

## A NEW ERA FOR CCUS DRIVEN BY CONTRASTED POLICIES AND BUSINESS MODELS: US AND EUROPEAN APPROACHES

### SUMMARY

CCUS is coming back into the limelight, especially in the US and in Europe, in the wake of the Paris agreement, boosted by a growing interest in hydrogen, rising carbon prices, new supporting policies and new business models.

There are currently 20 new, large-scale, CCUS projects planned around the world, nine of them in Europe. While projects developed in the middle of the 2000s mainly targeted coal-fired power plants and stored the captured carbon, the focus of the new projects is different as they tend to concentrate on industrial and manufacturing processes and on carbon utilization rather than just storage. Several projects involve production of clean hydrogen from natural gas, a cheaper option than hydrolysis using renewable power. New business models aim at reducing costs by disintegrating the CCUS value chain into its three components of capture, transport and storage, and by addressing clusters of industrial facilities to achieve economies of scale.

The US is the most advanced globally in terms of CCUS supporting policies. In February 2018, the US Congress passed substantial tax credits to encourage private investment in the deployment of CCUS. In addition, in September 2018, California amended its Low Carbon Fuel Standard (LCFS) program with a CCS Protocol. While insufficient to incentivize CCUS in existing facilities (retrofitting) or in the largest US emitting sectors like power plants or cement and steel production, they should help deploy CCUS on the “low hanging fruits” which could lead to cost reduction for further projects through the learning curve and the deployment of shared infrastructure.

As Europe’s new energy strategy aims at a carbon neutral economy by 2050, large-scale deployment of CCUS appears necessary. The EC is supporting CCUS through a range of policy initiatives and has pledged to invest €10 billion in CCUS and other low-carbon technologies. Nine projects are currently under development, making Europe the leader in the renewed global effort to promote CCUS. They focus on energy intensive industries and those with inherent process emissions of CO<sub>2</sub> (e.g. cement). Gas-fired power plants are also targeted and several project involve clean hydrogen production from natural gas. The business model of European CCUS projects is to develop multi-user “hub and cluster” facilities in industrial regions, tied-in to shared transport and storage infrastructure.

With different policy approaches and different incentives, the US and Europe both look to achieve global leadership in CCUS technologies and both recognize the crucial role of carbon management and CCUS in the future.