

STEEL  
HECTOR  
& DAVIS

Steel Hector & Davis, Inc.  
215 South Monroe, Suite 601  
Tallahassee, Florida 32301-1804  
904.222.2300  
904.222.8410 Fax

July 10, 1996

Charles A. Guyton  
904.222.3423

ORIGINAL  
FILE COPY

Blanca S. Bayó, Director  
Records and Reporting  
Florida Public Service Commission  
4075 Esplanade Way, Room 110  
Tallahassee, Florida 32399-0850

By Hand Delivery

960817-2 I

**Re: Daylight Dimming**

Dear Ms. Bayó:

Enclosed for filing on behalf of Florida Power & Light Company are the original and fifteen (15) copies of Petition for Approval of Florida Power & Light Company's Commercial/Industrial Daylight Dimming Research Project

If you or your Staff have any questions regarding this filing, please contact me.

Very truly yours,

Charles A. Guyton

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- ACK \_\_\_\_\_
- AFB \_\_\_\_\_
- APP \_\_\_\_\_
- CAF \_\_\_\_\_
- CMU \_\_\_\_\_
- CTR \_\_\_\_\_
- EAG \_\_\_\_\_ CAG/sh
- LEG \_\_\_\_\_ encs
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- OPC \_\_\_\_\_
- RCM \_\_\_\_\_ RECEIVED & FILED
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305 577.7000  
305 577.7001 Fax

West Palm Beach  
561 650.7200  
561 655.1509 Fax

Key West  
305 292.7272  
305 292.7271 Fax

DOCUMENT NUMBER-DATE

07262 JUL 10 96

FPSC-RECORDS/REPORTING

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Florida Power  
& Light Company For Approval  
of Commercial/Industrial Daylight  
Dimming Research Project

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Docket No.

Filed: July 10, 1996

PETITION FOR APPROVAL OF  
FLORIDA POWER & LIGHT COMPANY'S  
COMMERCIAL/INDUSTRIAL DAYLIGHT DIMMING  
RESEARCH PROJECT

Florida Power & Light Company ("FPL"), pursuant to Section 366.82(2), Florida Statutes (1995), hereby petitions the Florida Public Service Commission ("Commission") to approve the Commercial/Industrial Daylight Dimming Research Project as part of FPL's Demand Side Management Plan and to allow FPL to recover reasonable and prudent expenditures for administrative costs incurred for the Commercial/Industrial Daylight Dimming Research Project through FPL's Energy Conservation Cost Recovery ("ECCR") Clause. The grounds for this Petition are:

1. FPL is an investor-owned electric utility regulated by the Commission pursuant to Chapter 366, Florida Statutes. FPL is subject to the Florida Energy Efficiency Conservation Act ("FEECA"), Section 366.80-85, 403.519, Florida Statutes (1995), and its ECCR Clause is subject to the Commission's jurisdiction. FPL is substantially affected thereby.

2. FPL's address is 9250 West Flagler Street, Miami, FL 33174. Correspondence, notices, orders and other documents concerning this Petition should be sent to:

PN 07262-96  
7/10/96

Charles A. Guyton  
Steel Hector & Davis  
Suite 601  
215 S. Monroe St.  
Tallahassee, FL 32301

William G. Walker, III  
Vice President, Regulatory Affairs  
Florida Power & Light Company  
9250 W. Flagler Street  
Miami, FL 33174

3. In the final order in Docket No. 930548-EG, the order establishing FPL's conservation goals for the period 1994 through 2003, the Commission established conservation goals for FPL through the year 2003 which were approximately 300 MW in excess of the level of DSM FPL had found to be reasonably achievable. In establishing these aggressive goals, the Commission discussed the possibility of FPL research and development efforts yielding some of the additional MW needed for FPL to achieve its goals:

FPL witness Hugues indicated that there is a very good possibility that due to changes in technology, FPL's R&D program might be able to achieve the additional 130 MW of DSM-RIM necessary to defer the 2002 need. (Tr. 620, 4499) FPL's R&D program may result in approved programs producing the additional capacity savings in much the same manner as the 1990 DSM Plan produced an additional 342 MW. (Tr. 619-20) The Current R&D program is evaluating approximately seven C/I programs and four residential programs. (Tr. 620) ... It is possible that FPL might exceed its proposed goal, considering its prior history of exceeding internal DSM goals, and the potential contributions from R&D programs and green pricing options.

Order No. PSC-94-1313-FOF-EG, at 32-33.

4. Consistent with the Commission's expectation that FPL will need to develop additional DSM measures through research and development efforts, FPL is petitioning for approval of the Commercial/Industrial Daylight Dimming Research Project. The objectives of the Commercial/Industrial Daylight Dimming Research Project are: to assess the viability and feasibility of daylight dimming technology; compare the demand and energy reductions and cost differentials of daylight dimming systems to conventional lighting systems; discover and overcome potential barriers for the technology; quantify the cost-effectiveness of the technology;

test acceptance of the technology with architectural and engineering consultants; qualitatively assess customer acceptance of the technology; and conduct market research to determine target markets and expected penetrations. The Commercial/Industrial Daylight Dimming Research Project is described in more detail in Appendix A.

5. Daylight dimming controls constantly adjust, without occupant intervention, the electric lighting level based upon the amount of available daylight. This saves electrical demand and energy by not only reducing the direct electrical input into the controlled lighting fixtures, but also by reducing the facility's cooling load due to the lower heat transference from the lighting fixtures. FPL believes that daylight dimming control systems have the potential to cost-effectively save demand and energy in commercial applications, but FPL needs Florida specific research data to evaluate the viability of the technology, measure the acceptance of the technology and determine its cost-effectiveness.

6. The Commercial/Industrial Daylight Dimming Research Project is tentatively scheduled to last for a period of 20 months from the date of Commission approval. The projected cost of the Commercial/Industrial Daylight Research Project is \$ 377,000. A more detailed schedule and budget is presented in Appendix A.

7. The Commercial/Industrial Daylight Dimming Research Project will help achieve the goals of FEECA and Commission Rule 25-17.001, Florida Administrative Code. One of the expressed intents of the Commission's rules implementing FEECA is to foster research and development. If the research project finds that this technology may be offered cost-effectively, then the project will help FPL to achieve its numeric conservations goals. Regardless of whether the technology proves to be cost-effective, the research will add to the understanding of the technology and foster its development.

8. A cost-effectiveness analysis for the Commercial/Industrial Daylight Dimming Research Project is not included because of the uncertainty of the engineering assumptions. One of the primary purposes of the project will be to determine the reliable assumptions necessary to measure the cost-effectiveness of this promising technology.

9. The Commercial/Industrial Daylight Dimming Research Project is directly monitorable and will yield measurable results. FPL's monitoring and assessment efforts are more fully addressed in Appendix A.

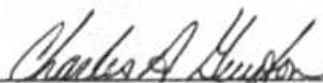
10. FPL is not aware of any disputed issues of material facts. The Commercial/Industrial Daylight Dimming Research Project should be approved and incorporated into FPL's DSM Plan, and FPL should be authorized to recover through its ECCR clause its reasonable and prudent expenditures for the Commercial/Industrial Daylight Dimming Research Project.

WHEREFORE, FPL respectfully petitions the Commission to approve FPL's Commercial/Industrial Daylight Dimming Research Project as part of FPL's DSM Plan and allow FPL to recover its reasonable and prudent project expenditures through FPL's ECCR clause.

Respectfully submitted,

STEEL HECTOR & DAVIS LLP  
215 S. Monroe St., Suite 601  
Tallahassee, Florida 32301-1804

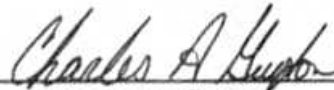
Attorneys for Florida Power  
& Light Company

By:   
Charles A. Guyton

**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a true and correct copy of the Petition For Approval Of Florida Power & Light Company's Commercial/Industrial Daylight Dimming Research Project was mailed this 10th day of July, 1996 to the following:

Jack Shreve, Esquire  
Office of Public Counsel  
111 West Madison Street  
Room 812  
Tallahassee, FL 32399-1400

  
\_\_\_\_\_  
Charles A. Guyton

TAL/15882

APPENDIX A  
PROJECT DESCRIPTION

## APPENDIX A

### FPL'S COMMERCIAL/INDUSTRIAL DAYLIGHT DIMMING RESEARCH PROJECT

#### TECHNICAL DESCRIPTION

##### Section 1 - Project Technology:

Daylight dimming controls are a lighting technology that FPL believes has the potential to be used cost-effectively in a number of commercial and industrial buildings. A daylight dimming control system constantly adjusts, without occupant intervention, the electric lighting level based on the amount of daylight available. This saves electrical demand and energy by reducing the direct electrical energy input to the controlled lighting fixtures as well as the air conditioning load in the facility.

FPL's Commercial/Industrial Daylight Dimming Research Project would initially evaluate the viability of the technology, determine if the barriers or problems associated with this technology can be overcome or solved, and educate consultants, customers and contractors about the economic benefits of this technology. A daylight dimming control system in conjunction with a reduced wattage electronic lighting system may be the optimum recommendation for both customer savings and on-peak demand reduction.

##### Section 2 - Project Description:

The purpose of the research project is to provide data necessary for FPL to make a business decision on the development and implementation of a permanent daylight dimming measure to be incorporated into FPL's commercial and industrial demand-side management programs. The research project will be designed to develop the engineering assumptions needed to run the cost-effectiveness (CPF) analysis.



The objectives of the project are as follows: to assess the viability and feasibility of the technology; to compare energy and demand reduction and cost differentials of daylight dimming systems over conventional efficient lighting systems; to discover and overcome potential barriers that may be associated with the technology; to quantify the data to be used for a cost-effectiveness analysis; to test acceptance of the technology with architectural and engineering consultants; to make a qualitative assessment of customer acceptance; and to conduct a market research study to determine target markets and expected penetrations.

FPL's hypothesis is that daylight dimming control systems will not only reduce customers' energy costs for lighting and provide individual customer comfort by maintaining constant light levels at the work surfaces, but also can act to lower FPL's system peak demand. To confirm these benefits to individual customers, and to quantify the peak demand reductions achievable through daylight dimming technology, FPL proposes to have a daylight dimming control system designed and installed in two selected facilities. These facilities will have the following characteristics: used primarily for office space, oriented within +/- 10% on a principal north, south, east, west axis, windows on all four sides of the building, a minimum of 10% window-to-wall area, manually operated window blinds, fluorescent lighting in the controlled area, and lighting circuits separated from other power circuits.

Because daylight dimming controls do not enjoy widespread recognition and application, FPL would use the research project as an opportunity to interest architectural and engineering consultants, manufacturers and contractors in the potential of daylight dimming control systems. Marketing studies would be implemented as part of the research project to determine target audience, customer acceptance and expected market penetrations. If the research project and market study reveal

market penetration rates and demand and energy reduction levels that are cost-effective, then a full-scale, system-wide daylight dimming controls measure may be developed and brought before the Commission for approval.

Customers who participate in the research project will be approached on an individual basis, and incentives, such as cost sharing of equipment purchases, may be required for customer participation. FPL may allow the daylight dimming control systems to remain installed in the customers' facilities after the research project is completed. FPL may seek a research facility to manage and perform the Commercial/Industrial Daylight Dimming Research Project on a turnkey basis. All costs associated with the project that are to be recovered through FPL's Energy Conservation Cost Recovery (ECCR) clause will be limited to the amounts shown in EXHIBIT I. FPL may seek funding for this project from sources such as the U.S. Department of Energy (DOE), the Department of Community Affairs (DCA), and/or other entities interested in electric energy conservation research. If successful, such funds would be used to lower ECCR costs and/or expand the scope of the research project.

#### Section 3 - Project Monitoring and Analysis:

FPL, or the research facility contracted to perform the project work tasks, would install instrumentation to provide the necessary data to resolve the established research objectives. This would include devices to measure light levels at the desktop level, outside meteorological conditions, power usage for the lighting system and power usage for the air-conditioning system.

FPL anticipates that the site selection, equipment installation, monitoring and analysis phases of the research project would be for a period of 16 to 20 months. The tentative project schedule is as follows:

Site Selection/Installation	2 to 3 months
Monitoring	12 months
Analysis	2 to 5 months

FPL would require the research facility to submit monthly progress reports describing significant accomplishments or problems, as well as interim and final project reports estimating market potential and energy reduction due to the daylight dimming controls system. At the conclusion of the monitoring and analysis phases of the project, FPL would prepare a Project Summary Report to be submitted to the Commission.

Section 4 - Cost-Effectiveness:

A fully implemented daylight dimming controls measure is anticipated to be cost-effective using the Commission's approved cost-effectiveness methodology. After the field monitoring, data collection and data analysis phases of the project are completed, FPL can determine estimates of potential savings from the technology and also verify the engineering assumptions needed to run the cost-effectiveness analysis. The cost-effectiveness of daylight dimming controls can then be determined using the Commission's approved methodology.

Section 5 - Project Budget:

The projected cost of the Commercial / Industrial Daylight Dimming Research Project is \$377,000. The estimated costs for the different stages of the research project are shown in EXHIBIT I.

EXHIBIT I

PROPOSED BUDGET FOR FPL'S COMMERCIAL/INDUSTRIAL  
DAYLIGHT DIMMING RESEARCH PROJECT

		<u>Projected Costs</u>
Stage I -	Establish Research Concept 1) Identify Technologies 2) Identify Building Types 3) Conduct Literature Search	\$ 17,000.00
Stage II -	Technical Evaluation 1) Design Experiment 2) Locate Sites for Testing	\$ 27,000.00
Stage III -	Field Monitoring and Analysis 1) Install Equipment and Instrumentation at Sites 2) Collect Pre- and Post-Retrofit Data 3) Analyze Data	\$ 104,000.00
Stage IV -	Economic Evaluation 1) Develop Cost / Benefit Estimates 2) Perform Cost-Effectiveness Analysis	\$ 43,000.00
Stage V -	Market Study 1) Determine Customer Acceptance 2) Determine Architect & Engineer Acceptance 3) Establish Target Markets	\$ 100,000.00
Stages I-V -	Project Management	\$ 86,000.00
	<b>Total Project R&amp;D Costs =</b>	<b>\$ 377,000.00</b>