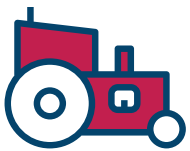




# Energy Usage in Beet Sugar Production



Sugar production is energy-intensive. Heat and electricity are required in the sugar making process. Heat is needed at two points: during the evaporation and the pulp drying phase.



In most sugar factories on-site Combined Heat and Power (CHP) plants provide electricity and heat. CHP is well-suited to the high energy needs, seasonal energy usage, and rural location of many factories, which are often far from high-voltage electricity grids.



The primary fuel source of most sugar factories is natural gas. Some sugar factories run on coal. But this is being phased out.



Many sugar factories run anaerobic digestors to produce biogas from waste water. Some factories also produce biogas from the tops and tails, and pulp.



Biogas can be blended with natural gas in CHP plants to produce electricity and heat. This lowers the carbon intensity of sugar production.



Excess heat from the beet sugar making process can be redistributed to local district heat systems.



# Combined heat and power (CHP) in beet sugar factories



## CHP Systems

are characterised by **concurrent production of electricity/mechanical power and useful thermal energy** from a **single source of energy**

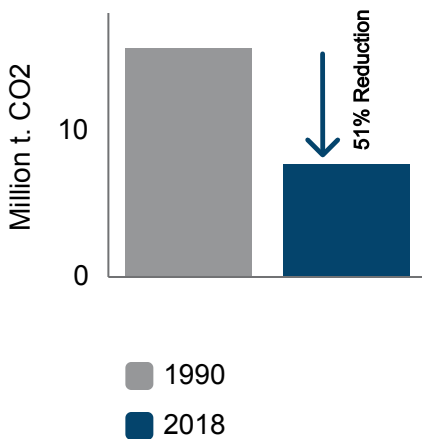
CHP Systems are up to

# 40%

more efficient than separate generation of heat and power



Between 1990 and 2018 the sector **reduced CO2 emissions by 51%**



CO2 emissions (g) per calorie

