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AMERICA LEADS RACE FOR WORLD'S FIRST LARGE-SCALE CARBON CAPTURE AND STORAGE PROJECT

Analysis of projects in different countries suggests that the world's first carbon capture and storage unit will start operation in the US in 2013

London, New York and Tokyo, 29 May 2012 – The top four places in the Bloomberg New Energy Finance *Race To First*, a semi-annual ranking of the world's most advanced large-scale demonstration carbon capture and storage projects, are held by sites in North America.

Carbon capture and storage, or CCS, covers a group of emerging technologies that remove and store CO₂ gas from the exhaust of coal or gas-fired power stations or industrial installations – reducing greenhouse gas emissions into the atmosphere. The study found that US and Canadian projects benefit from more public funding, lower storage costs and more options for enhanced oil recovery than those elsewhere.

Eight of the 24 projects qualifying for the H1 2012 edition of *Race To First* will enter operation over the coming five years, Bloomberg New Energy Finance predicts. They will have an aggregate annual injection rate of 16.8m metric tons of carbon dioxide a year (MtCO₂/yr). Five will be in North America and three in Europe.

Pennsylvania-based Air Products & Chemicals is the frontrunner in the H1 2012 *Race To First*, with its Port Arthur demonstration project in Texas. The project will capture 1MtCO₂/yr from two steam methane reformers at Texas-based Valero Energy Corporation's Port Arthur refinery. It will sell this carbon dioxide to Texas-based Denbury Resources for use in enhanced oil recovery operations. The project has a capital cost of \$431m and is on track for full operation in Q1 2013.

In second place in the *Race To First* is a project at the Boundary Dam Power Plant in Saskatchewan, Canada, developed by state-owned utility SaskPower. This is a government-industry partnership worth \$1.25bn and is expected to complete in early 2014.

The leading European project in the *Race To First* is German energy company E.ON's initiative to capture 1.1MtCO₂/yr from 250MW of power capacity at the Maasvlakte coal-fired plant in Rotterdam, Netherlands, which takes the fifth spot in the list. Currently the only other European CCS project to make the top 10 is 2Co Energy's planned 650MW UK gasification power plant, in tenth place. All European projects, except E.ON's, depend for their success on receiving additional public funding from the European Union or national governments.

A total of 24 demonstration projects worldwide qualified for the H1 2012 Bloomberg New Energy Finance *Race To First* – up one from the H2 2011 edition. In order to qualify, projects must span the full CCS value chain – including CO₂ capture, transport and underground storage – and must take at least 1MtCO₂/yr from power or industrial facilities. We exclude the Norwegian pilot at Mongstad because it will only store 100ktCO₂/yr and exclude some US facilities, to focus on the current round of demonstration projects attempting CCS on power and industry at scale for the first time.

Michael Liebreich, chief executive of Bloomberg New Energy Finance, commented: "It has been clear for

years that if the world's industrial and power generation sectors are not to see a large part of their asset base rendered obsolete, they need carbon capture and storage to work. But not one large-scale, end-to-end project has yet been built, and the technologies still have to prove their cost-effectiveness. Our *Race To First* report shows that very soon the first projects will go live, and we will start getting the first real data on performance. The stakes couldn't be higher."

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