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July 26, 2023

Timothy J. Skone, P.E.; Senior Environmental Engineer
timothy.skone@hq.doe.gov
Office of Fossil Energy and Carbon Management
U.S. Department of Energy
via email

Re: NFE Altamira FLNG, S. de R.L. de C.V.
FECM Docket No. 22-110-LNG
Response to Informational Questions for DOE's Environmental Assessment

Dear Mr. Skone:

On July 14, 2023, NFE Altamira FLNG, S. de R.L. de C.V. ("NFE Altamira"), received a memo requesting responses ("July 14th Request") to nineteen questions related to the Environmental Assessment ("EA")[1] the United States Department of Energy's ("DOE") Office of Fossil Energy and Carbon Management ("DOE/FECM") is preparing with respect to NFE Altamira's pending request for authorization to re-export U.S.-sourced natural gas in the form of liquefied natural gas ("LNG") from the proposed NFE Altamira Project ("Project") in Mexico to Non-Free Trade Agreement nations.

NFE Altamira is providing answers to the requested information in the attached Annex A. However, NFE Altamira reserves all rights to challenge DOE/FECM's request for and use of such information to the extent DOE determines it must perform a project-specific life cycle analysis, given that such information and analysis was not required for other similarly situated projects. In this regard, in the two other Mexican export projects referenced below (Vista Pacifico LNG, S.A.P.I. de C.V. ("Vista Pacifico Project") and Energía Costa Azul, S. de R.L. de C.V. ("ECA Project")), DOE/FECM did not require the same level of detail with regard to the facilities and their potential emissions that is being requested in the instant proceeding.[2]

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1 *NFE Altamira FLNG, S. de R.L. de C.V.*, Notice of Environmental Assessment, Docket No. 22-110-LNG (June 27, 2023).

2 The federal courts have long held that applying different requirements to similarly situated applicants is arbitrary and capricious. *Nasdaq Stock Mkt. LLC v. Securities and Exch. Comm'n*, 38 F.4th 1126, 1141 (D.C. Cir. 2022) ("As a general principle, agency action 'is at its most arbitrary when it treats similarly situated people differently.'") (internal citations omitted); *Consolidated Edison Co. of N.Y., Inc. v. Fed. Energy Reg. Comm'n*, 45 F.4th 265, 281 (D.C. Cir. 2022) ("the Commission 'must provide an adequate explanation to justify treating similarly situated parties differently.'") (internal citations omitted); *Lilliputian Systems, Inc. v. Pipeline and Hazardous Materials Safety Admin.*, 741 F.3d 1309, 1313 (D.C. Cir. 2014) ("As a general matter, an agency cannot treat similarly situated entities differently unless it 'support[s] th[e] disparate treatment with a reasoned

In its July 18, 2023 letter[3] about the July 14th Request, DOE asserts that NFE Altamira's Project is different than the Vista Pacifico Project and the ECA Project because it is an offshore floating liquefaction and export facility to be constructed in Mexican waters using a modular approach. However, DOE/FECM already found its GHG Studies[4] applicable to an off-shore project,[5] as well as Mexican export projects[6] and modular construction will not result in additional environmental impacts.

Further, as DOE has noted "NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation."[7] Executive Order 12,114[8] "does not require federal agencies to evaluate impacts outside the U.S. when the foreign nation is participating with the U.S. or is otherwise involved in the action."[9] DOE/FECM has determined that a Mexican export project which is "constructed in accordance with all applicable Mexican laws, regulations, and standards," would meet this criterion.[10]

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explanation and substantial evidence in the record.'") (internal citations omitted); *Baltimore Gas and Elec. Co. v. Fed. Energy Reg. Comm'n*, 954 F.3d 279, 286 (D.C. Cir. 2020) ("We require agencies to justify different results reached under the same rule in order to lend predictability and intelligibility to the announced standard, promote fair treatment, and facilitate judicial review. If a party plausibly alleges that it has receives inconsistent treatment under the same rule or standard, we must consider whether the agency has offered a reasonable and coherent explanation for the seemingly inconsistent results.") (internal citations omitted).

3 DOE/FECM, Letter Regarding Request for Additional Information for Environmental Assessment, Docket No. 22-110-LNG (July 18, 2023).

4 U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States, 79 Fed. Reg. 32,260 (June 4, 2014), and Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL-2019/2041) (Sept. 12, 2019) (collectively the "GHG Studies").

5 *Delfin LNG LLC*, Opinion And Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas By Vessel From a Proposed Floating Liquefaction Project and Deepwater Port 30 Miles Offshore of Louisiana to Non-Free Trade Agreement Nations, DOE/FE Order No. 4028, FE Docket No. 13-147-LNG (June 1, 2017) (discussing the LCA at length at multiple points throughout the order).

6 *Vista Pacifico LNG, S.A.P.I. de C.V.*, Environmental Assessment, Docket No. 20-153-LNG, at 14 (Oct. 28, 2022) ("Vista Pacifico EA"); *Energía Costa Azul, S. de R.L. de C.V.*, Environmental Assessment, Docket No. 18-145-LNG, at 15 (Oct. 28, 2022) ("ECA EA").

7 *Vista Pacifico EA* at 3.

8 E.O. 12,114 (Jan. 4, 1979).

9 *ECA EA* at 4.

10 *Id*.; *see also, Vista Pacifico EA* at 3-4.

Regardless, as reflected in Annex A, NFE Altamira's Project is generally aligned with the assumptions made in the GHG Studies with regard to LNG plant operations and associated emissions. If you have any questions regarding this filing, please call the undersigned at (212) 506-3710.

Respectfully submitted,

/s/ Lisa M. Tonery
Lisa M. Tonery
Mariah T. Johnston
Jacob I. Cunningham
Attorneys for
NFE Altamira FLNG, S. de R.L. de C.V.

ANNEX A

INFORMATION REQUEST 1:

Is there an expectation of which basin(s) natural gas for the NFE Altamira liquefaction project (Project) is likely to be sourced from.

NFE ALTAMIRA FLNG RESPONSE:

Feed gas for the Project could be sourced from multiple locations throughout the United States natural gas pipeline grid.

INFORMATION REQUEST 2:

Can you provide an average pipeline distance travelled from the anticipated source(s) of production of the natural gas to the Mexican liquefaction plant? If unknown, please estimate a pipeline range based on likely U.S. natural gas basins.

NFE ALTAMIRA FLNG RESPONSE:

Feed gas for the Project could be sourced from the United States natural gas pipeline grid. There are multiple existing natural gas pipeline interconnections from which the Project could source gas. Due to the location of the Project, the applicant believes that central Texas would a reasonable proxy.

The Valley Crossing Pipeline system begins at the Nueces Header in Agua Dulce, Texas and then runs south for approximately 177 miles where it connects to the Sur de Texas - Tuxpan Pipeline via an offshore border crossing tie-in point. The Sur de Texas - Tuxpan Pipeline continues south from the tie-in point for approximately 500 miles and comes onshore near Altamira Mexico. As a proxy, the Eagleford Shale basin is approximately 125 miles from the Nueces Header.

INFORMATION REQUEST 3:

What is the liquefaction plant technology type?

NFE ALTAMIRA FLNG RESPONSE:

The Project will utilize Chart Industries Integrated Precooled Single Mixed Refrigerant (IPSMR) liquefaction technology.

INFORMATION REQUEST 4:

Can you speak to any of the plant operations that may operate differently for this liquefaction operation that is set to be sited offshore versus onshore LNG plant operations?

NFE ALTAMIRA FLNG RESPONSE:

There are no material differences in plant operations.

INFORMATION REQUEST 5:

For example, since both Fast LNG 1 (FLNG1) and Fast LNG 2 (FLNG2) are essentially "fixed" platforms once in place, can you speak to whether there is additional energy is spent to maintain the platform in position once in place?

NFE ALTAMIRA FLNG RESPONSE:

There is no additonal energy required to maintain the fixed positions of FLNG1 or FLNG2.

INFORMATION REQUEST 6:

Each FLNG will contain three offshore platforms - are they all self-elevating or fixed for all three platforms consisting of a FLNG Unit?

NFE ALTAMIRA FLNG RESPONSE:

FLNG1 will consisit of three (3) self elevating platforms. FLNG2 will consist of three (3) fixed jacket platforms.

INFORMATION REQUEST 7:

What are the compression energy requirements for transporting the natural gas from the United States Gulf of Mexico cross border connection point to the NFE Altamira FLNG units?

NFE ALTAMIRA FLNG RESPONSE:

No additional onshore or offshore compression is required for transporting the natural gas from the United States Gulf of Mexico cross border connection point to the Project. The existing pipeline system provides enough pressure to transport gas to the Project's interconnect with the Valley Crossing/Sur de Texas - Tuxpan Pipeline system.

INFORMATION REQUEST 8:

Appendix F Question: Please provide supporting information for how the values in Appendix F were derived? a. Questions #8 thru #18 below are specific clarifying questions of interest with respect to Appendix F.

NFE ALTAMIRA FLNG RESPONSE:

The attached Appendix F (Rev. 2), Potential to Emit Table provides supporting information on the emissions generated by the Project.

The emissions values were derived based on the following:

1. Annual emissions values are based on vendor performance data with equipment operating 8,760 hours per year at full load.

2. Worst case CO and VOC hourly emissions are based on vendor performance data.

3. Emission rates for NOx, CO, VOC, PM10/PM2.5, and H2SO4 are based on vendor lb/MMBtu performance data and heat input.

4. The emission rate for SO2 is based on a natural gas fuel sulfur content of 20 ppmv.

5. H2SO4 emissions assume that 5% of SO2 is converted to SO3.

6. The HAP emission factor is derived from EPA AP-42 Table 3.1-3.

7. 40 CFR 98 emission factors are used to calculate emission rates for CO2 (53.02 kg/MMBtu), CH4, and N2O (0.0001 kg/MMBtu).

8. CO2e emission rates use the following global warming potentials from 40 CFR 98, Table A-1: 25 for CH4, and 298 for N2O.

INFORMATION REQUEST 9:

Appendix F Question: Emissions are reported per FLNG Unit per year. Are these based on 100% planned operating capacity?

a. LNG Facility Size Statements from Application (for reference only – not questions):

i. Each FLNG will receive ~79 Bcf/y of natural gas.

ii. 6.5 Bcf/y will be consumed as (a) fuel in the liquefaction process and (b) process gas loss during the pre-treatment process.

iii. Total productive capacity of ~2.1 MTPA of LNG per FLNG; equivalent to 72.5 Bcf of natural gas, HHV @ 100% operating capacity.

NFE ALTAMIRA FLNG RESPONSE:

The emissions reported in the attached Appendix F (Rev 2) are based on 100% of planned operating capacity at the higher heating value (HHV).

INFORMATION REQUEST 10:

Appendix F Question: Is the emissions profile the same for the FLNG1 as FLNG2?

NFE ALTAMIRA FLNG RESPONSE:

Yes, the emissions profile is the same for both FLNG1 and FLNG2

INFORMATION REQUEST 11:

Appendix F Question: How is the floating storage unit accounted for in Appendix F?

NFE ALTAMIRA FLNG RESPONSE:

The operating emissions profile for the FSU is included in the attached Appendix F (Rev. 2).

INFORMATION REQUEST 12:

Appendix F Question: How will boil off gas emissions from the floating LNG storage tanker be managed?

NFE ALTAMIRA FLNG RESPONSE:

Boil-off gas will be used as fuel gas for the Project.

INFORMATION REQUEST 13:

Appendix F Question: What is the boil-off rate based on residence time?

NFE ALTAMIRA FLNG RESPONSE:

The design boil-off rate is 0.10 percent per day.

INFORMATION REQUEST 14:

Appendix F Question: What IPCC Global Warming Potential values are used in deriving and reporting CO2 equivalents (CO2e)?

NFE ALTAMIRA FLNG RESPONSE:

The Project utilized IPCC AR4 with a 100-year time period.

INFORMATION REQUEST 15:

Appendix F Question: What emissions sources are included, what is excluded?

NFE ALTAMIRA FLNG RESPONSE:

The emissions sources for the Project are listed in Appendix F (Rev.2). No emissions sources are excluded.

INFORMATION REQUEST 16:

Appendix F Question: Can you provide a contribution analysis for the 92,222 tons/year of CO2 estimated in Appendix F?

NFE ALTAMIRA FLNG RESPONSE:

The contribution of CO2 from emissions producing equipment is provided in the attached Appendix F (Rev.2).

INFORMATION REQUEST 17:

Appendix F Question: Can you provide a contribution analysis for the 27.68 tons per year of methane (CH4) emissions reported?

NFE ALTAMIRA FLNG RESPONSE:

The contribution of CH4 from emissions producing equipment is provided in the attached Appendix F (Rev. 2).

INFORMATION REQUEST 18:

Appendix F Question: Are the emissions in Appendix F representative of only LNG or LNG plus other products (NGL/LPG)?

NFE ALTAMIRA FLNG RESPONSE:

The emissions in the revised Appendix F are representative of LNG production only. The Project is not designed to, nor does it anticipate generating, commercial amounts of other products.

INFORMATION REQUEST 19:

Appendix F Question: Follow-on to Question #17, if the emissions are allocated to multiple products – how was the allocation performed?

NFE ALTAMIRA FLNG RESPONSE:

The emissions described in the attached Appendix F (Rev. 2) are not allocated to multiple products and the Project is only designed to produce LNG.

Appendix F (Rev. 2) Facility-Wide Operational Potential Air Emissions

	Annual Emissions, tpy													
	NO_x	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAP	Pb	H_2SO_4	H_2S	CO_2	CH_4	N_2O	CO_2e
PSD Stationary Sources														
FLNG1 Compressor Turbine	194.4	118.4	8.13	21.0	21.0	6.33	2.2	0	0.1	0	246,774	4.7	0.5	247,029
FLNG2 Compressor Turbine	116.7	118.4	8.13	21.0	21.0	6.33	2.17	0	0.14	0	246,774	4.7	0.47	247,029
FLNG1 Power Generating Turbines (3 units)	124.8	76.0	4.44	15.7	15.7	6.86	2.3	0	0.5	0	267,179	5.0	0.5	267,455
FLNG2 Power Generating Turbines (3 units)	124.8	76.0	4.44	15.7	15.7	6.86	2.3	0	0.5	0	267,179	5.0	0.5	267,455
FLNG1 Dry Flare (normal operation)	0.6	2.3	0.27	0.06	0.06	0.02	0.02	4.0E-06	0.002	0	959	3.1	0.002	1,038
FLNG1 Dry Flare (emergency operation)	0.2	0.7	2.53	0.02	0.02	0.01	0.00	1.3E-06	0.001	0	310	0.8	0.001	329
FLNG1 Dry Flare (startup)	15.7	63.8	1.24	1.72	1.72	0.69	0.43	1.1E-04	0.053	0	27,058	95.7	0.051	29,466
FLNG1 Dry Flare (shutdown)	0.3	1.1	0.02	0.03	0.03	0.01	0.01	1.9E-06	0.001	0	454	1.6	0.001	494
FLNG2 Dry Flare (normal operation)	0.6	2.3	0.27	0.06	0.06	0.02	0.02	4.0E-06	0.002	0	959	3.1	0.002	1,038
FLNG2 Dry Flare (emergency operation)	0.2	0.7	2.53	0.02	0.02	0.01	0.005	1.3E-06	0.001	0	310	0.8	0.001	329
FLNG2 Dry Flare (startup)	15.7	63.8	1.24	1.72	1.72	0.69	0.43	1.1E-04	0.053	0	27,058	95.7	0.051	29,466
FLNG2 Dry Flare (shutdown)	0.3	1.1	0.02	0.03	0.03	0.01	0.01	1.9E-06	0.001	0	454	1.6	0.001	494
FLNG1 Wet Flare (acid gas treatment)	5.0	20.3	2.52	0.55	0.55	0.22	0.14	3.6E-05	0.017	0	94,518	57.1	0.016	95,949
FLNG1 Wet Flare (normal operation)	1.2	4.8	0.60	0.13	0.13	0.05	0.03	8.5E-06	0.004	0	2,020	6.6	0.004	2,186
FLNG1 Wet Flare (emergency operation)	0.1	0.5	0.20	0.01	0.01	0.01	0.00	9.1E-07	0.000	0	216	0.8	0.000	237
FLNG1 Wet Flare (startup)	10.4	42.1	0.82	1.14	1.14	0.46	0.28	7.5E-05	0.035	0	17,871	63.2	0.034	19,461
FLNG1 Wet Flare (shutdown)	0.0	0.2	0.00	0.00	0.00	0.002	0.001	3.0E-07	0.0001	0	73	0.26	0.0001	79
FLNG2 Wet Flare (acid gas treatment)	5.0	20.3	2.52	0.55	0.55	0.22	0.14	3.6E-05	0.017	0	94,518	57.1	0.016	95,949
FLNG2 Wet Flare (normal operation)	1.2	4.8	0.60	0.13	0.13	0.05	0.03	8.5E-06	0.004	0	2,020	6.6	0.004	2,186
FLNG2 Wet Flare (emergency operation)	0.1	0.5	0.20	0.01	0.01	0.01	0.00	9.1E-07	0.000	0	216	0.8	0.000	237
FLNG2 Wet Flare (startup)	10.4	42.1	0.82	1.14	1.14	0.46	0.28	7.5E-05	0.035	0	17,871	63.2	0.034	19,461
FLNG2 Wet Flare (shutdown)	0.0	0.2	0.00	0.00	0.00	0.00	0.00	3.0E-07	0.000	0	73	0.3	0.000	79
FLNG1 Emergency Diesel Generator Engines (7 units)	21.33	4.48	0.13	0.285	0.285	8.5E-03	9.0E-03	0.0E+00	6.5E-04	0	929	3.8E-02	7.5E-03	932
FLNG2 Emergency Diesel Generator Engines (7 units)	9.68	3.97	0.19	0.227	0.227	6.9E-03	7.2E-03	0.0E+00	5.3E-04	0	748	3.0E-02	6.1E-03	750
FLNG2 Emergency Fire Pump Engines (8 units)	3.6	2.07	0.71	0.118	0.118	3.7E-03	3.9E-03	0.0E+00	2.8E-04	0	400	1.6E-02	3.2E-03	401
FSU Emergency Generator Engine	0.6	0.3	0.11	0.019	0.019	5.8E-04	6.1E-04	0.0E+00	4.5E-05	0	63	0.003	5.1E-04	64
FSU Boilers (2 boilers)	6.8	1.7	0.12	1.12	1.12	4.82	0.02	4.2E-04	0.369	0	7,641	0.3	0.062	7,667
FSU GCU	1.4	1.2	0.08	0.11	0.11	0.04	0.03	7.0E-06	0.003	0	1,661	5.4	0.003	1,797
FLNG1 & 2 Fuel Tanks (all tanks)	0	0	0.44	0	0	0	0	0	0	0	0	0	0	0
FLNG1 Fugitive Emissions	0	0	0.89	0	0	0	0	0	0	0	0	11.9	0	298
FLNG2 Fugitive Emissions	0	0	0.89	0	0	0	0	0	0	0	0	11.9	0	298
Project-Wide Annual Stationary Source Totals	**671.1**	**673.8**	**45.1**	**82.7**	**82.7**	**34.2**	**10.9**	**9.1E-04**	**1.9**	**0.00**	**1,326,304**	**507.4**	**2.2**	**1,339,656**

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list in this proceeding.

Dated at New York, N.Y., this 26th day of July, 2023.

/s/ *Dionne McCallum-George*
Dionne McCallum-George
Executive Assistant on behalf of
NFE Altamira FLNG, S. de R.L. de C.V.

VERIFICATION

I, Cameron MacDougall, declare that I serve as counsel to NFE Altamira FLNG, S. DE R.L. DE C.V. and I am duly authorized to make this Verification; that I have read the foregoing instrument and the facts therein stated are true and correct to the best of my knowledge, information, and belief.

Signed on this 26th day of July, 2023, at New York, NY.

/s/ Cameron MacDougall

Cameron MacDougall
NFE Altamira FLNG, S. de R.L. de C.V.