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Establishing the Role of Geological Storage of Carbon Dioxide in Delivering a Lower Carbon Energy Future

Concerns about global climate change and the consequent desire to stabilise atmospheric concentrations of CO2 are driving the development of a lower carbon energy future through energy efficiency, a lower carbon fuel mix and renewables. BP is committed to reducing greenhouse gas emissions and has been active in developing carbon capture and geological storage technology.

Geological storage offers potential for large-scale reductions of carbon dioxide emissions from power, industry and the manufacture of hydrogen. The production of hydrogen from fossil fuels with capture and storage of CO2 provides an option to smooth the eventual transition to a hydrogen economy. Geological storage is currently practiced for EOR and sour gas disposal in saline aquifers.

The key challenge for wider deployment is for it to be accepted as a safe and effective emissions reduction option with low rates of seepage and the prevention of carbon dioxide escape to the atmosphere. This will require establishing the credibility of simulations that predict the performance of geologic storage systems extended periods of time (100’s to 1000’s of years). A range of natural and engineered analogues provide a powerful constraint over parts of the time spectrum.

The acceptance of geological storage in emerging financial markets for carbon is also desirable, providing economic benefits to offset the costs of capture and storage. Finally the legal and regulatory framework needs to be developed in different areas. Once these issues are resolved, geological storage will enable large-scale emissions reductions, providing new opportunities for the Exploration and Production industry.