

Levy Nuclear Plant Units 1 and 2

COL Application

Part 1

General and Financial Information

Revision 7

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**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	GENERAL AND FINANCIAL INFORMATION.....	1-1
1.1	GENERAL INFORMATION	1-1
1.1.1	NAME OF APPLICANT	1-2
1.1.2	ADDRESS OF APPLICANT	1-2
1.1.3	DESCRIPTION OF BUSINESS OCCUPATION OF APPLICANT	1-2
1.1.4	ORGANIZATION AND MANAGEMENT OF APPLICANT	1-3
1.1.5	CLASS AND PERIOD OF LICENSE SOUGHT AND AUTHORIZED USES	1-8
1.1.6	ALTERATION SCHEDULE	1-9
1.1.7	REGULATORY AGENCIES AND LOCAL PUBLICATIONS	1-9
1.1.8	RADIOLOGICAL EMERGENCY RESPONSE PLANS	1-10
2.0	FINANCIAL QUALIFICATIONS.....	2-1
2.1	CONSTRUCTION COSTS	2-1
2.2	OPERATING COSTS.....	2-4
3.0	DECOMMISSIONING FUNDING ASSURANCE.....	3-1
3.1	DECOMMISSIONING COSTS AND FUNDING - STATUS REPORTING	3-1
3.2	RECORDKEEPING PLANS RELATED TO DECOMMISSIONING FUNDING .	3-1
4.0	RESTRICTED DATA AND CLASSIFIED NATIONAL SECURITY INFORMATION	4-1
APPENDIX A	DECOMMISSIONING REPORT.....	A-1

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

LIST OF TABLES

<u>Number</u>	<u>Title</u>
A-1	Decommissioning Costs per Unit for LNP 1 and 2

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

1.0 GENERAL AND FINANCIAL INFORMATION

1.1 GENERAL INFORMATION

Pursuant to Sections 103 and 185(b) of the Atomic Energy Act, and 10 CFR Part 52, Subpart C, Duke Energy Florida, LLC (DEF)¹, an indirect wholly-owned subsidiary of Duke Energy Corporation, hereby applies to the U.S. Nuclear Regulatory Commission (NRC) for a combined license (COL) to construct and operate Levy Nuclear Plant, Units 1 and 2 (LNP 1 and 2). LNP 1 and 2 is a two-unit Westinghouse AP1000 standard design for a pressurized water reactor. DEF also applies for such other licenses as would be required to receive, possess and use source, special nuclear and byproduct material in connection with the operation of LNP 1 and 2.

On July 2, 2012, a merger occurred between Duke Energy Corporation and Progress Energy, Inc. Through this merger, Duke Energy Corporation became the ultimate holding company of Progress Energy, Inc. Progress Energy, Inc. continues to be the parent of Florida Progress Corporation, which is the direct parent of DEF. Following the July 2012 merger, Duke Energy Corporation, the holding company and ultimate parent of DEF, is now the largest electric power holding company in the United States with more than \$100 billion in total assets. Duke Energy Corporation is duly organized and existing under the laws of the State of Delaware. The company's general office, and principal place of business, is located in Charlotte, North Carolina, and through its subsidiaries, also transacts business on a regular basis in South Carolina, Kentucky, Ohio, Florida, and Indiana. It is an investor-owned corporation focused on electric power and gas distribution operations, and other energy services in both North and South America. Through its regulated electric and gas utility operating companies, Duke Energy Carolinas, Duke Energy Ohio, Duke Energy Indiana, Duke Energy Kentucky, Duke Energy Progress and Duke Energy Florida, Duke Energy Corporation operates more than 57,000 MW of regulated electric generation and 8,100 MW of unregulated electric generation in the United States. A diverse fuel mix of nuclear, coal-fired, hydro-electric and combustion-turbine generation allows Duke Energy Corporation to provide this generating capacity to more than 7 million electric and 0.5 million gas customers located in the combined service territories of these operating companies. Duke Energy Corporation is a Fortune 250 company, and its shares are publicly held and listed for trading on the New York Stock Exchange under the symbol DUK.

Figure 1.1-1 illustrates the organizational position of each company relative to the others shown.

¹ On July 31, 2015, Duke Energy Florida, Inc. filed amended articles of conversion and organization with the Florida Department of State to change its corporate name to Duke Energy Florida, LLC. This name change was effective on August 1, 2015.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

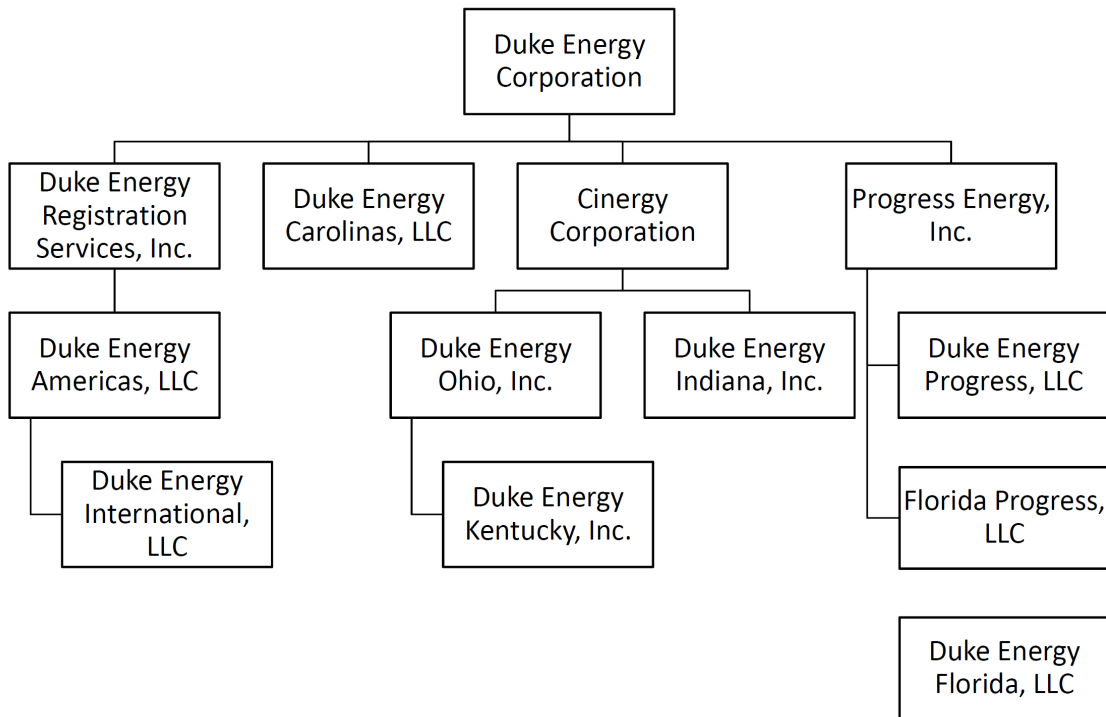


Figure 1.1-1: Duke Energy Corporation Organizational Structure

This application and supporting environmental report are intended to provide sufficient information for the NRC to complete its technical and environmental reviews and allow the NRC to make the finding required by 10 CFR 52.97 in support of the issuance of a COL for LNP 1 and 2. The following is the application filing and content information required by 10 CFR 50.33.

1.1.1 NAME OF APPLICANT

Duke Energy Florida, LLC

1.1.2 ADDRESS OF APPLICANT

Duke Energy Florida, LLC
299 First Avenue North
St. Petersburg, FL 33701

1.1.3 DESCRIPTION OF BUSINESS OCCUPATION OF APPLICANT

Duke Energy Corporation is a holding company that owns non-regulated and regulated subsidiaries, including DEF. DEF, the applicant for the LNP 1 and 2 COLs, is primarily engaged in the generation, transmission, distribution, and sale of electricity in portions of central and north Florida. DEF serves approximately 1.7 million customers in a territory encompassing over 20,000 square miles, including the cities of St. Petersburg, Clearwater, and areas surrounding Orlando. DEF owns and operates the Crystal River plant.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

DEF is a regulated public utility, and is subject to the regulatory provisions of the Florida Public Service Commission (FPSC), the United States Nuclear Regulatory Commission (NRC) and the Federal Energy Regulatory Commission (FERC).

1.1.4 ORGANIZATION AND MANAGEMENT OF APPLICANT

1.1.4.1 Duke Energy Florida, LLC

The business of DEF is conducted by its own Board of Directors, although for internal governance purposes, the Duke Energy Corporation Board of Directors also has approval authority over certain types of transactions.

The business address, names and citizenship of the current directors of DEF are as follows:

Duke Energy Florida, LLC
299 First Avenue North
St. Petersburg, FL 33701

Name	Citizenship
Douglas F Esamann	US
Lynn J. Good	US
Dhiaa M. Jamil	US
Julia S. Janson	US
Lloyd M. Yates	US

The business address, names, current titles and citizenship of the current executive officers and senior nuclear leadership of DEF are as follows:

Duke Energy Florida, LLC
299 First Avenue North
St. Petersburg, FL 33701

Name and Position	Citizenship
Lynn J. Good Chief Executive Officer	US
Melissa H. Anderson Senior Vice President and Chief Human Resources Officer	US
Douglas F Esamann Executive Vice President and President, Midwest and Florida Regions	US

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

Name and Position	Citizenship
Christopher M. Fallon Vice President, Nuclear Development	US
T. P. Gillespie, Jr. Senior Vice President, Nuclear Operations	US
R. Alexander Glenn President	US
Dhiaa M. Jamil Executive Vice President and President, Generation and Transmission	US
Julia S. Janson Executive Vice President, Chief Legal Officer, and Secretary	US
Ernest J. Kapopoulos Jr. Vice President, Operations Support	US
A.R. Mullinax Executive Vice President, Strategic Services	US
John W. Pitesa Senior Vice President and Chief Nuclear Officer	US
Regis T. Repko Senior Vice President, Nuclear Corporate	US
Brian D. Savoy Senior Vice President, Chief Accounting Officer and Controller	US
Jennifer L. Weber Executive Vice President, External Affairs and Strategic Policy	US
Lloyd M. Yates Executive Vice President, Market Solutions and President, Carolinas Region	US
Steven K. Young Executive Vice President and Chief Financial Officer	US

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

1.1.4.2 Parent Company Organization

1.1.4.2.1 Duke Energy Corporation

Duke Energy Corporation is a holding company and ultimate parent of DEF. The business of Duke Energy Corporation is conducted by the Duke Energy Corporation Board of Directors. The business address, names and citizenship of the current directors of Duke Energy Corporation are as follows:

Duke Energy Corporation
550 South Tryon Street
Charlotte, NC 28202

Name	Citizenship
Michael J. Angelakis	US
Michael G. Browning	US
Harris E. DeLoach, Jr.	US
Daniel R. DiMicco	US
John H. Forsgren	US
Lynn J. Good, Vice Chairman	US
Ann Maynard Gray, Chairman	US
James H. Hance, Jr.	US
John T. Herron	US
James B. Hyler, Jr.	US
William E. Kennard	US
E. Marie McKee	US
Richard A. Meserve	US
James T. Rhodes	US
Carlos A. Saladrigas	US

The business address, names, current titles and citizenship of the current executive officers of Duke Energy Corporation are as follows:

Duke Energy Corporation
550 South Tryon Street
Charlotte, NC 28202

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

Name and Position	Citizenship
Lynn J. Good Vice Chairman, President, and Chief Executive Officer	US
Melissa H. Anderson Senior Vice President and Chief Human Resources Officer	US
Douglas F Esamann Executive Vice President and President, Midwest and Florida Regions	US
Dhiaa M. Jamil Executive Vice President and President, Generation and Transmission	US
Julia S. Janson Executive Vice President, Chief Legal Officer and Corporate Secretary	US
A.R. Mullinax Executive Vice President, Strategic Services	US
John W. Pitesa Senior Vice President and Chief Nuclear Officer	US
Brian D. Savoy Senior Vice President, Chief Accounting Officer and Controller	US
Jennifer L. Weber Executive Vice President, External Affairs and Strategic Policy	US
Lloyd M. Yates Executive Vice President, Market Solutions and President, Carolinas Region	US
Steven K. Young Executive Vice President and Chief Financial Officer	US

1.1.4.2.2 Progress Energy, Inc.

Progress Energy, Inc. is a direct subsidiary of Duke Energy Corporation. Progress Energy, Inc. is the direct parent of Florida Progress Corporation, which in turn is the direct parent of DEF. Progress Energy, Inc. is duly organized and existing under the laws of North Carolina,

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

and is located in Raleigh, NC. The business of Progress Energy, Inc. is conducted by its Board of Directors. The business address, names and citizenship of the current directors of Progress Energy, Inc. are as follows:

Progress Energy, Inc.
410 South Wilmington Street
Raleigh, NC 27601

Name	Citizenship
Lynn J. Good	US
Julia S. Janson	US

The business address, names, current titles and citizenship of the current executive officers of Progress Energy, Inc. are as follows:

Progress Energy, Inc.
410 South Wilmington Street
Raleigh, NC 27601

Name and Position	Citizenship
Lynn J. Good Chief Executive Officer	US
Melissa H. Anderson Senior Vice President and Chief Human Resources Officer	US
Julia S. Janson Executive Vice President and Chief Legal Officer	US
A.R. Mullinax Executive Vice President, Strategic Solutions	US
Brian D. Savoy Chief Accounting Officer and Controller	US
Steven K. Young Executive Vice President and Chief Financial Officer	US

1.1.4.2.3 Florida Progress, LLC

Florida Progress, LLC is a direct subsidiary of Progress Energy, Inc. Florida Progress, LLC is the direct holding company of Duke Energy Florida, LLC. Florida Progress, LLC is duly organized and existing under the laws of Florida. The business of Florida Progress, LLC is conducted by its Board of Directors. The business address, names and citizenship of the current directors of Florida Progress, LLC are as follows:

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

Florida Progress, LLC
410 South Wilmington Street
Raleigh, NC 27601

Name	Citizenship
Douglas F Esamann	US
Lynn J. Good	US
Dhiaa M. Jamil	US
Lloyd M. Yates	US
Steven K. Young	US

The business address, names, current titles and citizenship of the current executive officers of Florida Progress, LLC are as follows:

Florida Progress, LLC
410 South Wilmington Street
Raleigh, NC 27601

Name and Position	Citizenship
Lynn J. Good President	US
Brian D. Savoy Controller	US

1.1.4.3 Foreign Ownership, Control or Domination

DEF is a wholly owned subsidiary of Florida Progress, LLC, which in turn is a wholly owned subsidiary of Progress Energy, Inc. Progress Energy, Inc. is a wholly owned subsidiary of Duke Energy Corporation. The shares of common stock of Duke Energy Corporation are publicly traded and widely held. The directors and officers of Duke Energy Corporation, Progress Energy, Inc., Florida Progress, LLC and DEF are U. S. citizens. Neither Duke Energy Corporation, as the ultimate parent company of DEF, Progress Energy, Inc., Florida Progress, LLC, nor DEF itself is owned, controlled, or dominated by any alien, foreign corporation, or foreign government.

1.1.5 CLASS AND PERIOD OF LICENSE SOUGHT AND AUTHORIZED USES

DEF requests issuance of a Class 103 Facility Operating License for a period of no less than 40 years beyond the Commission's determination in 10 CFR 52.103(g) or allowing operation during an interim period under 52.103(c). LNP 1 and 2 will be used to produce electricity for sale.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

In addition, this application is for the necessary licenses issued under 10 CFR 30, 10 CFR 40, and 10 CFR 70 to receive, possess, and use byproduct, source and special nuclear material. Special nuclear material shall be in the form of reactor fuel and spent fuel, in accordance with limitations for storage and amounts required for reactor operation, as described in Part 2 of this application. Byproduct, source, and special nuclear material shall be in the form of sealed neutron sources for reactor startup and sealed sources for reactor instrumentation, radiation monitoring equipment, calibration, and fission detectors in amounts as required. In preparation for the initial fuel loading, limitations on byproduct material and Part 40 specifically licensed source material will be as described in this application. Following the 52.103(g) finding, byproduct, source, and special nuclear material in amounts as required, without restriction to chemical or physical form, shall be for sample analysis, instrument and equipment calibration, or associated with radioactive apparatus or components.

1.1.6 ALTERATION SCHEDULE

DEF does not propose to alter any production or utilization facility in connection with this application.

1.1.7 REGULATORY AGENCIES AND LOCAL PUBLICATIONS

The Federal Energy Regulatory Commission and the FPSC are the principal regulators of DEF's electric operations in Florida.

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

Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Area and local news publications and addresses are provided below.

Citrus County Chronicle
1624 N. Meadowcrest Blvd
Crystal River, FL 34429

Ocala Star Banner
2121 S. W. 19th Avenue Road
Ocala, FL 34474

Chiefland Citizen
PO Box 980
Chiefland, FL 32644

Nature Coast Newscaster
PO Box 64
Yankeetown, FL 34498

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

1.1.8 RADIOLOGICAL EMERGENCY RESPONSE PLANS

DEF's approach for development of the Levy Nuclear Plant Units 1 and 2 Emergency Plan submitted as Part 5 of the COL application (COLA) involved development of an emergency plan based on current NRC and Federal Emergency Management Agency (FEMA) requirements and regulatory guidance into a document that addresses emergency preparedness for a new 2-unit site.

Emergency Preparedness Program elements described in the Levy Nuclear Plant Units 1 and 2 Emergency Plan are based, in part, on elements from the Crystal River 3 (CR3) Nuclear Plant Radiological Emergency Response Plan.

Elements of the CR3 Emergency Plan and the capability of the on-site and off-site emergency organizations to respond to, and recover from a classified emergency have been successfully demonstrated in actual events, periodic drills, and NRC/FEMA evaluated exercises in support of CR3.

The Levy Nuclear Plant Units 1 and 2 Emergency Plan describes similar Emergency Preparedness Program elements and processes as the CR3 Radiological Emergency Response Plan; and provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."

The COLA emergency plan meets all current NRC requirements and regulatory guidance and was developed as a comprehensive "complete and integrated" emergency plan, in accordance with Regulatory Guide 1.206, Section C.I.13.3.1. The Levy Nuclear Plant Units 1 and 2 Emergency Plan, in conjunction with State and county plans, assures that adequate protective measures can be taken to protect on-site personnel and the public in the event of an emergency at the site.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

2.0 FINANCIAL QUALIFICATIONS

2.1 CONSTRUCTION COSTS

***Proprietary Information – Withheld under 10 CFR 2.390 (a)(4)
(See COL Application Part 9.1)***

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

***Proprietary Information – Withheld under 10 CFR 2.390 (a)(4)
(See COL Application Part 9.1)***

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

*Proprietary Information – Withheld under 10 CFR 2.390 (a)(4)
(See COL Application Part 9.1)*

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

2.2 OPERATING COSTS

Duke Energy Florida, LLC (DEF) is a wholly owned subsidiary of Duke Energy Corporation. Duke Energy Florida, LLC is an electric utility as defined in 10 CFR 50.2. DEF generates and distributes electricity and recovers the cost of this electricity through cost-of-service based rates established by the FPSC, and FERC. Thus, as addressed in 10 CFR 50.33(f), estimates of operating costs for the first 5 years of operation are not required to be submitted.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

3.0 DECOMMISSIONING FUNDING ASSURANCE

In accordance with 10 CFR 50.33(k) and 10 CFR 50.75(b), a decommissioning report is provided as Appendix A. This report certifies that decommissioning will be provided in an amount no less than the amount required by 10 CFR 50.75(c)(1) adjusted using a rate at least equal to that stated in 10 CFR 50.75(c)(2). This amount is currently \$373,401,957 for each unit. Updated certifications and financial instruments will be submitted in accordance with 10 CFR 50.75(e)(3); and after the NRC publishes notice in the Federal Register under 10 CFR 52.103(a), the decommissioning funding amount will be adjusted using a rate at least equal to that stated in 10 CFR 50.75(c)(2). The decommissioning funding amount will be covered by DEF by the external sinking fund method. DEF will collect decommissioning funding contributions through regulated, cost-of-service based rates.

3.1 DECOMMISSIONING COSTS AND FUNDING - STATUS REPORTING

In accordance with 10 CFR 50.75(e)(3), DEF will, two years before and one year before the scheduled date for initial loading of fuel, submit a report containing a certification updating the information described in 10 CFR 50.75(b)(1). DEF will periodically report on the status of decommissioning funding on LNP 1 and 2.

3.2 RECORDKEEPING PLANS RELATED TO DECOMMISSIONING FUNDING

In accordance with 10 CFR 50.75(g), DEF will retain records, until the termination of the license, of information important to the safe and effective decommissioning.

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

4.0 RESTRICTED DATA AND CLASSIFIED NATIONAL SECURITY INFORMATION

The combined license application for LNP 1 and 2 does not contain any Restricted Data or other Classified National Security Information, nor does it result in any change in access to any Restricted Data or National Security Information. In addition, it is not expected that activities conducted in accordance with the proposed combined license will involve such information. However, in the event that such information does become involved, and in accordance with 10 CFR 50.37, "Agreement limiting access to Classified Information," DEF will not permit any individual to have access to, or any facility to possess, Restricted Data or Classified National Security Information until the individual and/or facility has been approved for such access under the provisions of 10 CFR 25, "Access Authorization," and/or 10 CFR 95, Facility Security Clearance and Safeguarding of National Security Information and Restricted Data."

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

APPENDIX A DECOMMISSIONING REPORT

Table A-1 provides the estimate of the total decommissioning costs, in 2007 dollars, for each LNP unit, using the formula given in 10 CFR 50.75. This is based on a thermal power rating for the AP1000 of 3400 Megawatts, thermal (MWt).

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

**Table A-1
Decommissioning Costs per Unit for LNP 1 and 2**

Levy AP1000 NUCLEAR POWER UNIT (PWR) CALCULATION OF CERTIFICATION AMOUNT PER THE NUCLEAR REGULATORY COMMISSION - DECEMBER 2007 UPDATE -			
NRC REQUIRED MINIMUM DECOMMISSIONING AMOUNTS APPLICABLE (based on 10 CFR 50.75(c))*			
MINIMUM AMOUNT (JAN. 1986 DOLLARS) REQUIRED TO DEMONSTRATE REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING:			
Planned Reactor Power = 3400 MWt			
NRC Minimum Amount	=		\$105,000,000
Cost Elements in 1986 dollars:			
FORMULA*	=	.65L + .13E + .22B	
		L = ESCALATION FACTOR FOR LABOR	
		E = ESCALATION FACTOR FOR ENERGY	
		B = ESCALATION FACTOR FOR WASTE BURIAL	
		LABOR COSTS	.65 x \$105,000,000 = \$68,250,000
		ENERGY COSTS	.13 x \$105,000,000 = 13,650,000
		WASTE BURIAL	.22 x \$105,000,000 = 23,100,000
			<u>\$105,000,000</u>
ESCALATION OF COST FACTORS TO DECEMBER 2007:			
LABOR		\$68,250,000 x 106.7 x 1.98 /100 (1)	= \$144,189,045
ENERGY (2)	.58P x \$13,650,000 = 7,917,000	x 180.5/114.2 (2)	= 12,513,297
	.42F x \$13,650,000 = 5,733,000	x 230.6/82.0 (2)	= 16,122,315
WASTE BURIAL		\$23,100,000 x 8.683/1.000 (3)	= 200,577,300
			<u>\$373,401,957</u>
MINIMUM AMOUNT OF DECOMMISSIONING COSTS (IN DECEMBER 2007 DOLLARS)			
		PERCENTAGE	MINIMUM AMOUNT OF DECOMMISSIONING COSTS PER NRC FORMULA (DECEMBER 2007 DOLLARS)
<u>PARTICIPANTS</u>		<u>SHARE</u>	
Power Agency		0.0000%	\$0
SUBTOTAL - PARTICIPANTS			\$0
PROGRESS ENERGY FLORIDA		100.0000%	\$373,401,957
TOTAL		<u>100.0000%</u>	<u>\$373,401,957</u>

**Levy Nuclear Plant Units 1 and 2
COL Application
Part 1, General and Financial Information**

Notes:

Labor and Energy indices are from the U.S. Department of Labor, Bureau of Labor Statistics, <http://stats.bls.gov>

- (1) The labor adjustment factor has two components:
 - (a) The December 2005 base labor adjustment factor of 1.98 for the South Region (based on January 1986 index base value of 100), sourced from NUREG-1307 Rev. 12 Table 3.2;
 - (b) The December 2007 Employment Cost Index (ECI) of 106.7 (based on the December 2005 index base value of 100), sourced from Bureau of Labor Statistics Internet Data Page.
- (2) Energy costs are composed of 58% electrical power and 42% fuel oil (per NUREG-1307).
The escalation factor for electrical power is the December 2007 value of 180.5 divided by the January 1986 base value of 114.2.
The escalation factor for light fuel oil is the December 2007 value of 230.6 divided by the January 1986 base value of 82.0.
- (3) The escalation factor for waste burial is sourced from NUREG-1307 Rev. 12, Table 2.1.