



POLK 2-5 COMBINED CYCLE CONVERSION PROJECT

POLK POWER STATION SITE CERTIFICATION APPLICATION

Volume 1

Prepared by:



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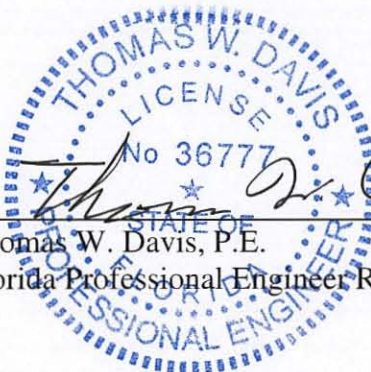
October 2012

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Submitted by:



A circular blue ink seal for Thomas W. Davis, a Professional Engineer in the State of Florida. The seal contains the text "THOMAS W. DAVIS", "LICENSE", "No 36777", "STATE OF FLORIDA", and "PROFESSIONAL ENGINEER". A signature is written across the seal.

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October 1, 2012

Date

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
VOLUME 1	
EXECUTIVE SUMMARY	EX-1
1.0 INTRODUCTION	1-1
1.1 <u>APPLICANT INFORMATION</u>	1-1
1.1.1 APPLICANT IDENTIFICATION	1-1
1.1.2 TAMPA ELECTRIC INFORMATION	1-3
1.2 <u>OVERVIEW OF EXISTING PPS SITE AND FACILITIES</u>	1-3
1.2.1 PPS SITE LOCATION AND DESCRIPTION	1-5
1.2.2 EXISTING FACILITIES AT THE PPS SITE	1-8
1.3 <u>OVERVIEW OF POLK 2-5 CONVERSION PROJECT</u>	1-10
1.4 <u>PURPOSE OF THE SITE CERTIFICATION APPLICATION</u>	1-14
2.0 NEED FOR THE PROPOSED FACILITY	2-1
2.1 <u>NEED DETERMINATION SCHEDULE</u>	2-1
2.2 <u>DETERMINATION OF NEED STUDY EXECUTIVE SUMMARY</u>	2-2
3.0 SITE AND VICINITY CHARACTERIZATION	3-1
3.1 <u>SITE AND ASSOCIATED FACILITIES DELINEATION</u>	3-1
3.1.1 SITE LOCATION	3-2
3.1.2 EXISTING SITE USES	3-2
3.1.3 ADJACENT PROPERTIES	3-5
3.1.4 PROPOSED SITE USES FOR THE POLK 2-5 CONVERSION PROJECT	3-6
3.1.5 FLOOD ZONES	3-6
3.2 <u>SOCIAL AND POLITICAL ENVIRONMENT</u>	3-9
3.2.1 GOVERNMENTAL JURISDICTIONS	3-9
3.2.2 LAND USE DESIGNATIONS	3-9

TABLE OF CONTENTS
(Continued, Page 2 of 13)

<u>Section</u>	<u>Page</u>
3.2.2.1 <u>Comprehensive Plan</u>	3-9
3.2.2.2 <u>Polk County Future Land Use Element</u>	3-12
3.2.2.3 <u>Polk County Comprehensive Plan Map Series</u>	3-15
3.2.3 DEMOGRAPHY AND ONGOING LAND USE	3-16
3.2.3.1 <u>Demography and Existing Population</u>	3-16
3.2.3.2 <u>Existing Land Use</u>	3-17
3.2.3.3 <u>Proposed Development</u>	3-17
3.2.4 LEASES, EASEMENTS, TITLE, AGENCY WORKS	3-17
3.2.5 REGIONAL SCENIC, CULTURAL, AND NATURAL LANDMARKS	3-19
3.2.6 ARCHAEOLOGICAL AND HISTORIC SITES	3-19
3.2.7 SOCIAL AND ECONOMIC CHARACTERISTICS AND PUBLIC SERVICES	3-19
3.2.7.1 <u>Social and Economic Characteristics</u>	3-19
3.2.7.2 <u>Area Public Service and Utilities</u>	3-21
3.3 <u>PHYSICAL AND BIOLOGICAL ENVIRONMENT</u>	3-25
3.3.1 GEOLOGY AND HYDROLOGY	3-25
3.3.1.1 <u>Geological Description of the Site and Area</u>	3-25
3.3.1.2 <u>Detailed Site Lithologic Description</u>	3-32
3.3.1.3 <u>Geologic Maps</u>	3-35
3.3.1.4 <u>Bearing Strength</u>	3-38

TABLE OF CONTENTS
(Continued, Page 3 of 13)

<u>Section</u>	<u>Page</u>
3.3.2 SUBSURFACE HYDROLOGY	3-38
3.3.2.1 <u>Subsurface Hydrological Data for the Site</u>	3-39
3.3.2.2 <u>Karst Hydrogeology</u>	3-65
3.3.3 SITE WATER BUDGET AND AREA USES	3-72
3.3.3.1 <u>Site Water Budget</u>	3-72
3.3.3.2 <u>Area Uses</u>	3-76
3.3.4 SURFICIAL HYDROLOGY	3-86
3.3.4.1 <u>Hydrologic Characterization</u>	3-86
3.3.4.2 <u>Measurement Programs</u>	3-104
3.3.5 VEGETATION/LAND USE	3-106
3.3.5.1 <u>Onsite Vegetation Communities</u>	3-106
3.3.5.2 <u>Dominant or Indicator Plant Species</u>	3-110
3.3.6 ECOLOGY	3-110
3.3.6.1 <u>Species—Environmental Relationships</u>	3-111
3.3.6.2 <u>Preexisting Stresses</u>	3-118
3.3.6.3 <u>Measurement Programs</u>	3-119
3.3.7 METEOROLOGY AND AMBIENT AIR QUALITY	3-119
3.3.7.1 <u>Meteorology/Climatology</u>	3-119
3.3.7.2 <u>Ambient Air Quality</u>	3-125
3.3.7.3 <u>Measurement Programs</u>	3-135
3.3.8 NOISE	3-138
3.3.8.1 <u>Noise Concepts</u>	3-138
3.3.8.2 <u>Noise Regulations</u>	3-139
3.3.8.3 <u>Ambient Noise Levels</u>	3-140
3.3.9 OTHER ENVIRONMENTAL FEATURES	3-147

TABLE OF CONTENTS
(Continued, Page 4 of 13)

<u>Section</u>	<u>Page</u>
4.0 THE PLANT AND DIRECTLY ASSOCIATED FACILITIES	4-1
4.1 <u>BACKGROUND</u>	4-1
4.1.1 SITE SYNERGIES AND BENEFITS	4-2
4.1.2 OVERVIEW OF MAJOR PLANT FACILITIES AND SYSTEMS	4-3
4.2 <u>SITE LAYOUT</u>	4-7
4.3 <u>FUEL</u>	4-14
4.3.1 FUEL QUALITY AND QUANTITY	4-14
4.3.1.1 <u>Natural Gas</u>	4-14
4.3.1.2 <u>ULSD Fuel Oil</u>	4-16
4.3.2 FUEL DELIVERY, HANDLING, AND STORAGE	4-16
4.3.2.1 <u>Natural Gas Operational/Startup Fuel</u>	4-17
4.3.2.2 <u>ULSD Backup Fuel Oil</u>	4-17
4.4 <u>AIR EMISSIONS AND CONTROLS</u>	4-17
4.4.1 AIR EMISSIONS TYPES AND SOURCES	4-17
4.4.1.1 <u>CTG/HRSG Units</u>	4-19
4.4.1.2 <u>Cooling Tower</u>	4-19
4.4.1.3 <u>Emergency Diesel Generator</u>	4-20
4.4.2 AIR EMISSIONS CONTROLS	4-20
4.4.3 BEST AVAILABLE CONTROL TECHNOLOGY	4-22
4.4.3.1 <u>Methodology</u>	4-23
4.4.3.2 <u>Summary of BACT Determinations</u>	4-23
4.4.4 DESIGN DATA FOR CONTROL EQUIPMENT	4-25
4.4.5 DESIGN PHILOSOPHY	4-25

TABLE OF CONTENTS
(Continued, Page 5 of 13)

<u>Section</u>	<u>Page</u>
4.5 <u>PLANT WATER USE</u>	4-25
4.5.1 HEAT DISSIPATION SYSTEM	4-33
4.5.1.1 <u>System Design</u>	4-33
4.5.1.2 <u>Sources of Cooling Reservoir and Cooling Tower Water Makeup</u>	4-42
4.5.1.3 <u>Recirculating Cooling Water</u>	4-43
4.5.1.4 <u>Blowdown, Screened Organisms, and Trash Removal</u>	4-44
4.5.1.5 <u>Injection Wells</u>	4-44
4.5.2 DOMESTIC/SANITARY WASTEWATER	4-48
4.5.3 POTABLE WATER SYSTEMS	4-48
4.5.4 PROCESS WATER SYSTEM	4-48
4.5.4.1 <u>Service Water Use</u>	4-49
4.5.4.2 <u>Demineralized Water Uses</u>	4-50
4.5.4.3 <u>Fire Protection Water</u>	4-50
4.6 <u>CHEMICAL AND BIOCIDES WASTE</u>	4-51
4.6.1 CONDENSER AND OTHER ONCE-THROUGH NONCONTACT COOLING WATER	4-51
4.6.2 COOLING TOWER BLOWDOWN	4-51
4.6.3 LOW-VOLUME WASTES	4-52
4.6.4 METAL CLEANING WASTES	4-52
4.7 <u>SOLID AND HAZARDOUS WASTES</u>	4-52
4.7.1 SOLID WASTES	4-52
4.7.2 POTENTIALLY HAZARDOUS WASTES	4-53
4.8 <u>ONSITE DRAINAGE SYSTEM</u>	4-53
4.9 <u>HEAVY EQUIPMENT AND MATERIALS HANDLING</u>	4-58
4.9.1 CONSTRUCTION EQUIPMENT AND MATERIALS	4-58
4.9.2 OPERATIONS MATERIAL HANDLING	4-59

TABLE OF CONTENTS
(Continued, Page 6 of 13)

<u>Section</u>	<u>Page</u>
4.10 <u>ASSOCIATED LINEAR FACILITIES</u>	4-59
4.11 <u>EMERGENCY DISASTER PREPAREDNESS PLANS</u>	4-60
5.0 ENVIRONMENTAL EFFECTS OF SITE PREPARATION AND PLANT AND ASSOCIATED FACILITIES CONSTRUCTION	5-1
5.1 <u>LAND IMPACT</u>	5-1
5.1.1 GENERAL CONSTRUCTION IMPACTS	5-1
5.1.2 ROADS	5-4
5.1.3 FLOOD ZONES	5-5
5.1.4 TOPOGRAPHY AND SOILS	5-5
5.2 <u>IMPACTS ON SURFACE WATER BODIES AND USES</u>	5-6
5.2.1 IMPACT ASSESSMENT	5-6
5.2.2 MEASURING AND MONITORING	5-7
5.3 <u>GROUNDWATER IMPACTS</u>	5-7
5.3.1 IMPACT ASSESSMENT	5-7
5.3.2 MEASURING AND MONITORING PROGRAMS	5-9
5.4 <u>ECOLOGICAL IMPACTS</u>	5-9
5.4.1 IMPACT ASSESSMENT	5-9
5.4.1.1 <u>Terrestrial Systems—Flora</u>	5-10
5.4.1.2 <u>Terrestrial Systems—Fauna</u>	5-10
5.4.1.3 <u>Aquatic Resources</u>	5-11
5.4.2 MEASURING AND MONITORING PROGRAMS	5-12
5.5 <u>AIR IMPACT</u>	5-12
5.6 <u>SOLID WASTES</u>	5-14

TABLE OF CONTENTS
(Continued, Page 7 of 13)

<u>Section</u>	<u>Page</u>
5.7 <u>IMPACT ON HUMAN POPULATIONS</u>	5-15
5.7.1 LAND USE IMPACTS	5-15
5.7.2 CONSTRUCTION EMPLOYMENT	5-15
5.7.3 TRANSPORTATION IMPACTS	5-16
5.7.4 HOUSING IMPACTS	5-18
5.7.5 PUBLIC SERVICES AND FACILITIES IMPACTS	5-18
5.7.6 NOISE IMPACTS	5-19
5.8 <u>IMPACT ON LANDMARKS AND SENSITIVE AREAS</u>	5-21
5.9 <u>IMPACT OF ARCHAEOLOGICAL AND HISTORIC SITES</u>	5-21
5.10 <u>SPECIAL FEATURES</u>	5-21
5.11 <u>BENEFITS FROM CONSTRUCTION</u>	5-22
6.0 EFFECTS OF PLANT OPERATION	6-1
6.1 <u>EFFECTS OF THE OPERATION OF THE HEAT DISSIPATION SYSTEM</u>	6-1
6.1.1 TEMPERATURE EFFECTS	6-2
6.1.2 EFFECTS ON AQUATIC LIFE	6-4
6.1.3 BIOLOGICAL EFFECTS OF MODIFIED CIRCULATION	6-4
6.1.4 EFFECTS OF OFFSTREAM COOLING	6-5
6.1.4.1 Plume Visibility/Fogging	6-6
6.1.4.2 Deposition Analysis	6-7
6.1.5 MEASUREMENT PROGRAMS	6-7
6.2 <u>EFFECTS OF CHEMICAL AND BIOCIDES DISCHARGES</u>	6-7
6.2.1 INDUSTRIAL WASTEWATER DISCHARGES	6-7
6.2.2 COOLING TOWER BLOWDOWN	6-9
6.2.3 MEASUREMENT PROGRAMS	6-9

TABLE OF CONTENTS
(Continued, Page 8 of 13)

<u>Section</u>	<u>Page</u>
6.3 <u>IMPACTS ON WATER SUPPLIES</u>	6-9
6.3.1 SURFACE WATER	6-9
6.3.2 GROUNDWATER	6-9
6.3.2.1 <u>Consumptive Use Impacts</u>	6-9
6.3.2.2 <u>Potential Surficial Aquifer Impacts</u>	6-14
6.3.2.3 <u>Underground Injection Impacts</u>	6-15
6.3.3 DRINKING WATER	6-17
6.3.4 LEACHATE AND RUNOFF	6-18
6.3.5 MEASUREMENT PROGRAMS	6-18
6.4 <u>SOLID/HAZARDOUS WASTE DISPOSAL IMPACTS</u>	6-18
6.4.1 SOLID WASTE	6-18
6.4.2 HAZARDOUS WASTE	6-19
6.5 <u>SANITARY AND OTHER WASTE DISCHARGES</u>	6-19
6.6 <u>AIR QUALITY IMPACTS</u>	6-19
6.6.1 IMPACT ASSESSMENT	6-19
6.6.1.1 <u>Introduction</u>	6-19
6.6.1.2 <u>Regulatory Applicability and Overview of Impact Analyses</u>	6-20
6.6.1.3 <u>Analytical Approach</u>	6-23
6.6.1.4 <u>Summary of Air Quality Impacts</u>	6-26
6.6.1.5 <u>Other Air Quality-Related Impacts</u>	6-32
6.6.2 MONITORING PROGRAMS	6-33
6.7 <u>NOISE</u>	6-34
6.8 <u>CHANGES IN NONAQUATIC SPECIES POPULATIONS</u>	6-35
6.9 <u>TRANSPORTATION AND OTHER PLANT OPERATION EFFECTS</u>	6-35
6.10 <u>ARCHAEOLOGICAL SITES</u>	6-36
6.11 <u>RESOURCES COMMITTED</u>	6-36

TABLE OF CONTENTS
(Continued, Page 9 of 13)

<u>Section</u>	<u>Page</u>
7.0 ECONOMIC AND SOCIAL EFFECTS OF PLANT CONSTRUCTION AND OPERATION	7-1
7.1 <u>ECONOMIC AND SOCIAL BENEFITS</u>	7-1
7.1.1 TAX REVENUES	7-1
7.1.2 INDIRECT REVENUES	7-2
7.1.3 TEMPORARY AND PERMANENT NEW JOBS	7-2
7.1.3.1 <u>Construction Employment</u>	7-2
7.1.3.2 <u>Operation Employment</u>	7-4
7.1.3.3 <u>Expenditures</u>	7-4
7.2 <u>ECONOMIC AND SOCIAL COSTS</u>	7-5
7.2.1 TEMPORARY EXTERNAL COSTS	7-5
7.2.2 LONG-TERM EXTERNAL COSTS	7-6
7.2.2.1 <u>Land Use</u>	7-6
7.2.2.2 <u>Aesthetics</u>	7-6
7.2.2.3 <u>Public Services/Facilities</u>	7-7
8.0 SITE AND PLANT DESIGN ALTERNATIVES	8-1
9.0 ELECTRICAL TRANSMISSION LINES	9-1
9.1 <u>MAPS</u>	9-5
9.2 <u>PROJECT DESCRIPTION</u>	9-5
9.2.1 OVERVIEW	9-5
9.2.2 NEED FOR THE LINES	9-6
9.2.3 PROPOSED TRANSMISSION LINE DESIGN	9-6

TABLE OF CONTENTS
(Continued, Page 10 of 13)

<u>Section</u>	<u>Page</u>
9.3 <u>CORRIDOR</u>	9-28
9.3.1 CORRIDOR SELECTION	9-28
9.3.1.1 <u>Study Area</u>	9-28
9.3.1.2 <u>Resource Mapping and Alternative Route Identification</u>	9-30
9.3.1.3 <u>Alternative Route Evaluation and Preferred Corridor Selection</u>	9-30
9.3.1.4 <u>Community Outreach Program</u>	9-35
9.3.2 CORRIDOR DESCRIPTION	9-39
9.3.2.1 <u>Polk-Fishhawk Preferred Corridor</u>	9-39
9.3.2.2 <u>Polk-Pebbledale Preferred Corridor</u>	9-40
9.3.3 ALTERNATE CORRIDORS	9-43
9.3.4 ACCESS ROADS	9-43
9.3.4.1 <u>Erosion Control</u>	9-43
9.3.4.2 <u>At-Grade Access Roads</u>	9-43
9.3.4.3 <u>Raised Access Roads and Structure Pads</u>	9-44
9.3.4.4 <u>Construction of Compensating Floodplain Storage</u>	9-48
9.3.5 COST PROJECTIONS	9-48
9.3.6 SOCIAL AND POLITICAL ENVIRONMENT OF THE CORRIDOR AREA	9-49
9.3.6.1 <u>Governmental Jurisdictions</u>	9-49
9.3.6.2 <u>Land Use Plans</u>	9-49
9.3.6.3 <u>Easements, Title, Agency Works</u>	9-68
9.3.6.4 <u>Vicinity Scenic, Cultural, and Natural Landmarks</u>	9-68
9.3.6.5 <u>Archaeological and Historic Sites</u>	9-70

TABLE OF CONTENTS
(Continued, Page 11 of 13)

<u>Section</u>	<u>Page</u>
9.3.7 BIOLOGICAL AND PHYSICAL ENVIRONMENT OF THE CORRIDOR AREA	9-70
9.3.7.1 <u>Land Use/Vegetation</u>	9-70
9.3.7.2 <u>Affected Waters and Wetlands</u>	9-77
9.3.7.3 <u>Ecology</u>	9-79
9.3.7.4 <u>Other Environmental Features</u>	9-96
9.4 <u>EFFECTS OF RIGHT-OF-WAY PREPARATION AND TRANSMISSION LINE CONSTRUCTION</u>	9-97
9.4.1 CONSTRUCTION TECHNIQUES	9-97
9.4.1.1 <u>General Right-of-Way Clearing</u>	9-97
9.4.1.2 <u>Clearing and Grubbing in Upland Areas</u>	9-97
9.4.1.3 <u>Clearing in Wetland Areas</u>	9-98
9.4.1.4 <u>Clearing in Balm-Boyette Scrub Preserve</u>	9-98
9.4.1.5 <u>Access Road and Structure Pad Construction</u>	9-99
9.4.1.6 <u>Transmission Line Construction</u>	9-99
9.4.1.7 <u>Restoration</u>	9-100
9.4.2 ENVIRONMENTAL RESOURCE PERMIT	9-100
9.4.3 SOLID WASTES	9-102
9.4.4 CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE	9-102
9.4.4.1 <u>Vegetation</u>	9-103
9.4.4.2 <u>Wildlife</u>	9-104
9.4.4.3 <u>Aquatic Life</u>	9-105
9.4.4.4 <u>Summary</u>	9-106
9.4.5 IMPACT ON HUMAN POPULATIONS	9-106
9.4.6 IMPACT ON REGIONAL SCENIC, CULTURAL, AND NATURAL LANDMARKS	9-108
9.4.7 IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES	9-108

TABLE OF CONTENTS
(Continued, Page 12 of 13)

<u>Section</u>	<u>Page</u>
9.5 <u>POSTCONSTRUCTION IMPACTS AND EFFECTS OF MAINTENANCE</u>	9-109
9.5.1 MAINTENANCE	9-109
9.5.2 MULTIPLE USES	9-110
9.5.3 CHANGES IN SPECIES POPULATIONS	9-110
9.5.4 EFFECTS OF PUBLIC ACCESS	9-112
9.5.5 OTHER POSTCONSTRUCTION EFFECTS	9-112
9.5.5.1 <u>Electric and Magnetic Fields</u>	9-112
9.5.5.2 <u>Audible Noise</u>	9-113
9.5.5.3 <u>Radio and Television Interference</u>	9-116
9.5.5.4 <u>Safety</u>	9-117

VOLUME 2

10.0	APPENDICES
10.1	<u>COORDINATION</u>
10.1.1	AGENCIES
10.1.2	ELECTED OFFICIALS
10.1.3	PUBLIC OUTREACH
10.2	<u>FEDERAL PERMIT APPLICATIONS OR APPROVALS</u>
10.2.1	316 DEMONSTRATIONS
10.2.2	NPDES APPLICATIONS/PERMITS
10.2.2.1	<u>NPDES—Industrial Wastewater Facility Permit</u>
10.2.2.2	<u>NPDES—Stormwater Discharge Permit For Construction Activities</u>
10.2.2.3	<u>NPDES—Stormwater Discharge Permit For Operational Activities</u>
10.2.3	HAZARDOUS WASTE DISPOSAL APPLICATIONS/PERMITS
10.2.4	SECTION 10 OR 404 APPLICATIONS/PERMITS

TABLE OF CONTENTS
(Continued, Page 13 of 13)

<u>Section</u>	<u>Page</u>
10.2.5 AIR CONSTRUCTION/PREVENTION OF SIGNIFICANT DETERIORATION PERMIT APPLICATION	
10.2.6 AIR OPERATION PERMIT	
10.2.7 COASTAL ZONE MANAGEMENT CERTIFICATIONS	
10.2.8 UNDERGROUND INJECTION CONTROL PROGRAM PERMIT APPLICATION	
10.3 <u>ZONING DESCRIPTIONS</u>	
10.3.1 POLK COUNTY LAND DEVELOPMENT CODE AND CODE OF ORDINANCES	
10.3.2 HILLSBOROUGH COUNTY LAND DEVELOPMENT CODE AND REGULATIONS	
10.3.3 EXISTING CONDITIONAL USE PERMIT	
10.4 <u>ENVIRONMENTAL RESOURCE PERMIT</u>	
10.5 <u>LAND USE PLAN DESCRIPTIONS</u>	
10.5.1 POLK COUNTY COMPREHENSIVE PLAN	
10.5.2 HILLSBOROUGH COUNTY COMPREHENSIVE PLAN	
10.6 <u>EXISTING STATE PERMITS</u>	
10.6.1 CONDITIONS OF CERTIFICATION (PA- 92-32N)	
10.6.2 EXISTING NPDES PERMIT (FL0043869)	
10.6.3 PSD PERMIT FOR UNITS 4 AND 5 (PSD- FL-363/1050233-018-AC)	
10.6.4 TITLE V AIR OPERATION PERMIT (1050233-016-AV)	
10.7 <u>MONITORING PROGRAMS</u>	
10.8 <u>EMF CALCULATIONS</u>	

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1.1.1-1 Applicant Information	1-2
3.2.3-1 Polk County and Florida Population Trends	3-16
3.2.3-2 Medium Projections of Estimates of Population	3-16
3.3.1-1 Hydrogeological Framework for West-Central Florida	3-26
3.3.2-1 Summary of Groundwater Level Measurements (2002 to 2007)	3-42
3.3.2-2 Summary of Regional Aquifer Characteristics (within 15-Mile Radius)	3-43
3.3.2-3 Summary of Surficial Aquifer Groundwater Quality Data (2002 to 2007)	3-45
3.3.2-4 Summary of Upper Intermediate Aquifer Groundwater Quality Data (2002 to 2007)	3-53
3.3.2-5 Summary of Lower Intermediate Aquifer Groundwater Quality Data (2002 to 2007)	3-54
3.3.2-6 Summary of Upper Floridan Aquifer Water Quality Data (2002 to 2007)	3-59
3.3.2-7 Summary of Sinkhole Data within a 10-Mile Radius of the Site	3-70
3.3.3-1 Meteorological Data from Bartow and Lake Alfred, Florida	3-74
3.3.3-2 Monthly Pan Evaporation for the Lake Alfred Experiment Station	3-75
3.3.3-3 Monthly Discharge at Payne Creek at Bowling Green (USGS Station #02295420)	3-77
3.3.3-4 Summary of Permitted Wells within a 5-Mile Radius of the Site	3-80
3.3.4-1 Annual Average Discharge at Selected Gauging Stations	3-88
3.3.4-2 Low-Flow Frequency Analysis	3-90
3.3.4-3 Peak Flow Frequency Analysis	3-91

LIST OF TABLES
(Continued, Page 2 of 4)

<u>Table</u>	<u>Page</u>
3.3.4-4 Statistical Summary—Surface Water Quality: SW-6	3-95
3.3.4-5 Statistical Summary—Surface Water Quality: SW-7	3-96
3.3.4-6 Pollutant Scan of Water Quality at D-001	3-97
3.3.4-7 Discharge Monitoring Water Quality Data at D-001	3-100
3.3.4-8 Discharge Monitoring Water Quality Data at D-002	3-101
3.3.4-9 Monitoring Program at Outfall D-001	3-107
3.3.4-10 Monitoring Program at Outfall D-002	3-108
3.3.4-11 Monitoring Program at Outfall I-003	3-108
3.3.4-12 Monitoring Program at Outfall I-004	3-108
3.3.6-1 Wildlife Observed on the PPS Site—May 10, 2007	3-112
3.3.6—2 Threatened and Endangered Species that Could Potentially Occur on the PPS Site	3-114
3.3.7-1 Ambient Temperatures Measured at Wauchula, Florida	3-120
3.3.7-2 TPA Normal Relative Humidity Data (1963 through 2002)	3-121
3.3.7-3 Precipitation Measured at Wauchula, Florida (1933 through 2011)	3-122
3.3.7-4 NAAQS and Florida AAQS ($\mu\text{g}/\text{m}^3$ unless otherwise stated)	3-127
3.3.7-5 NAAQS and Monitored Air Quality Concentrations	3-129
3.3.7-6 Lead and Noncriteria Pollutant Emissions, 1999	3-136
3.3.7-7 Reported 2008 Emissions for Polk County, Industrial Sources, and PPS	3-138
3.3.8-1 Subjective Effect of Changes in Sound Pressure Levels	3-138
3.3.8-2 A-Weighted Sound Pressure Level Limits (Time Averaged)	3-139
3.3.8-3 Ambient Noise Level Summary (2007)	3-140

LIST OF TABLES
(Continued, Page 3 of 4)

<u>Table</u>	<u>Page</u>
3.3.8-4 Typical Sound Levels	3-147
4.1.2-1 Conceptual Design Conditions for the PPS Site	4-3
4.2.0-1 Project Building and Structure Dimensions	4-9
4.3.1-1 Typical Natural Gas Composition	4-15
4.3.1-2 Indicative Hourly Natural Gas Fuel Consumption Rates	4-15
4.3.1-3 Typical ULSD Fuel Oil Composition	4-16
4.4.1-1 PSD Applicability	4-18
4.4.2-1 Summary of Project Air Emissions Controls	4-21
4.5.0-1 Authorized Groundwater Withdrawals Under COC XXVI.A.14	4-30
4.5.0-2 Authorized Groundwater Withdrawal Limits Under COC XXVI.A.27	4-30
4.5.0-3 Water Quality of Source Water and Projected Water Quality of Key Process Water Streams into and Discharge from Cooling Reservoir	4-34
5.7.6-1 Typical Noise Levels (dBA at 50 ft) for Construction Equipment	5-20
6.2.1-1 Water Quality of Source Water and Projected Water Quality of Key Process Water Streams into and Discharges from Cooling Reservoir	6-8
6.3.2-1 Summary of Predicted Recovery in the Upper Floridan Aquifer with 4.3- Versus 6.4-MGD Withdrawal	6-12
6.6.1-1 Project Emissions Compared to PSD Significant Emissions Rates	6-21
6.6.1-2 Project PSD Class II Area SIL Impacts Modeling Results	6-27
6.6.1-3 Cumulative NAAQS Impacts	6-29
6.6.1-4 Project Class I Area SIL Impacts	6-30

LIST OF TABLES
(Continued, Page 4 of 4)

<u>Table</u>	<u>Page</u>
6.6.1-5 Project Class I Area Maximum Sulfur and Nitrogen Deposition Impacts	6-31
6.6.1-6 Project Class I Area Regional Haze Impacts	6-32
7.1.3-1 RIMS II Construction Impacts Based on Initial Changes in Earnings and Employment	7-4
9.2.3-1 Typical Transmission Structure Cross-Sections and Conductor Profiles for Polk 2-5 Conversion Project	9-7
9.3.1-1 Study Area Resources Mapped	9-31
9.3.1-2 Alternative Route Identification Guidelines	9-32
9.3.1-3 Alternative Route Quantitative Evaluation Criteria	9-34
9.3.1-4 Alternative Route Qualitative Evaluation Criteria	9-36
9.3.6-1 Governmental Jurisdictions within 0.5 mile of the Preferred Corridors	9-52
9.3.6-2 Possible Easements, Titles, Crossing Approvals Expected to be Required for Transmission Line Construction in the Preferred Corridors	9-69
9.3.6-3 Known Cultural Resources Located within the Preferred Corridors	9-71
9.3.7-1 Surface Water Bodies within the Preferred Corridors	9-78
9.3.7-2 Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area	9-80
9.3.7-3 Listed Wildlife Species Potentially Occurring in the Tampa Electric Polk-Fishhawk and Polk- Pebbledale Transmission Corridor Study Area	9-90
9.5.5-1 Maximum EMF Capable of Being Produced by Project Transmission Lines	9-114
9.5.5-2 Maximum Audible Noise at the Edge of Right-of-Way for Project Transmission Corridors	9-115

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1.1.2-1 Tampa Electric's Service Territory and Generating Station Locations	1-4
1.2.1-1 Regional Location of the PPS Site	1-6
1.2.1-2 General Vicinity Map and Boundaries of the PPS Site	1-7
1.3.0-1 Combined Process Flow Diagram	1-12
3.1.1-1 PPS Site and Vicinity	3-3
3.1.1-2 Aerial Photograph of the PPS Site	3-4
3.1.4-1 General Layout of PPS Existing and Proposed Polk 2-5 Conversion Facilities	3-7
3.1.5-1 Premining 100-Year Flood Zones	3-8
3.2.1-1 Governmental Jurisdictions within 5 Miles of the PPS Site	3-10
3.2.2-1 Future Land Use Designations	3-11
3.2.2-2 Polk County Development Areas	3-13
3.2.2-3 Special Area Overlay Districts, Development Limitation Areas, Aquifer Protection Areas	3-14
3.2.3-1 Land Use/Cover Map within 5 Miles of PPS Site	3-18
3.3.1-1 Deep Hydrogeologic Framework for West-Central Florida	3-27
3.3.1-2 Groundwater Monitoring Station Location Map (1992 SCA)	3-29
3.3.1-3 Structural and Geologic Features of Florida	3-31
3.3.1-4 Physiographic Map of Polk County	3-33
3.3.1-5 Soil Type Distribution Map	3-36
3.3.1-6 Surficial Geology of West-Central Florida	3-37
3.3.2-1 Hydrographs for Surficial Aquifer Monitoring Wells	3-40
3.3.2-2 Groundwater Contours Surficial Aquifer—May 2006	3-41

LIST OF FIGURES
(Continued, Page 2 of 6)

<u>Figure</u>		<u>Page</u>
3.3.2-3	Hydrographs for Upper Intermediate Aquifer Monitoring Wells	3-48
3.3.2-4	Hydrographs for Lower Intermediate Aquifer Monitoring Wells	3-49
3.3.2-5	Groundwater Contours—Upper Intermediate Aquifer May 2001	3-50
3.3.2-6	Groundwater Contours—Upper Intermediate Aquifer September 2001	3-51
3.3.2-7	Hydrographs for Upper Floridan Aquifer Monitoring Wells	3-56
3.3.2-8	Groundwater Contours—Upper Floridan Aquifer May 2005	3-57
3.3.2-9	Groundwater Contours—Upper Floridan Aquifer September 2005	3-58
3.3.2-10	Median Groundwater Quality of Surficial, Intermediate, and Floridan Aquifers Systems	3-61
3.3.2-11	Hydrogeologic Cross-Section Location Map	3-62
3.3.2-12	Hydrogeologic Cross-Section B-B'	3-63
3.3.2-13	Hydrogeologic Cross-Section D-D'	3-64
3.3.2-14	Zones of Different Types of Sinkhole Development	3-67
3.3.2-15	Identified Sinkholes within a 10-Mile Radius of the Site	3-69
3.3.2-16	Lineament Map for Polk County	3-71
3.3.3-1	Groundwater Users within a 5-Mile Radius of the Site	3-79
3.3.4-1	Existing Topography and Drainage Plan	3-87
3.3.4-2	Location of USGS Surface Water Stations	3-89
3.3.4-3	Surface Water Monitoring Stations	3-94
3.3.4-4	Daily Discharge Rate at D-001 (01/01/05 through 06/12/12)	3-102

LIST OF FIGURES
(Continued, Page 3 of 6)

<u>Figure</u>		<u>Page</u>
3.3.4-5	Water Temperature Data at D-001 (09/01/04 through 06/12/12)	3-103
3.3.5-1	Land Use/Cover Map	3-109
3.3.7-1	5-Year Annual Wind Rose, Orlando International Airport (2006 through 2010)	3-123
3.3.7-2	5-Year Seasonal Wind Rose, Orlando International Airport (2006 through 2010)	3-124
3.3.7-3	Location of Ambient Air Quality Monitors near the PPS Site	3-128
3.3.7-4	AQI for Polk County, Florida (2005 through 2007)	3-132
3.3.7-5	Existing Polk County SO ₂ , NO _x , VOC, and CO Emissions for 2008	3-133
3.3.7-6	Existing Polk County PM Emissions for 2008	3-134
3.3.7-7	Location of Major Emissions Sources within 40 km of PPS	3-137
3.3.8-1	Noise Monitoring Station Locations	3-141
3.3.8-2	North Boundary L _{eq} 10-Minute Intervals	3-143
3.3.8-3	South Boundary L _{eq} 10-Minute Intervals	3-144
3.3.8-4	West Boundary L _{eq} 10-Minute Intervals	3-145
3.3.8-5	East Boundary L _{eq} 10-Minute Intervals	3-146
4.1.2-1	Conceptual Process Flow Diagram	4-4
4.2.0-1	Overall Site Layout on PPS Site	4-8
4.2.0-2	Layout of Existing and Proposed Polk 2-5 Conversion Facilities	4-10
4.2.0-3	Layout of Existing and Proposed Polk 2-5 Conversion Facilities on Aerial Photograph	4-11
4.2.0-4	Detailed Site Arrangement for Polk 2-5 Conversion Project	4-12

LIST OF FIGURES
(Continued, Page 4 of 6)

<u>Figure</u>		<u>Page</u>
4.2.0-5	Conceptual Rendering of Proposed Polk 2-5 Conversion Project Facilities	4-13
4.5.0-1	Water Mass Balance for Annual Average Conditions	4-27
4.5.0-2	Water Mass Balance for Peak Daily Conditions	4-28
4.5.1-1	Typical Cross-Section of Cooling Reservoir	4-36
4.5.1-2	Circulating Water Intake Structure	4-38
4.5.1-3	Circulating Water Discharge Structure	4-39
4.5.1-4	Cooling Reservoir Outfall D-001 Structure	4-41
4.5.1-5	Location of Injection Wells and Dual Zone Monitoring Wells	4-45
4.5.1-6	Injection Well Construction Details	4-46
4.5.1-7	Dual Zone Monitoring Well Design Details	4-47
4.8.0-1	Postreclamation/Development Drainage Basins and Topography: 1992 SCA	4-54
4.8.0-2	Construction Laydown and Parking Areas for Proposed Project	4-56
4.8.0-3	Modified Site Drainage Plan for Reclaimed Water Project	4-57
6.3.2-1	Predicted Drawdown—Upper Floridan Aquifer	6-13
9.0.0-1	Location of Project Area	9-2
9.0.0-2	Preferred Corridors Alignment	9-3
9.0.0-3	Project Preferred Corridors	9-4
9.1.0-1	Aerial Map	9-123
9.1.0-2	Future Land Use Map	9-141
9.1.0-3	Zoning Map	9-159
9.1.0-4	Land Cover/Vegetation	9-171

**LIST OF FIGURES
(Continued, Page 5 of 6)**

<u>Figure</u>		<u>Page</u>
9.2.3-1	Typical 230-kV Single Circuit with 69-kV Underbuild	9-9
9.2.3-2	Conductor Profile, 700-ft Span, Typical 230-kV Single Circuit with 69-kV Underbuild	9-10
9.2.3-3	Typical 230-kV Single Circuit with 69-kV Underbuild, Roadside	9-11
9.2.3-4	Conductor Profile, 600-ft Span, Typical 230-kV Single Circuit with 69-kV Underbuild, Roadside	9-12
9.2.3-5	Typical 230-kV Single Circuit with 69-kV Underbuild and Distribution Underbuild, Roadside	9-13
9.2.3-6	Conductor Profile, 500-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild and Distribution Underbuild, Roadside	9-14
9.2.3-7	Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric 200-ft Right-Of-Way	9-15
9.2.3-8	Conductor Profile, 700-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric 200-ft Right-of-Way	9-16
9.2.3-9	Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-17
9.2.3-10	Conductor Profile, 700-ft Span Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-18
9.2.3-11	Conductor Profile, 1,000-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-19
9.2.3-12	Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-20
9.2.3-13	Conductor Profile, 700-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-21

LIST OF FIGURES
(Continued, Page 6 of 6)

<u>Figure</u>	<u>Page</u>
9.2.3-14 Conductor Profile, 1,000-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-22
9.2.3-15 Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-23
9.2.3-16 Conductor Profile, 700-ft Span Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-24
9.2.3-17 Conductor Profile, 1,000-ft Span Typical 230-kV Twin Circuits with 69-kV Underbuild, Existing Tampa Electric Right-of-Way	9-25
9.2.3-18 Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric 150-ft Right-of-Way	9-26
9.2.3-19 Conductor Profile, 700-ft Span Typical 230-kV Single Circuit with 69-kV Underbuild, Existing Tampa Electric 150-ft Right-of-Way	9-27
9.3.1-1 Study Area	9-29
9.3.1-2 Regional Screening Map	9-33
9.3.1-3 Location of Preferred Routes	9-37
9.3.2-1 Preferred Corridors Location and Existing Transmission Lines Greater than 115 kV Located within 5 Miles	9-41
9.3.4-1 At-Grade Access Road	9-45
9.3.4-2 Raised Access Road	9-46
9.3.4-3 Raised Structure Working Pad	9-47
9.3.6-1 Governmental Jurisdictions	9-50
9.3.6-2 Polk County Rural Development Area	9-57
9.3.6-3 Polk County Flood Zone Areas	9-58
9.3.6-4 Polk County Aquifer-Protection Areas	9-59
9.3.6-5 Polk County PolkGreen District	9-60

LIST OF ACRONYMS AND ABBREVIATIONS

°	degree
°F	degree Fahrenheit
µg/L	microgram per liter
µg/m ³	microgram per cubic meter
µmhos/cm	micromhos per centimeter
7Q10	7-day, 10-year
AADT	annual average daily traffic
AAQS	ambient air quality standard
ac-ft	acre-foot
AERMIC	U.S. Environmental Protection Agency Regulatory Model Improvement Committee
AERMOD	American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model Improvement Committee model
AMS	American Meteorological Society
AQI	air quality index
AQRV	air quality-related value
ARP	Acid Rain Program
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
BACT	best available control technology
BEBR	Bureau of Economic and Business Research
BMP	best management practice
BOCC	Board of County Commissioners
Btu/ft ³	British thermal unit per cubic foot
Btu/gal	British thermal unit per gallon
Btu/kWh	British thermal unit per kilowatt-hour
CAA	Clean Air Act
CaCO ₃	calcium carbonate
CAIR	Clean Air Interstate Rule
CC	combined cycle
CFR	Code of Federal Regulations
CFRPC	Central Florida Regional Planning Council
cfs	cubic foot per second
cm/sec	centimeter per second
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
COC	condition of certification
CR	County Road

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 2 of 5)

csm	cubic feet per second per square mile
CSX	CSX Transportation, Inc.
CTG	combustion turbine generator
CUP	conditional use permit
CWA	Clean Water Act
DAT	deposition analysis threshold
dBA	A-weighted decibel
DO	dissolved oxygen
DOE	U.S. Department of Energy
DSM	demand-side management
ECRP	emergency contingency/response plan
ECT	Environmental Consulting & Technology, Inc.
EMS	emergency medical service
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
FDEP	Florida Department of Environmental Protection
FDHR	Florida Division of Historical Resources
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FGT	Florida Gas Transmission
FIRM	flood insurance rate map
FLAG	Federal Land Manager's Air Quality Related Values Work Group
FLM	Federal Land Managers
FLUCCS	Florida Land Use and Cover Classification System
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FLUM	future land use map
FNAI	Florida Natural Areas Inventory
ft	foot
ft bls	foot below land surface
ft/day	foot per day
ft/ft	foot per foot
ft ² /day	square foot per day
ft ³ /day/ft ³	cubic foot per day per cubic foot
ft-msl	foot above mean sea level
ft-NGVD	foot per National Geodetic Vertical Datum of 1927
FWC	Florida Fish and Wildlife Conservation Commission

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 3 of 5)

g/s	gram per second
GAQM	EPA's Guideline on Air Quality Models
GE	General Electric
GHG	greenhouse gas
GIS	geographic information system
gpd	gallon per day
gpm	gallon per minute
gpm/psi	gallon per minute per pound per square inch
gr/100 dscf	grain per 100 dry standard cubic feet
GWMD	groundwater monitoring plan
H ₂ S	hydrogen sulfide
H ₂ SO ₄	sulfuric acid
HAP	hazardous air pollutant
HHV	higher heating value
hr/yr	hour per year
HRSR	heat recovery steam generator
Hz	Hertz
I-4	Interstate 4
I-75	Interstate 75
ICP	integrated contingency plan
ICP-MS	inductively coupled plasma mass spectrometry
IGCC	integrated gasification combined cycle
IRP	integrated resource planning
IWAQM	Interagency Workgroup on Air Quality Modeling
kg/ha/yr	kilogram per hectare per year
km	kilometer
kV	kilovolt
lb/yr	pound per year
LDC	land development code
L _{eq}	equivalent sound level
LOS	level of service
m ²	square meter
MDL	method detection limit
MFLs	minimum flows and levels
mg/L	milligram per liter
MGD	million gallons per day
mi ²	square mile
MMBtu/hr	million British thermal units per hour

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 4 of 5)

mph	mile per hour
MW	megawatt
NAAQS	national ambient air quality standard
NCDC	National Climatic Data Center
NESHAP	National Emissions Standards for Hazardous Air Pollutant
NMOC	nonmethane organic compound
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NP	National Park
NPDES	National Pollutant Discharge Elimination System
NSPS	new source performance standard
NSR	new source review
NWA	National Wilderness Area
NWS	National Weather Service
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 micrometers
PM _{2.5}	particulate matter less than or equal to 2.5 micrometers
ppb	part per billion
ppm	part per million
ppmv	part per million by volume
ppmvd	part per million by volume dry
PPS	Polk Power Station
PPSA	Florida Electrical Power Plant Siting Act
PSC	Public Service Commission
PSD	Prevention of Significant Deterioration
PSES	FDEP Point Source Evaluation Section
psi	pound per square inch
psig	pound per square inch gauge
PVC	polyvinyl chloride
RARE	roadless area review and evaluation
RCRA	Resource Conservation and Recovery Act
RDA	Rural Development Area
RFP	request for proposals
RIMS II	Regional Input-Output Modeling System
RO	reverse osmosis
RTI	RTI International
s.u.	standard unit
SCA	site certification application

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 5 of 5)

SCR	selective catalytic reduction
SCS	Soil Conservation Services
SIL	significant impact level
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SR	State Road
SRPP	Strategic Regional Policy Plan
SSC	species of special concern
STG	steam turbine generator
SWFWMD	Southwest Florida Water Management District
syngas	synthesis gas
Tampa Electric	Tampa Electric Company
TDS	total dissolved solids
TPA	Tampa International Airport
tpy	ton per year
TSS	total suspended solids
U.S. 17	U.S. Highway 17
U.S. 98	U.S. Highway 98
UIC	underground injection control
ULSD	ultra-low sulfur diesel
USF	University of South Florida
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VMТ	vehicle-mile traveled
VOC	volatile organic compound
ΔT	delta temperature