UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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October 26, 2015

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

SUBJECT: Draft Environmental Impact Statement for the Proposed Southeast Market Pipelines Project, FERC Docket Numbers: CP14-554-000, CP15-16-000, and CP15-17-000; ERP No. FRC-E03020-FL-AL-GA; CEQ No. 20150256

Dear Ms. Bose:

The United States Environmental Protection Agency (EPA) has completed its review of the subject Draft Environmental Impact Statement (DEIS) pursuant to the Clean Air Act Section 309 and the National Environmental Policy Act (NEPA) Section 102(2)(C) requirements. The Federal Energy Regulatory Commission (FERC) proposes to license the construction of a total of 685 miles of natural gas transmission pipelines and associated facilities consisting of three separate pipeline projects (i.e., Transco's Hillabee Expansion Project, Sabal Trail and the Florida Southeast Connection). The Sabal Trail project is approximately 515 miles of new pipeline and easements from central Alabama through southwest Georgia to Osceola County, Florida. The proposed pipeline is expected to have potentially significant environmental issues related to drinking water supplies (Floridian aquifer), sensitive geologic formations (Karst), wetlands, conservation areas, environmental justice (EJ) communities, and air quality and greenhouse gas (GHG) emissions. The proposed Sabal Trail project alone will provide up to 1.1 billion cubic feet per day of natural gas to central and northern Florida.

The EPA has consistently expressed concerns over the preferred route through the States of Georgia and Florida to both the FERC and its applicant throughout the FERC's NEPA scoping process. The FERC's environmental analysis in the DEIS is primarily focused on identifying and mitigating impacts to the proposed action associated with proposed project and not avoiding and minimizing impacts to environmentally sensitive areas. The EPA has attached detailed review comments to this letter for the FERC's consideration (See attachment).

The EPA has very significant concerns over the FERC's process and full and objective compliance with the NEPA regulations at 40 CFR Part 1500. The FERC's consultations with the Florida and Georgia Geological Societies, Suwannee River Water Management District, Florida Department of Environmental Protection (FDEP), and the EPA occurred after the FERC accepted the applicant's 2014 application and after it approved the applicant's 2013 request to initiate the FERC's NEPA pre-filing process. Both the application and the pre-filing request contained the applicant's preferred route which became the FERC's preferred route as identified in the DEIS. The FERC/applicant's preferred route is the subject of an enforceable contract between the applicant and Florida Power and Light (FPL) that was signed on June 26, 2013. The

FERC's preferred route is also the subject of FPL's December of 2012 request for proposals. Moreover, the applicant has indicated that the route's alternative analyses is severely constrained by precedent agreements with its main client. From the EPA's understanding, the applicant will potentially suffer 'monetary damages' if it cannot meet its pre-committed contractual deadlines. The EPA believes that these pre-conditions may have affected the FERC's ability to rigorously explore other potentially more environmentally-sound alternatives for portions of the proposed pipeline route.

Based upon the EPA's calculations from different tables and sections of the DEIS, it is projected that the proposed pipelines will directly impact a total of 1,255.1 acres of jurisdictional wetlands covering three (3) U.S. Army Corps of Engineers (ACE) Districts (i.e. Mobile, Jacksonville and Savannah). The DEIS does not fully identify avoidance and minimization measures for the preferred alternative's jurisdictional impacts as required by the Clean Water Act Section 404(b)(1) Guidelines. Furthermore, the FERC's compensatory mitigation plan for unavoidable impacts to jurisdictional waters of the U.S. has not been finalized and the draft mitigation plan was not included in the DEIS.

The proposed project will also directly impact 177.8 acres of numerous conservation areas, including the Green Swamp in Florida. The EPA has substantial environmental concerns with these dedicated conservation areas being permanently converted to a pipeline easement. From the DEIS it appears that it is the FERC's and applicant's intent to let these conservation areas naturalize to pre-construction conditions and that this land use conversion will not be a significant long-term environmental issue. From past experiences with utility easements and required maintenance and access, the EPA does not believe that this proposition is accurate and that there will also be potential long-term impacts to natural resources including water quality and aquatic resources in and adjacent to the easements.

The proposed pipeline is expected by the EPA to have significant impacts to karst areas in the State of Georgia and Florida and represents a potential threat to groundwater (and surface waters) resources. The EPA is requesting that the FERC develop an alternative route to avoid impacts to the Floridan Aquifer and its sensitive and vulnerable karst terrain. The EPA has recently received an emergency petition[1] to designate the entire Floridan Aquifer System as a sole source aquifer pursuant to §1424(e) the Federal Safe Drinking Water Act. This designation is for areas that may have no alternative drinking water source physically and economically available to supply all who depend on the aquifer for drinking water. Moreover, the Florida Geological Survey has delineated a 32-county Springs Protection Area to protect the sole source of drinking water and the source of spring discharge, groundwater from the Floridan Aquifer.

The DEIS did not fully address the December of 2014's *Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts* issued by the President's Council on Environmental Quality (CEQ). As described in the guidance, "*Unlike the 2010 draft guidance, the revised draft guidance applies to* ***all*** *proposed Federal agency actions*". The FERC should comply with the guidance and fully address the requirements in either a supplemental or final NEPA document. The EPA generally supports alternative, cleaner fossil fuels such as natural gas to replace coal-fired and oil-fired power plants. However, considering the potential magnitude of the proposed

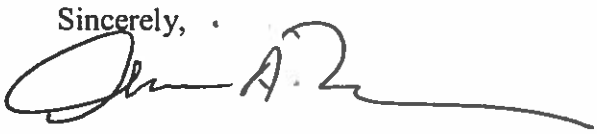
[1] April 28, 2015, emergency petition submitted by the Sierra Club Florida Chapter to the EPA.

project and its resulting greenhouse gas (GHG) emissions, the EPA is requesting that a full life cycle analysis (LCA) be conducted for the proposed pipeline project.

The EPA has rated the DEIS's preferred alternative as 'EO-2', meaning that we have 'environmental objections' to a significant portion of the proposed pipeline route due to the magnitude of the impacts to jurisdictional wetlands and that we are requesting additional information that was not included. As currently proposed in the DEIS, the preferred alternative has the potential to violate the Section 404 requirements of the Clean Water Act. Appropriate and required avoidance and minimization measures to jurisdictional resources have not been documented and the plans to provide compensatory mitigation for unavoidable impacts were not disclosed in the DEIS. Furthermore, the proposed action has the potential to effect the designation of the Floridan Aquifer as a sole source aquifer under the Safe Drinking Water Act. The EPA has substantial environmental concerns that local community water supplies could be adversely impacted in the future. Additional clarification is also being requested for potential impacts to environmental justice (EJ) communities. The analysis performed in the DEIS does not fully inform the public as to the potential direct or indirect impacts to EJ communities resulting from the proposed action.

The EPA has attached its specific recommendations for the FERC's further consideration. The EPA recommends that the FERC re-evaluate its environmental alternatives analysis for routes that avoid environmentally sensitive areas including jurisdictional wetlands, conservation areas, EJ communities and sensitive karst terrain areas prior to proceeding with a final EIS (FEIS). As previously noted, the EPA also requests that the FERC fully investigate compliance with CEQ's guidance on GHG emissions and climate change. For questions regarding EPA's review of the DEIS and the attached detailed comments, please contact Ms. Beth Walls of my staff at walls.beth@epa.gov or 404-562-8309.

Sincerely,



Christopher A. Militscher
Chief, NEPA Program Office
Resource Conservation and Restoration Division

Attachment: EPA's detailed comments

Cc: Karin Leff, Acting Director, NEPA Compliance Division, EPA HQ
Tony Able, Chief, Wetlands Streams Regulatory Section, EPA R4
Fred McManus, Chief, Ground Water and UIC Section, EPA R4
Philip Mancusi-Ungaro, Office of Regional Counsel, EPA R4

Attachment
EPA Detailed Comments on FERC's Draft Environmental Impact Statement for the Proposed Southeast Market Pipelines Project
CEQ No. 20150256, ERP Number FRC-E03020-FL-AL-GA.

BACKGROUND: The proposed action consists of construction and operation of three separate, but related, interstate natural gas transmission pipeline systems: the Hillabee Expansion Project, the Sabal Trail Transmission Project, and the Florida Southeast Connector (FSC) Project. The reason for the proposed action centers on Florida Power & Light Company's (FPL) geographically specific request for proposal to construct and operate a new, onshore natural gas transmission pipeline originating near Transco's Compressor Station 85 in Choctaw County, Alabama, extending through southwest Georgia and central Florida, connecting to a hub in Osceola County, FL, then extending to FPL's existing Martin County, Florida, Clean Energy electric generating plant.

Hillabee Expansion Project: Transcontinental Gas Pipe Line Company, LLC (Transco) proposes to construct and operate 43.5 miles of pipeline loop in eight segments, one new natural gas fired-compressor station, modify three existing compressor stations, and mainline valves, pig launchers and receivers, and the necessary appurtenant facilities. The purpose is to increase the volume of natural gas available to source the proposed Sabal Trail Transmission pipeline. Transco's mainline transports natural gas from the Texas Gulf Coast region to southern New England. Transco is currently implementing improvements to ship natural gas from the Marcellus Shale region of the Mid-Atlantic States back toward the Gulf Coast through its main line. Gas from the Marcellus Shale region can then be exported from liquid natural gas (LNG) facilities on the Gulf Coast. These LNG facilities currently are adding liquefaction capacity to export natural gas in the liquid form to overseas markets. According to the FERC, of the five Gulf Coast LNG Export terminals it has recently approved, four are under construction.[i] And there are 16 additional proposed liquefaction/export terminals for the Gulf Coast.[ii]

Sabal Trail Transmission Project: The Sabal Trail Transmission, LLC, proposes to construct and operate the Sabal Trail Transmission System (STT Project). The STT Project consists of 480.9 miles of 36-inch-diameter mainline pipeline to connect to Transco's main line in Alabama. This pipeline will traverse through southwest Georgia, and Florida. It will require the construction of 5 compressor stations to pump gas through the mainline. These stations will be located in Alabama, Georgia, and Florida. This pipeline system includes the construction of a hub, the Central Florida Hub, and 2 pipeline laterals: 13.1 miles of 36-inch-diameter lateral pipeline, called the Hunters Creek Line, and 21.5 miles of 24-inch-diameter lateral pipeline, called the Citrus County Line, both in Florida. The proposed system will also require the construction of mainline valves, pig launchers and receivers, meter and regulations stations, and other necessary appurtenant facilities.

The Florida Southeast Connector Project: Florida Southeast Connection, LLC, proposes to construct and operate the Florida Southeast Connector (FSC) transmission pipeline system (FSC Project). The FSC Project will transport natural gas from the Central Florida Hub to FPL's

existing natural gas-fired Martin Plant, in Martin County, Florida. To do this, FSC will construct and operate 77.1 miles of 36-inch-diameter pipeline and 49.3 miles of 30-inch-diameter pipeline, and associated infrastructure including mainline valves, 2 pig launchers and receivers, meter and regulating stations in southeast Florida.

AFFECTED ENVIRONMENT: The Floridan Aquifer is one of the most productive aquifers in the world. It provides water for hundreds of thousands of people in small communities and rural areas in addition to large population centers of Florida and Georgia. The Environmental Protection Agency (EPA) has recently received an emergency petition[iii] to designate the Floridan Aquifer System as a sole source aquifer pursuant to the Federal Safe Drinking Water Act (SDWA).[iv]

The Floridan is composed of a thick sequence of soluble limestone, located in a humid, subtropical climate. It contains fracture systems, indicated by linear traces on the land surface, which are associated with concentrated karst features associated with increased water movement and dissolution. It is highly permeable and highly susceptible to land-use associated contamination. Many of its springs exhibit increased nitrogen levels associated with agricultural practices. The preferred route alternative as presented traverses the Floridan Aquifer where it has the highest transmissivities - horizontal groundwater flow rates - greater than 1,000,000 square feet per day.[v] These transmissivities approximate the speed pollutants can move through the aquifer. Additionally, the preferred route traverses areas in both Florida and Georgia where the Floridan aquifer is also unconfined which means it is either exposed to the surface or has a thin cover.[vi]

The Floridan Aquifer's karst landforms also include sinkholes, caves, disappearing streams, springs, extensive underground voids (caves, caverns, and conduits) and drainage systems.[vii] Springs are the surface discharge point for its underground drainage system. Sinkholes can occur in the beds of streams, sometimes taking all of the stream's flow, creating a disappearing stream. Dry caves are parts of karst drainage systems that are above the water table, such as Marianna Caverns. Additionally, the Florian Aquifer contains well-developed underwater, unmapped cavern systems, large enough to be explored by divers, such as the Madison Blue Spring which is still being mapped.

***Floridan Aquifer* - Georgia**

The proposed pipeline route enters the karst-sensitive area of the Floridan Aquifer in southeastern Stewart County, Georgia, 20 miles east of the Alabama border. The pipeline route continues into Georgia within this karst-sensitive area in parts of Webster and Terrell Counties. The applicant identified 235 potential sinkholes over a 126 mile segment within the proposed route corridor through southwest Georgia. Additionally, 17 fracture also traces intersecting the proposed route it in Terrell, Dougherty, Brooks, and Lowdnes Counties.[viii] The Floridan Aquifer is unconfined in the Dougherty Plain where it serves as the primary water supply for southwestern Georgia. The Dougherty Plain's prevalence of karst topography, including sinkholes and springs makes it one of the most sensitive areas in Georgia the proposed action crosses.

At least two known major springs exist in the vicinity of the pipeline: Radium, and Blue (Wade) springs. The proposed pipeline exits the western lobe of the Radium spring shed up-gradient of this spring in Dougherty County at a distance of approximately 2.3 miles. The proposed pipeline's closest approach to this spring is approximately 1.05 miles. The proposed pipeline passes within 0.88 miles of Blue (Wade) spring in Brooks County. Moreover, springs feed most of the Flint River within Dougherty County. Most of these springs are unmapped and located within the river channel. The proposed pipeline will cross both the Flint and Withlacoochee Rivers in Georgia using the HDD technique. The proposed Flint River crossing is in Dougherty County, approximately 1.7 miles southwest and downstream of Radium Spring. And the proposed Withlacoochee River crossing is between Brooks and Lowndes Counties, approximately 0.9 mile northeast and upstream of Blue (Wade) spring. The proposed route crosses the eastern edge of the Dougherty Plain, it then traverses the Solution Escarpment as it passes into Mitchell County. The escarpment's base is characterized by solution features: long, narrow cavities or sinkholes. The proposed route then crosses southeastern Brooks and southwestern Lowndes Counties were the Florian Aquifer's confining units have been eroded, resulting in increased prevalence of sinkholes in this area.

***Floridan Aquifer* - Florida**

Approximately half of Florida has less than 98 feet of overburden soil over a thick limestone platform, with rock outcropping in many areas. The limestone is often weathered or poorly consolidated near the surface. Similar to the Dougherty Plain, the limestone contains fissures and solution channels providing conduits for the vertical flow of surface water into the Floridan Aquifer.[ix] A major Floridan Aquifer feature is the Cody Scarp, which runs from east of the Apalachicola River to Alachua County. It forms the boundary between the Gulf Coastal Lowlands and the Northern Highlands of Florida.

Because numerous sinkholes, sinking streams, siphons, springs, and other karst features extend along the length of the Cody Scarp, this may be the most sensitive area in Florida that the proposed route crosses. Within this Scarp, it is common for smaller individual sinkholes to merge into larger sinkholes, often shallow and irregular in shape. The large size of sinkholes on the Cody Scarp is due to the thick cover over the limestone. Recharge on the Scarp tends to form vertical conduits under large sinkholes and in association with 'swallets', openings through which a stream disappears underground, and siphons, a flooded section of a cave, that capture runoff. According to the FERC, the proposed pipeline will cross the Falmouth/Cathedral cave system near its proposed crossing of Interstate I-90 in Suwannee County (near MP 270.5 A). The proposed pipeline will be approximately 150 feet above the cave.

The Cody Scarp is characterized by sinking streams, springs, and large sinkholes within the Suwannee River Water Management District (SRWMD). With over 300 documented springs, the SRWMD has one of the highest concentrations of freshwater springs in the United States. Of the State's 33 first-magnitude springs (ones flowing at least 100 cubic feet per second, or 64 million gallons a day), 18 are within the SRWMD. According to the SRWMD except for the Suwannee River, every single river that crosses the Cody Scarp goes underground and reemerges downstream as a spring. The entire Santa Fe River at O'Leno State Park is swallowed up by a sink as it crosses the Cody Scarp. The Santa Fe River travels underground through a network of

cave passages for over three miles before re-emerging at a spring in River Rise Preserve State Park.

The proposed pipeline will use the HDD technique to cross both the Suwannee and Santa Fe River within the SRWMD. According to FERC, the proposed pipeline will cross the Cody Escarpment from approximate MP 260 in Madison County to about MP 272R in Gilchrist County. After the proposed route crosses the Suwannee River, enters Suwannee County, it passes near the western boundary of the Ichetucknee Springshed, then crosses the Santa Fe River before entering Gilchrist County. The applicant identified 3,750 known karst and potential karst features within 0.25 mile of the proposed pipeline and 24 fracture traces that intersect it in Hamilton, Madison, Suwannee, Gilchrist, Alachua, and Levy Counties. Another 4 fracture traces were identified intersecting the proposed Citrus County Line.

The proposed action also includes the construction of the Citrus County Line to connect to Duke Energy's new combined-cycle plant, near the existing Crystal River Energy Complex, in Citrus County. The HDD technique will also be used to cross the Withlacoochee River in Florida. The Withlacoochee River forms the boundary between Citrus County and Sumter County, between Citrus County and Marion County and between Citrus County and Levy County, including Lake Rousseau. The Withlacoochee River originates in central Florida's Green Swamp, east of Polk City. The proposed route will cross the Green Swamp in Lake and Polk Counties where there are numerous conservation easements and land use zoning restrictions. The Green Swamp as it has been described as the "*liquid heart of Florida*" and is an approximately 560,000-acre area that acts as the headwaters to four major rivers in Florida, including the Withlacoochee, Hillsborough, Peace, and Ocklawaha Rivers.

Conservation Easements

The proposed route will impact private conservation lands: Warner/Harrell Conservation Easement/Echo Plantation where both HDD and open cut trench methods are proposed. Open cut trench methods are proposed for the Chinquapin Farm Conservation Easement, which the SRWMD is a co-owner; Green Swamp Conservation Easements, which FLDEP is a co-owner, both the Green Swamp Land Authority Land Protection Agreements and the Southwest Florida WMD Green Swamp Conservation Easements, and Jahna Ranch Conservation Easement, co-owned by FLDEP.

Springs

Florida has over 1,000 freshwater springs, including 33 of the 75 first-magnitude springs in the United States. Nearly all of the first-magnitude springs occur in areas where the Floridan Aquifer is unconfined or thinly confined. The Florida Geological Survey identified a 32-county area in northern and northwestern Florida as the Florida Springs Protection Area (SPA). The SPA was developed to assist counties and municipalities in land use planning and resource protection practices relative to springs. In this SPA, the sole source of drinking water and the source of spring discharge is groundwater.[x] Except for the Hunters Creek Line, the entire Sabal Trail Project in Florida occurs within the SPA. The flow system in the upper Floridan Aquifer within a spring shed is likely to be dominated by conduits that may be large enough to be explored by divers. Springsheds that could potentially experience the highest level of effects from the proposed pipeline are Rainbow Springs, Marion County, and Gum Slough in Marion and Sumter

Counties. The proposed route crosses a large portion of the western third of Rainbow Springs' Springshed and within 1.8 miles of Rainbow Springs. It also crosses a significant portion of the Gum Slough Springshed within 1.1 miles of the spring. The FERC states the proposed action will cross 11 mapped 1st and 2nd magnitude springsheds, with the nearest approach of the pipeline facilities to a major spring of 0.7 mile near Gum Spring in Sumter County, FL.

ENVIRONMENTAL IMPACTS: The proposed action will withdraw 188.7 million gallons of water and withdrawals could range as high as 8 millions of gallons per day, or higher. The Hillabee Expansion Project will withdraw 13.7 million gallons of water from seven surface water sources. The Sabal Trail Transmission project will use 146 million gallons of water, including seven surface water sources for hydrostatic testing purposes and eleven surface water sources for HDD purposes. The FSC Project will use 29 million gallons of water for hydrostatic testing and 740,000 gallons for horizontal directional drilling (HDD) purposes.

The proposed action will impact 1,954 wetland systems comprising 1,255.1 acres of wetlands. The Sabal Trail Transmission Project will impact a total of 940.2 acres of wetland would be affected by construction of the SMP Project, including 107.6 acres in Alabama, 134.3 acres in Georgia, and 698.3 acres in Florida. The Hillabee Expansion Project will impact about 82.8 acres of wetlands and the Florida Southeast Connector Project will impact about 232.1 acres of wetlands. The proposed action will also impact 32.8 acres of conservation lands in Georgia. The proposed action will impact 145 acres of conservation easements in Florida, including 96.3 acres in Green Swamp. It will impact 51.3 acres of state forests, 127.9 acres of conservation areas and preserves.

Overland construction could increase turbidity and impact flow at nearby springs. Two springs were identified within 0.5 mile of overland construction areas in karst sensitive areas of Florida, the nearest of which is the A. Wayne Lee Spring approximately 0.2 mile down gradient from MP 411.5 in Sumter County.

According to the FERC, the primary geologic impact that could affect the proposed pipeline and aboveground facilities in karst sensitive areas is the sudden development of a sinkhole that damages the facilities and poses a safety risk. Other subsidence features could develop gradually over time, but would not pose an immediate risk to the proposed facilities. Karst features could be initiated by the physical disturbance associated with trenching, grading, or HDD activity; or by diverting or discharging project-related water into otherwise stable karst features.

EPA RECOMMENDATIONS

Purpose and Need

The EPA recommends that the FERC clarify the inconsistencies in its expressed purpose and need. Two separate, independent purpose and needs are identified. In Chapter 1 of the DEIS, the FERC narrowly defined the purpose and need to a geographic area as specified in Sabal Trail Transmission, LLC,'s 2013 contract with FPL. In Chapter 4, the proposed action's purpose is '*to transport price competitive natural gas from AL to FL*'. The two statements are not the same. The FERC indicates that the FPL expressed the need to satisfy its future natural gas requirements

while increasing the reliability and diversity of its natural gas infrastructure.[xi] According to the Council on Environmental Quality (CEQ), the purpose and need provides the framework in which reasonable alternatives to the proposed action will be identified.[xii] Consequently, the EPA recommends the purpose and need statement more closely reflect the FERC's mission, '*assist consumers in obtaining reliable, efficient and sustainable energy services at a reasonable cost through appropriate regulatory and market means* '[xiii] and the FPL's need for future, reliable and diverse sources of natural gas supplies.

The EPA recommends that the FERC's purpose and need be consistent with NEPA. According to the CEQ, the EIS is to serve as a means of assessing environmental impacts rather than justifying decisions already made. The statement of purpose and need and the resulting alternatives impacts analysis appear to be justifying decisions made prior to implementing the NEPA process. There are three reasons for this appearance: First in this 2015 DEIS, the FERC defined a purpose and need so geographically narrow it must pick the preferred alternative, or some minor variant thereof. In November of 2014, the FERC accepted a §7(c) application where the FERC's purpose and need is the subject of an enforceable contract between the FERC's applicant and FPL, signed June 26, 2013. The FERC issued a letter order on November 16, 2013, approving the applicant's narrowly defined geographic purpose contained in its November 4, 2013, request for approval to initiate the FERC's NEPA Pre-filing Process.[xiv] The CEQ's NEPA regulations prohibit agencies from committing resources prejudicing selection of alternatives prior to its final decision (i.e., 40 CFR 1502.2(f)). No Agency action can be taken that limits the choice of reasonable alternatives. According to the CEQ, when a lead agency becomes aware an applicant is about to take an action that would limit the choice of reasonable alternatives, the Federal agency must notify the applicant it will take strong affirmative steps to insure NEPA's objectives and procedures are fulfilled (i.e., 40 CFR Section 1506.1(b)). The CEQ's example: *"the agency might advise an applicant that if it takes such action the agency will not process its application"*.[xv] Furthermore, in its status as a cooperating agency, the EPA specifically raised this issue to the FERC and referenced 40 CFR sections 1502.2(f) and 1506.1, in an email dated August 19, 2014.

Second, the proposed 'preferred' route is highly controversial as evidenced by numerous citizen, business, and resource agency concerns filed in the FERC's administrative record since the FERC's 2013 letter order approving the applicant's NEPA Pre-Filing Process request. In response to these concerns, the applicant has communicated to the FERC that their 'preferred' route alternative is severely constrained by precedent agreements with its main client. Specifically, the applicant will suffer damages if it cannot meet its pre-committed contractual deadlines. Deadlines committed to in June of 2013 prior to initiating the FERC's NEPA pre-filing process in November, 2013. For example, in rejecting the Florida Gas Transmission Onshore Route Alternative, the applicant stated:

> *"The Project's proposed scheduled in-service date is May 1, 2017. The FGT Alternative's in-service date would be in August 2018. The in-service date delay is due to several factors including a complete reengineering of the Project facilities; new stakeholder and landowner outreach; initiation of new federal, state, and local consultation; additional field surveys; additional public open houses and scoping meetings; and a rework of the current resource reports and application filings. Sabal Trail has executed precedent agreements with FPL and DEF for the majority of the Project's capacity. These customer*

are depending upon Sabal Trail to provide incremental natural gas transmission services beginning in 2017 in order for them to meet their increasing electric generation demands. Use of the FGT Alternative as Sabal Trail's preferred route would greatly jeopardize FPL's ability to meet its power generation needs starting in early 2017 and DEF's ability to rely upon the Sabal Trail pipeline to meet its power generation needs starting in late 2017".[xvi]

The applicant used the same rationale to reject the FERC's *Gulf of Mexico Route Alternative (MP 0.0 to MP 384.0)*[xvii] and alternative fuel-supply alternatives.[xviii] The EPA's concern is the FERC's acceptance of §7(c) applications from applicants having previously entered into earlier contracts narrowly defining the purpose and need with damages clauses prior to the FERC's NEPA process initiation. The EPA believes that these pre-DEIS activities will potentially be inconsistent with the NEPA requirements and will ultimately limit the choice of reasonable alternatives.

Third, real-estate contracts were entered into and land purchased during the FERC's scoping period to locate the proposed action's infrastructure along the FERC's three-state preferred route.[xix] Again, the EPA recommends the purpose and need statement more closely reflect the FERC's mission as stated above.

Alternatives Analysis

The EPA recommends that the FERC consider the appropriate regulatory requirements in identifying an alternative in compliance with existing environmental law, including CWA § 404(b)(1) Guidelines (the Mitigation Rule), the USACE Public Interest regulations,[xx] and the Safe Drinking Water Act's Source Water Protection Program. The alternatives analysis is the heart of the NEPA environmental impacts analysis (i.e., 40 CFR Part 1502.14). The EPA strongly encourages the FERC to select the least environmentally damaging practicable alternative (LEDPA) pursuant to the Clean Water Act (CWA) section 404(b)(1) Guidelines (and the Mitigation Rule, 40 CFR Part 230). The Mitigation Rule requires the US Army Corps of Engineers (USACE) to consider whether the proposed project represents the LEDPA. The CWA tasks EPA with oversight of USACE's CWA 404 permit decisions.[xxi] The USACE and EPA follow the Mitigation Rule's defined process prior to the issuance of a 404 permit.[xxii] This Rule requires a sequential, four step consideration. The first step requires the applicant to rebut the Mitigation Rule's presumption of the existence of a LEDPA (i.e., 40 CFR 230.10(a).[xxiii]). The EPA recommends that the FERC compare each alternative's ability to address the USACE's public interest review requirements regarding wetlands. The USACE states its policy finding that "[m]*ost wetlands constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest".*[xxiv]

The EPA recommends that the FERC address and compare each alternative's ability to address the USACE's public interest review requirements regarding water supply and conservation. The USACE states its policy finding that "[w]*ater is an essential resource, basic to human survival, economic growth, and the natural environment. Actions affecting water quantities are subject to Congressional policy as stated in section 101(g) of the Clean Water Act which provides that the authority of states to allocate water quantities shall not be superseded, abrogated, or otherwise impaired".*[xxv] The EPA recommends that the FERC avoid the identified sensitive areas of the Floridan Aquifer. Because part of the project's preferred route appears to be pre-decided, the

EPA recommends greater use of geotechnical and geophysical investigations for the proposed route, HDD crossings, and aboveground facilities. The Federal Source Water Protection Program is a volunteer, not regulatory program to avoid placing undue financial constraints on rural and small communities. The EPA's role is to work with state and tribal agencies, non-governmental agencies, and citizen groups to encourage partnerships and provide information for carrying out source water protection actions. The Federal Source Water Protection Program includes the Sole Source Aquifer Program and Source Water Assessments, which include defining wellhead protection areas for drinking water wells.[xxvi] Additionally, the FSG has provided local governments with its SPA analysis to further assist local communities with protection of their major source of water supply. It identified a 32-county SPA area. The entire Sabal Trail Transmission pipeline crosses this SPA.

The EPA recommends that the FERC evaluate and compare each alternative with respect to the number and type of pipeline crossings due to the significant implications to public safety and the Floridan Aquifer's vulnerability. As part of this analysis, the associated potential impacts should also be compared. The FERC indicates there are multiple locations where the proposed action will cross, be located in close proximity to, or parallel the Florida Gas Transmission (FGT) system. The FERC also indicates there are multiple FGT crossings of the Suwannee and Santa Fe Rivers. Given the FERC's preference for pipeline collocation, it is unclear how many of the proposed pipeline's river crossings are collocated with FGT. The FERC has identified a HDD crossing for both the Suwannee and Santa Fe Rivers but has not indicated if the proposed action will be collocated with the FGT at these crossings. The FERC indicates that the proposed action will be collocated with the Dixie liquid propane line. According to Southern Natural Gas (SNG), each proposed pipeline crossing of an existing pipeline poses a risk, both during crossing construction and during operation and maintenance of both pipelines.[xxvii] This risk is heightened by the fact that SNG's pipeline (referred to as SONAT in the DEIS) must remain in service during the proposed action's construction. Each time the applicant cuts or bores under the SNG pipeline, it increases the risk of compromising SNG's pipeline integrity. Disturbing the soil around and under SNG's pipeline during the proposed pipeline's construction creates a potential for the soil around the SNG pipeline to become de-stabilized. This can potentially lead to undue stresses on its pipeline which could result in future pipeline failure. Moreover, the creation of undue stresses on the crossed SNG pipeline segment is exacerbated when the crossing is accomplished by using the applicant's proposed, cheaper, open-cut trench method. The proposed crossings, according to SNG, complicate the cathodic-protection systems of both pipelines, increasing the difficulty to ensure both pipelines are adequately protected from corrosion. Additionally, SNG has stated in its letters to the FERC that pipeline crossings, particularly when the pipelines are running in parallel, complicate routine operation and maintenance activities such as line locating, leak surveying, and management of encroachments because the orientation of the pipelines changes from location to location.[xxviii] Furthermore, the SNG recommended that crossings should be avoided wherever possible in order to avoid unnecessary and additional risk.

The EPA is concerned with the existence of Dixie Pipelines natural gas liquids (propane) and the SNG's pipelines in the vicinity of the proposed action, a municipal wellfield pumping ground water from the Floridan Aquifer that is not far from the Flint River. The EPA is concerned over whether the proposed action could lead to all three pipelines failing either during the proposed action's construction or operational lifetime. The EPA notes the causes of pipeline incidents fall

into several broad categories based on how the Pipeline and Hazardous Materials Safety Administration (PHMSA) collects incident data from pipeline operators. The predominant PHMSA-defined causes of pipeline failures are corrosion, material/weld failures, and excavation damage. According to the PHMSA, over 50% of the nation's pipelines were constructed in the 1950's and 1960's during the creation of the interstate pipeline network built in response to the huge demand for energy in the thriving post-World War II economy. Both SNG and Dixie Pipeline likely may have been pipeline projects constructed during that era before many of the nation's environmental protection laws were passed including FERC's NEPA responsibilities and the PHMSA's existence. Moreover, according to the PHMSA, gaps exist in its understanding of the risk associated with the nation's existing pipeline infrastructure.[xxix] Consequently, the EPA recommends that the FERC consider selecting a route alternative for the proposed action that minimizes the number of pipeline crossings. The proposed action's right-of-way represents a future pipeline site per the FERC's right-of-way pipeline collocation policy.

The EPA recommends that the FERC provide a more rigorous review of its No Action alternatives analysis. The CEQ requires an agency to "*rigorously explore and objectively evaluate all reasonable alternatives*" and "*to devote substantial treatment to each alternative*" (i.e., 40 C.F.R. §1502.14(a) & (b)). The FERC does not consider the possibilities that the No Action alternative could facilitate a new mode of natural gas transmission, e.g., LNG export/import, to compete with the existing natural-gas transmission, the two existing pipeline systems: Florida Gas Transmission's pipelines and the Gulfstream Pipeline. TRANSCO is upgrading its mainline in order to ship Marcellus Shale-sourced gas to the Gulf Coast where LNG facilities are upgrading their capacities to export this natural gas overseas to markets where natural gas can sell at higher prices. The FERC has recently approved five (5) Gulf Coast LNG Export terminals.[xxx] Reportedly, four (4) facilities are under construction. And 16 more are proposed for the Gulf Coast.[xxxi] Furthermore, in Florida off its west coast, the Pt. Dolphin LNG Import project has already secured approval from the applicable Federal agencies, including FERC, and the conversion has been vetted through the NEPA process. The FERC has not clearly made the case for the transmission of natural gas by pipeline being superior to transport by LNG vessels.

The LNG Import/Export mode of natural gas transmission can also meet FPL's request for reliable, cost competitive natural gas. Unlike the proposed action, the LNG alternative also meets FPL's request for a natural gas transmission system geographically separate from the existing natural gas transmission lines currently serving Florida. Because the proposed action proposes to collocate with existing natural-gas transmission lines, it cannot be considered geographically separate.

In the DEIS No Action analysis, the FERC also appears to assume the only source of natural gas available to FPL is a connection point to TRANSCO's mainline in Alabama. The LNG alternative gives FPL access to foreign natural gas supplies. These supplies can compete with US mainland-sourced natural gas supplies. Contrary to the FERC's conclusion, the No Action alternative does not guarantee FPL cannot obtain reliable and diverse natural gas supplies. Moreover, the No Action alternative may realize less impacts to CWA-protected waters, wetlands-protection conservation easements, the proposed SDWA sole-source aquifer designate – the Floridan Aquifer, the FGS's SPA, public's source waters, and environmental justice (EJ)

communities. Furthermore, the No Action alternative may realize both the FERC's mission and the FPL's need for future, reliable and diverse sources of natural gas supplies.

The EPA recommends that the FERC provide its economic analysis used to support its dismissal of this alternative as '*economically impractical*'. The CEQ regulations at 40 C.F.R. §1502.24 require agencies, "*to identify any methodologies used and ... make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement*" (EIS). The FERC states in the DEIS: "*...we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical*". Both the FERC's terms *cost* and *economically impracticable* suggest a quantitative analysis determined the cost and evaluated the economic practicability. The EPA recommends that the FERC provide its quantitative analysis to support its conclusion: "*the cost of constructing two LNG terminals, operating LNG ship carriers, and constructing the necessary natural gas pipeline, would make this system economically impractical*".

The EPA recommends that the FERC provide a more rigorous review of its LNG Import alternative consistent with 40 C.F.R. §§1502.14(a) & (b) as discussed above in the '*No Action Alternative*' comments. The EPA recommends that the FERC explain this alternative's economic impracticability in context of its recent LNG export terminal approvals and their construction, and the information provided to the FERC by Port Dolphin Energy LLC. According to the FERC, four of the five Gulf Coast LNG Export terminals it has approved are currently under construction and it anticipates the approval of 16 more for the Gulf Coast.[xxxii]
In Port Dolphin Energy LLC's Request (October 17, 2014) to Extend FERC Certificate and Project In-Service Date, it stated that the cost of constructing Port Dolphin would be less than a major new pipeline system from the northern part of Florida to the central and southern parts of the State. Port Dolphin Energy also indicated it can add significant storage facility/capacity, which the proposed action does not and which the State lacks. It stated it can provide *invaluable supply flexibility*, a benefit to Florida consumers. It also stated it can meet the State of Florida's increasing need for additional gas supply by providing natural gas from the same mainland sources that the proposed action proposes to access. Port Dolphin Energy indicates an added benefit to its LNG facility is its ability to provide FPL access to international natural gas resources. It offers a new source of gas transportation to compete with existing pipelines. Lastly, this facility has already been vetted through a joint agency (the FERC and United States Maritime Administration) NEPA process and received these agencies' approval. Consequently, the FERC should clearly explain why it considers this alternative to be economically impractical. According to the CEQ, NEPA was enacted to promote efforts to prevent or eliminate damage to the human environment.[xxxiii] (i.e., 42 U.S.C. §4321). This LNG Import Alternative would prevent the environmental impacts associated with the proposed action, particularly the karst sensitive areas of the Floridan Aquifer System in southwest Georgia and northcentral Florida.

The EPA recommends that the FERC appropriately characterize environmental impacts to lands, forests, and wetlands. The FERC currently uses a potentially meaningless evaluation of acres impacts for comparing the alternatives. The FERC states it includes acreages impacts in its factors determinative of whether an alternative is preferable to the proposed action. However, the FERC does not differentiate the type of land, forests, and wetlands acres being impacted. For example, the FERC describes the FGT Onshore Route Alternative as requiring an additional

1,024.3 acres of land for construction and affecting 386.7 more acres of forest and 521.9 more acres of wetland than the proposed route. The FERC does differentiate real estate or timber lands from lands and wetlands that may have special protected designations or recreational value. The applicant identified the FGT alternative to cross the Robert Brent Wildlife Management Area (WMA) in Liberty County. However, this WMA no longer exists because the land owner, a real estate/land development company, St. Joe Corp., withdrew its land out of the State's WMA system for financial reasons. Similarly, the applicant identified the FGT alternative as crossing the San Pedro Bay Area, FL, containing numerous wetlands, extreme saturated soil conditions, and limited upland areas. This area coincides with the former 17,872-acre San Pedro Bay WMA, which no longer exists because Foley Timber and Land Company withdrew its lands from the State's WMA system. The EPA strongly recommends that the FERC require the development of a comparative metric to make this a meaningful metric in its alternatives analysis.

The EPA recommends that the FERC appropriately characterize environmental impacts to EJ communities. The FERC has not clearly identified its EJ metrics. Continuing with the FGT alternative as an example, the FERC indicates this alternative crosses 65.0 miles more of areas classified as EJ communities. The FERC does not define its term *classified as environmental justice communities* in demographic terms to sufficiently compare EJ impacts. Moreover, '*miles of EJ communities*' is not a particularly informative metric for EJ impacts. Direct and indirect impacts to EJ communities' drinking water supplies, residences, neighborhoods, infrastructure, etc., is a meaningful and informative metric. The FERC states in the DEIS that it includes *miles of EJ communities* in its factors determinative of whether an alternative is preferable to the proposed action. The EPA strongly recommends that the FERC develop a comparative metric to make this a meaningful metric in its alternatives analysis. The affected EJ community in Dougherty County has clearly identified for the FERC the potential impacts to them associated by the proposed project. However, the FERC has not clearly defined environmental justice impacts for the alternatives evaluated, including the rest of the proposed action. The FERC should provide a copy of its EJ-analysis results to support its alternatives conclusions. Executive Order 12898 directs all Federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.[xxxiv] The order also directs each agency to develop a strategy for implementing environmental justice. The order is intended to promote nondiscrimination in Federal programs that affect human health and the environment and provide minority and low-income communities' access to public information and public participation. In its EJ analysis, the FERC should determine the extent of collocation impacts on identified EJ populations. All of the FERC's pipeline projects are designed to be collocated with existing pipelines and utility rights-of-way to the greatest extent practical. However, the FERC does not identify the extent EJ populations are burdened with multiple pipelines, increasing their potential exposure risk. There may be cases where the collocation of natural gas pipelines with existing rights-of-way may maximize impacts to both the EJ populations and sensitive environments.

The EPA recommends that the FERC appropriately characterize environmental impacts to karst features. Continuing with the FGT alternative as an example, the FERC indicates this alternative crosses 57.9 miles more of karst features. The FERC states it includes '*miles of karst features*' crossings in its factors determinative of whether an alternative is preferable to the proposed

action. '*Karst features*' as used in the DEIS appears to be a meaningless metric. There are insignificance and significant karst features, and protected karst features, e.g., FGS' SPA. The EPA recommends that the FERC develop a comparative metric to make this a meaningful metric in its alternatives analysis. For clarification purposes, the EPA has repeatedly expressed concern for impacts to the Floridan Aquifer, a source water for community and private water supplies and surface-water bodies, particularly in drought periods, contained within vulnerable karst terrain. The EPA has not expressed concern for the number of karst features impacted. The FERC's *miles of karst features* does not capture the potential magnitude and intensity of impacts to the Floridan Aquifer.

The EPA recommends that the FERC appropriately characterize environmental impacts to special interest or recreational areas and develop a meaningful metric that can be applied to alternatives as part of the FERC comparative alternatives analysis. Continuing with the FGT alternative as an example, the FERC indicates this alternative crosses *115.4 miles more of special interest or recreational areas.* The FERC states it includes miles of *special interest or recreational areas* crossings in its factors determinative of whether an alternative is preferable to the proposed action. The EPA recommends that the FERC develop a comparative metric to make this a meaningful metric in its alternatives analysis.

Environmental Impacts

The EPA recommends that the FERC have a karst risk assessment be prepared by an independent party with no financial interest in its outcome for the proposed route located within the Dougherty Plain, Cody Escarpment, and the Florida Geological Survey (FGS)-identified Florida Springs Protection Areas (SPAs).[xxxv] As acknowledged by the FERC, the Dougherty Plain and the Cody Scarp are the most sensitive areas in Florida and Georgia the proposed route traverses. The EPA further recommends this karst risk assessment be subjected to appropriate peer review by the relevant Federal and state geological surveys, and include the Suwannee Water Management District. The EPA is concerned that the FERC's risk assessment is insufficiently rigorous given the significance of the Floridan Aquifer and the FGS-identified SPAs. This significance is evidenced by the EPA's receipt of an emergency petition to designate the entire Floridan Aquifer as a Sole Source Aquifer pursuant to the Federal Safe Drinking Water Act.[xxxvi] The FGS-identified SPAs define areas where groundwater is the sole source of drinking water and the source of spring discharge for the area.

The FERC's sinkhole risk assessment is based upon ***known*** historical occurrence of sinkholes and the results of limited geotechnical and geophysical assessments. It assesses the relative risk for sinkhole development. The FERC defined a *low risk* setting as where historical occurrences may have been reported or documented, but it is unlikely for a sinkhole to develop at the site of the proposed action. The FERC defined a *medium risk* setting based on whether historical occurrences of sinkholes are well documented in the area and conditions favorable to sinkhole development are believed to be present. And the FERC defined a *high risk* setting where historical occurrences are common and frequent and conditions favorable to development are present and well documented. The FERC's risk assessment as presented in the DEIS assumes some entity has investigated, researched, and documented all karst features within the study area. The EPA does not believe that this assumption is invalid as explained below. Moreover, the

FERC does not define *relative risk*. It does not inform how relative risk is meaningful to an environmental impacts analysis to the Floridan Aquifer or any of the rivers impacted by the proposed action.

The EPA is concerned over the scientific basis for the FERC's sinkhole risk assessment. The FERC has not clearly demonstrated how it, or its applicant, can predict the unlikelihood for sinkhole development in an area recognized as vulnerable to sinkhole development. Because of its geomorphology and high precipitation, sinkhole activity in Florida is pervasive and nearly random.[xxxvii] The FERC may elect to defer to its applicant's experience and best professional judgement. However, this experience and judgement appears inconsistent with a third party that has independent expertise. The Florida Division of Emergency Management ranked Hamilton, Suwannee, and Gilchrist counties with high sinkhole hazard rankings.[xxxviii] And the FGS has determined there are many unresolved scientific questions regarding sinkholes, such as where do sinkholes occur? How can they be predicted? What are their triggers? Is there a correlation between hydrologic conditions and sinkhole occurrences? What technologies or tools are available to begin to address these concerns?[xxxix] Moreover, sinkholes may occur catastrophically and instantaneously, or on a sustained basis as in imperceptibly overnight, over weeks, a season, over years, or over dozens of years. Furthermore, the FERC acknowledges in the DEIS that karst features could be initiated by the physical disturbance associated with trenching, grading, or HDD activity; or by diverting or discharging project-related water into otherwise stable karst features. According to FSG, instances of subsurface solution activity cannot be quantified with some threshold of depth, distance, and magnitude in order to qualify as a possible source of distress at the surface.[xl] If FSG cannot answer these questions or quantify subsurface solution activity, the EPA questions the FERC's and applicant's ability to do a sinkhole risk assessment to inform the proposed route alternatives and identify environmental impacts and mitigation.

According to the FERC, karst features within 0.25 mile of the Sabal Trail Project were identified using aerial photographs, topographic maps, potentiometric surface and water table maps, light detecting and ranging data (LiDAR), field surveys, various resources depicting mapped cave systems, and publicly available databases from state and local agencies. The FERC has not demonstrated the appropriateness of limiting the karst assessment to within 0.25 miles of the proposed action. The aerial photography was limited to the major fracture trace analysis. The tree cover and other land uses depicted in the aerial photography may limit the value of this aerial photography. The FERC does not specify in the DEIS where and why the light detecting and ranging data (LiDAR) was done.

Regarding publicly available databases from state and local agencies, the FERC acknowledges that the State of Georgia has not developed a closed depressional feature data base using topographic elevation data to identify potential sinkhole features, which Florida has done. Spring and springshed location databases do not currently exist for Georgia. Data pertaining to the location and magnitude of springs and the extent of their springsheds is minimal. Georgia has not mapped the locations of existing sinkholes in the State. The FERC has made no claim to field work that maps all existing sinkholes along the pipeline route within either State. Instead, the FERC used 'Topo map's to identify karst features suggestive of karst activity in the vicinity of a predetermined route. In Georgia, the available topographic maps may be dated 1956 and 1973,

and photographically revised in 1988. This is very old data and cannot be lied upon to make a proper assessment.

For Florida, the FERC supplements these topographic maps with FSG's data of known closed topographic depressions, sinkholes, and springs. As the FERC is aware, the existence of known closed topographic depressions, sinkholes, and springs does not preclude the existence of the unknown that may have a nexus with the documented features or the proposed route. Moreover, the FGS has a disclaimer regarding the use of its location data of known and mapped karst features. The FGS states: "*Geographic Information Systems (GIS) data and maps produced by the Florida Geological Survey (FGS)... are provided solely as a general reference for state geologic features, are not warranted for any other use or purpose, and are not intended to replace site-specific or use-specific investigations*".[xli] The applicant's investigations are triggered by the known features on dated maps and public data provided with general reference limitations. The applicant has not indicated any field investigations to determine any previously unknown but potentially significant karst features along the entirety of the proposed route. The applicant is using FSG's information to develop a sinkhole risk assessment to target site-specific investigations.

The EPA recommends that the FERC's pipeline siting be informed by informed by the appropriate information. The number of identified karst features requiring further investigation is remarkably low considering most of the proposed action crosses the Floridan Aquifer and its vulnerable karst areas. For example, the applicant identified 235 potential sinkholes and 17 fracture traces over a 126 mile segment within the proposed route corridor through the Dougherty Plain in southwest Georgia. Only two areas were subject to geophysical and geotechnical investigation. One area is a closed circular depression identified just west of the proposed route (Milepost 148.7). Because the geophysical/geotechnical results were still pending at the time of the DEIS issuance, its risk ranking is pending. The other is where the proposed route parallels the Albany Municipal Well field where sinkholes have been documented (Milepost 159.8 - 161.3).

The applicant-defined the ***karst sensitive areas*** in Florida as a 32.2 mile segment (Mile Posts 244.7 – 276.9) of the proposed Sabal Trail Transmission route. The EPA believes that a larger segment pipeline may actually cross Florida's most karst sensitive areas. Within the corridor of this 32.2 mile segment, the applicant identified approximately 268 closed depressional features (potential sinkholes), presumably by topographic maps and FGS's GIS data of known features/incidences. Only one of these 268 features were subject to geophysical and geotechnical investigation. This feature is a closed circular depression identified west of the proposed alignment (Milepost 260.5) in an existing power line easement in Hamilton County. The geophysical investigation identified two anomalies and the geotechnical investigation results were not available for the DEIS. Of the 3,750 karst and potential karst features, including 29 fracture traces, over the entire proposed Sabal Trail Transmission pipeline within Florida, only 9 areas were subject to geophysical and geotechnical investigation. Of the 650 karst and potential karst features identified over the 126-mile Florida Southeast Connector proposed route (MP 0 – 126.3), none were subject to geophysical and geotechnical investigation. Moreover, none of these features appear to have been evaluated by the applicant's sink-hole risk assessment.

A questionable sinkhole risk assessment was used to identify karst features needing further investigation to inform pipeline design and construction to minimize impacts to the proposed action. It was not used to identify and avoid and/or minimize environmental impacts. In Gilchrist County (Milepost 335.3) several small circular depressions, approximately 10- 15 ft. in diameter, were identified in the vicinity of the proposed alignment. The geophysical investigation identified three anomalies. The geotechnical investigation found zones of soft limestone material where loss of drilling fluid was observed at or near the limestone interface. This was noted as a common occurrence in North Florida: "*The relative density of the upper sands generally increased with depth and at least 10-15 feet of clay materials were encountered above the limestone formation which*, was stated, ***reduces the potential for sinkhole development"***. This finding is in stark contrast to the DEIS Appendix H's statement: *"The large sizes of sinkholes in the Cody Scarp are a result of thick cover over the limestone"*. Moreover, Gilchrist County was ranked by the Florida Division of Emergency Management with a high sinkhole hazard ranking. Sinkhole mitigation was determined by the FERC to be unnecessary and the pipeline route was not changed despite contradictory information.

The EPA recommends that the FERC discuss the potential environmental impacts associated with remediation of sinkhole risks associated with the proposed action's construction. This should be done after a closer scrutiny of the proposed route for karst features that does not rely on outdated maps and State databases. The FERC should identify the frequency and intensity of the sinkhole risk remediation needed for the pipeline's integrity and select a route that avoids and or minimizes needed sinkhole remediation activities.

The proposed route parallels the Albany Municipal Well field where sinkholes have been documented. According to the applicant, "*the overall area is believed to have a medium or moderate* [sinkhole] *risk based on the adjacent land use* [the well field pumping]. *In* [the] *unlikely event, sinkhole occurs on pipeline route, the area should be stabilized by backfilling. ... The City of Albany should be solicited regarding proposed remediation methods due to the potential for negatively impacting the production of the well-field from such methods as grouting"*. Consequently, the sinkhole risk to the pipeline is presented in the DEIS as being acceptable. The population dependent upon the affect water supply bears the impact risk and the expense of remediation should the *unlikely* sinkhole occur and not the FERC's applicant.

In Levy County, a line of several small circular depressions, generally 3 to 4 feet in diameter and 2 to 3 feet in depth, were identified in vicinity of pipeline (Milepost 363.8). The geophysical investigation identified three anomalies. The geotechnical investigation observed losses of drilling fluid at limestone interface in borings at central and northern anomalous areas. This area was ranked as a *high sinkhole* risk, but due to the depth, type and relatively small diameter of sinkholes did not pose a threat to pipeline, **if remediated**. "*Depressions that have occurred or that may occur should be backfilled with compacted sand. Compaction grouting could be conducted in area of pipeline to further reduce sinkhole potential"*. In Lake County, a circular depression was identified on the proposed alignment along with ponds located north and south. The geophysical investigation identified an anomaly. The geotechnical investigation observed 75 feet of very soft or very loose soil conditions including weight of rod were encountered. Significant losses of drilling fluid were noted throughout completion of the boring including a complete loss of drilling fluids at a depth of approximately 102 feet. The open trenching

construction was not expected to trigger sinkhole development. However, it was recommended that storm water and dewatering discharge be diverted from the area during construction activities and hydraulic testing not be performed within this portion of the pipeline. If potential changes in hydraulic stresses are anticipated, the area may be stabilized by compaction grouting. The EPA believes that this a reactive form of planning and does not fully address the need to avoid and minimize potential impacts in environmentally sensitive areas. A pipeline rupture from a sudden sinkhole event in this areas will disrupt the 'reliable' flow of natural gas potentially result in a catastrophic incident before remediation activities can be initiated.

The EPA recommends that geotechnical and geophysical investigations be used to inform the siting alternatives decisions for the pipeline, HDD crossings of waterbodies, the compressor and metering/regulating station locations, etc. Instead, these investigations were conducted to determine potential impacts to the proposed action at preselected sites. For example, the preferred Albany Compressor Station site, west of Newton Road, was eliminated from consideration and it was relocated to site J because the preliminary geotechnical study noted solution activity indicators and the potential for sinkhole development.[xlii] However site J is still in an active karst area. Moreover, geophysical/geotechnical investigations were not used to select site J. For all of the compressor stations and metering/regulating facilities, the conceptual plan with the location of the facility footprint was first identified and then given to consultants to perform a geotechnical/geophysical study. However, as noted in a karst assessment for a Superfund remedial site investigation: "*A geotechnical karst investigation (i.e. identification of cavities, fractures and collapse zones) is undoubtedly one of the most difficult subsurface investigations: a real needle in the haystack problem*".[xliii] Given the potential impacts to the Floridan Aquifer and communities and aquatic ecosystems dependent upon it, the geophysical/geotechnical work acquired is preliminary [at best] and did not inform the siting of the proposed action.

The EPA recommends that the FERC address compressor station vibration induced impacts to zones of fractures in the underlying limestone. The continuous vibration effects could be expected to aggravate ongoing chemical and physical weathering of all underlying karst conduits. Sinkhole formation can be triggered by construction activities such as ground vibrations from heavy equipment.[xliv] The proposed compressor stations are expected to vibrate continuously for the project life. Sinkholes can occur in the beds of streams, sometimes taking all of the stream's flow, creating a disappearing stream.[xlv] As the FERC has noted, the Flint River, where a HDD crossing is proposed, most of the springs reported to discharge to the Flint River are within the river bed and are unmapped and may be impacted by the proposed HDD crossing.

The EPA recommends that the FERC address the potential environmental impacts associated with HDD-induced karst collapse under major rivers. According to the FERC, "[z]*ones of fracture concentration in soluble rocks such as limestone can lead to enhanced dissolution due to accelerated chemical and physical weathering. In the case of rocks prone to karstification, the development of karst conduits begins when fracture apertures reach about 1 cm*". The FERC proposes conduits to be drilled under major rivers to install a 36-inch natural gas pipeline/conduit. According to the FERC, five of the applicant's proposed HDDs will encounter carbonate bedrock. The FERC has determined the HDD drilling process is feasible even if voids 15 feet or less are encountered. According to the FERC, if larger voids are encountered, which

will prevent the successful completion of the HDD, the applicant will modify its drill path slightly in an effort to avoid it. According to the FERC, the HDD process uses drilling fluids to facilitate many of the HDD operations. Drilling fluid is a slurry composed of water and bentonite clay, which is intended to maintain the hole's stability, lubricate the drilling head, remove cuttings and reduce soil friction. The FERC has not explained how this works for voids 15 feet or less, or larger, or what the associated impacts are to the bedrock or water quality.
Moreover, the FERC proposes that when a loss of drilling mud circulation occurs, **where practical**, a member of the field crew will visually inspect the ground surface near the position of the cutting head. However, the cutting head may be 20 plus feet below the ground. The FERC indicates surface waters, wells, and mapped springs within 2,000 feet of the HDD site will also be visually inspected. The FERC has not indicated how fast the groundwater may move to the surface waters being monitored. It is feasible for a significant amount of drilling fluid to be lost before it shows up, days, weeks, or months later after the HDD installation has been completed. The DEIS does not fully address the Floridan Aquifer's characteristics and the complexity of its groundwater flow.

The DEIS also states FGT's 36-inch natural gas pipeline has been successfully installed via HDD in karst areas in Florida, including FGT's prior crossing of the Suwannee River at the same location as proposed by its applicant. The EPA fully comprehends this issue and found documented HDD-induced sinkhole formation associated with the construction of FGT's 36-inch natural gas pipeline within the Land O' Lakes Karst Plain in Florida.[xlvi] Here, three sinkholes ranging from approximately 5 to 25 feet in diameter and several feet deep developed along the drill path during HDD-related activities. The borehole was completed using HDD methods to depths up to 100 feet. The FERC notes this study in the DEIS, as "land subsidence" in the DEIS section discussing its karst-mitigation: backfilling it with sand.

The EPA remains concerned the installation of the proposed action by HDD could induce such "land subsidence" under a major river, such as the Flint, the Withlacoochee, the Suwannee, and/or other rivers flowing within the Dougherty Plain and the Cody Escarpment. Such "land subsidence" could realize reduced river flow in these rivers or a redirection of the river into large subsurface conduits or a cavern system, which is characteristic of the Floridan Aquifer.
The EPA's environmental concern is heightened over the proposed collocation of the proposed 36-inch, high-pressured gas pipeline with the existing FGT 36-inch, high-pressured gas pipeline under the Suwannee River because the Suwannee River bed is littered with named and unnamed springs. The artesian springs along the Lower Suwannee River Basin are responsible for supplying much of the flow to the Suwannee River and its tributaries. They provide most of the fresh water to the Santa Fe, Alapaha, and Withlacoochee Rivers which drain toward the Suwannee River.

The EPA recognizes FGT's existing pipeline will remain in service during the proposed HDD operations. The proposed HDD could disturb the lithology around, and under, the FGT pipeline creating the possibility of destabilizing FGT's pipeline support, possibly causing undue stresses on its pipeline, potentially resulting in future pipeline failure. A failure of FGT's pipeline could realize a crater under the Suwannee River leading to the potential reduction in river flow or a redirection of the river into large subsurface conduits or a cavern system. Many of the Lower Suwannee River basin springs have extensive conduit systems. These cave systems concentrate much of the groundwater flow and allow it to discharge directly along the river or at springs

close to the river. These cave systems have complex flow dynamics and routing during high and low flow conditions. Additionally, the Suwannee River is also known for its frequent flooding episodes. It is unclear what impacts the flooding episodes will have on both the proposed action and the FGT's pipeline.

The EPA recommends that the FERC discuss and fully examine the potential impacts associated with pipeline-induced craters in the vicinity of HDD sites, unmapped springs in a river bed, particularly the potential for diverting surface water underground into a disappearing stream. The FERC has not addressed the potential for a pipeline blast to occur in the pipeline segment installed under a river within the Floridan Aquifer's karst during the project's life. For example, Sabal Trail Transmission's affiliate, Spectra Energy's natural-gas pipeline buried beneath the Arkansas River exploded on May 31, 2015.[xlvii] It may have been the owner of the tugboat damaged by the rupture that first detected the rupture, then informed Spectra. Specifically, the EPA is concerned over the potential rupture of the proposed 36-inch, high-pressured, natural-gas pipeline in active use, under a surface waterbody within the karst system of the Floridan Aquifer. Pipeline ruptures create craters. A 51 by 113-foot crater was created by the force of escaping gas from a 30-inch diameter El Paso Natural Gas pipeline rupture in August, 2000.[xlviii] A 30 by 30 by 120-foot crater was created by a 36-inch gas pipeline failure near Crystal Falls, Michigan, in March of 2001.[xlix] A large crater was created by the release 64-million cubic feet of natural gas associated with the failure of a 24-inch pipeline in Orange County, Indiana, in October of 2003.[l] A crater was created by a gas pipeline rupture in Salem, Michigan, in October of 2007.[li] A 50 by 33 by 7-foot crater was created by a 24-inch pipe rupture in Cooper County, Missouri, in August of 2008.[lii] A 72 by 26-foot was created by a 30-inch pipeline rupture in San Bruno, California, in September of 2010.[liii] A 'moon-like' crater resulted from a natural gas pipeline rupture in a rural area in western Missouri, in November of 2013.[liv] The creation of craters in a sensitive, vulnerable aquifer such as the Floridan Aquifer are a problem to be avoided. FERC provides no assurances with its route selection or karst mitigation that crater creation will be avoided. The EPA requests that the FERC consider these events and that they need to be avoided as they cannot be mitigated.

The EPA recommends that the FERC address the potential impacts associated with erosion and incising of river beds the proposed action crosses by either pipeline construction method. According to the FERC, the proposed pipeline will be constructed with conventional cut and cover techniques for most of its length. This technique entails the excavation of a trench where pipe is bedded and backfilled with material excavated from the trench. Five rivers, Walter F. George, and Shingle Creek will be crossed using the HDD technique. Scouring, or erosion that occurs along the beds of flooded rivers associated with the increased volume and rate of flood waters can remove dozens of feet from a river bottom by picking up sediment and carrying it downstream. Deepening river beds can expose pipelines buried as deep as 20 or 30 feet below the river bottom to debris that could cause ruptures. The most recent pipeline rupture occurred in Iowa on an Enterprise Products Partners pipeline buried 20 feet beneath the 'normal' Missouri River bed. The company said its ruptured pipeline leaked as much as 3,300 barrels of natural gasoline, a gasoline additive, into the river and that while scouring weakened the pipeline, the exact cause of the rupture was unknown.[lv] Furthermore, the waterbodies, like the Flint River, are known to incise into their limestone river beds.

The EPA recommends that the FERC discuss and examine the need for dewatering of the pipeline trench where ground water table may be at the surface or after significant precipitation events. Subsiding flood waters may have contributed to some sinkhole formation in the Albany, Georgia, area associated with the 1994 Flint River flooding.[lvi] Dewatering a trench may realize a similar effect. Moreover, the FERC should also discuss what is done with the water taken from the trench to facilitate its construction and pipeline placement.

The EPA recommends that the FERC identify the number of pipeline crossings associated with the preferred route and discuss associated environmental impacts. According to Southern Natural Gas,[lvii] each proposed Sabal Trail Transmission pipeline crossing of its existing pipeline poses a risk during construction and risks during operation and maintenance of both pipelines. Moreover, SNG's pipeline must remain in service during SMP's construction. Each time Sabal Trail bores or cuts under SNG's pipeline, the risk is increased for compromising the integrity of the existing and operational SNG pipeline. According to SNG, disturbing the soil around, and under, its pipeline during construction of each crossing creates the additional possibility that the soil around the SNG pipeline may become de-stabilized, possibly causing undue stresses on its pipeline, potentially resulting in future pipeline failure. Additionally, the possibility of creating undue stress on the crossed pipeline segment is exacerbated when the crossing is accomplished by using Sabal Trail's proposed, less expensive, open-cut trench method. Furthermore, SNG stated crossings complicate the cathodic-protection systems of both pipelines, making it more difficult to ensure that both pipelines are adequately protected from external corrosion. Pipeline crossings, particularly when the pipelines are running in parallel, complicate routine operation and maintenance activities such as line locating, leak surveying, and management of encroachments because the orientation of the pipelines changes from location to location, making it more difficult to manage those activities. SNG recommended to the FERC that crossings should be avoided where possible in order not to create unnecessary additional risk.

The EPA recommends that the FERC examine the potential for the proposed pipeline trench, during construction and the project life, may act as a water impoundment. This situation is where large volumes of water associated with a storm or flood event are collected until it can dissipate. Sinkhole formation can also be triggered by construction activities such as water impoundment.[lviii] Furthermore, it is unclear how much of the proposed action lies within a flood plain where flooding becomes a trigger for sinkhole formation. Because water impoundments are associated with the acceleration or triggering of sinkholes, particularly where they are underlain by karst conduits or shafts, the EPA recommends that the FERC consider the potential impacts of the pipeline trench as a water impoundment feature in a karst environment. The Floridan Aquifer is chiefly limestone with cavities and solution channels thought to be comparable in size and extent to those in Mammoth Cave, Kentucky.[lix]

The DEIS states that significant amounts of water will be brought to the area associated with hydrostatic testing on the pipeline during construction. Additionally, hydrostatic testing can also be done as part of routine pipeline maintenance as required by PHMSA. During the testing phase, the pipeline acts as a linear water impoundment feature for the length of the line being tested. Water impoundments are associated with sinkhole formations. The DEIS environmental impacts discussion nor its proposed karst mitigation address this potential for sinkhole formation during construction and the pipeline's lifetime operations.

The EPA requests that the FERC provide additional information on withdrawals and discharges for the proposed action. The EPA recommended in its scoping letter that the FERC explain how the water withdrawals will be evaluated to ensure consistency with EPA-approved State Water Quality Standards (WQS). The FERC should consider the protection and maintenance of designated uses and compliance with narrative and numeric criteria and Clean Water Act anti-degradation requirements.

The EPA recommends that the FERC address any potential for the proposed action to permanently affect water flow of the affected waterbodies, including any induced sinkholes affecting surface water flow. The DEIS indicates that the Hillabee Expansion project will withdraw 13.7 million gallons of water, identifying seven surface water sources. The Sabal Trail Transmission project will use 146 million gallons of water, including seven surface water sources for hydrostatic testing purposes and eleven surface water sources for HDD purposes. The FSC Project will use 29 million gallons of water for hydrostatic testing and 740,000 gallons for HDD purposes. The DEIS information on specific sources, volumes, discharge rates, and discharge locations is very limited. It indicates the withdrawals could range as high as 8 millions of gallons per day, or higher for the locations specified, including the FSC Project. These rates are not insignificant and could impact flow levels, which can impact water quality standards (WQS) and National Pollution Discharge Elimination System (NPDES) permits. Both WQS and NPDES permit limits are based on an expected instream flow. These rates could be significant for smaller water bodies, or during drought periods where they could represent a significant portion of stream flow, and significant hydrologic alteration. In particular, the EPA requests information on the types of data and modeling to be used to evaluate potential impacts from hydrologic alteration on recreation, aquatic life, and other designated uses. The FERC should provide information on the withdrawal rates, where these volumes are to be withdrawn, the timing of these withdraws, where they will be discharged, whether the water will be withdrawn from one water/springshed and then discharged into another.

The DEIS states that some volumes of water will be transported to subsequent sections of the projects for testing so as to avoid some withdrawals. The FERC does indicate whether withdrawals will be returned to the same water or springshed. Mile post information may be provided to indicate water withdrawal and discharge sites, but no information is given whether these sites are within the same water/springshed. Additionally, the EPA recommended in its scoping letter that the FERC address whether and how any downstream users (e.g., NPDES permit holders, any authorities withdrawing for water supply, etc.) will be notified of the temporary withdrawal amounts and timing and whether these withdrawals could affect their operations.

The EPA recommends that the FERC clarify whether the ROW at all wetland crossings remains 75 feet, and if it does not, where the ROW would be greater, and by how much. For example in Appendix D, the DEIS states, "*Transco proposes to modify the requirement to limit the width of the construction right-of-way in wetlands to 75 feet. Transco would utilize a construction right-of-way greater than 75 feet in certain wetlands due to site specific conditions. Table 3.4.1-2 identifies the locations where Transco would utilize a construction right-of-way greater than 75 feet in wetlands, and provides site specific justification for each proposed location*". However, the footnotes for Table 3.4.1-2 state: "*The right-of-way width at all wetland crossings is 75 feet*".

The EPA strongly recommends that the FERC restrict wetland impacts to the 75-foot ROW and for wetlands that have *moderate* to *optimal* functionally, further avoidance and minimization measures be incorporated in order to meet the CWA §404 (b)(1) Guidelines. The EPA recommends that all forested areas impacted during construction, not within the operational ROW of the project, be replanted with similar trees (non-invasive species) to those impacted.

The EPA requests that the FERC provide the wetland mitigation plans for all three proposed pipeline projects which have not been included with this DEIS. Consequently, the wetlands impacts cannot be fully estimated or commented upon. The EPA is interested in the complete data sheets for each assessment area: including, at a minimum, for each wetland assessed the functional scores used to derive the overall functional score (i.e., the six used for the (wetland rapid assessment procedure (WRAP) or the three used for the universal mitigation assessment methodology (UMAM)). The DEIS did not include the information on the post-project WRAP or UMAM score for each assessment area.

The EPA recommends that the standard 5 years be incorporated into all post-construction monitoring for upland and wetland impacts. The FERC states that the post-construction monitoring will be for a minimum of two years. The EPA does not believe that this monitoring period is reasonable. Additionally, the FERC also states that it reviewed the applicant's specific plans to prevent the introduction or spread of noxious or invasive species and finds them acceptable. The EPA recommends that the FERC incorporate all wetland monitoring reports and invasive species plans, etc. that will be used for the project in a supplemental NEPA document or the FEIS and provide it for review and comment.

The EPA recommends that the FERC route the pipeline to avoid moderate to high risk areas, consistent with the above comment regarding developing a peer-reviewed risk assessment. The Karst Mitigation Plan (Appendix F) states, "*Avoidance was used as the primary mitigation measure during the planning and selection of the proposed alignment*". This statement is not supported by the current location of the preferred route in southern Georgia and northern Florida. In one area all of the karst sensitive areas the proposed action will traverse in Georgia and Florida, the applicant rated as a high sinkhole risk (Milepost 363.8) in Levy County, FL. Furthermore, the proposed route has not been rerouted to avoid this high sinkhole risk area. The DEIS concluded while the risk of sinkhole formation is high, the depth, type and relatively small diameter of sinkholes do not pose a threat to the pipeline **(if remediated)**. The proposed action is not proposed to be rerouted to avoid an applicant-rated "moderate" sinkhole risk in the vicinity of a rural, municipal well field.

The EPA recommends that the FERC work with the appropriate state agencies to develop appropriate water quality monitoring protocols for the HDD actions. The proposed monitoring program proposed for mapped springs involves the establishment of a baseline turbidity level in springs that are 2,000 feet down gradient from the HDD activities proposed for the project. Prior to the start of HDD activity, a baseline turbidity level will be established at the springs to be monitored by collecting samples at six hour intervals over a 24 hour period. This monitoring program will allow Sabal Trail to determine if drilling mud and/or sediments from construction activities have entered the spring system. The EPA has environmental concerns that these identified springs may not be the actual ones affected by the HDD project. The structure of karst

systems is complex and highly heterogeneous. Groundwater movement can be slower and diffuse if overlying sediments cover the karst system or fill conduits or can be fast and concentrated in areas that lack overlying sediments or empty conduits. It is possible for lost drilling mud to show up in unexpected areas.

The EPA recommends that the FERC select an alternative that avoids karst areas that may collapse. The EPA requests that the FERC reconsider the proposed action siting in the vicinity the SNG and Dixie pipelines and the Albany Municipal well field The FERC is proposing to install a third pipeline in the vicinity of a municipal well field known to undergo karst collapse. As the FERC has noted in the DEIS, the two existing pipelines were constructed prior to the municipal well field creation and prior to the FERC being required to comply with NEPA. Over 23 sinkholes have developed there since the initiation of well field pumping in 2003. All of the sinkholes formed during 2007 and 2008 developed in or adjacent to the storage ponds in the well field.[lx] These storage ponds are located in between the SNG and the Dixie Propane pipelines. According to FERC, the proposed route parallels the well field's southern boundary where it is collocated with Dixie's existing liquid propane pipeline within 350 to 450 feet from four of the eight municipal wells. The Dixie pipeline is within 250 to 450 feet of three of the wells and SNG's pipeline is within 200 to 400 feet of two of the wells. The SNG pipeline also crosses this well field diagonally for 1.5 miles. Should a pipeline rupture occur, and they do with some regularity despite PHMSA's safety regulations,[lxi] it is these pipelines' potential to detrimentally impact the Floridan Aquifer's protective cover, which will leave water supplies with increased vulnerability to existing land-use and storm water-related pollution. To address these impacts will realize increased water treatment and other infrastructure costs to the local community, which in rural areas often meet the criteria for environmental justice considerations. The EPA remains concerned over the location of any compressor station in the vicinity of any natural gas or natural gas liquids pipeline that are within the sensitive karst region of the Floridan Aquifer, (and particularly a municipal well field).

The EPA recommends that the FERC address the proposed action's greenhouse gas (GHG) impacts in context of CEQ's Draft 2014 Climate Change Guidance.[lxii] The DEIS states that no standard methodology exists to determine how the proposed SMP Project's incremental contribution to GHGs would translate into physical effects of the global environment. The FERC does acknowledge the operation of SMP Project would result in the distribution and consumption of about 1,000,000 Dekatherms/day of natural gas. Due to the magnitude of this energy consumption, the EPA strongly recommends that the FERC consider doing a life cycle analysis (LCA). For example, the Department of Energy has completed a *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (May 29, 2014).[lxiii] Furthermore, the proposed action converts land uses currently conducive to CO_2 sequestration and storage.

The EPA recommends that the FERC evaluate the potential for the proposed action to interfere with prescribed burns and other efforts to avoid and mitigate wildfire impacts. As evidenced by the severe 2015 wildfire season in Western, U.S., there appears to be very little that can be done to control a wildfire and protect affected property.[lxiv] The FERC has not addressed the fact that the proposed pipeline route is within an identified high wildfire hazard area.[lxv] Many of Florida's wildfires are started because of lightning strikes.[lxvi] In fact one of Florida's thirteen pipeline incidents in 2014 included a lightning strike igniting a gas line.[lxvii] Georgia is the 8th highest

State in terms of density of lightning strikes per square mile. Lightning strikes from thunderstorms in June, July, and August account for over half of all injuries and deaths, and over 75% of property damage annually in Georgia.[lxviii] The National Oceanic and Atmospheric Administration's *Rank of Cloud-To-Ground Flash Densities by State* ranks FL #1, AL #4, and GA #13 of the 49 states studied from 1997 to 2012.[lxix] Increased incidences of wildfire is also an issue identified with climate change predictions associated with prolonged drought periods.[lxx] The southeast United States has historically experienced cycles of severe drought periods, which may be worsened by future climate change, and further aggravate wildfire conditions.[lxxi]

The EPA has provided extensive correspondence to the FERC prior to the issuance of the DEIS:

- April 21, 2014 Scoping Letter
- May 7, 2014, email notice of citizen complaint made to EPA
- July 17, 2014, letter regarding CWA 404 permitting
- August 11, 2014, email notice of citizen inquiry
- August 19, 2014, email notice of citizen complaint made to EPA
- September 11, 2014, technical comments on applicant's draft resources reports no. 2, 6, and 10 emailed
- October 1, 2014, EPA response to Cooperating Agency status
- November 3, 2014, citizen concerns expressed to EPA notice email
- June 10, 2015, EPA staff technical memo emailed
- July 20, 2015, comments on FERC's Supplemental NOI for the Albany Compressor Station
- July 24, 2015, email change of EPA's Cooperating Agency status because of resource constraints with FERC's NEPA schedule.

In summary, the EPA strongly recommends that an alternative route be considered, fully and objectively analyzed, and selected to completely avoid the most vulnerable karst areas of the Floridan Aquifer and avoid and minimize jurisdictional wetlands and other environmentally sensitive areas. The EPA requests that the FERC conduct a more thorough investigation and establish meaningful environmental metrics that allow for a full and informed comparison between the full range of reasonable and environmentally-sound alternatives.

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[i] FERC docket numbers: (4 under construction) CP11-72 & CP14-12, CP13-25, CP12-509, CP12-507 and CP13-552. See: North American LNG Import/Export Terminals Approved (as of June 10, 2015), see: http://www.ferc.gov/industries/gas/indus-act/lng/lng-approved.pdf .

[ii] FERC docket numbers: CP14-120, CP14-71 & 72, CP14-347, PF13-11, CP14-517, PF 13-4 Gulf LNG, PF14-17, PF15-2, PF15-13, PF15-14, PF15-15, PF15-18, PF15-20, PF15-25, and PF15-26. The 16th is under the US MARAD/Coast Guard's jurisdiction, not FERC's. See: North American LNG Export Terminals Proposed (as of June 10, 2015), see: http://www.ferc.gov/industries/gas/indus-act/lng/lng-export-proposed.pdf

[iii] April 28, 2015, emergency petition submitted by the Sierra Club Florida Chapter.

[iv] Section 1424(e) of the SDWA.

[v] GROUND WATER ATLAS of the UNITED STATES Alabama, Florida, Georgia, and South Carolina HA 730-G Floridan aquifer system, Figure 56. at http://pubs.usgs.gov/ha/ha730/ch_g/G-Floridan.html

[vi] GROUND WATER ATLAS of the UNITED STATES Alabama, Florida, Georgia, and South Carolina HA 730-G Floridan aquifer system, Figure 55. at http://pubs.usgs.gov/ha/ha730/ch_g/G-Floridan.html

[vii] See: FGS/FDEP web page on sinkholes at http://dep.state.fl.us/geology/geologictopics/sinkhole.htm

[viii] There is a discrepancy between the 15 fracture traces identified in Chapter 3 and the 17 fracture traces depicted in the Figures 1 – 8 of Appendix H.

[ix] Bullock, P.J. and Dillman, A. Sinkhole Detection in Florida using GPR and CPT. Available at http://www.dot.state.fl.us/statematerialsoffice/geotechnical/conference/materials/bullock-dillman.pdf
[x] Florida Springsheds and Springs – from Florida Springs Protection Areas - Greenhalgh, T. H., P.G. #1277 and Baker, A. E., February 9, 2005, Open File Map Series No. 95.
[xi] Sabal Trail Transmission's FERC Section 7(c) Application, November 2014, Vol. 1, p. 3. Available at FERC's online administrative record.
[xii] See CEQ Chairman's May 12, 2003, letter responding to the Honorable Norman Y. Mineta's May 6, 2003 letter requesting CEQ's guidance on the issue of "purpose and need."
[xiii] FERC's 3014-2018 Strategic Plan, http://www.ferc.gov/about/strat-docs/strat-plan.asp
[xiv] These request letters and FERC's corresponding approval letter orders can be found on FERC's online administrative record.
[xv] NEPA's Forty Most Asked Questions, No. 11, *Limitations on Actions by an Applicant during EIS Process,* available at http://www.fws.gov/r9esnepa/NEPA_Handbook/40_Asked_Questions.pdf
[xvi] Sabal Trail Project, Draft Resource Report 10: Alternatives, FERC Docket No. PF14-1-000 (June 2014), p. 10-12, submitted to FERC as required in FERCs NEPA regulations, 40 CFR §380.12.
[xvii] Draft Resource Report 10: Alternatives, (June 2014), p. 10-14.
[xviii] Draft Resource Report 10: Alternatives, (June 2014), p. 10-33.
[xix] For example on June 2, 2014, Sabal Trail Transmission, LLC's, filed a limited warranty deed in the Office of the Clerk of Court, Dougherty County, regarding its acquisition of 79,184 acres of land in Albany, GA.
[xx] See 33 CFR Part 320.4(a), (b), (g), (j), & (m)
[xxi] See: the 1990 Memorandum of Agreement on the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines between the EPA and the Corps, later codified in 2008 as the "Mitigation Rule" (*Compensatory Mitigation for the Loss of Aquatic Resources; Final Rule,* 40 CFR Part 230).
[xxii] The 1990 Memorandum of Agreement on the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines between the EPA and the Corps, later codified in 2008 as the "Mitigation Rule" (Compensatory Mitigation for the Loss of Aquatic Resources; Final Rule, 40 CFR Part 230).
[xxiii] The remaining three steps are sequentially ordered as follows. Second, the applicant must demonstrate compliance with water-quality standards, toxic-effluent standards, endangered-species habitat, or designated marine sanctuaries. 40 CFR 230.10(b). Third, the applicant must determine whether the requested discharge of fill material will cause significant degradation,[xxiii] e.g., of the aquatic ecosystem. 40 CFR 230.10(c). After the three previous steps have been adequately evaluated, the potential for appropriate compensatory mitigation is assessed. The Mitigation Rule prohibits discharges unless all appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. 40 CFR 230.10(d). After impacts have been fully minimized, compensatory mitigation (e.g. aquatic restoration, enhancement, creation, or in certain circumstances, preservation) may be required to offset unavoidable losses.
[xxiv] 40 CFR 320.4 (b).
[xxv] 33 CFR 320.4(m).
[xxvi] The Sole Source Aquifer protection program is authorized by § 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et seq.). According to § 1424(e): If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.
[xxvii] Per SNG's November 13, 2014, and July 24, 2015, letters to FERC's Secretary available in FERC's SMP online administrative record.
[xxviii] Per SNG's November 13, 2014, and July 24, 2015, letters to FERC's Secretary available in FERC's SMP online administrative record.
[xxix] The State of The National Pipeline Infrastructure, US Department of Transportation, available at https://opsweb.phmsa.dot.gov/pipelineforum/docs/Secretarys%20Infrastructure%20Report_Revised%20per%20PHC_103111.pdf
[xxx] FERC docket numbers: (4 under construction) CP11-72 & CP14-12, CP13-25, CP12-509, CP12-507 and CP13-552. See: North American LNG Import/Export Terminals Approved (as of June 10, 2015), see: http://www.ferc.gov/industries/gas/indus-act/lng/lng-approved.pdf .

[xxxi] FERC docket numbers: CP14-120, CP14-71 & 72, CP14-347, PF13-11, CP14-517, PF 13-4 Gulf LNG, PF14-17, PF15-2, PF15-13, PF15-14, PF15-15, PF15-18, PF15-20, PF15-25, and PF15-26. The 16th is under the US MARAD/Coast Guard's jurisdiction, not FERC's. See: North American LNG Export Terminals Proposed (as of June 10, 2015), see: http://www.ferc.gov/industries/gas/indus-act/lng/lng-export-proposed.pdf

[xxxii] FERC docket numbers: CP14-120, CP14-71 & 72, CP14-347, PF13-11, CP14-517, PF 13-4 Gulf LNG, PF14-17, PF15-2, PF15-13, PF15-14, PF15-15, PF15-18, PF15-20, PF15-25, and PF15-26. The 16th is under the US MARAD/Coast Guard's jurisdiction, not FERC's. See: North American LNG Export Terminals Proposed (as of June 10, 2015), see: http://www.ferc.gov/industries/gas/indus-act/lng/lng-export-proposed.pdf

[xxxiii] Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact (January 14, 2011) MEMORANDUM FOR HEADS OF FEDERAL DEPARTMENTS AND AGENCIES available at http://energy.gov/nepa/downloads/appropriate-use-mitigation-and-monitoring-and-clarifying-appropriate-use-mitigated

[xxxiv] Summary of Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, http://www2.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice

[xxxv] Florida Springsheds and Springs – from Florida Springs Protection Areas - Greenhalgh, T. H., P.G. #1277 and Baker, A. E., February 9, 2005, Open File Map Series No. 95. The purpose of the map is to identify areas that contribute flow to Florida springs and to provide a published resource for land use decision-makers as they work to protect and restore both the quantity and quality of water discharging from Florida's springs. In the springs protection area, the sole source of drinking water and the source of spring discharge is groundwater.

[xxxvi] Emergency Petition Sole Source Aquifer Designation for the Floridan Aquifer System, https://doc-08-a0-apps-viewer.googleusercontent.com/viewer/secure/pdf/3nb9bdfcv3e2h2k1cmql0ee9cvc5lole/1s6gkgsq9acg4tjjacjfj0lslea e6ckr/1442517000000/drive/*/ACFrOgDvyc4MowndGXt9MyjIQAKd1xTBj-HPFhK6UREM97p5PbA_Ns6HbJgYavZhh5-cIr7VkDzjS8DAxii0XEeHvuqANFVPxfS2dKGK5e9J2uSStNZU6-eqyjDBlZY=?print=true

[xxxvii] Bullock, P.J. and Dillman, A. Sinkhole Detection in Florida using GPR and CPT. Available at http://www.dot.state.fl.us/statematerialsoffice/geotechnical/conference/materials/bullock-dillman.pdf

[xxxviii] The Florida Division of Emergency Management's 2013 State of Florida Enhanced Mitigation Plan has a sinkhole hazard ranking by county. See Figure 3.38, p. 3-162, available at www.floridadisaster.org/Mitigation/State/Index.htm

[xxxix] Geological and Geotechnical Investigation Procedures For Evaluation of the Causes of Subsidence Damage In Florida, Florida Geological Survey Special Publication No. 57, 2005, available at http://publicfiles.dep.state.fl.us/FGS/FGS_Publications/SP/SP57GeologicalProcCausesSubsidenceDamage.pdf

[xl] Geological and Geotechnical Investigation Procedures For Evaluation of the Causes of Subsidence Damage In Florida, Florida Geological Survey Special Publication No. 57, 2005, available at http://publicfiles.dep.state.fl.us/FGS/FGS_Publications/SP/SP57GeologicalProcCausesSubsidenceDamage.pdf

[xli] http://www.dep.state.fl.us/geology/disclaimer.htm

[xlii] Professional Service Industries, Inc. (PSI) Sept. 18, 2014 preliminary geotechnical report indicated for the preferred site, west of Newton Road, two engineering borings were drilled. The standard penetration test results indicated zones where the drill rods fell under their own weight and losses in drilling-fluid circulation. These are indicators of porous rock, typical of the Floridan Aquifer. And can signify solution activity within the limestone formation and potential for sinkhole development.

[xliii] Yuhr, L., et al, A Case History of a Large Karst Investigation, available at http://www.dot.state.fl.us/statematerialsoffice/geotechnical/conference/materials/yuhr-benson-kaufmann-casto-jennings.pdf

[xliv] *Induced Sinkhole Formation Associated With Installation of a High-Pressure Natural Gas Pipeline, West-Central Florida*. T. J. Smith and G. C. Sinn, 13th Sinkhole Conference, Nckri Symposium 2, pp. 79 – 88, available at http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1116&context=sinkhole_2013

[xlv] FGS/FDEP web page on sinkholes at http://dep.state.fl.us/geology/geologictopics/sinkhole.htm .

[xlvi] Induced Sinkhole Formation Associated With Installation of a High-Pressure Natural Gas Pipeline, West-Central Florida. T. J. Smith and G. C. Sinn, 13th Sinkhole Conference, Nckri Symposium 2, pp. 79 – 88, available at http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1116&context=sinkhole_2013

[xlvii] Source: Arkansas River pipeline blowout occurred on Sunday morning, cause still unknown. See: http://www.arktimes.com/ArkansasBlog/archives/2015/06/03/arkansas-river-pipeline-blowout-occurred-on-sunday-morning-cause-still-unknown

[xlviii] See: NTSB Abstract PAR-0301, USDOJ: Environment and Natural Resources Division : U.S. v. El Paso Natural Gas Co". Justice.gov. 2007-07-26. Retrieved 2013-04-02, and see: https://en.wikipedia.org/wiki/List_of_pipeline_accidents_in_the_United_States_in_the_21st_century,
[xlix] http://primis.phmsa.dot.gov/comm/reports/enforce/documents/320021003H/320021003H_CAO_03282002.pdf
[l] http://primis.phmsa.dot.gov/comm/reports/enforce/documents/320031010H/320031010H_CAO_10242003.pdf
[li] https://en.wikipedia.org/wiki/List_of_pipeline_accidents_in_the_United_States_in_the_21st_century
[lii]http://primis.phmsa.dot.gov/comm/reports/enforce/documents/320141008S/320141008S_Notice%20of%20Proposed%20Safety%20Order_12242014.pdf
[liii] Measuring Cat Exposure in the Energy Space Energy Transmission Catastrophes OCTOBER 4, 2012, Chris Ramarui, Senior Vice President, Session MAN-4, can find at https://www.google.com/?gws_rd=ssl#q=wildfires+and+natural+gas+pipelines&start=10
[liv] Source: Missouri gas pipeline ruptures, explodes, Nov. 29, 2013, http://www.cbsnews.com/news/missouri-gas-pipeline-ruptures-explodes/
[lv] Second pipeline rupture has officials worried about erosion (08/19/2011), http://online.wsj.com/article/SB10001424053111904070604576516732060524112.html
[lvi] Hyatt, J.A. and Jacobs, P.M. *Distribution and morphology of sinkholes triggered by flooding following Tropical Storm Alberto at Albany, Georgia, USA*. Geomorphology 17 (1996) 305 – 316, available at http://www.sciencedirect.com/science/article/pii/0169555X96000141
[lvii] Per SNG's November 13, 2014, letter to FERC's Secretary available in FERC's SMP online administrative record.
[lviii] *Induced Sinkhole Formation Associated With Installation of a High-Pressure Natural Gas Pipeline, West-Central Florida*. T. J. Smith and G. C. Sinn, 13th Sinkhole Conference, Nckri Symposium 2, pp. 79 – 88, available at http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1116&context=sinkhole_2013
[lix] Stringfield, V.T., Artesian Water in Tertiary Limestone in the Southeastern States, Geological Survey Professional Paper 517 (1966), p. 17, available at http://pubs.usgs.gov/pp/0517/report.pdf
[lx] Warner, D.G., et al, *Hydrologic Conditions, Groundwater Quality, and Analysis of Sinkhole Formation in the Albany Area of Dougherty County, Georgia*, 2009, USGS Scientific Investigations Report 2012-5018, p. 17, available at http://ga.water.usgs.gov/projects/albany/publications.html
[lxi] For example in 3014 there were 705 pipeline incidents, that PHMSA was aware of, which realized 19 fatalities and 96 injuries. See: Pipeline and Hazardous Materials Safety Administration's 20-year incidences summary at https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages And see PHMSA's pipeline investigation reports site at http://phmsa.dot.gov/pipeline/library/failure-reports
[lxii] Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance
[lxiii] DOE/NETL-2014/1646, available at http://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Life%20Cycle%20Analysis/NETL-NG-Power-LCA-29May2014.pdf
[lxiv] For example, two fires in California: Butte and Valley Fires have destroyed over 1,000 homes. The Valley Fire has consumed 585 homes, destroyed hundreds of other structures, and scorched over 70,000 acres of land. The Butte Fire has destroyed 511 residences and more than 330 outbuildings in the course of 10 days. California Fires have destroyed over 1,000 homes (September 20, 2015) http://wqad.com/2015/09/20/california-wildfires-have-destroyed-more-than-1000-homes/
[lxv] State of Florida Enhanced Hazard Mitigation Plan, Chapter 3 State Risk Assessment, Figure 3.27, available at http://www.floridadisaster.org/mitigation/State/Index.htm
[lxvi] Hazardous Weather: a Florida Guide to Wildfires, http://www.floridadisaster.org/kids/wildfires.htm
[lxvii] Florida Public Service Commission, Natural Gas Pipeline, Annual Safety Report, 2014, see: http://www.psc.state.fl.us/publications/pdf/electricgas/Gas_Pipeline_Safety_2014.pdf
[lxviii] National Weather Service Brochure: Lightning, Georgia's Underrated Killer http://www.srh.noaa.gov/images/ffc/pdf/Lightning08_final.pdf
[lxix] http://www.lightningsafety.noaa.gov/stats/97-12Flash_DensitybyState.pdf
[lxx] 2014 National Climate Assessment Report: Regions: Southeast, http://nca2014.globalchange.gov/search/node?search_api_views_fulltext=wildfire
[lxxi] The post 2005 drought appears to have been caused partly by atmosphere-ocean climate variability and partly by internal atmosphere variability, all of which is typical of what has been happening in the region for hundreds of years. The serious stress the drought put on social and agricultural systems in the region came about purely due to lack of adequate planning based on knowledge of regional climate variability. Belated planning now must also take

into account the possibility that climate change will increase stress on regional water resources. Seager, R. Drought in the southeastern United States: the recent drought in the context of a millennium of climate variability, physical causes and future hydroclimate change, (July 2008), LDEO Drought Research http://www.ldeo.columbia.edu/res/div/ocp/drought/SE.shtml