

BACKGROUND

Most power plants and other large point sources use air-fired combustors, a process that exhausts CO₂ diluted with nitrogen. Flue gas from coal-fired power plants contains 10-12 percent CO₂ by volume, while flue gas from natural gas combined cycle plants contains only 3-6 percent CO₂. For effective carbon sequestration, the CO₂ in these exhaust gases must be separated and concentrated. CO₂ is currently recovered from combustion exhaust by using amine absorbers and cryogenic coolers. The cost of CO₂ capture using current technology, however, is on the order of \$150 per ton of carbon - much too high for carbon emissions reduction applications. Analysis performed by SFA Pacific, Inc. indicates that adding existing technologies for CO₂ capture to an electricity generation process could increase the cost of electricity by 2.5 cents to 4 cents/kWh depending on the type of process. Furthermore, carbon dioxide capture is generally estimated to represent three-fourths of the total cost of a carbon capture, storage, transport, and sequestration system