

THE FUTURE OF CO₂ CAPTURE AND STORAGE

Capturing and storing CO₂ helps reduce greenhouse gas emissions and thus slow down global warming.

The CO₂ can then be used in several ways:

Utilization without conversion – Example: beverage carbonation.

Utilization through reaction with another chemical compound – Example: polycarbonates and polymethanes.

Biological utilization through photosynthesis – Example: microalgae cultivation for biofuels.

CAPTURE:

CO₂ emissions in power plants and factories are caused by the combustion of fossil fuels. There are currently 3 methods to isolate CO₂ from the rest of the flue gas:

– Post-combustion – Pre-combustion – Oxy-combustion

Some require a lot of energy and are very expensive. Other methods must therefore be developed.

STORAGE:

The CO₂ is compressed into a liquid state. It is transported via pipeline, truck or ship then stored in 1 of 3 ways:

– natural reservoir

– artificial reservoir

– injection into an oil field

These can also be costly and storage capacity can be low.

CHALLENGES:

Develop and improve capture, transportation, storage and utilization methods in the hope of increasing the amount of CO₂ treated from 30 million metric tons per year in 2017 to 10 billion in 2050.

Summary:

Capturing and storing CO₂ is one way of combating global warming.

Several capture, transportation, storage and utilization methods already exist.

Challenges: improve these methods, identify new ones and, above all, step up development to treat an increasing amount of CO₂.