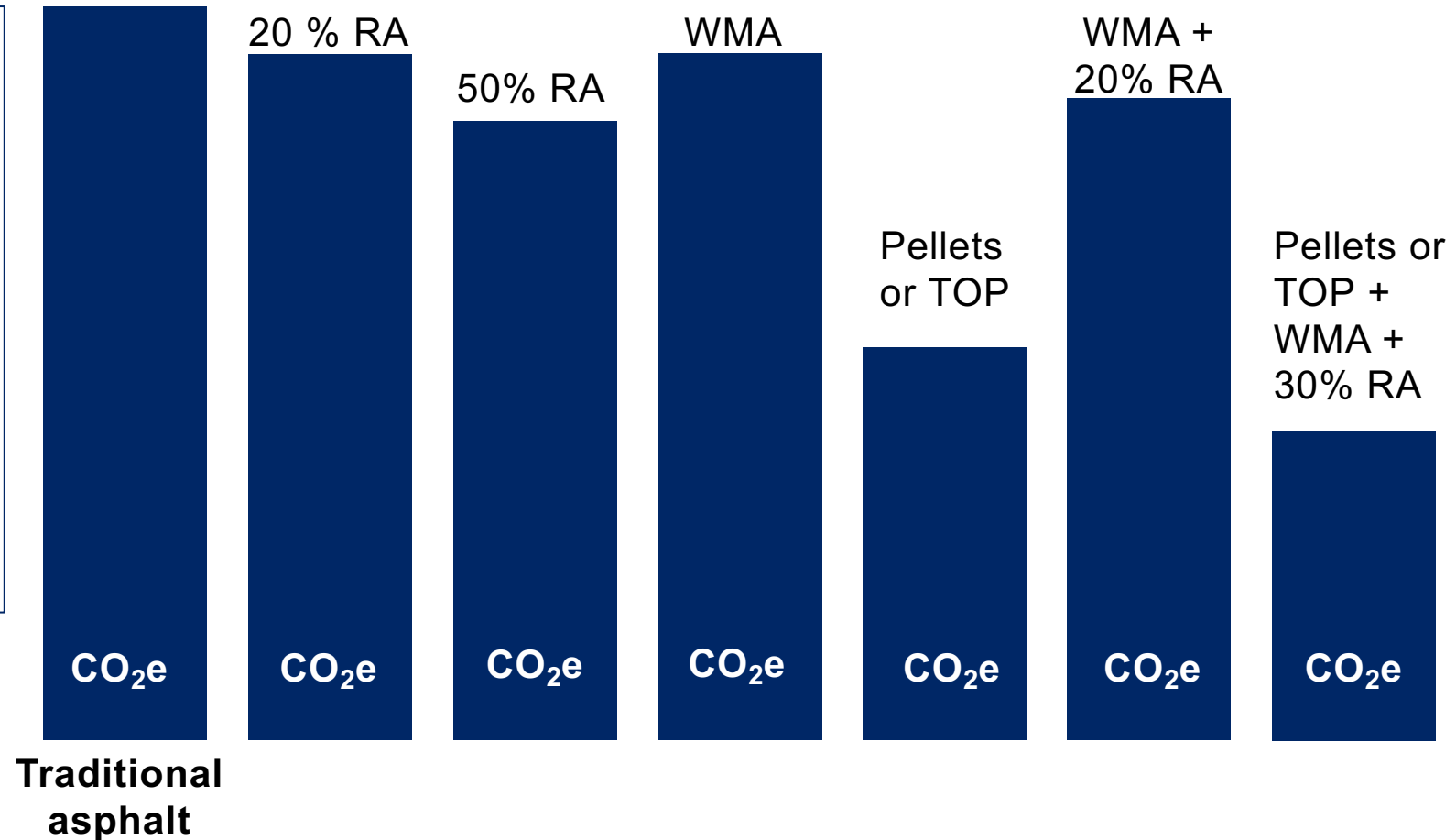
Bio binders



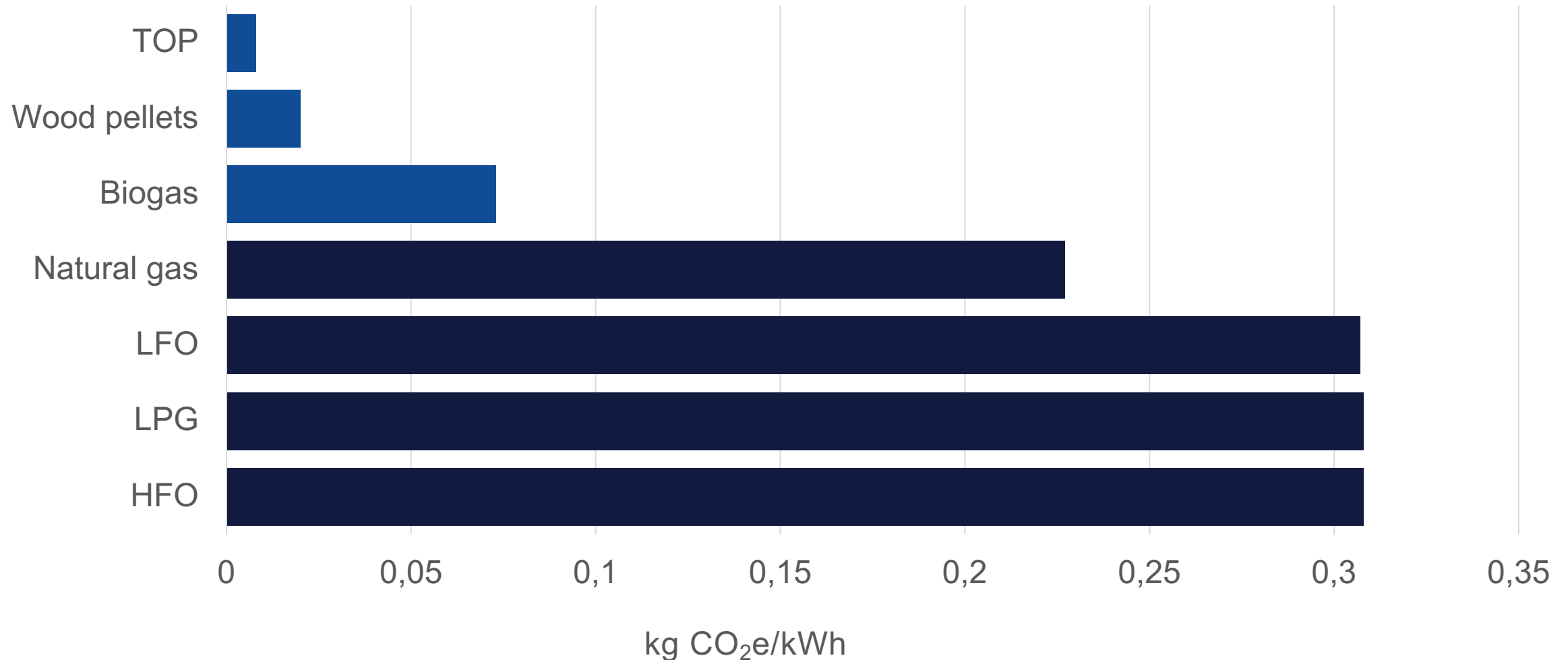
# Examples on how we reduce CO<sub>2</sub>e in asphalt production

## Definition of traditional asphalt:

- Asphalt is heated by: LFO
- Virgin stone materials
- Hot asphalt (170 °C)
- Adhesive agent: amine



# CO<sub>2</sub>e emissions from biofuels are **not** 0



# Resumé

- The primary measure to reduce the climate emissions is a continued conversion of asphalt plants to the use of biofuels.
- All NCC's asphalt plants in Sweden have been converted for the use of biofuel.
- In Sweden, the target is that at least 95 percent of the energy used in the asphalt plants will come from biofuel (primarily wood pellets), as of 2024. This can be compared with 2015, when the proportion of biofuels was 53 percent.
- In Norway, NCC intends to convert all asphalt plants from being heated only by fossil LPG and heating oil to being heated with biofuel. Four of the asphalt plants in Norway are now fueled by wood pellets.





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