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Rio Grande LNG Project
Final Environmental Impact Statement
Volume III, Part 4

Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC

April 2019
Docket Nos. CP16-454-000, CP16-455-000
FERC/EIS-0287F

Cooperating Agencies:

U.S. Environmental Protection Agency

U.S. Department of Transportation

U.S. Coast Guard

U.S. Department of Energy

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

Federal Aviation Administration

National Park Service

National Oceanic Atmospheric Administration - National Marine Fisheries Service

CO (Companies and Organizations)

CO10 - Sierra Club

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

In the Matter of
RIO GRANDE LNG, LLC CP16-454-000
RIO BRAVO PIPELINE COMPANY, LLC CP16-455-000

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED RIO GRANDE LNG TERMINAL AND RIO BRAVO PIPELINE

CO10-1

Defenders of Wildlife, Save RGV from LNG, Shrimpers and Fisherman of the RGV, Sierra Club, and Vecinos para el Bienestar de la Comunidad Costera (collectively, "Commenters") submit these comments regarding the regarding the Federal Energy Regulatory Commission's ("FERC" or "the Commission") draft environmental impact statement ("DEIS") for the proposed Rio Grande LNG liquefied natural gas ("LNG") export terminal and associated Rio Bravo pipeline.

In Docket CP16-454, Rio Grande LNG, LLC ("Rio Grande") seeks authorization under section 3(a) of the Natural Gas Act, 15 U.S.C. § 717b(a), to site, construct and operate a new liquefied natural gas export and truck loading terminal near Brownsville, Texas, with a nameplate capacity of 3.6 billion cubic feet per day (bcf/d). In Docket CP16-455, Rio Bravo Pipeline Company, LLC ("Rio Bravo") proposes to site, construct, and operate infrastructure that will deliver natural gas feedstock to this export facility: two 140 mile, 42 inch pipelines, each with a capacity of 2.25 bcf/d, together with related compressor stations and other facilities. Rio Grande and Rio Bravo ("Applicants") have submitted a single application for these Projects, and FERC has provided a single DEIS covering both.

As commenters explain below, the DEIS for these Projects fails to satisfy the obligations

CO10-1 The comment is a duplicate of comment CO9.

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imposed by the National Environmental Policy Act ("NEPA"). The DEIS contains numerous informational gaps, and reaches multiple conclusions that lack support or are contrary to the available evidence. These deficiencies are severe enough that they must be corrected with a renewed draft EIS and a fresh opportunity for the public comment. Ultimately, however, it is clear that the Projects will have such severe adverse impacts on the local environment, surrounding communities, regions supplying the gas to be exported, and the climate as a whole, that the Projects are contrary to the public interest, cannot satisfy other applicable law, and must be denied.

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I. FERC Has Not Provided Sufficient Opportunity for Public Participation

A. The DEIS Is Missing Extensive Information Precluding the Opportunity for Meaningful Public Comment

The DEIS fails to satisfy NEPA's basic requirements because it omits analysis of many key issues, stating that these analyses are forthcoming. This precludes meaningful public involvement and violates NEPA.

NEPA serves to protect the environment by ensuring "clarity and transparency" to federal decisions affecting the environment. *North Carolina Wildlife Fed'n v. North Carolina Dept. of Transp*, 677 F.3d 596, 603 (4th Cir. 2012). Public participation is a two-way street, serving to inform the public and to allow the public to "play a role in the decision-making process." *Id.* at 604–05. Enlisting the public serves to develop "high quality" information on "the issues that are truly significant to the action in question," and to guide agencies to "take actions that protect, restore, and enhance the environment." 40 C.F.R. §§ 1500.1, 1506.6 (public involvement), 1502.1 (purpose of impact statements).

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Public participation cannot serve these purposes unless "relevant information is … available to the public for comment." *North Carolina Wildlife Fed'n*, 677 F.3d at 604–05 (quotation omitted). NEPA therefore requires that a draft of EIS be provided for public comment, and this draft "must fulfill and satisfy to the fullest extent possible the requirements established for final statements." 40 C.F.R. § 1502.9(a). Under this requirement, agencies must "make available to the public high quality information, including accurate scientific analysis, expert agency comments and public scrutiny, before decisions are made and actions are taken." *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1167 (9th Cir. 2003). The agency "should take to the public the full facts in its draft EIS and not change them after the comment period unless, of course, the project itself is changed." *Burkey v. Ellis*, 483 F. Supp. 897, 915 (N.D. Ala. 1979).

Here, FERC's decision to release the DEIS is premature, because analyses of numerous environmental issues are, by FERC's own admission, incomplete. The Fish and Wildlife Service recently submitted a letter enumerating many of these missing documents or analyses, identifying

the following:[1]

1. RG Developers' Plan and Procedures,
2. Spill Prevention, Control, and Countermeasure Plan,
3. Stormwater Pollution Prevention Plan,
4. RG LNG's Dredged Material Management Plan,
5. RB Pipeline completed pre-construction vegetation surveys for the preferred routes of Pipeline 1 and Pipeline 2 and work corridor,
6. RG Developers' Migratory Bird Conservation Plan,
7. FERC's recommendation that RG Developers consult with the Natural Resource Conservation Service and our agency to develop a final seed mix to be used in areas to be restored. The Service also recommends requiring a post-construction, and a monitoring plan for restored areas.
8. Coordination with Texas Parks and Wildlife Department for identification of impacts to, and implementation of Texas Tortoise best management practices,
9. Texas Coastal Management Plan concurrence documentation,
10. Documentation that the RB Pipeline route would avoid National Wildlife Refuge lands,
11. Final surveys and completion of consultation under Section 106 ofthe National Historic Preservation Act,
12. Final, approved plan by RG Developers' to FERC and State Historic Preservation Office for addressing unanticipated discovery of cultural resources or human remains during construction,
13. Site-specific measures to mitigate noise impacts from 24-hour horizontal directional drill activities near identified noise sensitive areas (NSAs),
14. Approved alternative to RG LNG's proposed, l-mile-long, temporary haul mad through wetlands.

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On the last item, in particular, we emphasize that we strongly support the DEIS's determination that the temporary haul road should be avoided if possible. However, additional information about the proposed alternatives (use of existing roads or barges) should have been included in the DEIS and made available for public comment. Other missing documents include analysis of:

- Essential Fish Habitat consultation with National Marine Fisheries Services
- Numerous reliability and safety analyses
- Analyses of impacts to endangered and threatened species,

[1] Comment of Fish and Wildlife Service (Nov. 27, 2018), Accession No. 20181127-0012.

- Details of proposed compensatory mitigation for wetlands

By circulating a DEIS without this information, FERC has violated NEPA's requirement that the DEIS satisfy the requirements of the final EIS to the fullest extent possible, and FERC has limited the public's ability to meaningfully review and comment. CO10-1

B. FERC Has Not Provided Sufficient Opportunity for Public Comment

FERC has further failed to provide the public with sufficient opportunity to weigh in on the DEIS. FERC set the public comment period at the regulatory minimum of 45 days. However, the majority of this period (31 days) overlaps with the 45 day comment period on the similar and neighboring Texas LNG proposal, which will affect the same communities. *See* 83 Fed. Reg. 55156 (Nov. 2, 2018) (comment period on Texas LNG closes Dec. 17, 2018). Indeed, FERC provided only a single public comment session in the community closest to the terminal site, Port Isabel, encompassing both projects. This required members of the public to review and prepare remarks on both projects simultaneously. Because these overlapping comment periods effectively interfere with one another, FERC has not provided sufficient opportunity for public comment on either project.

The format of the public comment sessions further frustrated meaningful public involvement. Rather than adopt a traditional public hearing, FERC's public comment sessions required individuals to speak one-on-one to a court reporter, isolated from their supporting community and in an intimidating environment.

II. The DEIS Does Not Demonstrate a Need for the Projects

Neither the Applicants nor the DEIS demonstrate a need for or useful purpose served by the terminal or pipeline Projects.

Rio Grande has not demonstrated that is has customers interested in purchasing LNG. Rio Grande committed to filing "all long-term, binding contracts associated with the export of LNG from its facility, once executed" with the Department of Energy, as recognized in the Department's order authorizing exports to FTA countries.[2] Rio Grande must similarly file all contracts associated with long-term supply of gas.[3] These contracts must be filed "within 30 days of their execution."[4] To date, no filings indicating either type of such contract appear on the DOE docket.[5] Nor does the DEIS provide other evidence of market need or support for this project. CO10-1

Evaluation of the state of global LNG markets indicates that Rio Grande is unlikely to acquire such contracts. The Energy Information Administration provides estimates of global demand for U.S. LNG as part of the agency's Annual Energy Outlook. The most recent outlook forecasts that this demand will peak at 5.28 trillion cubic feet per year, or 14.5 billion cubic feet per day.[6] Other LNG export facilities that are already operational or under construction have capacity to saturate this demand. Together with proposed expansions, these facilities provide 15.35 bcf/d of capacity.[7]

Commenters recognize that a private consultant, NERA Economic Consulting, hired by the Department of Energy to assess the macroeconomic impacts of U.S. LNG exports recently provided a much higher estimate of global demand.[8] As Sierra Club explained in comments on the NERA report, that report relied on numerous flawed assumptions that caused it to overstate global

[2] https://www.energy.gov/sites/prod/files/2016/08/f33/ord3869.pdf at 5.
[3] *Id.* at 8.
[4] *Id.* at 8.
[5] https://www.energy.gov/fe/downloads/rio-grande-lng-llc-dkt-no-15-190-lng. last visited Nov. 29, 2018.
[6] EIA, Annual Energy Outlook 2018 at 73, attached as Exhibit 1, available at https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf; *see also id.* Table 13, attached as Exhibit 2, available at https://www.eia.gov/outlooks/aeo/excel/aeotab_13.xlsx.
[7] Approved facilities include Sabine Pass, Louisiana; Corpus Christi, Texas; Freeport, Texas; Cameron LNG, Louisiana, Dominion Cove Point, Maryland; and Southern LNG, Georgia. *See* https://ferc.gov/industries/gas/indus-act/lng/lng-approved.pdf?csrt=1447583269565644927. These facilities' combined capacity (including capacity that is already completed and therefore not included in FERC's "under construction" list), attached as Exhibit 3.
[8] NERA Economic Consulting, Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports (June 7, 2018), *available at* https://fossil.energy.gov/app/docketindex/docket/index/10

gas demand. Most severely, the report unrealistically and myopically assumed that, in the most likely scenario, no other nation takes *any* further action to limit greenhouse gas emissions.[9] This assumption runs counter to the rest of the world's affirmance of the Paris Climate Accords and commitment to take action on climate change. CO10-1

Insofar as there is no need for the proposed LNG exports, there is no need for the pipeline either. However, even if FERC determines that there is a need for the terminal, the DEIS does not demonstrate the need for a pipeline capable of delivering 4.5 bcf/d of gas, DEIS 1-4, when the terminal's proposed capacity is only 27 mpta of LNG, *id.*, "equivalent to approximately 1,318 billion cubic feet per year (Bcf/yr) of natural gas (approximately 3.6 billion cubic feet per day (Bcf/d))."[10]

III. The DEIS Fails to Adequately Assess Impacts on Local Communities

A. Introduction

The National Environmental Policy Act (NEPA) requires an environmental impact assessment (EIS) to examine all potential impacts of a project, including "ecological . . . aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative."[11] Agencies must consider the environmental justice impacts of their actions on low-income, minority communities in accordance with Executive Order 12898.[12] The socioeconomic costs of a project related to physical environmental impacts, including reductions in property values, must also be analyzed. These analyses include examining "purely economic" impacts—for example, the loss of businesses in the project area—and effects that branch from racial insensitivity or economic

[9] *See id.* at 41-43.
[10] DOE Order 3869 at 1 (Aug. 17, 2016), attached as Exhibit 4.
[11] 40 C.F.R. § 1508.8.
[12] *Coliseum Square, Inc. v. Jackson*, 465 F.3d 215, 232 (5th Cir. 2006).

inequality.[13] The analysis must also consider problems related to the displacement or relocation of people.[14]

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Below, we highlight the shortcomings and inconsistencies of the DEIS's treatment of the adverse environmental justice, socioeconomic, and fisheries impacts of the Rio Grande LNG Projects. In terms of environmental justice impacts, we first demonstrate that the Rio Grande LNG Project primarily and disproportionately affects low-income, minority communities. Then, we illustrate how the DEIS fails to consider impacts to Cameron County's tax base, public health and safety, nearby residential property values, and increased vehicular traffic.

In terms of socioeconomic impacts, we first illustrate why the DEIS's economic analysis regarding the LNG Terminal and Pipeline Systems proposals does not adequately consider its economic impact. This includes showing why claims that the Projectswill increase jobs fail to account for the shocks the projects will create on the local economy, why the estimated annual impact of the Projects fails to account for a number of adverse impacts, and how the estimated generation of property taxes over the Projects' first 22 years of operation does not mitigate the impact of the tax breaks given to the project. Second, we show why how the environmental degradation caused by the Projects will adversely impact local industries, including tourism, recreational fishing and commercial fishing.

B. The DEIS Fails to Adequately Consider the Environmental Justice Impacts of the Rio Grande LNG Project

1. The Rio Grande LNG Project Will Have Adverse Impacts on Low-Income and Minority Communities

The neighborhoods in the area affected by the LNG facility Project are majority minority

[13] *Coliseum Square*, 465 F.3d at 234.
[14] *Coliseum Square*, 465 F.3d at 232.

and low-income communities.[15] The DEIS notes that the blocks closest to the LNG Terminal are "environmental justice populations."[16] Cameron County is a majority-minority county, with non-White people making up 91.1% of the population.[17] As the DEIS acknowledges, the Project would be located in the "poorest metro area ... in the country."[18] 87.5% of students served by Port Isabel Independent School District (Port Isabel ISD) are economically disadvantaged, and 37.8% of students in Port Isabel ISD schools are English Language Learners.[19]

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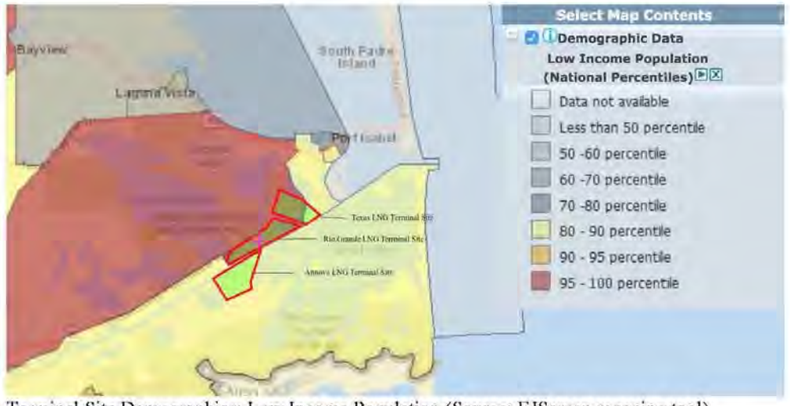
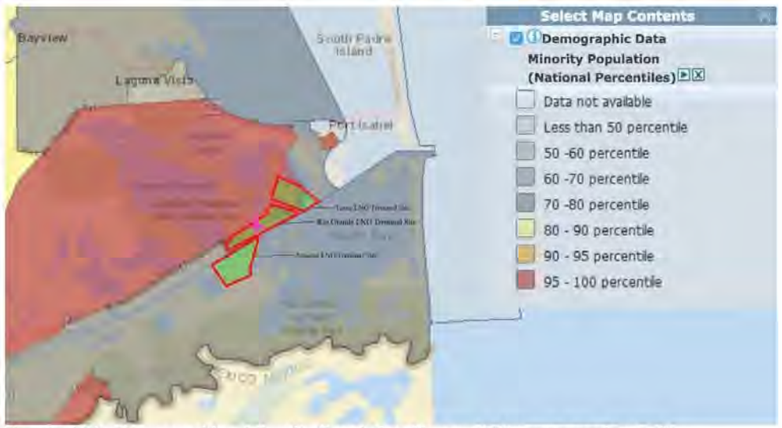


Terminal Site Demographics: Low Income Population (Source: EJScreen mapping tool)

[15] DEIS 4-225.
[16] *Id.*
[17] "QuickFacts: Cameron County, Texas," United States Census Bureau, accessed November 13, 2018, attached as Exhibit 5.**Error! Reference source not found.**
[18] Rio Grande LNG Project Rio Bravo Pipeline Project, Resource Report 5: Socioeconomics, RR 5-11.
[19] 2016 - 2017 Texas Academic Performance Report: Port Isabel ISD, attached as Exhibit 6,available at https://rptsvr1.tea.texas.gov/cgi/sas/broker?_service=marykay&year4=2017&year2=17&_debug=0&single=N&title=2017+Texas+Academic+Performance+Reports&_program=perfrept.perfmast.sas&prgopt=2017%2Ftapr%2Ftapr.sas&ptype=P&level=district&search=district&namenum=isabel&district=031909, accessed November 20, 2018.



Terminal Site Demographics: Minority Population (Source: EJScreen mapping tool)

In addition, the DEIS fails to consider the environmental justice impacts of the pipeline portion of the Project. The Project pipeline will connect to a hub in Agua Dulce, Texas, which has a population that is 99.2% Hispanic or Latino[20] and where 53.3% of the households are below the poverty level.[21] In Agua Dulce, Kenedy County, and at the terminal site, the Project will include 180,000-horsepower compressor stations along the pipeline.[22] According to multiple reports analyzing the effects of compressor stations on nearby residents, "people [...] experience[] ... symptoms ranging from skin rashes to gastrointestinal, respiratory, neurological and psychological problems."[23]

There are other risks as well for those living near the site of the pipeline. If pipelines leak,

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[20] "Community Facts: Agua Dulce CDP, Texas," Hispanic or Latino by Type: 2010, United States Census Bureau, accessed November 26, 2018, attached as Exhibit 7.
[21] "Community Facts: Agua Dulce CDP, Texas," Selected Economic Characteristics: 2012 – 2016 American Community Survey 5-Year Estimates, United States Census Bureau, accessed November 26, 2018, attached as Exhibit 8.
[22] DEIS, 2-22.
[23] Barbara Gottlieb and Larysa Dryszka, MD, Physicians for Social Responsibility, *Too Dirty, Too Dangerous: Why health professional reject natural gas,* (Feb. 2017), p. 22, attached as Exhibit 9, available at https://www.psr.org/wp-content/uploads/2018/05/too-dirty-too-dangerous.pdf.

for example, local residents could be exposed to toxic substances.[24] In a "blowdown" procedure, where a pipeline vents gases "to control pressure and empty the system," a pipeline "can emit ... much higher concentrations than annual emissions data would suggest."[25] The DEIS failed to consider these risks to the communities living along the route.

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2. The DEIS Fails to Consider Impacts to Cameron County's Tax Base

Rio Grande LNG estimates that the LNG Terminal would generate circa $92.9 million in property taxes in the affected counties over the first 22 years of operation, inclusive of applicable tax abatements, which should result in a moderate, positive, long-lasting impact on the local economy. While that seems like a large number initially, it pales in comparison to the ten-year tax abatement that Cameron County commissioners granted Rio Grande LNG in October 2017. The County promised the company a 76% break over ten years, or $373.1 million.[26] In lieu of taxes, Rio Grande LNG agreed to pay the county 2.7 million a year in PILOT payments (payments in lieu of taxes), as well as provide up to $10 million to fund community projects to maximize the hiring of local residents during construction.[27]

Provided the estimate in the DEIS accounts for the 27% of taxes that Rio Grande LNG will be paying, the county still loses close to $200 million in tax revenue — more than the county's entire 2018 budget.[28] This is a massive loss, given the significant increase in public services that additional tax revenues could provide in one of the most impoverished counties in the country, one whose budget is often disproportionately tied down by international bridge

[24] *Id.* at 21.
[25] *Id.*
[26] Luis Montoya, "Cameron County gives Rio Grande LNG a $373,100,000.00 tax break," Rio Grande Guardian, Oct. 4, 2017, attached as Exhibit 10, available at https://riograndeguardian.com/cameron-county-gives-rio-grande-lng-a-373100000-00-tax-break/.
[27] Frank Garza, *LNG, Cameron County settle on terms*, The Monitor (Oct. 9, 2017), Exhibit 11, available at https://www.themonitor.com/news/article_e191551e-ad41-11e7-8822-33c38240f203.html.
[28] Cameron County, Texas: Commissioners' Court, Approved Budget Fiscal Year 2017 - 2018, Oct. 1, 2017, attached as Exhibit 12, available at http://www.co.cameron.tx.us/BudgetInfo/Adopted%20Budget%202018.pdf.

maintenance and abnormally high law enforcement costs.[29] Meanwhile, welfare and health expenditures, for instance, represent a combined total of 7.1% of county expenditures yearly.[30]

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Taxes from massive projects like these, if nothing else, could provide Cameron County with significant revenue to invest in public services. But not only does the DEIS fail to acknowledge the lost tax revenue, it also fails to adequately document how that lost revenue and the demands of the project will financially strain local public services. In addition, the DEIS fails to consider how the high number of out-of-state contractors employed during the projects' construction phases over the estimated seven-year construction span will also add strain to the area's public services.

For example, while the DEIS acknowledges that a larger workforce will increase the number of students in local public schools,[31] the DEIS also states these impacts could be mitigated by increased tax revenue, allowing schools to hire more teachers.[32] Unfortunately, this view fails to acknowledge the immediate strain on school occupancy limitations in light of the Project's massive tax abatement, which could lead to fewer dollars per student invested in local public schools. The strain caused to local schools was publicly debated when school board members with the Port Isabel Independent School District (PISD) rejected a tax abatement for Rio Grande LNG in September 2016.[33] However, this effort was effectively defeated when the Commissioner's Court granted a tax abatement of their own the following year. The strain on school funding is particularly problematic because Laguna Heights schools are within the PISD, and given the high poverty rates in Laguna Heights, any impact to educational opportunities could

[29] *Id.*
[30] *Id.*
[31] DEIS, 4-217.
[32] *Id.*
[33] Sergio Chapa, *LNG opponents plan to protest NextDecade stockholders meeting*, San Antonio Business Journal (Jun. 14, 2018), attached as Exhibit 13, available at https://www.bizjournals.com/sanantonio/news/2018/06/14/lng-opponents-plan-to-protest-nextdecade.html.

further cement income inequality throughout Cameron County.[34]

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Similarly, the DEIS claims that the "temporary, minor increase" of area residents during the construction phases of the Projects would not have an adverse impact on hospitals in the surrounding area because the ratio of residents to beds will only increase by 0.6.[35] However, this is an oversimplification of the strain the Projects and resulting uptick in environmental degradation will impose on health care services. For instance, the DEIS acknowledges that the construction phases of the Project will "impact local air quality,"[36] and "concurrent emissions…could result in exceedances of the NAAQS in the immediate vicinity of the LNG Terminal during" construction.[37]

With impacts like these in mind, simply calculating the ratio of residents to hospital beds in the DEIS does not help determine whether a decrease in air quality could lead to an increase in demand for medical services. Even minor damage to, for instance, the area's air quality, must be seen in conjunction with the existing environmental conditions of Cameron County. The County already ranks 227 out of 242 counties in Texas for its poor air quality, water quality, and other environmental metrics.[38] Cumulative impacts from the Terminal, the Pipeline System Project, and supporting industries, *e.g.*, freight, could exponentially increase environmentally-influenced health issues. This could, in turn, also exponentially increase the demand for medical services.

If a scenario such as this one plays out during the construction phases of the Projects, communities closest to the Projects would have to travel to medical facilities in Brownsville in

[34] Nathan Grawe, *Education and Economic Mobility,* The Urban Institute (Apr. 3, 2008), p. 18, attached as Exhibit 14, available at https://www.urban.org/sites/default/files/publication/31161/1001157-education-and-economic-mobility.pdf (demonstrating that while research is in its early stages, improved K-12 school quality increases economic mobility).
[35] *See* DEIS, 4-217.
[36] DEIS, 4-249.
[37] DEIS, ES-12.
[38] "Cameron County: County Health Rankings," from County Health Rankings & Roadmaps, attached as Exhibit 15, available at http://www.countyhealthrankings.org/app/texas/2018/rankings/cameron/county/factors/overall/snapshot.

case of health emergencies, since Port Isabel and Laguna Madre have no hospitals.[39] The lack of public financial resources caused by the tax abatement strain Brownsville medical facilities that may not be equipped to handle increased foot traffic. It may also prevent the construction of new facilities in Port Isabel and/or Laguna Madre if health needs become acute.

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3. The DEIS Fails to Consider Impacts to Public Health and Safety

Cameron County ranks 227 out of 242 counties in Texas for physical environment (air pollution, water quality, etc.).[40]Air pollution can worsen symptoms of respiratory diseases like asthma.[41] Cumulative impacts from multiple pipelines, multiple terminals, and supporting industry will likely to exacerbate the health problems affecting these communities. The DEIS fails to provide adequate analysis on whether the increase in pollutants is likely to increase health problems and hospital visits.

Despite acknowledging that "[t]he construction of the Project would impact local air quality"[42] and that "[c]oncurrent emissions ... could result in exceedances of the NAAQS in the immediate vicinity of the LNG Terminal during" construction,[43] the DEIS concludes that there will not be any "disproportionately high or adverse environmental and human health impacts on low-income and minority populations from construction or operation of the Project."[44]

The DEIS has no analysis on whether a decrease in air quality might lead to an increase in demand for medical services, such as asthma treatments. By only considering the ratio of residents to hospital beds, the DEIS fails to adequately consider the Projects' impacts on health

[39] Rio Grande LNG Project Rio Bravo Pipeline Project, Resource Report 5: Socioeconomics, RR 5-102.
[40] "Cameron County: County Health Rankings," attached as Exhibit 15.
[41] Asthma and Allergy Foundation of America, *Asthma Capitals 2018: The Most Challenging Places to Live With Asthma*, (2018), p. 18, attached as Exhibit 16, available at http://www.aafa.org/media/2119/aafa-2018-asthma-capitals-report.pdf.
[42] DEIS, 4-249.
[43] DEIS, ES-12.
[44] DEIS, 5-12.

and public services. As discussed above, Port Isabel and Laguna Madre have no hospitals.[45] Therefore, the communities closest to the Project would likely rely on the medical facilities in neighboring Brownsville. In the event of a disaster requiring evacuation or causing trauma and hospitalization, Port Isabel residents would be required to travel to one of Brownsville's two medical centers with trauma centers.[46] While the DEIS acknowledges these risks and requires the Rio Grande to establish procedures, there is no analysis on whether the hospitals can handle such a disaster. Further, in the event of a disaster requiring evacuation, there is no analysis on routes residents closest to the Project will be able to take to reach safety or medical services. The most direct route to Brownsville and its medical services passes directly adjacent to the proposed facility.

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Lastly, the DEIS fails to consider the difficulties the construction Projects place on public services to handle an emergency, such as an on-site fire. While Rio Grande LNG plans to train their employees as emergency responders by teaching them how to provide first aid and on-site security, [47] there are no details regarding how the Project will handle a large-scale disaster. In the event that an on-site fire or a similar disaster breaks out either on the construction site or after the construction phases are complete, Port Isabel would be the primary responder to any fires at the proposed Terminal site. [48] Port Isabel's Fire Department, however, has only two full-time firefighters, and with the significant lack of potential tax dollars resulting from the abatement, Port Isabel might lack the capacity to expand its services. The DEIS fails to provide adequate analysis of the strain the Project—involving volatile materials and heavy construction—would put on public safety services.

[45] Rio Grande LNG Project Rio Bravo Pipeline Project, Resource Report 5: Socioeconomics, RR 5-102.
[46] *Id.*
[47] *Id.*
[48] *Id.* at 5-103.

4. The DEIS Fails to Adequately Consider Impacts to Nearby Residential Property Values

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The DEIS failed to adequately consider impacts to property values. The DEIS states only that "the nearest residences [to the LNG Terminal] are about 2.2 miles away in Port Isabel."[49] So, while it "would be possible to see the LNG Terminal from some vantage points in Port Isabel and Laguna Heights," the DEIS believes "its visibility ... would not be a prominent feature in the viewshed for these residences."[50]

Other than citing studies showing that "adverse impacts on property values decreased steadily with distance from the industrial development,"[51] the DEIS does not provide any further analysis on the impact the Project will have on neighboring communities. Truthfully, since the LNG market is young, economic studies on the effects of large-scale, industrial LNG projects on nearby property values are scant. However, comparable studies have been conducted for decades regarding the effects of other high-polluting industrial projects on nearby property values. For example, a University of California - Berkeley study found that home values within two miles of power plants opened up in the U.S. in the 1990s decreased by three to seven percent by the mid-2000s.[52] In addition, power plant openings are correlated with significant decreases in mean household incomes in areas near the plants, and the proportion of homes that are owner-occupied decreased by two to five percentage points as well.[53] While the homes nearest to the Rio Grande LNG Project are approximately 2.2 miles away in the Port Isabel area, the power plants analyzed in the UC Berkeley paper were also in areas with low population density like the proposed site in question, making it likely that a slight increase in distance from the LNG terminal will not make

[49] DEIS, 4-223.
[50] *Id.*
[51] *Id.*
[52] Lucas W. Davis, *The Effect of Power Plants on local Housing Values and Rents*, The Review of Economics and Statistics 93: 4, 1391–1402, 1392, attached as Exhibit 17, available at http://realneo.us/system/files/PowerplantValueImpact.pdf.
[53] *Id.*

much of a dent in potential decreases in property values. In sum, the DEIS's lack of in-depth analysis of property values demonstrates a failure to adequately consider socioeconomic impacts. CO10-1

5. The DEIS Fails to Adequately Consider Impacts to Vehicular Traffic in its Vicinity

During construction, there will be a large increase in vehicular traffic, particularly on SH-48. The DEIS acknowledges that traffic will increase on SH-48 during construction. About 17,000 vehicles per day travel on SH-48 during peak season, and construction will add 4,600 round trips.[54] Thus, the DEIS expects that use of SH-48 would result in "a substantial increase in daily vehicle trips."[55]

The DEIS relies on a Traffic Impact Analysis that states that the "greatest concern is the up to 4,600 vehicles that exit the Project site at the end of the construction workday."[56] The analysis shows that even with mitigation, the traffic flows will be negatively impacted with a significant increase in delays during morning and evening peak travel times.[57] For example, the intersection of SH-48 with SH-100, closest to the Port Isabel, delays will increase from 12.7 pre-construction to 27.4 peak construction.[58] For the intersection of SH-48 and SH-550, the main intersection connecting Brownsville to Port Isabel, the morning traffic volume will increase from 922 vehicles to 4,680 during peak construction.[59]

The DEIS fails to consider the effect that this increased traffic and resulting change in traffic patterns will have on the low-income minority communities closest to the Project. This large increase in traffic will impact the ability of residents to reach their workplaces or medical services in Brownsville in a timely manner. The visitation patterns of tourists may also change

[54] *See* DEIS, 4-218 – 4-219.
[55] DEIS, ES-16.
[56] Traffic Impact Analysis: Rio Grande LNG Project, 32.
[57] Traffic Impact Analysis: Rio Grande LNG Project, 26.
[58] Traffic Impact Analysis, Tables 4 and 7, pp. 17 and 26.
[59] Traffic Impact Analysis, Table 2, p. 10.

based on this increased in traffic, and yet the DEIS fails to anticipate how the pattern might change and how such changes might impact businesses and residents in Port Isabel and Laguna Heights. CO10-1

C. The DEIS Fails to Adequately Consider the Socioeconomic Impacts of the Rio Grande LNG Project

1. Claims that the Project Will Increase Jobs and Create Positive In-flows into the Local Economy Fail to Fully Account for the Shocks to the Economy Created by the Construction Phases of the Project

Construction of the LNG Terminal would require an average monthly construction workforce of 2,950 workers (peak of 5,225 workers) over a construction period of seven years. It is estimated that construction workers would be on site throughout the duration of the construction period, with an average monthly construction workforce of 2,950 workers, and a high of approximately 5,225 workers during a 17 month period spanning years four and five.[60] Approximately 30% of the workers would be hired locally, per Rio Grande LNG's numbers, meaning that anywhere from 2,065 to 3,658 workers could be non-local.[61] Rio Grande LNG estimates that out of the non-local workers during the construction period, about 70% would be accompanied by family members.[62] Out of the estimated $22.4 billion in direct expenditures that will arise during the construction phase of the terminal and pipelines, about $4 billion will be spent on materials, a "portion of which" may be regionally or locally sourced.[63] Rio Grande LNG also estimates that both local and non-local workers both directly employed for the terminal and pipeline projects as well as workers providing services (e.g., transportation contracts for materials) will spend approximately 2.7 billion in payroll on housing, food, gas, and other goods,

[60] DEIS, 4-198-199.
[61] ID.
[62] ID.
[63] DEIS 4-204, 205.

services and entertainment in the area.[64]

CO10-1

The logic of the DEIS is shortsighted. Increased employment and expenditures are often the source of an influx of consumer activity of economy. As demands for goods and services and the spending of disposable income by workers at local businesses increases, economic advantages should, in theory, trickle down. Surely, it is possible, if not likely, that the local economy of the areas surrounding the projects will react positively, resulting in a temporary stimulus to the existing housing industry, and existing retail, educational, and healthcare services in the area, at least during the construction period.

However, the rollercoaster effect created by two separate shocks to the local economy – the introduction of the construction project and the completion of the project – may produce serious complications. First, it is unclear how much of the $4 billion towards construction materials will be "regionally or locally sourced," and only 30% of workers will be hired locally. With a large influx of temporary employees, any per capita growth in gross domestic product is diluted, and thus there is not as much of a boon to the local economy as the gross numbers make it seem. In this sense, economic activity that arises to meet the demand of the remaining 70% of employees hired from out-of-state for the project may not significantly increase the area's per capita income or standards of living. Second, an influx of 70% foreign workers should make a serious impact in the kinds of entrepreneurial activity that develops to accommodate growing demand for, say, housing and retail. These non-local workers bring with them different cultures and lifestyles, which will likely be reflected in the markets that emerge to accommodate their presence, and thus may significantly change the character of the area.

These problems are magnified when considering the Rio Grande LNG developer's estimated tally for its final, permanent workforce. Unfortunately, the Rio Grande LNG developers

[64] *Id.*

estimate a need for only about 290 permanent jobs for both the Terminal and the Pipeline once the construction phases are complete. Since LNG exportation is not a local feeder industry, any entrepreneurial activity that develops to absorb the disposable income of employees in the area will suddenly face a lack of demand, causing local markets, *e.g.*, retail and entertainment markets that thrive on disposable income, to shrink. Furthermore, local contractors relying on the project, *e.g.*, assisting with secondary manufacturing needs, transportation, and possibly even utilities, could all be impacted by a disproportionately large shock to a local economy that lacks the diversity of a large, metropolitan urban economy. This could result in displacement and increased unemployment, to start with. There is some evidence of similar effects from other regions of the country. As large energy construction projects come to an end, the regional gross domestic product of less urban, less economically diverse areas may decrease significantly. For example, in a 2018 study released by the federal Bureau of Economic Analysis, Enid, Oklahoma's GDP dropped 7.8% after large energy-related construction projects came to an end – the largest decline in gross domestic product in 2017 among the country's 383 metropolitan areas.[65]

CO10-1

2. The Estimated Annual Economic Impact of the Projects Fails to Account for the Adverse Impacts of High-Paid, Skilled Workers on Low-Income Areas, Social Costs Incurred by Neighboring Communities, and Market Volatility

Anticipated operational direct expenditures for the LNG Terminal would be $1.9 billion annually, and RG Developers anticipate that a 270 person operational staff for the LNG Terminal would result in an annual payroll of $24.3 million. Anticipated operational direct expenditures for the Pipeline System would be $179.7 million annually, and about $1.3 million in annual payroll for 20 permanent operational staff members. They estimate that the RNG Terminal project will

[65] Adam Wilmoth, "Enid's economy slows as construction projects are completed, NewsOK (Sept. 20, 2018), attached as Exhibit 18, available at https://newsok.com/article/5608887/enids-economy-slows-as-construction-projects-are-complete.

result in a $1.4 billion economic impact for Cameron County.

However, there are three inconsistencies here. First, $24.9 million in annual payroll among 270 permanent Terminal employees amounts to nearly $89,000 in average annual salary. While 270 employees would make a relatively small dent if diluted within the workforce of a large metropolitan area, with relatively few residential areas in the vicinity of the Terminal, these salaries could significantly influence local consumer preferences. For instance, such high salaries in a county with an average salary of under $15,000 could pressure small businesses to either cater to more moneyed patrons, or succumb to competition from businesses that are more willing to operate in the lifestyle markets that interest the new local consumer base. Furthermore, for existing businesses, rents can increase because of increased residential and consumer demand in an area. If a business's revenue does not increase, then operating costs could become unsustainable and force businesses to shutter their doors. And of course, if LNG Terminal employees remain concentrated in a given area, e.g., Port Isabel or Laguna Heights, then residential property prices could rise in the given area in response to the demand from a wealthier population. This increases the probability of displacement due to either the increased property taxes after the area is re-appraised, or increased rents. CO10-1

Next, the projects impose social costs on current area-residents as well. These future, richer LNG employees – especially if they're from out-of-town or out-of-state – could further any changes in the character of communities that began during the influx of foreign workers brought about by the construction phases of the project. This contributes to the disintegration of community cohesiveness and identity. This could have the effect of reducing civic engagement

and increasing mental health issues among residents facing displacement.[66]

CO10-1

Lastly, and more broadly, the LNG market is young and volatile, meaning that the estimated economic impact to the region (and the country) needs to be analyzed more profoundly. First, some industry sources forecast a supply gap, with forecasted demand exceeding supply. These industry sources are often concerned with filling the supply gap by increasing U.S. production.[67] Second, other industry sources are concerned with the seasonality of the LNG market.[68] Historically, total demand for LNG varies seasonally, while supply is usually flat. This imposes high costs of storage on LNG exporters, which in turn causes volatility. This means LNG prices change in accordance with this temporal mismatch. Note, however, if the U.S. becomes the largest LNG seller by 2025, as some industry sources predict, then it is unclear how the increased competition in LNG exporting will affect Rio Grande LNG's projected economic impact.[69] Third, another factor that can impact LNG prices in the U.S. is the projected increase in price of gas for consumers as more natural gas is exported. While consumers can react to the price impact of LNG exports as long as LNG exports can be anticipated, it is extremely difficult to predict the amount of exports that can be shipped out of any given terminal, since there is considerable debate among engineers regarding how much can be produced out of each shale gas basin.[70] In other words, the

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[66] Zukin, Sharon, Valerie Trujillo, Peter Frase, Danielle Jackson, Tim Recuber, and Abraham Walker, *New Retail Capital and Neighborhood Change: Boutiques and Gentrification in New York City,* City and Community 8:1, 47-64, attached as Exhibit 19.

[67] Stacey Morris, "U.S. LNG Exports Part 1: Capacity Jumping in 2019, But Will There Be Enough?" SeekingAlpha.com (Jul. 11, 2018), attached as Exhibit 20, available at https://seekingalpha.com/article/4186550-u-s-lng-exports-part-1-capacity-jumping-2019-will-enough?page=2.

[68] Shell LNG Outlook 2018, p. 24, attached as Exhibit 21, available at https://www.shell.com/energy-and-innovation/natural-gas/liquefied-natural-gas-lng/lng-outlook/_jcr_content/par/textimage_864093748.stream/1519645795451/d44f97c4d4c4b8542875204a19c0b21297786b22a900ef8c644d07d74a2f6eae/shell-lng-outlook-2018-presentation-slides.pdf. Sylvie Cornot-Gandolphe, New and Emerging LNG Markets: The Demand Shock (June 2018), p. 40, attached as Exhibit 22, available at https://www.ifri.org/sites/default/files/atoms/files/cornotgandolphe_new_emerging_lng_markets_2018.pdf.

[69] Jude Clemente, *Qatar As Major Competition For U.S. Liquified Natural Gas*, Forbes (Nov. 11, 2018), attached as Exhibit 23, available at https://www.forbes.com/sites/judeclemente/2018/11/07/qatar-as-major-competition-for-u-s-liquefied-natural-gas/#51824b3678ae.

[70] The Deloitte Center for Energy Solutions, *Made In America: The economic impact of LNG exports from the United*

economic impact projected by the DEIS should take the market volatility of LNG into account if it hopes to be accurate.

CO10-1

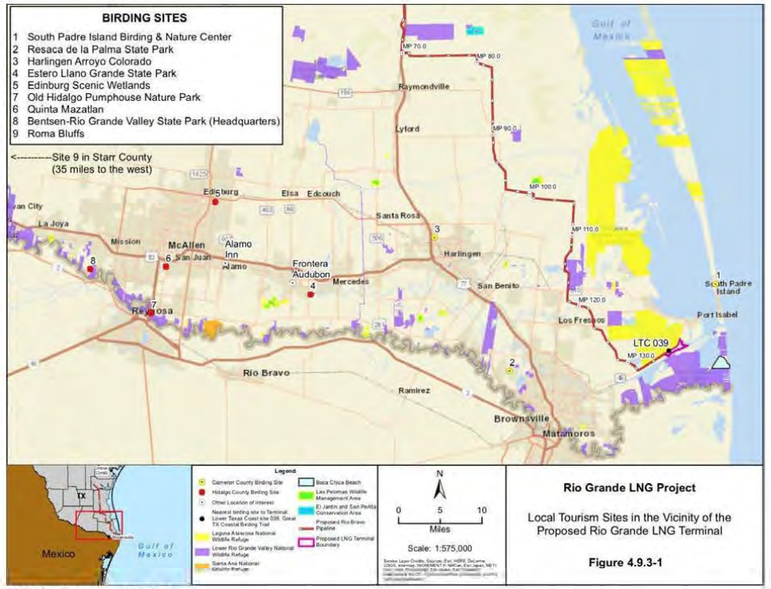
D. The DEIS Does Not Adequately Consider How the Environmental Degradation Caused by the Projects Will Likely Adversely Impact Local Industries

1. The DEIS Does Not Adequately Consider Adverse Impacts to Tourism

a) Industry Overview

The Rio Grande LNG project, along with two other major LNG export terminals, will increase air pollution, large vessel traffic, and noise to an area where tourism—especially nature-oriented tourism like bird watching and fishing—is a major source of employment and income. Many low-income residents are employed in jobs related to the hospitality industry serving the areas tourists. Adverse impacts of the area's ability to draw nature-oriented tourists would significantly affect this population.

States, Deloitte Insights (Jan. 25, 2013), attached as Exhibit 24, available at https://www2.deloitte.com/insights/us/en/industry/oil-and-gas/made-in-america-the-economic-impact-of-lng-exports-from-the-united-states.html.



DEIS, Figure 4.9.3-1.

The Rio Grande Valley is one of the top bird watching destinations in the country.[71] "Texas is the number one birdwatching state/province in North America, and the Texas Rio Grande Valley is often considered the number two birdwatching destination in North America. The four counties of the Valley—Hidalgo, Starr, Willacy, and Cameron—together have recorded almost 500 bird species—more than all but four states."[72] Ecotourism brought $25.4 billion to the state, based on estimates from the Texas Comptroller's office.[73] Ecotourism in the Rio Grande Valley brings in "between $100 million and $170 million annually and employs *several thousand*

CO10-1

[71] *See* DEIS, Figure 4.9.3-1 reproduced above.
[72] Mathis & Matisoff, Houston Advanced Research Center, *A Characterization of Ecotourism in the Texas Lower Rio Grande Valley* (March 2004), p. 1, attached as Exhibit 25.
[73] *Id.* at 14.

people."[74] The proposed terminal site is sandwiched between two National Wildlife Refuges that are less than 0.25 miles from the project site.[75]

CO10-1

Designated Birding Sites Part of the Great Texas Birding Trail (Source: Texas Parks and Wildlife)[76]

There are many designated birding sites near the terminal site, including the South Padre Island Birding & Nature Center and locations on the Great Texas Birding Trail.[77] In addition to the designated spots, there are innumerable unofficial birding sites within the parks and nature reserves. Part of what makes the area a unique birding site and major tourist attraction is its position within the Central Flyway. A major migratory route, over 380 species travel along the

[74] *Id.* at 17. (emphasis added).
[75] *See* DEIS, 4-70.
[76] Attached as Exhibit 26, available at https://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/ltc.
[77] *See* DEIS, 4-206.

Central Flyway.[78] The area surrounding the proposed terminal project is where birds make first landfall after crossing the Gulf of Mexico.[79] The Laguna Atascosa National Wildlife Refuge, immediately adjacent to the proposed terminal site, was established in 1929 to serve as a sanctuary for migratory birds.[80] Habitat destruction, like the construction of a major pipeline and LNG terminal, is a rising threat to migratory birds.[81]

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In addition, South Padre Island draws $370 million each year to Cameron County and "approximately $266 million to Brownsville, Port Isabel/Laguna Vista, and Los Fresnos."[82] For Port Isabel and Laguna Vista, nearly 36% of their employment is related to economic activity on South Padre Island.[83] Recreational fishing in the Lower Laguna Madre System contributed an estimated 479 jobs and $45.3 million in the sales of goods and services.[84]

b) The DEIS Inadequately Considers the Adverse Impacts to the Tourism Industry

The DEIS acknowledges a number of impacts of the LNG Terminal on the tourism industry. First, the DEIS admits that noise and visual impacts will affect some birdwatching sites, but claims the impact will be minimal and unlikely to affect the birdwatching tourism industry in Cameron County.[85] Also, the DEIS concedes that tourists may expect traffic delays on SH-48,

[78] "Central Americas Flyway: Fact Sheet," Bird Life International, attached as Exhibit 27, available at http://datazone.birdlife.org/userfiles/file/sowb/flyways/2_Central_Americas_Factsheet.pdf.
[79] Tim Harris, "RSPB Migration Hotspots: The World's Best Bird Migration Sites," 2013, p. 48, attached as Exhibit 28.
[80] *Id.*
[81] Paul A. Johnsgard, "Wings Over the Great Plains: Bird Migrations in the Central Flyway," (2012), p. 21, attached as Exhibit 29.
[82] South Padre Island Economic Development Corporation, "Economic Impact of South Padre Island," p. 3, attached as Exhibit 30, available at http://southpadreislandedc.com/sites/default/files/files/Resources%20%26%20Studies/SPI%20Economic%20Impact%20Analysis%20Summary.pdf.
[83] *Id.* at 2.
[84] Andrew Ropicki et al., "The Economic Impacts of Recreational Fishing in the Lower Laguna Madre Bay System," Nov. 9, 2016, p. 2, attached as Exhibit 31, available at http://texasseagrant.org/assets/uploads/resources/16-512_The_Economic_Impacts_of_Recreational_Fishing_in_the_Lower_Laguna_Madre_Bay_System.pdf.
[85] DEIS, 4-206 – 4-208.

altering "visitation patterns" as tourists go to more "scenic sights away from the LNG terminal."[86] Lastly, nature tourism at the Bahia Grande would be exposed to noise during construction and during operations, with the terminal operating "24 hours a day, 7 days a week."[87]

CO10-1

The DEIS does not provide any evaluation of how noise and visual impacts will impact tourism. It acknowledges that the project may alter "visitation patterns," but does not address what these visitation patterns might look like. Not to mention, this treatment fails to account for the motivations behind nature tourism, which is steeped in admiration for nature that is or perceived to be undisturbed. *Without any evidentiary support*, the DEIS posits that the project will not affect the gross number of tourists that visit the area.

This seems counterintuitive, and any degree of imprecision in the DEIS is problematic because even a relatively minor impact to the tourism industry can result in huge repercussions for the region. A 2011 Texas A&M University study on nature tourism in the Rio Grande Valley documented a $344 million dollar economic benefit.[88] Further, based on data from the Bureau of Labor Statistics, there are 671 tourism businesses and 12,296 tourism jobs in Cameron County.[89] And due to its pristine beaches and clean water, South Padre Island draws about a million overnight visitors yearly, adding an estimated $370 million to the Valley's economy in 2011 alone.[90] Thus, even a small dent in economic impact could result in tens of millions of dollars of lost revenues for the region, which is especially harmful in the case of South Padre Island, where

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[86] *Id.* at 4-208.
[87] DEIS, 4-209.
[88] Kyle M. Woosman, Rebekka M. Dudensing, Dan Hanselka, Seonhee An, "An Initial Examination of the Economic Impact of Nature Tourism on the Rio Grande Valley." Texas A&M Univ. 1 Sept 2011, attached as Exhibit 32.
[89] *See* Shawn Stokes and Marcy Lowe, "Wildlife Tourism and the Gulf Coast Economy," Jul. 9, 2013, p. 8, attached as Exhibit 33, available at https://www.mmc.gov/wp-content/uploads/Stokes-and-Lowe-2013-Wildlife-Tourism-and-the-Gulf-Report_FINAL.pdf.
[90] "Economic Impact of South Padre Island," South Padre Island Economic Development Corporation, 2012, attached as Exhibit 30, available at http://southpadreislandedc.com/sites/default/files/files/Resources%20%26%20Studies/SPI%20Economic%20Impact%20Analysis%20Summary.pdf.

tourism is by far the dominant industry. In addition, a decrease in economic impact from the tourism industry can translate to an uptick in unemployment. Even if the number of jobs created by the LNG projects would be enough to supplant the loss of tourism industry jobs, much of the jobs created by the projects will be staffed by out-of-towners and/or by workers with specific skills. This could exclude workers that may have lost their jobs as a result of any damage to the tourism industry. These workers may also reside in low income areas, such as Laguna Heights, which in turn magnifies the impact of the project on low income, minority communities. Lastly, tourism workers may not have the skills to staff the influx of incoming, construction-related jobs. CO10-1

A further risk is whether the presence of three major LNG export terminals and other industrial projects will discourage future investment in the area that would be consistent with the tourism industry or, conversely, attract more high polluting projects. Quality of life and recreational activities are important factors that companies consider when choosing where to invest in office operations.[91] The project area has a natural, comparative advantage to other communities because of its low cost of living, many recreational opportunities, and unique natural beauty. The project area will lose that comparative advantage if it instead caters to high polluting industries that degrade the very things that make it an attractive place to live.

A study from the University of Indiana shows that high concentrations of certain industries tend to attract investment in the same industries.[92] Industries tend to cluster to take advantages of benefits of proximity to related industries and infrastructure.[93] The DEIS fails to consider that this project and others will attract similar investments in other high polluting

[91] *See* Parks and Recreation's Role in Economic Development," The George Mason University Center for Regional Analysis, May 2018, attached as Exhibit 34, available at https://www.nrpa.org/siteassets/nrpa-economic-development-report.pdf.
[92] Timothy Slaper and Ping Zheng, "Why Invest There?", Center for International Business Education and Research, Sept. 2018, attached as Exhibit 35, available at http://www.ibrc.indiana.edu/studies/why-invest-there-2018.pdf.
[93] *Id.*

projects to the detriment of the local population.

CO10-1

2. The DEIS Fails to Adequately Analyze the Project's Impact on the Recreational Fishing Industry

The DEIS separately acknowledges that the LNG Terminal will have adverse impacts on recreational fishing. Fishing along the eastern bank of the Bahia Grande Channel on the LNG Terminal site would be prohibited.[94] In addition, construction noise will "likely be audible at local fishing sites" and dredging during construction "may take place 24 hours per day, 7 days per week." [95] During operation, LNG carriers "would call on the LNG terminal" about 6 times per week, and this could cause fishing boats to be delayed, with a "maximum estimated delay for fishing vessels in the BSC" to be 3 hours.[96] The DEIS then concludes, without providing supporting evidence, that recreational fishing is unlikely to "be significantly modified," although "visitation patterns immediately adjacent to the LNG Terminal site may change."[97]

This treatment leaves much to be desired. First, the DEIS fails to provide in-depth consideration of the cumulative impacts the multiple projects will have on recreational fishing. For example, there is no analysis on the cumulative impact of the LNG carriers servicing the LNG Terminals will have on traffic in the BSC. The cumulative impact is downplayed as "temporary," "short-term," and "minor" due to the presence of other recreational opportunities nearby.[98] While the LNG carriers servicing the Rio Grande terminal may just be 312 a year, the total number of LNG Carriers for all three proposed LNG terminals is 512.[99] This impact will not be "temporary" or "short-term," since it will continue so long as the terminals are operating. And yet other than underscoring the area's other recreational fishing opportunities, the DEIS does not provide any

[94] *See* DEIS, 4-210.
[95] *Id.*
[96] *Id.*
[97] *Id.* at 4-211.
[98] *See* DEIS, 4-426.
[99] *See* DEIS, 4-401.

analysis supporting their finding that there will be no significant impact on recreational fishing.

By failing to acknowledge the interdependent nature of recreational fishing and the tourism industry, the DEIS fails to adequately address the impact the project will have on the tourism industry. The Brownsville Economic Development Council describes recreational fishing as "a major attraction for locals and tourists."[100] Recreational fishing is a significant portion of wildlife tourism in Texas, accounting for 29% of wildlife tourists.[101] In 2011, 7,769,000 people participated in wildlife activities in Texas, and 2,253,010 of those people participated in recreational fishing.[102] Recreational fishing in the Lower Laguna Madre System alone contributed an estimated 479 jobs and $45.3 million in the sales of goods and services.[103]

CO10-1

By failing to consider the adverse impacts recreational fishing will have on the tourism industry, the DEIS fails to adequately consider the adverse impact the project will have on the local economy. This lack of nuance dilutes the impact on both tourism and recreational fishing by failing to consider simultaneous adverse effects the project may have on both industries, thus minimizing the impact of the project generally.

3. The DEIS Does Not Adequately Consider the Adverse Impacts to the Commercial Fishing and Shrimping Industries, Including Impacts to Aquatic Species and Essential Fish Habitat, and Does Not Propose Meaningful Mitigation for These Impacts

a) Industry Overview

The DEIS fails to adequately consider impacts to area residents who shrimp and

[100] *See* Brownsville Economic Development Council website, attached as Exhibit 36, available at http://www.bedc.com/sports-recreation.
[101] *See* Shawn Stokes and Marcy Lowe, "Wildlife Tourism and the Gulf Coast Economy," Jul. 9, 2013, p. 8, attached as Exhibit 33, available at https://www.mmc.gov/wp-content/uploads/Stokes-and-Lowe-2013-Wildlife-Tourism-and-the-Gulf-Report_FINAL.pdf.
[102] *See id.*
[103] Andrew Ropicki et al., "The Economic Impacts of Recreational Fishing in the Lower Laguna Madre Bay System," Nov. 9, 2016, p. 2, attached as Exhibit 31, available at http://texasseagrant.org/assets/uploads/resources/16-512_The_Economic_Impacts_of_Recreational_Fishing_in_the_Lower_Laguna_Madre_Bay_System.pdf.

fish for their livelihood and to others who rely on the local fishing and shrimping industry for their livings. It also fails to include adequate mitigation for the harms to this vitally important industry. Between 2009 and 2014, Cameron County accounted for 31% of the Texas shrimp harvest.[104] Including processing facilities, the shrimping industry has a $145 million impact per year on Cameron County.[105] With 178 shrimping vessels, shrimping is a significant part of the local economy.[106] Currently, there are 106 permits for Gulf Royal Red Shrimp issued to Texas shrimpers. Thirty-five of those permits were issued to people in Port Isabel, and 45 of those permits were issued to people in Brownsville.[107] There are 542 permits for Gulf of Mexico Shrimp issued to Texas shrimpers. Seventy-one of those permits were issued to people in Port Isabel, and 84 of those permits were issued to people in Brownsville.[108]

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The Rio Grande LNG terminal would be located between the Bay and the Brownsville Fishing Harbor, where approximately numerous shrimping trawlers and fishing boats are docked. As the DEIS acknowledges, the Port of Brownsville "is the primary marina for Gulf shrimping vessels that operate out of Cameron County"[109] and "the Port of Brownsville and the Port Isabel together ranked as the second largest commercial fishing port by value along the Gulf of Mexico."[110]

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[104] *See* Andrew Ropicki et al., "Economic Impacts of the Cameron County Shrimp Industry," Jun. 2016, attached as Exhibit 37, available at http://cameron.agrilife.org/files/2015/06/Cameron-County-Shrimp-Industry-Economic-Impacts.pdf.
[105] *See id.*; *see also* Rod Santa Ana, "Experts: Shrimp imports depress market prices and pose health risks," AgriLife Today, Aug. 27, 2015, attached as Exhibit 38, available at https://today.agrilife.org/2015/08/27/shrimp-imports-depress-market-prices/.
[106] Tony Reisinger and Andrew Ropicki, Ph.D., *2016 Cameron County Shrimp Industry Best Management Practices Outreach* , "Extension Education in Cameron County: Making a Difference," (2016), p. 40, attached as Exhibit 39, available at http://counties.agrilife.org/cameron/files/2011/04/2016-Making-a-Difference-Cameron-County.pdf.
[107] National Oceanic and Atmospheric Administration, Gulf Royal Red Shrimp Permit Records, attached as Exhibit 40, available at https://portal.southeast.fisheries.noaa.gov/reports/foia/GRRS.htm (accessed Nov. 20, 2018).
[108] National Oceanic and Atmospheric Administration, Gulf of Mexico Shrimp Permit Records, attached as Exhibit 41, available at https://portal.southeast.fisheries.noaa.gov/reports/foia/SPGM.htm (accessed Nov. 20, 2018).
[109] DEIS, 4-213.
[110] DEIS, 4-101.

b) Impacts on Essential Fish Habitat

FERC concludes in the DEIS that the construction of just the RG LNG Terminal alone would result *in the permanent loss of 230.1 acres* of EFH and that the project would result in permanent, minor impacts on EFH.[111] The DEIS also concludes "minor impacts" on aquatic resources and the direct mortality of immobile aquatic life during dredging for the LNG Terminal and installation of the Pipeline System.[112] Portions of the "BSC, wetlands, waterbodies, and mudflats on the LNG Terminal site, the Bahia Grande Channel, and the water column" at the proposed dredging sites have been designated as essential fish habitat.[113] The DEIS concludes that, although minor, the alteration of aquatic habitats and the mortality or displacement of aquatic life that relies on these essential fish habitats would be permanent.[114]

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However, the DEIS does not provide an opportunity for meaningful review of FERC's Required EFH Assessment because it is only in its initial stage. FERC only includes an initial EFH Assessment in the DEIS and *the Applicant's draft* EFH Assessment as the agency's "initiation of EFH consultation."[115] The next crucial steps in the EFH process – the EFH Conservation Recommendations by NMFS and FERC's response to those recommendations – have not occurred yet, and thus will not be available during the public comment period for the public to review and provide feedback. For example, FERC states that "NMFS may provide recommendations to FERC regarding further measures that can be taken to conserve EFH. We would respond to any such recommendations." Thus, the public does not have a meaningful opportunity to review possible future recommendations to conserve EFH.

In this initial step of the EFH consultation in the DEIS, FERC has not adequately

[111] DEIS 4-121.
[112] *See* DEIS, 5-7 – 5-9.
[113] *Id.*
[114] *Id.*
[115] DEIS 4-117.

considered or provided mitigation for the demonstrated harmful impacts of other LNG facilities on fisheries. Several National Oceanic and Atmospheric Administration (NOAA) documents demonstrate the high level of concern about the impacts of LNG facilities on fisheries in the Gulf of Mexico, but none of these impacts were considered as part of FERC's DEIS. First, in a 2017 Report from the National Essential Fish Habitat Summit, LNG was identified as one of three "emerging issues" in the Southwest Region:[116]

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> "In many Gulf of Mexico LNG facilities, seawater is used to reheat liquid natural gas and is then discharged back into the ocean at about 20°C cooler than the ambient temperature. There was a time lag between the development of LNG facilities and the assessment of the potential effects of the discharge of cooled waters on fish stocks, but studies now show that about five billion fish eggs and larvae are killed per facility due to this cooled discharged water."

In addition, the Gulf of Mexico Fishery Management Council concluded in 2005:[117]

> "Facilities that require substantial intake and discharge of water, especially heated and chemically-treated discharge water, are generally not suited for construction and operation in estuarine and near-shore marine environments. …
>
> There is also concern over the potential impacts of proposed Liquid Natural Gas (LNG) flowthrough processing facilities in waters of the Gulf of Mexico. These facilities take in large volumes of water to warm LNG. For example, the Port Pelican Liquid Natural Gas (LNG) processing facility is proposed for coastal Louisiana in 25 m (83 ft) of water. During Phase II of its operation, it is projected to take in 176.4 million gallons of seawater per day or 64.4 billion gallons per year. The water will be used to warm the LNG and will undergo a temperature decrease of 11° C (20° F). The intake rate will be around 15 cm/sec (0.5 ft/sec), allowing most larger organisms to avoid impingement at the intake structures, but water passing through the facility will undergo mechanical, pressure,

[116] NOAA Technical Memorandum NMFS-OHC-3, August 2017, attached as Exhibit 42, available at https://spo.nmfs.noaa.gov/sites/default/files/TM-OHC3.pdf.

[117] Gulf of Mexico Fishery Management Council, NOAA, "Generic Amendment Number 3 for Addressing Essential Fish Habitat Requirements, Habitat Areas of Particular Concern, and Adverse Effects of Fishing in the following Fishery Management Plans of the Gulf of Mexico," March 2005, attached as Exhibit 43, available at https://gulfcouncil.org/wp-content/uploads/March-2005-FINAL3-EFH-Amendment.pdf

temperature, and chemical (NaOCl) shock. Some entrained eggs and larvae may survive any one of these adverse conditions (Cada et al. 1981, Muessig et al. 1988), but the combination of these stresses will be lethal to almost all organisms passing through the facility.

There is a special concern regarding the siting of flow-through facilities in or near estuarine passes. Most fishery organisms in the Gulf of Mexico use estuaries as nursery grounds, and eggs and larvae recruit into these areas through tidal passes. Locating facilities in or near these tidal passes will be especially damaging to fishery resources, since eggs and larvae of fishery species are often concentrated in these areas. Locating LNG facilities in shallow water also increases the proportional area of impact. Based on an assessment of LNG facilities, the NOAA Fisheries Southeast Fisheries Science Center recommended that flow-through LNG systems in the Gulf of Mexico should be avoided in favor of closed loop systems. The negative impacts to fishery species and living marine resources in the Gulf from a single flow-through facility could be potentially severe, and cumulative impacts from multiple facilities were considered a threat to fishery resources."

CO10-1

The only mitigation proposed for impacts to fisheries and EFH is the Applicant's wetlands mitigation proposal (*see wetlands discussion of these comments*). Additional mitigation should be included to minimize impacts to fisheries from the impacts discussed above.

Another major concern to the region's fisheries that FERC has not adequately evaluated in the DEIS is the potential for exotic species introductions from ballast water. FERC's analysis of the potential risks is inadequate because 1) it presumes that because the amount of ballast water is small (0.1%) compared with the entire ship channel without analyzing the potential for exotic species to be introduced from even a small amount of water, and 2) it presumes that Coast Guard and EPA regulations will "prevent the introduction of exotic species" without evaluating any evidence of the efficacy and timeline of these new regulations generally or in particular for the sensitivity of local conditions in the Brownsville area to non-native species, where there are

important fisheries, unique ecosystems, and other aquatic life.[118]

CO10-1

For example, a 2017 study entitled "Potential effects of LNG trade shift on transfer of ballast water and biota by ships" warned of potential "large effects" on the transfer of non-native species from the growing LNG exports from the US even with the existing US regulations:

> "Moreover, compliance schedules are based on vessel capacity and construction date, so ships with large ballast water capacity (N5000 m3), such as LNG carriers, have more lag time to meet US regulations. Thus, the massive surge in overseas ballast water predicted by the US LNG export boom could increase propagule supply and invasion risk… even as management efforts seek to reduce organism concentrations…. These changes in magnitude, source, and direction of the LNG trade can have large effects on transfer of nonnative organisms, due to the volume and biotic content of associated ballast discharge to ports."[119]

In the DEIS, FERC has not given the requisite "hard look" to these potential "large effects" on fisheries, unique ecosystems, and aquatic resources from the threat of non-native species.

c) Impacts on Fishing Vessel Travel in the Ship Channel

The DEIS determined that "[d]uring operations, LNG carriers calling on the Rio Grande LNG Terminal and other LNG facilities along the BSC may have moving security zones that could preclude other marine vessels from transiting the waterway for ***up to 39 hour per week***."[120] (emphasis added).

Lengthy and/or frequent delays in access to the ship channel due to LNG traffic could be both costly and life-threatening to the fishing industry. Commercial fishing boats are often out for

[118] *See* Mendoza, R. et al, "Aquatic Invasive Species in the Rio Bravo/Laguna Madre Ecological Region," Commisison for Environmental Cooperation, Canada (October 2011), attached as Exhibit 44, available at http://www3.cec.org/islandora/en/item/10259-aquatic-invasive-species-in-rio-bravolaguna-madre-ecological-region-en.pdf

[119] Holzer et al, Potential effects of LNG trade shift on transfer of ballast water and biota by ships, *Science of the Total Environment*, 580 (2017) 1470–1474, attached as Exhibit 45, available at https://www.researchgate.net/publication/311936667_Potential_effects_of_LNG_trade_shift_on_transfer_of_ballast_water_and_biota_by_ships#pf5

[120] *See* DEIS, ES-16.

extended periods of time, and then return at unexpected times with thousands of pounds of frozen shrimp or fish. Boats may also return early due to illness, injuries, or mechanical problems and need to get to shore quickly. Time is an important resource that is a huge variable in the fishing industry, and thus being forced to wait extended periods of time for LNG traffic could endanger lives and financially harm the fishing industry. CO10-1

Despite the finding that there could be *up to 39 hours per week* when shrimpers and fishers could not traverse the channel between the harbor where there boats are stored, the DEIS only concludes that there will be a "moderate cumulative impact on marine vessel traffic."[121] FERC should find a greater impact given the severe harm this would place on the commercial fishing industry. Furthermore, *there is nothing proposed in the DEIS to even attempt to mitigate these impacts*.

The DEIS also acknowledges that dredging will "temporarily reduce the area of the BSC available for vessel transit" for commercial fishing and LNG carrier transit will cause an estimated delay of 3 hours for fishing and shrimping boats in the BSC.[122]

d) Economic Impacts to Fisheries

There is no analysis of how conversion of essential fish habitats to permanent industry sites and/or how displacement and destruction of aquatic life will impact the commercial fishing industry. This omission is glaring, considering how often this has been a concern during the permitting process of other LNG projects in the past, both in the continental U.S. and abroad. For instance, a 2009 Department of Fisheries study in Australia found that a proposed development of an LNG terminal on the west coast of Australia had the potential to significantly impact all

[121] *See* DEIS, ES-16.
[122] DEIS, 4-212.

fisheries that were active in the immediate and adjacent areas.[123] The study predicted there would be reduction in the levels of fishing activity as a result of the LNG port, with "some flow-on effects to the economy of the region."[124] Some of the decline, the study predicted, would come about through the environmental changes created by the LNG project, such as the displacement of prawns, mackerel, pelagic gamefish, and pearling operations.[125]

CO10-1

The increased vessel traffic to and from the export terminal,[126] in tandem with the destruction of essential fish habitats, would further interfere with commercial fishing operations. This is one of the primary effects expected to result from similar LNG projects.[127] For instance, experts commenting on Oregon's Jordan Cove Energy Project said the project would have undermined "decades of work to protect fishing opportunities" off the coast of Oregon, which risks undoing the advances that came about after "billions of dollars" were invested to restore salmon habitat in the region.[128]

The DEIS also fails to consider the interplay between the tourism and commercial fishing and shrimping industries. Damage to the commercial fishing and shrimping industries could also lead to a decrease in the number of tourists, which in turn could decrease the number of customers available to local fishers and shrimpers. Not to mention, tourists may be dissuaded from buying locally-caught shrimp in an area dominated by petrochemical industry. While studies about this form of "seafood tourism" are not readily available about Texas, LNG-friendly coastal areas such

[123] Guy Wright and Christian Pike, *Fishing Industry Impact Study: James Price Point Proposed Liquefied Natural Gas Precinct,* Fisheries Occasional Publication No. 78, iii-iv, 2010, attached as Exhibit 46.
[124] *Id.* at iv.
[125] *Id.* at ix.
[126] See, supra, Section on TOURISM.
[127] Attached as Exhibit 47, available at http://www.beg.utexas.edu/files/energyecon/global-gas-and-lng/CEE_offshore_LNG.pdf
[128] "Science Shows Vital Fish Habitat Threatened by Proposed Oregon LNG Terminal," Columbia Riverkeeper (February 5, 2015), attached as Exhibit 48, available at https://www.columbiariverkeeper.org/news/2015/2/science-shows-vital-fish-habitat-threatened-proposed-oregon-lng-terminal. *See also* Eric de Place and Paelina DeStephano, "Jordan Cove Energy Project, LNG Facility May Harm Water Quality, Salmon Runs," Sightline Institute (August 1, 2018), attached as Exhibit 49, available at https://www.sightline.org/2018/08/01/jordan-cove-energy-project-oregon-could-harm-water-quality-salmon-runs/.

as New South Wales in Australia find that domestic tourists expect to eat local seafood when traveling to the coast.[129]

CO10-1

Not accounting for the effects of the project's impact on the commercial fishing and shrimping industries sufficiently is, given the economic importance of these fisheries and the adverse effects created by similar LNG projects elsewhere.

e) Additional Mitigation for Impacts to Fisheries Must be Proposed

Further highlighting the absence of a discussion on the project's impact on commercial fishing, other LNG terminal projects in the past have tried to mitigate the impact on commercial and recreational fisheries in the surrounding areas. For instance, the 2005 approval of two offshore LNG terminals in Massachusetts was conditioned on a mitigation package that required the companies involved to provide $16 million to mitigate impacts to "commercial fishermen and lobstermen," $14 million to mitigate impacts to public trust interests, $9 million to mitigate impacts to marine habitat and resources, and $8 million to mitigate impacts to marine mammals.[130]

IV. The DEIS Fails to Adequately Assess Impacts on Sensitive Species

A. NEPA Obligations Respecting Wildlife and Listed Species

Under the Natural Gas Act, the Commission cannot approve RG Developers' applications if it determines that the construction and operations "will not be consistent with the public

[129] Kate Barclay and Michelle Voyer, "Valuing Coastal Fisheries," University of Technology Sydney, October 2016, attached as Exhibit 50, available at https://www.uts.edu.au/about/faculty-arts-and-social-sciences/research/fass-research-projects/valuing-coastal-fisheries.
[130] Commonwealth of Massachusetts, "Romney Approves Two Offshore LNG Terminals," January 2005, attached as Exhibit 51, available at https://www.rigzone.com/news/oil_gas/a/39328/romney_approves_two_offshore_lng_terminals/.

interest" or are not required by the "public convenience and necessity."[131] The determination of whether a proposed facility is consistent with the public interest, in turn, depends upon the environmental impact of the facility.[132] Moreover, the Commission may only approve an LNG application (whether in whole or part) "with such modifications and upon such terms and conditions as the Commission find[s] necessary or appropriate" to ensure consistency with the public interest.[133] Stated another way, the Commission must consider whether impacts that are unavoidable and irreducible render the proposal inconsistent with the public interest.

CO10-1

The National Environmental Policy Act ("NEPA") has two objectives: (1) it requires an agency "to consider every significant aspect of the environmental impact of a proposed action"; and (2) "it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process."[134] "Part of the harm NEPA attempts to prevent in requiring an EIS is that, without one, there may be little if any information about prospective environmental harms and potential mitigating measures."[135] Notably, the Council on Environmental Quality ("CEQ") Regulations implementing NEPA state that "NEPA procedures *must insure that environmental information is available to public officials and citizens before decisions are made* and before actions are taken."[136] Thus, NEPA compliance informs the Commission's public interest determination under the Natural Gas Act and helps ensure that it will minimize the environmental harm resulting from the development of LNG facilities, and—more importantly—will avoid harms that are so great as to outweigh the benefits of constructing a terminal in a particular location.

[131] 15 U.S.C. §§ 717b(a), 717f(c).
[132] *See Sabine Pass Liquefaction Expansion*, 151 FERC ¶ 61012, at 27 n.32 (Apr. 6, 2015) (explaining that the Commission's public interest review evaluates the environmental impacts of the siting, construction, and operation of the export facility).
[133] 15 U.S.C. § 717b(e)(3)(A).
[134] *United States v. Coal. for Buzzards Bay*, 644 F.3d 26, 31 (1st Cir. 2011) (internal citations omitted).
[135] *Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7, 23 (2008).
[136] 40 C.F.R. § 1500.1(b) (emphasis added).

Environmental impact statements "shall…be supported by evidence demonstrating that agencies have made the necessary environmental analyses" to avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.[137] Moreover, an EIS must "state how alternatives considered in it and decisions based on it will or will not achieve the requirements of…other environmental laws and policies."[138] The adequacy of an agency's EIS turns on:

> (1) whether the agency in good faith objectively has taken a hard look at the environmental consequences of a proposed action and alternatives;
> (2) whether the EIS provides detail sufficient to allow those who did not participate in its preparation to understand and consider the pertinent environmental influences involved; and
> (3) whether the EIS explanation of alternatives is sufficient to permit a reasoned choice among different courses of action.[139]

The Commission has promulgated a series of regulations to "implement [FERC's] procedures" under NEPA and "supplement the regulations of the [CEQ]."[140] These regulations require the Commission to identify and assess the extent of the impact of each proposed facility on wildlife, such as threatened and endangered species—and including a discussion of what mitigation is necessary to ensure consistency with the public interest, or whether alternative sites for the export terminal would avoid or reduce those impacts.[141] Moreover, NEPA also requires

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[137] 40 C.F.R. § 1500.2(b).
[138] 40 C.F.R. §1502.2(d).
[139] *Davis Mountains Trans-Pecos Heritage Ass'n v. Fed. Aviation Admin.*, 116 Fed. Appx. 3, 8-9 (5th Cir. 2004).
[140] 18 C.F.R. § 380.1; *see generally* 18 C.F.R. Part 380.
[141] *See, e.g.*, 18 C.F.R. § 380.12(e) (requiring identification of listed species *and* discussion of potential mitigation measures); § 380.13(b) (describing required content for a biological assessment and incorporating those requirements into NEPA analysis); § 380.15 (requiring that the "siting…of facilities shall be undertaken in a way that avoids or minimizes effects on…wildlife values."). Regarding the biological assessment incorporated into FERC's NEPA procedures via 18 C.F.R. § 380.13(b), the regulations provide that it "must contain the following information for each species…:"
(A) Life history and habitat requirements;

that the Commission determine the *cumulative* impacts of developing the three facilities currently proposed for the Brownsville Ship Channel area—including cumulative effects on wildlife and listed species.[142]

CO10-1

The Commission erroneously seeks to defer responsibility regarding its NEPA obligations. The DEIS recommends that "the FERC staff completes any necessary ESA consultation with these agencies prior to construction."[143] An action agency cannot satisfy the NEPA requirement to identify the extent of impact to listed species in the EIS merely by stating that the project will ultimately incorporate the results of the Section 7 consultation process. Because NEPA requires that the extent of the impacts be identified and made available for public review (42 U.S.C. § 4332(2)(G)), the reliance on the content of a yet to be developed Biological Opinion cannot satisfy NEPA's requirement to provide the public with an opportunity for comment on the actual extent of the impacts that will occur.[144]

B. The DEIS Fails to Adequately Assess the Project's Significant Effects on Listed Species

A review of the DEIS and materials provided by the Applicants reveals that the analysis contains insufficient information to fully determine the extent of adverse effects on listed species, or to determine whether proposed mitigation measures are sufficient to eliminate, avoid, or

(B) Results of detailed surveys to determine if individuals, populations, or suitable, unoccupied habitat exists in the proposed project's area of effect;
(C) Potential impacts…that could result from the construction and operation of the proposed project…; and
(D) Proposed mitigation that would eliminate or minimize potential impacts.

[142] 18 C.F.R. § 380.13(b)(5)(ii) (emphasis added).
[142] 18 C.F.R. §380.12(b)(3).
[143] DEIS 5-10.
[144] *Cf. San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 649-650, 653 (9th Cir. 2014) (concluding that the implementation of a Biological Opinion was not exempt from NEPA requirements because "[w]e cannot say that Section 7 of the ESA renders NEPA 'superfluous' when the statutes evaluate different types of environmental impacts through processes that involve varying degrees of public participation.").

minimize adverse effects on those species.[145]

CO10-1

1. Endangered Ocelot

The ocelot (*Leopardus pardalis*) is an endangered species with two nearby U.S. populations, one at the Laguna Atascosa National Wildlife Refuge, which is approximately 200 feet from the RG LNG site, and the other some 20 miles north of the refuge on private ranchland in Kenedy and Willacy Counties. FWS and NGOs have been working for decades to protect and restore the ocelot in the U.S. The DEIS states that there will be "significant" effects of the project on the ocelot "from the loss and/or decrease in suitability of habitat and the potential increase in vehicular strikes during construction."[146] Moreover, the DEIS recognizes that "loss of potential habitat at the LNG Terminal site is in opposition to the recovery actions identified in the [ocelot] recovery plan."[147]

The DEIS understates the impact of the project on the north-south ocelot movement corridor. For decades, FWS and partner organizations have been purchasing land and arranging easements with the goal of protecting habitat and wildlife corridors that would maintain connections between ocelot populations in the U.S., including habitat north and south of the Brownsville Shipping Channel ("BSC"), with the ultimate vision of connectivity to the population in Tamaulipas, Mexico.[148] The cumulative effects of the proposed LNG projects along the channel, particularly RG LNG and Annova LNG, would be to greatly reduce the width of the existing corridor, restricting it to a band approximately 1,000 feet wide adjacent to lighted, noisy

[145] In addition to the impacts discussed below, we adopt and incorporate in full Defenders of Wildlife's Scoping Comments on Rio Grande LNG (FERC Docket #PF 15-20-000), Annova (FERC Docket #PF 15-15-000); Texas LNG (FERC Docket #PF 15-14-000), dated September 3, 2015, attached to Defenders of Wildlife's Motion to Intervene, FERC Docket No. 16-454, Accession No. 20160609-5177.
[146] DEIS 4-423.
[147] DEIS 4-150.
[148] *See, e.g.*, Exhibit 52, *available at* https://www.kveo.com/news/local-news/-11-million-for-conservation-projects/1614349403).

LNG terminals that ocelots are likely to avoid. For an ocelot to cross the BSC, once the LNG plants are under construction, it would have to approach the lighted, noisy plants via a narrow easement of 1,000 feet on either side of the BSC, swim the channel, and then exit via another easement. In addition, ocelots would have to use culverts to cross access roads. It is unlikely that ocelots would successfully run this gauntlet and therefore likely that the plants would permanently cut connection between ocelots north and south of the BSC. RG Developers' documentation and the DEIS fail to adequately acknowledge the large role it would play in cutting this vital corridor and proposes nothing to offset this loss of connectivity that may jeopardize long-term viability of the U.S. ocelot population by substantially reducing the area available to ocelots and ending hope of eventual gene flow from the Mexican population. Moreover, while the DEIS acknowledges that the designated wildlife corridor easement which the Navigation District leased to FWS lapses in 2023, it fails to analyze how the loss of this corridor would impact the ocelot. The EIS should disclose and evaluate the cumulative effects of not only the three LNG projects, but the potential loss of the designated wildlife corridor easement, as well. This failure to fully disclose and analyze impacts on the ocelot violates NEPA's "hard look" requirement and prevents the public from "understand[ing] and consider[ing] the pertinent environmental" effects of RG Developers' proposed terminal and pipeline.[149]

CO10-1

Additionally, RG Developers have not specified what off-site mitigation acres they would create, restore, or protect, so it is impossible to evaluate whether mitigation actions would avoid, eliminate, or minimize the significant impacts to the ocelot. Given the disastrous effect this project would have on long-term plans for ocelot recovery, if sufficient mitigation is even possible, it should be substantial. To be sufficient, ocelot mitigation should offset at least two main degradative effects: (1) loss of ocelot habitat *per se*, primarily thorn scrub, and (2) loss of

[149] *Davis Mountains*, 116 Fed. Appx. at 8-9; *see also* 18 C.F.R. §§ 380.12(e) & 380.13(b)(5)(ii)(C).

connectivity between existing and/or potential ocelot habitat north and south of the BSC.

CO10-1

Regarding the first issue, the DEIS states that RG Developers intends to mitigate through protection acreage within the Loma Ecological Preserve ("LEP"), but it does not specify where.[150] So far as it is possible to tell from the DEIS, these mitigation acres could be predominantly wetland or mudflats with insufficient ocelot habitat—and perhaps containing no ocelot habitat at all. Because there would not be enough ocelot habitat within the LEP to provide adequate mitigation acres, the DEIS must investigate the possibility that RG Developers protect a substantial area near the two existing populations north of the BSC, thereby contributing to long-term demographic and genetic diversity of U.S. ocelots. The failure to include this analysis is insufficient to satisfy NEPA requirements.

Regarding the second issue, the EIS must specify what measures may be taken to compensate for loss of connectivity. As described above, blocking connectivity would effectively end the long-term FWS and NGO plan of ensuring connectivity north and south of BSC, as well as ensuring connectivity with ocelots in Mexico.[151] The EIS must evaluate both these effects and should include, at minimum, population viability assessments for scenarios that would include connection with Mexico. Additionally, another reasonable mitigation practice that must be evaluated would be purchasing private lands to help protect a corridor between the Laguna Atascosa population and the population to the north on private ranches. The DEIS fails, however, to adequately consider or address any mitigation that would provide reasonable and sufficient offset for lost connectivity. Based on this failure, the Commission has not taken the "hard look" at ocelot impacts necessary to comply with NEPA.[152]

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[150] DEIS 4-150.
[151] U.S. Fish and Wildlife Service. 2016. Recover Plan for Ocelot (*Leopardus pardalis*), attached as Exhibit 53.
[152] *See, e.g.*, *Davis Mountains*, 116 Fed. Appx. at 8-9.

2. Threatened Piping Plover and Red Knot

CO10-1

The DEIS notes that there is wintering habitat for both the federally-listed piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*) on the project site itself, as well as wintering critical habitat for piping plover on the south bank of the BSC, where the bird could be negatively affected by noise from the LNG plants. The DEIS states that the red knot and the piping plover may lose foraging habitat, but does not anticipate adverse effects on either bird, because they can supposedly move to alternative habitat. We question the validity of this assumption. These birds are likely imperiled because of the cumulative effects of habitat loss that in turn results in inadequate food supplies. For example, the large decline in red knot that lead to its listing as threatened in 2015 was caused primarily by a decline in food availability when the birds arrived on migration in Delaware Bay.[153] If food is similarly limited for these birds along the South Texas coast, there is reason to assume that alternative habitat with adequate food is not available, resulting in significant adverse effects on the piping plover and red knot. Accordingly, the DEIS's conclusion that the project is not likely to adversely affect the red knot would be incorrect. Further, because the DEIS does not adequately evaluate the extent to which alternative habitat with available food exists, the Commission has not taken a "hard look" at the impacts to these birds.[154]

Second, *cumulative* loss of habitat by the LNG plants and other development in the area may decrease feeding effectiveness by altering the distribution of wetland habitat. Shorebirds have been found to be more effective at feeding with lower search costs and exploit more feeding sites when distance between wetlands decreases and the percentage of the landscape occupied by

[153] *See generally* U.S. Fish and Wildlife Service, Red Knot (2018), *available at* https://www.fws.gov/northeast/redknot/.
[154] *See Davis Mountains*, 116 Fed. Appx. at 8-9.

wetlands increases.[155] Thus, the RG LNG plant may contribute to what is effectively an overall loss in available food in the general area. The DEIS does not adequately evaluate this issue or determine whether mitigation is necessary to offset the loss of feeding habitat for piping plover and red knot. CO10-1

Finally, regarding the piping plover, the DEIS recognizes the potential for loss of critical habitat due to the placement of dredged material, but only analyzes the impacts of increased sound levels.[156] RG Developers cannot rely on the fact that an entirely different project—the Brazos Island Harbor Improvement Project—supposedly lacked adverse effects to support the conclusion that dredged material from RG Developers' project would not affect the piping plover. In that project, FWS was able to concur because it was able to determine and evaluate the planned mitigation.[157] Here, however, neither RG Developers or the Brownsville Navigation District have determined where the LNG projects' dredged materials will be placed. Thus, neither FWS nor the public can determine the impacts of the dredged material disposal. Moreover, neither can evaluate how well unspecified mitigation measures will avoid, eliminate, or minimize those impacts. The failure to fully analyze potential impacts to the piping plover, and the absence of any proposed mitigation measures in the DEIS again violates NEPA's "hard look" requirement.[158]

3. Endangered and Threatened Sea Turtles

The project documentation also contains insufficient information to determine whether there are sufficient mitigation measures to minimize the project's impacts on listed sea turtles. Sea turtle species that may be present within the project's general area include Kemp's ridley, hawksbill, leatherback, loggerhead, and green sea turtles. All these species are endangered except

[155] Farmer, A.H. and A.H. Parent. 1997. Effects of the Landscape on Shorebird Movements at Spring Migration Stopovers. The Condor Vol. 99, No. 3 (August 1997), pp. 698-707, attached as Exhibit 54.
[156] DEIS 4-142.
[157] DEIS 4-142.
[158] *Davis Mountains*, 116 Fed. Appx. at 8-9.

for the green, whose population off the Texas coast is classified as threatened. Critical habitat for the loggerhead turtle has been mapped offshore.

CO10-1

RG Developers primarily focus on pile-driving for its adverse effect on sea turtles, but collision with ships is perhaps a more significant risk associated with the project.[159] Turtles are vulnerable because they surface to breathe; often bask, feed; and mate near the surface; and are more vulnerable during cold spells when they are unable to move as well. They are also more vulnerable when ships travel at high speed because the turtles cannot take effective evasive action.[160] The bodies of most struck turtles are not recovered, but the number of dead and injured turtles that wash up on shore could be an indication of the frequency of collisions. The NOAA collects statistics on such strandings off the Texas coast, although these statistics are not broken down by cause of death. In Zone 21 of NOAA's Gulf of Mexico sea turtle coastal habitat zoning, the number of strandings of all threatened or endangered species from 2010 to 2018 was 3390. This includes the area of Padre Island and South Padre Island (offshore and in-shore strandings).[161] Some proportion are likely due to collision and could increase as a greater number of ships enter the Brownsville ship channel arriving at the three new LNG terminals. To comply with NEPA, the EIS must analyze this issue.

Turtles are known to be present in high density in this area, as shown in the map below, so many ship-turtle collisions are likely.[162]

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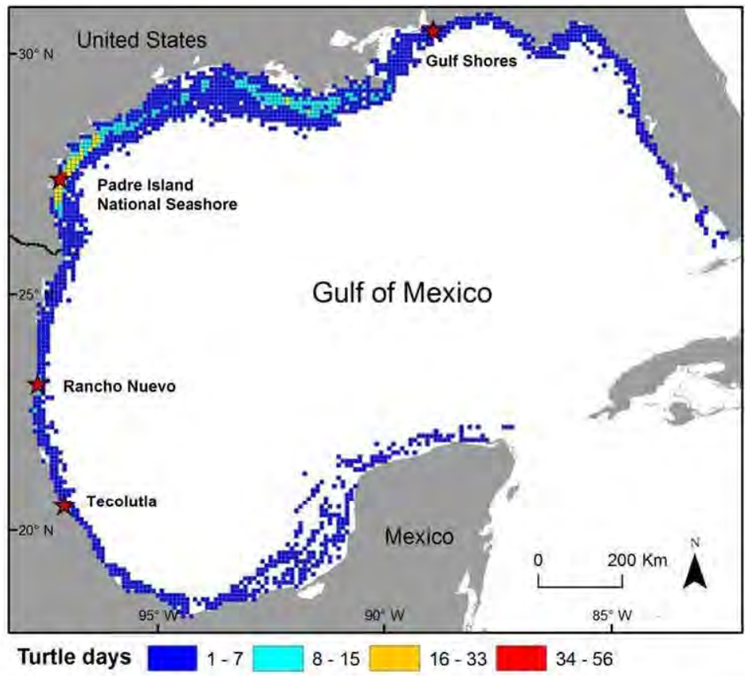
[159] *See*, *e.g.*, NOAA Fisheries Service & U.S. Fish and Wildlife Service. 2008. Recovery Plan for the NW Atlantic Population of the Loggerhead Sea Turtle, attached as Exhibit 55; Denkinger et al. 2013. Are boat strikes a threat to sea turtles in the Galapagos Marine Reserve? Ocean & Coastal Management Volume 80, pp 29-35, Exhibit 56.
[160] Hazell et al. 2007. Vessel speed increases collision risk for the green turtle *Chelonia mydas*. Endangered Species Research Volume 3, pp. 105-113, attached as Exhibit 57.
[161] Data from NOAA Southeast Fisheries Science Center, *available at* https://grunt.sefsc.noaa.gov/stssnrep/SeaTurtleReportI.do?action=reportquery. Zone 21 covers roughly 60 miles of Texas coastline from slightly north of Port Mansfield through the border with Mexico.
[162] Shaver D. et al. 2016. Migratory corridors of adult female Kemp's ridley turtles in the Gulf of Mexico. Biological Conservation, Vol. 194, pp 158-167, attached as Exhibit 58.

CO (Companies and Organizations)

CO10 - Sierra Club



CO10-1

The Rio Grande LNG project and other LNG projects planned along the BSC will significantly increase the amount of ship traffic in the area, thereby increasing the probability of collision and turtle death. This may especially negatively impact nesting beaches for the Kemp's ridley, which nest along Boca Chica beaches in South Padre island at the entrance to the ship channel. The project documentation fails to quantify the increased vulnerability to vessel strikes (*e.g.*, DEIS, 4-133), and therefore—contrary to NEPA's requirements—it is impossible to determine whether vessel strikes associated with the project are causing significant adverse effects on any of the listed sea turtle species.

Moreover, the documentation shows insufficient evaluation of mitigation measures related to sea turtles. Turtle mortality from collisions can be reduced if ships travel more slowly and if ships avoid turtles. Such avoidance guidelines have been promulgated by the National Marine Fisheries Service (NMFS).[163] These guidelines are referred to in the DEIS which notes that compliance is voluntary. There are additional costs associated when ships travel slowly, as has been calculated for the right whale seasonal management areas off the east coast near Boston, Massachusetts.[164] Based on these increased costs, ships have an economic incentive not to comply with the voluntary NMFS guidelines, and there is little reason to believe they would do so, which RG Developers recognizes. The DEIS notes that, although RG LNG's support vessels would adhere to the NMFS guidelines, the company has no control over operators of LNG carriers or tugs.[165] Based on the information available in the DEIS, it appears unlikely that RG Developers' proposed mitigation would prevent significant impacts to listed species of sea turtles due to increased vessel strikes. Regardless, the lack of adequate evaluation of the issue does not comply with NEPA.[166]

CO10-1

Other measures are available that may mitigate impacts such as vessel strikes. For example, a speed control area such as the one set for right whales is precedent for a mandatory vessel speed limit.[167] Because increased ship traffic due to the LNG sites would likely increase mortality of endangered and threatened turtles, NEPA requires the EIS to demonstrate the Commission's "hard look" at all such measures to avoid, eliminate, or minimize significant effects on listed sea turtles, including creation of a mandatory ship speed control area in the

[163] NOAA Fisheries Service, Southeast Regional Office. 2008. Vessel Strike Avoidance Measures and Reporting for Mariners, attached as Exhibit 59.
[164] NOAA Fisheries Service. 2012. Economic Analysis of North Atlantic Right Whale Ship Strike Reduction Rule, attached as Exhibit 60.
[165] DEIS 4-133.
[166] *E.g.*, *Davis Mountains*, 116 Fed. Appx. at 8-9.
[167] NOAA Fisheries Service. 2018. Compliance Guide for Right Whale Ship Strike Reduction Rule (50 CFR 224.105), attached as Exhibit 61.

vicinity of the mouth of the BNC sufficiently large to significantly reduce turtle mortality.

CO10-1

C. The DEIS Fails to Adequately Assess Mitigation for Wildlife

There are two additional problems—with respect to wildlife—with RG Developers' proposed mitigation that violate the Commission's obligations under NEPA. First, the project site includes a mosaic of different habitat types that include over 520 upland acres of Gulf Coast salty prairie, South Texas salty thorn scrub, South Texas loma grassland, South Texas loma evergreen shrubland, as well as roughly 460 acres of varying types of wetlands.[168] These different habitats are related to and support different endangered or threatened species. For example, thorn scrub is ocelot habitat, while salty prairie is habitat for Aplomado falcon. The compensatory mitigation, as currently proposed, does not distinguish between these habitat types, and it does not ensure mitigation for each habitat type. There is no "accounting," for example, that links the number of acres of thorn scrub that would be destroyed with the number of acres that would be created or preserved as mitigation. Without knowing what types of habitat will be protected through the proposed mitigation, the Commission is unable to determine (and therefore has not taken a "hard look" at) whether the proposed mitigation will avoid, eliminate, or minimize impacts to any individual listed species or other wildlife.[169]

Second, RG Developers, Texas LNG, and Annova LNG are all proposing that a large part of their mitigation be perpetual protection through an easement to be granted by the Brownsville Navigation District ("Navigation District") within what is now the Loma Ecological Preserve. According to RG Developers, the current FWS lease on the LEP was granted by the Navigation District as mitigation for a previous development project. If a new lease is granted to RG

[168] *See* Table 2-1 of RG Developers' Mitigation Alternative Analysis, FERC Docket No. 16-454, Accession No. 20180419-5210 at 910.
[169] *Contra* 18 C.F.R. § 380.12(e)(7); *see also Davis Mountains*, 116 Fed. Appx. at 8-9.

Developers for protection within the LEP claiming the existing FWS lease will expire in 2023 (thus removing protection for the Preserve), then the Navigation District and/or its clients will have collectively received double mitigation credit for the same area. Further, as discussed above, nothing in the record shows that wetlands in the LEP will compensate for lost habitat for individual species—especially the ocelot. At minimum, to satisfy NEPA requirements, the project documentation should evaluate whether purchasing or obtaining a perpetual conservation easement on other lands, such as those north of the Brownsville Shipping Channel would better avoid, eliminate, or minimize impacts to listed species and wildlife in the project area.

CO10-1

V. The DEIS Fails to Take a Hard Look at Wetlands Impacts

334.7 acres of wetlands would be within the construction footprint of the Rio Grande LNG Terminal and pipeline facilities. DEIS 4-58. The Terminal will cause "permanent loss" of 182.4 of these, *id.*; further wetlands will be permanently deliberately altered by the pipeline, as Applicants will permanently clear trees in a 30 foot corridor, and mow all vegetation in a 10 corridor, along the right-of-way, including through wetlands. DEIS 4-64. Beyond these intentional changes, other wetlands will be temporarily or permanently degraded, as restoration of disturbed wetlands will take years to complete and is not expected to fully restore original conditions.[170]

The DEIS violates NEPA because it fails to take a hard look at reasonable alternatives regarding reduction and mitigation of these alternatives, and because the DEIS's assertion that wetland impacts will be mitigated to insignificance is unsupported.

A. The DEIS Fails to Consider Reasonable Facility Design and Siting Alternatives That Would Reduce Wetland Impacts

An EIS must include a robust analysis of alternatives to the proposed action: this

[170] *See* DEIS 2-30 to 2-31; 4-63 (restoration will not begin until both pipelines are complete, and then may take three years); *id.* at 4-63 (restoration will be deemed successful if 80% of vegetative cover restored).

discussion is "the heart of the [EIS]" and must "provid[e] a clear basis for choice among options." 40 C.F.R. § 1502.14. The Clean Water Act also requires evaluation of alternatives that would reduce wetland impacts. 40 C.F.R. § 230.10(a). Although these two requirements are similar, *id.* § 230.10(a)(4), the Clean Water Act goes beyond NEPA's procedural requirements and imposes substantive obligations to actually adopt reasonable less damaging alternatives. 40 C.F.R. § 230.10(a). For example, where a project is not water dependent, the Clean Water Act imposes a presumption that an alternative that would not impact wetlands is available, and requires the applicant to provide "detailed, clear, and convincing information proving that an alternative with less adverse impact is impracticable." *Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1269 (10th Cir. 2004). CO10-1

As one example of avoiding impacts to wetlands, we strongly support the DEIS's insistence on examination of alternatives to the Applicants' proposed temporary fill haul road, DEIS Part 3.4.

However, the DEIS entirely fails to consider additional facility siting and design alternatives that would move components of the proposed facility in order to eliminate or reduce the amount of wetlands impacted. At least two other U.S. LNG export projects have demonstrated that it is possible to separate some of the infrastructure proposed for the Rio Grande terminal site. One alternative that must be considered would be to move the six liquefaction trains and associated equipment to a different and upland site, piping the already-liquefied natural gas to the terminal for loading. Other, existing LNG export facilities appear to demonstrate the feasibility of such a design. The Cove Point, Maryland project, which was constructed as an import facility more than 40 years ago, separates marine transfer facilities from gas storage and liquefaction facilities by more than a mile, connected by a pipeline that transports natural gas in liquefied

form. FERC, *Environmental Assessment for the Cove Point Liquefaction Project,* Docket CP13-113, at 2 (May 2014);[171] *see also see In the matter of Oregon LNG*, Final Order of the Lands Use Hearings Officer for the City of Warrenton, CUP14-3, VAR 14-1, CUP14-4, & VAR 14-2, at 30-31 (Mar. 6, 2016)[172] (holding, in review of a liquefied natural gas export project, that liquefaction and storage facilities were not water dependent and could be located away from ship loading facilities). Here, the DEIS indicates that the majority of space at the terminal site will be occupied by the six proposed liquefaction trains, DEIS 2-4, suggesting that moving this infrastructure to a different site could significantly reduce wetland impacts. It may also be possible to similarly separate LNG storage tanks from ship loading, as in Cove Point, further reducing the water-dependent footprint.

CO10-1

Although the DEIS does not consider relocating any of the "terminal" infrastructure, the DEIS does briefly address relocating Compressor Station 3, which is proposed to be located immediately adjacent to or within the terminal site. DEIS 3-26. The DEIS arbitrarily suggests that moving this station elsewhere would not provide any environmental benefit. *Id.* The record plainly demonstrates otherwise: this compressor station, specifically, would be on wetlands (mangroves and salt flats), and moving the compressor station offsite would almost certainly reduce the acres of such wetlands impacted. *Compare* DEIS 2-5 *with* 4-57; *see also* DEIS 5-6. Although the DEIS asserts that there are unspecified "benefits" for "engineering purposes" associated with locating this compressor at the terminal site, the DEIS does not argue that another location would be impractical. DEIS 3-26. Nor could it: it appears that many, if not all, other LNG export facilities operate without a similar onsite pipeline compressor. The DEIS's failure to rigorously explore alternative locations for compressor station 3 violates NEPA, and insofar as the

[171] Attached as Exhibit 62 and available at http://elibrary.ferc.gov/IDMWS/common/OpenNat.asp?fileID=13546236.
[172] Attached as Exhibit 63.

DEIS indicates that such an alternative would be practical, failing to adopt such an alternative would violate the Clean Water Act. CO10-1

Even if liquefaction or other facilities are not geographically separated from ship loading, the EIS must consider an alternative that would reconfigure the site to reduce the footprint and amount of wetland impacted. Other facilities using similar liquefaction technology have been constructed on proportionally much smaller footprints. Rio Grande proposes to use "C3MR" liquefaction trains, DEIS 2-5, the same general design used at Cove Point.[173] The Cove Point facility houses one such train within a 131 acre operational footprint, with a nameplate capacity of 5.75 mtpa, requiring 22.8 acres per mtpa. *Dominion Cove Point Lng, Lp*, 148 FERC ¶ 61244, PP8-9, P276 (Sept. 29, 2014). Here, Rio Grande proposes a terminal with a 750.4 acre footprint and 27 mtpa capacity, DEIS 2-5, 2-23, or 28 acres per mtpa. Thus, Rio Grande proposes a facility design that is *prima facie* 23% *less* space efficient than another facility has proven feasible, whereas one would assume that efficiencies of scale would allow Rio Grande to be *more* space efficient. Similarly, the Freeport Texas LNG export facility, which also uses C3MR trains,[174] appears to be both more space efficient overall and to have successfully moved pretreatment infrastructure five miles away from the vessel loading site (using a design that separates pretreatment from the individual liquefaction trains and which powers liquefaction through electric motors rather than on-site gas combustion).[175]

Here, the DEIS fails to consider a siting or facility design alternative that would follow the examples provided by these other facilities and reduce the footprint at terminal site, and thus the amount of wetland impacted, by either moving non-water-dependent equipment to another

[173] Exhibit 64, available at http://www.airproducts.com/Company/news-center/2013/04/0429-air-products-wins-lng-technology-and-equipment-order-for-maryland-facility.aspx.
[174] Exhibit 65, available at http://www.airproducts.com/Company/news-center/2014/09/0916-air-products-lng-technology-and-equipment-selected-for-freeport-terminal-facility.aspx
[175] *Freeport LNG Development*, 148 FERC ¶ 61,076 P22 (July 30, 2014)

(upland) location, by using a more compact facility design, or both. Because other existing export facilities demonstrate that, in general, such alternatives are feasible, the DEIS's silence on this issue violates NEPA. CO10-1

B. The DEIS Fails to Consider Alternatives Incorporating On-Site Mitigation of Wetland Impacts

Although the Applicants have not provided a wetland mitigation plan, they propose to mitigate permanent loss of wetland by preserving an unspecified amount of habitat roughly a mile away from the terminal site, at the Loma Ecological Preserve. DEIS 4-67. A reasonable alternative that must be evaluated in the EIS would be to include mitigation, in the form of wetland restoration or enhancement, at the terminal site.

Compensatory mitigation of wetland impacts on-site is presumptively environmentally superior to mitigation off-site, and mitigation through restoration or enhancement is presumptively superior to preservation. *See e.g.* 40 C.F.R. § 230.93(h)(2). Nonetheless, the DEIS provides no discussion of any possibility for mitigation other than the Applicant's preferred solution. NEPA requires a hard look, in the EIS, at such mitigation alternatives.

The Applicants, in their Mitigation Alternative Analysis, state that their lease of the terminal site includes 215 acres that are outside the facility perimeter and potentially ecologically suitable for restoration or enhancement.[176] However, the Applicants reject the possibility of such mitigation by arguing that (1) it would not be possible for the Applicants to secure an easement or other protection for on-site wetlands mitigation that lasted beyond the 50 year lease term and (2) mitigation that cannot be guaranteed to last beyond 50 years would not satisfy the Clean Water Act's requirement that compensatory mitigation be established for the "long term." 40 C.F.R. § 230.97(a)(1). Applicants have not supported either argument, and the record does not demonstrate

[176] FERC Accession No. 20180419-5210(32838631) at 30.

that on-site compensatory mitigation is so unreasonable as to be entirely excluded from the NEPA alternatives analysis.

CO10-1

As to Applicants' first argument, both the proposed terminal site and the site of proposed off-site mitigation are owned by the Brownsville Navigation District. The Applicants argue that the District is legally incapable of selling an easement or other instrument of perpetual protection encumbering a portion of the terminal site (although they do not provide authority for this proposition), and that the Applicants should therefore be permitted to mitigate by purchasing an easement from the District that would protect a different parcel. The Applicants offer no explanation as to why the District is incapable of selling an easement in one instance but both capable and willing to sell an easement in another.

Second, the Applicants have not demonstrated that, even if an easement encumbering the terminal site is unavailable, that compensatory mitigation could not be protected for the long term. The Applicants "do not have any foreseeable plans to expand or abandon any aspect of the Project," DEIS 2-60, notwithstanding the fact that their existing lease only encompasses a 50 year term. If the Applicants expect to renew their lease after 50 years, such a renewal would presumably also prolong protection of on-site compensatory mitigation. If the Applicants do not intend to renew their lease, or are prevented from doing so, then it may be that decommissioning of the terminal site will allow for restoration of the individually impacted wetlands, obviating (at least partially) the need for further protection of the original compensatory mitigation. The Applicants provide no discussion whatsoever of what happens when the lease expires, and as such, they have not demonstrated that the nature of the lease (together with asserted unavailability of an easement) precludes meaningful on-site mitigation.

Even if the Applicants had demonstrated that any on-site mitigation would foreseeable last

only for 50 years, it is not self-evident that this would render on-site restoration or enhancement less environmentally preferable than the proposed off-site preservation. We agree that, all else being equal, protection into perpetuity is to be preferred. However, the Compensatory Mitigation Rule's use of "long term," rather than permanent, was deliberate. 73 Fed. Reg. at 19,646. Here, the preference for perpetual protection lies in tension with the strong preferences established by the Compensatory Mitigation Rule for on-site mitigation over off-site, and for restoration or enhancement over preservation. 40 C.F.R. § 230.93(h). Here, where preferences may point in different directions, it is the role of the EIS to take a hard look at these tradeoffs. It may be that, after careful analysis, FERC, the Corps, and other agencies decide that the potential compensatory mitigation available at this specific site is not sufficiently long term, or that uncertainty over the future of such on-site mitigation is a bigger drawback than the drawbacks of the proposed off-site preservation. But that determination must be informed by the EIS; neither the Applicants nor the DEIS have demonstrated that on-site mitigation can be excluded from NEPA review entirely.

CO10-1

C. The DEIS Does Not Take a Hard Look at Potential Mitigation and Does Not Support the Conclusion That Wetland Impacts Will Be Mitigated to Insignificance

The DEIS provides *no* specific details regarding what the proposed wetland mitigation will be: it is silent as to the amount of mitigation, the ratio at which impacts will be mitigated, which portions of the Loma Ecological Preserve the mitigation will protect, the amounts of specific wetland habitat type that will be protected, *etc*. Without this information, the DEIS fails to take the required hard look at opportunities for mitigation, and cannot support the statement that FERC expects wetlands impacts to be "reduced to less than significant levels" through mitigation. DEIS 4-67 to 4-68. Moreover, it appears that the proposal to mitigate by further protecting the Loma Ecological Preserve is fundamentally misguided, and that no such plan

would meaningfully offset the Projects' wetland impacts.

CO10-1

1. The DEIS Arbitrarily Defers Discussion of Mitigation to Future Corps of Engineers Decisionmaking

The DEIS concludes, in essence, that impact to wetlands will be fully mitigated because the Army Corps of Engineers will require such mitigation as a condition of approval. DEIS 4-68. NEPA prohibits passing the buck in this manner. Indeed, one of the purposes of this EIS is to inform the Corps' evaluation of this very issue. *See infra* Part IX.A, page 84. As the Environmental Protection Agency has already explained, details regarding proposed mitigation need to be presented in a draft EIS, so that, *inter alia*, the public has a meaningful opportunity to review and comment.[177]

For example, the DEIS provides no indication of the extent to which the Applicants propose to substitute one type of wetland with another, for example, by compensating for loss of mangroves (estuarine scrub-shrub) with preservation of low marsh (estuarine emergent wetland). Commenters contend that in general, such substitution is inappropriate, and in some cases loss of one wetland type cannot be compensated through protection of another, no matter the mitigation ratio used.

The DEIS similarly provides no indication of the proposed amount of compensatory mitigation or ratio. Although compensatory mitigation is inherently imperfect and therefore always requires a greater than 1:1 ratio, here, the ratio should be at least an order of magnitude higher. What Applicants propose here, permittee-responsible mitigation using a preservation only approach (*cf.* restoration, establishment, or enhancement) is the least favored method of mitigation, and therefore requires a higher ratio. 40 C.F.R. § 230.93(b)(2)-(4), (h)(2); *see also* 73

[177] See EPA, Comments to FERC submitted FERC Accession No. 20161115-5024; *available at* https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14398392 (hereinafter "EPA Comment"). The undersigned adopt these comments in full and incorporate them by reference.

Fed. Reg. at 19,604, 19,613, 19,624. The ratio must be further increased because of the temporal difference between when impacts will occur (anticipated start of construction) and the earliest date at which the proposed preservation will have an impact (2023, because the Loma Ecological Preserve is already protected until then). 40 C.F.R. § 230.93(m), *accord* 73 Fed. Reg. at 19,610. CO10-1

Nor does the DEIS specify which impacts the Applicants propose to mitigate. As we explain above, in addition to the wetlands permanently occupied and eliminated by the project, many of the wetlands impacted by construction will be restored only after a significant delay, and even then only imperfectly. The DEIS does not address whether these impacts will be mitigated, and if not, why the unmitigated impacts should be deemed insignificant.

2. The Proposal to Mitigate Wetlands Impacts by Preserving Portions of the Loma Ecological Preserve Is Conceptually Flawed

Separately, nothing in the DEIS supports the notion that "preserving" the Loma Ecological Preserve would meaningfully mitigate the Projects' adverse wetlands impacts.

First, preservation only provides meaningful mitigation if the area "preserved" would otherwise be threatened. There is no evidence of such a threat here. The area is owned by the Brownsville Navigation District and leased to the U.S. Fish and Wildlife Service through 2023, and therefore plainly already protected through that time. Applicants provide no evidence showing that the area will become threatened once this lease expires. To the contrary, the Applicants themselves acknowledge that there are no specific developments planned that would threaten the Preserve. Mitigation Alternatives Analysis at 68. At most, Applicants state that it is "likely" that some future project would "look to" "possible" development at the site. *Id.* But it is also possible that the Fish and Wildlife Service will choose to seek to extend its lease in light of the habitat value of these lands (especially the value of non-aquatic habitat). Mitigation Alternatives Analysis at 74. Applicants speculate that the Brownsville Navigation District might

choose not to extend this lease, but offer no explanation as to why the District would find sale of an easement preferable to extension of the lease. Mitigation Alternatives Analysis at 74. Alternatively, even the Fish and Wildlife Service lease is not renewed, limits imposed by the Endangered Species Act and other laws may nonetheless protect the area from future development. As EPA explained, "Rio Grande LNG has not demonstrated that the Loma Ecological Preserve is under threat of future development, and they certainly have not quantitatively estimated that threat." EPA Comment at 8; *see* 40 C.F.R. § 230.93(h)(1)(iv) (preservation only provides compensatory mitigation where the resources to be preserved are "under threat of destruction or adverse modifications."). Insofar as this area is already preserved, further "preservation" of it provides little if any environmental benefit, and cannot serve to mitigate the Projects' wetland impacts.

CO10-1

Second, even if the Applicants could offer non-redundant protection of the Preserve, this may not offset *wetlands* impacts. The goal of mitigating wetlands impacts is to offset harm to the services and functions performed by the impacted wetlands. 40 C.F.R. §§ 230.93(e), (f). Applicants argue that the Loma Ecological Preserve provides habitat "for a wide variety of wildlife," emphasizing ocelots, Aplomado falcons, and piping plover. Mitigation Alternatives Analysis at 68. As EPA recognized in its November 2016 comments, while preservation of habitat for terrestrial species is a laudable goal, "the value of the proposed preservation to non-aquatic threatened and endangered species can[not] be the basis for the argument to accept the proposal of compensatory mitigation for unavoidable impacts to aquatic habitats. The value of the proposed mitigation for unavoidable impacts to aquatic resources should be demonstrated *first based on its value to aquatic resources*." EPA Comment at 8 (emphasis added). Neither the material submitted

by the Applicants nor the DEIS meaningfully attempt to make such a demonstration.[178] The Applicants cite benefits to non-aquatic species, and argue that since preservation within the Loma Ecology Preserve was accepted as mitigation for the much smaller SpaceX project, this must demonstrate satisfaction of section 230.93(h)(1)(i) and (ii). Mitigation Alternatives Analysis at 68, 71-72. The SpaceX project permanently impacted 6.19 acres of wetland (including direct and indirect effects), only 3.9 of which were compensated with offsite preservation[179] whereas the Terminal here will destroy 182.4 acres of wetlands; as such, the two projects are hardly comparable, and the Corps' acceptance of preservation there does not establish precedent applicable here. Commenters further share EPA's opinion that even for the smaller SpaceX project, preservation was an inappropriate form of mitigation.

CO10-1

VI. The DEIS Fails to Adequately Consider Reliability and Safety

A. The Public Risk Impacts Analysis Related to the SpaceX Launch Facility Is Flawed

1. The DEIS Discounts and Fails To Adequately Disclose the Risks Associated With the Nearby SpaceX Launch Facility

The DEIS recognizes potential impacts to and from the Projects and the nearby SpaceX Commercial Spaceport Project, which is located approximately 5.4 miles southeast of the proposed Terminal and anticipates rocket launches starting as soon as this year. DEIS 4-337. During its review, FERC staff concluded that there would be debris above a threshold of 3e-5 years, the failure rate level used to evaluate the potential for cascading damage and the failure rate

[178] Moreover, as discussed above in Sections IV.B.1. & IV.C., the DEIS provides no evidence that the acreage to be protected within the Preserve even contains suitable habitat for these terrestrial species—the ocelot, in particular.
[179] SpaceX Final EIS at 4-45, 6-4, and Appendix M, attached as Exhibit 66, available at https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details/downloadEisDocuments?eisId=88519.

used by FAA in space launch failure prior to 2017,[180] but that the cascading damage at the terminal site would not impact the public. *Id.* FERC staff concluded that rocket launch failures could impact onsite constructions workers and plant personnel. *Id.* The DEIS also states that the Coast Guard would determine any mitigation measures needed on a case-by-case basis to safeguard public health and welfare from LNG carrier operations during rocket launch activity. CO10-1

The discussion of the unique risks posed by the SpaceX launch site on Rio Grande's LNG Terminal, and the cumulative risks posed to the public as a result of this launch site on the three currently proposed LNG terminals along the Brownsville Ship Channel, is grossly inadequate. The DEIS includes a mere two paragraphs discussing potential impacts from the SpaceX launch facility; does not reference, discuss, or incorporate the March 2017 ACTA Technical Report entitled "Rio Grande LNG Facility Hazard Predictions Due to Launch Vehicle Failures at the SpaceX Boca Chica Texas Spaceport" or any other SpaceX-related impacts analyses; and includes only a single 2014 SpaceX article as a referenced article in Appendix Q. As part of the impact analysis, Rio Grande LNG must quantify risk from future space launch missions in accordance with 14 C.F.R. Parts 415 and 417. But no data is provided to demonstrate whether the public risk criteria in 14 C.F.R. § 417(b) is met for the total risk to the public (1e-4 cumulative), for any individual member of the public (1e-6 per launch), for water borne vessel (1e-5), or for aircrafts (1e-6). Given the fact that FERC staff concluded debris would occur above a regulatory threshold, the lack of further analysis or disclosure in the DEIS fails to satisfy the need to inform the public about serious impact risks.

[180] 14 C.F.R. 417.107(b) was updated from 3e-5 casualties for three different events (in the 2016 edition) to 1e-4 casualties cumulative (in the 2017 edition). It is unclear why the 2016 regulation was applied to the DEIS.

2. FERC Must Clarify the Basis for Its Potential Impacts Analysis and Its Discrepancy with ACTA's Conclusions

CO10-1

FERC concluded that there would be debris above the threshold failure rate level used to evaluate the potential for cascading damage (*i.e.*, 3e-5 per year) but concluded that the cascading damage at the Terminal would not impact the public. DEIS 4-337. However, Rio Grande LNG hired a consultant, ACTA, to provide information to FERC, and ACTA's report concluded that the probability of debris impacting the Terminal boundary and the Brownsville Shipping Channel was less than the FAA risk criteria in 14 C.F.R. Part 417.[181] Based on this conclusion, RG Developers stated that no additional action was required from the company in response to FERC's siting concerns.[182] The subsequent Environmental Information Request and responses did not appear to change ACTA or RG Developers' conclusion on this issue.[183]

We request that FERC clarify the basis for its conclusion and explain any discrepancies between its independent review of possible impacts and that of ACTA/RG Developers. We further request that FERC publicly disclose any correspondence or written review of ACTA's report that explain the bases for FERC's conclusions and are not already publicly available on the docket.

3. The Risk Assessment for Space Launch Failures Improperly Failed To Include the BFR

A rocket launch failure impact analysis must include all launch vehicles that meet the threshold criteria for realness and relevance. Under NEPA, a rocket launch failure impact analysis should include review of all vehicles that could reasonably be foreseen to be launched at a site during the site's lifespan.

[181] FERC Docket CP16-454, Accession No. 20170321-5137 at 4-5.
[182] *See id.* at 5.
[183] FERC Docket CP16-454, Accession No. 20170802-3006 (EIR); Accession No. 20170822-5093 (Response from RG Developers).

In its response to a FERC Environmental Information Request, Rio Grande LNG stated that its contractor ACTA excluded the Interplanetary Transport System (ITS) and any other launch vehicles because SpaceX had not proposed to launch any other existing or planned launch vehicles from the Boca Chica Spaceport as of March 21, 2017.[184] The response also called into question whether ITS, the Big Falcon Rocket (BFR) / Big Falcon Spaceship (BFS), or other vehicles were viable or sufficiently real for purposes of the analysis required for the Terminal.

CO10-1

However, announcements by SpaceX representatives over the past 20 months make clear that the BFR[185] is sufficiently real and relevant for purposes of impacts analysis for the three proposed Brownsville LNG terminals. For example:

- CEO Elon Musk has stated that SpaceX is "no longer planning to upgrade Falcon 9 second stage for reusability" because the company is "[a]ccelerating BFR instead."[186]
- At the 2017 International Astronautical Federation conference, Musk stated that SpaceX is aiming to conduct two uncrewed missions to Mars by 2022 and a crewed mission around the moon and back in 2023.
- Following this conference, a series of public comments have made clear that the Boca Chica rocket facility will be almost exclusively dedicated to testing BFR's spaceship prototypes.[187]
- CEO Musk stated that spaceship hop testing would "most likely . . . happen at our Brownsville location," perhaps as early as 2019.[188] SpaceX President/COO Gwynne Shotwell has stated that she believed BFR could begin its first orbital test missions as early as 2020.[189]

[184] FERC Docket CP16-454, Accession No. 20170321-5137 at 5.
[185] CEO Elon Musk has stated that the BFR will be called the "Starship," and the first stage will be named the "Super Heavy," but we will refer to the rocket as BFR in these comments.
[186] Elon Musk, https://twitter.com/elonmusk/status/1063865779156729857 (Nov. 17, 2018), attached as Exhibit 67.
[187] *See* Teslarati, "SpaceX Mars rocket test site receives first huge rocket propellant storage tank" (July 12, 2018), attached as Exhibit 68.
[188] *Id.*
[189] *Id.*

- In January 2018, at the TAMEST Annual Conference, Shotwell stated that the Boca Chica facility would be used for "early vehicle testing" and then would move from a "test site to a launch site."[190]

- In July of this year, SpaceX delivered a 100,000-gallon liquid oxygen tank to its prospective Boca Chica test and launch facility. In a statement provided to the *Valley Morning Star*, SpaceX spokesperson Sean Pitt confirmed that the tank had been delivered to Boca Chica as part of an ongoing effort to ready the site for testing and launches of an unspecified "vehicle."[191]

- SpaceX has recently filed for permits and licenses that will eventually allow the company to legally conduct hop and flight tests of a BFR spaceship prototype at the Boca Chica site.[192] These applications are not public, but FCC's Experimental Licensing System has published a summary of the SpaceX request to test these vehicles in the near future.

- In September 2018, Musk announced that the spacecraft will be 387 feet tall (118 meters), SpaceX's largest rocket to date. This is 157 feet taller than the Falcon Heavy and twice as powerful.[193] This announcement also included a series of design images. The BFR's booster will be lifted by 31 Raptor engines that produce a thrust of approximately 5,400 tons.[194] Musk stated that there would not be many big changes to the booster going forward.[195]

CO10-1

This available information paints a reasonably clear picture: SpaceX is prioritizing the development and testing of the BFR; the BFR is significantly bigger and more powerful than the Falcon boosters; and SpaceX is moving forward to test (and most believe launch)[196] the BFR at the Boca Chica site. It is reasonable to conclude that BFR may, and likely will, be launched from the Boca Chica site during the Rio Grande LNG's minimum 20-year life (which could be extended to a 50-year life).

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[190] Gwynne Shotwell, TAMEST 2018 Annual Conference: Aerospace, https://www.youtube.com/watch?time_continue=303&v=kjTHJzWPTnU.
[191] *See* Teslarati, "SpaceX Mars rocket test site receives first huge rocket propellant storage tank" (July 12, 2018), attached as Exhibit 68.
[192] Teslarati, "SpaceX seeks licenses for BFR spaceship prototype hop test campaign" (Nov. 22, 2018), attached as Exhibit 69.
[193] *See* https://www.spacex.com/mars (describing height and rocket capability); Exhibit 70 (SpaceX, "Making Life Multiplanetary" (2017)).
[194] Exhibit 70 (SpaceX, "Making Life Multiplanetary (Transcript)" (2017)).
[195] Space.com, "The New BFR" (Sept. 21, 2018), attached as Exhibit 71 and available at https://www.space.com/41901-spacex-bfr-mars-spaceship-rocket-design-changes.html.
[196] *See generally* Nasa Spaceflight, "Where will BFR launch from first?", attached as Exhibit 72 and available at https://forum.nasaspaceflight.com/index.php?topic=44168.0.

Under NEPA's reasonably foreseeable standard approach, an analysis of potential impacts to the Rio Grande LNG Terminal should include potential impacts from the BFR due to the spaceship's realness and relevance. FERC should coordinate with the FAA and an independent third-party contractor to get the latest information available regarding the BFR and should undertake a quantitative risk analysis in accordance with 14 CFR Parts 415 and 417. This is particularly true in light of FERC's conclusion that the much smaller and less powerful Falcon vehicles could cause debris above the regulatory threshold at the Rio Grande LNG Terminal site. CO10-1

4. The DEIS Provides Insufficient Information Regarding Debris Impacts to the Brownsville Ship Channel

The DEIS states that the Coast Guard would determine any mitigation measures needed on a case-by-case basis to safeguard the public health and welfare from LNG carrier operations during rocket launch activity. DEIS 4-337. No further information is provided regarding potential impacts to the Brownsville Ship Channel (BSC) or the public as a result of these activities.

The SpaceX facility is closer to the BSC than to the Terminal site. If debris is expected at the Terminal site (and to the onsite workers and plant personnel), debris may impact LNG carrier operations and pose a risk to the public safety. No quantification of this risk is provided in the DEIS in accordance with 14 C.F.R. § 417.107(b)(3) or otherwise. No proposed mitigation is provided to reduce this risk and no assurance is given that the Coast Guard will require Rio Grande LNG to otherwise mitigate these risks.

By letter dated December 26, 2017, the United States Coast Guard issued its Letter of Recommendation pursuant to 33 C.F.R. 127.009 concluding that the BSC be considered suitable for LNG marine traffic.[197] The Coast Guard reviewed the Waterway Suitability Assessment for the Rio Grande LNG Project that was submitted by Acutech on December 27, 2015.

[197] FERC Docket CP16-454, Accession No. 20180118-3038.

It is unclear if this review included information provided subsequent to Acutech's Letter of Intent, including ACTA's analysis of impacts from SpaceX. However, the Letter of Recommendation's Analysis did include a short description of the SpaceX launch site. This analysis concluded that based on FERC assumptions, FERC staff "found that the risk of public impact from a projectile in the 10,000 to 100,000 ft-lb range would be just inside the tolerable region (i.e., within the [As Low As Reasonably Practicable] region) after accounting for 10% probability factor for wind."[198] CO10-1

FERC should confirm that its staff provided the most recent information available to the Coast Guard during its review of the Waterway Suitability Assessment. FERC should also clarify the failure probability and public risk to LNG carrier operations during rocket launches, as well as any proposed mitigation and assurances provided by Rio Grande LNG to reduce these risks.

B. The DEIS' Reliability and Safety Analysis Is Incomplete and Fails to Account for All Reasonably Foreseeable Infrastructure

LNG facilities handle flammable and sometimes toxic materials that can pose a significant risk to the general public. In fact, a number of incidents, some of which are described in the DEIS, have occurred involving LNG carrier accidents or U.S. LNG facilities. *See* DEIS 4-297 – 299; 4-307 – 309. Most recently, in 2014, an explosion at the Plymouth LNG facility caused the failure of pressurized equipment, resulting in high velocity projectiles. Members of the scientific community have criticized LNG terminal safe-siting policy as faulty,[199] and we incorporate those concerns in these comments.

[198] *Id.* at 8.
[199] *See, e.g.*, Havens, Jerry & James Venart, "United States LNG Terminal Safe-Siting Policy is Faulty," FERC 20150114-5038, attached as Exhibit 73.

1. The DEIS Should Not Be Issued Until the DOT Issued Its Letter of Determination

CO10-1

The DEIS fails to adequately analyze and disclose potential reliability and safety information for the Rio Grande LNG Terminal site. As the DEIS notes, on August 31, 2018, the DOT and FERC signed an MOU regarding coordination and responsibility throughout the LNG permit application process for FERC-jurisdictional LNG facilities.[200] In the MOU, the DOT agreed to issue a Letter of Determination (LOD) stating whether a proposed LNG facility would be capable of complying with location criteria and design standards contained in Subpart B of Part 193. FERC also committed to rely upon the DOT determination in conducting its review of whether the facilities would be in the public interest, although the issuance of an LOD does not abrogate responsibility over continued compliance with Part 193. The MOU was effective upon signing by the agencies.

As the DEIS acknowledges, a LOD has not been issued by the DOT for the Rio Grande LNG Project because the DOT has not completed its analysis of whether the proposed facilities would meet the DOT's siting standards. DEIS 4-297. The latest filings in the FERC docket shows that the U.S. Pipeline and Hazardous Materials Safety Administration requested information related to its evaluation of compliance with the siting requirements on August 14, 2018.[201]

The public should have the opportunity to review the most recent Design Spill Package documentation, final Hazard Analysis Report(s), all up-to-date supplemental documentation related to compliance with the Subpart B regulations, any correspondence between the DOT and the applicant, and the LOD itself prior to the issuance of a decision. These are materials and necessary authorizations that should be included in the DEIS. FERC staff should undertake their

[200] "Memoranda of Understanding (MOU), Federal Energy Regulatory Commission, accessed November 26, 2018, attached as Exhibit 74 and available at https://www.ferc.gov/legal/mou/2018/FERC-PHMSA-MOU.pdf.
[201] FERC Docket CP16-454, Accession No. 20180821-5041.

responsibilities in accordance with the 2018 MOU and issue a complete DEIS (or supplemental document) upon receipt of the LOD. CO10-1

2. The Safety Analysis Fails To Adequately Describe Potential Impacts from Collocated Pipelines on the Rio Grande LNG Terminal Site

FERC states that it reviewed whether any pipeline operations would be associated with the Project and whether any existing pipelines would be located near the site. DEIS 4-338. This information was used to evaluate whether the Project and any associated pipeline operations could increase the risk to the pipeline facilities and the public and whether any existing pipeline operations could increase the risk to the Terminal site and the public. Additionally, all pipelines associated with the Project must meet the DOT regulations under 49 CFR 192. *Id.*

In the DEIS, FERC states that it identified Enbridge's Valley Crossing Pipeline (VCP), which is currently under construction, as routed through the Project site's utility easement. If the Rio Grande LNG Project is approved, the Project's facilities would be within the Potential "Impact Radius (PIR) with portions within 660 feet from the VCP. FERC also evaluated the potential risk of incidents from the pipeline, concluding that a rupture, though unlikely, would have similar impact distances to structures as the PIR and could cause cascading damage to the Terminal. DEIS 4-340 – 341.

However, the DEIS does not include any discussion of the pipeline associated with the proposed Texas LNG Project. The currently out-for-comment DEIS for the Texas LNG Project states that a 10.2-mile-long, 30-inch-diameter pipeline will deliver natural gas to the project. Texas LNG Project (CP16-116-000) DEIS 1-16. Diagrams provided in Appendix H to the DEIS suggest that this pipeline will also be routed through (or very near to) the Rio Grande LNG Project site's utility easement. Texas LNG Project DEIS, App. H. The Texas LNG Project is also under FERC's jurisdiction and its pipeline, while considered non-jurisdictional in the DEIS, is

clearly reasonably foreseeable and should be included in FERC's review of the Rio Grande LNG Terminal.

CO10-1

Specifically, we request that the DEIS be updated with information related to this planned pipeline, including, but not limited to: a plot plan showing the currently proposed location of the pipeline associated with the Texas LNG Project; approximate dates by which the pipeline will be constructed through or near to the Rio Grande LNG terminal site; the piping specification, pipe diameter, design pressure, operating pressure, buried depth, and class location of the pipeline; any potential consequence to the Rio Grande LNG terminal that would result from pipeline failure; how Rio Grande LNG will prevent damage to the buried pipeline, assuming the pipeline is constructed prior to the Terminal facilities; any description of potential relocation of the RB pipelines due to the Texas LNG associated pipeline; any correspondence between RB and any pipeline company related to the collocation of the RB pipelines and any other not-already-disclosed pipelines; and any correspondence with federal, state, or local agencies about collocation of these pipelines. We also request that FERC consult with DOT staff regarding the PIR for the pipeline that will supply natural gas to the Texas LNG Project and additional data necessary to quantify risks associated with pipeline ruptures or leaks. This information should be disclosed to the public for comment prior to the issuance of any decision for the Rio Grande LNG Project.

3. The DEIS Fails to Demonstrate That Rio Grande LNG Will Exercise Sufficient Legal Control Over Activities at the Terminal Site

The requirements in 49 C.F.R. Part 193 state that an operator must exercise legal control over the activities within the exclusion zone as long as the facility is in operation. *See* 49 C.F.R. 193.2007. The LOD is still outstanding, but any subsequent NEPA document must clarify how Rio Grande LNG meets this requirement and must specifically address how it meets this

requirement for collocated pipelines and all other facilities on the Terminal site. To the extent that Rio Grande LNG exercises legal control over facilities that do not belong to it, please clarify the terms of utility access for purposes of complying with applicable safety rules. CO10-1

VII. The DEIS Fails to Adequately Consider Air Pollution and Associated Impacts

RG LNG, if allowed to be built, would be *the largest single source of air pollution in the Rio Grande Valley* for VOCs, CO, NOx, PM 2.5, and SOx.[202] This is in addition to two other proposed LNG terminals proposed for the Brownsville Ship Channel. This significant source of air pollution and the resulting health and environmental impacts for this region must be adequately evaluated and mitigated by FERC.

A. Construction Air Quality Impacts

FERC determines that the concurrent construction and start-up operations of RG LNG "*could result in exceedances of the NAAQS* in the immediate vicinity of the LNG Terminal during these construction years," but then concludes *without additional justification or analysis* that "these exceedances would not be persistent at any one time during these years due to the dynamic and fluctuating nature of construction activities within a day, week, or month. Therefore, these concurrent emissions would not have a long-term, permanent effect on air quality in the area."[203] (emphasis added). FERC's conclusions about the fluctuating nature of the air quality impacts from the construction phase are not supported by any analysis demonstrating the impacts on health, particularly in light of the demographics of the nearby populations.

As discussed in Section III.B.3 above, the "immediate vicinity" of the LNG Terminal includes low-income, minority populations that face barriers to accessing adequate health care and

[202] RG LNG application to TCEQ, dated 11/30/16; EPA & TCEQ 2014 point source inventories.
[203] DEIS 4-259–260.

are at higher risk of health impacts. The DEIS does not analyze the harms of these NAAQS exceedances during construction years on nearby sensitive and environmental justice populations, and has not taken the requisite hard look into the air quality impacts during the construction phase. CO10-1

B. Operational Air Quality Impacts

The DEIS concludes that "operation of the LNG Terminal would not cause, or significantly contribute to, an exceedance of the NAAQS."[204] However, the modeling of air quality impacts from the Terminal as part of the application for the PSD air permit, which the DEIS relies on, is flawed and relies on unsubstantiated assumptions, such as: 1) the sulfur content of the incoming gas stream is uncertain, which could result in the underestimation of emissions; 2) emissions of particulate matter from flares and thermal oxidizers are underestimated; and 3) flare emissions resulting from LNG tanker vessel loading operations are underestimated.[205]

Furthermore, the DEIS incorrectly assumes that RG LNG properly completed a BACT assessment for the LNG Terminal.[206] As noted in the attached TCEQ air permit comments,[207] however, the current permit proposed by TCEQ for the Applicant does not require BACT because it relies on an incomplete review of existing control technologies sources, particularly for gas turbines, thermal oxidizers, flares, and fugitive emissions. This insufficient BACT review would lead to higher emissions from the facility than the best available control technologies currently in use elsewhere in the world. FERC should evaluate these incorrect assumptions and the resulting air quality impacts in the DEIS, and consider the proper BACT technologies proposed in the attached TCEQ air permit comments as alternatives in the DEIS.

[204] DEIS 4-260.
[205] *See* Comments filed to TCEQ on RG LNG's Draft Air Quality Permit, dated March 26, 2018 (explaining these issues with the air quality analysis), attached as Exhibit 75 and incorporated by reference herein.
[206] DEIS 4-243.
[207] Exhibit 75

VIII. The DEIS Fails to Adequately Address Climate Change

CO10-1

The DEIS fails to take the required hard look at greenhouse gas emissions and climate change for multiple reasons.

First, the DEIS fails to even acknowledge the Projects' cumulative operational greenhouse gas emissions. The DEIS separately presents these emissions on three different tables (the latter two including separate values that are not aggregated). DEIS 4-253, 4-265, 4-267. Because the impacts of greenhouse gas emissions occur only cumulatively, there is no reason to segregate these emission estimates—indeed, in doing so, the DEIS is arbitrary and capricious, and its failure to present the total emission estimate keeps both decisionmakers and the public in the dark as to the Projects' true impacts. It appears that the total operational emissions identified in the DEIS amount to nearly 10 million tons per year of carbon dioxide equivalent (CO_2e), specifically, 9,998,876 tons.

Second, the figures provided in the DEIS underestimate emissions by using outdated estimates of the potency of greenhouse gases (GHGs) other than carbon dioxide. The DEIS addresses these other GHGs by converting them to CO_2e. DEIS 4-235. However, the conversion factor (global warming potential or GWP) used for methane, the predominant non-carbon-dioxide greenhouse gas at issue here, is sorely outdated, and fails to account for short- and medium-term impacts. The DEIS uses a GWP value of 25 for methane. *Id.* Although the DEIS provides no explanation for either the source of this number or FERC's reason for choosing it, the figure corresponds with the value presented by the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report in 2007 to reflect the impact of methane on a hundred-year timescale. In September 2013, five years *before* publication of the DEIS, IPCC released its Fifth Assessment Report, which includes superseding and significantly higher estimates for the GWP of methane.

IPCC, Climate Change 2013, The Physical Science Basis, Chapter 8, 713-14 (Sept. 2013).[208] This report increased the 100-year-timeframe estimates methane from fossil fuels to 36 when the effects of oxidation are taken into account.[209] *Id.* This report also explained that on a 20-year timeframe, methane's impact is even more severe, causing 87 times the warming of an equivalent mass of carbon dioxide (also accounting for the effects of oxidation). *Id.* The 20-year GWP for methane is particularly relevant because it corresponds much more closely to the average time that methane actually remains in the atmosphere before decaying into CO2, which is 12.4 years.[210] There is no dispute that the Fifth Assessment Report values represent a more accurate estimate of the impact of each ton of methane emissions.[211]

CO10-1

More broadly, courts have consistently recognized that the IPCC summaries represent the scientific consensus.[212] Here, the DEIS violates NEPA's obligation to use "high quality information," 40 C.F.R. § 1500.1(b) and provide "full and fair discussion of significant environmental impacts," 40 C.F.R. § 1502.1, by relying on an estimate of methane's impacts that

[208] Attached as Exhibit 76, available at http://ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf.
[209] For a discussion of the effects of oxidation on methane's GWP, see Bradbury, et al., Dep't of Energy, Office of Energy Policy and Systems Analysis, *Greenhouse Gas Emissions and Fuel Use within the Natural Gas Supply Chain – Sankey Diagram Methodology* (July 2015), at 10, n. ‡‡‡, *available at* https://www.energy.gov/sites/prod/files/2015/07/f24/QER%20Analysis%20-%20Fuel%20Use%20and%20GHG%20Emissions%20from%20the%20Natural%20Gas%20System%2C%20Sankey%20Diagram%20Methodology_0.pdf.
[210] *See* Exhibit 76, at 731, Appendix 8.A.
[211] *See* Department of Energy, Order 3357-C, FE Docket 11-161-LNG, at 30 (Dec. 4, 2015), Exhibit 77 and available at https://fossil.energy.gov/ng_regulation/sites/default/files/programs/gasregulation/authorizations/2011/applications/ord3357c.pdf; Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1-9 to 1-10 (Apr. 12, 2018), Exhibit 78 and available at https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf; *id.* Annex 6, A-437, Exhibit 79 and available at https://www.epa.gov/sites/production/files/2018-01/documents/2018_annex_6.pdf
[212] *Massachusetts v. E.P.A.*, 549 U.S. 497, 508-512 (2007) (The IPCC is recognized as "a multinational scientific body … [d]rawing on expert opinions from across the globe); *Coal. for Responsible Regulation, Inc. v. E.P.A.*, 684 F.3d 102, 119 (D.C. Cir. 2012), *aff'd in part, rev'd on other grounds in part sub nom. Util. Air Regulatory Grp. v. E.P.A.*, 134 S. Ct. 2427 (2014), *and amended sub nom. Coal. for Responsible Regulation, Inc. v. Envtl. Prot. Agency*, 606 F. App'x 6 (D.C. Cir. 2015) (IPCC's "peer-reviewed assessments synthesized thousands of individual studies on various aspects of greenhouse gases and climate change and drew 'overarching conclusions' about the state of the science in this field.").

was known to be outdated and an understatement of the true potency of this pollutant, by failing to disclose that the analysis it provided only considered long term (100-year) impacts, and by failing to use available tools, such as the estimate of methane's 20-year GWP, to address more near-term impacts. Each of these failures violates NEPA. *See W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, No. CV 16-21-GF-BMM, 2018 WL 1475470, at *16 (D. Mont. Mar. 26, 2018) (holding that agency violated NEPA by estimating emissions solely on the basis of methane GWP of 25). CO10-1

Third, the estimates provided in the DEIS do not include foreseeable indirect effects relating to gas production as use, as we discuss *infra*.

Fourth, the DEIS Provides no meaningful discussion of the significance or impacts, as well as the amount, of the greenhouse gas emissions associated with the project. *Sierra Club v. FERC*, 867 F.3d 1357, 1374 (D.C. Cir. 2017) ("*Sabal Trail*"). The DEIS presents emission estimates in part 4.11.1.3. This section recognizes that "[p]ublic comments expressed concern over the level of GHGs that would be emitted by the Project, as well as impacts on climate change," but merely states that "[c]limate change is addressed in section 4.13.2." DEIS 4-260. It appears that FERC forgot to include this discussion. Other than to simply quantify estimated construction-related (but not operational) greenhouse gas emissions from the two other Brownsville LNG Projects, this section provides *no* discussion of greenhouse gases or climate. Instead, the *only* discussion of the consequences or significance of GHG emissions provided anywhere in the DEIS are four sentences stating that no analysis is possible, presented in the executive summary and repeated in the conclusion:

> The Rio Grande LNG Project would emit GHGs, which have the potential to contribute to climate change. There is no standard methodology to determine how the Project's incremental contribution to GHGs would translate into physical effects on the

> global environment. However, the emissions would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources, and contribute incrementally to climate change. Because we cannot determine the Project's incremental physical impacts due to climate change on the environment, we cannot determine whether or not the Project's contribution to cumulative impacts on climate change would be significant.

CO10-1

DEIS ES-17, 5-22. This assertion is demonstrably false: extensive peer-reviewed literature documents the physical impacts of climate change. Last year, the U.S. Global Change Research Project again confirmed and quantified a broad range of environmental impacts resulting from greenhouse gas emissions,[213] including discussing how changes in temperature, rainfall, and flood risk from sea level rise will vary for individual regions in the United States.[214] Last month, this same federal project discussed impacts that are *already occurring* in communities around the country.[215]

Because the tools used to assess current and future impacts of climate change respond to different emission scenarios, it is possible to meaningfully discuss the *incremental* impact of the emissions at issue here. Greenhouse gas emissions are largely interchangeable—an additional 10 million tons of carbon dioxide emitted in 2030, for example, will have the same impact regardless of whether it is emitted as a result of the Rio Grande LNG Project or as a result of some other activity elsewhere in the world. FERC appears to assume that it would be infeasible to run climate models to compare global emission scenarios that diverge by only 10 million tons per year, although FERC provides no evidence or discussion showing this to be the case. Even if such

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[213] U.S. Global Change Research Program, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I, doi: 10.7930/J0J964J6 (Nov. 3, 2017), *available at* https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf and attached as Exhibit 80.
[214] *See, e.g.*, *id.* at 334.
[215] U.S. Global Change Research Program, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II, doi: 10.7930/NCA4.2018 (Nov. 2018), Exhibit 81 and available at https://nca2018.globalchange.gov/downloads/NCA4_Report-in-Brief.pdf.

modeling is unavailable, however, FERC provides no reason why the impact of Rio Grande LNG emissions cannot be interpolated from comparisons of more divergent emission scenarios. Indeed, this type of comparison and interpolation was used to develop the Interagency Working Group's social cost of carbon protocol.[216] Thus, FERC has not demonstrated that it would be impossible or exorbitantly expensive to provide a reasonable prediction of nanometers of sea level rise or fractions of a degree of temperature increase attributable to the Projects' incremental emissions. 40 C.F.R. § 1502.22(a).

CO10-1

Furthermore, and more fundamentally, such forecasts are not essential to NEPA analysis. Climate change is the quintessential cumulative impact problem, and the individual physical changes that will result from any particular action will inevitably appear insignificant to the public. Just as the public and decisionmakers "cannot be expected to convert curies or mrems into such costs as cancer deaths," the EIS's readership cannot be expected to understand whether an individual project's miniscule marginal increase contribution to increased temperature, sea levels, *etc.* is cause for concern. *Natural Res. Def. Council, Inc. v. U. S. Nuclear Regulatory Comm'n*, 685 F.2d 459, 487 n.149 (D.C. Cir. 1982) *rev'd on other grounds sub nom. Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 106-107 (1983). Because individual contributions to climate change are so small, but the cumulative problem is so large, meaningfully disclosing the impact of greenhouse gas emissions requires some tool beyond merely identifying physical changes in the environment attributable to an individual project's emissions.

The most appropriate tool is the protocol developed by the Interagency Working Group on the Social Cost of Greenhouse Gases ("IWG"). NEPA does not, of course, require agencies to monetize adverse impacts in all cases. *See* 40 C.F.R. § 1502.23. The statute does, however,

[216] Social Cost of Carbon 2010, https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf, attached as Exhibit 82, at 24-25.

require FERC to take a hard look at the "ecological …, aesthetic, historic, cultural, economic, social, [and] health," effects of its actions, "whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8. Monetization of costs may be required where available "alternative mode[s] of [NEPA] evaluation [are] insufficiently detailed to aid the decision-makers in deciding whether to proceed, or to provide the information the public needs to evaluate the project effectively." *Columbia Basin Land Prot. Ass'n v. Schlesinger*, 643 F.2d 585, 594 (9th Cir. 1981); *see also Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1201 (9th Cir. 2008) (NHTSA violated NEPA where it failed to monetize the benefits of GHG emission reductions from more stringent fuel economy standards even while it monetized the adverse costs of such standards due to depressed automobile sales and employment). CO10-1

In another recent case concerning an energy infrastructure project, where the agency's NEPA analysis quantified greenhouse gas emissions but claimed that it was impossible to discuss the effects thereof, the court ruled that the agency's refusal to use the social cost of carbon to illustrate the impact of these emissions was arbitrary and capricious. *High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174, 1190-91 (D. Colo. 2014); *see also Montana Envt'l Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1097 (D. Mont. 2017), *amended in part, adhered to in part sub nom. Montana Envtl. Info. Ctr. v. United States Office of Surface Mining*, No. CV 15-106-MDWM, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

Although they likely underestimate the true costs of GHG emissions, the IWG's social cost metrics remain the best estimates yet produced by the federal government for monetizing the impacts of GHG emissions and are "generally accepted in the scientific community," 40 C.F.R. § 1502.22(b)(4). This is true notwithstanding Executive Order 13,783, which disbanded the

Interagency Working Group and formally withdrew its technical support documents.[217] Indeed, that Executive Order did not find fault with any component of the IWG's analysis. To the contrary, it encourages agencies to "monetiz[e] the value of changes in greenhouse gas emissions" and instructs agencies to ensure such estimates are "consistent with the guidance contained in OMB Circular A-4."[218] The IWG tool, however, illustrates how agencies can appropriately comply with the guidance provided in Circular A-4: OMB participated in the IWG and did not object to the group's conclusions. As agencies follow the Circular's standards for using the best available data and methodologies, they will necessarily choose similar data, methodologies, and estimates as the IWG, since the IWG's work continues to represent the best estimates presently available.[219] Thus, the IWG's 2016 update to the estimates of the social costs of greenhouse gases remains the best available and generally accepted tool for assessing the impact of greenhouse gas emissions, notwithstanding the fact that this document has formally been withdrawn.[220]

CO10-1

In other proceedings, FERC has offered various arguments against using the social cost of carbon protocol that all seriously misunderstand the tool. The estimates of social cost are based on reasonable forecasts of the actual physical effects greenhouse gas emissions will have on the environment, including temperature, sea level rise, ecosystem services, and other physical impacts, together with assessments of how these physical changes will impact agriculture, human health, *etc.* The social cost protocol identifies the social cost imposed by a ton of emissions' pro

[217] Exec. Order. No. 13,783 § 5(b), 82 Fed. Reg. 16,093 (Mar. 28, 2017).
[218] *Id.* § 5(c).
[219] Richard L. Revesz et al., *Best Cost Estimate of Greenhouse Gases*, 357 SCIENCE 6352 (2017) (explaining that, even after Trump's Executive Order, the social cost of greenhouse gas estimate of around $50 per ton of carbon dioxide is still the best estimate), available at http://policyintegrity.org/files/publications/Science_SCC_Letter.pdf and attached as Exhibit 83.
[220] U.S. Interagency Working Group on the Social Cost of Greenhouse Gases (IWG), "Technical support document: Technical update of the social cost of carbon for regulatory impact analysis under executive order 12866 & Addendum: Application of the methodology to estimate the social cost of methane and the social cost of nitrous oxide" (August 26, 2016), *available at* https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/scc_tsd_final_clean_8_26_16.pdf and attached as Exhibit 84.

rata contribution to these environmental problems. As explained above, this either amounts to an assessment of physical impacts or the best available generally accepted alternative to such an assessment; either way, the tool is appropriate for use under NEPA. 40 C.F.R. § 1502.22(b)(4).

CO10-1

Nor is lack of consensus as to a single most appropriate intergenerational discount rate a reason for refusing to use the social cost protocols. As the 2010 Technical Support Document explained, a range of three discount rates—2.5, 3, and 5 percent—"reflect reasonable judgments" and "span a plausible range" of appropriate discount rates, and are consistent with OMB Circular A-4.[221] (The IWG also recommended use of a 3 recent rate at the 9^{5th} percentile to model climate "tipping points").

Although some analysts assert that any analysis of multi-generational, potentially catastrophic problem such as climate change merits a lower discount rate than this range would reflect, the IWG's "central" value of 3 percent falls within the range supported by a majority of economists.[222] Indeed, the Circular itself provides a general recommendation for a 3 percent rate; and while it also identifies 7 percent rate as appropriate for use in other circumstances, the Circular itself states that the 7 percent figure should not be used when assessing impacts that, like climate change, will affect the public as a whole. Furthermore, OMB, together with the rest of the Interagency Working Group, has explicitly affirmed that the 7 percent rate is inappropriate when addressing climate change.[223] Thus, as explained by the IWG, uncertainty as to the most appropriate discount rate is a reason to provide social cost estimates using the range of plausible

[221] IWG 2010 Social Cost of Carbon TSD at 17-18, 23.
[222] *See* Peter Howard & Derek Sylvan, *The Economic Climate: Establishing Expert Consensus on the Economics of Climate Change* (Inst. Policy Integrity Working Paper 2015/1); M.A. Drupp, et al., *Discounting Disentangled: An Expert Survey on the Determinants of the Long-Term Social Discount Rate* (London School of Economics and Political Science Working Paper, May 2015) (finding consensus on social discount rates between 1-3%).
[223] Interagency Working Group on the Social Cost of Carbon, *Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12,866* at 36 (July 2015), available at https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf and attached as Exhibit 85.

rates—which FERC and other agencies have done in other proceedings[224]—but it is not a reason for ignoring the social cost of greenhouse gas emissions entirely. *Center for Biological Diversity*, 538 F.3d at 1200 (disagreement over cost of carbon emissions does not allow agency to forgo estimating cost where, "while the record shows … a range of values, the value of carbon emissions reduction is certainly not zero.").[225] CO10-1

Finally, estimating social cost of greenhouse gas emissions will help the public and FERC understand whether the adverse consequences of the Projects' emissions are severe enough to warrant consideration in the public interest/public convenience and necessity analyses, and, indeed, whether these emissions tip the balance toward the conclusion that the project is contrary to, and not required by, the public convenience and necessity. The current DEIS provides no information to use in answering these questions; it is indisputable that estimating the impacts of emissions using the social cost protocols would speak to these issues, regardless of whether FERC concludes that the monetized impact is or is not significant. Although FERC has discretion to choose among reliable methodologies for evaluating impacts, that discretion does not allow FERC to provide *no* evaluation whatsoever when a generally accepted methodology is available. 40 C.F.R. § 1502.22(b)(4), *see also N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011) (holding that agency decision not to survey for wildlife prior to approving project was not a valid exercise of discretion as to assessment methodology).

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[224] *See, e.g.*, FERC, Final EIS, Constitution Pipeline and Wright Interconnect Projects, CP13-499 (Oct. 2014), Accession No. 20141024-4001, at 4-256 to 4-257 ("For 2015, the first year of project operation, … the project's social cost of carbon for 2015 would be $1,638,708 at a discount rate of 5 percent, $5,325,802 at 3 percent, and $8,330,100 at 2.5 percent.").

[225] As explained in Sierra Club's concurrently filed joint comment, a growing body of literature suggests that the discount rate used for assessing climate harms should be lower than 3 or even 2.5 percent, reflecting both the decline in general interest rates since Circular A-4 was adopted and the particular nature of climate harms. Using a lower discount rate would *increase* the estimate of the social cost of carbon; thus, the IWG estimates do not risk overstating impacts.

IX. The DEIS Fails to Adequately Address Connected, Indirect, and Cumulative Actions, Including Production and Use of the Exported Gas

CO10-1

Authorization of the Rio Grande LNG Terminal and the Rio Bravo Pipeline (hereafter the "Project") will have foreseeable indirect effects on the price, production, and use of natural gas in the United States. Because NEPA requires an agency to engage in a wide-ranging inquiry, including connected actions, indirect effects, and other foreseeable consequences, FERC must consider these impacts in its EIS.

A. The EIS Must Address the Impacts of Cooperating Agencies' Decisions

The DEIS states that the "environmental and economic consequences" of project-induced increases in gas production and use are outside the scope of the DEIS because FERC does not regulate "these production and gathering activities" – instead, states and local agencies do.[226] An agency is not exempt from including indirect environmental impacts simply because local or state agencies have control over much of the relevant regulatory process. FERC's potential authorization of the Project would be a cause of increases in gas production and use notwithstanding the fact that other government entities also regulate these effects. FERC observes in the DEIS that "production and gathering activities … are overseen by the affected region's state and local agencies."[227] However, NEPA would "wither away in disuse, [if] applied only to those environmental issues wholly unregulated by any other federal, state or regional body."[228]

Nor does the Department of Energy's role in approving gas exports relieve FERC of the obligation to address the impacts of gas production and use in the EIS. Commenters recognize that the D.C. Circuit has held that the Department of Energy's approval of exports, rather than FERC's approval of the construction and operation of export infrastructure, is the "legally

[226] DEIS Table 1.3-2.
[227] DEIS Table 1.3-2.
[228] *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1122-23 (D.C. Cir. 1971).

relevant cause," for purposes of NEPA review, of indirect effects on gas production and use. *Sierra Club v. FERC*, 827 F.3d 36, 47-49 (D.C. Cir. 2016) ("*Freeport I*") (citing *Department of Transp. v. Public Citizen*, 541 U.S. 752, 764, 771 (2004)). However, *Freeport I* explicitly declined to address "the interplay between the Commission and the Department of Energy when the former is acting as the 'lead agency' in reviewing the environmental effects of a natural gas export operation under NEPA," whether FERC's decision to exclude gas production from its EIS "impermissibly 'segmented' its review of the [terminal] Projects from the larger inter-agency export authorization process," or whether "Commission's construction authorizations and the Department's export authorizations qualified as 'connected actions' for purposes of NEPA review." *Id.* at 45-46. The Court could not have been clearer about the fact that *Freeport I* did not resolve these issues: "Before addressing the merits of the Associations' NEPA claim, we pause to underscore what we are not deciding in this case." *Id.* at 45. No subsequent case addressing LNG exports has discussed these issues.

CO10-1

Consideration of these issues left undecided by *Freeport I* and its progeny plainly demonstrates that the Department's authorization of exports *is* a "connected action," which must be fully analyzed in the terminal EIS. 40 C.F.R. § 1508.25(a)(1). According to NEPA's binding regulations:

> Actions are connected if they:
>
> (i) Automatically trigger other actions which may require environmental impact statements.
>
> (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
>
> (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

Id. "The point of the connected actions doctrine is to prevent the government from 'segmenting'

its own 'federal actions into separate projects and thereby failing to address the true scope and impact of the activities that should be under consideration.'" *Big Bend Conservation All. v. FERC*, 896 F.3d 418, 423–24 (D.C. Cir. 2018) (quoting *Sierra Club v. U.S. Army Corps of Eng'rs*, 803 F.3d 31, 49–50 (D.C. Cir. 2015) and *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014)). CO10-1

It is clear that the decisions of cooperating agencies identified in part 1.5 of the DEIS, 1-18 to 1-25, and the Department of Energy's approval in particular, *are* connected actions, the consequences of which must be fully considered in *this* EIS. 40 C.F.R. § 1508.25(a)(1). By refusing to consider the impacts of connected actions, FERC impermissibly segments NEPA review. *Delaware Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014). The proposed exports cannot proceed without construction and operation of the terminal and pipeline, and the various projects depend on one another for their justifications. 40 C.F.R. § 1508.25(a)(1)(ii)-(iii). The Department's evaluation of the application to export LNG to non-free-trade-agreement countries is an action that "may require [an] environmental impact statement[];" *id.* § 1508.25(a)(1)(i); indeed, the Department has already concluded that "[a]pprovals or disapprovals of authorizations to import or export natural gas" involving construction or significant modification of export facilities, or even a "major increase in the quantity of [LNG] imported or exported" from existing facilities, will "normally require [an] EIS." 10 C.F.R. Pt. 1021 Subpt., D App. D, D8-D9.

The connection between FERC's decision and the Department's is made particularly clear by the Energy Policy Act of 2005, which, in FERC's own words, "amended the Natural Gas Act to require [FERC] to coordinate the environmental review and the processing of all federal

authorizations relating to proposals for natural gas infrastructure under FERC's jurisdiction."[229] *See also Freeport I*, 827 F.3d at 41 (discussing 15 U.S.C. § 717n(b)(1), 42 U.S.C. § 7172(a)(2)(B)). Because Congress has instructed FERC to prepare the EIS the Department of Energy and other cooperating agencies will use in satisfying their NEPA obligations, FERC cannot reasonably contend that this EIS need not include the effects of these other agencies' actions.

CO10-1

B. The Effects of Increased Gas Production and Use Are Reasonably Foreseeable

An increase in gas production and use is a reasonably foreseeable indirect effect of both the FERC and Department of Energy actions regarding the Rio Grande and Rio Bravo Projects.

NEPA requires agencies to consider and disclose the "indirect effects" of their actions.[230] Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[231] An effect is reasonably foreseeable if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."[232] Indirect effects encompass both "growth inducing" and "economic" effects, including "induced changes in the pattern of land use, population density or growth rate."[233] The indirect effects inquiry is therefore wide-ranging in its scope.

The courts have consistently required that agencies extend their analyses to include effects similar to those ignored here by FERC. Where a new runway will foreseeably induce additional

[229] Federal Energy Regulatory Commission, Guidance for Federal and State Agencies for the Processing of Federal Authorizations in Cooperation with the FERC, 1, attached as Exhibit 86 and available at https://www.ferc.gov/industries/gas/enviro/epact-gas-guidance.pdf.
[230] 40 C.F.R. § 1508.8(b).
[231] *Id.*
[232] *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003) (quotations omitted).
[233] 40 C.F.R. § 1508.8(b).

air traffic, the agency must assess the impacts of that traffic.[234] Where a railway would reduce the cost of delivered coal, the agency must address the foreseeable possibility of an increase in coal consumption and the effects thereof.[235] And in approving a port and causeway providing access to a previously isolated island, the agency was required to consider the effects of foreseeably induced "industrial development" thereon.[236]

CO10-1

Here, it is clear that exports from the proposed terminal will result in an increase in gas production, processing, and transportation—the exported gas will have to come from somewhere. The DEIS's assertion that the location of increased production is speculative cannot be squared with Rio Grande's own assertions about the likely source of supply, or with available modeling tools. Many of the impacts of additional gas production and associated activity can be evaluated at the regional level. But even if FERC were correct, and the site of induced activity was entirely unknowable, FERC would still be able to meaningfully discuss the extent of climate impacts and the nature of non-climate effects. We discuss these issues in turn below

1. The Proposed Projects Will Increase Gas Production

Rio Grande argues that the Project will provide "indirect benefits due to enhanced natural gas exploration and production." Application at 26. The Rio Bravo pipelines will allow "the physical delivery of natural gas produced in Texas' natural gas producing regions," as well as, more broadly, other gas producing regions. *Id.* at 22. In Rio Grande's parallel application to the Department of Energy, Rio Grande argues that the "Project's proximity to the Eagle Ford and conventional South Texas natural gas production makes those areas good candidates for providing

[234] *Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124, 1138-39 (9th Cir. 2011).
[235] *Mid States*, 345 F.3d at 549-50.
[236] *Sierra Club v. Marsh*, 769 F.2d 868, 878-79 (1st Cir. 1985).

natural gas for export."[237]

The Application relies on an economic report that extensively discusses, and attempts to quantify, the economic impact of this additional production. The Perryman Group, "*The Potential Impact of the Proposed Rio Grande Liquefied Natural Gas (LNG) and Rio Bravo Pipeline Facilities on Business Activity in Cameron County, Texas, and the United States*" (Dec. 2015) (attached at Resource Report 5.B).[238] The Perryman Report argues that the Rio Grande facility will "support[] the development of natural gas reserves," *id.* at 2; that "The Rio Grande LNG project would help ensure the ongoing maintenance and development of US natural gas resources by providing access to world markets. … The ability to export domestic gas as LNG greatly expands the market scope and access for domestic natural gas producers, encouraging domestic production at times when US market prices might not otherwise be favorable," *id.* at 6; that the benefits of the Project include "enhanced exploration and production of natural gas," *id.* at 7; and that, without expanded LNG exports, domestic gas production may decrease, *id.* at 5. Other resource reports filed by the applicants similarly argue that one of the benefits of the Project will be "an increase in domestic production of natural gas."[239]

CO10-1

The Applicants' claim that the proposed Projects will cause an increase in gas production is consistent with the view of the Energy Information Administration, Environmental Protection Agency, Department of Energy, and every private consultant that has considered the issue. These tools provide predictions of the amount by which a given volume of exports, from a specific location or locations, will increase gas production in an individual state or gas basin. *See, e.g.*,

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[237] Application of Rio Grande LNG, LLC, FE Docket No. 15-190-LNG, at 21 (Dec. 23, 2015), Exhibit 87, available at https://www.energy.gov/sites/prod/files/2016/07/f33/Rio_Grande15_190-LNG_App.pdf; *see also id.* at 23, 37-38 (discussing Eagle Ford as likely source of supply).
[238] Available at http://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14070242
[239] Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC, Resource Report 10: Alternatives (May 2016), at RR10-6.

ICF International, U.S. LNG Exports: Impacts on Energy Markets and the Economy at 18 (May 15, 2013) (explaining that ICF's model predicts production in individual basins),[240] ICF International, U.S. LNG Exports: State-Level Impacts on Energy Markets and the Economy, at 15(Nov. 13, 2013) (showing state-level increases in gas production in response to specific export volumes).[241] Another consultant has modeled how gas production in individual shale plays will respond to exports from an individual facility. Deloitte Marketpoint, Analysis of the Economic Impact of LNG Exports from the United States, at 8, 14.[242]

CO10-1

Similarly, the Energy Information Administration has repeatedly studied how U.S. energy markets will respond to LNG exports, predicting the amount by which gas production is expected to increase in response to a given volume of exports in various scenarios. *See* Energy Information Administration, Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets, 12 (October 2014).[243] In preparing this report, EIA predicted how different export scenarios would increase gas production in individual subregions (*e.g.*, Gulf Coast, Southwest).[244] Moreover, the tool EIA used to prepare this analysis—the National Energy Modeling System—is routinely used to provide more fine-grained analysis, estimating changes in production in individual gas plays. *See* Energy Information Administration, Annual Energy Outlook 2018, at 68 (Feb. 6, 2018)[245] (discussing individual predictions regarding gas production Eagle Ford, Haynesville, Permian, Utica, and Marcellus plays); Energy Information Administration, Oil and

[240] Attached as Exhibit 88, available at https://www.api.org/~/media/Files/Policy/LNG-Exports/API-LNG-Export-Report-by-ICF.pdf.
[241] Exhibit 89, available at https://www.api.org/~/media/Files/Policy/LNG-Exports/API-State-Level-LNG-Export-Report-by-ICF.pdf
[242] Attached as Exhibit 90; initially filed as Excelerate Liquefaction Solutions I, LLC, FE Docket 12-146-LNG, Application for Non-FTA Export Authorization, Appendix F (Oct. 5, 2012), available at https://fossil.energy.gov/ng_regulation/sites/default/files/programs/gasregulation/authorizations/2012/applications/12_146_lng_nfta.pdf.
[243] Attached as Exhibit 91, available at https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf.
[244] See Exhibit 92, available online at (select Publication: "Effect of Increased Natural Gas Exports on Domestic Energy Markets" and Table: "Lower 48 Natural Gas Production and Wellhead Prices by Supply Region").
[245] Attached as Exhibit 93, available online at https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.

Gas Supply Module of the National Energy Modeling System: Model Documentation 2018, at 9 (June 2018) (explaining that NEMS is a "play-level model").[246] No agency has ever disputed that EIA's tools can be used to provide reasonable forecasts of how LNG exports from particular sites will increase gas production in individual gas plays. CO10-1

In summary, the Applicants state that the Projects will increase gas production; common sense and every available expert analysis confirm that increasing exports will increase gas production, and numerous tools exist to provide quantitative forecasts of how much additional production will result, and of how this added production will be allocated among gas plays or producing regions. An increase in gas production is a therefore a reasonably foreseeable indirect effect of FERC's approvals or of other agency actions connected thereto.

2. The Environmental Impacts of Increased Gas Production, Processing, and Transport are Reasonably Foreseeable

The DEIS does not deny that an increase in natural gas production will occur because of FERC's authorization of the Project, or that FERC can reasonably foresee the amount of this increase. Instead, FERC claimed in the DEIS that the "specific locations for infrastructure associated with induced production are not reasonably foreseeable," and that this places these impacts outside the scope of the DEIS.[247] FERC is mistaken.

First, analysis of the climate impacts of additional gas production does not depend on knowing the specific locations where gas production and other activities will occur.[248]

Second, other impacts also occur at the regional level, and can be meaningfully forecast on

[246] Attached as Exhibit 94, available online at https://www.eia.gov/outlooks/aeo/nems/documentation/ogsm/pdf/m063(2018).pdf.
[247] DEIS Table 1.3-2.
[248] *See* Department of Energy, *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States*, at 2 (August 15, 2014) ("*With the exception of greenhouse gases (GHG) and climate change*, potential impacts of expanded natural gas production and transport would be on a local or regional level.") (emphasis added), attached as Exhibit 95, available at https://www.energy.gov/sites/prod/files/2014/08/f18/Addendum.pdf.

the basis of basin- or play-level predictions of gas production, precisely the types of forecasts discussed in the previous section. Most importantly, FERC can foresee how regional increases in gas production will impact regional ozone levels (both in the region where the increase occurs *and in surrounding regions*). Ground-level ozone is formed by the interaction of volatile organic chemicals and nitrogen oxides, and has serious impacts on human health and the environment. EPA has explained that ozone formation and impacts often occur "on a regional scale (*i.e.*, thousands of kilometers)." 76 Fed. Reg. 48,208, 48,222 (Aug. 8, 2011). In some regions, gas production is the primary contributor to ozone levels that violate EPA's national ambient air quality standards.[249]

CO10-1

Available models, including the Comprehensive Air-quality Model with extensions ("CAMx"), can predict how an increase in gas production in an individual gas play will affect ozone levels in neighboring regions. One study used this tool to predict that increasing gas development in the Haynesville Shale would significantly impact ozone throughout east Texas/west Louisiana region.[250] Nothing indicates that it would be infeasible or exorbitantly expensive to perform similar modeling here. 40 C.F.R. § 1502.22(a). To the contrary, the Bureau of Land Management has performed a similar CAMx analysis to evaluate how gas development on federal land would affect ozone in surrounding regions, as part of NEPA review for a land management plan revision.[251] Similarly, EPA demonstrated that it was feasible to model the impact a new rule regarding major sources of air pollution would have on individual ozone regions nationwide. EPA, *Regulatory Impact Analysis for the Federal Implementation Plans to*

[249] Department of Energy, *Addendum* at 28.
[250] Susan Kemball-Cook, *et al.*, *Ozone Impacts of Natural Gas Development in the Haynesville Shale*, 44 Envtl. Sci. & Tech. 9357, 9360-61 (2010), DOI: 10.1021/es1021137, attached as Exhibit 96.
[251] Bureau of Land Management, Continental Divide-Creston Natural Gas Development Project EIS, Air Quality Technical Support Document (Apr. 15, 2016), attached as Exhibit 97, available at https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=77531.

Reduce Interstate Transport at 60-61 (June 2011).[252]

Finally, even for impacts that are local in nature, uncertainty as to the specific locations where incremental gas production will occur does not permit FERC to ignore the impact entirely. Even if the precise "*extent*" of these effects is not reasonably foreseeable, the "*nature*" of these effects is, and as such, FERC "may not simply ignore the effect."[253] For example, in *Mid States*, the court ruled that an agency must address the foreseeable possibility of an increase in coal consumption and the effects thereof, due to the construction of a railway reducing the cost of delivered coal.[254] An agency may not ignore "the construction of additional [coal-fired] power plants" that may result merely because the agency does not "know where those plants will be built, and how much coal these new unnamed power plants would use."[255] Thus, FERC must disclose, *in the EIS*, the fact and nature of these foreseeable effects of gas production that will be induced by the Projects.

CO10-1

3. The Proposed Projects Will Increase Overseas Gas Use

The Projects will also have foreseeable indirect effects resulting from the shipping, regasification, and use of exported LNG. Each of these activities will emit foreseeable amounts of greenhouse gases. The Department of Energy has already demonstrated that it is possible to quantitatively estimate emissions from use of LNG for electricity generation, and other published literature estimates emissions from other foreseeable uses of LNG.[256]

These emissions are foreseeable, and must be disclosed, even if FERC is unsure as to how foreign energy markets as a whole will balance in response to exported LNG. *See* DEIS 3-2 to 3-

[252] Attached as Exhibit 98, available at https://www3.epa.gov/crossstaterule/pdfs/FinalRIA.pdf.
[253] *Mid States,* 345 F.3d at 549.
[254] *Id.*
[255] *Id.*
[256] Gilbert, A. Q. & Sovacool, B. K., "US liquefied natural gas (LNG) exports: Boom or bust for the global climate?," Energy, Volume 141,December 15, 2017, pp. 1671-1680. https://doi.org/10.1016/j.energy.2017.11.098, attached as Exhibit 99.

3. FERC cannot justify its failure to take a hard look at foreseeable emissions resulting from burning LNG exported via the Projects by speculating that other, more attenuated fuel substitution, might provide an unknown degree of mitigation. Moreover, the DEIS offers no analysis to support its speculation that all or even most of exported LNG will be used in place of coal or other sources of natural gas. Notably, recent peer reviewed research concludes that US LNG exports are likely to play only a limited role in displacing foreign use of coal, and such that US LNG exports are likely to increase net global GHG emissions.[257] This recent research was not before the agencies in *Freeport II*, 867 F.3d at 202, and demonstrates that there are now tools to perform a more careful and informative analysis than was done in that case.

CO10-1

C. DOE's Prior Analyses of Indirect Effects Are Insufficient

DOE, in its notice of Rio Grande's application, states that DOE will "consider" to general environmental reports DOE prepared in 2014: a summary of the impacts of natural gas production, and an analysis of the life-cycle greenhouse gas impact of U.S. LNG exports. 81 Fed. Reg. 46918, 46919 (July 19, 2016).

NEPA, however, requires that discussion of environmental impacts be provided *in the EIS*. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18034 (Mar. 23, 1981). The propriety of DOE's past reliance on these non-NEPA materials is another issue that the D.C. Circuit has explicitly declined to uphold, instead concluding that the issue was not before it. *Freeport II*, 867 F.3d at 197.

Moreover, these materials are out of date, and do not reflect the enormous amount of research regarding the impacts of gas production that has been published since they were issued. Physicians, Scientists, and Engineers for Healthy Energy maintains a database of peer-reviewed

[257] *See, e.g.*, Gilbert et al. 2017, *supra* note 256.

literature regarding the environmental and public health impacts of shale and tight gas production, the Repository for Oil and Gas Energy Research.[258] This database identifies 1,548 publications dated after August, 2014.[259] FERC cannot rely on material DOE published in 2014, years before the pending applications were even submitted, without taking a hard look at whether that material continues to constitute "high quality information," 40 C.F.R. § 1500.1(b) and provide "full and fair discussion of significant environmental impacts," 40 C.F.R. § 1502.1.

CO10-1

One example of how DOE's 2014 materials no longer represent the scientific consensus is that recent data indicates much higher greenhouse gas emission rates for gas production. These materials assert that 1.3 and 1.4 percent of extracted gas is released as methane between the well and liquefaction facility.[260] This estimate was based on "bottom-up" methodology, which aggregated measurements of emissions from individual components—*e.g.*, measurement of an individual pneumatic controller. Even at the time these reports were published, "top-down" studies, which measure total changes in atmospheric methane concentrations around gas production sites, indicated that these figures were a gross underestimate of total emissions.[261] More recent and more thorough bottom up studies have affirmed that the DOE's 2014 estimates were too low, and has generally supported the estimates provided by earlier top-down analyses, estimating that roughly 2.3% of extracted natural gas leaks to the atmosphere.[262]

[258] https://www.psehealthyenergy.org/our-work/shale-gas-research-library/
[259] https://www.zotero.org/groups/248773/pse_study_citation_database/items/order/dateModified/sort/desc (last visited Nov. 30, 2018).
[260] Export LCA, 6-8.
[261] *See, e.g.* Brandt, A.R., *et al.*, *Methane Leaks from North American Natural Gas Systems*, Science, Vol. 343, no. 6172 at pp. 733-735 (Feb. 14, 2014), attached as Exhibit 100.
[262] Alvarez *et al.*, Assessment of methane emissions from the U.S. oil and gas supply chain, Science 361, 186–188 (Jul. 13, 2018), DOI: 10.1126/science.aar7204, attached as Exhibit 101 and available at http://science.sciencemag.org/content/early/2018/06/20/science.aar7204

X. The DEIS Fails to Adequately Address Cumulative Impacts

CO10-1

An EIS must consider not only the direct adverse impacts of a project, but also its probable secondary, indirect, and cumulative impacts. A project's "cumulative impact" is defined in the federal regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7.

The Fifth Circuit has held that a "meaningful cumulative-effects study must identify: (1) the area in which effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions—past, proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate." *Fritiofson v. Alexander*, 772 F.2d 1225, 1245 (5th Cir. 1985) (citing *Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson*, 685 F.2d 678, 683-84 (D.C. Cir. 1982)).

The DEIS undertakes a cumulative impacts analysis, concluding that the greatest potential for cumulative impacts would be on soils, surface water quality, vegetation, wildlife, aquatic resources, threatened and endangered species, visual resources, land- and water-transportation, air quality, and noise. DEIS ES-15; 4-370. Significant impacts to some of these resources are expected. The comments above identify flaws in the cumulative impacts analysis for some specific resources (*e.g.*, habitat for endangered species). But the analysis fails to satisfy the "hard look" NEPA standard for additional reasons.

First, FERC's analysis of past actions and its approach to the incremental analysis from

proposed and reasonably foreseeable actions is insufficient. The DEIS takes a "broad, aggregated approach" to past actions. DEIS 4-371. In practice, this means simply describing the current regional landscape on a high level without actually analyzing past actions' impact on resources that will be affected by the Rio Grande LNG Project. For example, in its wetlands analysis, FERC aggregates the total known wetland impacts associated with the Rio Grande LNG Project and other known projects to arrive at 546.9 acres of impact. The agency then derives an estimated total acreage of wetlands present in the Bahia Grande-BSC HUC-12 subwatershed, and performs an incremental analysis of the impacts relative to this total acreage. *See* DEIS 4-403. No further description or analysis of past wetland impacts, whether qualitative or quantitative, is included in the DEIS.

CO10-1

The CEQ regulations on cumulative impacts first require the regulatory agency to look at the "incremental impact" of a project; the incremental impact must then be added to the environmental baseline, which includes all past and present actions that impact the affected area. 40 C.F.R. § 1508.7. By combining the incremental impact with the environmental baseline of impacts to the same affected resource, an agency can determine the total impacts to the area. In undertaking this analysis, it is imperative to understand the total cumulative impacts from existing, proposed, and reasonably foreseeable projects because the proposed action may be the "straw that breaks the back of the environmental camel," *Hanly v. Kleindienst*, 471 F.2d 823, 832 (2d Cir. 1972), resulting in overall significant impacts on the area. But the DEIS fails to quantify the past impacts (even in aggregate form) to many resources.

By employing an erroneous form of 'incremental analysis,"[263] federal agencies will presumably be able to authorize, for example, the destruction of all remaining wetlands, as long as

[263] The Court of Appeals for the D.C. Circuit has recognized that an "incremental analysis" approach fails to comply with statutory requirements. *Grand Canyon Trust v. FAA*, 290 F.3d 339, 341 (D.C. Cir. 2002).

each increment is small relative to the body of wetlands that that remain in a watershed, without accounting for wetlands that have already been destroyed by past actions. The same is true for many affected resources. This is contrary to the Fifth Circuit's holding in *Fritiofsen*, which requires the agency to identify "the overall impact that can be expected if the individual impacts are allowed to accumulate."[264] FERC must include a detailed analysis of the impacts that already exist in this sub-region of Texas for each affected resource to serve as an environmental baseline to which the impacts from this project and other foreseeable projects is added. The analysis in the DEIS fails to meet this requirement.

CO10-1

Second, the 404(b)(1) Guidelines echo the importance of assessing cumulative impacts. The fundamental policy of the 404(b)(1) Guidelines is that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually *or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern*,"[265] including specific wetland types (*e.g.*, mangrove habitat). The DEIS fails to adequately disclose cumulative impacts to specific aquatic resources and without a final mitigation plan being made available concurrent with the DEIS, it is not possible for the public to meaningfully comment on the cumulative impacts to these resources.

Third, the Air Cumulative Analysis appended to the DEIS is flawed. DEIS App. O. The analysis recognized that many of the public scoping comments expressed concern over cumulative air quality impacts from emissions of the three LNG terminals proposed along the BSC. The analysis compiled the cumulative impacts for five criteria pollutants (NO_2, CO, $PM_{2.5}$, PM_{10}, and SO_2) at specified averaging periods for comparison to the primary NAAQS. App. O at

[264] 772 F.2d at 1245.
[265] 40 C.F.R. § 230.1(c) (emphasis added).

1. However, the Clean Air Act has set NAAQS for six common air pollutants; the cumulative impacts analysis fails to include ground-level ozone (O_3). *See* DEIS 4-235 (recognizing the EPA establishing NAAQS for these six criteria pollutants). A cumulative impacts analysis should be undertaken for ozone based on TCEQ modeling guidance. This analysis should be disclosed to the public. CO10-1

This is particularly important because there is an inconsistency between the information provided in the DEIS and information in the TCEQ's modeling analysis regarding RG LNG's projected maximum 8-hour ozone impacts. The DEIS states that its modeling estimated the maximum 8-hour ozone impacts of the Project to be 2.3 parts per billion of ozone, which, when considered with the background concentration of 57 ppb, would not exceed the standard of 70 ppb. DEIS 4-258. However, the TCEQ Executive Director's Source Analysis and Technical Review came to a significantly different conclusion.[266] The air quality analysis for ozone, based on EPA Region 6 guidance, found that the highest five year average for NOx would be 3.87 ppb and the 8-year maximum predicted increase of ozone would be 11.6 ppb.[267] Adding 11.6 ppb to the 8-hour ozone background of 57 ppb will result in 68.6 ppb of ozone at a distance of 10km – without any other sources added.[268] It stands to reason that additional sources, including Texas LNG and Annova LNG, could result in a cumulative impact exceeding the ozone standard at a distance of 10km. This discrepancy must be reconciled by FERC during its review and a cumulative analysis, based on EPA guidance for PSD analysis for ozone, must be undertaken for all three LNG projects.

To take the required hard look at a proposed project's effects, an agency may not rely on

[266] *See* Exhibit 102, TCEQ Interoffice Memorandum for Rio Grande LNG, LLC's NSR Authorization No. 140792/PSDTX 1498 (Nov. 16, 2018).
[267] *Id.* at 12.
[268] *Id.* at 13.

incorrect assumptions or data in the NEPA document. *Native Ecosystems Council v. U.S. Forest Service*, 418 F.3d 953, 964 (9th Cir. 2005). The cumulative air analysis notes that the Texas LNG concentration ranks differ from TCEQ modeling guidance. The DEIS analysis of air quality impacts further deviates from the conclusions in TCEQ materials. FERC must take a hard look at the data, assumptions, and conclusions in this cumulative impacts analysis to satisfy its NEPA obligations. CO10-1

XI. Conclusion

For the reasons state above, FERC's draft EIS for the Rio Grande LNG export terminal and associated Rio Bravo pipeline fails to satisfy the requirements of the National Environmental Policy Act. Accordingly, FERC cannot move forward with approving these Projects without addressing these deficiencies with either a revised draft EIS or, less preferably, a draft supplemental EIS, either of which must be circulated for further public review and comment.

Respectfully submitted December 3, 2018,

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CO (Companies and Organizations)

CO10 - Sierra Club

CO10-1

CERTIFICATE OF SERVICE

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

Dated at Oakland, CA this 3rd day of December, 2018.

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PORT OF BROWNSVILLE
the port that works

EXTERNAL AFFAIRS

November 30, 2018

2018 DEC -3 P 3:12

FEDERAL ENERGY
REGULATORY COMMISSION

Chairman Neil Chatterjee
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

RE: Rio Grande LNG and Rio Bravo Pipeline
Docket Nos. CP16-454-000 and CP16-455-000

Dear Chairman Chatterjee:

Please accept this letter on behalf of the Port of Brownsville expressing our continued support for the Rio Grande LNG Project and the associated Rio Bravo Pipeline Project. These projects will create thousands of job opportunities for the people of the Rio Grande Valley. We have worked closely with Houston-based Next Decade Corporation to advance its plans to develop these important infrastructure projects at and near our port. CO11-1

The Port of Brownsville is the only deep-water seaport located directly on the U.S./Mexico border. We are a large land-owning public port authority with approximately 40,000 acres of land. Next Decades plans to construct and operate a natural gas liquefaction and export facility will help the nation mitigate trade deficits with key allies and improve the global environment through the provision of clean-burning, U.S. produced natural gas. The Rio Grande LNG and the Rio Bravo Pipeline projects are expected to contribute more than $35 billion to the U.S. GDP during construction, and more than $500 million annually during operations. These projects will help further our nation's energy independence, which is a key priority of our current administration, the Congress and policymakers throughout Texas. CO11-2

We very much appreciate the FERC's staff efforts to review these projects, resulting in the October 18, 2018 issuance of the draft environmental impact statement. We understand this work is carried out in accordance with the National Environmental Protection Act, and it is very rigorous, time-consuming and resource intensive. CO11-3

We look forward to the timely issuance of a final environmental impact statement and to your final approval of the projects as soon as possible. We are confident that in the coming months, Next Decade will accomplish its commercial and engineering milestones and that final approval of these project will create tremendous opportunities for the Port of Brownsville. These projects will provide significant economic benefits our region and for the entire State of Texas that will be felt for generations. CO11-4

Sincerely,

Eduardo A. Campirano
Port Director & CEO
Port of Brownsville

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CO11-1 Comment noted.

CO11-2 Comment noted.

CO11-3 Comment noted.

CO11-4 Comment noted.