Abstract
Process Economics Program Report 180E
RETROFITTING FOR CARBON CAPTURE
(December 2011)

A great deal of attention has been paid in recent years to the issue of carbon emissions and their effect on climate change. One of the world’s largest contributors to such emissions is the generation of electricity. Because of this, considerable effort has been made in the area of carbon capture and sequestration as applied to power plants.

In previous PEP reports we have looked extensively into carbon capture from coal-fired power plants. In this report we expand our coverage to carbon capture as applied to natural gas combined cycle (NGCC) power generation. We also compare new power plant construction which includes carbon capture to retrofitting carbon capture to existing power infrastructure. We present seven cases: three covering supercritical pulverized coal (SCPC) power and four covering NGCC. The three SCPC cases are: a base case without carbon capture, a new construction case using MEA scrubbing, and a retrofit case where MEA scrubbing is added to an existing SCPC unit. The MEA scrubbing technology we present represents a next generation, updated version of the process we covered in PEP Report 180C. The four NGCC cases are: a base case without carbon capture, a new construction case with MEA scrubbing, a retrofit case, and a new construction case using exhaust gas recycle.
RETROFITTING FOR CARBON CAPTURE

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