ATTACHMENT C

FINANCIAL ASSURANCE DEMONSTRATION [40 CFR 146.85]

1. FACILITY INFORMATION

Facility Name: CarbonFrontier

Facility Contact: Aimee Blaine, Senior Vice President
10000 Ming Ave., Bakersfield, CA 93311
(661) 665-5000, APBlaine@aeraenergy.com

Well Location:

Well Number	County, State	Latitude	Longitude
CI1-64Z-27N	Kern County, CA	35°33'9.4877"N	119°48'26.3702"W
CI2-64Z-35N	Kern County, CA	35°32'32.6713"N	119°47'37.0682"W
CI3-64Z-35N	Kern County, CA	35°32'11.6457"N	119°47'7.5912"W
CI4-64Z-35N	Kern County, CA	35°31'55.4154"N	119°46'51.7864"W
27R-27N	Kern County, CA	35°33'2.4280"N	119°48'28.6103"W
55-26N	Kern County, CA	35°32'43.2520"N	119°47'32.7755"W
64-35N	Kern County, CA	35°31'44.3600"N	119°46'44.9788"W
9-1N	Kern County, CA	35°31'31.6480"N	119°46'37.0154"W
64-27N	Kern County, CA	35°32'41.1707"N	119°47'52.2726"W

This financial assurance demonstration describes how Aera Energy LLC (Aera) will meet the requirements for 40 Code of Federal Regulations (CFR) 146.85. Required activities for all nine proposed Class VI injection wells for the CarbonFrontier Project are assessed collectively in this demonstration.

2. FINANCIAL INSTRUMENTS [40 CFR 146.85(A)]

Aera is currently evaluating qualifying financial instruments listed in the Class VI Financial Responsibility Guidance (EPA, 2011) with the support of finance professionals and insurance brokers to fulfill the financial responsibility requirements of 40 CFR 146.85(a). The specific financial instruments under consideration include trust accounts, surety bonds, third-party insurance, and self-insurance/corporate guarantee. Aera expects that one or more of these instruments will be used to demonstrate financial responsibility and will provide the Underground Injection Control (UIC) Program Director with updates as instrument selections are finalized and will submit the required documentation when instruments are secured, prior to permit approval.

3. COST ESTIMATES [40 CFR 146.85(C)]

Cost estimates for the required activities associated with the nine proposed Class VI injection wells were prepared by SLB in 2022 (**Table 1**). These estimates, reported in current dollars, are based on costs incurred and/or forecasted by other carbon capture and storage projects, and assume that activities will be conducted by third-party service providers.

Table 1: Cost Estimate for Project Activities to be Covered

Activity	Estimated Cost (2022 USD)
Corrective Action on Wells in the AoR	$0
Plugging of Injection Wells	$1,980,000
Post-Injection Site Care and Closure	$11,400,000
Emergency and Remedial Response (including endangerment to USDW)	$31,590,000
Total:	**$44,970,000**

3.1 Performing Corrective Action on Wells in the Area of Review (AoR)

As described in the Corrective Action Plan (**Attachment B**), Aera has elected to perform the corrective action on wells within the AoR prior to initiation of injection. For that reason, costs are estimated at $0 and no financial instrument will be needed for corrective action.

3.2 Plugging of Injection Wells

The Injection Well Plugging Plan (**Attachment F**) describes the plugging procedures for both new and repurposed Class VI injection wells. Because of similarities in depth, construction, plugging procedure and costs for plugging of repurposed and newly drilled injection wells, a single summary of plugging costs for all nine injection wells is presented in **Table 2**.

Table 2: Injection Well Plugging Cost Estimate for New and Repurposed Wells

Activity	Estimated Cost per Well (2022 USD)	# of Wells	Total Estimated Cost (2022 USD)
Rig Costs (Mobilization and Daily Rate)	$100,000	9	$900,000
Flush Well, Perform Reservoir Pressure Test, MIT, and Plug Well	$120,000	9	$1,080,000
		Injection Well Plugging Subtotal:	**$1,980,000**

3.3 Post-Injection Site Care and Closure

The Post-Injection Site Care (PISC) and Site Closure Plan is described in **Attachment G** and details the plume, pressure front, and groundwater monitoring activities that will be performed during the post injection period and their frequencies. This plan also describes the process for decommissioning monitoring wells and closing the site. The duration of the PISC period is discussed in the Alternative PISC Timeframe section (**Attachment H**). PISC cost estimates are presented in **Table 3** while Site Closure costs are estimated in **Table 4**. Total combined costs for both PISC and Site Closure are estimated at $11,400,000.

Table 3: Post-Injection Site Care Cost Estimate

Activity	Cost per Event per Well (2022 USD)	# of Wells per Event	# Events Over 10-year PISC Period	Total Estimated Cost (2022 USD)
Direct Plume Sampling	$15,000	3	6	$270,000
Indirect Plume and Pressure Front Monitoring	$85,000	3	6	$1,530,000
Groundwater Quality - Direct Sampling	$15,000	2	3	$90,000
Groundwater Quality – Logging	$85,000	1	6	$510,000
Continuous Pressure and Temperature Monitoring	$175,000	4	10	$7,000,000
Project Management	$22,500	--	10	$225,000
Post-Injection Reports	$40,000	--	10	$400,000
			PISC Subtotal:	**$10,025,000**

Table 4: Site Closure Cost Estimate

Activity	Total Estimated Cost (2022 USD)
Perform Non-Endangerment Demonstration	$195,500
Plug Monitoring Wells (4 wells)	$880,000
Facility Closure	$300,000
Site Closure Subtotal:	**$1,375,000**

3.4 Emergency and Remedial Response (Including Endangerment to USDW)

Cost estimates for emergency and remedial response activities are complicated by the uncertainty as to whether such events will occur and the nature of the events (and therefore the cost of responding). Estimates were prepared based on the major emergency events described in the Emergency and Remedial Response Plan (ERRP, **Attachment I**) and therefore represent conservative estimates for the cost incurred in each scenario (**Table 5**).

These costs align with ranges provided in a commonly cited reference (Bielicki et. al., 2014) and other approved Class VI permits (e.g., Archer Daniels Midland), when project-specific parameters are considered (e.g., total injection volume, number of existing penetrations, etc.). Bielecki et. al. estimated environmental remediation costs between $17,330,000 and $20,850,000 (2022 USD), however, this study evaluated a significantly larger CO_2 injection volume than proposed here [9.6 million metric tons/year (MM mt/yr) vs ~3.6 MM mt/yr] but far fewer wells within the AoR (8 vs. >100). While not a perfect analog, this study lends credibility to the cost estimates presented here (Bielecki et. al,. 2014).

Similarly, Archer Daniels Midland estimated total emergency and remedial response costs at approximately $30MM for their CCS1 and CCS2 Class VI wells (Permit No.: IL-115-6A-0001

and IL-115-6A-0002) which planned to inject approximately up to 1.5 MM mt/yr, further validating that the costs presented here are realistic.

Table 5: Summary of Emergency and Remedial Response Cost Estimate

Emergency Scenario	Estimated Cost (2022 USD)
Injection and Monitoring Well Integrity Failure	$6,085,000
Injection Well Monitoring Equipment Failure	$1,865,000
Fluid or CO_2 leakage to USDW or the Land Surface	$1,790,000
Natural Disaster	$7,810,000
Seismic Event	$7,240,000
Intensified Groundwater Monitoring and Remediation (common to each ERR scenario)	$6,800,000
Emergency & Remedial Response Subtotal:	**$31,590,000**

4. UPDATES TO FINANCIAL ASSURANCE [40 CFR 146.85(C)(2)(3)(4)]:

As part of the requirements under 40 CFR 146.85(c), cost estimates will be updated during the active life of the project and provided to the UIC Program Director within 60 days prior to the anniversary date of the establishment of the financial instrument(s) and within 60 days of any amendments to the AoR and Corrective Action Plan, Injection Well Plugging Plan, the PISC and Site Closure Plan, and the ERRP. If the cost estimates increase to an amount greater than the face value of the financial instrument(s) in use, Aera will increase the face amount of the existing instrument(s) or acquire additional financial instruments within 60 days and submit evidence to the UIC Program Director.

5. REFERENCES

Bielicki, J.M., Pollak, M.F., Fitts, J.P., Peters, C.A., Wilson, E.J., 2014, Causes and financial consequences of geologic CO_2 storage reservoir leakage and interference with other subsurface resources: International Journal of Greenhouse Gas Control, v. 20, p. 272–282.

United States Environmental Protection Agency, 2011, Geologic Sequestration of Carbon Dioxide, Underground Injection Control (UIC) Program Class VI Financial Responsibility Guidance.