FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Branch 3
Florida Southeast Connection, LLC; Transcontinental Gas Pipe Line Company, LLC; Sabal Trail Transmission, LLC
Docket Nos. CP14-554-002; CP15-16-003; CP15-17-002

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared the enclosed final supplemental environmental impact statement (SEIS) to address the August 22, 2017 Opinion issued by the United States Court of Appeals for the District of Columbia regarding the Commission's environmental review of the Southeast Market Pipelines (SMP) Project.

On September 27, 2017, the Commission issued a draft SEIS for the SMP Project. The final SEIS estimates the greenhouse gas emissions generated by the SMP Project's customers' downstream facilities, describes the methodology used to determine these estimates, discusses context for understanding the magnitude of these emissions, describes the Commission's past policy on the use of the Social Cost of Carbon tool, and as appropriate addresses comments on the draft SEIS.

Commission staff will mail copies of the final SEIS to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; newspapers and libraries in the project area; and parties to this proceeding. Additionally, the final SEIS is available for public viewing on the FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Questions?

Additional information about the SMP Project is available from the Commission's Office of External Affairs, at (**866) 208-FERC,** or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP14-554, CP15-16, or CP15-17). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at (866) 208-3676; for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription that allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

The vertical line in the margin identifies text that has been modified in this final supplemental environmental impact statement and differs materially from the corresponding text in the draft supplemental environmental impact statement.

SOUTHEAST MARKET PIPELINES PROJECT
Final Supplemental Environmental Impact Statement
FERC EIS 0279F
(February 2018)

INTRODUCTION

The Southeast Market Pipelines Project (SMP Project) is composed of three separate, but related, interstate natural gas transmission pipeline projects subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC or Commission). These projects are the: Transcontinental Gas Pipe Line Company, LLC's (Transco) Hillabee Expansion Project in Docket No. CP15-16-000; Sabal Trail Transmission, LLC's (Sabal Trail) Sabal Trail Project in Docket No. CP15-17-000; and Florida Southeast Connection, LLC's (FSC) Florida Southeast Connection Project in Docket No. CP14-554-000. Transco, Sabal Trail, and FSC are collectively referred to herein as the "Applicants". Together, these projects (referred to as the SMP Project) involve the construction and operation of approximately 685 miles of pipeline and associated facilities including compressor stations, valves, and inspection equipment.

In compliance with the National Environmental Policy Act (NEPA), we[1] prepared a draft and final environmental impact statement to: identify and assess potential impacts on the natural and human environment resulting from construction and operation of the SMP Project; describe and evaluate reasonable alternatives to the SMP Project; identify and recommend specific mitigation measures to avoid or reduce/minimize environmental impacts; and encourage and facilitate involvement by the public and interested agencies in the environmental review process.

Staff issued the final environmental impact statement (FEIS) for the SMP Project in December 2015. The Commission issued an Order Issuing Certificates and Approving Abandonment (Order) in February 2016, and on September 7, 2016, an Order Denying Rehearing. Project construction began in August 2016. In June and July 2017, Commission staff authorized the pipelines to commence service of completed facilities.

[1] "We," "our," and "us" refers to the environmental staff of the Commission's Office of Energy Projects.

In August 2017, the United States Court of Appeals for the District of Columbia Circuit remanded the Commission's orders for preparation of a supplemental environmental impact statement (SEIS) consistent with the court's opinion. The Commission's staff issued a draft SEIS on September 27, 2017. The draft SEIS was filed with the U.S. Environmental Protection Agency (EPA) and a formal notice of availability was issued in the Federal Register on October 4, 2017. The draft SEIS was mailed to 6,658 parties including federal, state, and local government agencies; elected officials; Native American tribes; affected landowners; local libraries and newspapers; intervenors in the FERC's proceeding; and other interested parties. The Federal Register notice established a 45-day comment period on the draft SEIS that ended on November 20, 2017. The notice described the procedures for filing comments on the draft SEIS and how information about the SMP Project could be found on the FERC's website.

In response to the draft SEIS, the Commission received 111 comment letters. Copies of the letters and our responses to their comments are summarized in Appendix A. The Commission received comment letters from the EPA, Senators Whitehouse and Bennet, the Sierra Club, Sabin Center for Climate Change Law at Columbia Law School, other non-governmental organizations, Sabal Trail, FSC, numerous individuals, and others. Several of the comment letters received can be characterized as form letters, some of which have numerous signatories. Comments provided generally addressed the significance of greenhouse gas (GHG) emissions impacts on the environment; the context provided for understanding the significance of these emissions; discrete impacts on the environment associated with GHG emissions; the Commission's policy on the Social Cost of Carbon (SCC); and the significance of associated methane emissions. All timely comments received were considered by staff, and are addressed, as appropriate, in this final SEIS. Changes made to the draft SEIS reflect our consideration of the comments as well as additional staff analysis.

The analysis provided in this final SEIS was prepared to supplement the information and analyses contained within the December 2015 FEIS for the SMP Project, which discussed the direct GHG emissions of the SMP Project and summarized the existing and projected climate change impacts on Florida. The cumulative impacts analysis presented in the FEIS included air emissions from the known power plants served by the SMP Project. However, the GHG emissions associated with use and combustion of the natural gas to be transported by the SMP Project were not included in the analysis. The analysis in this final SEIS addresses downstream GHG emissions and provides context to assist public understanding.

The final SEIS is being mailed to the parties who received the draft SEIS as well as those parties who commented on the draft SEIS or who have become a party to this proceeding. In accordance with the Council on Environmental Quality's (CEQ) regulations implementing NEPA, no agency decision on a proposed action may be made until 30 days after the EPA publishes a notice of availability of the FEIS in the federal register. However, the CEQ regulations provide an exception to this rule when an agency decision is subject to a formal internal appeal process that allows other agencies or the public to make their views known. In such cases, the agency decision may be made at the same time the notice of the FEIS is published, allowing both periods to run concurrently. The Commission decision for this proposed action is subject to a 30-day rehearing period.

GREENHOUSE GAS EMISSIONS

As of May 2017, natural gas represents Florida's largest electric generation source at 69 percent of total generation. Coal-fired and nuclear power represent 15 and 13 percent, respectively, and non-hydroelectric renewable generation represents 2 percent. Since 1980, electric generation has represented between 41 to 51 percent of total GHG emissions from Florida. Florida emissions of GHG as a whole and from the electric power sector peaked in 2006.[2]

Over the next 5 years, the best available data indicates a Florida power generation trend toward retiring and displacing coal and oil facilities, and replacing that capacity with natural gas and renewable energy. Florida is projected to retire 4,100 megawatts (MW)[3] of power generation capacity, including 2,718 MW from coal, 1,348 MW from natural gas, and 34 MW from fuel oil. At the same time, 7,522 MW[4] of new generation capacity is projected to be added for a net increase of 4,781 MW. The new capacity is expected to be principally from natural gas (5,268 MW) and solar (1,846 MW), with biomass and landfill gas units making up an additional 320 MW.[5]

When fully constructed, the SMP Project would have the potential to increase the flow of natural gas into Florida by 1.1 billion cubic feet per day (bcf/day). The Applicants identified four power plants as end-use consumers of the SMP Project volumes: the new Florida Power and Light Company (FPL) Okeechobee Clean Energy

[2] Velocity Suite ABB.

[3] This estimate includes both the St. John's River Power Plant Park and the Indiantown plant identified in NextEra's comment letter. The Cedar Bay plant was not included as this plant has been retired prior to the publication of the draft SEIS.

[4] This estimate includes the Duke Energy, Citrus County Combined Cycle Plant, and the Okeechobee Clean Energy Center but not the Martin County Power Plant as this facility is already in operation. The Okeechobee Clean Energy Center was mistakenly identified as already in operation in the draft SEIS.

[5] Velocity Suite, ABB.

Center; the Duke Energy Citrus County Combined Cycle Plant; and both the existing FPL Martin County Power Plant and Riviera Beach Clean Energy Center. The use of SMP Project natural gas at the Okeechobee and Riviera Beach Clean Energy Centers was identified in subsequent filings.[6] In addition, approximately 100 million cubic feet per day (MMcf/d) of the SMP Project capacity is unsubscribed.

Three of the power plants are altering or have altered their operations and received new or revised Florida Department of Environmental Protection (FDEP) air quality permits during 2014-2016; while the Riviera Beach Clean Energy Center's potential-to-emit (PTE)[7] has not changed since 2012. We consider downstream GHG emissions to be a combination of PTE GHG emissions from the three power plants plus an assumed full combustion of the remaining 100 MMcf/d of natural gas. As the Riviera Beach Clean Energy Center's PTE would not change due to the SMP project, it was not included in the downstream GHG emissions calculations. Table 1 provides these PTE GHG emissions, as carbon dioxide equivalents[8] (CO_{2e}), for three of the new or modified power plants, quantifies the potential CO_{2e} emissions from consumption of the uncommitted capacity,[9] and provides the known reductions in GHG emissions resulting from the projected retirement and displacement of coal or oil as a primary fuel.[10]

[6] Florida Southeast Connection, LLC proposes to construct the Okeechobee Lateral in FERC Docket No. CP17-463-000 to serve the Okeechobee Clean Energy Center. This lateral is under review by the Commission at this time. The Riviera Beach Clean Energy Center is connected to an existing natural gas transmission pipeline and in its comments on the draft SEIS, NextEra indicated that this facility receives gas from the SMP Project.

[7] PTE refers to the Permitted facility's operational emissions at 8,760 hours per year.

[8] Emissions of GHGs are typically expressed in terms of CO_2e, where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2 over a specific timeframe, or its global warming potential (GWP). The 100-year GWP of CO_2 is 1, CH_4 is 25 and N_2O is 298.

[9] From https://www.eia.gov/totalenergy/data/monthly/pdf/sec13_4.pdf, and https://www.epa.gov/sites/production/files/2016-04/documents/us-ghg-inventory-2016-annex-2-emissions-fossil-fuel-combustion.pdf.

[10] Derived from existing and proposed FDEP air quality permits for each facility.

Table 1	
Facility	**Annual CO_{2e} (million metric tons)[1]**
FPL Okeechobee Clean Energy Center	5.46
Duke Energy Citrus County Combined Cycle Plant	5.64
FPL Martin County Power Plant	1.40
Additional or uncommitted capacity[11]	2.0
Total Downstream CO_2 Emissions	**14.5**
Duke Energy Citrus County coal retirement change	-3.87
FPL Martin County change due to switch from oil/natural gas to only natural gas	-2.27
Net Increase in Downstream Permitted Emissions	**8.36**
[1]Annual potential-to-emit emissions from FDEP air quality permits.	

We calculated three downstream emissions scenarios (i.e., net, gross, and full burn) for informational purposes. The first scenario includes the gross total minus the offset from the retirements or conversions (net). The second scenario represents just the expected use of the destination facilities (gross). Finally, the third scenario presents the upper bound full burn estimate, or complete combustion of the total pipeline capacity (full burn). We note that it is unlikely that the full capacity of the power plants would be utilized at all times. When the power plants are not running at full power, the gas could be sold to other customers. However, as the power plants' utilization of the SMP Project will vary, the full burn scenario represents complete combustion of the maximum pipeline capacity (see table 2).

In an effort to provide some context to the GHG emissions from the SMP Project, we provide the GHG inventory for both the State of Florida and at a national level. We used 2015 GHG inventory data from the Energy Information Administration (EIA) for our analysis. The EIA inventory identified that fossil-fuel related sources (not including GHG emissions from land-use sectors) emitted 228 million metric tons of GHGs in Florida in 2015.[12] Table 2 compares the range of downstream emissions to this inventory and identifies the potential increase in relative GHG emissions in Florida as well as the 2015 National GHG inventory of 5.4 billion metric tons per year.[13]

[11] Potential volumes of gas to additional customers, such as Riviera Beach Clean Energy Center, are included in these volumes.

[12] The fossil fuel GHG inventory of Florida increased from 227.5 to 231.5 million metric tonnes between 2014 and 2015. Power generation emissions fell via https://www.eia.gov/environment/emissions/state/.

[13] https://www.epa.gov/sites/production/files/2017-02/documents/2017_complete_report.pdf

We received several comment letters questioning why the draft SEIS did not account for fugitive methane leaks in the downstream GHG total. Fugitive methane leaks from newly constructed downstream facilities are expected to be minimal, and fugitive methane leaks from power plants are also expected to be low. Therefore, we determined that any increase would be negligible. Additionally, the air permits for the Florida power plants included fugitive methane emissions. The only analysis that did not include fugitive methane emissions was the "full burn" analysis. To respond fully to these concerns we looked at fugitive methane leak rates from power plants and found widely varying numbers. To be conservative, we used a 0.26 percent leakage rate, based upon a recent flyover study that measured methane emissions.[14] The GHG emissions are updated in table 2 below.

Table 2

	Net PTE Emissions[1]	**Gross PTE Emissions**	**Full Burn Emissions**
GHG Volume (million metric tons per year)	8.36	14.5	23.0
Percentage of 2015 Florida Inventory	3.6	6.3	9.9
Percentage of 2015 National Inventory	0.15	0.27	0.42

[1]These projections account for the offset from coal retirement and oil to natural gas conversion.

Based on this analysis, we estimate that the downstream use of the natural gas to be transported by the SMP Project would potentially increase the Florida GHG emission inventory between 3.6 and 9.9 percent. As previously indicated, we note that the latter figure represents an unlikely, upper bound scenario. The percentage reflects both the quantity of emissions and the limited geographic distribution of the end-use consumers. If the gas were to be delivered to additional states then the percentage would be lower. Any project with a 1.1 bcf/day capacity serving a different set of states would result in a different percentage for context, despite an identical contribution to climate change.

We recognize that fossil fuel GHG emissions are the primary driver of climate change; however, we could not find a suitable method to attribute discrete environmental effects to GHG emissions. The atmospheric modeling used by the Intergovernmental Panel on Climate Change, Environmental Protection Agency, National Aeronautics and Space Administration and others is not reasonable for project-level analysis. These global models are not suited to determine the incremental impact(s) of individual

[14] Average of three power plant facilities in *Assessing the Methane Emissions from Natural Gas-fired Power Plants and Oil Refineries*. Lavoie, Shepson, Gore, et al, Environmental Science and Technology, 2017, 51, 3373-3381. http://pubs.acs.org/doi/ipdf/10.1021/acs.est.6b05531

projects, due both to scale and overwhelming complexity. We reviewed simpler models and mathematical techniques to determine global physical climate change effects caused by GHG emissions, such as increases in global atmospheric carbon dioxide (CO_2) concentrations, atmospheric forcing, or ocean CO_2 absorption. We could not identify a reliable, less complex model for this task, and we are not aware of a tool to meaningfully attribute specific increases in global CO_2 concentrations, heat forcing, or similar global impacts to SMP Project GHG emissions. Similarly, the ability to determine localized or regional impacts from GHGs by use of these models is not possible at this time.

The comments from Senators Whitehouse and Bennet criticize the draft SEIS analysis for stating that there is no known threshold of significance for any volume of GHG emissions while enumerating the various impacts from climate change in the SMP Project FEIS. There are no widely accepted international, federal, or state definitions of what is considered a "significant" emission rate for GHG emissions. Additionally, we have not identified any research that identifies a project level significance threshold of GHG emissions for climate change. Without some specific definition, or basis in physical science, it would be inappropriate to ascribe significance to a rate or volume of GHG emissions.

In response to comments on the draft SEIS criticizing the significance determination, we clarify that we did not include downstream GHG emissions in our significance determination for air quality in the SMP Project FEIS. We are not determining that downstream emissions are "insignificant." While the downstream uses result in a potential increase of Florida GHG emissions, there is no threshold to determine significance.

We received several other comments on GHG and climate change. The Sierra Club asserted that an increase in GHG in Florida would impede the ability of Florida and the U.S. to reduce GHG emissions to combat climate change. Indeed, we acknowledge any increase in GHG emissions would cumulatively contribute to climate change. Here, we provide this context with a comparison to the Florida inventory, as suggested by the court. We also provided a comparison to the U.S. national inventory to offer a secondary context which would be consistent across all projects before the Commission. We did not find any state emission reduction targets for Florida.

Several commenters requested that the FERC impose mitigation measures for GHG emissions. The Commission lacks the jurisdiction to impose mitigation on downstream end-use consumers. However, federal and state regulatory authorities (EPA and FDEP) have authority to regulate emissions under the Clean Air Act to reduce GHG emissions.

SOCIAL COST OF CARBON

The Interagency Working Group on Social Cost of Greenhouse Gases[15] developed a tool to estimate the SCC. The SCC tool attempts to quantify the comprehensive costs associated with a project's carbon dioxide emissions.[16] The SCC tool provides monetized values for addressing climate change impacts on a global level.

As explained in the draft SEIS, the Commission's policy on the use of the SCC has been to recognize the availability of this tool, while concluding that it is not appropriate for use in project-level NEPA reviews for the following reasons: (1) the U.S. Environmental Protection Agency (EPA) states that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations"[17] and consequently, significant variation in output can result;[18] (2) the tool does not measure the actual incremental impacts of a project on the environment; and (3) there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews. The SCC tool may be useful for rulemakings or comparing regulatory alternatives using cost-benefit analyses where the same discount rate is consistently applied; however, it is not appropriate for estimating a specific project's impacts or informing our analysis under NEPA.

Several detailed comments were filed on the draft SEIS regarding the SCC. The general nature of the comments included: statements that other agencies have found the SCC to be informative for regulatory changes that involved similar levels of emissions as the SMP Project; information on which to base an appropriate discount rate is available; the contention that the SCC does in fact estimate incremental environmental impacts; the lack of a monetary threshold does not invalidate the utility of the analysis in determining significance; a note that estimating the SCC after identifying the tons of GHG entails little work; and an assertion that the global SCC monetization was appropriate because US-only methodologies are not sound.

The rationales that the Commission has used in support of not using the SCC tool for its NEPA analyses, and that the comments challenge, have been set forth in various

[15] Interagency Working Group on Social Cost of Carbon consisted of the Council of Economic Advisers, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of Transportation, Environmental Protection Agency, National Economic Council, Office of Energy and Climate Change, Office of Management and Budget, Office of Science and Technology Policy, and the Department of the Treasury.

[16] The social cost of carbon only addresses impacts from CO_2, not methane, N_2O or other GHGs.

[17] See Fact Sheet: Social Cost of Carbon issued by EPA in November 2013, available at http://www.epa.gov/climatechange/Downloads/EPAactivities/scc-fact-sheet.pdf.

[18] Depending on the selected discount rate, the tool can project widely different present day cost to avoid future climate change impacts.

Commission Orders.[19] Thus, these comments raise matters of Commission policy that are more appropriate for the Commission to consider and address in a Commission order, rather than for the final SEIS to respond and address.

CONCLUSION

The SEIS quantifies the maximum GHG emissions from downstream use of natural gas transported on the SMP Project and provides context for these emissions in comparison to annual state and national GHG emissions. The SEIS explains that staff cannot identify a suitable method to attribute discrete environmental effects to the quantified downstream emissions. Thus, the SEIS cannot make a finding whether the quantified downstream GHG emissions pose a significant impact on the environment.

The downstream GHG emissions analysis in this SEIS does not change our alternatives analysis. The same downstream GHG emissions would result from the System Alternatives, Route Alternatives, and Aboveground Facility Location Alternatives because the project's transportation capacity and end-use combustion of transported natural gas would be the same as the SMP Project.

Further, we explained in the SMP Project FEIS that the No Action Alternative would not result in predictable actions if the SMP Project were not built.[20] For example, the project's shippers may seek to transport the same volumes of natural gas by expanding existing transportation systems or constructing new facilities.[21] Because the No Action Alternative could result in lesser, equal, or greater GHG emissions than the SMP Project, we cannot use the quantified downstream GHG emissions from the SMP Project to meaningfully compare the two.

Therefore, the final SEIS does not alter staff's conclusion in the SMP Project FEIS. Based on the environmental analysis in the FEIS and this final SEIS, we continue to conclude that, with respect to the impacts for which staff could assess significance, constructing and operating the SMP Project would result in temporary and permanent impacts on the environment. However these impacts, with the Applicants' implementation of their respective impact avoidance, minimization, and mitigation

[19] *Millennium Pipeline Co., LLC*, 161 FERC ¶ 61,229, at PP 171-72 (2017); *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043, at P 296 (2017); *Atlantic Coast Pipeline, LLC*, 161 FERC ¶ 61,042, at P 307 (2017); *Tennessee Gas Pipeline Co., L.L.C.*, 156 FERC ¶ 61,157, at P 174 (2016); *Elba Liquefaction Co., L.L.C.*, 155 FERC ¶ 61,219 (2016); *Constitution Pipeline Co., LLC*, 154 FERC ¶ 61,046, at P 131 (2016); *Columbia Gas Transmission, LLC*, 153 FERC ¶ 61,064, at PP 69-70 (2015); *Corpus Christi Liquefaction, LLC*, 151 FERC ¶ 61,098, at P 51 (2015).

[20] SMP Project FEIS at 4-3

[21] *Id.*

measures, as well as their adherence to the measures we have required to further avoid, minimize, and mitigate these impacts, would not be significant.

APPENDIX A

COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT AND RESPONSES

Southeast Market Pipelines Project

Comments on the Draft SEIS and Responses

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[1] Appendices/attachments to comment letters were considered and addressed as appropriate in the final SEIS; however, copies of these documents are not included in this summary of comments. Comment letter appendices/attachments may be viewed using the Commission's eLibrary system.

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[2] Several form letters were submitted to the Commission. One copy of each form letter is provided in this summary. The table preceding the form letters identifies each individual submittal by author and FERC docket ascension number. Individual submittals may be viewed using the Commission's eLibrary system.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

NOV 20 2017

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: Draft Supplemental Environmental Impact Statement (DSEIS) for the Southeast Market Pipelines Project. FERC Docket Nos.: CP14-554-002; CP15-16-003; CP15-17-002; CEQ No.: 20170192

Dear Secretary Bose:

Consistent with our responsibilities under Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency has reviewed the above referenced DSEIS for the OEP/DG2E/Gas Branch 3 Florida Southeast Connection, LLC, Transcontinental Gas Pipe Line Company, LLC, and Sabal Trail Transmission, LLC pipeline projects, jointly referred to as the Southeast Market Pipelines (SMP) project.

The EPA acknowledges that the Federal Energy Regulatory Commission (FERC) has prepared this document to address issues raised in the August 22, 2017 opinion, Sierra Club v. FERC, No. 16-1329 (D.C. Cir. 2017), issued by the United States Court of Appeals for the D.C. Circuit regarding the FERC's Final Environmental Impact Statement (FEIS) for the SMP project.

As noted above, the FEIS included three separate projects that the FERC considered related since the projects are interconnected sections of the SMP involved in the interstate transmission of natural gas. The FERC issued the FEIS for the SMP project in December of 2015. The EPA commented on the FEIS on January 25, 2016. In those comments the EPA provided several recommendations including that the FERC consider a detailed evaluation of greenhouse gas (GHG) emissions in future analyses. FERC has included the evaluation of GHG emissions analysis in the DSEIS and based on the EPA's review the EPA rates the DSEIS as a Lack of Objections or "LO".

FA1-1

Thank you for the opportunity to review and comment. Please provide us a copy of the Final Supplemental Environmental Impact Statement for our administrative record when it becomes available.

If you have any questions, please contact Ms. Maria R. Clark, of my staff, at (404) 562-9513 or by e-mail at clark.maria@epa.gov.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and Restoration Division

FA1-1 Comment noted.

CP 14-554, CP 15-141, CP 15-17

United States Senate

WASHINGTON, DC 20510

November 8, 2017

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

Chairman Chatterjee:

EO1-1

We write concerning FERC's recent decision not to use the social cost of carbon (SCC) in its environmental analysis for the Southeast Market Pipelines (SMP) project. This decision is inconsistent with a series of court rulings on this issue and with the science and economics that underpins the SCC developed by the federal Interagency Working Group (IWG)[1] on the SCC. As you are aware, the SCC values and recommendations of the IWG were peer-reviewed, subject to public comment, and have been used in more than 75 rulemakings since 2010.

The courts have made several clear rulings upholding the use of the SCC in agency practices. In 2006, the National Highway Transportation Safety Administration (NHTSA) promulgated a rule for vehicle fuel economy standards that failed to monetize the benefits of reducing carbon emissions from vehicles, arguing that the values were too uncertain. In 2008, the U.S. Court of Appeals for the Ninth Circuit rejected NHTSA's uncertainty argument, finding that costs of carbon pollution are "certainly not zero."[2] Since this decision, U.S. District Courts in Colorado[3] and Montana[4] and the Tenth Circuit[5] have faulted federal parties for ignoring the carbon costs of their projects.

Beyond specific projects, the New York Public Service Commission and Illinois state legislature worked to incorporate a SCC into their zero-emission credit (ZEC) programs. In July, the U.S. District Court for the Northern District of Illinois dismissed challenges to the state of Illinois' ZEC program.[6] The U.S. District Court for the Southern District of New York has also dismissed a challenge to the ZEC program.[7] Also at the state level, there have been decisions by Minnesota and Colorado public utility commissions that supported the use of SCC estimates in evaluating potential infrastructure projects.[8]

With respect to FERC, a three-judge panel from the U.S. Court of Appeals for the D.C. Circuit ruled that the agency must consider the effects of carbon emissions that would result from the

[1] Interagency Working Group on Social Cost of Carbon, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, Office of Management and Budget, May 2013, revision of July 2015, https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf
[2] *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 508 F.3d 508 (9th Cir. 2007).
[3] *High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174 (D. Colo. 2014).
[4] *Montana Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 3480262 (D. Mont. Aug. 14, 2017).
[5] *WildEarth Guardians v. United States Bureau of Land Mgmt.*, 870 F.3d 1222 (10th Cir. 2017).
[6] *Vill. of Old Mill Creek v. Star*, No. 17 CV 1163, 2017 WL 3008289 (N.D. Ill. July 14, 2017).
[7] *Coal. for Competitive Elec., Dynegy Inc. v. Zibelman*, No. 16-CV-8164 (VEC), 2017 WL 3172866 (S.D.N.Y. July 25, 2017).
[8] Peter Fairley, *States are Using the Social Cost of Carbon in Energy Decisions, Despite Trump's Views*, INSIDE CLIMATE NEWS (Aug. 14, 2017), https://insideclimatenews.org/news/11082017/states-climate-change-policy-calculate-social-cost-carbon.

1

2017-00126

EO1-1 The use of the Social Cost of Carbon tool is addressed in the final Supplemental Environmental Impact Statement (SEIS) at 6-7.

SMP Project.[9] The court ruling directed FERC to either better monetize the project's carbon emissions or to explain whether FERC maintains that the SCC is not useful under NEPA purposes. FERC responded to the court order with a supplemental environmental impact statement (SEIS) that calculated the downstream emissions of the project, but the agency failed to value the costs by using the SCC. FERC provided three justifications for why it did not use the SCC. Below we explain why we disagree with each of these.

1. FERC: The tool does not measure the actual incremental impacts of a project on the environment.

The SCC does indeed represent the value of an incremental ton of carbon emissions on the costs of climate change. Specifically, it is a value, in dollars, of the long-term damage done by one metric ton of carbon dioxide emissions. Whether these emissions come from a project, vehicle, facility, or some other source is irrelevant as carbon dioxide is a long-lived and well-mixed atmospheric gas. Each ton of carbon emissions released by a powerplant or pipeline will have an incremental effect of increasing global atmospheric carbon dioxide levels and enhancing the greenhouse effect. Enhancing the greenhouse effect worsens the damages we incur from climate change. Recent scientific literature concludes that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy will lose roughly 0.7% of its Gross Domestic Product, with each degree of warming costing more than the last.[10] Thus, one additional ton of carbon dioxide leads to higher global temperatures and will have real economic costs to homeowners, business owners, communities, states, and taxpayers.

E01-2

Because FERC calculated the emissions of this project in its updated SEIS, it could calculate the climate externalities of this project. FERC could take the SCC, as calculated by the IWG, and multiply this by the projected tons of emissions coming from the project in every year over the lifetime of the project.

2. FERC: The U.S. Environmental Protection Agency (EPA) states that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations" and consequently, significant variation in output can result.

In determining which discount rates to use for the SCC, both the IWG and the 2003 Office of Management and Budget (OMB) Circular A-4 guidance presented a range of discount rates to use in regulatory analysis of projects. OMB recommended in a 2003 guidance that agencies use a range of discount values from 3% to 7%. A 7% discount rate was chosen because it is the best estimate of the average "before-tax" rate of return on private capital. A 3% discount rate is recommended when a regulatory action does not primarily affect capital, but rather private consumption. Leading economists have argued that climate change effects will largely affect consumption.[11] OMB also recommended that if the regulatory action will have important intergenerational benefits or costs that the agency might consider a further sensitivity analysis.

E01-3

[9] *Sierra Club v. Fed. Energy Regulatory Comm'n*, 867 F.3d 1357 (D.C. Cir. 2017).
[10] Kopp et. al., Estimating economic damage from climate change in the United States, *Science* 30 Jun 2017: Vol. 356, Issue 6345, pp. 1362-1369.
[11] Arrow, K. J., M. Cropper, C. Gollier, B. Groom, G. Heal, R. Newell, W. Nordhaus, R. Pindyck, W. Pizer, P. Portney, T. Sterner, R. S. J. Tol, and M. Weitzman. 2013. Determining benefits and costs for future generations. *Science* 341, no. 6144:349–50.

EO1-2 See response to EO1-1.

EO1-3 See response to EO1-1.

using a lower discount rate than 3%. This recommendation is relevant for climate change because many of the benefits of GHG mitigation would occur generations after the year of emission control or emission reduction. FERC's reasoning to not calculate the SCC with a range of discount rates ignores a wide range of scientific literature[12] and governmental guidance. It is also inconsistent with the court decision that whatever the right number is, it's not zero. We recommend that FERC consider the range provided by either the IWG, OMB, or a recent National Academy of Sciences report.[13]

3. FERC: There are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews.

EO1-4

Although the NEPA statute and implementing guidance do not prescribe exact methods or values for agencies to quantify carbon emissions and their damages to health and the environment, the statute directs that agencies shall "identify and develop methods and procedures.....which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations."[14] This direction means that an agency should seek out or, if not available, develop proper methods to conduct a complete analysis, in compliance with the statutory purpose, related to evaluating carbon emissions and consequent future damages from each project. An agency is not directed to wait for specific guidance on methods under NEPA.

EO1-5

Further, FERC has determined that the greenhouse gas emissions from this individual project will not result in "significant effects," but it offers no guidance on how it defines the term. We suggest in FERC's response to comments that it clearly explain what a significant project is and how the agency plans to enforce this standard. If no project is big enough to create "significant effects", but collectively they do, this argument is a fallacy.

We respectively urge that FERC consider these comments and additional background references as it continues to refine its analysis of infrastructure projects as it relates to their environmental effects.

Sincerely,

Sheldon Whitehouse
United States Senator

Michael F. Bennet
United States Senator

[12] Arrow, Kenneth J., Maureen L. Cropper, Christian Gollier, Ben Groom, Geoffrey M. Heal, Richard G. Newell, William D. Nordhaus, et al. "Should Governments Use a Declining Discount Rate in Project Analysis?" *Review of Environmental Economics and Policy* 8, no. 2 (July 1, 2014): 145–63.
[13] National Academies of Sciences, Engineering, and Medicine. *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*. Washington, DC: The National Academies Press, 2017. doi:10.17226/24651.
[14] The National Environmental Policy Act of 1969, as amended, *available at* https://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/Req-NEPA.pdf.

3

EO1-4 Commission staff prepares the NEPA document as one aspect for the Commission to consider in their decision to issue a Certificate. Staff does not monetize benefits of proposed Projects nor does staff conduct cost-benefit analyses as a part of its NEPA review for any infrastructure project. Moreover, it would be inappropriate for staff to conduct cost-benefit analyses as infrastructure projects involve many important qualitative considerations, including impacts to wildlife, water quality, geology, vegetation etc. While the final EIS for the SMP Project reports some the project's socioeconomic benefits, it does so as part of its environmental analysis required by NEPA and CEQ regulations, not to weight the costs and benefits of the project and project alternatives. The final EIS did not calculate or consider in any way the economic benefits provided by the increased capacity for end users to provide electricity to consumers.

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The FERC's Certificate Policy Statement provides guidance as to how the Commission evaluates proposals for new construction, and establishes criteria for determining whether there is a need for a proposed project and whether it would serve the public interest. The Commission bases its decision on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

EO1-5 Our analysis cannot determine the significance of downstream GHG emissions, final SEIS at 7.

COLUMBIA LAW SCHOOL

SABIN CENTER FOR CLIMATE CHANGE LAW

November 17, 2017

Submitted via the FERC eFiling system.

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room1A
Washington, DC 20426

Re: Southeast Market Pipelines Project, Draft Supplemental Environmental Impact Statement, Docket Nos. CP14-554-002; CP15-16-003; CP15-17-002

Dear Ms. Bose:

The Sabin Center for Climate Change Law at Columbia Law School submits the following comments on the Federal Energy Regulatory Commission (FERC)'s draft supplemental environmental impact statement (DSEIS) for the Southeast Market Pipelines Project. As discussed in detail below, we recommend that FERC:

NGO1-1

NGO1-2

NGO1-3

NGO1-4

- Provide a complete and consolidated inventory of direct and greenhouse gas emissions from the proposed pipeline. This inventory should list all upstream, direct, and downstream emissions in a single location in the final SEIS, and should be accompanied by an explanation of how FERC estimated emissions.
- Revisit its conclusion that the greenhouse gas emissions that would be generated as a result of the proposed pipeline are insignificant.
- Disclose the social cost of greenhouse gas emissions to enable decision-makers and the public to better understand the significance of those emissions.
- Expand the scope of mitigation measures envisioned for greenhouse gas emissions.

I. FERC Should Provide a Complete and Consolidated Inventory of Direct and Indirect Greenhouse Gas Emissions in the Final SEIS

FERC's analysis of greenhouse gas emissions from the proposed pipeline is currently split between two documents: the original EIS contains estimates of direct greenhouse gas emissions from pipeline construction and the DSEIS contains estimates of indirect greenhouse gas emissions from combustion of natural gas transported by the proposed pipeline (downstream emissions). Neither document contains estimates of indirect emissions generated from the

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NGO1-1 The direct construction GHG emissions are found in tables 3.12.1-5, 3.12.1-6, and 3.12.1-7 of the SMP final EIS. The direct operational GHG emissions are found in tables 3.12.1-10, 3.12.1-12, and on page 3-260 of the SMP final EIS.

NGO1-2 See response to EO1-5. The 25,000 ton per year limit was to be used as an exclusion criteria and not a significance threshold under the vacated CEQ GHG guidance and the GHG reporting rule.

NGO1-3 See response to EO1-1.

NGO1-4 The Commission lacks the jurisdiction to impose mitigation on downstream end-use consumers. However, federal and state regulatory authorities (Environmental Protection Agency, Florida Department Environmental Protection [FDEP]) could regulate emissions under the Clean Air Act to reduce GHG emissions.

production of natural gas that would be transported by the proposed pipeline (upstream emissions).

NGO1-5

We urge FERC to provide a complete and consolidated greenhouse gas emissions inventory in the final SEIS which contains all of the information that decision-makers and the public would need to fully understand the emissions impact of the proposed action. Specifically, we recommend FERC add a table which lists its final estimates of all upstream, direct, and downstream emissions on an annual basis as well as over the lifetime of the project. The table should be accompanied by a clear explanation of how FERC estimated emissions – e.g., for combustion emissions, FERC should specify the emissions factor and equation used to convert from BTU to CO_2e.

NGO1-6

NGO1-7

An inventory that includes upstream emissions would provide a more complete picture of the emissions impact of this project. The rationale for estimating upstream emissions is the same as the rationale for estimating downstream emissions: the proposed pipeline will allow a certain quantity of natural gas to be transported from production sites to end users and thus it makes sense to treat the production and consumption of the gas transported via this project as indirect consequences of the project. For a more comprehensive overview of the legal and policy rationales for calculating upstream emissions and the tools available for doing so, we refer FERC to the attached law review article (Attachment B: Burger and Wentz, 2017).

II. FERC Should Revisit Its Conclusion that the Emissions Impacts of the Proposed Pipeline are Insignificant

In the DSEIS, FERC concludes that the proposed pipeline will not have a significant impact on the environment. FERC should revisit this conclusion in light of the estimated emissions – particularly combustion emissions – associated with this project. Specifically, FERC anticipates that the combustion of natural gas transported via this pipeline will result in a net increase of 8.36 million tons per year of carbon dioxide (CO_2) emissions. This is a very large quantity of CO_2– particularly when considered over the lifetime of the proposed pipeline (at least 25 years).

We recognize that it is difficult to precisely define the significance threshold for greenhouse gas emissions. However, we believe that such a precise definition is unnecessary because 8.36 million tons per year of CO_2 for 25+ years surpasses any reasonable threshold of significance. The following facts support this finding:

- The emissions far surpass the reporting and quantification threshold of 25,000 tons per year of CO_2e which has previously been used by CEQ and EPA to identify major emitters (as noted by EPA, facilities that surpass this threshold are considered the "largest emitters" in the country).[1] Indeed, the emissions from the combustion of the natural gas transported via this pipeline are 334.4 times larger than the 25,000 tons per year threshold.
- The social cost of these emissions would be roughly $306 million during the first year of operation and would rise to approximately $492 million per year by 2040. The total cost

[1] EPA, *GHG Reporting Program Facts and Figures*, https://www.epa.gov/ghgreporting/key-facts-and-figures.

NGO1-5 Emission factors for direct GHG emissions are found in the Commission's administrative record, FERC Docket Nos. CP14-554-000, CP15-16-000, and CP15-17-000.

NGO1-6 Downstream burn emissions were derived from the FDEP permits. For full burn we used information from the EIA historical BTU gas content here: https://www.eia.gov/totalenergy/data/monthly/pdf/sec13_4.pdf using 2016 number of 1037 btu/scf, and https://www.epa.gov/sites/production/files/2016-04/documents/us-ghg-inventory-2016-annex-2-emissions-fossil-fuel-combustion.pdf

Using 14.46 kg C/MMBtu, and using mole conversion from C to CO2 (44/12).

NGO1-7 Upstream production activities are not an indirect impact of the SMP Project as described in the Rehearing Order.

of these emissions over 25 years would be approximately $9.8 billion. (See the table in Attachment A for a detailed overview of these costs.)

- As FERC has expressly acknowledged, the net increase in emissions constitutes 3.7% of Florida's annual emissions in 2014. This is a large proportion of an entire state's greenhouse gas emissions inventory.
- According to EPA's GHG Equivalencies Calculator, 8.36 million tons of CO_2 per year is equivalent to the emissions from: (i) approximately 1.8 million passenger vehicles driven each year, or (ii) approximately 1.25 million homes' electricity use for one year.[2] Again, these are very large numbers which would be viewed as significant in other contexts.

In light of these facts, we believe that FERC's conclusion of no significance is not supported by the record before it and urge FERC to reconsider this conclusion.

III. FERC Should Disclose the Social Cost of Emissions in Order to Better Inform Decision-Makers and the Public About the Scale of the Emissions Impact from this Proposal

FERC should use the social cost of carbon, methane, and nitrous oxide to estimate the social costs of the emissions generated by this project, both an annual basis and over the lifetime of the project. This would provide the public and decision-makers with a better sense of the scale and severity of the emissions impact – something that would otherwise be lacking from FERC's analysis.

Where there is uncertainty about the precise nature of a project's environmental effects (which is the case when evaluating the effects of a large quantity of greenhouse gas emissions released over many years), NEPA requires federal agencies to provide a "summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment."[3] In this case, the social cost of carbon, methane, and nitrous oxide are scientifically credible estimates of the societal costs of greenhouse gas emissions, developed through a lengthy process of interagency consultation and peer review,[4] and that cost is absolutely relevant to assessing the nature and significance of the proposed pipeline's environmental consequences.

In the DSEIS, FERC has provided three rationales for why it believes the social cost of carbon and similar tools are not appropriate for use in project-level NEPA reviews. We offer the following counter-arguments to these rationales:

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[2] EPA, *GHG Equivalencies Calculator*, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
[3] 40 C.F.R. § 1502.22(b)(1).
[4] See Interagency Working Group on the Social Cost of Greenhouse Gases, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised August 2016); Interagency Working Group on the Social Cost of Greenhouse Gases, Addendum to Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866: Application of the Methodology to Estimate the Social Cost of Methane and the Social Cost of Nitrous Oxide (Aug. 2016).

1. *EPA has stated "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations" and consequently significant variation in output can result.*

The interagency working group that developed the social cost of carbon recognized that there was no consensus on a single discount rate, but the group did achieve broad consensus on a range of discount rates and recommended that agencies present estimates using this representative range.[5] FERC should adopt the approach recommended by the interagency working group and disclose the social costs of emissions generated by this pipeline as a range of potential costs that correspond with different discount rates.

2. *The tool does not measure the actual incremental impacts of a project on the environment.*

This statement is incorrect. The social cost of carbon, methane and nitrous oxide measure the actual incremental impacts of a project on the physical and human environment by specifying the incremental costs associated with an incremental increase in greenhouse gas emissions. These impacts are expressed as monetary costs rather than specific physical impacts because this is a reasonable and comprehensible way to aggregate many different impacts in a single metric.

3. *There are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews*

This is true for many different types of impacts that are evaluated in NEPA reviews – there are no bright line rules for assessing significance, and agencies typically must use their discretion to determine when impacts pass the threshold of significance. The monetization of climate change impacts, however, is useful in informing significance determinations insofar as it provides a standard metric for comparing different impacts.

Finally, we acknowledge that President Trump has ordered a review of the social cost of carbon, methane, and nitrous oxide, and has rescinded the technical support documents underpinning these metrics as "no longer representative of government policy."[6] But in that same executive order, President Trump also stated that "it is essential that agencies use estimates of costs and benefits… that are based on the best available science and economics."[7] The existing estimates were based on the best available science and economics, they were peer-reviewed, and they were developed in consultation with all major federal agencies. Since the administration has not proposed a viable alternative, we believe that these estimates remain the best available metric for monetizing and disclosing the costs of greenhouse gas emissions. Attesting to this is the fact that many states continue to use these estimates in their energy planning activities.[8]

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[5] The social cost of carbon and corresponding discount rates were upheld by the 7th Circuit Court of Appeals. Zero Zone, Inc. v. United States Dep't of Energy, 832 F.3d 654, 678 (7th Cir. 2016)
[6] Executive Order 13783: Promoting Energy Independence and Economic Growth §5 (2017).
[7] *Id.*
[8] Peter Fairley, *States are Using Social Cost of Carbon in Energy Decisions, Despite Trump's Opposition,* INSIDE CLIMATE NEWS (Aug. 14, 2017).

IV. FERC Should Expand the Scope of Mitigation Measures Envisioned for this Project

NEPA requires agencies to discuss measures to mitigate the adverse environmental impacts of proposed actions.[9] The DSEIS contains no discussion of mitigation measures for the large quantity of CO_2 that would be emitted as a result of the proposed pipeline. The no action alternative could itself serve as a mitigation measure for these emissions. FERC should discuss this option in the final SEIS and evaluate its merits in light of the potential costs of the combustion emissions generated as a result of the proposed pipeline.

Sincerely,

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[9] 40 C.F.R. §§ 1502.14(f), 1502.16(h), 1508.14.

November 20, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE Washington, D.C. 20426
kimberly.bose@ferc.gov

Via email and e-filing

Re: Comments on September 27, 2017 Draft Supplemental Environmental Impact Statement for:

OEP/DG2E/Gas Branch 3
Florida Southeast Connection, LLC
Transcontinental Gas Pipe Line Company, LLC
Sabal Trail Transmission, LLC
(together, Southeast Market Pipelines Project)
Docket Nos. CP14-554-002, CP15-16-003, CP15-17-002

Sierra Club submits these comments concerning the Draft Supplemental Environmental Impact Statement (the "supplemental EIS" or "SEIS") prepared by the Federal Energy Regulatory Commission ("FERC") for the above-captioned projects. This comment is supplemented by separate comments jointly submitted by Sierra Club, Environmental Defense Fund, Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, and Union of Concerned Scientists in a separate filing. In addition, this comment supplements and

reiterates Sierra Club's March 27, 2017 request for a supplemental EIS.[1]

I. Introduction

In *Sierra Club v. FERC*, the D.C. Circuit held that NEPA analysis of the Southeast Market Pipelines Project must include "a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport," "a discussion of the 'significance' of" these emissions, and analysis of "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." *Sierra Club v. Fed. Energy Regulatory Comm'n*, 867 F.3d 1357, 1374 (D.C. Cir. 2017). The draft SEIS (hereinafter "SEIS") here fails on all counts. Rather than providing a meaningful basis for choosing between alternatives (including the action and no-action alternatives), the SEIS improperly treats the downstream GHG analysis as an academic exercise to support a pre-determined outcome.

NGO2-1

FERC fails to provide even an adequate quantification of indirect emissions, including failing to meaningfully juxtapose the project's indirect emissions with those that would result under any alternative. Even for the emissions estimated in the SEIS, the SEIS provides no discussion whatsoever of these emissions' "significance," including their "cultural, economic, social, or health" impacts. 40 C.F.R. §§ 1502.16(a)-(b), 1508.8. The SEIS simply asserts, without explanation, that the SEIS has not given FERC reason to alter its prior conclusion that "operating the SMP Project would not result in a significant impact on the environment." SEIS at 2.

As such, the SEIS fails to inform FERC's decisionmaking: the SEIS offers no explanation of whether indirect greenhouse gas emissions warrant adoption of additional mitigation measures, an alternative to the proposal, or rejection of the project entirely. *Sierra Club*, 867 F.3d at 1364 ("FERC is also empowered to attach 'reasonable terms and conditions' to the certificate"); *id.* at

NGO2-2

[1] Accession No. 20170328-0076.

NGO2-1 See response to EO1-5. Also, see the discussion of alternatives in final SEIS at 9.

NGO2-2 See responses to NGO2-1 and NGO1-4.

NGO2-3 See responses to EO1-1 and EO1-5.

1374 ("greenhouse-gas emissions are an indirect effect of authorizing this project, which FERC … has legal authority to mitigate."). FERC also must balance the public benefits against the adverse effects, including adverse effects caused by downstream GHG emissions. *Id.* at 1373 ("FERC will balance 'the public benefits against the adverse effects of the project' including adverse environmental effects" (citations omitted)); *id.* (FERC can "deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment").

The protocols developed by the former Interagency Working Group on Social Cost of Carbon remain the best tools for providing this missing analysis. FERC's stated reasons for declining to use this tool here are arbitrary. Even without this tool, however, FERC's implicit determination that a nearly 10% increase in Florida greenhouse gas emissions would be insignificant is arbitrary on its face.

NGO2-3

II. The Draft SEIS Understates the Volume of Emissions at Issue

NEPA requires that FERC consider "indirect effects," which are "reasonably foreseeable" effects "caused by" the action, including "growth inducing" effects. 40 C.F.R. 1508.8(b). In *Sierra Club*, the D.C. Circuit Court held that this requires FERC to provide "a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport." *Sierra Club*, 867 F.3d at 1374.

Here, the pipelines will deliver 1.1 bcf/d of natural gas. Widely accepted conversion factors[2] indicate that burning 1.1 bcf/d of gas will emit 22.1 million metric tons (MMt/y) per year of carbon dioxide equivalent.[3] The SEIS provides this value, recognizing that it represents "full burn" of the delivered gas. But the SEIS arbitrarily undercuts this disclosure in numerous ways.

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[2] SEIS at 3 n.6; *accord* https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
[3] This estimate does not account for non-CO_2 emissions such as fugitive methane. FERC must address these additional emissions in the final SEIS.

NG02-4

First, the SEIS provides a substantially lower estimate of "total" or "gross" downstream emissions without any explanation as to how this estimate can be squared with the "full burn" estimate; it appears that the "total" estimate is indefensible. Second, the SEIS argues that emissions resulting from burning gas delivered by the pipeline will be partially offset by displacement of other fossil fuel consumption, offering a still lower "net" estimate of downstream emissions. However, both the SEIS's general discussion of displacement and the SEIS's particular estimates here are unsupported. Finally, even if the "gross" and "net" estimates were supported by reasonable methodology and data, the SEIS's failure to provide any guidance as to which of the three estimates should be used in assessing the pipeline's impacts—or which FERC used in concluding that these impacts would be insignificant—would render the SEIS inadequate.

A. The Draft SEIS Does Not Support Use of a "Gross" or "Total" Estimate Lower Than the "Full Burn" Estimate

The first and most prominent quantitative estimate of downstream emissions the SEIS provides is wrong, incomplete, or both. Table 1 purports to identify "Total Downstream CO2 Emissions" of 14.5 MMt/y; the SEIS later refers to this value as "gross potential to emit emissions." This estimate does not, however, appear to be a "total" in any meaningful sense of the word: the SEIS explains that "combustion of the total pipeline capacity" would result in more than 50% more emissions (*i.e.*, 22.1 MMt/y) than the purportedly "total" estimate. SEIS at 3-4.

FERC does not explain why the "total" estimate is lower than the "full burn" estimate. The "total" estimate purportedly reflects emissions resulting from use of gas delivered to three specific power plants, assuming these plants run round-the-clock,[4] plus use of the 0.1 bcf/d of

[4] SEIS at 3 n.4. Other than to state that these estimates assume 8,760 hours per year of operation, the SEIS provides no discussion of how the estimates for each power plant were calculated, nor

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NGO2-4 The Applicants have indicated that four end-users will receive gas from the SMP Project as identified in the final SEIS at 3-4. We obtained emissions information for these facilities from FDEP permits and disclose them as part of the Net Potential to Emit emissions in table 2 of the final SEIS at 6. The final SEIS presents the greenhouse gas (GHG) emissions from the expected use of the destination facilities and the small margin of unsubscribed capacity (gross), the offset to gross emissions by the retirements of higher-emitting power plants (net), as well as the upper-bound GHG emissions in the unlikely event that the entire carrying capacity of the SMP Project flows 24 hours per day, 365 days per year without displacing any other fuel source (full burn). The SMP Project's anticipated displacement of higher-emitting facilities is well documented in the FDEP air permits for the power plants. We provided three downstream emissions scenarios (i.e., net, gross, and full) for informational purposes. As previously stated, under any scenario there is no metric to assign significance.

capacity that is "uncommitted." SEIS at 3. The SEIS then indicates that the "full burn" estimate reflects the emissions that would result if, rather than "running at full power" 100% of the time, these power plants ran less, such that the gas the power plants otherwise would have used "could be sold to other customers." SEIS at 3. However, FERC provides no explanation as to why burning gas at the power plants rather than other uses would cause combustion emissions to significantly decrease. Burning a given volume of gas will produce roughly the same emissions regardless of whether that combustion occurs in one of these three power plants or elsewhere, as reflected by the very EIA and EPA emission factors the SEIS cites.

Thus, it appears that the "total" or "gross" estimate fails to provide the information the D.C. Circuit instructed FERC to provide: "a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport." *Sierra Club*, 867 F.3d at 1374.

An additional source of confusion is that while the SEIS identifies 0.1 bcf/d of pipeline capacity as "uncommitted," the SEIS does not explain where the remaining (and implicitly "committed") 1.0 bcf/d of capacity will go. The only end users identified in the SEIS are the three power plants, which the SEIS states will emit 12.5 MMt/y of CO_2e. SEIS at 3. However, the conversion factor the SEIS relies on indicates that 12.5 MMt/y of CO_2e would be produced by burning only about 0.6 bcf/d of gas, whereas burning 1 bcf/d would be expected to emit closer to

NGO2-5

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does the SEIS provide any useful citation. *Cf.* 40 C.F.R. 1502.21. The SEIS states that these estimates are derived from air permits, but the SEIS does not cite these permits, and at the time the SEIS was circulated for public comment, none of the permits were in the docket for this proceeding. Although FERC belatedly filed two permits, the Duke Energy Citrus Plant permit still has not been filed, nor has FERC responded to Sierra Club's Freedom of Information Act request regarding these estimates.

5

NGO2-5 The final SEIS at 3-4 identifies the four end-consumers: Florida Power and Light (FPL) Company Okeechobee Clean Energy Center; the Duke Energy Citrus County Combined Cycle Plant; and the existing FPL Martin County Power Plant. Additionally, FPL's Riviera Beach Clean Energy Center is a consumer of SMP gas via an interconnect with the Florida Southeast Connection Pipeline at the Martin Plant.

20.1 MMt/y of CO_2e.[5]

NGO2-6

The "total" or "gross" emission estimate presented by the SEIS is misleading, incorrect, or both. The SEIS fails to provide a rational explanation as to: how much gas consumption is actually factored into this "total" estimate; whether that number is lower than the total 1.1 bcf/d pipeline capacity (and if so, why); and why the "total" estimate is drastically lower than the "full burn" figure. Insofar as it is the "full burn" estimate that actually indicates the emissions that would result from using the gas capable of being delivered by the pipeline, the final SEIS must clearly indicate to the public and decisionmakers that the "full burn" estimate best illustrates the impact of the project.

B. The Draft SEIS Does Not Support Its Assertions Regarding New Gas Generation Displacing Existing Coal and Oil Use

NG02-7

The SEIS argues that emissions resulting from burning gas delivered by the pipeline will be partially "offset" by reductions in emissions from other fossil fuel sources, which will retire once power plants supplied by the new pipelines are online. SEIS at 2-4; *see also* FEIS at 3-291 to 3-292. However, the SEIS does not demonstrate that retirement of other fossil fuel sources is caused by, or would not occur without, the pipeline project. The discussion of purported offsets is therefore at best tangential to the NEPA obligation to provide a basis for choosing among alternatives, including deciding between the action and no-action alternatives. It is not enough to juxtapose past conditions with a future in which the pipeline project is built: instead, informed decisionmaking requires comparing future scenarios with and without the pipeline project.

The SEIS's discussion of general trends in Florida generation capacity illustrates the need to use a no-action future case, rather than the past, as a basis for evaluating impacts. The SEIS

[5] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

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NGO2-6 See response to NG02-4.

NGO2-7 The draft SEIS at 3-4 notes that retirement or conversion information was derived from FDEP air quality permits (or permit applications).

states that over the next five years, Florida is projected to retire 4,100 megawatts of capacity, mostly coal, while adding 5,561 megawatts, mostly gas and solar. SEIS at 2. As a threshold matter, the SEIS understates foreseeable additions, which amount to at least 7,309 megawatts.[6] The SEIS also fails to explain why a five-year timeframe was chosen, or the factual basis for these projections.[7] Most importantly, the SEIS provides no discussion of whether the anticipated 2,718 MW of coal retirements are contingent on replacement with substitute capacity. It is likely that they are not: many of Florida's old coal units operate infrequently. Daniel Decl. at ¶ 15.[8] Thus, the SEIS provides no basis for concluding that projected coal retirements would not occur absent new generation. Nor does the SEIS provide a basis for concluding that, even if retirements *are* contingent on replacement with additional generation, that this generation must be new gas facilities. The SEIS recognizes a large projected increase in renewables. SEIS at 2. The SEIS provides no basis for concluding that, if the Southeast Market Pipelines Project was not approved and new gas generation fell below the projected amount, any shortfall would not be met by additional renewables, rather than forgone coal retirement. *See* Daniel Decl. ¶ 17. The SEIS's

NGO2-8

NGO2-9

[6] The SEIS states that the Okeechobee plant is omitted from the projected capacity increase because it is already in operation, SEIS at 2 n.2, but this plant is neither fully constructed nor in operation. *See* https://www.fpl.com/landing/new-energy.html?cid=aliasaffordablecleanenergy ("Plant construction is expected to take nearly two years (2017-2019) before the facility begins generating power for customers in June 2019."), attached as Exhibit 1; *see also* FEIS at 3-292 (expected to be online in 2019). In addition, the Okeechobee plant is now planned to be larger than contemplated in the FEIS: the FEIS describes the plant as 1600 MW of capacity, FEIS at 3-292, but in January 2017, Okeechobee disclosed plans to increase capacity to 1,748 MW. Florida Power and Light Company letter to Florida Public Service Commission (January 20, 2017), attached as Exhibit 2. FERC's estimates of emissions from this plant must reflect the current proposal.

[7] The SEIS cites "Velocity Suite, ABB" in footnotes 1 and 3, but the public does not appear to have readily available access to this source. The Sierra Club submitted a Freedom of Information Act request on October 13, 2017, which the agency refused to expedite despite this impending comment deadline.

[8] Attached as Exhibit 3.

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NGO2-8 The best available data (ABB Velocity) used a five-year timeframe to project fuel mix changes and was chosen to provide context as directed by the Court. Using public and commercially available services we projected the change in fuel mix for facilities for the next 5 years.

NG02-9 Conclusions in the final SEIS are not dependent on the retirement of coal burning facilities. In fact, the final SEIS provides a consideration of scenarios that do not assume retirement. The reader is provided with this information to weigh as appropriate.

discussion of statewide trends therefore does not indicate that emission increases resulting from combustion of gas delivered by the pipeline will be "offset" by decreases in other emissions, because the SEIS provides no basis for concluding that those decreases would not occur even if the pipeline was not approved.

FERC's discussion of the particular power plants here also does not support the claimed level of offsets. Although the SEIS makes no particular claim for offsets for the Okeechobee plant, the FEIS asserts that "the planned FPL Okeechobee Plant is part of FPL's strategy to replace older, less efficient power plants with modern, more efficient natural gas-fired facilities." FEIS at 3-292. However, neither the FEIS nor the SEIS address whether, if FERC rejected the proposed pipeline project, FPL would extend use of coal plants or instead would adopt an alternative source of substitute generation, such as renewables.

NGO2-10

As to the SEIS's attribution of a 3.87 MMt/y CO_2e reduction to the "Duke Energy Citrus County coal retirement change," SEIS at 3, the SEIS must explain how this reduction can be squared with the FEIS's identification of the Citrus plant as one that would not "directly offset[] GHG emissions from higher intensity sources (i.e., source that emit more GHGs per unit of electrical power generated)." FEIS at 3-298. The FEIS notes that Duke Energy Florida plans to retire two coal generation units at the Crystal River Energy Complex when the Citrus gas project is complete, FEIS at 3-292, but neither the FEIS nor SEIS undertakes any inquiry into whether, if FERC rejected the pipeline project and this led Duke Energy Florida not to build the Citrus gas units, whether Duke would retire the coal units anyway. *See* Daniel Decl. ¶¶ 15, 17 (explaining that Crystal River units 1 and 2 are already minimally dispatched for much of the year).

NGO2-11

Finally, even if, in finalizing the SEIS, FERC adds support for the offsets identified in Table 1, these offsets should be applied to the "full burn" emission estimate, not the "total" or

NGO2-12

8

NGO2-10 The existing facilities are both converting from coal/oil while also increasing overall generation capacity. If the increased level of generation capacity were to be fueled by coal or oil, GHG emissions (as well as criteria emission, VOCs and HAPs) would likely be greater. Using natural gas reduces the emissions of GHG and other pollutants per MW.

NGO2-11 See response to NGO2-4. Also, any projection of the amount of days per year a facility may be operating in the future is speculative.

NGO2-12 See response to NGO2-9

"gross" estimate. As explained above, the "total" estimate is unsupported; this remains the case when offsets are considered. Thus, if the final SEIS provides support for the purported 6.14 MMt/y of offsets, the SEIS should identify the "net" downstream impact as 15.96 MMt/y, not 8.36. SEIS at 4.

III. The Draft SEIS Fails to Meaningfully Discuss the Significance of Greenhouse Gas Emissions

NGO2-13

The SEIS makes no attempt to satisfy the D.C. Circuit's instruction to provide "a discussion of the 'significance' of" indirect greenhouse gas emissions, or their cumulative impact. *Sierra Club*, 867 F.3d at 1374. The SEIS simply provides estimates of the amount of downstream combustion emissions without *any* discussion of the significance of these emissions or explanation for FERC's determination that these impacts are insignificant. SEIS at 2.

Although the SEIS does not explicitly explain this omission, the SEIS implies that FERC believes discussion of significance requires "measur[ing] the actual incremental impacts of a project on the environment" and that such measurement is impossible here. SEIS at 4-5. To be clear, extensive peer-reviewed literature documents the "discrete environmental effects [of] GHG emissions," including "localized or regional impacts." *Id.* Indeed, the U.S. Global Change Research Project recently again confirmed and quantified a broad range of environmental impacts resulting from greenhouse gas emissions,[9] including discussing how changes in temperature, rainfall, and flood risk from sea level rise will vary for individual regions in the United States.[10] FERC must explain how its conclusion that it is impossible to "attribute discrete environmental

[9] 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 4. This updates a prior report summarized in the FEIS at 3-296.
[10] *See, e.g.*, *id.* at 334.

9

NGO2-13 The draft SEIS at 5 provides context to the GHG emissions from the SMP Project, comparing GHG emissions to the 2014 Florida Inventory and the 2015 National Inventory. The comment confuses discrete environmental effects caused by climate change, considered collectively, with discrete environmental effects attributable to a single source. As explained in the final SEIS at 6-7, we could not find a suitable method to attribute discrete environmental effects to GHG emissions.

effects to GHG emissions" can be squared with these tools and methods. SEIS at 4.

NGO2-14

Insofar as the SEIS is referring to attributing these impacts to an individual project's incremental emissions, SEIS at 4, the SEIS's implication that assessment of the physical impact that would result from the project's emissions is both impossible and essential is wrong on both counts. On the first point, greenhouse gas emissions are largely interchangeable—an additional 20 million tons of carbon dioxide emitted in 2025, for example, will have the same impact regardless of whether it is emitted as a result of the SMP Project or as a result of some other activity elsewhere in the world. Accordingly, even if the "scale and complexity" of global climate models precludes modeling two scenarios that differ by the amount of emissions at issue here (*e.g.*, 22.1 MMt/y), SEIS at 4, FERC provides no reason why the impact of SMP Project 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.[11] 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 SMP Project's incremental emissions. 40 C.F.R. § 1502.22(a).[12]

But the SEIS is further and more fundamentally mistaken in suggesting that such forecasts are essential, or even useful, to NEPA analysis. Climate change is the quintessential cumulative impact problem, and the individual physical changes that will result from any particular action

[11] 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 5, at 24-25.
[12] Alternatively, if FERC concludes that forecasting physical changes is impossible, even if FERC is right, need to use "generally accepted" methods to assess, and social cost is such a method. 40 C.F.R. 1502.22(b)(4).

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NGO2-14 We agree that climate change is a cumulative impact of GHG emissions, but we reaffirm the conclusion in the final SEIS that assigning incremental environmental effects to a single project is not possible and therefore determining a single project's contribution is not possible.

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 SEIS'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").[13] NEPA does not, of course, require agencies to monetize adverse impacts in all cases. *See* 40 C.F.R. § 1502.23. NEPA does, however, 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). In another recent case concerning an energy infrastructure project, where the agency's NEPA analysis quantified

[13] Sierra Club, together with Environmental Defense Fund, Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, and Union of Concerned Scientists, is concurrently submitting a separate comment specifically addressing the social cost of carbon. That comment supplements the arguments Sierra Club makes here.

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).

The IWG's tools remain "generally accepted in the scientific community," 40 C.F.R. § 1502.22(b)(4), notwithstanding Executive Order 13,783, which disbanded the Interagency Working Group and formally withdrew its technical support documents.[14] 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."[15] 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.[16] 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.[17]

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[14] Exec. Order. No. 13,783 § 5(b), 82 Fed. Reg. 16,093 (Mar. 28, 2017).
[15] *Id.* § 5(c).
[16] 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 6.
[17] 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

NGO2-15

The SEIS provides three reasons for failing to use the social cost of carbon, none of which are supported.[18] Contrary to the SEIS's assertion, the estimates of social cost do "measure actual incremental impacts of a project on the environment." SEIS at 5. The social cost tools are built on models of impacts to 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 then identifies the social cost imposed by a ton of emissions' pro 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). Nor is lack of consensus as to a single most appropriate intergenerational discount rate a reason for refusing to use the social cost protocols. SEIS at 5.[19] 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

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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 7.

[18] These arguments simply repeat without elaboration the position FERC took in *EarthReports, Inc. v. Fed. Energy Regulatory Comm'n*, 828 F.3d 949, 956 (D.C. Cir. 2016). In *Sierra Club*, the D.C. Circuit instructed FERC to explain "whether the position on the Social Cost of Carbon that the agency took in *EarthReports* still holds, *and why*." *Sierra Club*, 867 F.3d at 1375 (emphasis added). *EarthReports* held that, in an environmental assessment, FERC was not required to use the social cost of carbon to address the impact of greenhouse gases directly emitted by project construction and operation. Here, FERC is undertaking a more searching review (environmental impact statement) of the impact of a much larger volume of emissions (indirect annual emissions of up to 22.1 million tons, compared to less than 2 million tons in *EarthReports*). Even putting these unacknowledged differences aside, available evidence rebuts the SEIS's specific arguments regarding social cost of carbon, as we explain herein.

[19] The SEIS cites an EPA fact sheet for the proposition that there is no such consensus; we note that this document is no longer available.

NGO2-15 See response to EO1-1.

NGO2-16 See response to EO1-1.

OMB Circular A-4.[20] Indeed, the Circular provides a general recommendation for a 3 percent rate; although the Circular also identifies 7 percent rate as appropriate for use in other circumstances, the Circular itself indicates that the 7 percent figure should not be used when assessing impacts like climate change that will affect the public as a whole, and OMB, together with the rest of the Interagency Working Group, has explicitly affirmed that the 7 percent rate is inappropriate when addressing climate change.[21] 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 rates—which FERC and other agencies have done in other proceedings[22]—but it is not a reason for ignoring the social cost of greenhouse gas emissions entirely. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1200 (9th Cir. 2008) (disagreement over cost of carbon emissions does not allow agency to forego estimating cost where, "while the record shows … a range of values, the value of carbon emissions reduction is certainly not zero.").[23]

NGO2-16

Finally, the SEIS argues that the social cost of carbon "is not appropriate for use in any project-level NEPA review" because "there are no established criteria identifying the monetized

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[20] IWG 2010 Social Cost of Carbon TSD at 17-18, 23.
[21] 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 8.
[22] *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.").
[23] 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.

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NGO2-17

values that are to be considered significant for NEPA reviews." SEIS at 5. The point of addressing "significance" in an Environmental Impact Statement is to inform the public and agency decisionmaking, not to simply label impacts as "significant" or "insignificant." Here, the SEIS must help the public and FERC understand whether the adverse consequences of the SMP Project's greenhouse gas emissions (direct and indirect) are severe enough to warrant consideration in the public interest analysis, 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 SEIS 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).

Thus, estimating social cost is a generally accepted method, consistent with OMB Circular A-4, to provide otherwise absent information about the severity and impact of the project's greenhouse gas emissions. Even putting this method aside, however, the SEIS's implicit conclusion that a nearly 10% increase in Florida's greenhouse gas emissions are insignificant is implausible. In general, because climate change is a cumulative problem, comparison to existing inventories is not an effective method of assessing the importance of greenhouse gas emissions: any one project's contributions will inevitably appear small when measured against the

NGO2-17 The final SEIS at 6-7 explains that information attributing discrete environmental effects to the SMP Project's GHG emissions is unavailable. Also, see response to EO1-1.

cumulative total. Here, however, if such comparisons are going to be made, the appropriate denominator is emissions in Florida, because all indirect emissions are expected to occur there. *Increasing* emissions by nearly ten percent will self-evidently interfere with the drastic emission *reductions* necessary to avoid catastrophic climate change. As affirmed just this month by the Fourth National Climate Assessment, without "[w]ithout major reductions in [greenhouse gas] emissions, the increase in annual average global temperatures relative to preindustrial times could reach 9°F (5°C) or more by the end of this century," with disastrous consequences.[24]

Other non-monetized comparisons similarly illustrate the startling scale of the project's indirect emissions. These are startling numbers for a single project. According to the EPA's greenhouse gas equivalencies calculator, 22,100,000 metric tons of CO_2 or CO_{2e} is equivalent to the GHG emissions from 4,732,334 passenger vehicles driven for one year, or to the CO_2 emissions from 5.5 coal-fired power plants in one year.[25] For an alternative comparison, Florida's six largest emitters of CO_2 within the electric power sector in 2016 were all coal units; that year, they collective emitted 20.3 million metric tons of CO_2. Daniel Decl. at ¶18.

NGO2-18

The SEIS also fails to discuss cumulative impacts. Instead of providing the discussion and analysis required by the court's order, FERC simply states that it "could not find a suitable method to attribute discrete environmental effects to GHG emissions" and that it is "not aware of a tool to meaningfully attribute specific increases in global CO2 concentrations, heat forcing, or similar global impacts to SMP Project GHG emissions." SEIS at 4-5. FERC's failure to identify such a tool does not excuse the fatal flaws contained in the SEIS – *i.e.*, the failure to discuss the significance of this massive increase in GHG emissions, or assess their cumulative impact.

[24] CSSR report at 15.
[25] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

NGO2-18 As stated in the final SEIS at 2, the analysis in this final SEIS addresses downstream GHG emissions and provides context to assist public understanding. Also, see response to NGO2-9.

(Despite the court's admonition to discuss the significance and cumulative impact of downstream emissions, the words "significance" and "cumulative impact" do not even appear in the "Greenhouse Gas Emissions" section of the SEIS.)

IV. Conclusion

For the reasons stated above, the draft SEIS fails to provide the analysis required by NEPA and by the D.C. Circuit's order in *Sierra Club*. FERC must prepare additional analysis to correct and clarify the estimates of the amount of indirect emissions, and FERC must discuss the significance and cumulative impact of these emissions.

Sincerely,

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NGO3-1 See response to EO1-1.

November 20, 2017

To: Federal Energy Regulatory Commission

Dockets: CP14-554-002, CP15-16-003, CP15-17-002

Subject: Comments on Failure to Use the Social Cost of Greenhouse Gases in the Draft Supplemental Environmental Impact Statement on the Southeast Market Pipelines Project

Submitted by: Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, Sierra Club, and Union of Concerned Scientists[1]

NGO3-1

In its draft supplemental environmental impact statement for the Southeast Market Pipelines project, FERC refuses to apply the social cost of greenhouse gases. The agency's refusal is arbitrary and unlawful in light of a growing body of case law holding that failure to monetize a project's costs is impermissible if the agency relies on the project's monetized benefits to justify its action. The refusal is also arbitrary in light of the growing consensus around the appropriate social cost of greenhouse gas values to use in environmental impact statements.

In *Sierra Club v. FERC*, the U.S. Court of Appeals for the D.C. Circuit instructed FERC to explain "whether the position on the Social Cost of Carbon that the agency took in *EarthReports* still holds, and why."[2] In *EarthReports v. FERC*, the D.C. Circuit had excused FERC's failure to use the social cost of carbon in a 2014 environmental assessment of a liquefied natural gas facility because of the alleged lack of consensus about the appropriate discount rates, alleged disconnect between the tool and actual environmental impacts, and alleged lack of criteria for significance.[3] FERC now repeats those same arguments in its draft supplemental environmental impact statement for the Southeast Market Pipelines project.

However, the case law and economic literature have advanced since FERC drafted the 2014 environmental assessment at stake in *EarthReports*. In particular, additional case law has made clear that it is arbitrary to tout the monetized upside of a project in an environmental impact statement while refusing to apply available tools to monetize the project's costs; crucially, the court in *EarthReports* never considered or ruled on this factor. New case law has also found greenhouse gas emissions to be significant and to warrant monetization in quantities similar to or even less than the tons that FERC estimates will be generated by the Southeast Market Pipelines. In addition, to the extent there ever was a lack of consensus about the appropriate discount rate, recent reports from the National Academies of Sciences, among other sources, make clear that a 3% discount rate or lower—or optimally a declining discount rate—are appropriate, while a 7% discount rate is wholly inappropriate.

These comments begin by offering a more detailed rejection of FERC's arbitrary and misleading rationale for failing to use the social cost of greenhouse gases, before offering additional guidance on how to monetize climate effects consistent with the currently best available science and economics—specifically, by selecting a central estimate of global damages using a 3% or lower discount rate.

[1] Our organizations may separately submit other comments regarding other aspects of the supplemental EIS.
[2] 867 F.3d 1357, 1375 (D.C. Cir. 2017).
[3] 828 F.3d 949, 956 (D.C. Cir. 2016).

NGO3-2 See response to EO1-1.

NGO3-2

Notwithstanding a recent Executive Order disbanding the Interagency Working Group (IWG) on the Social Cost of Greenhouse Gases, the estimates updated by that group in 2016 are still appropriate estimates of the lower bound of the social cost of carbon and the social cost of methane, reflecting current best practices and best scientific and economic literature. Any departure from those estimates would require agencies to engage with the complex integrated assessment models and ensure consistency with the most current scientific and economic literature, which overwhelmingly supports a global estimate based on a 3% or lower discount rate. Indeed, since the IWG's estimates omit important damage categories and so are best treated as a lower bound, if anything the social cost of greenhouse gas values used by agencies should be even higher.

1. FERC Must Monetize the Social Cost of Greenhouse Gases in its EIS

FERC offers three arbitrary and misleading reasons for not applying the social cost of greenhouse gases in its draft supplemental environmental impact statement.

First, FERC argues that because "no consensus exists on the appropriate [discount] rate to use," the range of monetized climate costs could show "significant variation"; implicit in this argument is the assumption that a range with significant variation is not useful to decisionmakers or the public. FERC is incorrect: there is a strong consensus around a 3% or lower discount rate, or a declining discount rate. Scores of agencies—including the Bureau of Ocean Energy Management in an August 2017 environmental impact statement—have had no trouble applying the range of estimates recommended by the Interagency Working Group, and decisionmakers and the public have found that range to be helpful.

Second, FERC argues that the social cost of greenhouse gas "tool does not measure the actual incremental impacts of a project on the environment." Though FERC's explanation is terse and cryptic, the agency seems to suggest that because the social cost of greenhouse gases translate tons of emissions into monetized damages, rather than specifically into units of sea-level rise or increased mortality or other discrete categories of climate damages, the metric is not appropriate for NEPA analysis. FERC elsewhere argues that it "could not find a suitable method to attribute discrete environmental effects to GHG emissions," and that "global models are not suited to determine the incremental impact of individual projects." FERC is incorrect: not only is the social cost of greenhouse gas methodology ideally suited for valuing the marginal climate damages of individual projects, but the monetization directly reflects the "discrete effects" of climate change. Monetization actually better contextualizes the information on climate damages presented to decisionmakers and the public compared against a purely qualitative description of discrete effects, and so monetization is the appropriate choice under NEPA.

Third, FERC argues that "there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews." FERC is again incorrect: Courts have had no problem finding it was arbitrary for agencies not to monetize greenhouse gas emissions in quantities similar to and below the tons that FERC calculates for the Southeast Market Pipelines.

Before offering further details that refute each of FERC's arguments, this section begins with a review of the case law on when it is arbitrary to fail to include the social cost of greenhouse gases in NEPA analysis, and an explanation of why a recent Executive Order does not change the need to monetize climate damages. Note that while FERC's draft supplemental environmental impact statement specifically rejects only the social cost of carbon, FERC also fails to use, or even acknowledge, the social cost of methane. The complete failure to consider the social cost of methane is itself arbitrary; the arguments FERC offers as reasons not to use the social cost of carbon would also be arbitrary if put forward as reasons not to use the social cost of methane.

NGO3-3 See response EO1-4.

NGO3-3

NEPA Requires Monetizing Climate Effects If Other Costs and Benefits Are Monetized

NEPA requires "hard look" consideration of beneficial and adverse effects of each alternative option for major federal government actions. The U.S. Supreme Court has called the disclosure of impacts the "key requirement of NEPA," and held that agencies must "consider and disclose the actual environmental effects" of a proposed project in a way that "brings those effects to bear on [the agency's] decisions."[4] Courts have repeatedly concluded that an EIS must disclose relevant climate effects.[5] Though NEPA does not require a formal cost-benefit analysis,[6] agencies' approaches to assessing costs and benefits must be balanced and reasonable. Courts have warned agencies that "[e]ven though NEPA does not require a cost-benefit analysis, it was nonetheless arbitrary and capricious to quantify the *benefits* of [federal action] and then explain that a similar analysis of the *costs* was impossible when such an analysis was in fact possible."[7]

In *High Country Conservation Advocates v. Forest Service*, the U.S. District Court of Colorado found that it was "arbitrary and capricious to quantify the *benefits* of the lease modifications and then explain that a similar analysis of the *costs* was impossible when such an analysis was in fact possible."[8] The court explained that the agencies had "weighed several specific economic benefits—coal recovered, payroll, associated purchases of supplies and services, and royalties," but arbitrarily failed to monetized climate costs using the readily available social cost of carbon protocol.[9] Similarly, in *Montana Environmental Information Center v. Office of Surface Mining*, the U.S. District Court of Montana followed the lead set by *High Country* and likewise held an environmental assessment to be arbitrary and capricious because it quantified the benefits of action (such as employment payroll, tax revenue, and royalties) while failing to use the social cost of carbon to quantify the costs.[10]

Both those cases were in line with *Center for Biological Diversity v. National Highway Traffic Safety Administration*. In that case, the U.S. Court of Appeals for the Ninth Circuit ruled that, because the agency had monetized other uncertain costs and benefits of its vehicle fuel efficiency standard—like traffic congestion and noise costs—its "decision not to monetize the benefit of carbon emissions reduction was arbitrary and capricious."[11] Specifically, it was arbitrary to "assign[ ] no value to *the most significant benefit* of more stringent [vehicle fuel efficiency] standards: reduction in carbon emissions."[12]

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[4] *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 96 (1983).

[5] As the Ninth Circuit has held: "[T]he fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of *its* actions on global warming within the context of other actions that also affect global warming." *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008); *see also Border Power Plant Working Grp. v. U.S. Dep't of Energy*, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (failure to disclose project's indirect carbon dioxide emissions violates NEPA).

[6] 40 C.F.R. § 1502.23 ("[T]he weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis.").

[7] *High Country Conservation Advocates v. Forest Service*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014); *accord. MEIC v. Office of Surface Mining*, 15-106-M-DWM, at 40-46 (D. Mt., August 14, 2017) (holding it was arbitrary for the agency to quantify benefits in an EIS while failing to use the social cost of carbon to quantify costs, as well as arbitrary to imply there would be no effects from greenhouse gas emissions).

[8] 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014).

[9] *Id.*

[10] 15-106-M-DWM, at 40-46, Aug. 14, 2017 (also holding that it was arbitrary to imply that there would be zero effects from greenhouse gas emissions).

[11] 538 F.3d 1172, 1203 (9th Cir. 2008).

[12] *Id.* at 1199.

3

NON-GOVERNMENTAL ORGANIZATIONS

Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, Sierra Club, and Union of Concerned Scientists

NGO3-4 See response to EO1-1.

When an agency bases a rulemaking on cost-benefit analysis, it is arbitrary to "put a thumb on the scale by undervaluing the benefits and overvaluing the costs."[13]

Three other cases from different courts that have declined to rule against failures to use the social cost of carbon in NEPA analyses are all distinguishable by the scale of the action or by whether other effects were quantified and monetized in the analysis.[14] In particular, in *EarthReports*, the D.C. Circuit never addressed or ruled on whether it is arbitrary to monetize benefits while not monetizing costs.[15] More recently, in the case at issue here, the D.C. Circuit confirmed that NEPA requires a rigorous analysis of climate effects and, in its remand to FERC, required the agency to explain and justify its position if it decides not to use the social cost of greenhouse gases.[16] FERC has failed to adequately do so.

In the 2015 final environmental impact statement for the Southeast Market Pipelines project, FERC devoted significant attention to the "economic benefits" of approving the project. For example, one entire page of the document, page 3-177, is filled by a single table: "Summary of the Economic Benefits of the Southeast Market Pipelines Project." Starting on page 3-185, and continuing through page 3-214, FERC devotes paragraph after paragraph to describing and monetizing in detail, down to the dollar, the economic benefits of direct labor income, indirect labor income, expenditures on consumables, economic output, and tax revenue.

These economic benefits are central to FERC's conclusion that the project, overall, will not have a significant adverse impact. In the conclusion section of the 2015 final environmental impact statement, FERC summarizes: "The SMP Project construction would benefit state and local economies by creating a short-term stimulus to the affected areas through payroll expenditures, local purchases of consumables and project-specific materials, and sales tax. The long-term socioeconomic effects of the SMP Project during operation is also likely to be beneficial, based on the increase in tax revenues. . . . Based on the analysis presented we conclude that the SMP Project would not have a significant adverse impact on the socioeconomic conditions of the project area."[17] This summary serves as a key component of the broader conclusion that, overall, "the project would not result in a significant impact on the environment."[18]

Because FERC has monetized the economic benefits of the project, it must treat the climate costs with proportional analytical rigor and apply the social cost of greenhouse gas metrics.

New Executive Order Encourages Continued Monetization of the Social Cost of Greenhouse Gases

NGO3-4

Executive Order 13,783 officially disbanded the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) and withdrew its technical support documents that underpinned their range of estimates.[19] Nevertheless, Executive Order 13,783 assumes that federal agencies will continue 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."[20] Consequently, while FERC and other federal agencies no longer benefit from ongoing technical support from the IWG on use of the

[13] *Id.* at 1198.

[14] *See League of Wilderness Defenders v. Connaughton*, No. 3:12-cv-02271-HZ (D. Ore., Dec. 9, 2014); *EarthReports v. FERC*, 15-1127, (D.C. Cir. July 15, 2016); *WildEarth Guardians v. Zinke*, 1:16-CV-00605-RJ, at 23-24, (D. N.M. Feb. 16, 2017).

[15] 828 F.3d at 956 (basing its ruling on alleged uncertainty over the discount rate and lack of clear significance thresholds).

[16] *Sierra Club v. FERC*, No. 16-1329, 2017 WL 3597014, at *10 (D.C. Cir. Aug. 22, 2017).

[17] FEIS at 5-10.

[18] FEIS at 5-1.

[19] Exec. Order. No. 13,783 § 5(b), 82 Fed. Reg. 16,093 (Mar. 28, 2017).

[20] *Id.* § 5(c).

social cost of greenhouse gases, by no means does the new Executive Order imply that agencies should not monetize important effects in their regulatory analyses or environmental impact statements. In fact, Circular A-4 instructs agencies to monetize costs and benefits whenever feasible.[21] The Executive Order does not prohibit agencies from relying on the same choice of models as the IWG, the same inputs and assumptions as the IWG, the same statistical methodologies as the IWG, or the same ultimate values as derived by the IWG. To the contrary, because the Executive Order requires consistency with Circular A-4, 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 available estimates.[22] The Executive Order does not preclude agencies from using the same range of estimates as developed by the IWG, so long as the agency explains that the data and methodology that produced those estimates are consistent with Circular A-4 and, more broadly, with standards for rational decisionmaking.

Similarly, the Executive Order's withdrawal of the CEQ guidance on greenhouse gases does not —and legally cannot—remove agencies' statutory requirement to fully disclose the environmental impacts of greenhouse gas emissions. As CEQ explained in its withdrawal, the "guidance was not a regulation," and "[t]he withdrawal of the guidance does not change any law, regulation, or other legally binding requirement."[23] In other words, when the guidance originally recommended the appropriate use of the social cost of greenhouse gases in environmental impact statements,[24] it was simply explaining that the social cost of greenhouse gases is consistent with longstanding NEPA regulations and case law, all of which are still in effect today.

As explained in the final sections of these comments, the IWG's estimates of the social cost of greenhouse gases are, in fact, already consistent with the Circular A-4 and represent the best existing estimates of the lower bound of the range for the social cost of greenhouse gases. Therefore, the IWG estimates or those of a similar or higher value[25] should be used in regulatory analyses and environmental impact statements.

There Is Clear Consensus on Using a 3% or Lower (or Declining) Discount Rate as a Central Estimate

FERC cites a 2013 EPA factsheet for the proposition that there is such a lack of consensus around the appropriate discount rate that the resulting range of estimates of the social cost of greenhouse gases is too wide to be helpful. Not only was this line of thinking rejected by the Ninth Circuit in *Center for*

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[21] OMB, Circular A-4 at 27 (2003) ("You should monetize quantitative estimates whenever possible.").

[22] 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).

[23] 82 Fed. Reg. 16,576, 16,576 (Apr. 5, 2017).

[24] *See* CEQ, *Revised Draft Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* at 16 (Dec. 2014), *available at* https://obamawhitehouse.archives.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf ("When an agency determines it appropriate to monetize costs and benefits, then, although developed specifically for regulatory impact analyses, the Federal social cost of carbon, which multiple Federal agencies have developed and used to assess the costs and benefits of alternatives in rulemakings, offers a harmonized, interagency metric that can provide decisionmakers and the public with some context for meaningful NEPA review. When using the Federal social cost of carbon, the agency should disclose the fact that these estimates vary over time, are associated with different discount rates and risks, and are intended to be updated as scientific and economic understanding improves."); *see also* CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* at 33 n.86 (Aug. 2016), *available at* https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf.

[25] *See, e.g.*, Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173 (2014) (explaining that current estimates omit key damage categories and, therefore, are very likely underestimates).

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Biological Diversity—"while . . . there is a range of values, the value of carbon emissions reduction is certainly not zero"[26]—but the range of values recommended by the Interagency Working Group[27] and endorsed by the National Academies of Sciences[28] is rather manageable. In 2016, the IWG recommended values at discount rates from 2.5% to 5%, calculated as between $12 and $62 for year 2020 emissions.[29] Numerous federal agencies have had no difficulty either applying this range in their environmental impact statements or else focusing on the central estimate at a 3% discount rate.[30] Most recently, in August 2017, the Bureau of Ocean Energy Management applied the IWG's range of estimates calculated at three discount rates (2.5%, 3%, and 5%) to its environmental impact statement for an offshore oil development plan,[31] and called this range of estimates "a useful measure to assess the benefits of CO_2 reductions and inform agency decisions."[32]

More importantly, there is widespread consensus that a central estimate calculated at a 3% or lower discount rate, or else using a declining discount rate, is most appropriate, while a 7% discount rate would be wholly inappropriate in the context of intergenerational climate damages. Because of the long lifespan of greenhouse gases and the long-term or irreversible consequences of climate change, the effects of today's emissions changes will stretch out over the next several centuries. The time horizon for an agency's analysis of climate effects, as well as the discount rate applied to future costs and benefits, determines how an agency treats future generations. Current central estimates of the social cost of greenhouse gases are based on a 3% discount rate and a 300-year time horizon. Executive Order 13,783 disbanded the Interagency Working Group in March 2017 and instructs agencies to reconsider the "appropriate discount rates" when monetizing the value of climate effects.[33] By citing the official guidance on typical regulatory impact analyses (namely, Circular A-4), the Order implicitly called into question the IWG's choice not to use a 7% discount rate. However, use of a 7% discount would not only be inconsistent with best economic practices but would violate NEPA's required consideration of impacts on future generations.

NEPA requires agencies to weigh the "relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity," as well as "any irreversible and irretrievable commitments of resources."[34] That requirement is prefaced with a congressional declaration of policy that explicitly references the needs of future generations:

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[26] 538 F.3d at 1200.

[27] *See* Interagency Working Group on the Social Cost of Greenhouse Gases, *Technical Update* (2016) (hereinafter 2016 TSD).

[28] *See* National Academies of Sciences, *Assessment of Approaches to Updating the Social Cost of Carbon* (2016) (hereinafter First NAS Report) (endorsing continued near-term use of the IWG numbers; in 2017, the NAS recommended moving to a declining discount rate, *see* National Academies of Sciences, *Valuing Climate Damages* (2017) (hereinafter Second NAS Report).

[29] 2016 TSD. The values given here are in 2007$. The IWG also recommended a 95th percentile value of $123.

[30] BLM, *Envtl. Assessment—Waste Prevention, Prod. Subject to Royalties, and Res. Conservation* at 52 (2016); BLM, *Final Envtl. Assessment: Little Willow Creek Protective Oil and Gas Lease*, DOI-BLM-ID-B010-2014-0036-EA, at 82 (2015); Office of Surface Mining, *Final Envtl. Impact Statement—Four Corners Power Plant and Navajo Mine Energy Project* at 4.2-26 to 4.2-27 (2015) (explaining the social cost of greenhouse gases "provide[s] further context and enhance[s] the discussion of climate change impacts in the NEPA analysis."); U.S. Army Corps of Engineers, *Draft Envtl. Impact Statement for the Missouri River Recovery Mgmt. Project* at 3-335 (2016); U.S. Forest Serv., *Rulemaking for Colorado Roadless Areas: Supplemental Final Envtl. Impact Statement* at 120-123 (Nov. 2016) (using both the social cost of carbon and social cost of methane relating to coal leases); NHTSA EIS, *Available at* http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf at 9-77.

[31] BOEM, *Liberty Development Project: Draft Environmental Impact Statement*, at 4-247 (2017).

[32] *Id.* at 3-129.

[33] Executive Order 13,783 § 5(c).

[34] 42 U.S.C. § 4332(2)(C).

> The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment . . . declares that it is the continuing policy of the Federal Government . . . to use all practicable means and measures . . . to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and **future generations** of Americans.[35]

When the Congressional Conference Committee adopted that language, it reported that the first "broad national goal" under the statute is to "fulfill the responsibilities of each generation as trustee of the environment for future generations. It is recognized in this [congressional] statement [of policy] that each generation has a responsibility to improve, enhance, and maintain the quality of the environment *to the greatest extent possible for the continued benefit of future generations*."[36]

Because applying a 7% discount rate to the social cost of greenhouse gases could drop the valuation essentially to $0, use of such a rate effectively ignores the needs of future generations. Doing so would arbitrarily fail to consider an important statutory factor that Congress wrote into the NEPA requirements.

Moreover, a 7% discount rate is inconsistent with best economic practices, including under Circular A-4. In 2015, OMB explained that "Circular A-4 is a ***living document***. . . . [T]he use of ***7 percent is not considered appropriate*** for intergenerational discounting. There is wide support for this view in the academic literature, and it is recognized in Circular A-4 itself. "[37] While Circular A-4 tells agencies generally to use a 7% discount rate in addition to lower rates for typical rules,[38] the guidance does not intend for default assumptions to produce analyses inconsistent with best economic practices. Circular A-4 clearly supports using lower rates to the exclusion of a 7% rate for the costs and benefits occurring over the extremely long, 300-year time horizon of climate effects.

Circular A-4 clearly requires agency analysts to do more than rigidly apply default assumptions: "You cannot conduct a good regulatory analysis according to a formula. Conducting high-quality analysis requires competent professional judgment."[39] As such, analysis must be "based on the best reasonably obtainable scientific, technical, and economic information available,"[40] and agencies must "*[u]**se sound and defensible values*** or procedures to monetize benefits and costs, and ensure that key analytical assumptions are defensible."[41] Rather than assume a 7% discount rate should be applied automatically to every analysis, Circular A-4 requires agencies to justify the choice of discount rates for each analysis: "[S]tate in your report what assumptions were used, *such as . . . the discount rates* applied to future benefits and costs," and explain "clearly how you arrived at your estimates."[42] Based on Circular A-4's criteria, there are numerous reasons why applying a 7% discount rate to climate effects that occur over a 300-year time horizon would be unjustifiable.

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[35] 42 U.S.C.A. § 4331.

[36] See 115 Cong. Rec. 40419 (1969) (emphasis added); *see also* same in Senate Report 91-296 (1969).

[37] 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) [hereinafter, OMB 2015 Response to Comments].

[38] Circular A-4 at 36 ("For regulatory analysis, you should provide estimates of net benefits using both 3 percent and 7 percent....If your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate in addition to calculating net benefits using discount rates of 3 and 7 percent.").

[39] *Id.* at 3.

[40] *Id.* at 17.

[41] *Id.* at 27 (emphasis added).

[42] *Id.* at 3 (emphasis added).

First, basing the discount rate on the **consumption rate of interest** is the correct framework for analysis of climate effects; a discount rate based on the private return to capital is inappropriate. Circular A-4 does suggest that 7% should be a "default position" that reflects regulations that primarily displace capital investments; however, the Circular explains that "[w]hen regulation primarily and directly affects private consumption . . . *a lower discount rate is appropriate*."[43] The 7% discount rate is based on a private sector rate of return on capital, but private market participants typically have short time horizons. By contrast, climate change concerns the public well-being broadly. Rather than evaluating an optimal outcome from the narrow perspective of investors alone, economic theory requires analysts to make the optimal choices based on societal preferences and social discount rates. Moreover, because climate change is expected to largely affect large-scale consumption, as opposed to capital investment,[44] a 7% rate is inappropriate.

In 2013, OMB called for public comments on the social cost of greenhouse gases. In its 2015 Response to Comment document,[45] OMB (together with the other agencies from the IWG) explained that

> the consumption rate of interest is the correct concept to use . . . as the impacts of climate change are measured in consumption-equivalent units in the three IAMs used to estimate the SCC. This is consistent with OMB guidance in Circular A-4, which states that when a regulation is expected to primarily affect private consumption—for instance, via higher prices for goods and services—it is appropriate to use the consumption rate of interest to reflect how private individuals trade-off current and future consumption.[46]

The Council of Economic Advisers similarly interprets Circular A-4 as requiring agencies to choose the appropriate discount rate based on the nature of the regulation: "[I]n Circular A-4 by the Office of Management and Budget (OMB) the appropriate discount rate to use in evaluating the net costs or benefits of a regulation depends on whether the regulation primarily and directly affects private consumption or private capital."[47] The NAS also explained that a consumption rate of interest is the

[43] *Id.* at 33 (emphasis added).

[44] "There are two rationales for discounting future benefits—one based on consumption and the other on investment. The consumption rate of discount reflects the rate at which society is willing to trade consumption in the future for consumption today. Basically, we discount the consumption of future generations because we assume future generations will be wealthier than we are and that the utility people receive from consumption declines as their level of consumption increases. . . . The investment approach says that, as long as the rate of return to investment is positive, we need to invest less than a dollar today to obtain a dollar of benefits in the future. Under the investment approach, the discount rate is the rate of return on investment. If there were no distortions or inefficiencies in markets, the consumption rate of discount would equal the rate of return on investment. There are, however, many reasons why the two may differ. As a result, using a consumption rather than investment approach will often lead to very different discount rates." Maureen Cropper, *How Should Benefits and Costs Be Discounted in an Intergenerational Context?*, 183 RESOURCES 30, 33.

[45] Note that this document was not withdrawn by Executive Order 13,783.

[46] OMB 2015 Response to Comments, *supra* note 37, at 22.

[47] Council of Econ. Advisers, *Discounting for Public Policy: Theory and Recent Evidence on the Merits of Updating the Discount Rate* at 1 (CEA Issue Brief, 2017), *available at* https://obamawhitehouse.archives.gov/sites/default/files/page/files/201701_cea_discounting_issue_brief.pdf. In theory, the two rates would be the same, but "given distortions in the economy from taxation, imperfect capital markets, externalities, and other sources, the SRTP and the marginal product of capital need not coincide, and analysts face a choice between the appropriate opportunity cost of a project and the appropriate discount rate for its benefits." *Id.* at 9. The correct discount rate for climate change is the social return to capital (i.e., returns minus the costs of externalities), not the private return to capital (which measures solely the returns).

appropriate basis for a discount rate for climate effects.[48] For this reason, 7% is an inappropriate choice of discount rate for the impacts of climate change.

Second, **uncertainty over the long time horizon** of climate effects should drive analysts to select a lower discount rate. As an example of when a 7% discount rate is appropriate, Circular A-4 identifies an EPA rule with a 30-year timeframe of costs and benefits.[49] By contrast, greenhouse gas emissions generate effects stretching out across 300 years. As Circular A-4 notes, while "[p]rivate market rates provide a reliable reference for determining how society values time within a generation, but for extremely long time periods no comparable private rates exist."[50]

Circular A-4 discusses how uncertainty over long time horizons drives the discount rate lower: "the longer the horizon for the analysis," the greater the "uncertainty about the appropriate value of the discount rate," which supports a lower rate.[51] Circular A-4 cites the work of renowned economist Martin Weitzman and concludes that the "certainty-equivalent discount factor corresponds to ***the minimum discount rate having any substantial positive probability***."[52] The NAS makes the same point about discount rates and uncertainty.[53]

Third, a 7% percent discount rate would be inappropriate for climate change because it is based on **outdated data and diverges from the current economic consensus**. Circular A-4 requires that assumptions—including discount rate choices—are "based on the best reasonably obtainable scientific, technical, and economic information available."[54] Yet Circular A-4's own default assumption of a 7% discount rate was published 14 years ago and was based on data from decades ago.[55] Circular A-4's guidance on discount rates is in need of an update, as the Council of Economic Advisers detailed earlier this year after reviewing the best available economic data and theory:

> The discount rate guidance for Federal policies and projects was last revised in 2003. Since then a general reduction in interest rates along with a reduction in the forecast of long-run interest rates, warrants serious consideration for a reduction in the discount rates used for benefit-cost analysis.[56]

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[48] NAS Second Report, *supra*, at 28; see also Kenneth Arrow et al., Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?, 272 Science 221 (1996) (explaining that a consumption-based discount rate is appropriate for climate change).

[49] Circular A-4 at 34. See also OMB 2015 Response to Comments, *supra* note 37, at 21 ("While most regulatory impact analysis is conducted over a time frame in the range of 20 to 50 years").

[50] Circular A-4 at 36.

[51] *Id*.

[52] *Id*. (emphasis added); *see also* CEA, *supra* note 47, at 9: "Weitzman (1998, 2001) showed theoretically and Newell and Pizer (2003) and Groom et al. (2007) confirm empirically that discount rate uncertainty can have a large effect on net present values. A main result from these studies is that if there is a persistent element to the uncertainty in the discount rate (e.g., the rate follows a random walk), then it will result in an effective (or certainty-equivalent) discount rate that declines over time. Consequently, lower discount rates tend to dominate over the very long term, regardless of whether the estimated investment effects are predominantly measured in private capital or consumption terms (see Weitzman 1998, 2001; Newell and Pizer 2003; Groom et al. 2005, 2007; Gollier 2008; Summers and Zeckhauser 2008; and Gollier and Weitzman 2010)."

[53] NAS Second Report, *supra*, at 27.

[54] CEQ regulations implementing NEPA similarly require that information in NEPA documents be "of high quality" and states that "[a]ccurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. § 1500.1(b).

[55] The 7% rate was based on a 1992 report; the 3% rate was based on data from the thirty years preceding the publication of Circular A-4 in 2003. Circular A-4 at 33.

[56] CEA, *supra* note 47, at 1; *id*. at 3 ("In general the evidence supports lowering these discount rates, with a plausible best guess based on the available information being that the lower discount rate should be at most 2 percent while the upper discount rate should also likely be reduced."); *id*. at 6 ("The Congressional Budget Office, the Blue Chip consensus forecasts,

In addition to recommending a value below 7% as the discount factor based on private capital returns, the Council of Economic Advisers further explains that, because long-term interest rates have fallen, a discount rate based on the consumption rate of interest "should be at most 2 percent,"[57] which further confirms that applying a 7% rate to a context like climate change would be wildly out of step with the latest data and theory. Similarly, recent expert elicitations—a technique supported by Circular A-4 for filling in gaps in knowledge[58]—indicate that a growing consensus among experts in climate economics for a discount rate between 2% and 3%; 5% represents the upper range of values recommended by experts, and few to no experts support discount rates greater than 5% being applied to the costs and benefits of climate change.[59] Tellingly, none of the integrated assessment models (DICE, FUND, and PAGE) used to build the IWG's estimates of the social cost of greenhouse gases uses a 7% discount rate. Based on current economic data and theory, the most appropriate discount rate for climate change is 3% or lower.

Fourth, Circular A-4 requires more of analysts than giving all possible assumptions and scenarios equal attention in a sensitivity analysis; if alternate assumptions would fundamentally change the decision, Circular A-4 requires analysts to select the **most appropriate assumptions from the sensitivity analysis**.

Circular A-4 indicates that significant intergenerational effects will warrant a special sensitivity analysis focused on discount rates even lower than 3%:

> Special ethical considerations arise when comparing benefits and costs across generations. . . It may not be appropriate for society to demonstrate a similar preference when deciding between the well-being of current and future generations. . . If your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate in addition to calculating net benefits using discount rates of 3 and 7 percent.[60]

Elsewhere in Circular A-4, OMB clarifies that sensitivity analysis should not result in a rigid application of all available assumptions regardless of plausibility. Circular A-4 instructs agencies to depart from default assumptions when special issues "call for different emphases" depending on "the sensitivity of the benefit and cost estimates to the key assumptions."[61] More specifically:

> If benefit or cost estimates depend heavily on certain assumptions, you should make those assumptions explicit and carry out *sensitivity analyses using plausible alternative assumptions*. If the value of net benefits changes from positive to negative (or vice versa) or if the relative ranking of regulatory options changes with alternative plausible assumptions, you should conduct further analysis to determine ***which of the alternative assumptions is more appropriate***.[62]

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and the Administration forecasts all place the ten year treasury yield at less than 4 percent in the future, while at the same time forecasting CPI inflation of 2.3 or 2.4 percent per year. The implied real ten year Treasury yield is thus below 2 percent in all these forecasts.").

[57] *Id.* at 1.

[58] Circular A-4 at 41.

[59] 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%).

[60] Circular A-4 at 35-36.

[61] *Id.* at 3.

[62] *Id.* at 42 (emphasis added).

In other words, if using a 7% discount rate would fundamentally change the agency's decision compared to using a 3% or lower discount rate, the agency must evaluate which assumption is most appropriate. Since OMB, the Council of Economic Advisers, the National Academies of Sciences, and the economic literature all conclude that a 7% rate is inappropriate for climate change, agencies should select a 3% or lower rate. Applying a 7% rate to climate effects cannot be justified "based on the best reasonably obtainable scientific, technical, and economic information available" and is inconsistent with the proper treatment of uncertainty over long time horizons.

Finally, to the extent there is uncertainty around the discount rate over long periods of time, the growing economic consensus supports shifting to a declining discount rate framework. Circular A-4 contemplates the use of declining discount rates in its reference to the work of Weitzman.[63] As the Council of Economic Advisers explained earlier this year, Weitzman and others developed the foundation for a declining discount rate approach, wherein rates start relatively higher for near-term costs and benefits but steadily decline over time according to a predetermined schedule until, in the very long-term, very low rates dominate due to uncertainty.[64] The National Academies of Sciences' report also strongly endorses a declining discount rate approach due to uncertainty.[65] In other words, the rational response to a concern about uncertainty over the discount rate is not to abandon the social cost of greenhouse gas methodology, but to apply declining discount rates and to treat the estimates calculated at a constant 3% rate as conservative lower-bound estimates.

One possible schedule of declining discount rates was proposed by Weitzman.[66] It is derived from a broad survey of top economists and other climate experts and explicitly incorporates arguments around interest rate uncertainty. Work by Arrow *et al*, Cropper *et al*, and Gollier and Weitzman, among others, similarly argue for a declining interest rate schedule and lay out the fundamental logic.[67] Another schedule of declining discount rates has been adopted by the United Kingdom.[68]

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[63] Circular A-4, at page 36, cites to Weitzman's chapter in Portney & Weyant, eds. (1999); that chapter, at page 29, recommends a declining discount rate approach: "a sliding-scale social discounting strategy" with the rate at 3-4% through year 25; then around 2% until year 75; then around 1% until year 300; and then 0% after year 300.

[64] CEA, *supra* note 47, at 9 ("[A]nother way to incorporate uncertainty when discounting the benefits and costs of policies and projects that accrue in the far future—applying discount rates that decline over time. This approach uses a higher discount rate initially, but then applies a graduated schedule of lower discount rates further out in time. The first argument is based on the application of the Ramsey framework in a stochastic setting (Gollier 2013), and the second is based on Weitzman's 'expected net present value' approach (Weitzman 1998, Gollier and Weitzman 2010). In light of these arguments, the governments of the United Kingdom and France apply declining discount rates to their official public project evaluations.").

[65] NAS Second Report, *supra*.

[66] Martin L. Weitzman, *Gamma Discounting*, 91 Am. Econ. Rev. 260, 270 (2001). Weitzman's schedule is as follows:

1-5 years	6-25 years	26-75 years	76-300 years	300+ years
4%	3%	2%	1%	0%

[67] Kenneth J. Arrow et al., *Determining Benefits and Costs for Future Generations*, 341 Science 349 (2013); Kenneth J. Arrow et al., *Should Governments Use a Declining Discount Rate in Project Analysis?*, Rev Environ Econ Policy 8 (2014); Maureen L. Cropper et al., *Declining Discount Rates*, American Economic Review: Papers and Proceedings (2014); Christian Gollier & Martin L. Weitzman, *How Should the Distant Future Be Discounted When Discount Rates Are Uncertain?* 107 Economics Letters 3 (2010).

[68] Joseph Lowe, H.M. Treasury, U.K., Intergenerational Wealth Transfers and Social Discounting: Supplementary Green Book Guidance 5 (2008), *available at* http://www.hm-treasury.gov.uk/d/d4(5).pdf. The U.K. declining discount rate schedule that subtracts out a time preference value is as follows:

0-30 years	31-75 years	76-125 years	126-200 years	201-300 years	301+ years
3.00%	2.57%	2.14%	1.71%	1.29%	0.86%

The technical appendix on discounting attached to these comments more thoroughly reviews the various schedules of declining discount rates available for agencies to select and explains why agencies not only can but should adopt a declining discount framework to address uncertainty. An additional technical appendix on uncertainty explains in detail why uncertainty around the social cost of greenhouse gas points toward higher values. Shifting to a declining discount rate framework would increase the social cost of greenhouse gases.[69] Consequently, a central estimate calculated at 3% should be considered a lower-bound of the social cost of greenhouse gases. But even providing a lower-bound estimate of the social cost of greenhouse gases helps inform decisionmakers and the public, and FERC is required by NEPA to provide some monetization of climate damages, consistent with economic best practices.

The Social Cost of Greenhouse Gases Reflects the Value of Discrete Climate Damages, and Gives Necessary Context to Climate Damages

FERC argues that the social cost of greenhouse gas "does not measure the actual incremental impacts of a project on the environment" and that "global models are not suited to determine the incremental impact of individual projects." These statements suggest a deep misunderstanding of the design and proper application of the social cost of greenhouse gases. Not only is the social cost of greenhouse gas methodology ideally suited for valuing the marginal climate damages of individual projects, but the monetization directly reflects the "discrete effects" of climate change. Monetization is actually a more useful way under NEPA to present the information to decisionmakers and the public than a qualitative description of discrete effects.

First, the social cost of greenhouse gas methodology is well suited to measure the marginal climate damages of individual projects. These protocols were developed to assess the cost of actions with "marginal" impacts on cumulative global emissions, and the metrics estimate the dollar figure of damages for one extra unit of greenhouse gas emissions. This marginal cost is calculated using integrated assessment models. These models translate emissions into changes in atmospheric greenhouse concentrations, atmospheric concentrations into changes in temperature, and changes in temperature into economic damages. A range of plausible socio-economic and emissions trajectories are used to account for the scope of potential scenarios and circumstances that may actually result in the coming years and decades. The marginal cost is attained by first running the models using a baseline emissions trajectory, and then running the same models again with one additional unit of emissions. The difference in damages between the two runs is the marginal cost of one additional unit. The approach assumes that the marginal damages from increased emissions will remain constant for small emissions increases relative to gross global emissions. In other words, the monetization tools are in fact perfectly suited to measuring the marginal effects of individual projects or other discrete agency actions.

Second, the social cost of greenhouse gases directly reflects the discrete effects of climate change.[70] The three integrated assessment models used to calculate the social cost of greenhouse gases together incorporate such damage categories as: agricultural and forestry impacts, coastal impacts due to sea level rise, impacts to the energy and water sectors, impacts from extreme weather events, vulnerable market sectors impacted by changes in energy use, human health impacts including malaria and pollution, outdoor recreation impacts and other non-market amenities, impacts to human settlements

[69] This assumes the use of reasonable values in the Ramsey equation. But in general, as compared to a constant discount rate, a declining rate approach should decrease the effective discount rate.

[70] As a comparison, while a carbon price developed for a carbon tax arguably measures the value of a constrained resource (i.e., carbon emission allowances), the integrated assessment models used to calculate the social cost of greenhouse gases directly measures climate damages.

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and ecosystems, and some catastrophic impacts.[71] Though some important damage categories are currently omitted due to insufficient data and modeling,[72] the integrated assessment models do a reasonable job of capturing many of the discrete climate effects that decisionmakers and the public care about.

Finally, monetizing climate damages provides the informational context required by NEPA, while a purely quantitative estimate of tons or a qualitative description of discrete climate effects like sea-level rise provide little context. Courts review NEPA documents "under an arbitrary and capricious standard," which requires "a reasonably thorough discussion of the significant aspects of the probable environmental consequences," to "foster both informed decisionmaking and informed public participation."[73] In particular, "the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impact analysis that NEPA requires," and it is arbitrary to fail to "provide the necessary contextual information about the cumulative and incremental environmental impacts."[74]

To "provide the necessary contextual information," economic theory shows that one useful tool is monetization of environmental impacts. As Prof. Cass Sunstein has explained, drawing from the work of recent Nobel laureate economist Richard Thaler, a well-documented mental heuristic called "probability neglect" causes people to irrationally reduce small probability risks entirely down to zero.[75] In this case, for example, many decisionmakers and interested citizens would wrongly reduce down to zero the climate risks associated with the 0.41% of total U.S. emissions that FERC calculates will be emitted under the Southeast Market Pipeline project, simply due to the leading zero before the decimal. Yet the monetized expected cost of the climate risks associated with those same emissions—hundreds of millions of dollars—is less likely overlooked. As the Environmental Protection Agency's website explains, "abstract measurements" of so many tons of greenhouse gases can be rather inscrutable for the public, unless "translat[ed] . . . into concrete terms you can understand."[76] Monetization contextualizes the significance of the additional tons of emissions.

Similarly, non-monetized effects are often irrationally treated as worthless.[77] Courts have begun to strike down administrative decisions for failing to give weight to non-monetized effects.[78] Most relevantly, in *Center for Biological Diversity v. NHTSA*, the U.S. Court of Appeals for the Ninth Circuit found it arbitrary and capricious to give zero value "to the most significant benefit of more stringent [fuel economy] standards: reduction in carbon emissions."[79]

FERC is required by NEPA to provide enough context to ensure that the public and decisionmakers would not overlook the associated climate risks. Monetization is one way that FERC could provide the necessary context to foster both informed decisionmaking and informed public participation.[80] As the

[71] See descriptions of the IAMs at pages 6-8 of the Interagency Working Group on the Social Cost of Carbon's 2010 Technical Support Document.

[72] Peter Howard, *Omitted Damages: What's Missing from the Social Cost of Carbon* (2014).

[73] *Ctr. for Biological Diversity*, 538 F.3d at 1194 (citations omitted). *See also Montana Envtl. Info. Ctr. v. Office of Surface Mining*, cv 15-106-M-DWM, at 12-13 (D.Mt., Aug. 14, 2017).

[74] *Ctr. for Biological Diversity*, 538 F.3d at 1217; *see also Montana Envtl. Info. Ctr.*, cv 15-106-M-DWM at 45.

[75] Cass R. Sunstein, Probability Neglect: Emotions, Worst Cases, and Law 112 Yale L61, 63, 72 (2002).

[76] EPA, Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator (last updated Sept. 2017).

[77] Richard Revesz, *Quantifying Regulatory Benefits,* 102 Cal. L. Rev. 1424, 1434-35, 1442 (2014).

[78] *Id.* at 1428, 1434.

[79] 538 F.3d at 1199.

[80] While the regulations promulgated by the Council on Environmental Quality to implement NEPA do not require a "monetary cost-benefit analysis," 40 C.F.R. § 1502.23, monetization nevertheless remains an available tool for contextualizing information. As the Council on Environmental Quality has explained, monetization may be "appropriate and relevant" and, in

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U.S. Office of Surface Mining has explained, including the social cost of greenhouse gases in a NEPA document "provide[s] further context and enhance[s] the discussion of climate change impacts in the NEPA analysis."[81]

The Tons of Greenhouse Gas Emissions at Stake Here Are Clearly Significant

FERC originally estimated in 2015 that the Southeast Market Pipelines project would generate several hundred thousand tons of carbon dioxide-equivalents per year from construction and operation.[82] FERC now adds, at the direction of the D.C. Circuit ruling, quantification of as much as 22.1 million metric tons of carbon dioxide-equivalents per year from downstream combustion, or about 0.41% of total national emissions.[83]

FERC refuses to take the straightforward next step of basic mathematics to apply the social cost of greenhouse gas values to those quantified tons. FERC explains that "there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews."[84] While there may not be a bright-line test for significance, the emissions FERC estimates for this project are clearly significant and warrant monetization. This is especially true since, once emissions have been quantified, the additional step of monetization through application of the Interagency Working Group's 2016 estimates entails nothing more than a simple arithmetic calculation.[85]

In *High Country*, the District Court for the District of Colorado found that it was arbitrary for the Forest Service not to monetize the "1.23 million tons of carbon dioxide equivalent emissions [from methane] the West Elk mine emits annually."[86] That suggests a threshold for monetization far below what FERC estimates here. In *Montana Environmental Information Center*, the District Court for the District of Montana found it was arbitrary for the Office of Surface Mining not to monetize the 23.16 million metric tons, which constituted "approximately 0.35 percent of the total U.S. emissions."[87] In terms of relative percentage, FERC's estimate of 0.41% from downstream emissions alone is higher. In *Center for Biological Diversity*, the Ninth Circuit found that it was arbitrary for the Department of Transportation not to monetize the 35 million metric ton difference in lifetime emissions from increasing the fuel efficiency of motor vehicles:[88] given the estimated lifetime of vehicles sold in the years 2008-2011 (sometimes estimated at about 15 years on average), this could represent as little two million metric tons per year. In a recent environmental impact statement from the Bureau of Ocean Energy Management published in August 2017, the agency explained that the social cost of carbon was "a useful measure" to apply to a NEPA analysis of an action anticipated to have a difference in greenhouse

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particular, "the Federal social cost of carbon . . . provides a harmonized, interagency metric that can give decision makers and the public useful information for their NEPA review." CEQ, *Final Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* 32-33 & fn.86 (2016), *available* at https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf.

[81] *Final Environmental Impact Statement—Four Corners Power Plant and Navajo Mine Energy Project* at 4.2-26 to 4.2-27 (2015). *Available at* https://www.wrcc.osmre.gov/initiatives/fourCorners/documents/FinalEIS/ Section%204.2%20-%20Climate%20Change.pdf.

[82] FEIS, ch.3.

[83] DSEIS, 4.

[84] DSEIS, 5.

[85] Agencies simply need to multiply their estimate of tons in each year by the IWG's 2016 values for the corresponding year of emissions (adjusted for inflation to current dollars). If the emissions change occurs in the future, agencies would then discount the products back to present value.

[86] 52 F. Supp. 3d at 1191 (quoting an e-mail comment on the draft statement for the quantification of tons).

[87] At 36-37.

[88] 538 F.3d at 1187.

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gas emissions compared to the no-action baseline of about 25 million metric tons over a 5-year period,[89] or about 5 million metric tons per year. Once again, FERC's estimate for the Southeast Market Pipelines project is much higher.

FERC offers several estimates of downstream emissions, ranging from 8.36 million metric tons (meant to reflect net emissions) to 22.1 million metric tons (meant to reflect a full burn). These comments in no way endorse any of those calculations as an accurate estimate of downstream emissions from the project. FERC may have overlooked factors, such as supply-and-demand effects, that could increase downstream emissions, perhaps significantly. Regardless, any plausible estimate of downstream emissions from the Southeast Market Pipelines project will be a significant quantity and warrant monetization. (Note that Table 2 of the draft supplemental environmental impact statement contains a misleading calculation error. If 22.1 million metric tons represents 0.41% of the national inventory, then 8.36 million metric tons cannot be only 0.02%; instead, it must be closer to 0.2%. FERC must correct this error.)

Under any reasonable social cost of greenhouse gases, the emissions from the Southeast Market Pipelines project will cause hundreds of millions of dollars in climate damages. Tellingly, FERC had no problem concluding in its 2015 final environmental impact statement for the Southeast Market Pipelines project that it was significant and appropriate to monetize, for example, the $102,981 in estimated income tax revenue to Alabama from the Sabal Trail (in addition to millions of other monetized economic benefits).[90] Certainly, a potential climate cost of hundreds of millions of dollars is also significant, particularly in the context of a document the very purpose of which is to evaluate a project's *environmental* impacts .

2. FERC Must Use Current Estimates of the Social Cost of Greenhouse Gases That Reflect the Best Available Data and Methodologies

As explained above, FERC is required to monetize the climate effects of the increased greenhouse gas emissions predicted to occur under the Southeast Market Pipelines project. When FERC monetizes those climate effects, it must use estimates of the social cost of carbon and social cost of methane that reflect the best available data and methodologies.

In 2016, the IWG published updated central estimates for the social cost of greenhouse gases: $50 per ton of carbon dioxide, $1440 per ton of methane, and $18,000 per ton of nitrous oxide (in 2017 dollars for year 2020 emissions).[91] Agencies must continue to use estimates of a similar or higher value[92] in their regulatory analyses and environmental impact statements. In particular, when estimating the social cost of greenhouse gases, agencies must use multiple peer-reviewed models, a global estimate of climate damages, and a 3% or lower discount rate for the central estimate. These methodological approaches are consistent with NEPA's directive that agencies adopt a global perspective and consider the effects of their actions on future generations.

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[89] BOEM, *Liberty Development and Production Plan Draft EIS* at 3-129, 4,50 (2017) (89,940,000 minus 64,570,000 is about 25 million).

[90] FEIS, 3-204.

[91] U.S. Interagency Working Group on the Social Cost of Greenhouse Gases, "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" (2016), *available at* https://obamawhitehouse.archives.gov/omb/oira/social-cost-of-carbon.

[92] *See, e.g.*, Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173 (2014) (explaining that current estimates omit key damage categories and, therefore, are very likely underestimates).

This section discusses the appropriate use of models, the need to use a global estimate of climate damages, and the proper treatment of uncertainty. The need to use a 3% or lower discount rate for the central estimate is discussed in the section above.

Agencies Must Not Rely on a Single Model, but Must Use Multiple, Peer-Reviewed Models

NEPA requires "scientific accuracy" in environmental impact statements, and agencies must "insure the professional integrity, including scientific integrity, of the discussions and analyses."[93] As the U.S. Court of Appeals for the Tenth Circuit has explained, NEPA requires agencies to use "the best available scientific information."[94] OMB's *Circular A-4* provides helpful guidance on the standards for accuracy in monetizing costs and benefits. *Circular A-4* requires agencies to use "the best reasonably obtainable scientific, technical, and economic information available. To achieve this, you should rely on peer-reviewed literature, where available."[95]

Since the IWG first issued the federal social cost of carbon protocol in 2010, this methodology has relied on the three most cited, most peer-reviewed integrated assessment models (IAMs). These three IAMs—called DICE (the Dynamic Integrated Model of Climate and the Economy[96]), FUND (the Climate Framework for Uncertainty, Negotiation, and Distribution[97]), and PAGE (Policy Analysis of the Greenhouse Effect[98])—draw on the best available scientific and economic data to link physical impacts to the economic damages of each marginal ton of greenhouse gas emissions. As noted previously, each model translates emissions into changes in atmospheric greenhouse gas concentrations, atmospheric concentrations into temperature changes, and temperature changes into economic damages, which can then be adjusted according to a discount rate. These three models have been combined with inputs derived from peer-reviewed literature on climate sensitivity, socio-economic and emissions trajectories, and discount rates. The results of the three models have been given equal weight in federal agencies' estimates and have been run through statistical techniques like Monte Carlo analysis to account for uncertainty.

In a 2017 report, the National Academies of Sciences (NAS) recommended future improvements to this methodology. Specifically, over the next five years the NAS recommends unbundling the four essential steps in the IAMs into four separate "modules": a socio-economic and emissions scenario module, a climate change module, an economic damage module, and a discount rate module.[99] Unbundling these four steps into separate modules could allow for easier, more transparent updates to each individual component in order to better reflect the best available science and capture the full range of uncertainty in the literature. These four modules could be built from scratch or drawn from the existing IAMs. Either way, the integrated modular framework envisioned by NAS for the future will require significant time and resource commitments from federal agencies.

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[93] 40 C.F.R. § 1502.24.

[94] *Custer Cty. Action Ass'n v. Garvey*, 256 F.3d 1024, 1034 (10th Cir. 2001).

[95] OMB, Circular A-4, at 17.

[96] William D. Nordhaus, *Estimates of the social cost of carbon: concepts and results from the DICE-2013R model and alternative approaches*, 1 JOURNAL OF THE ASSOCIATION OF ENVIRONMENTAL AND RESOURCE ECONOMISTS 1 (2014).

[97] David Anthoff & Richard S.J. Tol, THE CLIMATE FRAMEWORK FOR UNCERTAINTY, NEGOTIATION AND DISTRIBUTION (FUND), TECHNICAL DESCRIPTION, VERSION 3.6 (2012), *available at* http://www.fund-model.org/versions.

[98] Chris Hope, *The Marginal Impact of CO_2 from PAGE2002: An Integrated Assessment Model Incorporating the IPCC's Five Reasons for Concern*, 6 INTEGRATED ASSESSMENT J. 19 (2006).

[99] Nat'l Acad. Sci., Eng. & Medicine, *Valuing Climate Damages: Updating Estimates of the Social Cost of Carbon Dioxide* 3 (2017) [hereinafter "NAS, Second Report"] (recommending an "integrated modular approach").

In the meantime, the NAS has supported the continued near-term use of the existing social cost of greenhouse gas estimates based on the DICE, FUND, and PAGE models, as used by federal agencies to date.[100] In short, DICE, FUND, and PAGE continue to represent the state-of-the-art models. The Government Accountability Office found in 2014 that the estimates derived from these models and used by federal agencies are consensus-based, rely on peer-reviewed academic literature, disclose relevant limitations, and are designed to incorporate new information via public comments and updated research.[101] In fact, the social cost of greenhouse gas estimates used in federal regulatory proposals and EISs have been subject to over 80 distinct public comment periods.[102] The economics literature confirms that estimates based on these three IAMs remain the best available estimates.[103] In 2016, the U.S. Court of Appeals for the Seventh Circuit held the estimates used to date by agencies are reasonable.[104] Just last month, the District of Montana rejected an agency's Environmental Assessment for failure to incorporate the federal social cost of carbon estimates into its cost-benefit analysis of a proposed mine expansion.[105]

Regardless of Executive Order 13,783's withdrawal of the guidance requiring federal agencies to rely on IWG's technical support documents to estimate the social cost of greenhouse gases, IWG's choice of DICE, FUND, and PAGE, its use of inputs and assumptions, and its statistical analysis still represent the state-of-the-art approach based on the best available, peer-reviewed literature. This approach satisfies both NEPA's and Circular A-4's requirements for information quality and transparency. Therefore, in complying with the Executive Order's instructions to ensure that social cost of greenhouse gas estimates are consistent with Circular A-4, agencies will necessarily have to rely on models like DICE, FUND, and PAGE, to use the same or similar inputs and assumptions as the IWG, and to apply statistical analyses like Monte Carlo.

The unavoidable fact is that DICE, FUND, and PAGE are still the dominant, most peer-reviewed models,[106] and most estimates in the literature continue to rely on those models.[107] Each of these models has been developed over decades of research, and has been subject to rigorous peer review, documented in the published literature. While other models exist, they lack DICE's, FUND's, and PAGE's long history of peer review or exhibit other limitations. For example, the World Bank has created

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[100] Specifically, NAS concluded that a near-term update was not necessary or appropriate and the current estimates should continue to be used while future improvements are developed over time. Nat'l Acad. Sci., Eng. & Medicine, *Assessment of Approaches to Updating the Social Cost of Carbon: Phase 1 Report on a Near-Term Update* 1 (2016) [hereinafter "NAS, First Report"].

[101] Gov't Accountability Office, *Regulatory Impact Analysis: Development of Social Cost of Carbon Estimates* (2014).

[102] Peter Howard & Jason Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 Columbia J. Envtl. L. 203 (2017), at Appendix A.

[103] *E.g.*, Richard G. Newell et al., *Carbon Market Lessons and Global Policy Outlook*, 343 Science 1316 (2014); Bonnie L. Keeler et al., *The Social Costs of Nitrogen*, 2 Science Advances e1600219 (2016); Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 Nature 173 (2014) (co-authored with Nobel Laureate Kenneth Arrow, among others).

[104] *Zero Zone*, 832 F.3d at 679 (7th Cir. 2016) (finding that the agency "acted reasonably" in using global estimates of the social cost of carbon, and that the estimates chosen were not arbitrary or capricious).

[105] *Montana Envtl. Info. Cent.*, 2017 WL 3480262,at *12-15, 19.

[106] *See* 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 7 (July 2015) ("DICE, FUND, and PAGE are the most widely used and widely cited models in the economic literature that link physical impacts to economic damages for the purposes of estimating the SCC."), *citing* Nat'l Acad. Sci., Eng. & Medicine, *Hidden Cost of Energy: Unpriced Consequences of Energy Production and Use* (2010) ("the most widely used impact assessment models").

[107] R.S. Tol, *The Social Cost of Carbon*, 3 Annual Rev. Res. Econ. 419 (2011); T. Havranek et al., *Selective Reporting and the Social Cost of Carbon*, 51 Energy Econ. 394 (2015).

ENVISAGE, which models a more detailed breakdown of market sectors,[108] but unfortunately does not account for non-market impacts and so would omit a large portion of significant climate effects. Models like ENVISAGE are therefore not currently appropriate choices under the criteria of Circular A-4.[109]

An approach based on multiple, peer-reviewed models (like DICE, FUND, and PAGE) is more rigorous and more consistent with Circular A-4 than reliance on a single model or estimate. DICE, FUND, and PAGE each include many of the most significant climate effects, use appropriate discount rates and other assumptions, address uncertainty, are based on peer-reviewed data, and are transparent.[110] However, each IAM also has its own limitations and is sensitive to its own assumptions. No model fully captures all the significant climate effects.[111] By giving weight to multiple models—as the IWG did—agencies can balance out some of these limitations and produce more robust estimates.[112]

Finally, while agencies should be careful not to cherry-pick a single estimate from the literature, it is noteworthy that various estimates in the literature are consistent with the numbers derived from a weighted average of DICE, FUND, and PAGE—namely, with a central estimate of about $40 per ton of carbon dioxide, and a high-percentile estimate of about $120, for year 2015 emissions (in 2016 dollars, at a 3% discount rate). The latest central estimate from DICE's developers is $87 (at a 3% discount rate);[113] from FUND's developers, $12;[114] and from PAGE's developers, $123, with a high-percentile estimate of $332.[115]

In fact, much of the literature suggests that a central estimate of $40 per ton is a very conservative *underestimate* of the true social cost of carbon. A 2013 meta-analysis of the broader literature found a mean estimate of $59 per ton of carbon dioxide,[116] and a soon-to-be-published update by the same author finds a mean estimate of $108 (at a 1% discount rate).[117] A 2015 meta-analysis—which sought out estimates besides just those based on DICE, FUND, and PAGE—found a mean estimate of $83 per ton of carbon dioxide.[118] Various studies relying on expert elicitation[119] from a large body of climate

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[108] World Bank, *The Environmental Impact and Sustainability Applied General Equilibrium (ENVISAGE) Model* (2008), *available at* http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1193838209522/Envisage7b.pdf.

[109] Similarly, Intertemporal Computable Equilibrium System (ICES) does not account for non-market impacts. *See* https://www.cmcc.it/models/ices-intertemporal-computable-equilibrium-system. Other models include CRED, which is worthy of further study for future use. Frank Ackerman, Elizabeth A. Stanton & Ramón Bueno, *CRED: A New Model of Climate and Development*, 85 Ecological Economics 166 (2013). Accounting for omitted impacts more generally, E.A. Stanton, F. Ackerman, R. Bueno, *Reason, Empathy, and Fair Play: The Climate Policy Gap*, (Stockholm Environment Inst. Working Paper 2012-02), find a doubling of the SCC using the CRED model.

[110] While sensitivity analysis can address parametric uncertainty within a model, using multiple models helps address structural uncertainty.

[111] *See* Peter Howard, *Omitted Damages: What's Missing from the Social Cost of Carbon* 5 (Cost of Carbon Project Report, 2014), http://costofcarbon.org/.

[112] Moore, F., Baldos, U., & Hertel, T. (2017). Economic impacts of climate change on agriculture: a comparison of process-based and statistical yield models. *Environmental Research Letters*.

[113] William Nordhaus, *Revisiting the Social Cost of Carbon*, Proc. Nat'l Acad. Sci. (2017) (estimate a range of $21 to $141).

[114] D. Anthoff & R. Tol, *The Uncertainty about the Social Cost of Carbon: A Decomposition Analysis Using FUND*, 177 Climatic Change 515 (2013).

[115] C. Hope, *The social cost of CO2 from the PAGE09 model*, 39 Economics (2011); C. Hope, *Critical issues for the calculation of the social cost of CO2*, 117 *Climatic Change*, 531 (2013).

[116] R. Tol, *Targets for Global Climate Policy: An Overview*, 37 J. Econ. Dynamics & Control 911 (2013).

[117] R. Tol, *Economic Impacts of Climate Change* (Univ. Sussex Working Paper No. 75-2015, 2015).

[118] S. Nocera et al., *The Economic Impact of Greenhouse Gas Abatement through a Meta-Analysis: Valuation, Consequences and Implications in terms of Transport Policy*. 37 Transport Policy 31 (2015).

[119] Circular A-4, at 41, supports use of expert elicitation as a valuable tool to fill gaps in knowledge.

economists and scientists have found mean estimates of $50 per ton of carbon dioxide,[120] $96-$144 per ton of carbon dioxide,[121] and $80-$100 per ton of carbon dioxide.[122] There is a growing consensus in the literature that even the best existing estimates of the social cost of greenhouse gases may severely underestimate the true marginal cost of climate damages.[123] Overall, a central estimate of $40 per ton of carbon dioxide at a 3% discount rate, with a high-percentile estimate of about $120 for year 2015 emissions, is consistent with the best available literature; if anything, the best available literature supports considerably higher estimates.[124]

Similarly, a comparison of international estimates of the social cost of greenhouse gases suggests that a central estimate of $40 per ton of carbon dioxide is a very conservative value. Sweden places the long-term valuation of carbon dioxide at $168 per ton; Germany calculates a "climate cost" of $167 per ton of carbon dioxide in the year 2030; the United Kingdom's "shadow price of carbon" has a central value of $115 by 2030; Norway's social cost of carbon is valued at $104 per ton for year 2030 emissions; and various corporations have adopted internal shadow prices as high as $80 per ton of carbon dioxide.[125]

Indeed, a number of our organizations have previously commented on ways in which the IWG's approach could be improved to more accurately reflect the true social cost of greenhouse gases. For instance, the IWG's values should reflect risk aversion and account for the additional price that society is willing to pay to avoid uncertainty around increasingly more severe impacts from climate change.[126] In addition, noted Harvard economist Martin Weitzmann has observed, the three IAMs assume a relatively smooth upward slope in economic damages even as global climates increase well past critical tipping points. An improved social cost of greenhouse gases could reflect modified damage functions that better address tipping points.[127]

For these reasons, the IWG's estimates are very likely to underrepresent the true impact that greenhouse gas emissions have on society, and we strongly encourage further efforts to make those

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[120] Scott Holladay & Jason Schwartz, *Economists and Climate Change* 43 (Inst. Policy Integrity Brief, 2009 (directly surveying experts about the SCC).

[121] Peter Howard & Derek Sylvan, *The Economic Climate: Establishing Expert Consensus on the Economics of Climate Change* (Inst. Policy Integrity Working Paper 2015/1) (using survey results to calibrate the DICE-2013R damage function).

[122] R. Pindyck, *The Social Cost of Carbon Revisited* (Nat'l Bureau of Econ. Res. No. w22807, 2016) ($80-$100 is the trimmed range of estimates at a 4% discount rate; without trimming of outlier responses, the estimate is $200).

[123] *E.g.*, Howard & Sylvan, *supra* note 121; Pindyck, *supra* note 122. The underestimation results from a variety of factors, including omitted and outdated climate impacts (including ignoring impacts to economic growth and tipping points), simplified utility functions (including ignoring relative prices), and applying constant instead of a declining discount rate. *See* Howard, *supra* note 111; Revesz et al., *supra* note 103; J.C. Van Den Bergh & W.J. Botzen, A Lower Bound to the Social Cost of CO2 Emissions, 4 Nature Climate Change 253 (2014) (proposing $125 per metric ton of carbon dioxide in 1995 dollars, or about $200 in today's dollars, as the lower bound estimate). *See also* F.C. Moore & D.B. Diaz, *Temperature Impacts on Economic Growth Warrant Stringent Mitigation Policy*, 5 Nature Climate Change 127 (2015) (concluding the SCC may be six times higher after accounting for potential growth impacts of climate change). Accounting for both potential impacts of climate change on economic growth and other omitted impacts, S. Dietz and N. Stern find a two- to seven-fold increase in the SCC. *Endogenous growth, convexity of damage and climate risk: how Nordhaus' framework supports deep cuts in carbon emissions*. 125 *The Economic Journal* 574 (2015).

[124] Note that the various estimates cited in the paragraph have not all been converted to standard 2017$, and may not all reflect the same year emissions. Nevertheless, the magnitude of this range suggests that $40 per ton of year 2015 emissions is a conservative estimate.

[125] *See* Howard & Schwartz, *supra* note 102, at Appendix B. All these estimates are in 2016$.

[126] *See, e.g.,* Howarth, R. B., Gerst, M. D., & Borsuk, M. E., 2014. *Risk mitigation and the social cost of carbon*. Global Environmental Change 24, 123-131.

[127] Weitzmann, M.L., *GHG Targets as Insurance Against Catastrophic Climate Damages*, National Bureau of Economic Research Working Paper No. 16136, 12-16 (2010).

NGO3-5 See response to EO1-4.

efforts more robust. Nevertheless, the IWG's approach represents the best and most rigorous effort that the U.S. government has engaged in thus far to realistically estimate the social cost of greenhouse gases. As such, agencies must incorporate those values into their rulemaking analyses; simply refusing to monetize the greenhouse gas emissions of their actions, as FERC has done in this case, does not pass legal or technical muster.

NG03-5

A Global Estimate of Climate Damages Is Required by NEPA

NEPA contains a provision on "International and National Coordination of Efforts" that broadly requires that "all agencies of the Federal Government *shall* . . . recognize the worldwide and long-range character of environmental problems."[128] Using a global social cost of greenhouse gases to analyze and set policy fulfills these instructions. Furthermore, the Act requires agencies to, "where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment."[129] By continuing to use the global social cost of greenhouse gases to spur reciprocal foreign actions, federal agencies "lend appropriate support" to the NEPA's goal of "maximize[ing] international cooperation" to protect "mankind's world environment." Furthermore, not only is it consistent with Circular A-4 and best economic practices to estimate the global damages of U.S. greenhouse gas emissions in regulatory analyses and environmental impact statements, but no existing methodology for estimating a "domestic-only" value is reliable, complete, or consistent with Circular A-4.

From 2010 through 2016, federal agencies based their regulatory decision and NEPA reviews on global estimates of the social cost of greenhouse gases. Though agencies often also disclosed a "highly speculative" range that tried to capture exclusively U.S. climate costs, emphasis on a global value was recognized as more accurate given the science and economics of climate change, as more consistent with best economic practices, and as crucial to advancing U.S. strategic goals.[130]

Opponents of climate regulation challenged the global number in court and other forums, and often attempted to use Circular A-4 as support.[131] Specifically, opponents have seized on Circular A-4's instructions to "focus" on effects to "citizens and residents of the United States," while any significant effects occurring "beyond the borders of the United States . . . should be reported separately."[132] Importantly, despite this language and such challenges, the U.S. Court of Appeals for the Seventh Circuit had no trouble concluding that a global focus for the social cost of greenhouse gases was reasonable:

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[128] 42 U.S.C. § 4332(2)(f) (emphasis added).

[129] *Id.*; *see also Environmental Defense Fund v. Massey*, 986 F.2d 528, 535 (D.C. Cir. 1993) (confirming that Subsection F is mandatory); Natural Resources Defense Council v. NRC, 647 F.2d 1345, 1357 (D.C. Cir. 1981) ("This NEPA prescription, I find, looks toward cooperation, not unilateral action, in a manner consistent with our foreign policy."); *cf.* COUNCIL ON ENVIRONMENTAL QUALITY, GUIDANCE ON NEPA ANALYSIS FOR TRANSBOUNDARY IMPACTS (1997), *available at* http://www.gc.noaa.gov/documents/transguide.pdf; Exec. Order No. 12,114, *Environmental Effects Abroad of Major Federal Actions*, 44 Fed. Reg. 1957 §§ 1-1, 2-1 (Jan. 4, 1979) (applying to "major Federal actions . . . having significant effects on the environment outside the geographical borders of the United States," and enabling agency officials "to be informed of pertinent environmental considerations and to take such considerations into account . . . in making decisions regarding such actions").

[130] *See generally* Howard & Schwartz, *supra* note 102.

[131] Ted Gayer & W. Kip Viscusi, *Determining the Proper Scope of Climate Change Policy Benefits in U.S. Regulatory Analyses: Domestic versus Global Approaches*, 10 Rev. Envtl. Econ. & Pol'y 245 (2016) (citing Circular A-4 to argue against a global perspective on the social cost of carbon); *see also, e.g.*, Petitioners Brief on Procedural and Record-Based Issues at 70, in *West Virginia v. EPA*, case 15-1363, D.C. Cir. (filed February 19, 2016) (challenging EPA's use of the global social cost of carbon).

[132] Circular A-4 at 15. Note that A-4 slightly conflates "accrue to citizens" with "borders of the United States": U.S. citizens have financial and other interests tied to effects beyond the borders of the United States, as discussed further below.

> AHRI and Zero Zone [the industry petitioners] next contend that DOE [the Department of Energy] arbitrarily considered the global benefits to the environment but only considered the national costs. They emphasize that the [statute] only concerns "national energy and water conservation." In the New Standards Rule, DOE did not let this submission go unanswered. It explained that climate change "involves a global externality," meaning that carbon released in the United States affects the climate of the entire world. According to DOE, national energy conservation has global effects, and, therefore, those global effects are an appropriate consideration when looking at a national policy. Further, AHRI and Zero Zone point to no global costs that should have been considered alongside these benefits. Therefore, DOE acted reasonably when it compared global benefits to national costs.[133]

Circular A-4's reference to effects "beyond the borders" confirms that it is appropriate for agencies to consider the global effects of U.S. greenhouse gas emissions. While Circular A-4 may suggest that most typical decisions should focus on U.S. effects, the Circular cautions agencies that special cases call for different emphases:

> [Y]ou cannot conduct a good regulatory analysis according to a formula. Conducting high-quality analysis requires competent professional judgment. ***Different regulations may call for different emphases*** in the analysis, ***depending on the nature and complexity*** of the regulatory issues and the sensitivity of the benefit and cost estimates to the key assumptions.[134]

In fact, Circular A-4 elsewhere assumes that agencies' analyses will not always be conducted from purely the perspective of the United States, as one of its instructions only applies "as long as the analysis is conducted from the United States perspective,"[135] suggesting that in some circumstances it is appropriate for the analysis to be global. For example, EPA and DOT have adopted a global perspective on the analysis of potential monopsony benefits to U.S. consumers resulting from the reduced price of foreign oil imports following energy efficiency increases, and EPA assesses the global potential for leakage of greenhouse gas emissions owing to U.S. regulation.[136]

Perhaps more than any other issue, the nature of the issue of climate change requires precisely such a "different emphasis" from the default domestic-only assumption. To avoid a global "tragedy of the commons" that could irreparably damage all countries, including the United States, every nation should ideally set policy according to the global social cost of greenhouse gases.[137] Climate and clean air are global common resources, meaning they are freely available to all countries, but any one country's use—i.e., pollution—imposes harms on the polluting country as well as the rest of the world. Because greenhouse pollution does not stay within geographic borders but rather mixes in the atmosphere and affects climate worldwide, each ton emitted by the United States not only creates domestic harms, but also imposes large externalities on the rest of the world. Conversely, each ton of greenhouse gases abated in another country benefits the United States along with the rest of the world.

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[133] Zero Zone v. Dept. of Energy, 832 F.3d 654, 679 (7th Cir. 2016),

[134] Circular A-4 at 3 (emphasis added).

[135] *Id.* at 38 (counting international transfers as costs and benefits "as long as the analysis is conducted from the United States perspective").

[136] *See* Howard & Schwartz, *supra* note 102, at 268-69.

[137] *See* Garrett Hardin, *The Tragedy of the Commons*, 162 Science 1243 (1968) ("[E]ach pursuing [only its] own best interest . . . in a commons brings ruin to all.").

If all countries set their greenhouse emission levels based on only domestic costs and benefits, ignoring the large global externalities, the aggregate result would be substantially sub-optimal climate protections and significantly increased risks of severe harms to all nations, including the United States. Thus, basic economic principles demonstrate that the United States stands to benefit greatly if all countries apply global social cost of greenhouse gas values in their regulatory decisions and project reviews. Indeed, the United States stands to gain hundreds of billions or even trillions of dollars in direct benefits from efficient foreign action on climate change.[138]

In order to ensure that other nations continue to use global social cost of greenhouse gas values, it is important that the United States itself continue to do so.[139] The United States is engaged in a repeated strategic dynamic with several significant players—including the United Kingdom, Germany, Sweden, and others—that have already adopted a global framework for valuing the social cost of greenhouse gases.[140] For example, Canada and Mexico have explicitly borrowed the IWG's global SCC metric to set their own fuel efficiency standards.[141] For the United States to now depart from this collaborative dynamic by reverting to a domestic-only estimate would undermine the country's long-term interests and could jeopardize emissions reductions underway in other countries, which are already benefiting the United States.

For these and other reasons, the IWG properly relied on global estimates to develop its SCC metric, and many federal agencies have since relied on this global metric to evaluate and justify their decisions. At the same time, some agencies have, in addition to the global estimate, also disclosed a "highly speculative" estimate of the domestic-only effects of climate change. In particular, the Department of Energy always includes a chapter on a domestic-only value of carbon emissions in the economic analyses supporting its energy efficiency standards; EPA has also often disclosed similar estimates.[142] Such an approach is consistent with Circular A-4's suggestion that agencies should usually disclose domestic effects separately from global effects. However, as we have discussed, reliance on a domestic-only methodology would be inconsistent with both the inherent nature of climate change and the standards of Circular A-4. Consequently, it is appropriate under Circular A-4 for agencies to continue to rely on global estimates of the social cost of greenhouses to justify their regulatory decisions or their choice of alternatives under NEPA.

Moreover, no current methodology can accurately estimate a "domestic-only" value of the social cost of greenhouse gases. OMB, the National Academies of Sciences, and the economic literature all agree that existing methodologies for calculating a "domestic-only" value of the social cost of greenhouse gases are deeply flawed and result in severe and misleading underestimates. In developing the social cost of carbon, the IWG did offer some such domestic estimates. Using the results of one economic model (FUND) as well as the U.S. share of global gross domestic product (GDP), the group generated an "approximate, provisional, and ***highly speculative***" range of 7–23% of the global social cost of carbon as

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[138] Policy Integrity, *Foreign Action, Domestic Windfall: The U.S. Economy Stands to Gain Trillions from Foreign Climate Action* (2015), http://policyintegrity.org/files/publications/ForeignActionDomesticWindfall.pdf

[139] *See* Robert Axelrod, *The Evolution of Cooperation* 10-11 (1984) (on repeated prisoner's dilemma games).

[140] *See* Howard & Schwartz, *supra* note 102, at Appendix B.

[141] *See* Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations, SOR/2013-24, 147 Can. Gazette pt. II, 450, 544 (Can.), *available at* http://canadagazette.gc.ca/rp-pr/p2/2013/2013-03-13/html/sor-dors24-eng.html ("The values used by Environment Canada are based on the extensive work of the U.S. Interagency Working Group on the Social Cost of Carbon."); Jason Furman & Brian Deese, *The Economic Benefits of a 50 Percent Target for Clean Energy Generation by 2025*, White House Blog, June 29, 2016 (summarizing the North American Leader's Summit announcement that U.S., Canada, and Mexico would "align" their SCC estimates).

[142] Howard & Schwartz, *supra* note 102, at 220-21.

an estimate of the purely direct climate effects to the United States.[143] Yet, as the IWG itself acknowledged, this range is almost certainly an underestimate because it ignores significant, indirect costs to trade, human health, and security that are likely to "spill over" into the United States as other regions experience climate change damages, among other effects.[144]

Neither the existing IAMs nor a share of global GDP are appropriate bases for calculating a domestic-only estimate. The IAMs were never designed to calculate a domestic SCC, since a global SCC is the economic efficient value. FUND, like other IAMS, includes some simplifying assumptions: of relevance, FUND and the other IAMs are not able to capture the adverse effects that the impacts of climate change in other countries will have on the United States through trade linkages, national security, migration, and other forces.[145] This is why the IWG characterized the domestic-only estimate from FUND as a "highly speculative" underestimate. Similarly, a domestic-only estimate based on some rigid conception of geographic borders or U.S. share of world GDP will fail to capture all the climate-related costs and benefits that matter to U.S. citizens.[146] U.S. citizens have economic and other interests abroad that are not fully reflected in the U.S. share of global GDP. GDP is a "monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time."[147] GDP therefore does not reflect significant U.S. ownership interests in foreign businesses, properties, and other assets, as well as consumption abroad including tourism,[148] or even the 8 million Americans living abroad.[149] At the same time, GDP is also over-inclusive, counting productive operations in the United States that are owned by foreigners. Gross National Income (GNI), by contrast, defines its scope not by location but by ownership interests.[150] However, not only has GNI fallen out of favor as a metric used in international economic policy,[151] but using a domestic-only SCC based on GNI would make the SCC metrics incommensurable with other costs in regulatory impact analyses, since most regulatory costs are calculated by U.S. agencies regardless of whether they fall to U.S.-owned entities or to foreign-owned entities operating in the United States.[152] Furthermore, both GDP and GNI are

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[143] Interagency Working Group on Social Cost of Carbon, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12,866 at 11 (2010) (emphasis added).

[144] *Id.* (explaining that the IAMs, like FUND, do "not account for how damages in other regions could affect the United States (e.g., global migration, economic and political destabilization").

[145] *See, e.g.*, Dept. of Defense, *National Security Implications of Climate-Related Risks and a Changing Climate* (2015), *available at* http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf?source=govdelivery.

[146] A domestic-only SCC would fail to "provide to the public and to OMB a careful and transparent analysis of the anticipated consequences of economically significant regulatory actions." Office of Information and Regulatory Affairs, *Regulatory Impact Analysis: A Primer* 2 (2011).

[147] Tim Callen, *Gross Domestic Product: An Economy's All*, IMF, http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm (last updated Mar. 28, 2012).

[148] "U.S. residents spend millions each year on foreign travel, including travel to places that are at substantial risk from climate change, such as European cities like Venice and tropical destinations like the Caribbean islands." David A. Dana, *Valuing Foreign Lives and Civilizations in Cost-Benefit Analysis: The Case of the United States and Climate Change Policy* (Northwestern Faculty Working Paper 196, 2009), http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1195&context=facultyworkingpapers.

[149] Assoc. of Americans Resident Oversees, https://www.aaro.org/about-aaro/6m-americans-abroad. Admittedly 8 million is only 0.1% of the total population living outside the United States.

[150] *GNI, Atlas Method (Current US$)*, The World Bank, http://data.worldbank.org/indicator/NY.GNP.ATLS.CD.

[151] *Id.*

[152] U.S. Office of Management and Budget & Secretariat General of the European Commission, *Review of Application of EU and US Regulatory Impact Assessment Guidelines on the Analysis of Impacts on International Trade and Development* 13 (2008).

dependent on what happens in other countries, due to trade and the international flow of capital. The artificial constraints of both metrics counsel against a rigid split based on either U.S. GDP or U.S. GNI.[153]

Of course, there already are and will continue to be significant, quantifiable, localized effects of climate change. For example, a peer-reviewed EPA report, *Climate Change in the United States: Benefits of Global Action*, found that by the end of the century, the U.S. economy could face damages of $110 billion annually in lost labor productivity alone due to extreme temperatures, plus $11 billion annually in agricultural damages, $180 billion in losses to key economic sectors due to water shortages, and $5 trillion in damages U.S. coastal property.[154] But the existence of those examples of quantifiable estimates of localized damages does not mean that the current IAMs are able to extrapolate a U.S.-only number that accurately reflects total domestic damages—especially since, as already explained, the IAMs do not reflect spill overs.

As a result, in 2015, OMB concluded, along with several other agencies, that "good methodologies for estimating domestic damages do not currently exist."[155] Similarly, the NAS recently concluded that current IAMs cannot accurately estimate the domestic social cost of greenhouse gases, and that estimates based on U.S. share of global GDP would be likewise insufficient.[156] William Nordhaus, the developer of the DICE model, cautioned earlier this year that "regional damage estimates are both incomplete and poorly understood," and "there is little agreement on the distribution of the SCC by region."[157] In short, any domestic-only estimate will be inaccurate, misleading, and out of step with the best available economic literature, in violation of Circular A-4's standards for information quality.

For more details on the justification for a global value of the social cost of greenhouse gases, please see Peter Howard & Jason Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 Columbia J. Envtl. L. 203 (2017). Another strong defense of the global valuation as consistent with best economic practices appears in a letter published in a recent issue of *The Review of Environmental Economics and Policy*, co-authored by the late Nobel laureate economist Kenneth Arrow.[158]

Similarly, a 300-year time horizon is required by best economic practices. In 2017, the National Academies of Sciences issued a report stressing the importance of a longer time horizon for calculating the social cost of greenhouse gases. The report states that, "[i]n the context of the socioeconomic, damage, and discounting assumptions, the time horizon needs to be long enough to capture the vast majority of the present value of damages."[159] The report goes on to note that the length of the time horizon is dependent "on the rate at which undiscounted damages grow over time and on the rate at which they are discounted. Longer time horizons allow for representation and evaluation of longer-run

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[153] Advanced Notice of Proposed Rulemaking on Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354, 44,415 (July 30, 2008) ("Furthermore, international effects of climate change may also affect domestic benefits directly and indirectly to the extent U.S. citizens value international impacts (e.g., for tourism reasons, concerns for the existence of ecosystems, and/or concern for others); U.S. international interests are affected (e.g., risks to U.S. national security, or the U.S. economy from potential disruptions in other nations).").

[154] EPA, *Climate Change in the United States: Benefits of Global Action* (2015).

[155] In November 2013, OMB requested public comments on the social cost of carbon. In 2015, OMB along with the rest of the Interagency Working Group issued a formal response to those comments. 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) [hereinafter, OMB 2015 Response to Comments].

[156] NAS Second Report, *supra* note 99, at 53.

[157] William Nordhaus, *Revisiting the Social Cost of Carbon*, 114 PNAS 1518, 1522 (2017).

[158] Richard Revesz, Kenneth Arrow et al., *The Social Cost of Carbon: A Global Imperative*, 11 REEP 172 (2017).

[159] NAS Second Report, *supra* note 99, at 78.

geophysical system dynamics, such as sea level change and the carbon cycle."[160] In other words, after selecting the appropriate discount rate based on theory and data (in this case, 3% or below), analysts should determine the time horizon necessary to capture all costs and benefits that will have important net present values at the discount rate. Therefore, a 3% or lower discount rate for climate change implies the need for a 300-year horizon to capture all significant values. NAS reviewed the best available, peer-reviewed scientific literature and concluded that the effects of greenhouse gas emissions over a 300-year period are sufficiently well established and reliable as to merit consideration in estimates of the social cost of greenhouse gases.[161]

Agencies Should Follow the Social Cost of Greenhouse Gas Protocol's Treatment of Uncertainty

The approach developed and utilized by the IWG remains the best methodology, based on the best currently available scientific and economic data. In particular, the IWG modeled the uncertainty over the value of the equilibrium climate sensitivity parameter using the Roe and Baker distribution calibrated to the IPCC reports. Using well-established analytic tools to capture and reflect uncertainty, including a Monte Carlo simulation to randomly select the equilibrium climate sensitivity parameter and other uncertainty parameters selected by the model developers, the IWG quantitatively modeled the uncertainty underlying how greenhouse gas emissions affect temperature. Rather than guess about "a range of potential global temperature changes that may result," NHTSA must undertake a quantitative assessment of uncertainty and can rely on the same models and methodologies as the IWG to connect each ton of greenhouse gases avoided or emitted as a result of the CAFE standards with the associated global climate effects.[162]

To further deal with uncertainty, the IWG recommended to agencies a range of four estimates: three central or mean-average estimates at a 2.5%, 3%, and 5% discount rate respectively, and a 95th percentile value at the 3% discount rate. While the IWG's technical support documents disclosed fuller probabilities distributions, these four estimates were chosen by agencies to be the focus for decisionmaking. In particular, application of the 95th percentile value was not part of an effort to show the probability distribution around the 3% discount rate; rather, the 95th percentile value serves as a methodological shortcut to approximate the uncertainties around low-probability but high-damage, catastrophic, or irreversible outcomes that are currently omitted or undercounted in the economic models.

The shape of the distribution of climate risks and damages includes a long tail of lower-probability, high-damage, irreversible outcomes due to "tipping points" in planetary systems, inter-sectoral interactions, and other deep uncertainties. Climate damages are not normally distributed around a central estimate, but rather feature a significant right skew toward catastrophic outcomes. In fact, a 2015 survey of economic experts concludes that catastrophic outcomes are increasingly likely to occur.[163] Because the three integrated assessment models that the IWG's methodology relied on are unable to systematically account for these potential catastrophic outcomes, a 95th percentile value was selected instead to account for such uncertainty. There are no similarly systematic biases pointing in the other direction

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[160] *Id.*

[161] NAS First Report, *supra* note 100, at 32.

[162] NHTSA may have used other methodologies for quantitative assessment of uncertainty in the past.

[163] Policy Integrity, *Expert Consensus on the Economics of Climate Change* 2 (2015), *available at* http://policyintegrity.org/files/publications/ExpertConsensusReport.pdf [hereinafter *Expert Consensus*] ("Experts believe that there is greater than a 20% likelihood that this same climate scenario would lead to a 'catastrophic' economic impact (defined as a global GDP loss of 25% or more)."). *See also* Robert Pindyck, *The Social Cost of Carbon Revisited* (National Bureau of Economic Research, No. w22807, 2016).

which might warrant giving weight to a low-percentile estimate. Consequently, in any treatment of uncertainty, NHTSA should give sufficient attention to the long tail on the probability distribution that extends into high temperature ranges and catastrophic damages.

Additionally, the 95th percentile value addresses the strong possibility of widespread risk aversion with respect to climate change. The integrated assessment models do not reflect that individuals likely have a higher willingness to pay to reduce low-probability, high-impact damages than they do to reduce the likelihood of higher-probability but lower impact damages with the same expected cost. Beyond individual members of society, governments also have reasons to exercise some degree of risk aversion to irreversible outcomes like climate change.

In short, the 95th percentile estimate attempts to capture risk aversion and uncertainties around lower-probability, high-damage, irreversible outcomes that are currently omitted or undercounted by the models. There is no need to balance out this estimate with a low-percentile value, because the reverse assumptions are not reasonable:

- There is no reason to believe the public or the government will be systematically risk seeking with respect to climate change.[164]
- The consequences of overestimating the risk of climate damages (i.e., spending more than we need to on mitigation and adaptation) are not nearly as irreversible as the consequences of underestimating the risk of climate damage (i.e., failing to prevent catastrophic outcomes).
- Though some uncertainties might point in the direction of lower social cost of greenhouse gas values, such as those related to the development of breakthrough adaptation technologies, the models already account for such uncertainties around adaptation; on balance, most uncertainties strongly point toward higher, not lower, social cost of greenhouse gas estimates.[165]
- There is no empirical basis for any "long tail" of potential benefits that would counteract the potential for extreme harm associated with climate change.

Moreover, even the best existing estimates of the social cost of greenhouse gases are likely underestimated because the models currently omit many significant categories of damages—such as depressed economic growth, pests, pathogens, erosion, air pollution, fire, dwindling energy supply, health costs, political conflict, and ocean acidification—and because of other methodological choices.[166] There is little to no support among economic experts to give weight to any estimate lower than the 5%

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[164] As a 2009 survey revealed, the vast majority of economic experts support the idea that "uncertainty associated with the environmental and economic effects of greenhouse gas emissions increases the value of emission controls, assuming some level of risk-aversion." *See Expert Consensus, supra* note 163, at 3 (citing 2009 survey).

[165] *See* Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173 (2014). R. Tol, *The Social Cost of Carbon*, 3 Annual Rev. Res. Econ. 419 (2011) ("[U]ndesirable surprises seem more likely than desirable surprises. Although it is relatively easy to imagine a disaster scenario for climate change—for example, involving massive sea level rise or monsoon failure that could even lead to mass migration and violent conflict—it is not at all easy to imagine that climate change will be a huge boost to human welfare.").

[166] *See* Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, *supra* note 165; Peter Howard, *Omitted Damages: What's Missing from the Social Cost of Carbon* (Cost of Carbon Project Report, 2014); Frances C. Moore & Delavane B. Diaz, *Temperature Impacts on Economic Growth Warrant Stringent Mitigation Policy*, 5 NATURE CLIMATE CHANGE 127 (2015) (demonstrating SCC may be biased downward by more than a factor of six by failing to include the climate's effect on economic growth).

discount rate estimate.[167] Rather, even a discount rate at 3% or below likely continues to underestimate the true social cost of greenhouse gases.

The National Academies of Sciences did recommend that the IWG document its full treatment of uncertainty in an appendix and disclose low-probability as well as high-probability estimates of the social cost of greenhouse gases.[168] However, that does not mean it would be appropriate for individual agencies to rely on low-percentile estimates to justify decisions. While disclosing low-percentile estimates as a sensitivity analysis may promote transparency, relying on such an estimate for decisionmaking—in the face of contrary guidance from the best available science and economics on uncertainty and risk—would not be a "credible, objective, realistic, and scientifically balanced" approach to uncertainty.

More generally, agencies in general—and FERC in this particular instance—should remember that uncertainty is *not* a reason to abandon the social cost of greenhouse gas methodologies; quite the contrary uncertainty supports higher estimates of the social cost of greenhouse gases, because most uncertainties regarding climate change entail tipping points, catastrophic risks, and unknown unknowns about the damages of climate change. Because the key uncertainties of climate change include the risk of irreversible catastrophes, applying an options value framework to the regulatory context strengthens the case for ambitious regulatory action to reduce greenhouse gas emissions. There are numerous well-established, rigorous analytical tools available to help agencies characterize and quantitatively assess uncertainty, such as Monte Carlo simulations, and the IWG's social cost of greenhouse gas protocol incorporates those tools. For more details, please see the attached technical appendix on uncertainty.

For these reasons, we strongly oppose FERC's decision not use the IWG's social cost of carbon or the social cost of methane estimates in its draft supplemental environmental impact statement for the Southeast Market Pipelines project. The Commission must revisit this decision and reanalyze the effects of the project's greenhouse gas emission using the IWG's protocol—or estimates of a similar or higher value based on a similarly robust and balanced methodology—when it issues its final supplemental environmental impact statement.

Sincerely,

Elly Benson, Staff Attorney, Sierra Club
Rachel Cleetus, Ph.D., Lead Economist and Climate Policy Manager, Union of Concerned Scientists
Denise Grab, Western Regional Director, Institute for Policy Integrity, NYU School of Law*
Peter H. Howard, Ph.D., Economic Director, Institute for Policy Integrity, NYU School of Law*
Benjamin Longstreth, Senior Attorney, Natural Resources Defense Council

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[167] The existing estimates based on the 5% discount rate already provides a lower-bound; indeed, if anything the 5% discount rate is already far too conservative as a lower-bound. A recent survey of 365 experts on the economics of climate change found that 90% of experts believe a 3% discount rate or lower is appropriate for climate change; a 5% discount rate falls on the extremely high end of what experts would recommend. *Expert Consensus, supra* note 163, at 21; *see also* Drupp, M.A., 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%). Only 8% of the experts surveyed believe that the central estimate of the social cost of carbon is below $40, and 69% of experts believed the value should be at or above the central estimate of $40. *Expert Consensus, supra* note 163, at 18.

[168] Nat'l Acad. Of Sci., *Assessment of Approaches to Updating the Social Cost of Carbon* 49 (2016) ("[T]he IWG could identify a high percentile (e.g., 90th, 95th) and corresponding low percentile (e.g., 10th, 5th) of the SCC frequency distributions on each graph.").

Andres Restrepo, Staff Attorney, Sierra Club
Richard L. Revesz, Director, Institute for Policy Integrity, NYU School of Law*
Jason A. Schwartz, Legal Director, Institute for Policy Integrity, NYU School of Law*
Jeffrey Shrader, Economics Fellow, Institute for Policy Integrity, NYU School of Law*

For any questions regarding these comments, please contact jason.schwartz@nyu.edu.
* No part of this document purports to present New York University School of Law's views, if any.

NGO4-1 See response to NGO2-5.

From: The undersigned Waterkeepers

Date: November 20, 2017

To: Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: We oppose the incorrect and inadequate FERC Sabal Trail SEIS
FERC Docket Numbers CP14-554-002, CP15-16-003, and CP15-17-002

On September 27, 2017, the Federal Energy Regulatory Commission (FERC) published a draft Supplementary Environmental Impact Statement (SEIS).[1] That SEIS was in response to the August 27, 2017 DC Circuit Court decision[2] regarding FERC's previous approval of Certificates of Convenience and Necessity for the three parts of the Southeast Markets Pipeline Project (SMPP), which are the Transcontinental Gas Pipe Line Company, LLC's (Transco) Hillabee Expansion Project in Docket No. CP15-16-000; Sabal Trail Transmission, LLC's (Sabal Trail) Sabal Trail Project in Docket No. CP15-17-000; and Florida Southeast Connection, LLC's (FSC) Florida Southeast Connection Project in Docket No. CP14-554-000. The judges ordered:

> *"The orders under review are vacated and remanded to FERC for the preparation of an environmental impact statement that is consistent with this opinion."*

The draft SEIS issued by FERC is clearly not consistent with the court's opinion for the following reasons:

NGO4-1

1. The SEIS is factually incorrect in stating that: *"...the new Florida Power and Light Company (FPL) Okeechobee Clean Energy Center; the Duke Energy Citrus County Combined Cycle Plant; and the existing FPL Martin County Power Plant. Service to these power plants was the primary purpose for which the SMP Project was constructed."*
    a. FERC wrote in its February 2, 2016 Order granting federal eminent domain for Sabal Trail[3]: *"85. We also have no reason to contest Florida Power & Light's purported demand for natural gas. The Florida Public Service Commission issued an order finding that Florida Power & Light had demonstrated a need for additional firm capacity."*

[1] "Draft Supplemental Environmental Impact Statement for the Southeast Market Pipelines Project to address 8/22/17 opinion by the US Court of Appeals under CP14-554, et al." FERC Accession Number 20170927-3025, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14605162
[2] U.S. DC Circuit Court of Appeals Case No. 16-1329, Sierra Club, Et al., Petitioners, v. Federal Energy Regulatory Commission, Respondent, Duke Energy Florida, LLC, et al., Intervenors, decided August 27, 2017, https://www.cadc.uscourts.gov/internet/opinions.nsf/2747D72C97BE12E28525818400 4D1D5F/%24file/16-1329-1689670.pdf
[3] "Order issuing certificates and approving abandonment re Florida Southeast Connection, LLC, et al under CP14-554 et al.", FERC Accession Number 20160202-3056, February 2, 2016, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14425623

b. That Florida Public Service Commission Order of October 28, 2013[4] listed three completely different power plants **(boldface emphasis added)**: *"The primary factors driving this increased need are the three modernization projects currently in progress at FPL's **Cape Canaveral, Riviera Beach, and Port Everglades** natural gas plants to upgrade older, 1960's-era steam combustion turbine generating units to modern, and more efficient combined cycle technology."*

c. Since FERC does not even have an accurate list of power plants intended to be fed by Sabal Trail, FERC's SEIS cannot be correct.

NGO4-2

2. The FERC SEIS alleges increased natural gas flow to Florida which contradicts public evidence: "*The SMP Project would have the potential to increase the flow of natural gas into Florida by 1.1 billion cubic feet per day (bcf/day).*" A stock analyst has demonstrated that Sabal Trail is actually decreasing flow through the two existing pipelines into Florida (FGT and Gulfstream), by the same amount Sabal Trail is shipping.[5] The same analyst provides evidence that: "*Total natural gas demand in Florida is off 4% or 162 MMcf/d; peak levels of 4.5 Bcf/d seen in summer 2016 have not been reached in summer 2017.*" Thus there is no evidence of actual increased natural gas flow into Florida, nor any need for it; in fact, quite the opposite.

NGO4-3

3. The SEIS does not mention Liquid Natural Gas (LNG) export at all, despite multiple LNG export operations already authorized to feed off of Sabal Trail,[6] including Kinder Morgan's Jacksonville Expansion Project of the Florida Gas Transmission pipeline from Sabal Trail in Suwannee County to Jacksonville, Florida, already issued a FERC Certificate of Convenience and Necessity,[7] Eagle LNG in Jacksonville, planning to feed from FGT JEP,[8] "sized to serve countries in the Caribbean Basin...",[9] and currently pending an EIS[10] in FERC Docket CP17-41, Methane burned anywhere is a greenhouse gas. Any EIS for Sabal Trail should take into account exports through FGT JEP and Eagle LNG, as well as the numerous other LNG export operations already authorized by the Department of Energy's Office of Fossil Energy. Accounting for LNG export is especially important since there is no need for increased natural gas flow into Florida (see above), thus any increased flow is likely to be exported.

[4] PAA Order PSC-13-0505-PAA-EI on FPL's proposed Sabal Trail Transmission, LLC and Florida Southeast Connection pipelines", Document No. 06488-2013, October 28, 2013, http://www.floridapsc.com/ClerkOffice/ShowDocket?orderNum=PSC-2013-0505-PAA-EI
[5] Sabal Trail Adding Pipeline Capacity But Not Demand," BTU Analytics, SeekingAlpha, 20 June 2017, https://seekingalpha.com/article/4082770-sabal-trail-adding-pipeline-capacity-demand
[6] "Sabal Trail and LNG Export by truck, rail, and ship", WWALS, 2017, http://wwals.net/issues/stt/sabal-trail-and-lng-export-by-truck-rail-and-ship/
[7] "Order issuing certificate re Florida Gas Transmission Company, LLC under CP15-144," FERC Accession Numbe 20160330-3028, June 30, 2016, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14443181
[8] "Sabal Trail to export through Jacksonville, FL," WWALS, May 2, 2017, http://wwals.net/2017/05/02/sabal-trail-to-export-through-jacksonville-fl/
[9] "Comments of Congressman Al Lawson, Jr. re the Eagle LNG Partners Jacksonville LLC Project under CP17-41," FERC Accession Number 20171017-0012, October 17, 2017, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14610641
[10] "Letter to Ted S. Yoho re the Eagle LNG Partners Jacksonville, L.L.C.'s Eagle LNG Project under CP17-41", FERC Accession Number 20171103-0266, November 3, 2017, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14616757

NGO4-2 The final SEIS at 3 states that the SMP Project would have the *potential* to increase the flow of natural gas into Florida by 1.1 billion cubic feet per day. The need for the SMP Project was considered in the Commission Order.

NGO4-3 There is nothing in the record demonstrating that gas from the SMP Project would be delivered to an LNG export facility. Furthermore, our analysis assumed full burn regardless of the end-user.

NGO4-4

4. The SEIS explicitly mentions solar power: "*The new capacity is expected to be principally from natural gas (3,395 MW) and solar (1,846 MW), with biomass and landfill gas units making up an additional 320 MW.*" Yet it neglects to compare solar emissions (there are none) with methane emissions (no pipeline or natural gas power plant can win that comparison). It also neglects to compare the cost of tripling that solar power number, which would completely replace fracked methane power, with for example the health effects of burning that methane. The need for a direct comparison of solar power with methane is illustrated by the plans of Duke Energy (a 7.5% owner of Sabal Trail) to build a 550-acre 75 megaWatt solar power plant directly adjacent to the Sabal Trail pipeline in Hamilton County, Florida.[11]
5. The SEIS states that FERC is "not aware of" and "could not find a suitable method to attribute discrete environmental effects to GHG emissions." FERC is the agency almost certainly most responsible for new greenhouse gas emissions through its rampant approval of new pipeline and LNG export projects. FERC should take responsibility for finding producing such a method. As Senators Whitehouse and Bennet have spelled out in an ecomment to FERC, courts in multiple other cases have directed agencies to use methods which are in fact available.[12] If "the ability to determine localized or regional impacts from GHGs by use of these models is not possible at this time," FERC should take Sabal Trail out of service and stop approving any more pipelines until such models are possible.

NGO4-5

6. FERC held no public hearings before issuing this inadequate draft SEIS. FERC may not be required to do so, but such hearings would quickly have pointed out the glaring factual inaccuracies in the SEIS, and might have even gathered assistance in doing a real model. No SEIS should be approved by FERC nor accepted by the court without public hearings first.

Shut it down

Beyond rejecting the SEIS, FERC should shut down Sabal Trail and the DC Circuit Court should issue a mandate permanently revoking all the FERC Orders for SMPP, because the "need" alleged by FPL in 2013 has been disproven.

1. The original list of power plants FPL said in 2013 needed conversion from coal to natural gas, already had been converted in 2016, before Sabal Trail was operational, according to FPL's April 2016 Ten Year Plan (**emphasis added**):[13]

[11] "Hamilton Solar Plant," Duke Energy Florida, unknown date, https://www.duke-energy.com/_/media/pdfs/for-your-home/def-solar-investments.pdf, Duke Energy Florida files settlement agreement for building a smarter energy future," Duke Energy, PR, 29 August 2017, https://news.duke-energy.com/releases/duke-energy-florida-files-settlement-agreement-for-building-a-smarter-energy-future

[12] "Comments of Senator Sheldon Whitehouse et al re the Southeast Market Pipelines Project under CP14-554 et al.", FERC Accession Number 20171114-0043, https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14619734 "Whitehouse, Bennet call on FERC to use social cost of carbon in review of pipelines," Sheldon Whitehouse, PR, 8 November 2017, https://www.whitehouse.senate.gov/news/release/whitehouse-bennet-call-on-ferc-to-use-social-cost-of-carbon-in-review-of-pipelines

[13] "Ten Year Power Plant Site Plan 2016-2025", FPL, April 2016, https://www.nrc.gov/docs/ML1621/ML16216A227.pdf

NGO4-4 As directed by the court, we provided estimates for downstream GHG emissions as well as context. An alternatives analysis of options for generating electricity is outside the scope of this final SEIS.

NGO4-5 Comment noted.

NGO4-6 Comment noted.

*"In recent years, FPL has retired a number of older, less efficient generating units including: Sanford Unit 3, Cutler Units 5 & 6, Cape Canaveral Units 1 & 2, Riviera Beach Units 3 & 4, Port Everglades Units 1 — 4, and Putnam Units 1 & 2.**In their place, FPL has already added new, highly fuel-efficient combined cycle (CC) natural gas-fired generation at the Cape Canaveral, Riviera Beach, and Port Everglades sites** and will add another highly fuel-efficient CC unit in Okeechobee County in 2019."*

2. As seen above, FPL in 2013 alleged that Florida needed new electrical power, and FPSC and FERC concurred. Yet FPL in its April 2016 Ten Year Plan asserted (emphasis in original):[14]

   "Difference: FPL does not project a significant long-term additional resource need until the years 2024 and 2025."

3. In its 2013 announcement of Sabal Trail,[15] FPL alleged a third "need", of "a third, independently routed pipeline system…." Yet no pipeline can be as geographically distributed nor as reliable as solar power.

NGO4-6

Thus all three of FPL's allegations of need for Sabal Trail have been disproven. All that is left is that Sabal Trail has customers. That is not enough to meet FERC's statutory duty to take into account public detriments, which FERC has failed to do by not producing an adequate SEIS.

Signatures

FERC should shut down Sabal Trail and the other components of the Southeast Markets Pipeline Project at least until FERC produces a SEIS that actually addresses the DC Circuit Court's Order.

Signed:

John S. Quarterman, Suwannee Riverkeeper, WWALS Watershed Coalition

Dan Tonsmeire, Apalachicola Riverkeeper

Simona L. Perry, Ogeechee Riverkeeper

Earl Hatley, Grand Riverkeeper

Michael Mullen, Choctawhatchee Riverkeeper

Jason Ulseth, Chattahoochee Riverkeeper

Marty Baum, Indian Riverkeeper

Gordon Rogers, Flint Riverkeeper

[14] "Ten Year Power Plant Site Plan 2016-2025", FPL, April 2016, https://www.nrc.gov/docs/ML1621/ML16216A227.pdf

[15] "FPL selects Sabal Trail Transmission and Florida Southeast Connection to build new natural gas pipeline system into Florida," FPL PR, July 26, 2013, http://newsroom.fpl.com/2013-07-26-FPL-selects-Sabal-Trail-Transmission-and-Florida-Southeast-Connection-to-build-new-natural-gas-pipeline-system-into-Florida

NGO5-1

SIERRA CLUB

November 20, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Via e-filing:
Re: Public Comments on Draft SEIS for the Southeast Market Pipelines Project, including but not limited to Sabal Trail Pipeline (Docket Nos. CP14-554-002, CP15-16-003, CP15-17-002)

Dear Secretary Bose:

Please find attached more than 2885 petitions urging the Federal Energy Regulatory Commission to consider the true costs of the Sabal Trail pipeline and to deny approval of the Sabal Trail pipeline until alternatives are reviewed. This would require FERC to perform a comprehensive Supplemental Environmental Impact Statement (SEIS) for the project that includes the social cost of carbon. The SEIS must thoroughly analyze the significance and cumulative impacts of Greenhouse Gas (GHG) emissions, including from downstream combustion of the gas transported by the pipeline project. These members and supporters also request that transmission of fracked gas through the pipeline be halted while the project's environmental impacts are being fully reviewed.
These requests are based on the United States Court of Appeals for the D.C. Circuit's recent decision finding that FERC failed to consider the greenhouse gas pollution from burning fracked gas delivered via the pipeline. The court vacated FERC's orders and remanded for the preparation of an environmental impact statement that is consistent with its opinion.
Thank you for addressing these concerns. If you have any questions, please contact me.

Sincerely,

Merrillee Malwitz-Jipson
Organizer
Sierra Club
2070 SW County Road 138
Fort White, FL 32038
(386)-454-1542
Merrillee.malwitz-jipson@sierraclub.org

NGO5-1 See response to NGO2-16.

20171116 - FL - NG- Sabal FERC comments

Subject: **FERC must fix flaws in final Sabal Trail SEIS**

Dear FERC Commissioners,

The Federal Energy Regulatory Commission (FERC) must consider the true costs of Sabal Trail and deny approval of this pipeline until alternatives are reviewed. During this process FERC must turn off the gas.

Any conclusive Environmental Impact Statement (EIS) for pipeline infrastructure projects needs definitive cumulative impacts on GHG emissions expressed for their approval process. Please consider the following regarding Sabal Trail:

• Full burn emissions are estimated at 22.1 million metric tons of CO2e per year, such that the Project's combustion emissions are equivalent to 9.7% of Florida's total emissions.

• According to the EPA's greenhouse gas equivalencies calculator, 22,100,000 metric tons of CO2 or CO2e is equivalent to the GHG emissions from 4,732,334 passenger vehicles driven for one year, or to the CO2 emissions from 5.5 coal-fired power plants in one year.

NGO5-2 • The draft supplemental EIS failed to include a discussion of the significance of downstream greenhouse gas emissions, as well as their cumulative impact.

NGO5-3 • The supplemental EIS must compare the Project to alternatives (including alternatives utilizing renewables and energy efficiency), explore mitigation measures, and determine any appropriate conditions to place on the Certificate Order.

NGO5-4 • FERC must utilize the Social Cost of Carbon tool (SCC), which provides a means to understand the magnitude of the harms caused by the downstream emissions. Both the public and decision-makers can better assess the Project's impacts by utilizing a tool like the SCC that translates the Project's emissions into concrete harms.

The supplemental EIS must be taken seriously and the FERC must complete a thorough, legitimate SEIS.

NGO5-2 See response to NGO2-16.

NGO5-3 See response to NGO4-4.

NGO5-4 See responses to NGO2-12, NGO2-13, and NGO2-15.

November 20, 2017

To: Federal Energy Regulatory Commission
Dockets: CP14-554-002, CP15-16-003, CP15-17-002
Subject: Need to Analyze Supply-Price-Demand Effects on Downstream Emissions of the Southeast Market Pipelines Project

In addition to our separate comments submitted jointly with other organizations on the failure to use the social cost of greenhouse gases, the Institute for Policy Integrity at New York University School of Law[1] submits these comments on the need for FERC to analyze the effects of approving the Southeast Market Pipelines project on natural gas supply and prices, the consequential effect on demand for natural gas, and the ultimate effect on downstream emissions.

NGO6-1

While FERC does briefly assess the potential for this project to contribute to the displacement of coal- and oil-fired energy, FERC fails to conduct a full assessment of substitute energy sources, or to explain either why such an assessment is infeasible or why the results of such assessment would be insignificant.

Basic principles of supply and demand predict that increasing the supply of a commodity like natural gas will lower prices, and that lower prices will lead to increased demand for and consumption of that commodity.[2] If the increased consumption of natural gas due to the increased supply from the Southeast Market Pipelines project comes at the expense of energy conservation or of cleaner energy sources like nuclear and renewables, the end result would be an increase in greenhouse gas emissions.

Multiple courts have recognized the need for agencies to assess such demand effects and energy substitution patterns in their environmental impact statements. Most recently, the U.S. Court of Appeals for the Tenth Circuit explained that it is irrational for an agency to fail to consider how, if its action will help increase the supply of fossil fuels, then the price for that commodity will also drop, demand will rise, and greenhouse gas emissions will increase.[3]

Other agencies' environmental impact statements routinely assess the effects of their approvals on fossil fuel supply, price, demand, energy substitutes, and consequential greenhouse gas emissions. For example, the Bureau of Ocean Energy Management uses sophisticated modeling to calculate the change

[1] No part of these comments purports to present the views, if any, of New York University.
[2] *See* N. Gregory Mankiw, *Principles of Economics* 74–78, 80–81 (5th ed. 2008).
[3] *WildEarth Guardians v. Bureau of Land Management*, No. 15-8109 at 24 (10th Cir., Sept. 15, 2017) ("this perfect substitution assumption [is] arbitrary and capricious because the assumption itself is irrational (i.e., contrary to basic supply and demand principles).").
Other courts have also addressed this issue. *See Ctr. for Sustainable Economy v. Jewell*, 779 F.3d 588, 609 (D.C. Cir. 2015) ("forgoing additional leasing on the [outer continental shelf] would cause an increase in the use of substitute fuels such as renewables, coal, imported oil and natural gas, and a reduction in overall domestic energy consumption from greater efforts to conserve in the face of higher prices"); *see also Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549–550 (8th Cir. 2003) ("the increased availability of inexpensive coal will at the very least make coal a more attractive option to future entrants into the utilities market"); *Montana Envtl. Info. Ctr.*, 2017 WL 3480262, at *15 (holding that it was "illogical" for the agency to assume that choosing not to approve federal coal leases would have no effect on coal supply, demand, or consumption, because "other coal would be burned in its stead"); *High Country Conservation Advocates*, 52 F. Supp. 3d at 1197 (recognizing that increased production of coal could affect "the demand for coal relative to other fuel sources, and coal that otherwise would have been left in the ground will be burned" (quotation marks omitted)).

NGO6-1 See response to NGO4-4.

in greenhouse gas emissions resulting from the effects on demand of either approving or not approving individual oil and gas leases.[4]

NGO6-2

Under the requirement of NEPA, FERC may not ignore the impact that increased production could have on the availability of gas, the price of gas relative to other energy resources, and the downstream emissions that could result from those changes. FERC must analyze whether the Southeast Market Pipelines project will change demand for natural gas in ways that will further increase downstream greenhouse gas emissions.

Sincerely,
Jason A. Schwartz, Legal Director
Institute for Policy Integrity at NYU School of Law
jason.schwartz@nyu.edu

[4] Bureau of Ocean Energy Mgmt., Dep't of Interior, *Draft Environmental Impact Statement: Liberty Development Project* at 4-50 (Aug. 2017); *see also* BOEM, *Proposed Final Outer Continental Shelf Oil & Gas Leasing Program 2012-2017*, 110 (2012) (calculating that if the offshore acreage were not leased, 6% of the forgone oil and gas would be replaced by energy conservation).

NGO6-2 Staff cannot determine with accuracy the quantity of emissions that would be offset by the retirement or displacement of coal/oil fired power plants. Thus the final SEIS presents three scenarios, including the full combustion of all transported gas without offsetting any amount. Also, see response to NGO2-9.

PBCEA
Palm Beach County Environmental Alliance

ORIGINAL

324 Datura Street
Suite 208
West Palm Beach, FL 33401

In Reply Refer To:
OEP/DG2E/Gas Branch 3
Florida Southeast Connection, LLC;
Transcontinental Gas Pipe Line Company, LLC;
Sabal Trail Transmission, LLC;
Docket Nos. CP14-554-002;
CP15-16-003; CP15-17-002 ;

November 17, 2017

To: Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, D.C. 20426

866-208-FERC Phone

Thank you for your time in reviewing this letter.

Florida is at a pivotal point of how it is going to exist in the next 15 -20 years. Sea level rising due to accumulated green house gases are now affecting the coastlines of Florida as illustrated in the Exhibit A pictures of downtown Miami where there is now daily flooding of roads.

So the question begs why was an Environmental Impact Study not adequately done with respect to added greenhouse gases along with detection of greenhouse gas leaks using one or more methods as described in the Technology Status Report prepared for the US Dept. of Energy (see : https:// www.netl.doe.gov/File%20Library/Research/Oil-Gas/Natural%20Gas/ scanner_technology_0104.pdf) and in Exhibit B. Surely this information would be pertinent due to over 100 sinkholes and springs within 5 miles of the pipeline as shown in Exhibit C and mapped out by Florida Alliance as shown in the November 29, 2016 report: " The Sabal Trail Pipeline: A Sinking Feeling " and shown in the link: https://www.fractracker.org/2016/11/sabal-trail-pipeline/

Add to the fact that Florida Power and Light (FPL) does not even have adequate power generating plants that can use all natural gas that would be retrieved from the Florida pipelines and so adequate public need is not there -- which I would think is a prerequisite for receiving a certificate of public convenience and necessity from the Federal Energy Regulatory Commission (FERC).

So what we have is a situation where Florida is already experiencing coastal flooding due to global accumulated greenhouse gases, no adequate model that reflects how much added greenhouse gases these pipelines will add and how this will further increase Florida coastal flooding, no procedure to assess added social cost of carbon (SCC) and an intent to export LNG because the intended power plants using natural gas are not even built yet. One might easily believe that this pipeline is a pipe dream for business investors at the expense of Florida's natural resources.

NGO7-1

We as Floridians ask that you re-visit this case and require adequate environmental impact studies so that Florida does not carry the extra burden of added greenhouse gases and hence added coastal flooding.

Additionally, the Environmental Impact Study should address the potential for newly created sinkholes as shown forth in Exhibit C where people's homes and properties are now sinking downward into sinkholes created in the last 5 years.

NGO7-2

Respectfully,

Mark Offerman

Mark Offerman , President
Palm Beach County
Environmental Alliance

Diane Rice, Treasurer
Palm Beach County
Environmental Alliance

NGO7-1 Comments noted.

NGO7-2 Karst terrain was addressed in the final EIS.

ORIGINAL

November 17, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Dear Secretary Bose:

Please find written comments submitted by the "Teamsters National Pipeline Training Fund" on the Draft Supplemental Environmental Impact Statement for the Southeast Market Pipelines Project **(FERC Docket Numbers CP14-554-002, CP15-16-003 and CP15-17-002)**.

If you have any questions I can be reached at (703) 508-8690.

Sincerely,

Richard Stern

Richard Stern, Administrator
Teamsters National Pipeline Training Fund

Enclosures

Comments submitted by the Teamsters National Pipeline Training Fund on the Draft Supplemental Environmental Impact Statement for the Southeast Market Pipelines Project **(Docket Nos. CP14-554-002, CP15-16-003 and CP15-17-002**

The Teamsters National Pipeline Training Fund representing over 90 contributing Union Pipeline Contractors affiliated with the Pipeline Contractors Association and the International Brotherhood of Teamsters with over 1.25 million members affirms our support for the Southeast Market Pipelines Project, herein referred to as "Project".

The "Project" will provide Teamster members with most residing in Florida and whose members will be performing the pipeline construction work along the "Project" route with high wages and health insurance and pension benefits.

The Teamsters National Pipeline Training Fund is committed to building this Project with well-trained and qualified Teamster workers who can perform their work at a high level to help mitigate any potential environmental concerns.

Therefore, these workers have a vested interest in building this project in an environmentally safe manner since their own families could be affected by this project.

By utilizing union contractors to build the "Project" it guarantees that at least 50% of the workers will be local hires.

The collective bargaining agreement between the Teamsters and Pipeline Contractors Association states:

"The words "regular employee" shall mean those who are regularly and customarily employed by the Individual Employer and because of their special knowledge and experience in pipeline construction work, are considered key men. It is anticipated that the number of regular employees shall not be more than a majority of the total number required but there shall be no limitation on the classification of such regular employees, with the understanding that these classifications will be distributed as evenly as possible." (See Exhibit A)

Therefore, when a pipeline such as this "Project" is built using local union labor, the majority of pipeline construction workers will be from the local community with a greater sensitivity for the environment.

You do not get this guarantee with a nonunion pipeline contractor. Therefore, by building this "Project" with union contractors and Teamster Union members any negative environmental impact will be lessened.

These workers have an incentive building the "Project" environmentally safe because again they live here too.

We have pipeline contractors who specialize in Horizontal Directional Drilling (HDD) type of work.

HDD is used for the installation of pipelines beneath rivers, highways, and other environmentally sensitive areas requiring technology and equipment that can install pipelines without any disturbance to natural habitats.

Some of our specialized signatory contractors and a more detailed explanation of the work they perform in areas of great

environmental concern are included in this submission. (See Exhibit B)

Prior to the construction of major pipeline projects such as this "Project" we provide Classroom training programs based on The U.S. Department Transportation's Regulations on "Compliance, Safety and Accountability" (CSA) and also Defensive Driving.

The Teamsters CSA/Defensive Driving Instructor has been cited as a Trend Setter by the "National Safety Council" an Award he has received from them in the past. He will teach this Course to our Teamsters who will work on the "Project" prior to the work starting. (See Exhibit C)

Under pages 6 and 7 in the collective bargaining agreement workers must have certain qualifications prior to working on this project. (See Exhibit D)

Under pages 17 and 18 of the Pipeline Agreement is the language on "Drug and Alcohol Testing" to ensure a drug free work environment and "Training/DOT Rules" to maintain high quality work standards and qualifications. (See Exhibit E)

In addition, the Teamsters Pipeline Training Fund has come to Florida in the recent past to provide current Teamster pipeline workers with training to upgrade their skills. (See Exhibit F)

For your ready-reference we have provided brochures detailing information about our Training Program and us and our support for our Veterans who will be working on the "Project" through the Teamsters Military Assistance Program.

We believe with this "Project" being constructed with our trained and highly skilled local union workers and specialized union contractors the "Project" will be built in a safe and environmentally friendly manner and in compliance with all federal and state environmental regulations.

The union contractors who will be charged with building the "Project" are specialized and are highly experienced in performing pipeline construction work especially in sensitive environmental areas such as where wetlands, rivers and streams exist.

NGO8-1

In closing, we support the building of the "Project" based upon this written submission and its supporting exhibits which show the use of union contractors and union trained labor will help mitigate any environmental concerns.

NGO0-8-1 Comments noted.

IND1-1

Roger Marietta, Albany, GA.
The environmental assessment is not counting the leaking methane, vented methane, unburnt methane from the compressor stations' exhaust, and the periodic hours long venting of compressed methane. Methane is 25 times more effective in warming the earth than carbon dioxide. The combination of carbon dioxide and methane from multiple locations and pipeline activities will accelerate global warming and intensive hurricanes and tropical storm damage to US Coastal areas. It does not count the exported methane which will contribute to atmospheric and oceanic warming.

IND1-1 Comment noted. See table 2 in the final SEIS.

Christopher J Mericle, Jasper, FL.

FERC has done it again! It is amazing how FERC can review all these projects and come up with the same conclusions time after time - " operating the SMP Project would not result in a significant impact on the environment."

The SEIS states that the SMP Project would increase Greenhouse Gas emissions in the state of Florida by 3.7- 9.7 percent. The 9.7 percent increase is if all the fuel the pipeline could carry were to be burned, which FERC states is unlikely. In my opinion the "full burn" figures are the only figures to consider. If FERC wants to consider smaller figures they should have authorized a smaller pipeline! A 9.7% increase in GHG emissions (or 22.1 million metric tons) is very significant.

IND2-1 In the original evaluation of the SMP project FERC compared natural gas to coal and oil, leaving out all renewable sources of energy production including solar. FERC needs to consider Solar Power in this SEIS. When and if solar power is compared to natural gas and other fossil fuels FERC will discover that solar power has a 0% increase in GHG emissions.

IND2-2 The SEIS states: "We could not find a suitable method to attribute discrete environmental effects to GHG emissions." FERC follows this statement with excuses as to why they cannot determine local environmental effects and impacts. We need answers not excuses! I am certain that the court order that required FERC to do this SEIS didn't say- well if it is too difficult don't worry about it. Maybe FERC should consider developing a method for determining local impacts of GHG emissions.

IND2-3 Under "Social Cost of Carbon" its more of the same rhetoric and excuses, FERC can't find a tool to appropriately measure the social cost of carbon. Here again FERC needs to develop the tools necessary to do the job.

FERC needs to go back and redo this SEIS. Surely this report is not the best FERC can do. We the citizens of Florida expect and deserve a professional report that considers all options without a bunch of excuses as to why they can't do the job. If FERC can not fully evaluate GHG emissions as they state in this report how is it they can say there will be no significant impacts?

IND2-1 See response to NGO4-4.

IND2-2 See response to NGO2-10.

IND2-3 See responses to NGO2-10, NGO2-14, and NGO2-17.

Deanna Meri cle, Jasper, FL.
Comments to FERC regarding the Draft SEIS for the Sabal Trail methane gas pipeline and connected pipelines.

IND3-1

It comes as no surprise to me that your agency did an extremely minimal, court-ordered evaluation of downstream greenhouse gas effects of the Sabal Trail pipeline and found that is has "no significant effects." A 9.7 percent increase in overall emissions seems very significant to me. The excuse that 9.7 is an upper limit and most likely won't be reached is not the right way to come to your conclusion. If the pipe has that capacity, then that should be the number considered in the analysis.

If 9.7 percent is not significant, what number would be considered significant? I would like an answer to that question.

The draft SEIS goes on to say that FERC doesn't have adequate tools to properly evaluate the downstream emission effects. Then how can you conclude that there are no significant effects?

IND3-2

Mr. Marietta makes a very good point in his comments that methane leaks around compressor stations need to be considered in the analysis. That methane is escaping into the air and contributing to greenhouse gas effects. Not to mention the methane leaks surrounding fracking sites, where they burn off excess methane. The whole operation of obtaining, transporting, and burning the methane is having significant greenhouse gas effects. To me, it all needs to be considered.

When a true analysis is done, I believe the evidence will be clear that, as a nation, and globally, we need to commit to clean, renewable energy like wind and solar for the future of our planet.

I ask you to please develop the needed tools to properly evaluate the greenhouse gas effects and to include the above-mentioned sources of methane leaks (fracking sites and compressor stations) in your analysis. Also, the gas in the Sabal Trail pipeline needs to be turned off until this issue is resolved.

Sincerely,
Deanna Mericle
7712 SW 32nd Lane
Jasper, FL 32052

IND3-1 See response to NGO1-2.

IND3-2 See response to IND1-1.

ORIGINAL

October 7, 2017

Project Docket Numbers:
CP14-554-002,
CP15-16-003,
CP15-17-002

Allison Young
2030 W Broad Ave, Apt. 30
Albany, GA 31707-4199

Kimberly D Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Dear Secretary Bose,

In the draft SEIS for the Southeast Market Pipelines Project (SMP Project — docket numbers listed at the top of this page), the statement ended:

"We could not find a suitable method to attribute discrete environmental effects to GHG emissions... due both to scale and overwhelming complexity. We reviewed simpler models and mathematical techniques... We could not identify a reliable, less complex model for this task and we are not aware of a tool to meaningfully attribute specific increases in global CO_2 concentrations, heat forcing, or similar global impacts to SMP Project GHG emissions. Similarly, the ability to determine localized or regional impacts from GHGs by use of these

1/3

models is not possible at this time."

This is a sad and unprofessional [illegible]. What that basically says to me is no one found out for sure whether or not this pipeline is going to be safe because math is hard and someone was only looking for the easy way to find an answer. There being none, you simply gave up.

This is distressing given the potentially disastrous negative impact the SMP Project poses. If you do not have the knowledge or means to determine the full impact at this time, that is not a reason to shrug it off and wait to see what happens. Something of this magnitude could have massive and irreversible repercussions.

What is the whole point of trying to "improve" and spur growth in the country if we only harm ourselves and the world around us through our actions? Sometimes building "new" things does not always translate automatically to "better."

While it is encouraging to see in the SEIS that this could enable the state of Florida to do something productive with landfills, it is imperative that it is done safely. If our actions today cause our children and grandchildren greater disease, and harms or kills off more of the plants and animals around them, what good have we done?

2/3

It is my understanding that the position

in the SEIS was taken because of the lack of a clear policy for addressing the impact of GHGs. While I understand this can put you and the rest of the FERC in a difficult position, surely we can just follow the main idea doctors use and just "do no harm."

We do ourselves, our descendents, the land we live on, and the rest of the world a great disservice if we do not accurately count the cost of our own selfishness and impatience. If we want to ensure our own strength and growth, common sense dictates we must not jeopardize our own health and safety or that of the rest of the world.

IND4-1 It is my firm belief that until the SMP Project and all its associated projects are deemed 100% safe in all respects, including greenhouse gas emissions, then its operation should cease until such time those assurances can be made.

Thank you for your time.

Respectfully submitted,

Allison Young

Allison Young
2030 W Broad Ave, Apt 30
Albany, GA 31707-4199

3/3

IND4-1 Comments noted.

Oct. 24, 2017 ORIGINAL

Kimberley D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE Room 1 A
Washington DC 20426

SMP Pipelines Draft SEIS
Dockets CP14-554-002
CP15-16-0003
CP15-17-002

First, these pipelines enable the environmental damage caused by fracking - groundwater contamination and earthquakes - by carrying fracked gas.

Second, the pipelines will damage wetlands. The Sabal Trail pipeline alone will impact 940 acres of wetlands. It will also cross limestone karst geology risking rupture and explosions from sinkholes thus endangering lives and contaminating the Florida Aquifer.

Third, obviously by expanding the use of fracked natural gas these pipelines contribute to global warming and rising sea levels, a serious concern for the Gulf States effected.

IND5-1 These pipelines should not be permitted. Our nation should pursue less dangerous sources and methods of distribution of energy from clean, renewable resources such as solar energy.

IND5-1 Comments noted.

Thank you for including my public comment.

Dianne McGee
219 Lakewood Dr. E.
Mobile, AL 36608

IND6-1 See response to EO1-1.

Michael Roth, Branford, FL.
Mr. Neil Chatterjee, Chairman
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington. DC 20426

Re: CP14-554-002, CP15-18-003, and CP15-17-002

Dear Chairman Chatterjee,

We have noted with interest the plethora of letters in your portal suggesting that the draft supplemental environmental impact statement is grossly inadequate. Through the use of what is apparently three or four different well drafted letters of scientific integrity, some being used as petitions, we believe that the true "public interest" becomes quite clear - the populations in the communities affected by the pipelines do not feel that this is in their interest, even as your agency chooses to believe otherwise. They all indicate that they believe, as do we, that the full cost of the project to the environment and ultimately the public pocketbook, has not been adequately considered. We will not repeat their specific points here, but rather refer to them as a well-documented list of concerns expressed in your portal.

In a statement of what appears to be defiance, you positively choose not to try to measure the cost. You cite the Social Cost of Greenhouse Gases model developed by a working group consisting of no less than the Council of Economic Advisers, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of Transportation, Environmental Protection Agency, National Economic Council, Office of Energy and Climate Change, Office of Management and Budget, Office of Science and Technology Policy, and the Department of the Treasury; and then you opt not to use it.

You cite the EPA comment that no consensus exists on the appropriate discount rate to use for such analyses, and then state that the model might be useful for comparing alternatives where a consistent discount rate is applied. However, we believe that it would be revealing to use the model using a range of reasonable discount rates and actually considering the extent of the "significant variation(s) in output" that might result. Not using the model at all is a convenient way of disregarding any of the ramifications of the results.

IND6-1

You go on to state that "there are no established criteria identifying the monetized values that are to be considered significant." That, too, is quite convenient - perhaps a more responsible approach would be to use the model to identify a monetized value and then facilitate a discussion with the members of the Interagency Working Group, who actually appear to care about the social cost of carbon, regarding the relevance of the results.

We are concerned that by merely waving away this available model for what appears to be superfluous reasons you are missing key future

environmental costs that render you unable to make a determination of whether or not this project in indeed in the public interest.

We must question the presumption that, in the absence of hard data or the use of any modeling because of limitations on the availability of data to use as inputs, the project should be approved and does not represent a threat to the public. We, as members of the public whose interest you are supposed to be protecting, would prefer that you would require the developers and beneficiaries of this project to bear that burden of proof.

IND6-2

In sum, we urge you to reject the draft supplemental environmental impact statement as inadequate and require the potentially hazardous project to cease functioning while a new impact statement that actually considers the full impact of the project be prepared.

Michael J. Roth and Cynthia L. Noel

IND6-2 Comment noted.

FORM LETTER

Six unique form letters, FL1-FL6, were submitted into the record. The individuals submitting these letters (and the FERC docket ascension numbers of these letters) are noted in the table below and Staff's responses to these letters are provided thereafter. When a letter was submitted by multiple parties, we refer to these parties as "individuals".

FL1: Methane Emissions
Individuals (20171010-0056), Troy Golson (20171019-0010), Ashley Deal (20171023-0067), Melinda Subo (20171024-0019), Individuals (20171024-0018), Individuals (20171106-0008), Angelica Magby (20171107-0065), Nia Michelle Reese (20171107-0065), Daijah Travis (20171107-0063), Tieziah Johnson (20171114-0021), Individuals (20171114-0020), Dylan Butter (20171114-0018), Individuals (20171114-0017), Justin Gilbert (20171114-0016), Erick Machuca (20171114-0039), Cameron Johnson (20171114-0038), Individuals (20171205-0100)
FL2 FERC SEIS Ignores Fugitive Methane
Eugene Marner (20171030-0086), Jan Mulroy (20171030-0073), Donald A. Hebbard (20171030-0074), Cynthia Beach (20171030-0070), John O'Connor (20171030-0053), Elizabeth Serrao (20171030-0052), Carole Marner (20171030-0051), Anthony G. Breuer (20171030-0047), Epifanio Bevilacqua (20171030-0048), Dennis Higgins (20171102-0316), Colleen McKinney (20171102-0310), Norm Farwell (20171102-0309), Kathleen Higgins (20171107-0056)
FL3 FERC fails to answer Court request to use carbon cost or justify ignoring it
Eugene Marner (20171030-0085), Donald A. Hebbard (20171030-0072), Cynthia Beach (20171030-0063), Elizabeth Serrao (20171030-0062), Carole Marner (20171030-0059), John O'Connor (20171030-0055), Epifanio Bevilacqua (20171030-0049), Anthony G. Breuer (20171030-0046), Jan Mulroy (20171030-0045), Dennis Higgins (20171102-0318), Norm Farwell (20171102-0308), Colleen McKinney (20171102-0305), Kathleen Higgins (20171107-0054)
FL4 FERC fails to answer criticism that omission of emission impacts is arbitrarily according to NEPA
Eugene Marner (20171030-0084), Cynthia Beach (20171030-0076), Elizabeth Serrao (20171030-0066), Donald A. Hebbard (20171030-0065), Epifanio Bevilacqua (20171030-0057), Jan Mulroy (20171030-0044), Sylvia Barnard (20171030-0030), Colleen McKinney (20171102-0313), Norm Farwell (20171102-0312), Dennis Higgins (20171102-0306), Kathleen Higgins (20171107-0057), Elizabeth Callara (20171109-0018)
FL5 FERC must justify ignoring carbon cost or supply alternative metric
Carole Marner (20171030-0083), Cynthia Beach (20171030-0067), Eugene Marner (20171030-0061), Jan Mulroy (20171030-0060), Anthony G. Breuer (20171030-0058), Grace Nichols (20171030-0056), Epifanio Bevilacqua (20171030-0054), Russell Ziemba (20171030-0036), David Kick-Davidaff (20171030-0033), Jan Mulroy (20171030-0068), Colleen McKinney (20171102-4004), Dennis Higgins (20171102-0315), Norm Farwell (20171102-0314), Kathleen Higgins (20171109-0019)

FL6 Fugitive methane costing
Anthony G. Breuer (20171030-0079), Carole Marner (20171030-0075), Jan Mulroy (20171030-0073), Donald A. Hebbard (20171030-0071), Elizabeth Serrao (20171030-0069), Cynthia Beach (20171030-0064), Epifanio Bevilacqua (20171030-0050), Sylvia Barnard (20171030-0043), Eugene Marner (20171030-0037), Carol Tansey (20171030-0036), Peter Looker (20171030-0036), Anna L. Burland (20171030-0032), Christina Kielb (20171030-0031), Steven Redler (20171030-0029), Cynthia Pooter (20171030-0028), Grace Nichols (20171030-0027), Tina Lieberman (20171030-0024), Dennis Higgins (20171102-0317), Norm Farwell (20171102-0311), Colleen McKinney (20171102-0304), Kathleen Higgins (20171107-0055)

ORIGINAL

October 3, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: CP14-554-002, CP15-16-003, and CP15-17-002

Dear Secretary Bose,

FL1-1

We find the draft environmental impact statement grossly inadequate. First it assumes that coal burning power plants will be shut down in the future but does not consider the methane output from the many compressor stations that are also planned for these pipelines. These compressor stations leak unburned methane and vent periodically sometimes for hours.

FL1-2

Second, the draft impact statement focuses on CO 2 emissions when methane is 25 times more warming to the atmosphere than CO2. Methane (natural gas) is 25 times more effective at trapping solar radiation than carbon dioxide. Also, the pipelines vent unburned gas periodically and a mix of burned gas (CO2) and unburned gas (methane) while the compressor stations are operating, and similarly, the natural gas power plants also emit a mix of CO2 and unburned natural gas.

Third, let's not forget the fracking process which also results in significant release of methane not only from the wells but also from the incomplete flare-offs.

We urge to reject the draft environmental impact statement and start the entire process over from the beginning as the initial FERC study was flawed, faulty and overlooked the human habitat costs to the environment.

Thanks,

Name	Address
Maya Rashaad	1235 Augusta DR Albany GA 31707
Edward Brown	1127 St Andrews Albany 31707
Barbara G Jordan	1001 Saint Andrews Dr. Albany GA 31707
Lillie Love	1126 St. Andrews Dr. Albany, Ga 31709
Debra Warren	1300 Liverpool Ct. Albany 31707
Hampton Bennett	1116 St. Andrews DA 31707
Roger Marietta	2008 Robinhood Rd., Albany, GA 31707

FL1-1 See responses to NGO2-4, NGO2-9, and IND1-1.

FL1-2 See response to IND1-1.

Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

ORIGINAL

Comments on FERC SEIS for Sabal Trail:
CP14554-002, CP15-16-003, and CP15-17-002
FERC SEIS IGNORES FUGITIVE METHANE
October 18, 2017

Kimberly D. Bose,

Despite apparent efforts by FERC to comply with the court's ruling in Sierra v FERC on the Sabal Trail EIS, numerous flaws, shortcomings, and omissions exist in the SEIS FERC has produced.

FL2-1

FERC's assumption that "downstream GHG emissions to be a combination of potential-to-emit (PTE) GHG emissions from the three power plants plus an assumed full combustion of the remaining 100 MMcf/d of natural gas" is, frankly, incomplete. FERC's calculations on Sabal Trail's "22.1 million metric tons of CO2e per year" may be accurate only for the burning of 1.1B cu ft/day of natural gas.

A portion of the 2.6%-15% fugitive methane from wellhead to delivery leaking on a given stream must be assigned to the Sabal Trail portion of the gas transmission. Since methane heats the planet 86 times more efficiently than CO2, even a small leakage can generate substantial CO2E emissions. Sabal trail carries 1.1B cu feet of methane per day, and 1% of total leakage is 11M cubic feet per day, or over 4B cubic feet of methane leaked per year. Since methane weighs .0447 (STP) we can continue these calculations: 4,015,000,000X(.0447) = 179M lbs or 81K metric tons of methane. Using a GWP for methane of 86, this is 7MMT CO2E which was ignored in FERC's analysis. Of course, this is assuming only a 1% leakage which may be well below the actual.

A substantial portion of downstream emissions has been ignored here by FERC.

It is hard to place a cost on impacts but that should not be an excuse for a regulatory agency to omit any attempt to cost damages in health and environmental impacts. Both the EPA and UN, among others, provide carbon costing guidelines. FERC has again chosen to omit any consideration of these costs as if they are so theoretical no one will have to pay them. You must look at the bills for the three monster hurricanes to hit US territory this season to understand there are genuine costs in lives and property from climate change, and we do have to pay them. You can assess costs from wildfires in the west and droughts in the southeast, to understand how carbon costing impacts our lives.

Sincerely,
Printed Name: EUGENE MARNER
Signature: Eugene Marner
Address: PO Box 291
Franklin, NY 13775

FL2-1 See response to IND1-1.

FORM LETTER
FERC fails to answer Court request to use carbon cost or justify ignoring it

20171030-0085 FERC PDF (Unofficial) 10/30/2017

Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

ORIGINAL

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FEDERAL ENERGY
REGULATORY COMMISSION

Comments on FERC SEIS for Sabal Trail:
CP14554-002, CP15-16-003, and CP15-17-002
FERC fails to answer Court request to use carbon cost or justify ignoring it
October 18, 2017

Kimberly D. Bose,

FL3-1

The DC Circuit Court ruled that FERC should use the social cost of carbon to assess the Sabal Trail Project, or justify its failure to adopt this standard. In its SEIS, FERC acknowledges the social cost of carbon tool, but declines to use it. FERC criticizes the tool stating that

(1) the U.S. Environmental Protection Agency (EPA) states that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations" and consequently, significant variation in output can result; (2) the tool does not measure the actual incremental impacts of a project on the environment; and (3) there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews.

Any uncertainty in this metric cannot justify FERC's decision to ignore the issue: Disagreement over cost of carbon emissions does not allow FERC to forego estimating the cost entirely. We can agree that the value of carbon emissions is not zero. Using various rates, the estimates for the impact of a metric ton of carbon dioxide emitted in 2025, for example, are $69, $47, and $14. FERC could have followed the Interagency Working Group's recommendation and estimated the social cost of the Sabal Trail greenhouse gas emissions using each of these rates. Alternatively, if FERC determined that a discount rate outside this "plausible range" was more appropriate, FERC could have articulated the basis for that decision. The DC Circuit Court has ruled that FERC may not ignore the impact of these emissions entirely.

FERC contends that using the social cost of carbon would not be informative because "there are no established criteria" identifying when monetized impacts become "significant." NEPA requires FERC to meaningfully inform itself and the public of the "ecological ..., aesthetic, historic, cultural, economic, social, [and] health" effects of its actions. These effects must be disclosed in terms that can be understood by FERC's SEIS readership. This task may be simple: people understand the loss of 100 acres of wetlands, or the disruption of a nesting ground. The impact of the 20-plus-millions of tons of CO2E emissions for Sabal Trail are not so apparent. The social cost of carbon provides a straightforward approach to assessing the magnitude of greenhouse gases' effects on agriculture, human health, property damages from increased flooding, and the loss of ecosystems. Absent the application of an accepted method to access the impacts of a projects' greenhouse gas emissions, FERC must use the social cost of carbon tool, and it falls to FERC to determine whether those impacts are significant.

Sincerely,

Printed Name: EUGENE MARNER

Signature: Eugene Marner

Address: PO Box 291
Franklin NY 13775

FL3-1 See response to EO1-1.

FORM LETTER

FERC fails to answer criticism that omission of emission impacts is arbitrary according to NEPA

Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

ORIGINAL

Comments on FERC SEIS for Sabal Trail:
CP14554-002, CP15-16-003, and CP15-17-002
FERC fails to answer criticism that omission of emission impacts is arbitrary according to NEPA

October 18, 2017

Kimberly D. Bose,

FL4-1

FERC claims that there is no standard methodology to determine how a project's incremental contribution to GHGs would result in physical effects on the environment, and so FERC is unable determine whether annual emission of 20 to 20 millions of tons per year of CO2E is meaningful. NEPA requires FERC to take a 'hard look' at impacts recognizing that information on environmental impacts of federal actions are often incomplete. NEPA requires FERC to "identify and develop methods and procedures ... which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations." Even when information is incomplete, FERC must address "credible scientific evidence" and provide "the agency's evaluation of such impacts based upon ... research methods generally accepted in the scientific community." These methods would include the social cost of carbon, and consistency with federal greenhouse gas emission reduction targets. Carbon costing would allow FERC to estimate damages associated with carbon emissions including effects on agriculture, human health, and property damages from increased flood risk, and the value of ecosystem services.

Tools are available to estimate the impact of a ton of carbon dioxide emitted in years between 2010 and 2050, and under the middle discount rate, the present-value social cost a ton of carbon dioxide emitted in 2025 is $47. The Environmental Protection Agency and Council on Environmental Quality agree that the Social Cost of Carbon is an appropriate tool for use in NEPA reviews of individual projects, notwithstanding that it was initially developed to evaluate regulations.

The social cost of carbon is therefore a "generally accepted" method for evaluating the impact of greenhouse gas emissions, which FERC must not ignore. While NEPA does not require agencies to monetize adverse impacts in every case it does 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." The DC Circuit Court has ruled that FERC's refusal to use the social cost of carbon to illustrate the impact of these emissions was arbitrary and capricious and FERC's SEIS does not answer this criticism.

Sincerely,

Printed Name: EUGENE MARNER

Signature: Eugene Marner

Address: PO Box 291
Franklin, NY 13775

FL4-1 See response to EO1-1.

FORM LETTER
FERC must justify ignoring carbon cost or supply alternative metric

Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

ORIGINAL

Comments on FERC SEIS for Sabal Trail:
CP14554-002, CP15-16-003, and CP15-17-002
FERC must justify ignoring carbon cost or supply alternative metric

October 18, 2017

Kimberly D. Bose,

NEPA regulations require analysis of "[p]ossible conflicts between the proposed action and the objectives of Federal ... plans, policies and controls" and identify consistency with "law or requirements imposed for the protection of the environment" as a factor to consider in determining whether impacts are significant. The Council on Environmental Quality agrees that agencies should discuss "whether the [greenhouse gas] emissions being discussed are consistent with" "Federal, state, tribal, or local goals for ... emission reductions."

FERC could have illustrated the impact of Sabal Trail's greenhouse gas emissions by evaluating their effect on federal emission reduction efforts. Executive policy had set the goal of reducing U.S. greenhouse gas emissions, relative to 2005, by at least 17% by 2020. NEPA regulations require that FERC assess the extent to which the emission increases caused by the Sabal Trail would affect the nation's ability to achieve targeted reduction.

FERC's failure to discuss the impact of greenhouse gas emissions is compounded by FERC's omission of indirect and cumulative impacts. The Sabal Trail pipeline and the power plants it will feed will cause greenhouse gas emissions significantly greater than the 20 million tons accounted for in the SEIS. FERC wrongly limited its review to direct emission from Sabal Trail, but beyond this omission, FERC further failed to consider the cumulative impact of the dozen other proposals pending before or recently authorized by FERC.

FL5-1

In summary, FERC concluded that because it could not connect the Sabal Trail's greenhouse gas emissions to specific physical changes in the environment, it could not meaningfully discuss the impact of those emissions or determine their significance. But FERC had at least two available methods for discussing these impacts: the social cost of carbon and assessing consistency with federal emission targets. FERC's rejection of the former and refusal to acknowledge the latter renders the SEIS an inadequate response to the court which had concluded that FERC's decision was arbitrary and capricious.

Sincerely,

Printed Name: CAROLE MARNER

Signature: [signature]

Address: PO BOX 291
FRANKLIN NY 13775

FL5-1 See response to EO1-1.

FORM LETTER
Fugitive methane costing

Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Comments on FERC SEIS for Sabal Trail:
CP14554-002, CP15-16-003, and CP15-17-002
FUGITIVE METHANE COSTING

October 18, 2017

ORIGINAL

Kimberly D. Bose,

FERC is ostensibly trying to comply with the court's ruling in Sierra v FERC on the Sabal Trail EIS. However, ignoring all downstream omissions actually means FERC is trying to make an end-run around that ruling. FERC is obliged to either detail downstream emissions and their impacts, as well as costs, or justify why it will not. In the SEIS FERC has done neither.

FL6-1

In actuality, methane emissions should not be calculated simply for downstream on Sabal Trail but over the entire life-cycle (wellhead to delivery) of that gas transmission. Clearly, this gas would not be produced and used without the consumer and there would be no emissions without the pipeline. Using current peer reviewed numbers, (https://www.dovepress.com/methane-emissions-and-climatic-warming-risk-from-hydraulic-fracturing--peer-reviewed-article-EECT) we have fugitive rates of 12% for shale gas and 3.8% for conventional gas. With 1.1B cubic feet/day on Sabal Trail, using weight of methane at .0447 (pounds per cubic foot at sSTP) and a GWP of 86 for 20 years, we can make a simple table to show leakage for conventional and shale sourcing.

FL6-2

Gas source	Leakage rate	Total leakage lbs/yr	In MMT/yr	MMT CO2E Using 86 GWP
conventional	3.8%	682M	309,291	26.6
shale	12%	2,154M	976,710	84

Failure to account for all emissions as an impact of this project represents truly sloppy work from FERC. Social costing of CO2E just from leaked methane using even a modest $36/ton puts the cost in illness and death, property damage, and climate impacts at between $900M and $3B dollars. These are not numbers a responsible agency can ignore.

FL6-3

Sincerely,
Printed Name: Anthony G. Brewer
Signature:
Address: 9174 County Highway 116
Troy, NY 13846

FL6-1 See response to EO1-1.

FL6-2 See response to IND1-1.

FL6-3 See response to EO1-1.

APPLICANTS
NextEra Energy, Inc.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Florida Southeast Connection, LLC	)	**Docket Nos. CP14-554-002**
	)	
Transcontinental Gas Pipe Line Company, LLC	)	**CP15-16-003**
	)	
Sabal Trail Transmission, LLC	)	**CP15-17-002**

COMMENTS OF NEXTERA ENERGY, INC. ON THE SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pursuant to the Federal Energy Regulatory Commission's ("Commission") letter setting forth the comment date for the draft Supplemental Environmental Impact Statement ("SEIS"), issued in the captioned dockets on September 28, 2017, NextEra Energy, Inc. ("NextEra") hereby files comments on the Commission's SEIS. The SEIS was issued to address the August 22, 2017 opinion in *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017) regarding the Commission's review of the Southeast Market Pipelines Project ("SMP Project")[1]. In accordance with the opinion, the SEIS quantifies the downstream greenhouse gas ("GHG") emissions attributable to the SMP Project and addresses the value of using the Social Cost of Carbon tool.

I. Overview and Interests of NextEra

NextEra is one of the largest utility holding companies in the U.S. NextEra owns Florida Power & Light Company ("FPL"), a franchised public utility that provides wholesale and retail electric service to customers in the State of Florida. To serve this load, FPL owns approximately

[1] The SMP Project collectively refers to the Florida Southeast Connection, LLC ("FSC"), Sabal Trail Transmission, LLC ("Sabal Trail") and the Transcontinental Gas Pipe Line Company, LLC's ("Transco") Hilliabee Expansion Project.

26,000 MW of generation in peninsular Florida, of which approximately 333 MW is now attributed to solar generation with more than an additional 596 MW to come online by 2018.

NextEra's other main subsidiary is NextEra Energy Resources, LLC, the largest generator of renewable energy from the wind and the sun in the world, with more than 13,000 MW of wind generation and 2,100 MW of solar generation in operation. NextEra, through a subsidiary, also owns 100 percent of FSC, a new approximately 126-mile interstate natural gas pipeline that extends from a point near Intercession City, Florida at a newly-created natural gas hub to an endpoint at the existing FPL Martin Clean Energy Center electric generation plant in Martin County, Florida. The FSC Project entered commercial service in June 2017 and can transport 640 million cubic feet per day ("MMcf/d"). FPL has contracted for 400 MMcf/d of capacity on FSC, increasing to 600 MMcf/d in May 2020. NextEra also owns 42.5 percent of Sabal Trail, a new approximately 516-mile pipeline in Alabama, Georgia, and Florida that terminates in central Florida at an interconnection with FSC and the two other natural gas pipelines that serve Peninsula Florida, Florida Gas Transmission, LLC ("FGT") and Gulfstream Natural Gas System, LLC ("Gulfstream") to form a new natural gas hub.

II. Executive Summary

APL1-1

NextEra appreciates the opportunity to comment on the SEIS. As discussed herein, the Commission has correctly implemented the court's directive to quantify the downstream GHG emissions from the SMP Project or explain why it could not do so. The Commission also appropriately considered the net offsets in GHG emissions that can be expected as a result of the SMP Project. In fact, as explained in these comments, the Commission's netting calculations were very conservative because they excluded more than 1,200 MW of additional coal-fired generation from its net offsets that will (or has occurred) occur prior to 2021, and once these coal

APL1-1 Comments noted.

APPLICANTS
NextEra Energy, Inc.

plant retirements are considered the overall downstream GHG emissions attributable to the SMP Project is much lower and perhaps even a net decrease. The Commission also need not take into account fugitive methane emissions in its analysis, yet to the extent it elects to do so, the amount is far lower than asserted by various commenters in this proceeding. Finally, the Commission should once again find that even if the downstream GHG emissions resulted in a net increase, that the SMP Project is still required by the public convenience and necessity as more fully explained herein.

III. Corrections and Clarifications

APL1-2

As stated above, the Commission's SEIS addresses the issues identified by the court decision by providing a quantitative estimate of the downstream GHG emissions that will result from burning the natural gas that the pipelines will transport.[2] NextEra notes that the SEIS contains two errors that affect this finding in the SEIS. First, there is a calculation error in Table 2 where the Net PTE Emissions as a percentage of the 2015 National Inventory should be 0.15 and not 0.02. Second, in footnote 2, the Commission incorrectly states that the Okeechobee Clean Energy Center ("OCEC") is in operation and excludes this plant from its calculation of new generation capacity projected to be added in Florida.

The OCEC is a 1,750 MW combined cycle gas-fired generation plant approved by the Florida Public Service Commission ("FPSC") and is currently under construction. The OCEC is expected to enter commercial operation in mid-2019.[3] Thus, the Commission should include the OCEC in its new generation capacity figure in the SEIS and doing so results in additional GHG offsets associated with the SMP Project as explained herein. The Commission is correct on

[2] 867 F.3d at 1374.

[3] FSC is currently awaiting Commission authorization for this new lateral in Docket No. CP17-463. The OCEC requires test gas in Q3 of 2018 in order to remain on target for a mid-2019 in-service date.

APL1-2 Comments noted. The final SEIS accounts for these clarifications.

APPLICANTS
NextEra Energy, Inc.

APL1-3

page 2 of the SEIS that the OCEC will be an end-use customer of the SMP Project volumes; in fact, it will be exclusively served by a new lateral from FSC. For purposes of completeness, the Commission should also add a fourth power plant owned by FPL that is in operation and is served by the SMP Project volumes, the Riviera Beach Clean Energy Center ("RBCEC") in Riviera Beach Florida. The RBCEC procures gas through an approximately 35-mile plant line owned by FPL from an interconnection with FSC at the FPL Martin Clean Energy Center and, since FSC has entered commercial operation, is the primary source of gas supply for the plant.[4]

IV. Comments

APL1-4

A. The Commission's SEIS has correctly addressed the downstream GHG emissions as required by the court's decision

The court required that the Commission provide a quantitative estimate of the downstream GHG emissions that will result from burning the natural gas the pipelines will transport or explain more specifically why it could not so.[5] The court further stated that "[q]uantification would permit [the Commission] to compare the emissions from this project to emissions from other projects, to total emissions from the state or the region, or to regional or national emissions-control goals."[6]

This is precisely what the Commission did in the SEIS. Table 2 calculates the PTE GHG amounts from the combustion of natural gas transported by the SMP Project assuming that 100 percent of the certificated capacity for Sabal Trail results in downstream GHG emissions.[7] As the Commission correctly notes, it is unlikely that the full capacity of the power plants would be

[4] The RBCEC can also obtain gas from FGT.

[5] 867 F.3d at 1374.

[6] *Id.*

[7] FSC has a lower capacity amount than Sabal Trail and receives all of the gas it transports from Sabal Trail and thus need not be separately considered.

APL1-3 Comment noted. The final SEIS includes this information.

APL1-4 Comments noted.

APL1-5 Comment noted.

utilized at all times. The Commission then compared this "all-in" number to the Percentage of Florida 2014 Inventory and the Percentage of 2015 National Inventory as determined by the Energy Information Administration.[8]

The Commission also appropriately calculated a net PTE GHG emissions value. The court stated that the Commission "was not excused from making emissions estimates just because the emissions in question might be partially offset by reductions elsewhere", but in no way foreclosed the Commission from also calculating GHG offsets.[9] In fact, in the circumstances presented here, the net PTE GHG emissions calculation appropriately responds to the court's expectation that "[a]n agency decisionmaker reviewing this EIS would thus have no way of knowing whether total emissions, on net, will be reduced or increased by this project, or what degree of reduction or increase will be."[10] Unlike many other pipeline projects, the net offsets in GHG emissions as a result of the SMP Project are largely ascertainable and quantifiable and the failure to consider these net reductions in GHG emissions would be arbitrary and capricious and not reasoned decision making. In fact, NextEra is providing additional information herein regarding coal plant retirements in Florida that will further reduce the net PTE GHG emissions in Florida and that are attributable to the SMP Project.

APL1-5

NextEra also recommends that the Commission explain and elaborate in the final SEIS that the increases calculated in Table 2 are increases in GHG emissions that result from fossil-

[8] Although the court also referenced performing a comparison to other projects, the Commission did not need to include a comparison to other projects since there were no other projects before the Commission that would serve the purpose and need of the SMP Project and thus any attempt to compare the SMP Project downstream GHG emissions to those from a hypothetical project would add no value to the analysis nor inform the Commission's decision making.

[9] 867 F.3d at 1374-1375.

[10] *Id.* at 1375.

APL1-6 The final SEIS includes this information.

fuel combustion or emissions of carbon dioxide.[11] The actual anthropogenic GHG emissions in Florida and nationally are higher due to agricultural, industrial, and other GHG emitting sources and thus the actual increases in PTE GHG emissions that are estimated to be attributed to the SMP Project are lower than those shown in Table 2.

APL1-6

B. The SMP Project will result in additional coal plant retirements beyond those included in the draft SEIS and these quantities should be included in the net PTE GHG emissions calculation

The Commission states in the SEIS that Florida is projected to retire 4,100 MW of power generation capacity, including 2,718 MW from coal, 1,348 MW from natural gas and 34 MW from fuel oil. In calculating the net GHG emissions in Table 1, the Commission included the retirement of a Duke Energy Florida Citrus coal plant and a change at FPL Martin County to switch from oil/natural gas to only natural gas. As discussed above, the Commission should also include in its analysis additional coal-fired generation that will be retired prior to 2021 in its net PTE GHG emissions calculations.

Specifically, FPL will retire two additional coal-fired plants, the 330 MW Indiantown plant in Indiantown, Florida and 642 MW of capacity from the St. John's River Power Plant Park ("SJRPP") in Jacksonville, Florida.[12] FPL is able to retire these coal plants due to the new gas-fired OCEC coming on-line in 2019 to meet its growing system demand and to offset the capacity from these coal-fired plants while still maintaining FPL's system total reserve margin criterion required by the FPSC.[13] FPL also already retired the 250 MW Cedar Bay coal-fired

[11] See *Inventory of U.S. Greenhouse Gas Sources and Sinks, 1990-2015* ("*Inventory*") at ES-4. In 2015, total gross U.S. greenhouse gas emissions were approximately 6.6 billion metric tons, higher than the 5.4 billion metric tons the Commission used in its calculations. *See Inventory* at ES-6.

[12] The SJRRP is jointly owned by FPL and the Jacksonville Electric Authority ("JEA") and operated by JEA. FPL has rights to 642 MW of capacity through its ownership and a PPA with JEA. JEA recently announced that it will completely close the 1,252 MW SJRPP.

[13] *FPL 10-year Power Plant Site Plan, 2017-2026*, at 6 and Table ES-1 at 12.

plant in Jacksonville, Florida at the end of 2016, and given that the Commission's data in Table 2 is for 2014 and 2015, the reductions in GHG emissions from this plant should also be considered by the Commission. All told, FPL alone has retired or will retire 1,222 MW of coal-fired generation by 2019 as a result of the SMP Project. Therefore, the Commission should include these amounts in Table 1 and the concomitant reduction in net PTE GHG emissions in Table 2. NextEra has calculated that the GHG emissions savings associated with these coal facility retirements equal 12.11 million metric tons per year; however given that NextEra is not certain as to the sources and methodology relied on by the Commission for its calculations in the SEIS it expects that the GHG emissions will be independently calculated by the Commission.

C. The court did not require the Commission to estimate the impact of the SMP Project indirect PTE GHG emissions on global climate change.

As explained above, the SEIS complies with the court's directive by quantifying the downstream GHG emissions. The question that the court left largely unanswered and that pipeline opponents are demanding that the Commission answer is what to do with this information.

The court stated that the "EIS might have tried to link those downstream carbon impacts to particular climate impacts" and observed that the "EIS explained that there is no standard methodology for making this sort of prediction."[14] Importantly, the court did not agree with the Sierra Club's argument on judicial review that this further analytical step was required. Rather, the court required the Commission on remand to explain whether it still holds the belief that the

[14] 867 F.3d at 1375.

APL1-7 Comments noted.

Environmental Protection Agency's Social Cost of Carbon tool is not useful in its NEPA review.[15]

APL1-7

In the SEIS, the Commission again explained that "it could not find a suitable method to attribute discrete environmental impacts to GHG emissions" and explained that various models "are not suited to determine the incremental impact of individual projects, due both to scale and overwhelming complexity." Despite the fact the court did not require this additional analytical step, the Commission considered and reasonably found that it is not possible to attribute discrete environmental impacts to GHG emissions. In so doing, the Commission has analyzed the "significance" of the downstream GHG emissions.[16] However, it is the case that even though the Commission cannot attribute discrete environmental effects to GHG emissions, it can generally further discuss the significance of any net increase in downstream GHG emissions. For example, the Commission can explain that there may be indirect effects related to climate change as a result of a net increase in downstream GHG emissions (assuming that there is net increase in this instance), potentially giving rise to discrete environmental impacts of the types already previously enumerated in the EIS.[17] The Commission can also include other expected indirect effects that result from the displacement of coal-fired and oil-fired generation, such as lower mercury, sulfur dioxide and particulate emissions. An expanded general finding in this regard should adequately explain the significance of this downstream GHG emissions data as it will provide more context for the GHG emission quantification the Commission provided in the SEIS.

[15] *Id.*

[16] *Id.* at 1374.

[17] *See* Final EIS at 3-296-297. The Commission may want to update these findings as needed, e.g., referring to the USGCRP Fourth National Climate Assessment.

APL1-8 Comments noted.

Turning to the Social Cost of Carbon, the Commission has explained in detail in the SEIS why the Social Cost of Carbon tool is not appropriate for use in any project-level NEPA review. Accordingly, the Commission has satisfied the court's directives in this regard and it need not find that the Social Cost of Carbon tool is not appropriate but apply it anyway as doing so would not inform its analysis in the SEIS.

APL1-8

D. Fugitive methane emissions need not be considered by the Commission in the SEIS and, in any event, are likely far lower than commenters state

Fugitive methane emissions is a term that is generally used to describe methane that unintentionally "leaks" from pipeline equipment or components such as flanges, valves and other equipment.[18] The court did not address fugitive methane emissions in its opinion nor was the issue ever raised on briefing. Rather the court's directive as followed by the Commission was for the Commission "to provide a quantitative estimate of the downstream greenhouse emissions that will result from burning the gas that the pipeline will transport."[19] The Commission did so in the SEIS, with its quantitative estimates of emissions also including methane that may be attributed to the downstream generators.[20] The Commission need not do more.[21]

Notwithstanding the court not requiring the Commission to take into account any potential fugitive methane emissions, numerous comments have been filed with the Commission asserting that a there is 1.0 percent fugitive methane leakage rate on Sabal Trail. These commenters provide no evidence to support such a figure, but merely assert it based on being at the low end of a much larger alleged fugitive methane range across the entire natural gas

[18] *See Finding the Facts on Methane Emissions: A Guide to the Literature*, prepared by ICF International, April 2016. *Available at*: http://www.ngsa.org/download/analysis_studies/NGC-Final-Report-4-25.pdf

[19] 867 F.3d at 1374.

[20] *See* SEIS at note 5.

[21] In any event, FERC may have already addressed fugitive emissions from Sabal Trail and FSC in its FEIS, *see* pages 3-257 and 3-260.

APL1-9 Comment noted.

production and delivery chain. There is no demonstrated support for such a number. A comprehensive study in April 2016 examined numerous studies on methane emissions in the natural gas industry and no single study provided meaningful data to specifically quantify fugitive methane emissions from transmission pipelines.[22] In addition, the EPA has found that fugitive emissions have decreased considerably in recent years on transmission pipelines due to reduced compressor station emissions.[23]

E. The SMP Project is required by the public convenience and necessity notwithstanding its potential impact on downstream GHG emissions

The Commission found the SMP Project to be required by the public convenience and necessity.[24] The court rejected a petition for review challenging the need for the SMP Project, correctly finding that since 93 percent of the capacity is subscribed the applicants have satisfied the Commission's market need test and thus the SMP Project was required by the public convenience and necessity.[25] In short, that the SMP Project is in the public convenience and necessity is a settled question.

The Commission reasonably concludes in the SEIS that operation of the SMP Project would not result in a significant impact on the environment.[26] NextEra concurs with this conclusion. NextEra does, however, recommend that the Commission explain in more detail in the final SEIS why it is still the case that the SMP Project would not result in a significant impact

APL1-9

[22] *Supra* note 19.

[23] *See Inventory* at ES-15, and 3-78.

[24] *Florida Southeast Connection, LLC, et al.*, 154 FERC ¶ 61,080 at P 88 (2016).

[25] 867 F.3d at 1379.

[26] As the D.C. Circuit has explained, "FERC 'enjoys broad discretion to invoke its expertise in balancing competing interests and drawing administrative lines.'" *Minisink Residents for Envtl. Pres. & Safety v. FERC*, 762 F.3d 97, 111 (D.C. Cir. 2014) (quoting *Am. Gas Ass'n v. FERC*, 593 F.3d 14, 19 (D.C. Cir. 2010)).

on the environment. NextEra submits that the information in the SEIS and in these comments support this finding.

Moreover, even if there was a net increase in GHG emissions, the Commission's public interest finding as upheld by the court for the SMP Project is still valid and even stronger than when approved. Sabal Trail has 93 percent of its capacity subscribed under 25-year transportation service agreements and FSC has 94 percent its capacity subscribed under a 25-year transportation service agreement. The FPSC found that FPL had demonstrated a need for additional pipeline capacity in 2017. FPL has started taking service under its transportation service agreements on Sabal Trail and FSC and uses this capacity to serve its existing Martin and RBCEC plants. The use of the SMP Project to provide fuel to these plants enhances the reliability of the plants and greatly reduces the need to burn fuel oil at the plants. The FPSC has issued need determinations for Duke Energy Florida's Citrus County Combined Cycle Plant and FPL's OCEC and both plants are under construction. These plants will be exclusively served by the SMP Project. If the SMP Project were to not be operational and thus not able to serve these plants, there would be a need to find an alternative transportation source. Even assuming that such an alternative exists, there would be a considerable delay in the plants coming on line as well as a substantial increase in costs to the ratepayers. Moreover, the same amount of GHG emissions from these plants would occur if served by some other pipeline in the future. So unless construction of the plants was abandoned and the plants were never placed into operation, there would be no GHG net benefit and significant economic costs.

As the draft SEIS and these comments explain, these plants will allow more than 2,000 MW of coal and oil fired generation to be retired. Thus, even assuming a net increase in downstream GHG emissions as a result of total amount of gas capacity that can flow through the

SMP Project, the other benefits include substantial decreases in sulfur dioxide, mercury, particulates, and elimination of toxic coal ash. The addition of the SMP Project will also provide opportunities in the future to retire additional coal and oil-fired generation and replace it with new cleaner gas-fired generation and transport gas to meet increasing commercial and retail demand for natural gas in the growing southeastern U.S. For all these reasons, the SMP Project is and remains required by the present and future public convenience and necessity.

V. Conclusion

WHEREFORE, for the reasons set forth above, NextEra respectfully requests that the Commission consider these comments in its issuance of the final SEIS for the SMP Project.

Respectfully submitted,

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Dated: November 20, 2017

APL2-1 Comment noted.

SABAL TRAIL TRANSMISSION, LLC
5400 Westheimer Court
Houston, TX 77056

November 20, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

Re: Sabal Trail Transmission, LLC, Florida Southeast Connection, LLC, Transcontinental Gas Pipe Line Company, LLC; Docket Nos. CP15-17-002, CP14-554-002, CP15-16-003
Supplemental Information – Comments on Draft SEIS
OEP/DG2E/Gas Branch 3

Dear Ms. Bose:

On September 27, 2017, the Federal Energy Regulatory Commission ("FERC" or "Commission") released a draft Supplemental Environmental Impact Statement ("SEIS") for the Southeast Market Pipeline ("SMP") Project in accordance with the D.C. Circuit's August 22, 2017 decision in *Sierra Club v. FERC*.[1] The draft SEIS supplements the Final Environmental Impact Statement ("FEIS") that the Commission issued on December 18, 2015. The Commission requested comments on the draft SEIS on or before November 20, 2017. Sabal Trail Transmission, LLC provides the below comments on the draft SEIS.

As discussed below, FERC's draft SEIS fully addresses all of the issues required by the D.C. Circuit's opinion.

Downstream GHG Emissions

APL2-1

In the draft SEIS, FERC provided a detailed quantitative estimate and analysis of the downstream greenhouse gas ("GHG") emissions expected from burning the natural gas that the pipelines will transport. The D.C. Circuit's remand in *Sierra Club v. FERC* requires no further analysis. Specifically, the court held that "the EIS for the [SMP] Project should have either given a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport or explained more specifically why it could not have done so."[2] The Commission's draft SEIS provides a quantitative estimate and explains how downstream emissions are offset by the conversion of several plants from coal to natural gas. Nothing further is required.

The draft SEIS concludes that "operating the SMP Project would not result in a significant impact on the environment."[3] It further explains that downstream emissions would range from 3.7% (considering estimated offsets) to 9.7% (ignoring estimated offsets) of Florida's total GHG

[1] *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017).

[2] *Id.* at 1374.

[3] Draft SEIS at 2.

APL2-2

emissions, noting that the latter figure was "an unlikely, upper bound scenario."[4] It would be reasonable for the Commission to conclude in the final SEIS that, under that unlikely upper-bound scenario, a less than 10% increase in Florida's estimated total GHG emissions, and less than 0.5% increase in nationwide GHG emissions, the SMP Project would not result in significant environmental impacts. It would be reasonable for the Commission to conclude that such a small marginal effect on national emissions would not result in a significant impact on the environment, particularly because climate change impacts depend on total *global* GHG emissions.

APL2-3

Indeed, if anything, the calculations in the draft SEIS of the above percentages *overstate* the relative magnitude of downstream GHG emissions for at least two reasons. First, the draft SEIS compares a range of potential downstream emissions of all GHGs (i.e., carbon dioxide, methane, nitrous oxide, etc.) from burning the natural gas transported by the SMP Project, with total national emissions of *carbon dioxide alone* (5.4 billion metric tons in 2015, as reported by the U.S. EIA). Comparing the estimated downstream GHG emissions with total national GHG emissions of 6.5867 billion metric tons in 2015 yields smaller relative percentages, ranging from 0.13% to 0.33%.[5]

Second, the draft SEIS compares downstream emissions of all GHGs from burning the natural gas transported by the SMP Project with the total amount of *carbon dioxide* emissions from the *combustion of fossil fuel* sources in Florida in 2014, using data reported by the U.S. Energy Information Administration.[6] Comparing those downstream GHG emissions with emissions of all GHGs in Florida, including those from sources other than the combustion of fossil fuels, would yield still smaller percentages. Refining the calculations in this manner would only lend further support to the Commission's conclusion that the downstream emissions will not result in significant environmental effects.

Social Cost of Carbon

APL2-4

The court further directed the Commission to "explain in the EIS, as an aid to the relevant decisionmakers, whether the position on the Social Cost of Carbon that the agency took in *EarthReports* still holds, and why."[7] The Commission has fulfilled this directive. The draft SEIS explains why the Social Cost of Carbon ("SCC") is not an appropriate tool for use in any project-level National Environmental Policy Act ("NEPA") review, and the Commission reasonably concluded that no methodology exists to identify a causal relationship between the release of discrete quantities of GHGs associated with a particular project, and a specific impact on the environment.

[4] *Id.* at 4.

[5] *See* U.S. Envtl. Prot. Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2015* at ES-5 to ES-7 (2017), https://www.epa.gov/sites/production/files/2017-02/documents/2017_complete_report.pdf.

[6] *See* U.S. Energy Info. Admin., *State Carbon Dioxide Emissions Data* (Oct. 24, 2017), at https://www.eia.gov/environment/emissions/state/.

[7] *Sierra Club*, 867 F.3d at 1375.

APL2-2 Comment noted.

APL2-3 Comment noted.

APL2-4 Comment noted.

Specifically, in its draft SEIS, the Commission explains that the SCC tool "is not appropriate for use in any project-level NEPA review" because 1) there is a lack of consensus and wide variability in using the tool; 2) the tool is not designed to measure actual incremental environmental impacts that can be analyzed under NEPA; and 3) there is no established method for determining how the tool's monetized outputs can be considered significant in NEPA reviews.[8] The Commission further explained that, although the "SCC tool may be useful for rulemakings or comparing regulatory alternatives using cost-benefit analyses where the same discount rate is consistently applied . . . it is not appropriate for estimating a specific project's impacts or informing our analysis under NEPA."[9]

The D.C. Circuit has recently affirmed this conclusion, upholding the Commission's refusal to engage in similar analysis of the GHG effects of a liquefied natural gas export facility, based on the agency's determination that no standard methodology existed.[10] Under the D.C. Circuit's *EarthReports* decision, the Commission could reasonably determine that the lack of a standard methodology for determining the physical effects of GHG emissions, as well as the difficulty in meaningfully considering those impacts, justified not using the SCC tool here. No reported decision from any court has ever held that NEPA *requires* the use of the SCC tool in analyzing GHG emissions and potential effects on climate change resulting from project-level decisions.

Sincerely,

/s/ P. Martin Teague
P. Martin Teague
Associate General Counsel
Sabal Trail Management, LLC
Operator of Sabal Trail Transmission, LLC

cc: All Parties (CP15-17-000 et al.)

[8] Draft SEIS at 5.

[9] *Id.*

[10] *EarthReports, Inc. v. FERC*, 828 F.3d 949, 956 (D.C. Cir. 2016).

SABAL TRAIL TRANSMISSION, LLC
5400 Westheimer Court
Houston, TX 77056

December 4, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

Re: Sabal Trail Transmission, LLC, Florida Southeast Connection, LLC, Transcontinental Gas Pipe Line Company, LLC; Docket Nos. CP15-17-002, CP14-554-002, CP15-16-003
Response to Comments on Draft Supplemental Environmental Impact Statement
OEP/DG2E/Gas Branch 3

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APL3-1

I. The Draft SEIS Adequately Estimated Downstream Emissions.

Commenters incorrectly assert that the Commission did not account for downstream greenhouse gas ("GHG") emissions caused directly and indirectly by the Project[2] and that the Commission failed to account for the effects of the power plants downstream that will use the natural gas.[3]

As an initial matter, and as more fully explained below, GHG emissions themselves are not "impacts" under the National Environmental Policy Act ("NEPA"), and FERC should not conflate GHG *emissions* with actual climate change effects or impacts. "Effects and impacts as used in these regulations are synonymous."[4] "Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems),

[1] *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017).

[2] *See, e.g.*, Comment of Carole Marner, Accession No. 20171030-0051, Docket Nos. CP15-17-002 et al., at 1 (submitted Oct. 30, 2017); Comment of Sylvia Barnard, Accession No. 20171030-0043, Docket Nos. CP15-17-002 et al., at 1 (submitted Oct. 30, 2017); Comment of Grace Nichols, Accession No. 20171030-0056, Docket Nos. CP15-17-002 et al., at 1 (submitted Oct. 30, 2017) ("Nichols Comment").

[3] *See, e.g.*, Nichols Comment at 1; Comment of Sabin Climate Change Center, Accession No. 20171117-5116, Docket Nos. CP15-17-002 et al., at 1 (submitted Nov. 16, 2017) ("Sabin Center Comment").

[4] 40 C.F.R. § 1508.8 (2017).

APL3-1 Comment noted.

aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative."[5] NEPA requires consideration of environmental impacts, not GHG emissions for their own sake.[6] Even if the amount of GHG emissions from the plants were reasonably foreseeable, as the Commission explains in the SEIS, any effects on climate proximately caused by those emissions are not.

Regardless, the draft SEIS addresses the precise issue of downstream GHG emissions required by the D.C. Circuit's remand in *Sierra Club v. FERC*. Specifically, the court held that "the EIS for the [SMP] Project should have either given a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport or explained more specifically why it could not have done so."[7] The draft SEIS provides detailed quantitative estimates of the downstream GHG emissions that could possibly result under various scenarios from burning the natural gas transported in the pipelines, and explains how downstream emissions are offset by the conversion of several power plants from coal to natural gas.[8] Nothing further is required.

APL3-2

II. The Commission Does Not Have to Consider Effects of Non-Gas-Transportation Alternatives to the Project, including Alternative Means of Electric Generation and the No Action Alternative.

Contrary to commenters' assertions, the Commission is not required to "conduct a full assessment of substitute energy sources."[9] As an initial matter, NEPA only requires analyses of "reasonable" alternatives,[10] which are those that satisfy "the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."[11] FERC

[5] *Id.*

[6] *See, e.g.*, 40 C.F.R. § 1502.16 (2017) ("The discussion [of 'Environmental Consequences' in an EIS] will include the environmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented . . . .").

[7] *Sierra Club v. FERC*, 867 F.3d at 1374.

[8] Indeed, the Commission may have overestimated the net GHG emissions expected to result from the combustion of natural gas at the Florida power plants. According to comments filed by NextEra Energy, Inc., "FPL will retire two additional coal-fired plants" and has already retired a third coal-fired plant. Based on its calculations, NextEra estimates "that the GHG emissions savings associated with these coal facility retirements equal 12.11 million metric tons per year." *See* Comment of NextEra Energy, Inc., Accession No. 20171120-5173, Docket Nos. CP15-17-002 et al., at 6-7 (submitted Nov. 20, 2017).

[9] *See, e.g.*, Comment of The Institute for Policy Integrity, Accession No. 20171120-5053, Docket Nos. CP15-17-002 et al., at 1 (submitted Nov. 20, 2017) ("Institute for Policy Integrity Comment"); Comment of Sierra Club (Florida Chapter), Accession No. 20171120-5115, Docket Nos. CP15-17-002 et al., at 2 (submitted Nov. 20, 2017); Comment of WWALS Watershed Coalition et al., Accession No. 20171120-5130, Docket Nos. CP15-17-002 et al., at 3 (submitted Nov. 20, 2017) ("WWALS Comment").

[10] 40 C.F.R. § 1502.14(a) (2017).

[11] *Id.* § 1502.13; *see also City of Alexandria, Va. v. Slater*, 198 F.3d 862, 867 (D.C. Cir. 1999) ("The agency's choice of alternatives are, then, evaluated in light of these stated objectives; an alternative is properly excluded from consideration in an environmental impact statement only if it would be reasonable for the agency to conclude that the alternative does not bring about the ends of the federal action.").

APL3-2 Comment noted.

properly defined the purpose and need of the SMP Project as transporting gas, not generating electricity.[12] Thus, FERC correctly concluded that alternative means of generating (or conserving) electricity do not meet the proposed project's underlying purpose and need, and are therefore not reasonable alternatives. Commenters also suggested that the Commission must reevaluate the no-action alternative in the draft SEIS.[13] In the FEIS, however, the Commission properly determined that "the 'no-action' alternative could result in inadequate fuel supplies for the anticipated energy demands (i.e. fuel shortages), which could lead to insufficient energy production to meet expected demands."[14] Thus, the "no-action" alternative likewise does not meet the SMP Project's purpose and need, and is not a reasonable alternative. As a result, NEPA does not require substitute energy sources or the no action alternative to be analyzed in detail in the Commission's SEIS.

As the D.C. Circuit has recognized, "[t]he purpose of NEPA is to help agencies and the public make informed decisions. But when the agency has no *legal* power to prevent a certain environmental effect, there is no decision to inform, and the agency need not analyze the effect in its NEPA review."[15] The Commission's legal authority does not extend to decisions regarding how a state's electric generating needs are met, such as siting of power plants or determining the need for and type of electricity generation. Rather, authority over these issues is reserved exclusively to the states. Thus, the Commission cannot second-guess the Florida Public Service Commission's ("FPSC") and the Florida Siting Board's conclusion that natural gas-fired generation is necessary to meet the state's growing electricity demand, or where those plants should be located. With limited exceptions not applicable here, the Federal Power Act divests the Commission of jurisdiction "over facilities used for the generation of electric energy."[16] As recognized by the Supreme Court, the Commission has therefore concluded that utility generation and resource portfolios are areas reserved to traditional state authority.[17]

Accordingly, in the context of both the Natural Gas Act ("NGA") and NEPA, the Commission has determined that it lacks the legal authority to consider how a particular region will meet electricity demand, and that the states, not the Commission, regulate construction and operation of generating facilities. The Commission has previously rejected arguments that renewable energy sources could undermine the need for a particular natural gas infrastructure project, or that renewable energy should be considered as an alternative to natural gas projects.[18]

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[12] Southeast Market Pipelines Project Final Environmental Impact Statement, Docket Nos. CP15-17-002 et al., at 1-2 – 1-6 (Dec. 18, 2015) ("FEIS").

[13] *See* Sabin Center Comment at 5.

[14] *See* FEIS at 4-3.

[15] *Sierra Club v. FERC*, 867 F.3d at 1372 (citing *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 770 (2004)).

[16] 16 U.S.C. § 824(b)(1); *see also Hughes v. Talen Energy Mktg., LLC*, 136 S. Ct. 1288, 1292 (2016) (Federal Power Act "places beyond FERC's power, and leaves to the States alone," regulation of the retail sale of electricity as well as "control over in-state 'facilities used for the generation of electric energy.'").

[17] *New York v. FERC*, 535 U.S. 1, 24 (2002).

[18] *NEXUS Gas Transmission, LLC et al.*, 160 FERC ¶ 61,022 at P 143 (2017) ("It is the states . . . not this Commission, that regulate generating facilities. Authorizations related to how markets would meet demands for electricity are not part of the applications before the Commission. Because the proposed projects' purpose is to transport natural gas, and electric generation from renewable energy resources is not a natural gas transportation alternative, it was not

Similarly, the Commission has recognized that it has no responsibility to plan how other energy sources could satisfy a region's needs or to require individual energy users to use different energy sources.[19] Because the Commission has no authority to second-guess the FPSC's decision to meet Florida's future electricity needs by adding gas-fired generation, further analysis of the downstream plants' emissions (including, for example, discussion of GHG emissions associated with alternative ways of meeting the state's electricity demand) would not be helpful to the Commission in making decisions regarding certification of the SMP Project. Moreover, because the Commission lacks jurisdiction over the operation of the power plants in Florida, and therefore cannot require the implementation of mitigation measures to counteract potential impacts from GHG emissions from those plants, no purpose would be served by including this analysis in the draft SEIS.

APL3-3

III. The Commission Need Not, and Reasonably Concluded It Could Not, Analyze the Climate Impacts Proximately Caused by Downstream Emissions.

NEPA requires federal agencies to evaluate the environmental *impacts* of any major federal action significantly affecting the human environment.[20] Specifically, section 102(2)(C) of NEPA requires federal agencies to consider "the environmental impact of the proposed action . . . including any adverse environmental effects which cannot be avoided should the proposal be implemented."[21] The legal standard for when an indirect effect is sufficiently related to the proposed project so as to require consideration under NEPA is akin to the concept of proximate cause under tort law.[22] The Supreme Court has explained that "a 'but for' causal relationship is insufficient [to establish causation for purposes of NEPA]."[23] Thus, "[s]ome effects that are 'caused by' a change in the physical environment in the sense of 'but for' causation," will not fall within NEPA if the causal chain is too attenuated.[24]

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considered in the EIS."); *see also Algonquin Gas Transmission, LLC et al.*, 158 FERC ¶ 61,061 at P 240 (2017) (similarly concluding that the Commission need not consider generation of electricity from renewable or other energy sources because such an evaluation is outside the Commission's jurisdiction).

[19] *Nat'l Fuel Gas Supply Corp. et al.*, 158 FERC ¶ 61,145 at P 105 (2017) ("[T]he Commission does not have the responsibility . . . to plan the way that alternative natural gas projects, other energy sources, or energy conservation could satisfy [a region's] broad economic need. Further, the Commission cannot require individual energy users to use different or specific energy sources. The EA appropriately described the purpose and need to deliver natural gas to markets in the northeastern United States and Canada. The omission of renewable energy or increased energy efficiency, which cannot meet this purpose and need, from the EA's alternatives analysis was reasonable. This discussion also satisfied NEPA."); *see also Dominion Carolina Gas Transmission, LLC*, 158 FERC ¶ 61,126 at P 47 (2017) (recognizing that "the Commission's powers under section 7 are limited" and therefore rejecting the argument that "the Commission . . . should effectively plan the way that alternative natural gas projects, other energy sources, or energy conservation could satisfy" a region's need).

[20] 42 U.S.C. § 4332(2)(C).

[21] *Id.* § 4332(2)(C)(ii).

[22] *See Pub. Citizen*, 541 U.S. at 767 (2004); *Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983).

[23] *Pub. Citizen*, 541 U.S. at 767 (quoting *Metro. Edison Co.*, 460 U.S. at 774).

[24] *Metro. Edison Co.*, 460 U.S. at 774.

APL3-3 Comment noted.

As the Commission reasonably concluded, it is impossible to establish the requisite proximate causation between the specific emissions from burning natural gas that is transported by the Project and potential future climate change impacts. Indeed, CEQ has previously confirmed that "the totality of climate change impacts *is not attributable to any single action,* but exacerbated by a series of actions."[25] Similarly, the Office of the Solicitor at the Department of the Interior also noted that "[i]t is currently beyond the scope of existing science to identify a specific source of CO_2 emissions and designate it as the cause of specific climate impacts at an exact location."[26] That is still the case, and no comments suggest otherwise (nor could they credibly do so). Therefore, the Commission is not required to speculate in order to analyze theoretical world-wide climate impacts of these emissions. Even if the amount of GHG *emissions* from the plants is reasonably foreseeable, global climate change *impacts* resulting from those emissions are not.

This conclusion is reinforced by the absence of any accepted scientific methodology to attribute a particular amount of climate change or specific climate impacts to an individual action being reviewed under NEPA. No standard methodology exists to determine how a proposed project's relatively minute incremental contribution to *global* GHG emissions would translate into physical impacts on the global environment, much less any particular region of the world. Such environmental effects are not reasonably foreseeable with regard to any specific project, and it cannot be said that they are proximately caused by any particular action. A ton of GHG-equivalent emissions released anywhere in the world has the same effect on global climate change as any other ton, and in direct proportion to the total global emissions of GHG-equivalent emissions.[27]

Moreover, where "an agency 'has no ability to prevent a certain effect due to' that agency's 'limited statutory authority over the relevant actions,' then that action 'cannot be considered a legally relevant cause of the effect' for NEPA purposes."[28] As in *Sierra Club v. FERC*, the fact that the Commission here "has no regulatory authority" over the power plants "breaks the NEPA causal chain and absolves the Commission of responsibility to include in its NEPA analysis considerations that it could not act on and for which it cannot be the legally relevant cause."[29]

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[25] Council on Environmental Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews at 11 (Aug. 1, 2016) (emphasis added) (withdrawn pursuant to Executive Order 13783, March 28, 2017).

[26] Memorandum from Office of the Solicitor, Department of Interior to Secretary of the Interior, Re: Guidance on the Applicability of the Endangered Species Act's Consultation Requirements to Proposed Actions Involving the Emission of Greenhouse Gases, Oct. 3, 2008.

[27] *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 422-423 (2011).

[28] *Sierra Club v. FERC*, 827 F.3d 36, 47 (D.C. Cir. 2016) (quoting *Pub. Citizen*, 541 U.S. at 767).

[29] *Id.*

APL3-4

APL3-4 Comment noted.

IV. The Commission Is Not Required to Use the Social Cost of Carbon Tool in Its Analysis.

Contrary to commenters' assertions, the D.C. Circuit did not rule that the Commission's refusal to use the Social Cost of Carbon ("SCC") was arbitrary and capricious.[30] Rather, the court directed the Commission to "explain in the EIS, as an aid to the relevant decisionmakers, whether the position on the SCC that the agency took in *EarthReports* still holds, and why."[31] The Commission has fulfilled this directive. As noted in Sabal Trail's initial comments, the draft SEIS explains why the SCC is not an appropriate tool for use in project-level NEPA reviews.

Specifically, in its draft SEIS, the Commission explains that the SCC tool "is not appropriate for use in any project-level NEPA review" because 1) there is a lack of consensus and wide variability in using the tool; 2) the tool is not designed to measure actual incremental environmental impacts that can be analyzed under NEPA; and 3) there is no established method for determining how the tool's monetized outputs can be considered significant in NEPA reviews.[32] The Commission further explained that, although the "SCC tool may be useful for rulemakings or comparing regulatory alternatives using cost-benefit analyses where the same discount rate is consistently applied . . . it is not appropriate for estimating a specific project's impacts or informing our analysis under NEPA."[33]

As the Commission explained, it is reasonable for an agency to decline to use a tool such as the SCC in a permitting/licensing scenario where the Commission would have no ability to meaningfully evaluate the resulting monetized "cost" of the GHG emissions for a particular permitting or licensing decision. For example, all of the reasonable alternatives identified in the FEIS would result in the same quantity of downstream GHG emissions, because they all provide various means for delivering natural gas to fuel the Florida power plants, and thus result in the same SCC dollar value.[34] Thus, no meaningful comparison can be made between SCC dollar amounts for the various reasonable alternatives that satisfy the SMP Project's purpose and need. Using the tool, therefore, would generate additional paperwork, but would not promote NEPA's goal of informed decision-making.[35]

Further, the Commission does not attempt to monetize other potential environmental impacts in the FEIS, such as other impacts to air, water, wetlands, or other natural resources, nor

[30] *See, e.g.*, Comment of Epifanio Bevilacqua, Accession No. 20171030-0057, Docket Nos. CP15-17-002 et al., at 1 (submitted Oct. 30, 2017).

[31] *Sierra Club v FERC*, 867 F.3d at 1375.

[32] Southeast Market Pipelines Project Draft Supplemental Environmental Impact Statement, Docket Nos. CP15-17-002 et al., at p. 5 (Sep. 27, 2017) ("Draft SEIS").

[33] *Id.*

[34] As explained above in Section II of these comments, FERC correctly concluded the no action alternative here is not a reasonable alternative.

[35] *See, e.g.*, *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189, 200 (D.C. Cir. 2017) ("The purpose of NEPA is not to 'generate excellent paperwork,' but rather to 'foster excellent action' through informed decisionmaking.").

could it possibly do so. Regardless, a full cost-benefit analysis for the Project is not required under NEPA.[36]

Nor is the Commission required to use the SCC tool. Courts have repeatedly upheld agency NEPA analyses that contain similar qualitative and quantitative discussion of greenhouse gas emissions and climate change, without suggesting that NEPA requires use of the SCC tool.[37] Commenters cannot point to a single federal court decision that required an agency to use the SCC tool in order to satisfy its NEPA obligations in a licensing or permitting situation. Instead, in an effort to support their argument that the Commission is required to use the SCC tool, commenters misstate the holdings of three out-of-circuit opinions and broadly assert that "[c]ourts have repeatedly concluded that an EIS must disclose relevant climate effects."[38] But none of the cited opinions includes a directive to use the SCC tool in the manner commenters seek here.

For example, in *High Country Conservation Advocates v. U.S. Forest Service,* a Colorado District Court held that it was arbitrary and capricious for the Forest Service to "quantify the *benefits* of the lease modifications and then explain that a similar analysis of the *costs* was impossible when such an analysis was in fact possible and was included in an earlier draft EIS."[39] The court noted that "NEPA does not require a cost-benefit analysis," but held that the deletion of the quantitative values of the GHG emissions from the proposed action and subsequent insistence that "such an analysis is impossible" was arbitrary in light of the agency's "factually inaccurate justification for why it omitted the social cost of carbon protocol."[40] "In effect," the court observed, "the agency prepared half of a cost-benefit analysis, incorrectly claimed that it was impossible to quantify the costs, and then relied on the anticipated benefits to approve the project."[41] The end result was that "the agencies effectively zeroed out the cost [of greenhouse gas emissions] in its quantitative analysis."[42] This is far from a mandate to use the SCC that commenters suggest. Indeed, the court emphasized that the agency "might have been able to offer

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[36] 40 C.F.R. § 1502.23 (2017); *see also Minisink Residents for Envt'l Pres. v. FERC*, 762 F.3d 97, 112 (D.C. Cir. 2014) ("[T]o the extent Petitioners contend that the Commission should have focused more generally on the monetary costs and benefits of the respective proposals, we disagree that NEPA requires such an approach . . .").

[37] *E.g., WildEarth Guardians v. Bureau of Land Management*, 8 F. Supp. 3d 17, 35-36 (D.D.C. 2014) (upholding NEPA analysis of coal mining approvals where agency quantified expected GHG emissions as a fraction of state and national emissions; expressly rejecting assertion that agency was also required to "analy[ze] . . . the impacts to climate resulting these [GHG] emission levels"); *League of Wilderness Defenders v. Connaughton*, No. 3:12-cv-2271, 2014 WL 6977611 (D. Or. Dec. 9, 2014) (noting existence of SCC tool but upholding agency's "qualitative" discussion of greenhouse gases and climate change, in light of agency's conclusion that "there are a number of different views on the topic and still no clear science").

[38] Comment of The Institute for Policy Integrity et al., Accession No. 20171120-5145, Docket Nos. CP15-17-002 et al., at 3 (submitted Nov. 20, 2017) ("Institute for Policy Integrity Joint Comments).

[39] *High Country Conservation Advocates v. U.S. Forest Service*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) (emphasis added).

[40] *Id.*

[41] *Id.*

[42] *Id.* at 1192.

non-arbitrary reasons why the [SCC] protocol should not have been included in the FEIS."[43] However, the agency "did not provide those reasons in the FEIS." Therefore the court ruled narrowly that "the FEIS's proffered explanation" was not adequate.[44]

Commenters also rely on *Center for Biological Diversity v. National Highway Traffic Safety Administration*, to support their contention that an EIS must disclose relevant climate impacts.[45] This Ninth Circuit case deals with the setting of corporate average fuel economy ("CAFE") standards for light trucks by a different federal agency pursuant to different statutory authority. Although the court found arbitrary and capricious the agency's "decision not to monetize the benefit of carbon emissions reductions," this was in the context of the Energy Policy and Conservation Act, not NEPA.[46] At issue was the Agency's use of a cost-benefit analysis in determining the "maximum feasible" standard for fuel economy. The court ruled that "[e]ven if [the Agency] may use a cost-benefit analysis to determine the 'maximum feasible' fuel economy standard, it cannot put a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards."[47] The portion of the court's opinion addressing NEPA concluded only that the agency had not sufficiently justified its decision to prepare an environmental assessment and finding of no significant impact, and remanded for the agency either to better explain that decision, or to prepare a full environmental impact statement.[48] The court did not rely on the agency's failure to monetize the benefits of reduced carbon emissions in finding that the environmental assessment was deficient. Here, the Commission already prepared a full environmental impact statement (and supplement to the same). And commenters do not, and cannot, argue that a cost-benefit analysis is required under NEPA (or the NGA).

Finally, commenters point to a recent case decided by a District Court in Montana, *Montana Environmental Information Center v. U.S. Office of Surface Mining*.[49] In that case, the court held that it was illogical for the agency to conclude "not that the specific effects of greenhouse gas emissions from the expansion would be too uncertain to predict, but that there would in fact be *no* effects from those emissions, because other coal would be burned in its stead."[50] In particular, the agency had reasoned that even without it taking action to approve additional coal mining, "power plant(s) would obtain coal from alternative sources on the spot market and coal combustion would be comparable to the Proposed Action." The court viewed that

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[43] *Id.* at 1191-93; *see also id.* at 1193 ("the agencies might have justifiable reasons for not using . . . the social cost of carbon protocol to quantify the cost of GHG emissions from the Lease Modifications").

[44] *Id.* at 1191-92.

[45] *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008).

[46] *Id.* at 1203.

[47] *Id.*

[48] *Id.* at 1219-27.

[49] *Montana Environmental Information Center v. U.S. Office of Surface Mining*, No. 15-106-M-DWM, 2017 WL 3480262 (D. Mont. Aug. 14, 2017), *amended in part*, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

[50] *Id.* at *15.

assumption as "illogical" and economically "[i]naccurate."[51] Importantly, this was not a categorical directive from the court to use the SCC tool in all contexts – rather, the court viewed the agency as having improperly placed its "thumb on the scale by inflating the benefits of the action while minimizing its impacts" and by assuming that increasing the supply of coal would not have any effect on the amount of combustion.[52] Here, the Commission calculated the gross and net GHG emissions from the combustion of natural gas at the Florida power plants. Among other things, the Commission carefully considered, based on information in the record, the anticipated reductions in GHG emissions associated with the Project, as older coal-fired power plants are replaced with lower-emitting natural gas plants. The Commission did not rely on the economic assumption criticized in the *Montana Environmental* case. To the contrary, the Commission used a conservative methodology that if anything overestimated the magnitude of downstream GHG emissions. Thus, *Montana Environmental* is inapposite. Moreover, this case fails to address the D.C. Circuit's opinion in *EarthReports*, which upheld the Commission's determination that the SCC is not a useful tool for evaluating a project's impact under NEPA and is controlling on this issue.[53]

Commenters err in asserting that any time an agency's environmental review quantifies any economic benefit (e.g., tax revenue or job creation), NEPA requires monetization of environmental impacts associated with greenhouse gas emissions (and presumably other environmental effects).[54] They also err insofar as they suggest that NEPA requires monetization of "small probability risks."[55] This exclusive focus on monetization would transform NEPA review into cost-benefit analysis for every project that has any kind of economic benefits, which, by their nature, are measured in dollars. Courts have consistently rejected the proposition that NEPA requires cost-benefit analysis.[56] Here, although the FEIS did discuss certain economic benefits associated with the Project, the Commission did not attempt to quantify all benefits from the Project (such as benefits to reliability of the regional pipeline grid) or other environmental costs (e.g., impacts to soils, streams or air emissions). Nor did the Commission purport to conduct a cost-benefit weighing as part of its NEPA analysis, or in concluding that "the project would not

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[51] *Id.*

[52] *Id.*

[53] *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016).

[54] Institute for Policy Integrity Joint Comments at 1, 3.

[55] *Id.* at 13.

[56] *See, e.g., Minisink Residents for Envtl. Pres. & Safety*, 762 F.3d at 112 (citing *Communities Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 687 (D.C. Cir. 2004) for the proposition that "[i]t is undisputed that the FAA was not required to undertake a formal cost-benefit analysis as part of the [environmental impact statement]."); *see also* 40 C.F.R. § 1502.23 ("[T]he weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations").

result in a significant impact on the environment."[57] In these circumstances, NEPA does not require the Commission to monetize downstream greenhouse gas emissions.

The draft SEIS also correctly concludes that the SCC tool "does not measure the actual incremental impacts of a project on the environment" in a manner relevant to NEPA, and thus is not appropriate for use in a project-level NEPA review.[58] Commenters disagree, asserting that the SCC tool "measure[s] the marginal climate damages of individual projects," and that it monetizes "agricultural and forestry impacts, coastal impacts due to sea level rise," and other effects.[59] But the SCC's methodology for estimating damages is far removed from the analysis of specific and often-localized environmental harms undertaken in a project-specific NEPA review. The SCC model estimates the "cost" of greenhouse gas emissions on a global basis, and based on economic assumptions about "income for each impact category." For instance, in an attempt to measure impacts on agriculture, the model uses economic estimates of how aggregate agricultural output may increase or decrease with changes in global temperature.[60] Similarly, the model defines "potential catastrophic outcomes" as "a 25 percent loss of global income indefinitely," and assigns a probability of such outcomes based on a "survey of climate experts."[61] Commenters do not explain why the global, aggregate economic effects reflected in the SCC model are proximately caused by marginal emissions from a particular Project, nor why NEPA would compel the Commission to treat climate effects differently than all other environmental effects encompassed in NEPA. Nor do they explain how the Commission could weigh and consider those effects against the specific and localized environmental effects discussed in the FEIS.

V. The Project Continues to Be Required by the Public Convenience and Necessity.

Commenters erroneously argue that GHG emissions or other environmental impacts should lead the Commission to not re-authorize the Project.[62] To the contrary, NEPA does not impose substantive standards and does not change the underlying substantive provisions governing federal actions subject to NEPA.[63] Thus, although the Commission is required to comply with the

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[57] *Compare* FEIS 5-1, *with High Country Conservation Advocates*, 52 F. Supp. 2d at 1191 (criticizing agency for relying on monetized economic benefits, but declining to monetize costs of greenhouse gas emissions, in approving coal leases).

[58] Draft SEIS at 5.

[59] *See* Institute for Policy Integrity Joint Comments at 12-14.

[60] *E.g.*, Stephen C. Newbold, U.S. EPA, National Center for Environmental Economics, *Summary of the DICE model* at 4-5 (Nov. 2010), https://yosemite.epa.gov/ee/epa/eerm.nsf/vwan/ee-0564-114.pdf/$file/ee-0564-114.pdf.

[61] *Id.* at 5.

[62] *See, e.g.*, WWALS Comment at 3-4; Comment of Janet Barrow, Accession No. 20171121-5021, Docket Nos. CP15-17-002 et al., at 49 (submitted Nov. 20, 2017).

[63] *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989) ("Although these procedures are almost certain to affect the agency's substantive decision, it is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. . . . Other statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed-rather than unwise-agency action."); *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 227 (1980); *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 558 (1978).

procedural requirements imposed by NEPA in an effort to inform its decision-making process, NEPA does not alter the substantive standards of the NGA or other applicable laws, nor does it elevate environmental concerns above all other considerations, as commenters seem to suggest. Under the substantive standards of the NGA, the Project continues to be required by the public convenience and necessity and the Commission should so conclude upon issuance of a final SEIS.[64] As the Commission has determined in this proceeding, "the public convenience and necessity requires approval of Transco's, Sabal Trail's, and Florida Southeast's proposals."[65] The additional information considered in the SEIS does not change this substantive result and further confirms this determination.

The substantial demonstration of need for the SMP Project continues to support a Commission determination that the Project is required by the public convenience and necessity and reissuance of the Project's certificate authorizations. As the Commission has concluded, the Project anchor shippers' long-term firm transportation commitments confirm the substantial need for the Project, which is crucial to providing natural gas supplies to end-users in Florida, a growing and capacity-constrained market with no natural gas storage and minimal gas production.[66] The Project also benefits the southeastern United States by providing increased reliability and supply diversity to the region. Since the Commission's February 2 Order, the Project has only become more integral to meeting the region's electricity needs by providing transportation service necessary for natural-gas fired generation of electricity at already operational Florida Power & Light Company facilities.

The draft SEIS further supports a determination that the Project is required by the public convenience and necessity. The draft SEIS confirms that the SMP Project will allow for retirement of coal plant capacity, and analyzes the potential for these retirements to offset a portion of the downstream GHG emissions attributable to the Project. Upon issuance of a final SEIS, the Commission should reaffirm its finding that the Project serves the public convenience and necessity, to ensure that the Projects continue to serve the public convenience and necessity by providing transportation capacity to meet the energy needs of Florida end users.

VI. Other Comments Are Not Relevant to the Commission's Draft SEIS.

Commenters raise a variety of issues that do not comment on or address the specific topics in the draft SEIS, but instead focus on issues addressed in the FEIS or are beyond the scope of the Commission's NEPA review. As the Commission noted, only issues related to the draft SEIS were accepted during this comment period, "not on the FEIS or the Commission's orders in this proceeding, on which the public has already been provided the opportunity to comment."[67] Because the scope of the D.C. Circuit's remand and the Commission's request for comments was

[64] *Florida Southeast Connection, LLC et al.*, 154 FERC ¶ 61,080 (2016).

[65] *Id.* at P 88.

[66] As explained above in Section II, the relevant Florida agencies have conclusively determined the need for the natural-gas fired power plants that will be served by the SMP Project. Those state law decisions are now settled, and cannot be second guessed by FERC in the guise of a NEPA review of the pipelines.

[67] Draft SEIS at Cover Letter p. 2.

limited, it is unnecessary to respond to issues raised that do not specifically address the draft SEIS's analysis of the Commission's "estimates of the [GHG] emissions generated by the SMP Project's customers' downstream facilities, [] the methodology used to determine those estimates, [the] context for understanding the magnitude of those emissions, and [] the value of using the social cost of carbon tool."[68]

Sincerely,

/s/ P. Martin Teague
P. Martin Teague
Associate General Counsel
Sabal Trail Management, LLC
Operator of Sabal Trail Transmission, LLC

cc: All Parties (CP15-17-000 et al.)

[68] *Id.* at Cover Letter p. 1; *see also Nw. Indiana Telephone Co. v. FCC*, 872 F.2d 465 (D.C. Cir. 1989) (discussing limitations on scope of remand).

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C.

Florida Southeast Connection, LLC	Docket Nos.	CP14-554-002
Transcontinental Gas Pipeline Company, LLC		CP15-16-003
Sabal Trail Transmission, LLC		CP15-17-002

INITIAL COMMENTS OF DUKE ENERGY FLORIDA, LLC IN SUPPORT OF DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

OC1-1

Duke Energy Florida, LLC ("DEF") hereby submits the following initial comments in support of the draft Supplemental Environmental Impact Statement ("SEIS") issued by the Federal Energy Regulatory Commission ("FERC" or the "Commission") on September 27, 2017 in the above-captioned dockets. As is discussed below, the draft SEIS satisfies, in all respects, the issues noted by the Court concerning the Final Environmental Impact Statement ("FEIS") for the Southeast Market Pipelines ("SMP") Projects by the United States Court of Appeals for the D.C. Circuit in its August 22, 2017 Opinion in case number 16-1329.

BACKGROUND

On August 22, 2017, the United States Court of Appeals for the D.C. Circuit issued an opinion granting in pertinent part a petition for review of the certificate orders previously issued for the SMP Projects by FERC on February 2, 2016. Specifically, the court found that:

> [T]he EIS for the Southeast Market Pipelines Project should have either given a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport or explained more specifically why it could not have done so.[1]

[1] *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017).

OC1-1 Comment noted.

The court explained that the two purposes of an EIS are to (i) force the agency to take a "hard look" at the environmental consequences of its actions, and (ii) ensure that these environmental consequences, and the agency's consideration of them, are disclosed to the public.[2] The court explained that quantification could "permit the agency to compare the emissions from this project to emissions from other projects, to total emissions from the state or region, or to regional or national emissions-control goals."[3]

The court also found that FERC, on remand, should explain whether it continues to hold the view that the social cost of carbon tool is not useful for National Environmental Policy Act ("NEPA") analyses of specific natural gas infrastructure projects and, if so, why.

On September 27, 2017, in response to the court's opinion, FERC issued and filed in these proceedings its draft Supplemental Environmental Impact Statement for the SMP Projects. In its cover letter for the filing, FERC states that:

> [t]he draft SEIS estimates the greenhouse gas emissions generated by the SMP Projects' customers' downstream facilities, describes the methodology used to determine these estimates, discusses context for understanding the magnitude of these emissions, and addresses the value of using the social cost of carbon tool.

In the draft SEIS, FERC calculates a maximum potential production of 22.1 million tons of CO_{2e} per year from downstream combustion of the natural gas that will be transported by the SMP Projects and then compares that production to state and national greenhouse gas inventories, while noting that the upper limits of the SMP Projects' contributions to GHG inventories are unlikely to be realized due to the very conservative approach to estimating GHG production used by FERC.

In the draft SEIS, FERC goes on to indicate that it could not find a suitable method to attribute discrete environmental effects to the projected GHG emissions because accepted atmospheric modeling standards are not reasonable for use in project level analysis and

[2] *Id.* at 11.
[3] *Id.* at 24.

existing models do not provide an ability to determine localized, regional, or global impacts from project specific GHG emissions. Finally, the FERC reaffirmed its opinion that the social cost of carbon tool was not appropriate for use in project-level NEPA analyses because (i) the United States Environmental Protection Agency had found that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations" and consequently, significant variation in output can result, (ii) the tool does not measure the actual incremental impacts of a project on the environment; and (iii) there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews.

COMMENTS

OC1-2

In its draft SEIS, the FERC has done exactly what it was directed to do by the D.C. Circuit in *Sierra Club*. It has quantified the greenhouse gas emissions that may result from the downstream consumption of natural gas transported by the SMP Projects, it has compared those emissions against state and national GHG inventories in order to provide context to its calculations, and it has explained (and reaffirmed) its position on the lack of usefulness of the social cost of carbon tool for evaluating project specific impacts of GHG emissions on the environment. As such, the procedural issues noted by the Court of Appeals in the FEIS have been addressed by FERC in the draft SEIS but DEF has several additional comments to make on that document.

1. **The Draft SEIS Correctly States The Potential to Emit of the DEF Citrus County Combined Cycle Plant and the Offset For Retirement of the Crystal River Units 1 and 2.**

OC1-3

In the draft SEIS, at Table 1, FERC calculates the annual potential to emit for the DEF Citrus County Combined Cycle Plant as 5.64 million tons of CO_{2e}. FERC also calculates annual net CO_{2e} emissions savings from the retirement of the Crystal River Units 1 and 2 of 3.87 million tons of CO_{2e}. DEF is the owner and operator of each of these facilities and affirms the accuracy of both of these calculations by FERC, which are derived from Florida Department of

OC1-2 Comment noted.

OC1-3 Comment noted.

Environmental Protection air quality permits applicable to these facilities. DEF also affirms that the reductions in GHG emissions attributable to the Crystal River retirements are linked to the ability to place its Citrus County plant into service.

2. The Draft SEIS Provides a Conservative Upper-Bound Estimate of GHG Emissions From Burning Gas Transported by the Project.

OC1-4

In the draft SEIS, for purposes of calculating downstream GHG emissions, the FERC essentially assumes that the SMP Projects will operate at full capacity every hour of every day and that all of that physical capacity of the Projects will be utilized to transport natural gas for the production of electricity or will otherwise be combusted. While FERC has accurately calculated the 100% capacity potential for GHG emissions from electric generation plants that will be served by the SMP Projects, the scenario upon which FERC's estimates are based is very conservative. Natural gas transportation (as well as electric generation) is a seasonal business with relative peaks in utilization of pipeline capacity, depending on geographic location and customer base, occurring in the winter and summer. As such, the calculation of downstream potential GHG emissions impacts for the SMP Projects based upon maximum physical capacity of the underlying facilities (i.e., the pipeline operating at maximum capacity 24 hours per day, 365 days per year) is a very conservative approach to calculating such emissions. This is not a criticism of FERC's calculations, it is an observation that they are very conservative.

3. FERC Correctly Considered Net Carbon Emissions Associated With Burning Gas Transported by the SMP Projects.

OC1-5

The FERC's calculation of a "gross" upper bound on downstream carbon emissions in the draft SEIS, while accurate, is very conservative because it does not take into account the significant carbon offset benefits that will result from the SMP Projects. For DEF, the utilization of capacity from the SMP Projects, and specifically the Sabal Trail Project, will be used to fuel DEF's new Citrus County Combined Cycle Project. Use of this facility, which has no alternate

OC1-4 Comment noted.

fuel source, will allow DEF to stop using two 1960s era coal plants, Crystal River Units 1 and 2, which are scheduled for decommissioning in 2018. DEF cannot retire those plants until the Citrus County facility is brought online. The Citrus County facility cannot be brought on-line without Sabal Trail capacity available to transport fuel. When brought on-line, the Citrus County facility will eliminate the utilization of the Crystal River 1 and 2 coal-fired generation plants. The elimination of GHG emissions from the Crystal River 1 and 2 plants, in the projected amount of 3.87 million tons of CO_{2e} per year, will be a significant offset to GHG emissions from the lower emitting Citrus County plant fueled by the SMP Projects. Similar offsets for the FPL Martin County plant are also identified in the draft SEIS and support the conclusion that a more realistic estimate of net GHG emissions from burning gas transported in the SMP Projects would be significantly lower than the "gross" upper bound of 22.1 million tons calculated based on full-time utilization of 100% of the Project's capacity.

OC1-6

In conclusion, in the draft SEIS FERC has directly addressed the issues identified by the panel decision of the U.S. Court of Appeals for the D.C. Circuit and has utilized a conservative methodology for estimating potential downstream GHG emissions attributable to the SMP Projects. FERC's calculations with respect to DEF facilities are accurate and correct. As the draft SEIS correctly explains, the likely emissions actually resulting from the SMP Projects will be significantly lower than the gross upper bound estimate contained in FERC's draft SEIS, given the anticipated offset from the decommissioning of existing coal power plants operated by DEF and FPL.

WHEREFORE, DEF hereby respectfully requests that the Commission accept and consider its initial comments in support of the draft SEIS in this proceeding.

OC1-6 Comment noted.

This the 20th day of November, 2017.

Duke Energy Florida, LLC

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