

Carbon Capture

a climate imperative

“...we need more investment in carbon capture and storage technology. As Working Group III of the Fifth Assessment pointed out, it will be very difficult to reach zero carbon emissions without it.”

IPCC Chair Hoesung Lee

World Energy Focus (November 16, 2015)

Climate Change 2014: Synthesis Report Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)

– excerpts –

“This Synthesis Report (SYR) distills and integrates the findings of the three Working Group contributions to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), the most comprehensive assessment of climate change undertaken thus far by the IPCC.” (page v)

“Emissions scenarios leading to CO₂-equivalent concentrations in 2100 of about 450 ppm or lower are *likely* to maintain warming below 2°C over the 21st century relative to pre-industrial levels. These scenarios are characterized by 40 to 70% global anthropogenic GHG emissions reductions by 2050 compared to 2010, and emissions levels near zero or below in 2100.” (page 20)

“In the absence or under limited availability of mitigation technologies (such as bioenergy, CCS and their combination BECCS, nuclear, wind/solar), mitigation costs can increase substantially depending on the technology considered.... Many models could not limit *likely* warming to below 2°C if bioenergy, CCS and their combination (BECCS) are limited.” (page 24)

Achieving a 450-ppm CO₂-equivalent Target by 2100 Scenarios with Limited Availability of Technologies or Delayed Mitigation

(taken from Table SPM.2, page 25)

	% of models achieving 450 ppm target in 2100	increase in mitigation costs, 2015 - 2100
limited wind/solar	80% or greater	+ 6%
nuclear phase out	80% or greater	+ 7%
limited bioenergy	80% or greater	+ 64%
delayed mitigation until 2030	50-79%	+ 44% (2030-2050)
delayed mitigation until 2030	50-79%	+ 37% (2050-2100)
no carbon capture	less than 50%	+ 138%

Definition of Scenarios with Limited Availability of Technologies or Delayed Mitigation

limited solar/wind – maximum of 20% of global electricity generation from solar and wind power in any year
nuclear phase out – no addition of nuclear power plants beyond those in existence and already under construction
limited bioenergy – maximum of 100 Exajoule/year of modern bioenergy supply globally
delayed mitigation – greenhouse gas emissions of more than 55 GtCO₂-equivalent in 2030
no CCS – no CO₂ capture and storage included

Nothing puts achievement of end-of-century climate goals at greater risk than the absence of carbon capture. It's a climate imperative, not an option.