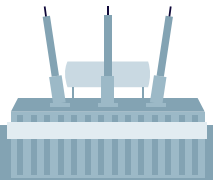
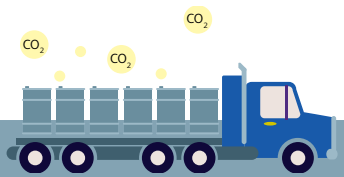
CO_2e emissions savings exercise using REG

Let's consider a real-world scenario:

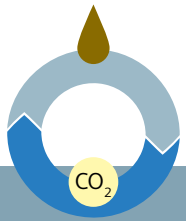
Oil exchange



100 MVA / 145 kV power transformer filled with 15,000 liters of mineral oil.

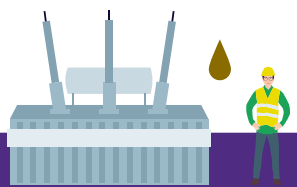


Producing 15,000 liters of new oil emits 15.75 tCO_2e. Transporting the oil over 350 km emits 48.20 tCO_2e



CO_2 emissions for oil exchange:
Producing and transporting: 63.95 tCO_2e
Electricity (11,500 kWh): 6.90 tCO_2e
Disposal of old oil: 46.67 tCO_2e
Transporting of old oil: 30.29 tCO_2e
Total emissions: 147.81 tCO_2e

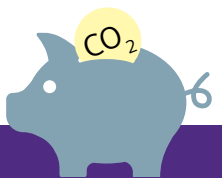
Oil regeneration



By regenerating the oil on-site instead of replacing it, the majority of emissions are avoided.



CO_2 emissions for oil regeneration:
Transporting (220 km): 21.74 tCO_2e
Electricity (41,600 kWh): 24.96 tCO_2e
Oil waste (200 L): 0.21 tCO_2e
Total emissions: 46.91 tCO_2e



Emission savings with REG: 100.91 tCO_2e

These savings with REG equal to the annual energy use of 12 average households.



Emission factor for:
Producing new oil: 1.05 $kgCO_2e$ / liter
Electricity: 0.6 $kgCO_2e$ / kWh

Transporting <20 ton: 0.988 $kgCO_2e$ / (ton / km)
Transporting >30 ton: 1.377 $kgCO_2e$ / (ton / km)
Disposal: 74.1 tCO_2e / TJ