



City of Oslo



## Energy and Green Urban Transition in Oslo

30.01.2020

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Lillestrøm

*[Øystein Ihler / Waste-to-Energy Agency City of Oslo]*

OSLO

*Winner 2019*

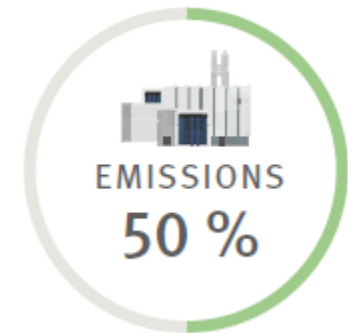
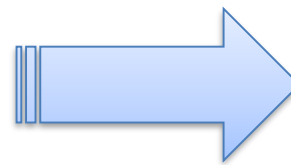
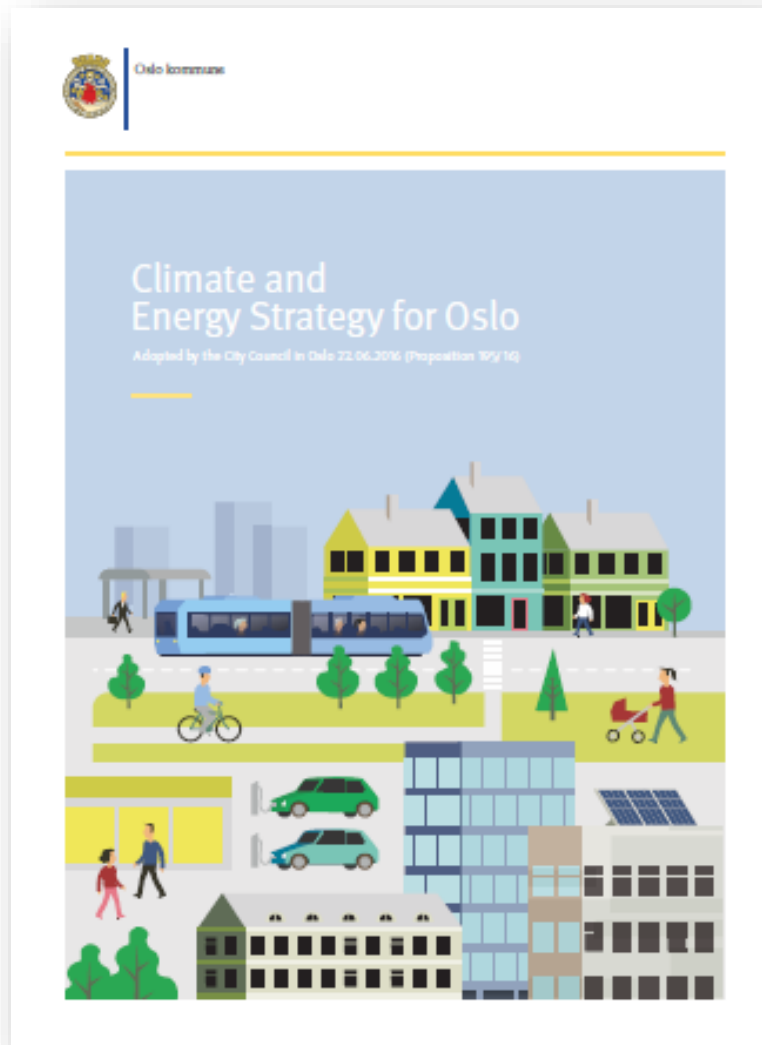


EUROPEAN  
GREEN CAPITAL

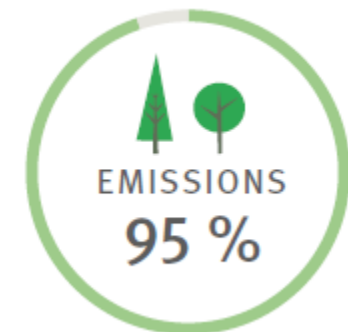
An initiative of the  
European Commission



# From Climate Ambitions to Implementation



**2022 Goal**

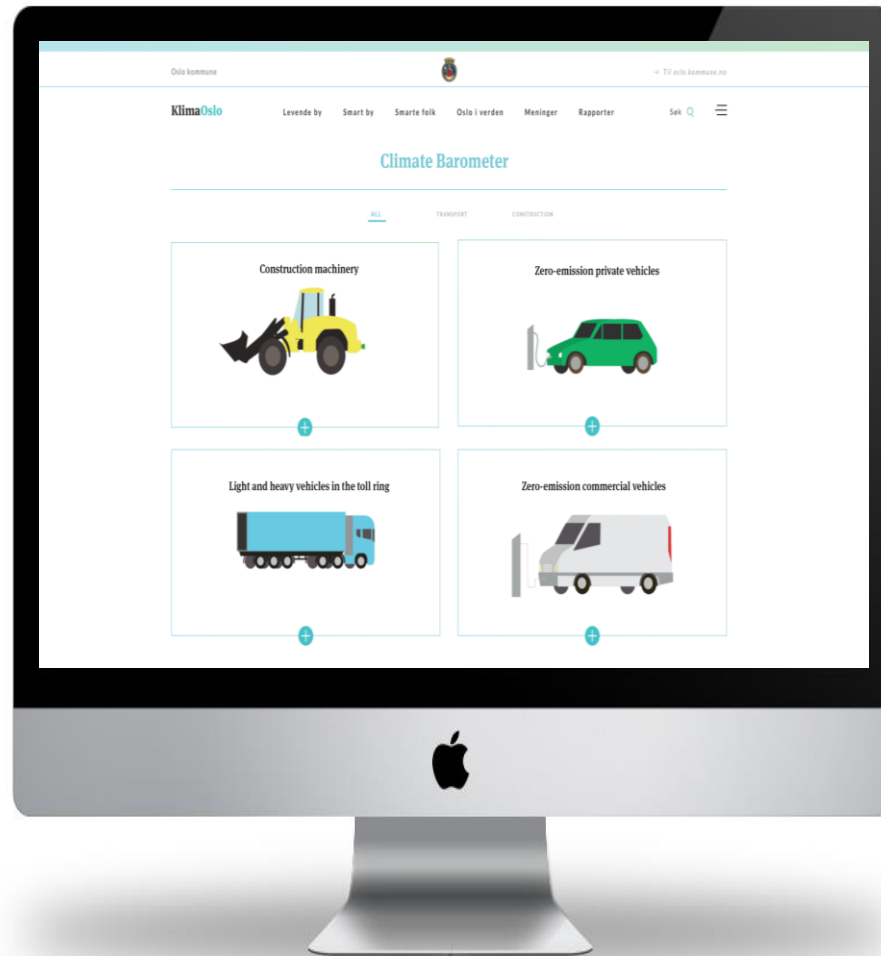


**2030 Goal**



# THE CLIMATE BAROMETER

[www.klimaoslo.no](http://www.klimaoslo.no)



# Carbon Capture and Storage (CCS) on Klemetsrud Waste-to-Energy Plant

- The City of Oslo is competing to build a CCS-plant at Klemetsrud
- Capture of 400 000 tons CO<sub>2</sub>
  - fossil (40%) and renewable (60%)
- Oslo's waste system will become CO<sub>2</sub> negative when CCS implemented
- Klemetsrud plant:
  - ❑ Waste 400 000 ton
  - ❑ Electricity 150 GWh
  - ❑ District heating 850 GWh

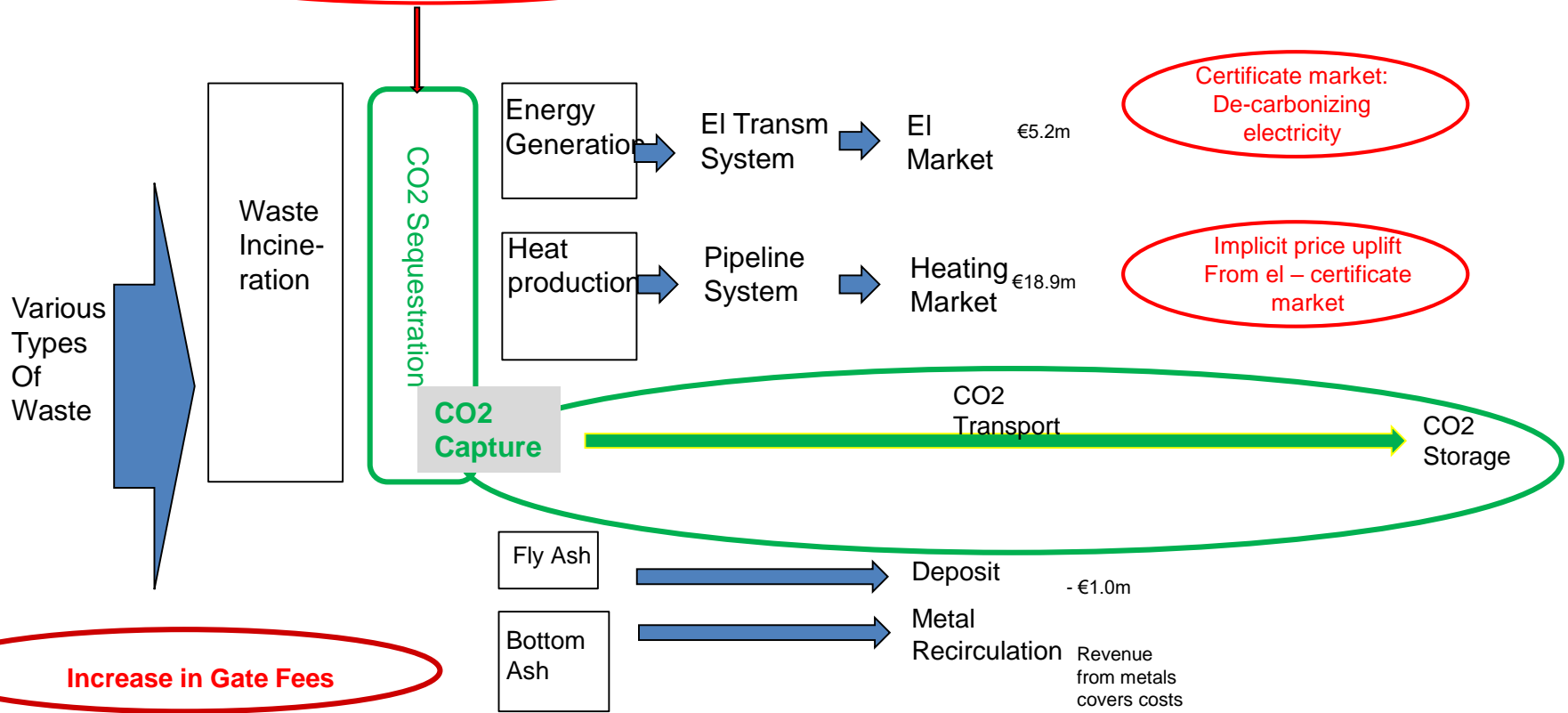


Fortum Oslo Varme AS - Klemetsrud plant  
Owned by City of Oslo (50%) and Fortum (50%)



# KLEMETSRUD PLANT WITH CO2 SEQUESTRATION

Transfer from Carbon Revenue



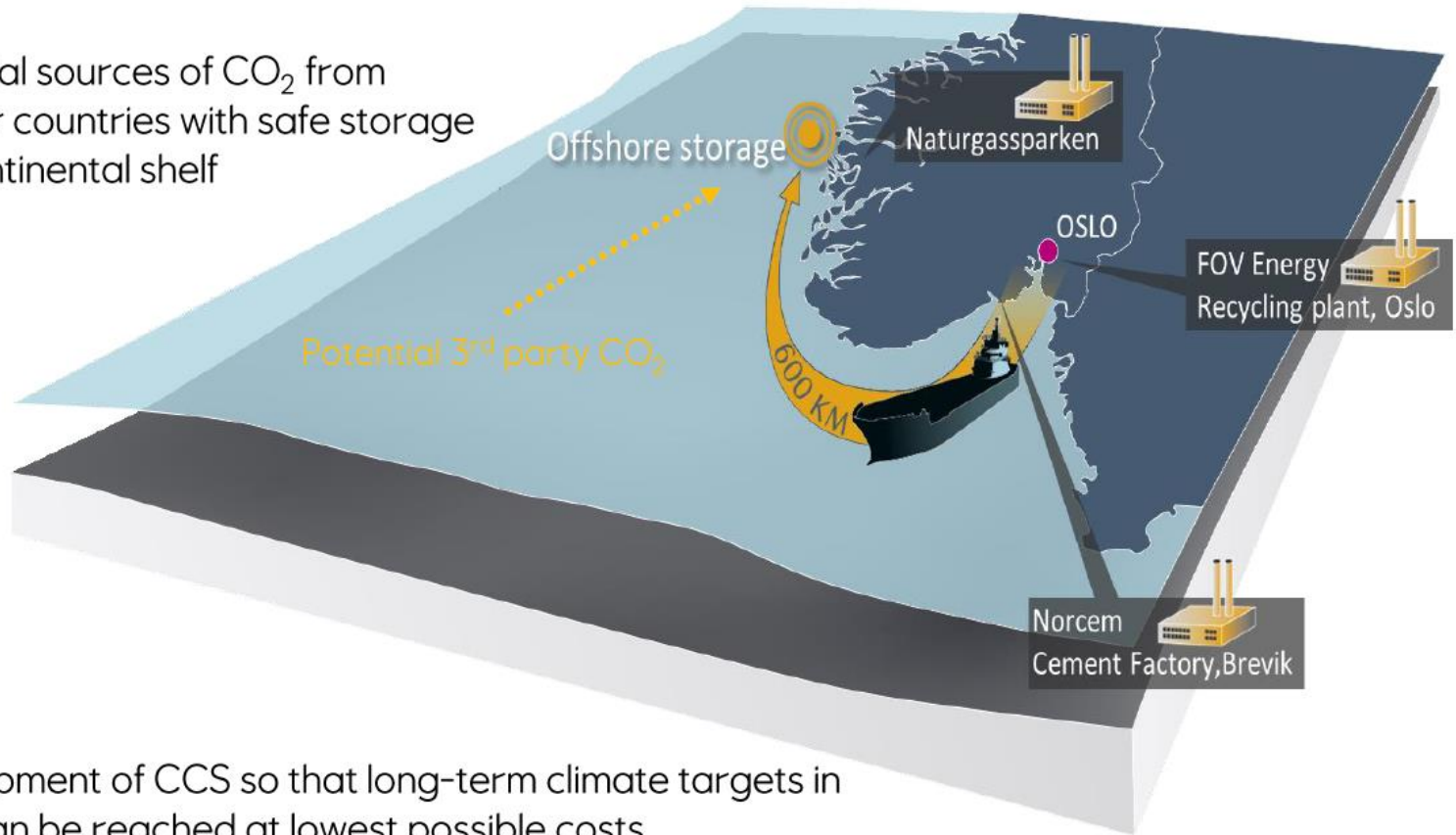
Waste transporters/ Brokers

Household Waste	Imported Waste	Infectious Waste (hospitals, etc)
273,000 tonnes	91,200 tonnes	15,200 tonnes
@ €70 per tonne	@ €46 per tonne	@ €308 per tonne



# Norway full-scale CCS project

- Combines industrial sources of CO<sub>2</sub> from Norway and other countries with safe storage on Norwegian continental shelf



- Stimulates development of CCS so that long-term climate targets in Norway and EU can be reached at lowest possible costs

Source:

Dr Per Sandberg, Equinor New Energy Solutions







# Thank you for your attention

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