

## ATTACHMENT - Public Notice Comment letters

### Sierra Club Form Letter/Email:

Issue - there appeared to be two versions of a form letter. For the purpose of this response we place both in this category. The first, a Spanish version, was comprised of four principle issues:

- a. Request denial of a permit because impacts outweigh benefits.
- b. Request a public hearing for the single reason that the project is extensive and the public must have the opportunity to learn about impacts and express an opinion
- c. Request an Environmental Impact Statement be prepared because 32 Threatened and Endangered Species may be impacted
- d. Expressed concern that the local review process was "rushed"

### PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA) response –

- a. With respect, the statement that impacts outweigh benefits is vague and does not provide a specific substantive concern we can respond to. The FEIS posted on the Via Verde webpage provides a detailed analysis of the project and presents information on the steps PREPA will take to minimize impacts. In aquatic areas the pipe will be placed with no permanent impact, and we expect the environment to fully grow back within one or two seasons. In the upland sections, only a 50-foot wide corridor will be maintained to regulate the growth of large, deep rooted vegetation. The initial 100-foot wide construction and maintenance corridors required to safely install and maintain the pipeline will be allowed to revegetate and will be utilized in the reforestation / mitigation areas for the project. Further details of the construction steps, and benefits the pipeline will provide, can be found in the FEIS.
- b. The reason(s) for holding a public hearing as requested in the form letter have already been met and addressed. First, the public notice and the information posted on both PREPA's and the US Army Corps of Engineers' (Corps) website provide detailed information to the public about the project. Multiple public meetings were also held by PREPA across the island as part of the local review process (as evidenced by several of the comments submitted by people who participated in those meetings). The public notice issued by the Corps clearly has provided the public the opportunity to express opinions, as did the multiple public meetings PREPA participated in.
- c. PREPA is working closely with the US Fish and Wildlife Service (USFWS) and the Corps to address possible effects the project may have on listed Threatened and Endangered Species and/or critical habitat. The list of 32 species initially identified by the USFWS was never meant to be a final determination of those species presence. Instead, it was a guidance list that was used by the biologist contracted by PREPA to undertake a Flora and Fauna Study. The study and its findings were included in the FEIS. Also, the list has been used as PREPA works collaboratively with both

agencies in a supplementary effort to identify what species may actually be found within four specifically identified sections of the project corridor and what the true potential for effect may be. PREPA believes the Corps, through its review authority and consultation with USFWS, will fully supplement the Biological Assessment included in the FEIS, approved by the EQB, and will also consider it adequate, allowing the completion of the evaluation under the JPA.

- d. PREPA disagrees with the opinion that the local process was rushed. It questions what direct knowledge many of the individuals who submitted the form letter/email actually have regarding the process conducted by the Commonwealth agencies regarding the project. As we are all aware, the public comment process completed by the EQB, as well as the Planning Board, provided ample opportunity to all interested parties to participate in said process and provide any comments prior to the final approval of the EIS drafted and approved on November 30, 2010. The commenting period of thirty days allowed for the EIS by the EQB, as requested by PREPA, was equal to the period required by the EQB regulations.

Puerto Rico Engineers and Surveyors Association (CIAPR, in Spanish)

Issues – the CIAPR sent in two letters (Nov and Dec) and a 22 page evaluation of the Preliminary Environmental Impact Statement (DIA-P). Points raised by CIAPR that appear to be pertinent to this project include:

- a. Concurrence that with today's technology it is possible to build and install a safe pipeline, provided that appropriate measures are taken during the design, manufacture of pipe and components, construction and operation.
- b. The possibility of using buoys and / or transfer platforms, particularly in the areas of San Juan, Aguirre and Arecibo should be reassessed.
- c. A request that the three alternative land routes considered in the Alternatives Analysis be depicted on maps.
- d. Converting the South Coast complex (Costa del Sur) by modifying permits, converting the boilers, possibly constructing a second tank, and increasing frequency supplied. Parallel with this project, converting the Port of "Las Mareas" (formerly Phillips Petroleum Corporation (PPC)) to receive gas (LNG) by modifying connection points, additional piping, constructing a storage tank and dredging the west side of the bay. To supply Aguirre from this port, it would take only one route (approximately 5 km.), primarily using abandoned cane fields and an old train route. With these two changes CIAPR estimates 73% of the production capacity of electric power to gas Puerto Rico could be achieved.

PREPA response –

- a. PREPA appreciates CIAPR's acknowledgement that a pipeline can be installed safely if appropriate measures are taken during construction and installation. We want to emphasize that the pipeline will adhere to all

safety standards set by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and/or 49 CFR 192 regulations.

- b. PREPA has conducted a thorough analysis of the alternative of using buoys and/or transfer platforms and this analysis is in Chapter 4 of the FEIS. Additional information for consideration is:

### **Gravity-Based Structure**

GBS technology is potentially useable in water depths from about 60 to 85 feet, in areas with appropriate seafloor topography and substrates for placement of the structure. In addition, GBS facilities must be located in areas with no substantial shipping activities. Use of this technology involves the transfer of LNG to the terminal from a carrier located directly alongside the terminal. GBS terminals involve LNG storage in tanks within the GBS structure and, thus, allow continuous gas transportation out of the terminal, even when LNG carriers are not offloading at the terminal. A critical requirement of GBS terminals is the unloading of LNG from the carrier to the terminal using articulated loading arms under a range of wind and wave conditions. These arms have movement limits that can be exceeded by high winds and large waves.

Availability is also limited by the wind and wave forces reacting against the ship and the fixed GBS structure. GBS structures are typically constructed using steel or concrete. Use of this technology requires construction of the GBS structure at a graving dock at a coastal location. Following construction, the GBS structure is towed to the location of the terminal and placed on the sea bottom. The topside facilities, including vaporization facilities, unloading facilities and other terminal components, are then installed on the top of the GBS structure. The conditions suitable for a GBS have not been identified in the region, and if such a site were available, the environmental impacts are not likely to be lower than the proposed PREPA project. Also, as considered in the FEIS for Via Verde, the receiving and regasifying system could be installed offshore and a holding tank of CNG could be installed on land. This alternative also has significant environmental impacts and thus, was not the selected alternative.

Issues of concern for a GBS option:

- Increased security risks, i.e. terrorism
- Interruption to delivery and operation due to inclement weather
- High construction costs due to requirement for more than one structure (to serve three separate power plants)
- Does not address principal public concern over safety of pipeline since pipeline still needed to deliver gas to onshore facility and/or to other facilities from point of delivery

- Significant environmental impacts to sensitive marine environment including coral reefs
- Additional impacts to T&E species (marine and anadromous) and/or critical habitat
- Risks to, or conflict with, commercial sea traffic,
- Time required to complete the construction and permit process will be 5 to 7 times longer than the Construction and Permit process associated with Via Verde.

### **Floating Storage and Re-gasification Unit**

The FSRU technology involves the use of specialized ships as LNG terminals. Use of this technology involves the transfer of LNG to the ship from a carrier located directly alongside the FSRU. This technology involves the use of mooring facilities using anchor leg systems and swiveling connections to allow the movement of the ship in response to changing wind and current conditions. They generally need to be located in areas with water depths of at least 160 feet to allow for a flexible gas pipeline connection between the FSRU and the subsea sendout pipeline. The specialized ships include all required terminal facilities, including vaporization units, offloading facilities, gas storage, and other components. FSRU systems have some significant operational limitations based on wind and wave conditions and potential adverse effects on the use of the loading arms and mooring systems under poor conditions. Although FSRU's have been proposed, no FSRU has been constructed and operated in North America. The conditions suitable for a FSRU have not been identified in the region, and if such a site were available, the environmental impacts are not likely to be lower than the proposed PREPA project.

In some locations, an offshore receiving terminal may provide a better alternative due to the use of existing offshore facilities and pipelines, easier access for LNG tankers, and more flexibility to adapt to regulated exclusion zones. None of these apply at any of the three power facility sites. There are also some possible drawbacks or hurdles such as limited or distant access to natural gas distribution pipelines, lack of onshore services and in most instances, higher initial investments. One key issue is that offshore facilities are "new". Crude oil has been produced, stored and transported from offshore fields for many decades. Advances in technology, marine operations know how, safety and environmental protection, and onshore support for construction and maintenance are among the many aspects of accumulated experience that can be and are being borrowed from the crude oil industry in support of offshore LNG development. However, the newness of offshore LNG introduces new complexities, costs, and questions about feasibility.

A number of distinct challenges affect offshore LNG operations. Marine operations for offshore LNG facilities present new and different hazards and design specifications that must be dealt with and accommodated. This can increase the cost associated with LNG import operations. If subsea pipeline connections must be developed, additional design and cost considerations are introduced. Offshore LNG operations also face a different jurisdictional environment under the Deepwater Port Act (DWPA).

Issues: building two or more offshore facilities would not remove the safety concerns expressed by the public since interior pipelines would still be required to transport compressed natural gas between power plants. Costs of constructing multiple facilities would far exceed cost of a single pipeline for delivery to multiple locations. Increased risk associated with exposed facilities, i.e. terrorism, vs. buried pipeline. US Coast Guard (USCG) requires a 500m safety zone surrounding an offshore LNG terminal and the facility must be located away from shipping fairways and other areas of activity on the Outer Continental Shelf (OCS) to avoid interference.

Issues of concern for a FSRU option:

- Increased security risks, i.e. terrorism
- Interruption to delivery and operation due to inclement weather
- High construction costs due to requirement for more than one structure (to serve three separate power plants)
- Does not address principal public concern over safety of pipeline since pipeline still needed to deliver gas to onshore facility and/or to other facilities from point of delivery
- Significant environmental impacts to sensitive marine environment including coral reefs
- Additional impacts to T&E species (marine and anadromous) and/or critical habitat
- Risks to, or conflict with, commercial sea traffic,
- Time required to complete the construction and permit process will be 5 to 7 times longer that the Construction and Permit process associated with Via Verde.

- c. The Attachments (Anejos) in Chapter 4, FEIS includes in section 4.1 "Mapas de Criterios" which depict the land routes considered for the project.
- d. The overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast. Attempting to use the Costa Sur complex in combination with the Aguirre Power Plant would be inconsistent with the overall purpose of the project, and therefore is not a practicable alternative. It is not practicable because generating most of the energy the island needs on the south coast would create a situation which destabilizes the electrical system and

could cause frequent collapses of the electric network. This, in turn, would adversely affect Puerto Rico's economy. Unless the Corps officially disagrees with this understanding of the Via Verde scope for an alternatives analysis, as approved in the FEIS back on November 30, 2010 by the EQB, and officially notifies PREPA that additional review is required, *Gasoducto del Sur* will not be discussed further.

Finally, PREPA would submit the following as additional information regarding the "No-Action Alternative" since there was some critique of this option's write-up.

### **No-Action Alternative**

The No-Action Alternative would result in not constructing the project. The No-Action Alternative would eliminate the short- and long-term project environmental impacts identified in the resource reports. However, selection of the No-Action Alternative would mean that the energy supply benefits of the project would either go unrealized or would have to be accomplished through other means with potentially greater environmental impacts elsewhere. A no-action alternative although required under the state EIS regulations, is not germane to the alternatives analysis under the Clean Water Act 404 (b) (1) guidelines because it is, by definition, inconsistent with the overall purpose of the project, and therefore not a practicable alternative.

The No-Action Alternative does not achieve the stated overall purpose of the project, which is to deliver an alternate fuel source to three existing electric power generating facilities located in Arecibo, Toa Baja and San Juan Steam plant operated by PREPA. If adequate supplies of natural gas are not available, PREPA would have forced to maintain the existing dependency on the use of petroleum derived fuels resulting in potentially more costly and environmentally damaging fuels options, with their deleterious local economic consequences. Alternative approaches to finding and delivering sources of energy to supply the growing demand for electricity in the Puerto Rico present very real adverse environmental impacts and are neither superior nor preferable to the proposed project. Moreover the Via Verde project is consistent with the Energy Diversification Policy developed for Puerto Rico by the Administration of Energy Affairs.

### **National Marine Fisheries Service (NMFS):**

The following is information developed in response to the NMFS request for additional information.

Issues –

1) *Please clarify what is meant by "ALL wetland impacts will be temporary". The proposed ROW of 150 feet seems to imply that impacts to wetlands are not temporary.*

RESPONSE: As the statement implies, all impacts associated with the construction of the pipeline will be temporary in nature within wetlands and other surface waters. After the construction and installation of each pipeline segment, all wetlands and surface waters will be restored to their original pre-construction state and will be allowed to naturally recruit with native species.

The proposed right-of-way (ROW) is necessary only for the purpose of entitlement. PREPA will have entitlement rights for the entire ROW. Maintenance and new access roads will not be necessary within wetlands or other surface after completion of construction. All maintenance in wetlands and other surface waters will be conducted using a computerized robotic system identified as PIG. PIG launchers and receivers will be located outside wetlands and other surface waters. It will allow the data gathering efforts as well as the identification of any area where additional preventive or regular maintenance efforts are required.

2) *Based on the answer to #1, please provide the total square footage of resource impacts (seagrass, other submerged vegetation, mangroves and other benthic resources). The public notice indicates a total of 28.5 acres of EFH will be impacted but does not indicate the acreage for each habitat type.*

RESPONSE: The following is a breakdown of proposed temporary impacts to wetlands and other surface waters:

- Canals 0.67 acre
- Canals with Mangrove shorelines 0.00 acre
- Estuarine Forested- Mangroves 0.00 acre
- Estuarine- Supratidal Saltflat 0.56 acre
- Rivers, Creeks, Tributaries 1.39 acres
- Unnamed Creeks (in Karst Region) 0.90 acre
- Ditches (within herbaceous wetlands) 0.08 acre

Our calculated total temporary impact to EFH is approximately 3.8 acres. Forested estuarine habitat will not be impacted because Horizontal Directional Drilling (HDD) will be utilized in those systems.

3) *Please provide additional explanation that can help us determine if HDD will be utilized with encountering "Estuarine Forested Wetland" and the other types of EFH habitats, such as seagrasses and submerged vegetation. This would help NMFS evaluate alternatives to the proposed action.*

RESPONSE: Table 7 of the JPA Report, which was submitted with the Joint Application, has been modified. The table includes only those temporary impacts

associated with potential EFH impacts. The crossing methods, including HDD, are identified for each habitat type. Type 1= HDD, Type 2= Open Cut Waterbody Crossing, Type 3= Open Cut Waterbody Crossing (Minor Waterbody), and Wetland= Open/Box Cut Crossing.

*4) Please provide results of an actual survey of the organisms in the estuarine areas that the proposed project impacts.*

RESPONSE: Results from the Flora and Fauna study conducted by Coll Environmental were included in the Joint Application Package. Additionally, surveys are currently being conducted at the request of USFWS. Any further survey results that involve estuarine organisms will be provided promptly upon completion.

U.S. Fish and Wildlife Service (USFWS):

Before addressing USFWS specific comments included in the December 15, 2010 letter, it is important to point out that comments presented were based on the Draft of the EIS (Sept. 9, 2010) and not on the FEIS approved by the EQB on November 30, 2010. However in an effort to address them out we are presenting the following comments, clarifications and responses aimed to address pertinent issues pulled from the aforementioned USFWS letter.

Issues –

**1. Purpose of the Project, Single and Complete Project, Federal Involvement and compliance with the National Environmental Policy Act (NEPA)**

- The PN fails to discuss necessary changes to EcoElectrica's currently authorized facilities and operations to supply natural gas to PREP A's three facilities in the north. Because the Via Verde pipeline would require additional storage and modifications to the EcoElectrica terminal, these projects are interrelated and should be viewed as one single and complete project. Should EcoElectrica fail to obtain FERC authorization for the physical and / or operational modifications that might be necessary to serve the pipeline, the Corps would be permitting a fragment of a project that could not fulfill the stated purpose and need and would have irreversible resource impacts.

RESPONSE: Additional modifications to the EcoElectrica terminal which may be required to provide natural gas to the Via Verde project have previously been reviewed and permitted by Federal Energy Regulatory Commission (FERC) during 2009 as parts of past projects. These modifications to be completed during the last quarter of 2011 can be constructed independent of the existence of the Via Verde project. The overall project purpose is to deliver an alternate fuel source, which already

exists at the EcoElectrica terminal, to the three existing electric power generating facilities located on the north coast of Puerto Rico. This will allow PREPA to select based on power demand and heat rates characteristics the most efficient unit to be utilized to meet the daily power generation demands to be serviced by PREPA.

- This project should be evaluated as a major construction activity since it would affect about 1,672 acres of land, including about 369 acres of wetlands, several Commonwealth Forests or Reserves, forested mountain and karst areas, and known habitat for more than 30 federally listed threatened or endangered species.

RESPONSE: The proposed project will result in only temporary impacts to approximately 152 acres of waters of the U.S. (WoUS) with no permanent fill or net loss. This is derived from multiplying the length of each expected jurisdictional crossing by the 50-foot width the contractor will operate within when locating the pipeline in WoUS. The limits of the project area (1,672 acres of land) reflect the limits of an enlarged utility right-of way (ROW) to be established for safety purposes. The ROW is required to ensure that no future encroachment occurs adjacent to the gas transmission line and should not be construed as cleared ROW corridor such as that required for a transportation project. All but 50 feet of this ROW will be allowed to naturally revegetate to preconstruction conditions and at the same time areas located in up lands will be utilized to plant trees as part of the Mitigation efforts required by the Department of Natural & Environmental Resources (DNER). Within the remaining 50-foot zone, only deep rooted vegetation, i.e. large trees, will be restricted. As such, the applicant questions how the Service has determined the project constitutes a "major construction activity or the criteria's utilized to reach such conclusion."

Surveys for federally Threatened and Endangered species **that may be present** in the project area, have been carefully refined to address species of concern and key habitat areas through several meetings with the Service. Presently, field surveys (including the participation of USF&WS personnel) are being performed (utilizing regional experts and protocols approved by the USFWS) within the project ROW. These surveys have been and continue to be closely coordinated with the USFWS to ensure that all species of concern (flora and fauna) are assessed. To date, no threatened and endangered plant species have been identified and only six faunal species of concern have been identified; two of which (PR Nightjar and PR boa) have been positively identified as occurring within the ROW. Surveys for the following six species remain on-going; Puerto Rican (PR) broadwinged hawk, PR sharp-shinned hawk, PR crested toad, PR Nightjar, PR Boa, and the Coqui Illanero.

## 2. Alternatives Analysis

- The applicant's alternative analysis does not include PREPA's original plan to build a new natural gas combined cycle power plant close to the existing Costa Sur facility, and to retro fit both Costa Sur and Aguirre power plants to use natural gas. This was the applicant's preferred alternative in the past and now is not mentioned in the applicant's alternatives analysis.

RESPONSE: The overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast of Puerto Rico. Attempting to use the *Gasoducto del Sur* would be inconsistent with the overall purpose of the project, and therefore is not a practicable alternative. It is not practicable because generating most of the energy the island needs on the south coast would create a situation which destabilizes the electrical system and could cause frequent collapses of the electric network. This, in turn, would adversely affect Puerto Rico's economy. Also, at the time the *Gasoducto del Sur* was considered, natural gas prices were similar to those of Bunker C. This meant the conversion of the South Coast Plant units would not be practicable. Therefore, converting the Aguirre's Combined Cycle was selected because natural gas would replace the more expensive and polluting Diesel Fuel. With natural gas prices plunging, even lower than Bunker C prices, it is preferable today to convert the Bunker C fired units which have a greater generating capacity. Today, with the South Coast completely converted to natural gas, and the geographical limitations imposed by our electric system, Aguirre's conversion is not a priority for PREPA, and is therefore not considered as part of Via Verde. Unless the Corps officially disagrees with this understanding of the Via Verde scope for an alternatives analysis, as approved in the FEIS back on November 30, 2010 by the EQB, and officially notifies PREPA that additional review is required, *Gasoducto del Sur* will not be discussed further.

The alternatives analysis provided reflects and supports the project purpose and scope provided in the current Joint Permit Application presently under review by the USACE (SAJ 2010-02881 (IP-EWG), Via Verde Pipeline Project. PREPA's previous plan to build a new natural gas combined cycle power plant close to the existing Costa Sur facility, and to retrofit both Costa Sur and Aguirre power plants to use natural gas are not part of this project and is not being considered. Moreover the construction of a combine cycle plant close to the existing Costa Sur facility is a project that will be developed by a private entity to be selected under an independent bid process being developed by the Private Public Alliance Office outside the PREPA.

### 3. Habitat Impacts

- The construction right of way (ROW) width ranges from 100 to 150 feet, and more if needed, with a final permanent ROW of 50 feet. The "Declaracion de Impacto Ambiental Preliminar"(DIA-P) states that all vegetation within the construction ROW will be cut and that the permanent 50 foot ROW will be maintained as a no-root zone with no woody vegetation. The DIA-P does not propose mitigation for impacts to previously undisturbed forested areas in this long corridor that will create an avenue for invasive and noxious species to enter previously isolated areas of wildlife habitat. The DIA-P also does not describe methods for maintaining a 92-mile, 50-foot-wide no-root zone corridor through karst and mountainous topography.

RESPONSE: The no-root zone was incorrectly described in the DIA-P and has subsequently been revised in the FEIS approved on November 30, 2010 by the EQB. The original right-of way (ROW) design allowed for only shallow rooted herbaceous and/or shrub vegetation within the permanent right-of-way. PREPA as clearly indicated in the FEIS will be utilizing the ROW to implement the Mitigation Plan requested by the DNER. This concept has since been modified to allow for the natural recruitment of all native vegetation (herbs, shrubs, and trees) within the ROW corridor. Only within the 50-foot zone immediately above the pipeline will vegetation be regulated to restrict the growth of deep rooted trees.

All inspections and light maintenance of the pipeline will be conducted internally, using a remote controlled robotic pipeline inspection gauge (PIG). PIG launchers and receivers will be located outside wetlands and other surface waters, typically in disturbed upland areas within the project ROW. If surface supported maintenance is required for any section of the pipeline, only vegetation clearing in that limited area will occur. The area would then be allowed to naturally recruit or be reforested as part of the Mitigation Plan developed.

- The Service is concerned that the clearing of all vegetation in the 150 foot ROW as stated in the DIA-P, in areas of highly erodible or unstable lands would cause excessive erosion that could impair water quality and channel stability in streams and rivers along the route. Trenching is likely not feasible in many steep areas within the corridor, yet DIA-P includes no discussion of how these areas will be traversed.

RESPONSE: We must advise that all comments included in the USFWS were based on the evaluation of the first Draft of the EIS and not on the evaluation of the FEIS approved by the EQB on November 30, 2010. Sediment and Erosion control methods will be utilized throughout the construction of the pipeline to prevent excessive erosion that could impair

water quality and channel stability in streams and rivers along the route. Specific information related with the sediment control options is included in section 6.4.2 of the FEIS. We must alert the USF&WS that the sediment control options were developed utilizing criteria's that had being approved by the EQB and the EPA in the past for similar projects and that had met and address all the USF&WS concerns in this particular area.

- Generalized drawings as seen on sheet 2 of the PN do not clearly represent what is written in the DIA-P. The proposed permanent 50 foot ROW and its associated no root zone will require either mechanical or chemical maintenance, which implies construction of a permanent maintenance road with associated stream crossings along most of, if not the entire, ROW length. This is not addressed anywhere in the documents. Utilizing the full estimate of ROW impacts should also help account for staging areas along the project route.

**RESPONSE:** As previously stated, the proposed pipeline does not require a no-root zone. At no point was it implied that permanent maintenance roads will be required for any water body crossing; stream, wetland, river, or otherwise. A permanent maintenance road has never been considered as part of the project and there is no plan, intent or need for such a road. After the pipeline is built, PREPA will use alternative methods, such as helicopters, to reach remote or isolated sections of the project. The idea of a "maintenance highway" is far from what PREPA envisions, and has never been part of the project.

- The Service is concerned about the possible impacts of directional drilling in the karst portions of the pipeline corridor. Voids in the rock matrix may lead directly to the aquifer, and a "frac-out" of drilling muds in this type of terrain and geology could contaminate underground waters and adversely affect human health, unique subterranean fauna, and commerce.

**RESPONSE:** It is recognized that due care must to taken to ensure that contractors adhere to prudent practices to avoid the accidental release of bentonite mud. The North American Society for Trenchless Technology (NASTT) provides guidance for the analysis and design of tooling essential in reducing the incidence of hydro fractures (frac-outs) in karst environments. Hydro fracture or "frac outs" result when the fluid pressures built up in the borehole exceed the overburden effect of the surround soil medium. Several drilling factors and procedures will be monitored to preclude the development of hydro fractures. Eight significant factors will be evaluated at each HDD. These include: annular space; backream rate; borehole pressure; depth of cover; reamer type; reamer diameter; soil composition; and soil density.

To ensure the Horizontal Directional Drilling (HDD) operations to be conducted in association with the Via Verde Pipeline will comply with all

regulatory permits and standards, proper pre-construction geotechnical investigations will be conducted on the insitu soil formations along the proposed installation route. Tooling used in HDD installations will be matched to the soil medium to be encountered. The Frac-Out Plan (Draft included in the FEIS approved on November 30, 2010) will be enhanced to stipulate lined pits and all environmental details depicted for the sedimentation ponds.

In summary, the HDD operation to be utilized on the Via Verde pipeline will include proper pre-construction geotechnical investigations, limit drill fluid application rates, utilize an appropriate type reamer to reduce the extent and magnitude of the drilling fluid dispersed, carefully monitor drilling mud pressures increased until the midpoint of the installation is attained, and insure proper containment, recycling, and/or reuse of drilling muds. All HDD operations for the Via Verde Pipeline will be conducted in accordance with the guidelines and recommendations of the North American Society for Trenchless Technology (NASTT) for karst environments. Regardless, PREPA is willing to include any specific recommendations provided by the USCOE to improve the Frac-Out Plan included in the FEIS.

#### 4. Endangered Species

- The Service also continues to recommend surveys of the coqui llanero (*Eleutherodactylus juanariveroi*) where the project crosses wetlands in Toa Baja.

RESPONSE: The applicant has met and/or engaged in teleconferences with the Service on six occasions to date. Surveys for federally listed Threatened and Endangered species, utilizing regional experts approved by the USFWS, have been and continue to be performed by PREPA within the project ROW. These site specific field surveys have been coordinated with the USFWS as to protocols and individual species to be assessed. To date, no threatened and endangered plant species have been identified and the list of faunal species of concern have been narrowed to six species, two of which have been positively documented as occurring within the ROW. Surveys for the six species previously identified remain on-going.

- The Corps needs to make an effect determination with regards to the endangered Antillean manatee (*Trichechus manatus*). The Corps' biological assessment (BA) should include an analysis of any necessary changes to current facilities and/or operation of the EcoElectrica LNG terminal needed for the Via Verde project.

RESPONSE: A response to the USFWS position regarding the EcoElectrica facility was provided above and PREPA sees no valid reason why a BA would include this analysis. Since no construction that has the potential to harm or disturb the manatee is proposed as part of this project, the applicant believes a "no effect" determination by the Corps is appropriate for the endangered Antillean manatee (*Trichechus manatus*). Moreover this concern was to be considered and evaluated at the time EcoElectrica requested a Plant Modification Permit that was granted in 2009 with the endorsement of the Service.

- USFWS recommended the development of a Biological Assessment, since it considered the project a major construction activity under NEPA.

RESPONSE: On October 18, 2010, the Service provided technical assistance to the Corps regarding information included in the draft Biological Evaluation for the project. It was concluded that additional biological evaluations to be provided by the applicant must rely upon survey methodologies that maximized detection probabilities for federally-listed species and must include site-specific habitat characterization. On November 10, December 2, and December 8, 2010, the Service provided additional technical assistance to the project applicant regarding appropriate survey methods for listed species along the proposed route.

The proposed project will result in only temporary impacts to approximately 152 acres of wetlands and no permanent fill or net loss to Waters of the United States (WoUS) will occur. After completing the environmental assessment and developing a plan to address the temporal loss of wetland functions (if required) the applicant believes the project will not result in any substantial effects on the aquatic environment and therefore a Finding of No Significant Impact (FONSI) is appropriate.

At the present time, with full knowledge and approval of the Service, the applicant has a team of regional scientific experts conducting site specific, appropriate surveys along the proposed route to determine presence/absence of listed species within the project area and the amount of suitable habitat. The survey methodologies developed and the surveys being conducted are being carried out by experienced and qualified personnel, and in close coordination with the Service. The draft Biological Assessment (Evaluation) will be appended to include the results of such surveys and will be the basis for all future consultations with the Service.

In addition to the above, the DNER requested that, to further ensure no federally-listed species is affected as a result of this project, a regional Biologist be assigned to each of the segments of Via Verde to be constructed. He, as well as an interdisciplinary group of professionals (Soil experts, Geologist and Hydrologist), will inspect the construction areas to ensure federally-listed species are fully protected.

- USFWS would like to provide technical assistance for the planning and implementation of the surveys to inform the Biological Assessment.

RESPONSE: The applicant wishes to thank the USFWS for the technical assistance provided to date and includes the information (below) as an update to on-going surveys and project research. The applicant recognizes that some of the information included has previously been provided to the Service and/or the USACE.

#### **Habitat characterization for the Puerto Rican sharp-shinned hawk and Puerto Rican broad-winged hawk**

- USFWS wanted to meet with the species experts and discuss, during a working meeting, the areas to be included in the analysis to ensure that all available information is considered for the effects determination. USFWS also wanted to have the opportunity to visit the areas with contracted personnel. The agency did not concur with the applicant that it is possible to avoid impacts to breeding habitat and breeding behavior without first identifying the breeding territory. Under the assumption that suitable habitat is occupied for breeding, possible take as defined by the ESA would be anticipated.

RESPONSE: PREPA committed to complete the requested raptor studies using Mr. Derek Hengstenberg, an acknowledged expert acceptable to the USFWS. As requested, Mr. Hengstenberg and the PREPA Team participated in working meetings (December 2010 to date) with the USFWS and agreed to field survey protocols, site locations, survey locations and times. Prior to the December USFWS meeting and teleconference, Mr. Hengstenberg prepared a GIS map with proposed raptor observation locations for review and approval by USFWS. In addition, Mr. Hengstenberg has agreed to share any and all available relevant raptor data with USFWS in dbf/xls file format. Mr. Hengstenberg commenced field surveys the week of January 10, 2011. The surveys were completed on January 27. The results of the surveys will be provided to the USFWS on or about February 11, 2011. Upon receipt of the surveys, the applicant will meet with the USFWS to evaluate the number of breeding territories that could be affected by the project construction (if any).

#### **Potential presence of endangered plants**

- USFWS did not agree with the Applicant's proposal of surveying at intervals of 100 m within suitable habitat. It recommends that personnel trained to recognize the listed species systematically search all areas of suitable habitat within the project footprint. It proposed a working meeting

between its staff and the applicant's contracted personnel to share information and delineate together the survey areas.

**RESPONSE:** The field review protocols to be utilized by Dr. Frank Axelrod and a team of qualified professionals were revised, with prior concurrence of the USFWS, to maximize the likelihood of locating special status plant species or special status natural communities that may be present. The protocols include intensive, systematic surveys targeted to detect the rare plant species in areas that harbor suitable habitat in the regions identified by USFWS. The target species will include those species identified in the USFWS letter to the applicant dated June 30, 2010. The level of effort required per given area and habitat will be dependent upon the vegetation and its overall diversity and structural complexity, which will determine the distance at which plants can be identified. Biologists will walk parallel transects spaced 5 to 10 meters (16 to 33 feet) apart throughout the entire site (in areas where suitable habitat exists) thereby entirely and systematically screening the area. Transects will be stratified by topography or plant community for convenience. All field survey crews will include at least one member who has the ability to identify sterile specimens of listed plant species and who has seen the target species growing in its natural habitat. Other team members may be trained using photographs and/or herbarium specimens but all must be accompanied in the field by the aforementioned experienced crew member during all surveys. Prior to conducting the field surveys, a working meeting will be held between the PREPA team and the USFWS. The purpose of this meeting will be to share information and to clearly identify the limits of those areas to receive intensive, systematic surveys.

Survey reports to be prepared will document the locations that were visited, the date of the visit, and the observability and phenology of the target species at that time, plus the date of the survey, the abundance and distribution of all rare species in the survey area. The current status and abundance of any known populations visited as well as any new populations discovered will also be reported. The surveys performed in accordance with the agreed upon species-specific guidelines to be developed by Dr. Axelrod will suffice to provide reasonable evidence that the specified plant taxa do or do not occur in the project area. Surveys that employ methods or timing other than those agreed upon or recommended herein may be used as evidence of the presence (but not absence) of rare plant species.

Final determination as to whether voucher specimens are to be collected will be the responsibility of Dr. Axelrod. All voucher specimens collected will be shared amongst the PREPA Team and the USFWS.

To date, Dr. Axelrod and his team have not found any federally listed species of concern within the limits of, or adjacent to, the Via Verde

Pipeline right-of-way. Dr. Axelrod's fieldwork is currently being completed and a final copy of the team's findings will be presented to the Service in February, 2011.

#### **Potential presence of coqui llanero in Toa Baja**

- USFWS wanted the opportunity to visit the proposed project ROW within other wetland areas in northern Puerto Rico to identify whether habitat suitable for the coqui llanero is present in other areas of the route.

RESPONSE: The locations for the surveys for this species have been coordinated with the Service will be limited to that segment of the project located at the Rio Cocal flood plain in the Toa Baja Municipality at this time. Ms. Vega and Mr. Puente will conduct the field surveys after having conferred with Dr. Rafael Jogular, Dr. Neftali Rios, and the Department of Natural & Environmental Resources of Puerto Rico as to the likelihood that this species exists within other sections of the northern ROW. Based upon the guidance of these leading experts; other areas of the ROW may be examined. A written report will be submitted to the USFWS in February 2011. This report will address all concerns and recommendations on this species. This species is presently listed as Critically Endangered by The Department of Natural & Environmental Resources of Puerto Rico and its critical habitat has been identified, PREPA will comply with all State requirements for this species until such time as its review status under the Endangered Species Act has been finalized (Reference: DEPARTMENT OF THE INTERIOR, Fish and Wildlife Service, 50 CFR Part 17, [FWS-R4-ES-2009-0022; 92210-1117-000-B4], Federal Register: July 8, 2009 (Volume 74, Number 129)). The concerns and recommendations generated in the final report will be incorporated into the project design, construction plans, and final permits issued for the project. We must consider that in this particular regard, the DNER evaluated and approved the assessment presented for this particular specie included in the FEIS approved on November 30, 2010.

#### **Potential presence of the Puerto Rican crested toad**

- USFWS agreed with PREPA's approach to search for the Puerto Rican crested toad in both the southern and northern limestone forest areas. It recommended that before surveys are initiated, survey areas are discussed and delineated between its staff and contracted species experts. The agency wanted the opportunity to visit the areas with contracted personnel.

RESPONSE: Specific field evaluations for the Puerto Rican Crested Toad (PRCT) - Sapo Concho de Puerto Rico (*Peltophryne lemur*) have been initiated within the municipalities of Vega Baja (Rio Indio), Manatí (karst area south of town), and Peñuelas dry karst as recommended by the

USFWS. The surveys are being conducted by a team of biologists, led by Ms. Sondra Vega and Mr. Alberto Puente. The survey methodologies and protocols have been discussed and approved by the USFWS. The results of the final study, including all survey data, will be submitted to the USFWS in February 2011. This report will address all concerns and recommendations on this species.

### **Puerto Rican night jar**

- USFWS recommended intensive surveys during the breeding season for the endangered Puerto Rican night jar to determine the amount of suitable habitat and the number of singing males or territories that the project may affect.

RESPONSE: Field surveys for Puerto Rican Nightjar were agreed to by the applicant. In light of this agreement, the applicant presented a detailed protocol and methodology to implement the field work agreed upon. This protocol was commented by the USFWS and applicant is incorporating those recommendations to the final protocol which will be filed in the near future. All field work will be conducted and completed during the month on February 2011. All field surveys will be conducted by a regional expert with prior approval of the USFWS. All field findings will be presented in a report to the USFWS for final review and approval.

The amount of dry forest to be cleared within the limits of the project ROW will be carefully calculated and these areas will be surveyed in their entirety. It is conceivable that no nightjar will be technically harmed by the PREPA Vía Verde pipeline. Existing published and USFWS accepted data available from the WindMar project together with the field data to be collected as part of the study to be carried out by PREPA will be used to develop an impact analysis for this species. It has been previously documented that nightjars at the WindMar site have already demonstrated that they can adapt positively to cleared roads. Unlike WindMar, the proposed PREPA ROW will remain vegetated, have leaf litter present, and should act as a viable foraging area for the nightjar.

Upon completion of the field surveys by the PREPA Team, the project site plan will be evaluated for its potential impact to the existing PR Nightjar territories identified, and facilitate the development of a mitigation plan.

### **Puerto Rican boa**

- The applicant should delineate and quantify the amount of suitable boa habitat within the project area. The applicant should first consider alternatives to avoid these areas and develop conservation measures to minimize possible adverse effects where avoidance is not possible. Once possible effects are appropriately minimized, the Service would work with

the Applicant to develop a search and rescue protocol for relocating individual animals to suitable habitat outside of the project area prior to project construction.

**RESPONSE:** As requested, the PREPA Team has agreed to quantify the potential habitat for the boa. The project will not result in any habitat loss to the snake; although direct impacts to forested systems may result in changes to community structure. Mr. Alberto Puentes will review the pre- and post-project conditions for potential habitation by the boa. Since the boa is found in all habitats; a weighted number could be generated for individual habitat types (based upon existing species occurrence data). Habitat conversion (i.e. forested to herbaceous ROW) could then be addressed by taking the pre- and post-construction acreage for each habitat type times the habitat utilization value to ascertain net change. Any habitat compensation required could be similarly assessed should non-type for type offsets be proposed. Relocation of the pipeline within the proposed ROW will not result in any significant impact and further re-alignment of the ROW is not a viable option due to the need to avoid major population centers pursuant to the requirements of the USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations and constraints for co-locating a utility line within existing rights-of-way under the jurisdiction of the Federal Highway Administration (FHA). The standard boa construction and preservation conditions provided with the original JPA submittal will address on-going construction once the permit is issued.

## **5. Impacts to Landowner Incentive Programs**

- The present project goes throughout properties under the Service's Partners for Fish and Wildlife Program (PFWP). USFWS identified that at least three properties under a current Conservation Agreement with the Service that may be adversely affected by the proposed project: Hacienda Pellejas in Adjuntas, Hacienda Esperanza in Manati, and the US Navy Radio Station in Toa Baja. Current efforts at these highly ecologically valued properties include restoration of forest, riparian habitat and restoration of wetland areas. The Service has invested close to \$180,000 of federal funds on these restoration activities, and we recommend modifying the project to avoid these areas. If avoidance is not practicable, the conservation investment in these properties must be compensated with comparable restoration efforts on other similar properties.

**RESPONSE:** As a result of both public comments and regulatory agency concerns, the pipeline was relocated to avoid impacts within the Hacienda Esperanza in Manati. In regard to Hacienda Pellejas and US Navy Radio

Station in Toa Baja, the selected pipeline route avoids the areas where Conservations Agreements have been developed.

## 6. Wetland Impacts

- USFWS recommended using a 150-foot construction corridor width to estimate temporary impacts.

RESPONSE: PREPA does not agree that a 150-foot wide width should be used to calculate impacts. Best Management Practices (BMP) for construction techniques for the overall project have been provided. In addition, construction techniques and stabilization techniques for individual water crossing types and upland installations were included together with the JPA documentation. The Service has accepted these techniques for past and recent construction activities. If these are no longer acceptable, the Corps should define which specific elements of the BMP, SWPPP and or Frac-Out Plan are deficient and the applicant will gladly meet with the Corps to develop revised conditions based upon current industry standards.

It has been repeatedly stated within multiple sections of the local Environmental Impact Statements approved back on November 30, 2010 and the Joint Permit Application that all disturbed areas within WoUS will be restored to natural (pre-construction) grades and the areas will be restored using the native topsoil. Native seed mixes will be used as necessary to ensure these areas are properly restored.

- The USFWS stated some of the wetlands the project may affect are within areas designated by the Commonwealth of Puerto Rico as Natural Reserves and Critical Wildlife Areas, including: the Cucharillas Marsh PCA, San Pedro Swamp PCA, Cano Tiburones Natural Reserve, and Hacienda la Esperanza Natural Reserve. These areas lie within the northern karst, an area known for its underground streams, springs and shallow aquifer.

RESPONSE: The USFWS comment and concerns are noted. All work conducted in the northern karst area will use due care with respect to disturbance of underground streams, springs and the shallow aquifer. The trenches required to embed the pipeline are in most cases shallower than the surrounding agricultural ditches and canalized streams in the areas of concern. A large percentage of the wetland areas the project corridor crosses are previously disturbed wetlands used in the past for ranching, cattle grazing and/or farming activities.

- The Service is very concerned with the use of HDD in karst topography, where voids in the substrate are common and often connected to ground- and surface-water systems.

**RESPONSE:** It is recognized that due care must be taken to ensure that contractors adhere to prudent practices to avoid the accidental release of bentonite mud. The North American Society for Trenchless Technology (NASTT) provides guidance for the analysis and design of tooling essential in reducing the incidence of hydro fractures (frac-outs) in karst environments. Hydro fracture or frac outs result when the fluid pressures built up in the borehole exceed the overburden effect of the surround soil medium. Several drilling factors and procedures will be monitored to preclude the development of hydro fractures. Eight significant factors will be evaluated at each HDD. These include: annular space; backream rate; borehole pressure; depth of cover; reamer type; reamer diameter; soil composition; and soil density.

To ensure that the Horizontal Directional Drilling (HDD) operations to be conducted in association with the Via Verde Pipeline will comply with all regulatory permits and standards, proper pre-construction geotechnical investigations will be conducted on the insitu soil formations along the proposed installation route. Tooling used in HDD installations will then be matched to the soil medium to be encountered. The Frac-Out Plan and will be amended to stipulate lined pits and all environmental details which depict the sedimentation ponds will be revised.

In summary, the HDD operation to be utilized on the Via Verde pipeline will include proper pre-construction geotechnical investigations, limit drill fluid application rates, utilize an appropriate type reamer to reduce the extent and magnitude of the drilling fluid dispersed, carefully monitor drilling mud pressures increased until the midpoint of the installation is attained, and insure proper containment, recycling, and/or reuse of drilling muds. Strict adherence to the North American Society for Trenchless Technology (NASTT) guidelines for HDD operations in karst environments will be maintained.

- The pipeline route crosses multiple low-order streams in mountainous areas. These streams are the headwaters of larger rivers and support a marine-derived native stream fauna composed of several species of freshwater shrimp, crabs and gobies. Excessive erosion and sedimentation during construction or maintenance of the ROW could cause long-term or permanent impacts to these important wildlife areas.

**RESPONSE:** The agency's concerns are noted. Due to the relatively small sizes of the low-order streams to be crossed, the extent and duration of the temporary impacts to these areas will be minimal. The applicant will utilize all applicable turbidity and erosion control measures to insure water quality parameters are in compliance with permit standards. Erosion and sedimentation during construction within the ROW is not expected to cause long-term or permanent impacts to these important

wildlife areas. If the contractor operates improperly the Corps as well as the EPA and the EQB has the authority to bring an appropriate enforcement action aimed to correct any deficiency or deviation into the approved Sedimentation and Erosion Plan noted.

- It is not clear whether the 50-foot permanent ROW in forested wetlands could be used to access the pipeline in the future. If so, then this should be considered a permanent wetland impact. Because of the muck soils associated with some of these wetland types, additional staging areas will be needed for the drill rig, pipe, etc. There is no mention of how drilling mud will be managed, since there will be a need for sumps and other ground disturbances at the drill site to store drill muds.

RESPONSE: Drilling mud management will be accomplished through lined ponds located in upland areas whenever possible. Access to the pipeline through the ROW for surface based maintenance will not occur since the project has been designed so that all inspections and light maintenance of the pipeline can be conducted using a remote controlled, robotic pipeline inspection gauge (PIG). PIG launchers and receivers will be located outside wetlands and other surface waters. After the construction and installation of each pipeline segment, wetlands and surface waters will be restored to their original pre-construction state and allowed to naturally recruit with native species. No permanent fill, net loss of wetlands, or significant changes to community types will occur as a result of the construction of the pipeline.

Construction considerations - Where wetland or special constraints exist, the drilling contractor has the option to use closed containerized vessels for drill mud storage and segregation. Any required staging areas for tanks etc. will be located in upland areas.

## 7. Mitigation

- The Applicant proposes a .01-to-1 compensatory mitigation ratio. This would amount to 4 acres of compensatory mitigation for an estimated 369 acres of "temporary" wetland impacts, which is inappropriate and unacceptable to the Service. A much higher ratio is necessary to compensate for the: 1) temporary loss of wetlands functions and values; 2) likely permanent loss of functions and values due to contractor errors; and 3) permanent habitat alteration by species such as cattails that rapidly invade disturbed wetland areas and compete with more beneficial wetland plants.

### RESPONSES:

1) As indicated in the JPA information and materials provided, wetland disturbance during construction has been repeatedly evaluated to minimize direct aquatic resource impacts. After construction and site

restoration, native vegetation should reestablish naturally. Many of the proposed temporary wetland impacts within the ROW will occur in agricultural fields or farmlands; which while designated as wetlands are routinely maintained, planted, harvested, and drained. The post construction ROW will have restrictions on the types of activities allowed during the active life of the project thereby improving the wetland quality and functions in these areas. Temporal loss of wetland function during construction will be addressed and will be weighed against the net gains associated with restricted activities and elevated levels of protection afforded within the post construction ROW. Potential aquatic resource impacts at some distance in time, or reasonably certain to occur are difficult to imagine, much less predict. The applicant disagrees with USFWS' general statement that a higher ratio of mitigation is required. Notwithstanding, PREPA has agreed to develop a plan requested by the DNER. This is established in the FEIS, at a 3:1 mitigation ratio, for any permanent impact to be done in wetland areas.

2) Losses due to contractor errors will be unacceptable to the applicant and constitute an enforceable violation to the regulatory agencies. As required by law, the applicant will notify all appropriate regulatory agencies with its Notice of Intent to commence construction and will make all contractors working on the project aware of the limitations and constraints contained in all permits issued for the project.

3) The applicant recognizes that cattails can rapidly invade disturbed wetland areas and compete with more beneficial wetland plants. The applicant will be amenable to any reasonable restrictions that the Corps may require regarding maintenance and minimum acceptable standards for percent cover by non-native and/or nuisance wetland species.

- The project area includes the mitigation area for the *Gasoducto del Sur* project, despite our repeated requests during the technical assistance process to avoid this area. This area was selected as a mitigation area to preserve its large amount of undisturbed, quality habitat. The Corps needs to assure compliance with previous permit conditions as part of considering this new permit action.

#### RESPONSE:

The Via Verde project WIL NOT impact the mitigation area selected for the *Gasoducto del Sur*. At this time PREPA is requesting the DNER to complete the purchase of the identified property, according to the survey completed may house an additional parcel of land that could be utilized as a mitigation site for the Via Verde project as well. PREPA has complied with all actions required on its part by the mitigation plans for the *Gasoducto del Sur*.