



Cansolv Technologies Inc. October 2008

GHGT-9

Cansolv CO₂ Capture: The Value of Integration

Devin Shaw*

Cansolv Technologies Inc, 400 De Maisonneuve West, Suite 400, Montreal, Canada H3A 1L4

Elsevier use only: Received date here; revised date here; accepted date here

Abstract

If CO₂ emissions are to be reduced to control global warming, many large scale projects will need to be executed on a short term that capture and sequester the CO₂. Most studies to date have focused on CO₂ capture from power plant flue gas and concluded that the cost of CO₂ scrubbing is in itself expensive and that more mature and efficient technologies are needed.

CO₂ emission control is also complicated by the need to provide SO₂ and NO_x emission control as well. Burner modifications can be used to control NO_x, but other scrubbing technologies are needed to control SO₂ emissions. For high sulfur coals, limestone scrubbing is generally applied, adding to the cost of power through purchases of limestone reagent and disposal of by-product gypsum.

Cansolv has evolved amine based regenerable technologies that capture SO₂ and CO₂ and that release them in a water wet, nearly pure condition. SO₂ can be converted to sulfuric acid and CO₂ can be dried, compressed and sequestered without further treatment. Most importantly, energy used to capture SO₂ can be recycled to help capture CO₂, reducing the net energy demand of the CO₂ process. The use of these two technologies together allows power companies to use higher sulfur, lower cost fuels and reduce energy consumption rates for CO₂ capture. By-product sulfuric acid from the SO₂ scrubbing system also provides a ready source of revenue to offset scrubbing costs.

Cansolv has proven its SO₂ scrubbing technologies in commercial applications since 2002. It has operated CO₂ pilot plants at several different locations, logging over 6,000 hours of operation. The two technologies will come together in an integrated system, in a plant designed to generate 50 tons per day of CO₂, which will start up in 2009. This paper presents important design and performance advantages of these systems.

© 2008 Elsevier Ltd. All rights reserved

Amine;CO₂; SO₂; Integration; H₂SO₄; Demonstration
