



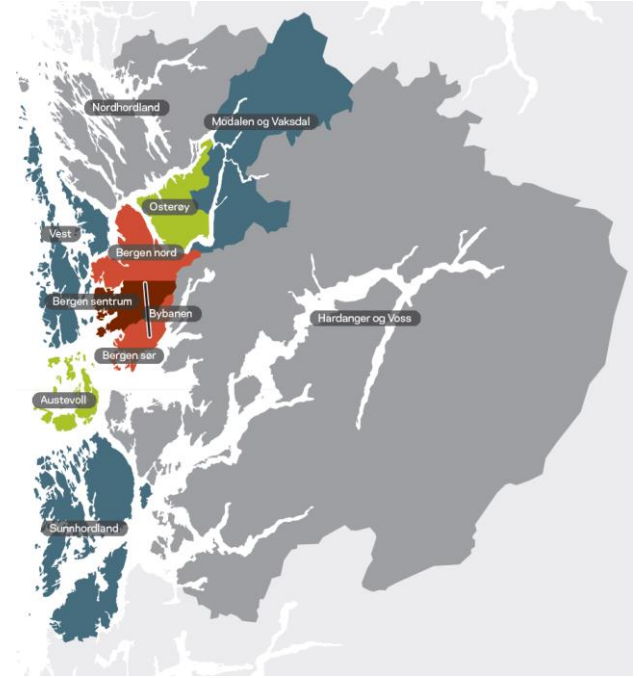
# Bergen goes electric from december 2020

Oslo 28/29th August 2019

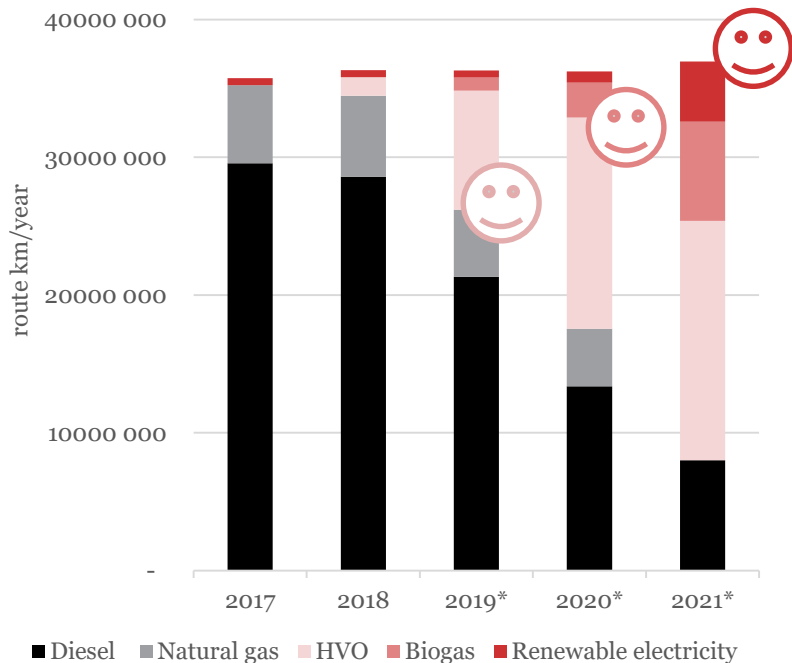
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# Low and zero emission buses in Bergen

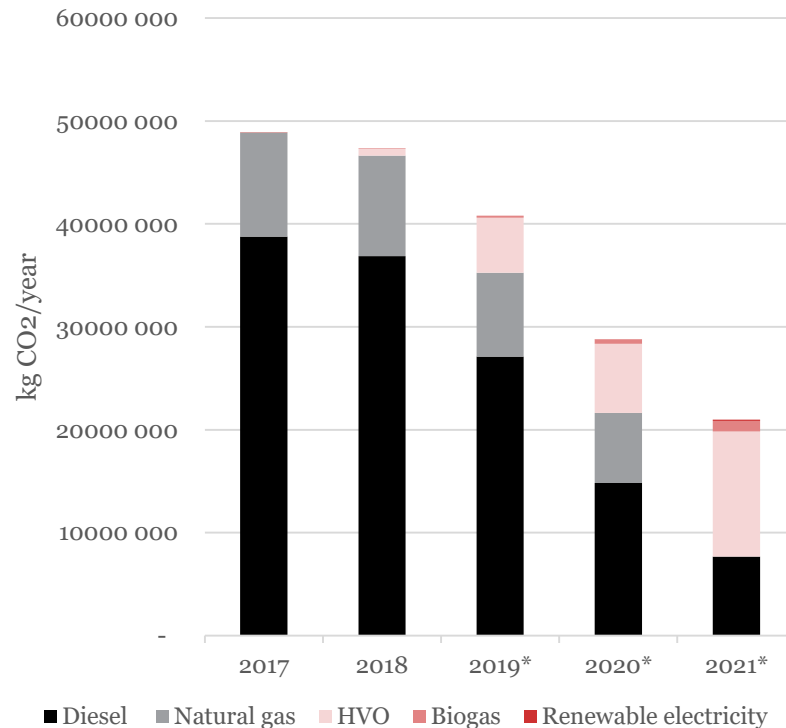
- 100 % fossil free
  - Biofuel in «Bergen sør» and «Vest» from autumn 2019
  - Biogas in «Bergen nord» from autumn 2020
  - 75 % elektric in «Bergen sentrum» from december 2020
- 10 % emission free
  - About 80 battery buses with depot charging
  - About 10 trolley battery buses with overhead charging during drive
- Requirements to energy production
  - Sustainability certification
  - Palm oil free
  - Renewable



### Kilometers by energy source



### CO2 emissions by energy source



# Tender design for zero emission

- Price competition with quality requirements
- Required trolley battery buses on line 6 (766 000 km/year)
  - 11 km overhead wire for charging
  - 2 km battery distance through city centre
- Required 3 500 000 km/year with electric drive
  - Free assessment to lines, buses og days
  - Biodiesel heater accepted
- Requirments electric operation:
  - Exclusively electric motor
  - Guarantee of origin for all electricity

# Charging infrastructure

- Operator must establish basic charging infrastructure at centrally located bus depot (Mannsverk)
- State (Enova) has granted up to 40 % cofinancing for charging infrastructure:
  - Max 80 depot chargers + 8 rapid chargers
  - Grid investments 10 MW
- Skyss has ordered high voltage electricity to the depot
- Bus operator will continue dialogue with grid operator after contract signing
- Operator is responsible for establishing and running charging infrastructure, Skyss can assume ownership after contract start up (costs have been defined)