BEFORE THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

AGENDA FOR APRIL 12, 1990

Item I

Consideration of a Recommended Order which finds that Florida Power and Light Company's proposed Levee-Midway 500 kV transmission line corridor should be granted certification by the Siting Board, subject to comprehensive conditions of certification contained in the Recommended Order.

A. Summary

On May 25, 1988, the Public Service Commission (PSC) issued Order No. 19730, finding that there was a need for the construction of a 500 kilovolt (kV) transmission line connecting the Florida Power and Light Company (FPL) Midway substation located in St. Lucie County with FPL's Levee substation in Dade County, a distance of approximately 150 miles. Order No. 19730 specified that the needed line must connect with FPL's existing Corbett substation in Palm Beach County and with a proposed Conservation substation in Broward County.

On January 9, 1989, FPL filed its application for certification of a proposed Levee-Midway corridor under the Transmission Line Siting Act (TLSA), Section 403.52 et seq, Florida Statutes. In August of 1989, over thirty alternate corridor proposals were filed by a variety of public and private entities.

FPL agreed to accept two of these alternate corridor proposals in substitution for its own original proposal, which was declared uncertifiable by the Department of Environmental Regulation (DER) because it called for the routing of the line through the Corbett Wildlife Management Area as well as through certain municipalities in western Broward County. FPL agreed to support an alternate corridor alignment proposed by the Treasure Coast Regional Planning Council (TCRPC), identified as TCRPC 1, north of the Corbett substation; and the proposal of the South Florida Water Management District (SFWMD) south of Corbett. The TCRPC 1 alternate corridor traverses uninhabited, primarily agricultural land with minimal encroachment on wetland areas. The SFWMD corridor traverses agricultural land (primarily in sugar cane cultivation) in its northern reach from the Corbett station to approximately the Palm Beach-Broward County line. From the Broward County line to Dade County, the SFWMD corridor is located just inside the border of several Water Conservation Areas. From the Dade County line south to Levee substation, the corridor crosses undeveloped land, primarily sawgrass marsh, with areas of rock excavation. The areas traversed by the SFWMD corridor are also basically uninhabited.

Two and one-half weeks of evidentiary hearings began in Ft. Lauderdale on November 13, 1989, concluding on December 6, 1989. Public hearings concerning the proposed corridor were held in Fort Pierce, Stuart, West Palm Beach, and Davie during the period of the evidentiary hearing. 31 parties entered formal appearances at the evidentiary hearing.

Neither FPL nor any other party actively supported the original FPL-proposed corridor alignment through the Corbett area and Broward cities. At the beginning of the evidentiary hearing, a partial Summary Recommended Order rejecting the original FPL corridor alignment was entered without objection. No evidence was received in support of the original FPL-proposed corridor.

During the course of the hearing, various stipulations for settlement were entered into between FPL and parties having objections to the new FPL-preferred corridor alignment. After the Summary Recommended Order and settlement stipulations, the only alternate corridor proposals concerning which evidence was taken at the formal hearing were TCRPC 1 and 2; A. Duda and Sons, Inc. (Duda) 1/1A and 2/2A; and SFWMD. The Florida Sugar Cane League (FSCL), on behalf of its affiliated companies (New Hope Sugar Company, Okeelanta Corporation, Sugar Cane Growers Cooperative of Florida, South Bay Growers, Inc., United Stated Sugar Corporation, and S.D. Sugar Corporation) presented evidence in support of a narrowing of the SFWMD corridor. In addition, FSCL supported TCRPC 2 in preference to TCRPC 1, preferred by FPL. Duda supported either of its proposed alternate corridor alignments in preference to the TCRPC alignment, which bisects extensive Duda agricultural property holdings in St. Lucie County which Duda desires to develop for residential purposes. Duda was joined in its advocacy of the Duda alternates by the Allapattah Properties Partnership,

owner of a 17,000 acre cattle ranch in Martin County immediately south of the Duda holdings, through which the TCRPC corridors also pass.

The Department of Environmental Regulation recommended that the FPL preferred (TCRPC-SFWMD) corridor be found certifiable if appropriate wetland mitigation is provided by FPL and it is concluded that enhancement to water conservation areas will be provided through the 28 million dollar fund which FPL proposes to establish with SFWMD for SWIM plan activities.

A Recommended Order was issued by Hearing Officer Diane K. Kiesling on March 2, 1990. The hearing officer found that the TCRPC corridor will have minimal impact to the public and the environment in comparison to the corresponding Duda alternatives. The hearing officer found that the Duda 1/1A alignment would have greater impact on the public because of the presence of a residential subdivision, numerous individual residences, and an airport not found in the TCRPC alignment; there are three subdivision and two airport glide paths located within Duda 2/2A, with a correspondingly greater impact by comparison. The hearing officer rejected Duda's contention that the TCRPC corridor would adversely affect its development plans, since 2/3 of the corridor area is expected to remain in agricultural land use even if Duda receives permission from St. Lucie County for a change in its land use designation from agricultural to residential urban. The Department of Community Affairs has objected to the proposed reclassification of the Duda land found on the proposed St. Lucie County land use map.

As to the SFWMD corridor, the hearing officer found that the proposed alignment will have minimal effects on the public because it traverses areas without residential development. The hearing officer declined to recommend the narrowing of the SFWMD corridor advocated by FSCL, finding that the minor expected impact to sugar cane production from the placement of the line in existing canefields would not be decreased by narrowing the corridor. She found, however, that narrowing the corridor would not allow the separation between the new line and the existing 500 kV line already in place in the corridor which is necessary to prevent a simultaneous outage of both lines due to a single catastrophic fire or other event.

The hearing officer found that the 28 million dollar fund which FPL has agreed to establish will provide funds for mitigative measures necessary to offset negative impacts to jurisdictional wetlands within the SFWMD corridor as well as for enhancement measures in the Water Conservation Areas deemed necessary to satisfy Governor's Executive Order 88-25 (January 21, 1988).

The recommended order contains a comprehensive compilation of conditions of certification accepted by FPL and all parties except FSCL. Imposition of these recommended conditions will satisfy the applicable nonprocedural requirements of agencies and ensure that environmental safeguards are maintained during construction and maintenance of the Levee-Midway line.

Timely exceptions to the Recommended Order pursuant to Rule 17-17.682, F.A.C., were filed by FSCL, Duda, and Metropolitan Dade County (Metro Dade). FSCL objects to the

hearing officer's finding and conclusions that the narrowing of the SFWMD corridor advocated by FSCL was not appropriate. Duda objects to the findings and conclusions that the TCRPC corridor was preferable to the Duda alternatives. Metro Dade, which entered into a settlement stipulation with FPL, filed exceptions to the hearing officer's failure to adopt each proposed finding of fact submitted by Metro Dade, but did not complain about the ultimate recommendation of the hearing officer to certify the TCRPC/SFWMD corridor alignment.

B. Recommendation

The Department of Environmental Regulation recommends approval and adoption of the Recommended Order and the entry of a final order granting certification to the Levee-Midway corridor as recommended in the Recommended Order, subject to the conditions of certification appended to the Recommended Order.

C. Background Materials

Submitted with this agenda item are the following documents:

(a) The Recommended Order and Appendices

(b) Exceptions of FSCL

(c) Exceptions of Duda

(d) Exceptions of Metro Dade

(e) Proposed Final Order

D. Proposed Final Order

The Proposed Final Order, prepared by the Department's Office of General Counsel, approves and adopts the Recommended Order and Conditions of Certification appended thereto. It discusses and disposes of all exceptions to the Recommended Order.

DEPARTMENT OF ENVIRONMENTAL REGULATION
REPORT
on
FLORIDA POWER & LIGHT COMPANY'S
LEVEE-MIDWAY TRANSMISSION LINE APPLICATION

The following report of the Department of Environmental Regulation was compiled by the Siting Coordination Section, Division of Air Resources Management, after consultation with, and receipt of written and oral comments from the appropriate departmental staff members.

On January 9, 1989, Florida Power & Light Company (FPL) submitted to the Department an application for transmission line corridor certification of its proposed Levee-Midway (LM) 500 kiloVolt (kV) Transmission Line. Certification is governed by the Transmission Line Siting Act (TLSA), sections 403.52-403.536, Florida Statutes.

Determination of need for this line was made by the Public Service Commission (PSC) pursuant to s. 403.537, F.S., by order dated May 25, 1988. The PSC concluded that the Levee-Midway Line and Corbett and Conservation substations would enhance electric system reliability and integrity, and would improve the availability of low-cost electrical energy within the State.

The total length of the proposed Primary and Secondary Corridors ranges from approximately 134 to 147 miles. This corridor is of variable width, ranging from about 180 feet to about 1 mile. The original application states that the proposed line was to be built mainly on H-frame structures and the width of the actual right-of-way (ROW) would typically be 200 feet. Wider maximum ROW width will most probably occur wherever the line would need to turn large angles, where guyed corner or side-tension structures would probably be needed.

The conductor is anticipated to be a 3-conductor bundle of 1.272 thousand circular mils aluminum conductor, steel reinforced; nominal operating voltage is to be 500,000 volts. The maximum current rating (MCR) is to be 4,605 amperes, which calculates to a maximum continuous capacity of 3,988 megavolt-amperes (MVA). FPL System planning studies for the year 2000 project that the maximum normal

load for the line is expected to be 1,527 amperes (1,314 MVA).

The estimated cost for transmission line construction for this project, including ROW acquisition and clearing, and line and access road construction was originally estimated to range from about $805,000 to about $1,184,000 per mile.

On June 16, FPL filed an amendment to the application. In this amendment, FPL proposes to use single pole tubular steel structures for the entire length of the LM project, with the option of using the H-frame structure. This change allows the ROW requirements to be reduced from a typical 200-foot width to a typical 150-foot width. Though this amendment reduces the amount of necessary ROW, it increases the estimated cost of the project by raising the upper limit to the range of cost-per-mile to about $1,205,000.

The preferred corridor runs east from its beginning at the existing Midway substation in St. Lucie County at the I-95 and SR 712 interchange for about 3 miles, where it turns south at 609A (Shinn Road). A few miles north of Indiantown, it jogs east, and then south again to go around that community. Continuing south takes the alignment right through the heart of the J.W.Corbett Wildlife Management Area. The corridor jogs east and south again to avoid co-locating with an existing 500kV line, then connects to the existing Corbett Substation. It co-locates with an existing 230 kV line until that line turns east. It continues south to parallel the levee along the eastern boundary of the Loxahatchee National Wildlife Refuge. A secondary corridor splits off just north of the community of Parkland, which continues along C-51 until it meets and follows the L-36 canal south. The primary corridor continues south into Parkland, and after about a mile or so into Broward County turns west to join up with the secondary at the L-36.

The corridor follows this levee, splits again where it meets with an existing 230 kV line, with the primary passing through the proposed Conservation Substation area, and jogging SW to parallel L-35A. Where the 230 kV line cuts West to the Town of Davie, the primary corridor continues due South through the City of Miramar. Where the corridor split, above, the secondary corridor heads West around the perimeter of Conservation Area 2B, along the L-35B. This secondary route enters the Everglades Wildlife Management Area (EWMA) 2A, crosses an existing 500kV line, goes south into EWMA 3A, then East and South to cross the South New River Canal. The two routes recombine just north of the Snake Creek Canal (at the Broward-Dade County line), and head south through EWMA Conservation Area 3. The line ends at the existing Levee Substation in Dade County.

Pursuant to FAC Rule 17-17.58, the Department is to study the following topics in a certification review:

(a) Potential impacts of transmission line crossings on navigable waters, and submerged lands or wetlands.
(b) Potential impact on water quality and quantity, including hydrology and surface drainage resulting from construction, clearing, and maintenance.
(c) Potential impact on terrestrial and aquatic plant and animal life, including endangered or threatened species within the department's jurisdiction.
(d) Commensurate with the level of detail of information provided in the application, a final or preliminary identification of those areas where the Department has wetlands protection jurisdiction; specific identification and the location of the landward extent of jurisdiction may not occur until after the right-of-way has been defined.
(e) Potential transmission line electric and magnetic field effects on health, safety, and welfare, if any.
(f) Site specific environmental studies due to the particular nature of the corridor.

I. Water-related Impacts

Included in the following is a summary of the Final Report from the Wetlands Resource Regulation Section of DER. That report appears in its entirety as Appendix C.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, Florida Administrative Code Rule 17-12, and Public Law 92-500 over construction activities in waters of the state or in wetlands connected to certain waters of the State.

FPL must provide affirmative reasonable assurance pursuant to s. 403.918, F.S., that the immediate and long-term impacts of the project will not result in the violation of water quality standards pursuant to FAC Rule 17-3, or that mitigation under FAC Rule 17-12 will be satisfactorily achieved. The information provided in the certification application is limited; however, in the event that a corridor is certified, a detailed review of the site-specific impacts will be requested through the Conditions of Certification, pursuant to FAC Rule 17-17.600(3) and (4). The site-specific review would occur once and if a proposed right-of-way (ROW) location has been determined. Also, as proper selection of the ROW location will greatly affect the amount of work necessary in waters of the state, the Department will request that FPL consult with agency staff

prior to finalization of the ROW route. Through this post-certification monitoring process, the impacts listed in FAC Rule 17-17.580(a),(b),(c) and (f) which the department must study, will receive a final analysis.

Jurisdictional Areas

A preliminary identification of DER jurisdictional wetland areas has been made which are illustrated on the maps of Appendix A by use of cross-hatching. The maps also serve to supplement the proposed condition of certification DER S-2.A.1. This determination of jurisdiction was based upon aerial photographs, maps from county soil reports, and helicopter overflights. The exact boundary of the landward extent of waters of the State has not been finally determined for any portion of the Primary or the Secondary Corridor. Ground truth field inspections must be performed.

Even from this preliminary determination, it is apparent that the use of either of the proposed corridors would result in significant impacts to wetlands and their associated communities. While it is difficult to determine exact acreages of wetland impacts, it appears that the Primary corridor would cause the lesser amount of the two. Throughout many portions of the proposed corridors, impacts could be lessened by choosing appropriate ROW locations, existing roads for access, and maximum span between structures. Certain segments of the corridors proposed, however, leave very little opportunity for minimizing impacts. These areas are highly inappropriate and unsuitable for inclusion in the proposed corridors. Specific areas of concern include the crossing of the J.W.Corbett Wildlife Management Area, the Marshall Loxahatchee National Wildlife Refuge, the Strazulla Tract of the Save Our Rivers Program, and Conservation Areas 2A, 2B and 3A.

Probably the most significant of the wetland impacts results from the crossing of the Corbett Area. The corridor proposed here is primarily through wetlands of various types which have not been previously disturbed by any authorized activity. Minimization of impacts through this area would not be possible for the majority of this 11.5 mile stretch.

By Executive Order Number 88-25, Governor Martinez issued to the Secretary of the Department of Environmental Regulation (among others) the request to:

> "...permit development only...where no significant adverse impact will occur to the animal and plant life, water supply, and function of the Everglades system;

allow development on public land in the state water conservation areas only for the purpose of enhancing and managing water supply, flood control and natural resources protection and restoration."

A portion of the secondary corridor which encroaches upon the Florida Everglades, Conservation Area 3A, follows no existing levee. Use of this portion, should such an event occur, would not only result in direct wetland loss within that area, but would be expected to encourage wetland degradation from the colonization of exotics and nuisance species of plants in the disturbed areas, adversely affecting the habitat value of these wetlands as well.

Water Quality

The use of either corridor as currently proposed is expected to result in water quality functions being adversely affected to a significant degree in a substantial amount of wetland acreage in the Department's jurisdiction. Secondary impacts are expected to occur from the construction of fill roads for access. These roads increase the potential for human and vehicular disturbance in many areas not presently accessible. Although culvert placement is proposed for those portions of the access road to be built in wetlands, some impacts to historic surface water flows can be expected to result from access road construction. If this project is built, the applicant is responsible for meeting all water quality standards listed in 17-3 Florida Administrative Code.

Water Quantity

This project could adversely affect water quantity within the project area. This is an area of concern jointly shared with the South Florida Water Management District, and final conclusions will be arrived at through the post-certification review process in conjunction with them.

Hydrology

This project could be expected to adversely affect surface water, especially wherever access roads are built. The Department will request that a condition of certification addressing culverting be imposed to ensure that minimal adverse hydrological impacts occur.

Mitigation

Until final alignment and design for the project has been determined, it is not possible to identify the amount and type of mitigation which may be required. Any jurisdictional wetlands impacted directly (e.g. by filling) or indirectly (e.g. by tree trimming, pruning, etc.) must be

mitigated in a manner consistent with the Department policies codified in Chapter 17-12 F.A.C.

General Construction Considerations

The Department will request that conditions of certification relating to all wetland construction activities be imposed in order to assure compliance with the applicable non-procedural requirements. Further requirements may be necessary once site-specific data are known in order to facilitate achievement of compliance. The currently recommended conditions will include provisions to the effect that:

1. All excess materials and debris will be removed from the jurisdictional areas after each phase of the phased construction.

2. No dredging for fill will take place in jurisdictional areas.

3. Jurisdictional areas will not be removed from jurisdiction. Connections are to be maintained by bridging or culverting these areas in such a way as to maintain their natural hydroperiod.

4. Construction or post-construction activities within jurisdictional areas will be restricted to the access road.

5. Jurisdictional areas will be avoided when possible so as to reduce the cumulative effects of habitat depletion and water degradation which would occur should they be utilized unnecessarily.

Water Impacts -- Conclusions

The Department has sufficient concerns about water-related impacts to mandate a recommendation of denial for both proposed corridors. Concerns would be greatly alleviated if a corridor was chosen which stayed out of the Corbett Area, the Loxahatchee Wildlife Refuge, the Strazulla Tract, and the Conservation Areas.

Some areas of the proposed corridor would be certifiable in pieces, but conditions of certification would be necessary in order to obtain a reasonable assurance of compliance with standards.

II. Herbicides

According to the application, the "use of herbicides for vegetation control will be selective and will occur primarily around the transmission structure base." It also

states that: "Stumps are not to project more than 6 inches above the existing water/ground level. After cutting, stumps are to be treated with herbicides to prevent regrowth." FPL has indicated that "herbicides such as Tordon 101 RTU and Spike (will be) performed by a licensed contractor, and all applicable regulations, including any which may relate to the posting of warnings, will be followed."

In review of the proposed use of herbicides, DER staff concluded that their use shall not be allowed without concurrence of DER. The Department will request that a condition of certification be imposed which reflects these conclusions.

III. Electric and Magnetic Field Effects

In 1986, jurisdiction over the health effects of Electromagnetic Fields from power lines above 69kV was given to the Department. Since that time, DER has promulgated Chapter 17-274 F.A.C. Electric and Magnetic Fields, which, in the Departments opinion, "reasonably protects the public health and welfare from electric and magnetic fields associated with new electrical transmission lines, distribution lines and substations."

A. Electric and Magnetic Fields Rule

The Department's rule on Electric and Magnetic Fields (Chapter 17-274, Florida Administrative Code) states:

> "(1) Intent--The intent and purpose of this chapter is to establish electric and magnetic field (EMF) standards for 60-hertz electrical transmission lines and substations rated at 69 kV or greater and to prescribe how compliance with those standards shall be determined, pursuant to sections 403.061(30) and 403.523(1) and (14), Florida Statutes, relating to the protection of public health and welfare from such electrical facilities.
>
> "(2) Findings--Based on the information available to the Department, the Department makes the following general findings:
>
> "(a) The Department has reviewed the present scientific data on the potential for health effects of electric and magnetic fields near electrical transmission and distribution lines and substations in Florida. Although there is no conclusive evidence that there is any danger or hazard to public health at the levels of existing 60 hertz electric and magnetic fields found in Florida, there is evidence of a

potential for adverse health effects on the public. Further research is needed to determine if there are effects and the exposure levels at which effects may occur.

"(b) With respect to 60 hertz EMF, reasonable measures including urging more applied research on the potential adverse human health effects of EMF and EMF mitigation techniques; initiating a comprehensive review of the state of the science and the provisions of this rule, not later than two years after the adoption of this rule; and requiring all new and modified transmission lines and substations to meet standards which are achievable through the use of available EMF reduction technology and measures, but in no case to allow any new of modified line or substation, under normal conditions to cause electric or magnetic field strengths greater than those that now occur for existing transmission lines and substations.

"(3) Basis of EMF Standards

"(a) Electric Field Strength. The electric field strength standards in this rule are based on the avoidance of the perception of an electric field at the edge of the right-of-way (ROW) or within a ROW; and on the reasonable measures and status quo cap criteria stated under paragraph (2) Findings above.

"Compliance with the National Electrical Safety Code (NESC), which applies to all electrical transmission lines and substations within Florida through rules administered by the Florida Public Service Commission (PSC), ensures that unsafe conditions will not exist in the vicinity of these facilities, but compliance with that code does not ensure that a person will not experience tingling sensation or mild, though harmless, shock within the ROW.

"(b) Magnetic Field Strength. The magnetic field strength standards in this rule are based on the reasonable measures and status quo cap criteria stated under paragraph (2) Findings, above.

"(c) For both electric and magnetic fields the standards apply to the maximum instantaneous field strength that occurs, or is predicted to occur by the model prescribed in this rule (whichever is greater) under any normal operating mode (all operating conditions except emergency load conditions). Under most normal load conditions the actual magnetic field strength at the edge of the ROW will be about one-half

of the standards, which are to be met at the facilities maximum current rating (MCR).

"(4) Additional Research Needed--Continued research is needed on the potential adverse human health and welfare effects of 60-hertz EMF because existing knowledge is inadequate to confidently conclude that no further action is needed.

As can be seen, the rule recognizes the uncertainty of the science involved but attempts to provide a reasonable balance of the issues. An example of the controversy is illustrated in the next section. This example was specifically chosen to correct a misstatement in one of the agency reports.

B. Studies of Effects

There is strong evidence of a mounting public concern for the issue of possible adverse effects from electric and magnetic fields, much of which seems to be based on provocative and speculative interpretations by the popular press of inconclusive scientific studies.

One study which seems to be often cited for evidence of an apparent association between transmission line fields and cancer risk is the *Case Control Study of Childhood Cancer and Residential Exposure to Electric and Magnetic Fields* by David A Savitz, Ph.D. This was designed to try to determine whether the results from the seminal work in this area performed by Wertheimer and Leeper could be replicated.

This previous study, which was published in 1979 in the American Journal of Epidemiology, attempted to quantify residential long-term exposure to electromagnetic fields by a categorization scheme based on the configuration of the distribution wiring near the homes of childhood cancer victims. According to Wertheimer and Leeper, while "no attempt was made to take systematic measurements at (the) study homes...this study is based on potential current flow suggested by different wiring configurations (nearness and size of wires, closeness to origin of current, etc.)." It was "particularly (those) homes close to (the local step-down) transforming points that were over represented among our cancer cases."

The Savitz study, the attempt at verification of that previous one, was accepted by the **New York State Power Lines Project** on March 30, 1987. This latter study, too, yields complex and mixed results. He suggested that when the number of childhood cancer cases living in homes from the two higher "wire code" groupings are combined and compared to the combination of the number of cases from homes

associated with the two lower code groups, there is evidence of "60-70% risk elevations associated with the higher..." Concerning his results, Savitz says in his report that there is "sporadic evidence of positive associations but little evidence for a discernible impact of measured magnetic fields on cancer risk." "High-power magnetic fields and electric fields showed no evidence of increasing risk at higher exposure levels." One suggestion for an association was that "Leukemia cases, especially for low-power magnetic field, consistently had higher exposures than controls, with odds ratios above 2:1 for exposures to 2.5+mG (milliGauss)."

Savitz's conclusion includes the statement: "...this study seems to provide evidence supportive of a relationship between long-term residential magnetic field exposures (*as reflected by wire codes*) and cancer risk," though there is a "clear absence of any association (for high-power magnetic fields.)" He cautions that "(t)here is considerable latitude in the degree of confidence one should place in this conclusion..."

Hence the confusion: no evidence of a correlation with measured magnetic field levels and disease, but some evidence suggestive of such a relationship with the arbitrarily coded wiring configurations of local distribution systems which are alleged to represent the long term exposure to magnetic field levels.

It is important to realize though, that the correlation, if any, deals with the distribution systems and step down transformers, involving 240 Volts, which provide household power, and that this cannot accurately be represented to suggest anything about 500,000 Volt transmission lines.

C. Rule Standards

The standards of the rule which apply to the Levee-Midway project, are as follows:

(1) The maximum electric field at the edge of the transmission line ROW or at the property boundary of a new substation shall not exceed 2.00 kV/m.

(2) The maximum electric field on the ROW of a 500kV or smaller transmission line shall not exceed 10 kV/m.

(3) The maximum magnetic field at the edge of the transmission line ROW for a 500kV line or at the property boundary of a new substation serving a 500kV line shall not exceed 200 milliGauss.

The calculated values for the maximum electric and magnetic fields expected to be associated with the LM line are shown in Volume Two, Table 4.5-1 on Page 4-12 of the subject application (Table 4.5-1R2 of the Amendment to the Application).

In the application, from Table 4.5-1, the Electric Field standard for the Edge of ROW would have been violated during normal loading and MCR conditions. (The footnote in the table indicates that the 230kV line is assumed to be operating at MCR. Whether or not this is so makes little difference in meeting the Electric Field Standard, though it could make a more significant difference in the magnetic field level.)

In the amendment to the application, in which FPL has indicated that the single pole structures would be used, a taller structure is proposed then was originally. This extra height appears to enable the line to meet the State Standards for both Electric and Magnetic Fields.

D. Radio Interference.

Transmission line corona can produce interference with both television and radio signals. Amplitude Modulated (AM) stations with sufficient strength to be free of naturally occurring interference at least 90 percent of the time are defined to have type A signal service by the Federal Communications Commission (FCC). Some interference with type A station reception is possible during fair weather conditions if receivers are operated within 10 feet of the triangular configuration edge of ROW. Weaker AM radio stations have naturally occurring interference up to 50 percent of the time. During fair weather, reception of these weaker signals will suffer interference if receivers are 120 feet from the edge of ROW near the 700 foot spans, or out to 135 feet near the 1,320 foot spans.

During rainy or damp conditions, the corona around the lines will increase, as will the interference with all AM signals. These conditions are also likely to result in more atmospheric electricity. Consequently, transmission line noise may not be such a problem during already high naturally occurring interference.

Experiences in recent transmission line certification proceedings have shown there may be instances when the corona could interfere with communications of mobile emergency broadcast units. A condition of certification will address this issue.

E. Audible Noise.

Noise from transmission lines originates when air molecules are ionized to produce "corona", resulting in two basic types of sounds. These are broadband noise (frying and crackling sounds) and discrete tones (humming sounds). Transmission line noise tends to be more annoying than other noises of similar decibel levels because (a) a significant amount of its energy occurs in the mid- and high-audio frequencies, in comparison to more common sources such as air-conditioners, or traffic; (b) it is a continuous source; and (c) it extends over the length of the line as opposed to being a point source.

According to the application, during fair weather conditions (which occur more than 90 percent of the time) audible noise levels will be less than normal outdoor ambient noise levels. During wet conditions, the median (L50) A-weighted sound pressure level of the line noise should be 47.1 dBA at the edge of ROW for the 700 foot spans, and 44.4 dBA for the 1,320 foot spans. The higher noise level along the 700 foot spans is due in part to the noise caused by the 230kV lines already in service.

These noise levels will comply with all applicable noise ordinances in Broward, Dade, Martin, Palm Beach, and St. Lucie Counties, in addition to being below the limits recommended by EPA (1974) to "protect health and welfare with an adequate margin of safety."

F. Television Interference

Television (TV) broadcast signals use AM for the picture portions of program broadcasts. Due to the frequencies used for TV broadcasts, corona interference will only occur during rain or possibly other wet conditions such as heavy fog, though only with channels two through six. Grade A strength TV signals are capable of providing acceptable reception at 70 percent of receiver locations more than 90 percent of the time. There should be no interference with Grade A stations at any location off of the ROW. Weaker Grade B stations normally are expected to provide acceptable reception at 50 percent of receiver locations 90 percent of the time. Interference with Grade B signals is possible during rain for receivers 150 to 340 feet from the edge of ROW, depending on the channel and the span length. This interference is usually correctable by reorienting the antenna to get more signal, less line noise, or both.

The Department thinks it appropriate to require that reception be equivalent before and during line operation, and that valid complaints be resolved on a case by case

basis. A condition of certification will be recommended accordingly.

G. Bees

The electric fields from transmission lines can induce voltaic potential differences between internal sections within bee hives. Bees spanning these sections with their bodies are likely to receive shocks. Ranges of effects are from impairment of food-gathering activities to death. This can be controlled by removing the hives from the high field levels or by placing shielding materials, such as a chicken-wire cage, over the hive. A Condition of Certification will be recommended to advise beekeepers of the possible effects on honeybees.

IV. Conclusions

The Department has determined, regarding the Levee-Midway Transmission Line, that:

1) The project as proposed will satisfy the Department's statutory mandates regarding protection of health, safety and welfare from electric and magnetic fields only if the conditions of certification attached to this report are imposed by the Siting Board.

2) The project as proposed will create impacts on waters of the state within its jurisdiction to such an extent that certification must be denied. Certain areas would need to be avoided in the selection of the right-of-way, and are extensive enough to warrant a recommendation of denial for the project based on water-quality issues and Wetland Resource issues. There are ways for the line to be constructed, but this would require a rerouting of part of the corridor.

V. Recommendation

The Department recommends that the Levee-Midway Transmission Line Corridor be denied certification.

S. 403.529(2), F.S. states that if the certification is denied, the board shall set forth in writing the action the applicant would have to take to secure the approval of the application by the board.

The Department recommends the following directives be set forth in writing to the applicant to fulfill the requirements of the cited statute:

* Arrange an advisory board made up of representatives from each of the following: the Wetlands Resource section of DER; South Florida Water Management

District; South Florida Regional Planning Council; Treasure Coast Regional Planning Council; Florida Game and Freshwater Fish Commission; and other agencies, etc, using as a guide the Advisory Board format used for the Crane-Bridge-Plumosus Line Siting, to work out a route which would be acceptable as certifiable to each of the participating agencies;

* Avoid siting a corridor in the J.W. Corbett Wildlife Management Area, the Arthur R. Marshall Loxahatchee National Wildlife Refuge, the Strazulla Tract of the Save Our Rivers Program, and the Conservation Areas;

* Restrict the siting of the corridor by following the Governor's Executive Order Number 88-25(2).

In the event that one of FPL's corridors is certified, the department includes, as Appendix B, a list of Conditions of Certification.