NPL National Physical Laboratory

ENERGY TRANSITION

Measurement needs for carbon capture, usage and storage

CAPTURE

Reducing measurement uncertainties for CO_2 emissions trading to ensure compliance with UK and international regulations

VIA NATURAL SINKS

Measuring impurities in captured CO_2 to identify whether a purification step is required to meet technical specifications

BIOENERGY

CO_2

VIA PRE, POST OR OXYFUEL COMBUSTION CAPTURE

Measuring and comparing the efficiency of different capture techniques and configurations to provide confidence in investments into technologies

TRANSPORT

VIA PIPELINE

Assessing impact of impurities on corrosion and cracking of containment materials

Undertaking validation of analytical instruments used to perform on-line monitoring of impurities

Improving the accuracy of flow metering used for custody transfer to enable fiscal and financial metering including at high pressure

VIA TRANSPORTATION

Improving CO_2 flow monitoring to support process control

Improving equations of state to support the development of accurate models used for controlling operational conditions

CO_2

USAGE

Developing standardised methods for quantifying facility scale CO_2 emissions to enable reporting under regulations

Establishing purity requirements for CO_2 usage in different industries

Measuring and quantifying process equipment leaks

Developing technologies capable of online detection of CO_2 leakage to the atmosphere

Improving the understanding and validation of dispersion models for emitted CO_2 including plume migration

STORAGE

Development of monitoring methods for sub-sea and sub-surface storage leak detection

Validating flow metering for process control to monitor storage capacity