TABLE 1

Summary of CDR approaches

Natural

CDR APPROACH	STAGE OF DEPLOYMENT	COST	MONITORING, REPORTING, AND VERIFI...	PERMANENCE
	Lab, Pilot, Demo, Commerical	$ Less than $150/ton; $$ $150 - $600/ton; $$$ Over $600/ton		DECADES; 100-200 YEARS; 200-1,000 YEARS; MILLENNIA; MILLIONS OF YEARS
Improved forest management	Commerical	$	Hard	
Afforestation/ reforestation	Commerical	$	Medium	
Coastal blue carbon	Commerical	$	Hard	*more research needed*
Soil carbon sequestration	Commerical	$	Hard	*up to 1,000 years if soil cover is turned back into forest*
Peatland/wetland restoration	Commerical	$	Hard	*Wetlands*; *Peatlands*

Hybrid

CDR APPROACH	STAGE OF DEPLOYMENT	COST	MONITORING, REPORTING, AND VERIFI...	PERMANENCE
	Lab, Pilot, Demo, Commerical	$ Less than $150/ton; $$ $150 - $600/ton; $$$ Over $600/ton		DECADES; 100-200 YEARS; 200-1,000 YEARS; MILLENNIA; MILLIONS OF YEARS
Ocean fertilization (Ocean BiCRS)	Lab	$ - $$	Hard	*shallow ocean*; *deep ocean*
Macroalgae (Ocean BiCRS)	Pilot	$ - $$	Hard	*shallow ocean*; *deep ocean*
Artificial upwelling and downwelling (Ocean BiCRS)	Lab	$	Hard	*shallow ocean*; *deep ocean*
Biomass burial (Terrestrial BiCRS)	Demo	$	Medium	
Biochar (Terrestrial BiCRS)	Demo	$ - $$	Medium	
Ocean alkalinity enhancement	Lab, Pilot	$ - $$	Hard	*100s of Millennia*
Bio-oil injection (Terrestrial BiCRS)	Pilot	$$	Easy	
BECCS* (Terrestrial BiCRS)	Pilot, Demo	$ - $$	Easy	
Surficial mineralization/ enhanced weathering	Pilot	$ - $$	Medium	
Ex situ mineralization (CO2 storage)	Lab, Demo	$ - $$	Easy	
In situ mineralization (CO2 storage)	Demo	$ - $$	Easy	

Engineered

CDR APPROACH	STAGE OF DEPLOYMENT	COST	MONITORING, REPORTING, AND VERIFI...	PERMANENCE
	Lab, Pilot, Demo, Commerical	$ Less than $150/ton; $$ $150 - $600/ton; $$$ Over $600/ton		DECADES; 100-200 YEARS; 200-1,000 YEARS; MILLENNIA; MILLIONS OF YEARS
Direct ocean capture*	Pilot	$$	Medium	
Electrochemical* (DAC)	Lab	$$$	Easy	
Solid solvent/ mineralization* (DAC)	Pilot	$$$	Easy	
Solid sorbent* (DAC)	Demo	$$ - $$$	Easy	
Liquid solvent* (DAC)	Pilot, Demo	$$ - $$$	Easy	

Source: Rhodium estimates based on a range of sources (see Table 1 section in References of full report). Note: Cost ranges reflect current cost estimates concurrent with the stage of development; they are not future cost projections. MRV for improved forest management varies depending on the practice used. For ocean BiCRS, shallow water refers to depths above 1,000 meters (3,280 feet) and deep ocean refers to depths below 1,000 meters. * These CDR approaches are means of capturing CO2 and involve being paired with a method of CO2 storage(e.g. saline storage or enhanced mineralization) to achieve the levels of permanence outlined