

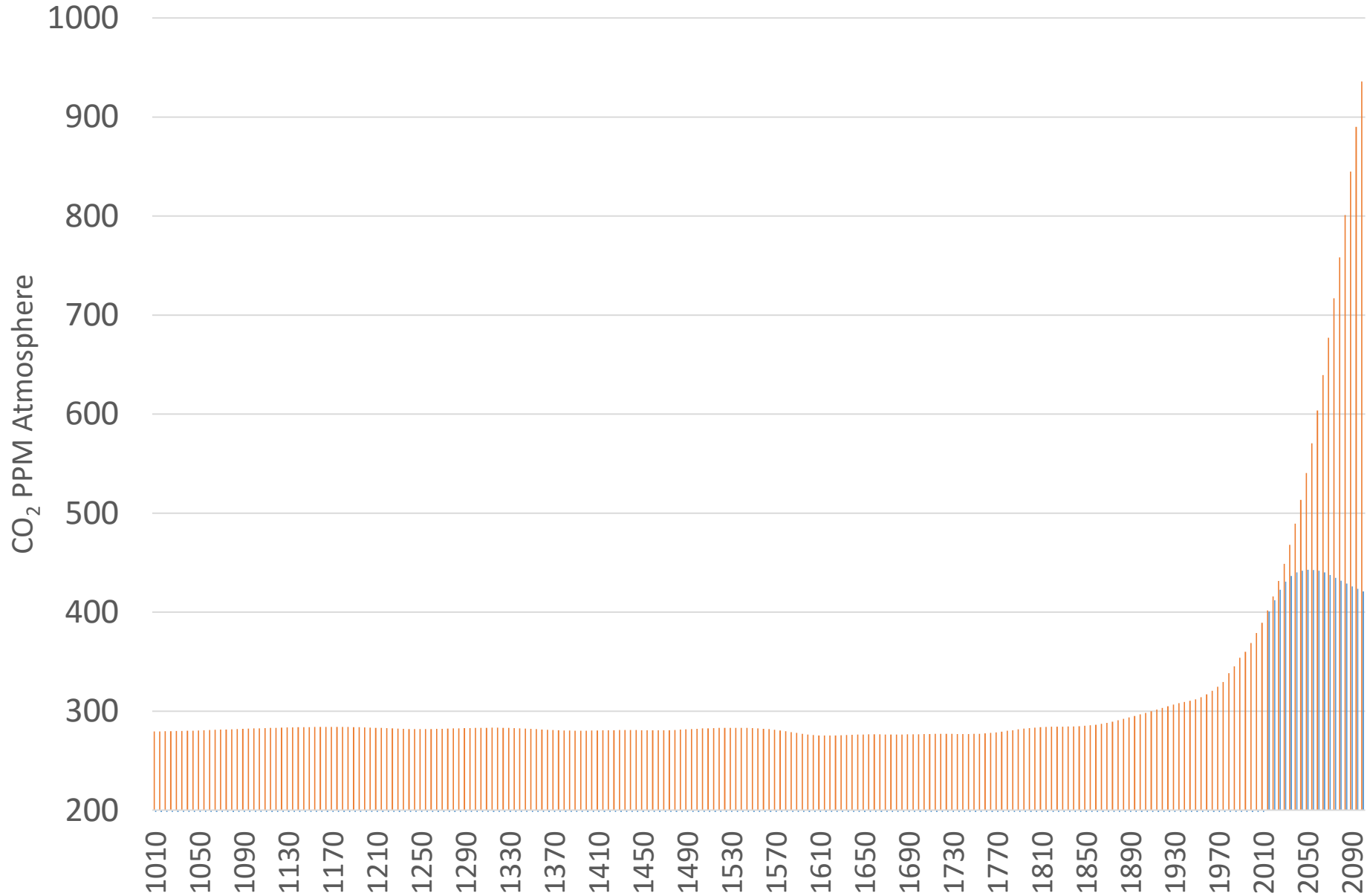
The Why, the What and the How of Bio-CCS

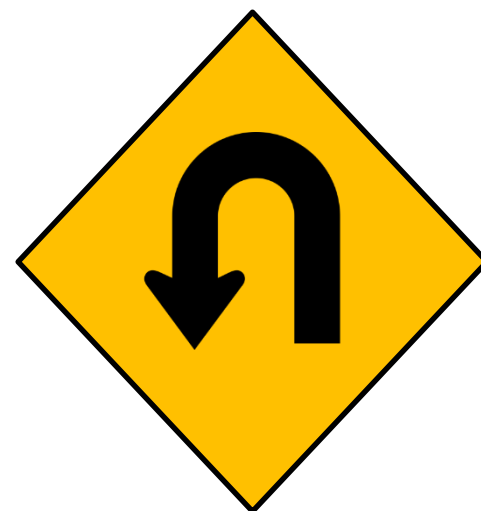
Keith Whiriskey

BELLONA
EUROPA



CO₂ PPM Atmosphere







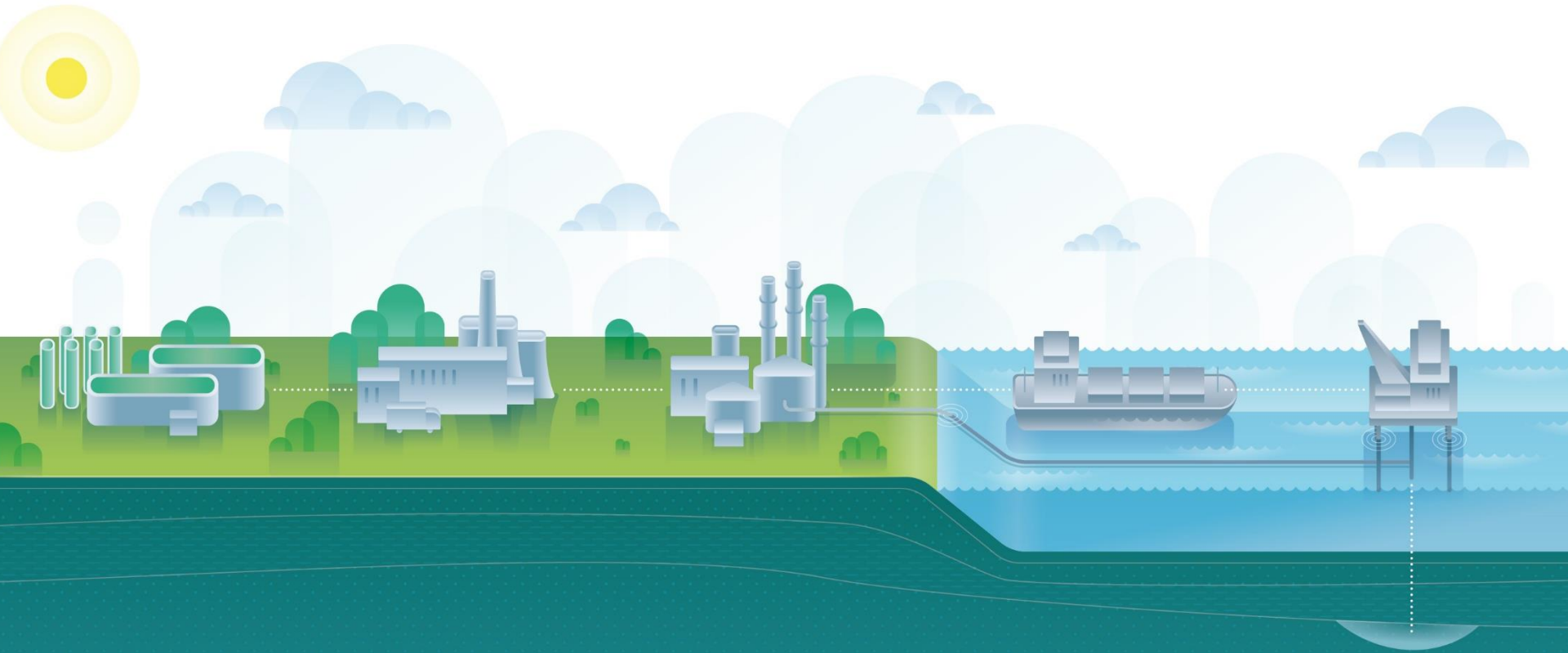
Klemetsrud will capture around 300,000 tonnes.

- This is **equivalent to 1,000 km² of forest**. This is equivalent to **planting approx. ½ of Luxemburg with forest**.

Total EU emissions from waste incineration is about 9,000,000 tonnes of CO₂.

- This is **equivalent to 30,000 km² of forest**. This is equivalent to **the total area of Belgium with forest – just for EU waste incineration**.

Monni et al. (2006) estimated that incinerator emissions would grow to 80–230 MtCO₂-eq/yr by 2050 (not including fossil fuel offsets due to energy recovery).



01

SUSTAINABLE BIOMASS GROWTH

Non-food biomass is grown, absorbing CO_2 from the atmosphere and energy from the sun.

02

BIOMASS TRANSFORMATION

Energy in Biomass is converted into, Heat, Electricity or Biofuels.

03

CO_2 CAPTURE & COMPRESSION

The CO_2 from biomass is captured and prevented from returning to the atmosphere. The CO_2 is compressed ready to transport.

04

CO_2 TRANSPORT

The CO_2 is transported via pipeline or ship.

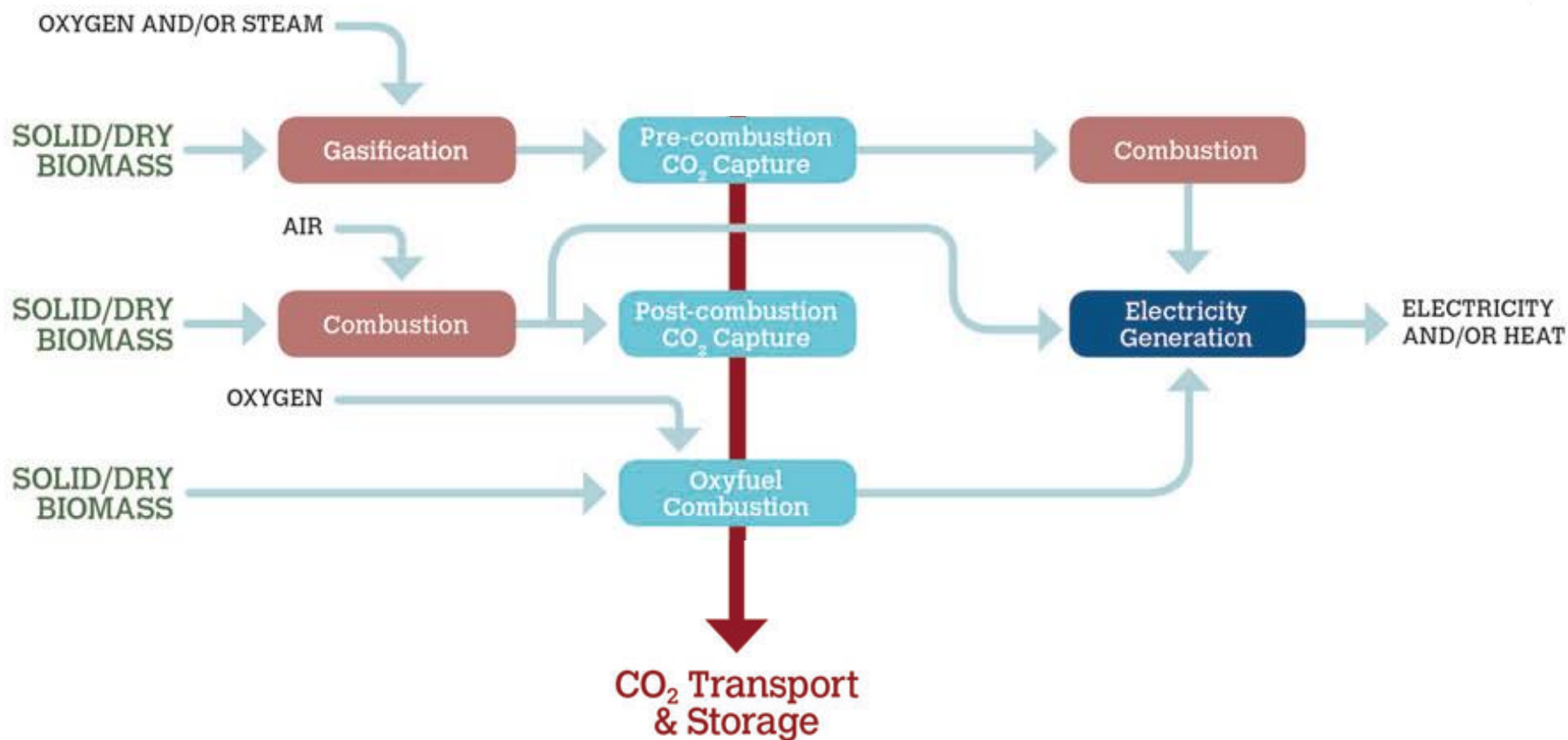
05

PERMANENT CO_2 STORAGE

CO_2 is injected deep underground at specially selected and researched storage sites, trapped in microscopic pores in deep rocks.

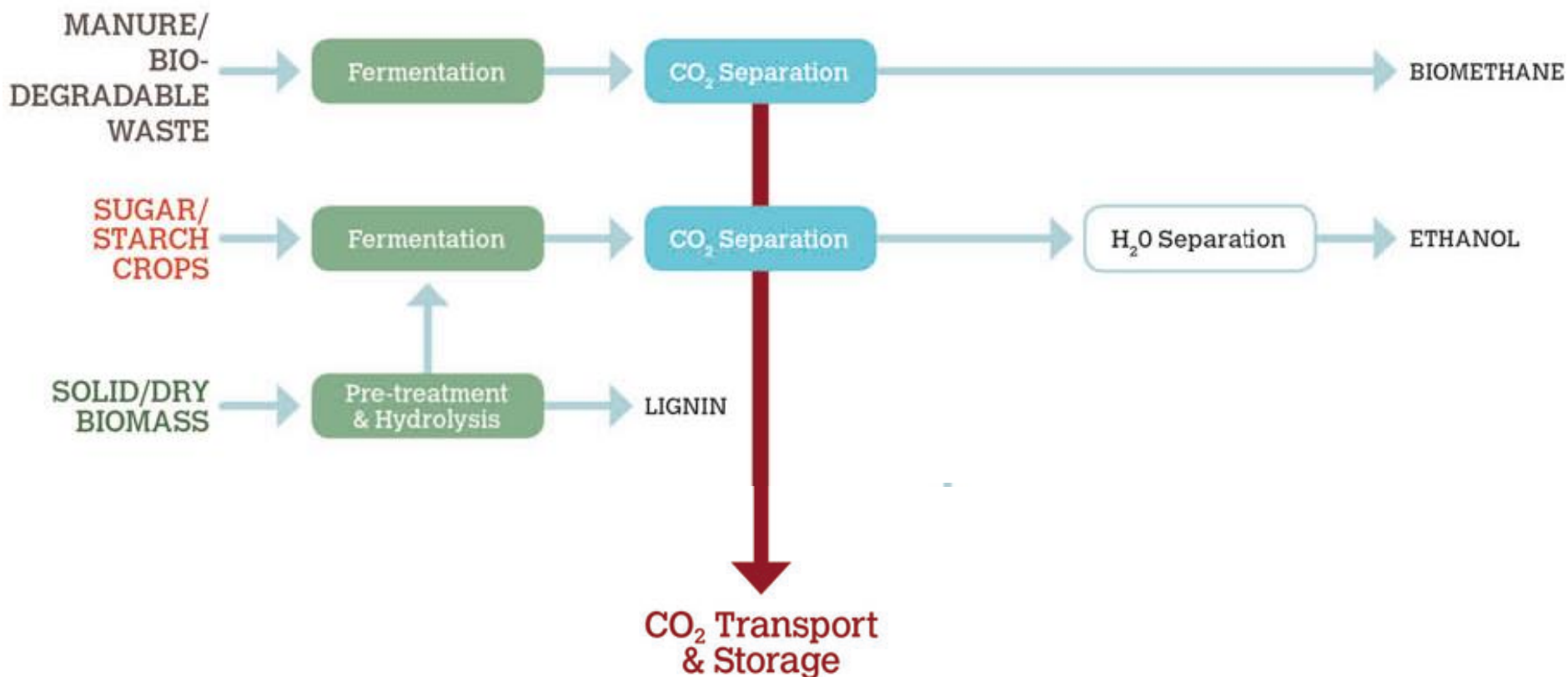
Bio-CCS routes

► Gasification & Combustion to Electricity and/or heat



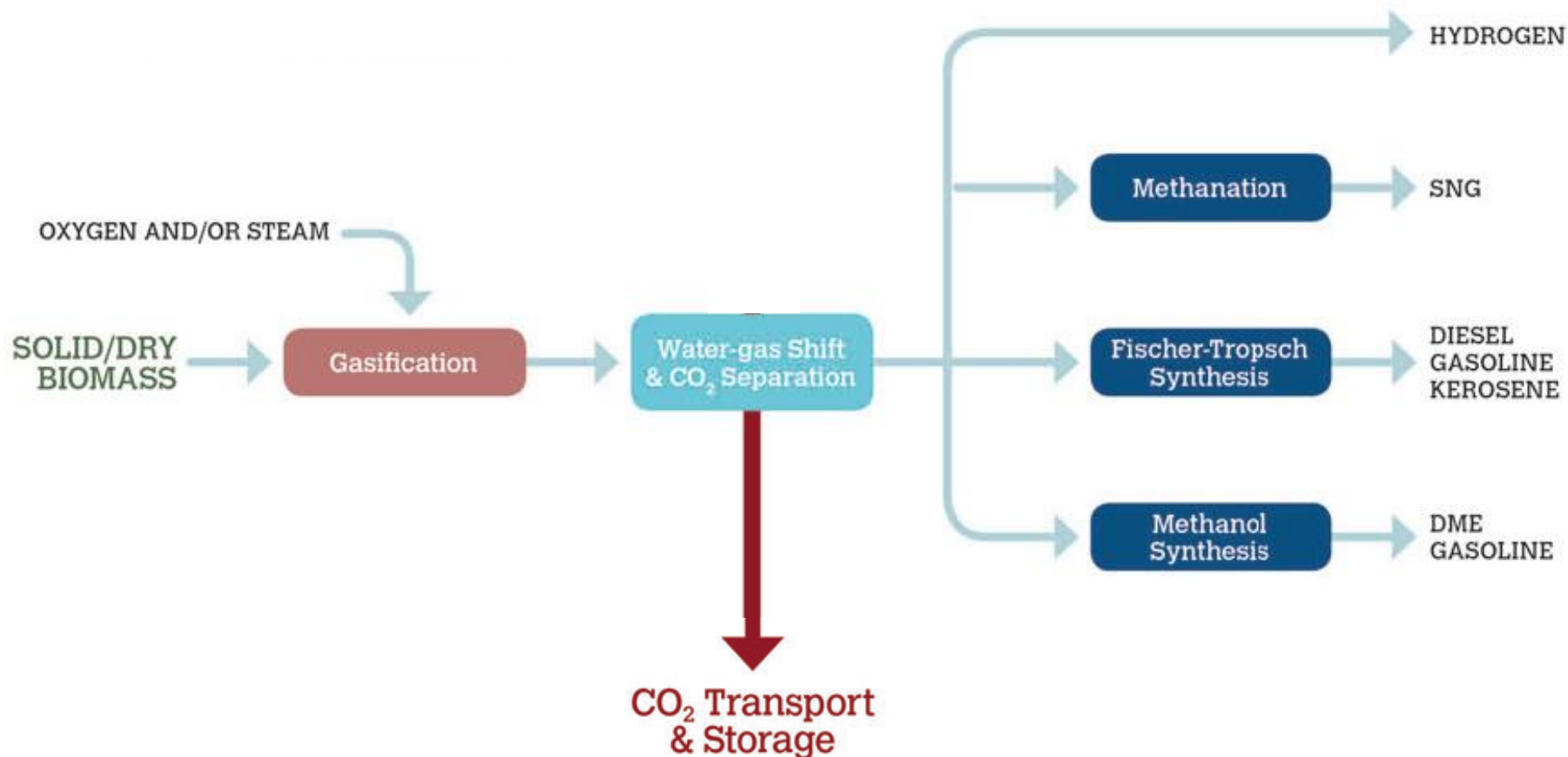
Bio-CCS routes

► Fermentation to biofuels



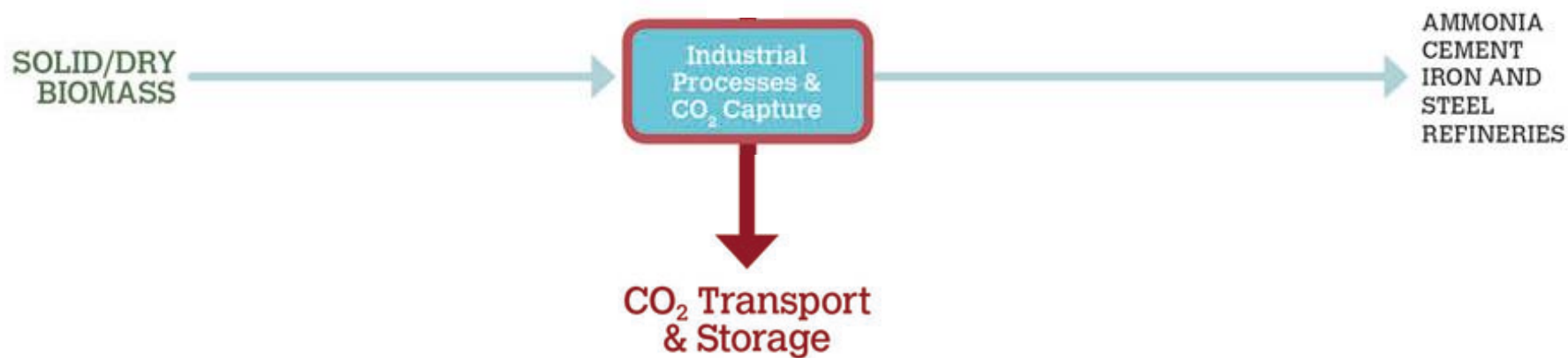
Bio-CCS routes

➤ Gasification to fuels and other products



Bio-CCS routes

➤ Industrial Processes



Where will the Biomass come from ?





Thank you!



Thank you for your attention!