

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

THOMAS CORNELL

ON BEHALF OF

PROGRESS ENERGY FLORIDA

DOCKET NO. 070007-EI

JUNE 1, 2007

REDACTED

1 Q. Please state your name and business address.

2 A. My name is Thomas Cornell. My business address is 410 S. Wilmington Street, Raleigh,
3 North Carolina, 27602.

4
5 Q. By whom are you employed and in what capacity?

6 A. I am employed by Progress Energy Carolinas ("PEC") as General Manager, Project
7 Development and Engineering in the Plant Construction Department. My section is
8 responsible for the development and engineering of new fossil fuel power plants and
9 major capital modifications to existing plants for both the PEC and Progress Energy
10 Florida ("PEF" or "Company") systems.

11
12 Q. What are your responsibilities as General Manager of Project Development and
Engineering?

A I am responsible for all of the project development (siting, planning, permitting, scoping,
etc.) and engineering related activities (design, major procurements, contracting
strategies, construction support, start-up and commissioning support, etc.) associated

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1 with new generation fossil fuel projects and air quality control projects for both PEC and
2 PEF, including the Flue Gas Desulfurization (“FGD” or “scrubber”), Low NOx Burners
3 (LNBs), Selective Catalytic Reduction (“SCR”) and other pollution control projects
4 included in PEF’s Integrated Clean Air Compliance Plan.

5
6 **Q. Please describe your educational and background.**

7 A. I received a B.S. degree in Mechanical Engineering from Cornell University and an M.S.
8 degree in Engineering Management from Florida Institute of Technology. I have over
9 eighteen years experience in the power industry related to engineering, manufacturing,
10 procurement, construction, start-up and commissioning, and project management
11 associated with combustion turbines, steam turbines, combined cycles, coal gasification
12 cycles, nuclear steam cycles, and air quality control systems (LNB systems, SCR
13 systems, CO systems, and FGD systems). In addition to Progress Energy I have been
14 employed by Siemens Westinghouse, General Electric, and Entergy Wholesale
15 Operations.

16
17 **Q. Are you sponsoring any exhibits with your testimony?**

18 A. Yes. I am sponsoring the following exhibits:

- 19 • Exhibit No. __ (TC-1), which is an organization chart showing the Company’s
20 internal management structure for the projects being implemented under the
21 Integrated Clean Air Compliance Plan;
- 22 • Exhibit No. __ (TC-2), which is an organization chart showing the organizational
23 structure the Company has established for management and oversight of
24 contractors involved in the Crystal River projects included in the compliance plan;

- 1 • Composite Exhibit No. __ (TC-3), which is a Letter of Intent (LOI) to enter an
2 Engineering, Procurement and Construction (“EPC”) contract with Environmental
3 Projects Crystal River (“EPCR”), along with four amendments to the LOI;
- 4 • Composite Exhibit No. __ (TC-4), which is a contract with The Babcock and
5 Wilcox Company (“B&W”), as well as associated work authorizations, for design,
6 engineering, equipment, and other work associated with the Crystal River SCR and
7 FGD projects;
- 8 • Composite Exhibit No. __ (TC-5), which is a contract with Worley Parsons (and
9 associated work authorizations) for preliminary design, engineering and other work
10 associated with the Crystal River SCR and FGD projects;
- 11 • Exhibit No. __ (TC-6), which is a contract with The Stebbins Engineering and
12 Manufacturing Company (“Stebbins”) for design, fabrication, construction, and
13 assembly of two FGD Absorber Towers for Crystal River Units 4 and 5;
- 14 • Exhibit No. __ (TC-7), which is a contract with CERAM Environmental, Inc.
15 (“CERAM”) for the design, fabrication, delivery, and testing of the SCR catalyst
16 for the Crystal River Units 4 and 5 SCR projects; and
- 17 • Exhibit No. __ (TC-8), which is a contract with Commonwealth Dynamics, Inc.
18 (“CDF”), for the design, fabrication, and construction of a Flue Gas Chimney as
19 part of the Crystal River Units 4 and 5 scrubber projects.

20

21 **Q. What is the purpose of your testimony?**

22 A. The purpose of my testimony is to summarize the status of PEF’s implementation of its
23 integrated plan for complying with the Clean Air Interstate Rule (“CAIR”), Clean Air

1 Mercury Rule (“CAMR”) and Clean Air Visibility Rule (“CAVR”). I will describe the
2 organization PEF has established for project management and oversight. I will explain
3 the process the Company is following to ensure that costs incurred for the various
4 projects included in the integrated compliance plan are reasonable and prudent and that
5 the risks of potential cost increases to PEF and its customers are minimized. I also will
6 summarize the contracts that PEF has executed and a key contract it is currently
7 negotiating to implement the project in a cost-effective and timely manner.

8
9 **PEF’s Integrated Clean Air Compliance Plan**

10 **Q. What has been your involvement in the Integrated Clean Air Compliance Plan that**
11 **PEF submitted to the Commission on March 31, 2006?**

12 A. I became involved with the integrated compliance plan in April, 2006. I am one of the
13 primary persons involved in developing and implementing the Company’s contracting
14 strategy. Among other things, I have worked with Company personnel, potential
15 vendors, and third-party estimators to further define the scope and potential costs of the
16 various projects included in the plan.

17
18 **Q. Are you familiar with PEF’s Integrated Clean Air Compliance Plan submitted to**
19 **the Commission last year?**

20 A. Yes. Although I became involved in the project after PEF submitted the plan to the
21 Commission last year, I am thoroughly familiar with the 2006 plan. It has served as the
22 starting point for my work in further defining the scope of the various projects.

23

1 **Q. How does PEF's current compliance plan compare to the one submitted to the**
2 **Commission on March 31, 2006?**

3 A. Like the original plan submitted in 2006, the current plan still calls for:

- 4 • Installation of FGD and SCRs (as well as LNBs) on Crystal River Units 4 and 5;
- 5 • Burning compliance coal at Crystal River Units 1 and 2 [REDACTED].
- 6 • Installation of LNBs and separated overfire air ("LNB/SOFA") controls on Anclote
7 Units 1 and 2 in [REDACTED] and [REDACTED] respectively; and
- 8 • For CAMR compliance, installation of a powder activated carbon ("PAC")
9 injection system on Crystal River Unit 2 [REDACTED].

10 There are only limited changes to the plan submitted last year. First, the scheduled in-
11 service date for the Crystal River Unit 4 FGD system [REDACTED]
12 [REDACTED], and the in-service date for the Unit 4 SCR project has been moved
13 [REDACTED]. In addition, as discussed in Mr. Waters' testimony,
14 PEF has decided not to burn 40 percent natural gas in the Anclote Units as contemplated
15 in the plan presented in 2006.

16
17 **Q. Why have the schedules for the Crystal River Unit 4 FGD and SCR projects**
18 **changed?**

19 A. We changed the Unit 4 FGD and SCR project schedules to (1) optimize the most
20 efficient construction schedule, which will mitigate cost escalation risks, and (2)
21 account for constrained labor and equipment availability in the [REDACTED] time frame.
22 The original schedule called for as much work as possible to be done on Crystal River
23 Unit 4, including installation of the SCR, during an outage planned for the [REDACTED]
24 [REDACTED] so that the work necessary for the tie in of the FGD in [REDACTED], would be

1 minimal. This was necessary to avoid impacting an outage already planned for the [REDACTED]
2 [REDACTED] on PEF's Crystal River Unit 3. Due at least in part to the increased demand for
3 pollution control projects prompted by the adoption of CAIR, lead-times for critical SCR
4 equipment have increased. To compensate for the increased lead-times, the Company
5 decided in late 2006 to reschedule the Unit 4 SCR project for an outage in the [REDACTED]
6 [REDACTED]. As preliminary engineering and planning progressed, however, it became evident
7 that there was not adequate time to permit, design, engineer, procure, and construct the
8 Unit 4 SCR system by the [REDACTED]. PEF considered various options and chose to
9 combine the SCR and FGD work into one outage in the [REDACTED]. Given the scope
10 and amount of work to be performed at the Crystal River Energy Complex in the [REDACTED]
11 [REDACTED], we determined that it would be reasonable and prudent to combine the CR4
12 SCR and FGD project into that outage.

13
14 **Q. Have the schedules for the Crystal River Unit 5 FGD and SCR projects changed?**

15 A. No. As in the plan submitted last year, the Unit 5 FGD and SCR projects are scheduled
16 to be placed in-service in [REDACTED].

17
18 **Q. Have the estimated costs of the Integrated Clean Air Compliance Plan increased
19 since last year's submittal?**

20 A. Yes. Based on current estimates, over all construction costs projected for the plan have
21 increased 70 percent over the estimates provided last year.

22
23 **Q. Why have the estimated costs increased?**

1 A. There are several reasons for the increase. One of the impacts of the final CAIR rule was
2 to create significant industry demand for major retrofit construction projects to engineer,
3 procure, and install the necessary air pollution control equipment. This occurred at a
4 time when there was already significant construction activity due, in part, to an
5 improving economy. The situation was exacerbated by even more construction demand
6 in the aftermath of Hurricane Katrina and by the rising demand for steel, concrete and
7 other commodities in countries such as China and India. As a result of these world-wide
8 market conditions, PEF and the industry have seen significant increases in costs for
9 major construction projects, especially for SCR and scrubber equipment and
10 installations. The increases were primarily driven by significant escalation in the cost of
11 basic construction materials and in labor costs.

12

13 **Project Management and Oversight**

14 **Q. How is the Company ensuring proper management and oversight of the projects**
15 **included in the Integrated Clean Air Compliance Plan?**

16 A. In January of 2006 the Plant Construction Department was restructured to better align the
17 management of the future fossil fuel new generation projects as well as the air quality
18 control system projects (including, for example, North Carolina Clean Smokestacks,
19 CAIR, CAMR, and CAVR projects). As shown in Exhibit No. __ (TC-1) the Plant
20 Construction Department was structured with three primary project supporting sections;
21 (1) Project Development and Engineering, (2) Project Management and Construction,
22 and (3) Business Management and Compliance (Project Controls). From these sections
23 dedicated project teams were put in place for all of the major (> \$100 million) capital
24 projects with a project manager, development engineer(s), a project engineer, discipline

1 engineer(s), construction management, Environmental Health and Safety (“EHS”)
2 personnel, QA/QC engineer(s), start-up and commissioning engineer(s), project controls
3 and accounting personnel, and operations integration personnel. The specific team for
4 the Crystal River Unit 4 and 5 projects is as shown in Exhibit No.__(TC-2). The Project
5 Manager will oversee all of the internal team members as well as all of the external
6 contractors working on the project.

7
8 **Status of Crystal River Projects**

9 **Q. How has the Company gone about securing contracts for the Crystal River work?**

10 A. The company’s process for selecting any contract typically involves multiple steps
11 beginning with review and selection of qualified bidders, development of a detailed
12 request for proposal (“RFP”), review and evaluation of bid responses, and the final stage
13 of negotiation on technical and commercial terms. The particular type of contract
14 pursued, the process used, and the details of the commercial terms vary depending on the
15 scope of work and market conditions at and during the time over which the contract will
16 be executed. The goal of the company in this process is to select highly qualified bidders
17 and utilize the type of contract and commercial terms that will allow the work to be
18 completed on time, within schedule constraints and limit the risk to the company and its
19 customers of potential cost increases due to market conditions.

20
21 In light of the dramatic increases in costs for pollution control equipment and installation
22 that I previously discussed, one of the primary goals of the Company in negotiating with
23 contractors is to minimize the risk of future cost increases to PEF and its customers and
24 to allocate risk where it can be best managed. For Crystal River, the primary component

1 of PEF's contracting strategy is the utilization of an Engineering, Procurement, and
2 Construction ("EPC") structure with the prime engineering (Burns & McDonnell, Inc.
3 and Utility Engineering Corporation) and construction (Zachry Construction
4 Corporation) companies aligned in a joint venture structure. The joint venture
5 companies will be joint and several in fulfilling all obligations associated with the EPC
6 Contract.

7
8 In negotiating the EPC contract, the Company is using an "open book" approach with
9 eventual conversion to lump sum once the detailed project scope is finalized, rather than
10 an open-ended "time-and-materials" contract structure. Under this approach, the scope
11 and costs for project components are being identified in detail to provide greater
12 certainty in the final cost of the Crystal River projects and to appropriately balance the
13 risk of costs increases between PEF and the EPC contractor.

14
15 For certain project components with long-lead times, the Company has already
16 contracted with qualified vendors to ensure that required in-service dates are met. The
17 goal of this overall strategy is to mitigate the risk of price increases to PEF and its
18 customers, to encourage safe construction, and assure timely and cost-effective
19 construction in order to ensure compliance with regulatory requirements.

20
21 **Q. What is the status of the EPC contract for the Crystal River Projects?**

22 A. PEF has executed a Letter of Intent ("LOI") to sign an EPC contract with Environmental
23 Partners Crystal River ("EPCR"), which is a joint venture between Zachry Construction

1 Corporation (“Zachry”), Utility Engineering Corporation, which is a subsidiary of
2 Zachry, and Burns & McDonnell, Inc.

3
4 **Q. How did PEF decide to negotiate with EPCR for the EPC contract?**

5 A. In May 2006, PEF issued an RFP to Zachry, Fluor Enterprises, Shaw Stone & Webster,
6 Inc., and Bechtel Power Corporation, all of whom had been identified as qualified
7 vendors who were interested in performing the extensive work required to implement
8 PEF’s CAIR Compliance Plan projects at Crystal River. The RFP required submittal of
9 an open book, detailed cost breakdown structure aligned with an eventual conversion to a
10 lump sum type format. The cost breakdowns were required to be submitted in a specific
11 format so that the Company could review various components of the fixed price type
12 structure, among other things, scope of supply, quantities, subcontracts, equipment,
13 escalation rates, contingencies, fees, general and administrative (“G&A”) costs, and
14 indirect costs. The Company communicated with all four qualified vendors, but EPCR
15 was the only bidder willing to provide a competitive open book type approach bid with
16 the ability to convert to a lump sum, fixed price type format. Two of the bidders declined
17 to provide a competitive bid and were only interested in working on an exclusive basis
18 with the Company and one bidder determined that it did not have an available project
19 team to support the project.

20
21 **Q. What is the status of the negotiations with EPCR?**

22 A. In November 2006, following a detailed review of the EPCR proposal and an evaluation
23 of the capabilities of the EPCR partners, the parties executed a LOI to provide time for

1 PEF to further define the scope of the project so that detailed pricing could be developed
2 and evaluated.

3 Due to the extensive nature of the work involved, the LOI has been extended and revised
4 to provide a framework for the ongoing negotiations as well as the basis for preliminary
5 engineering, procurement and initial site-related activities necessary to progress toward
6 meeting the in-service dates of the various projects. As amended, the LOI limits PEF's
7 cost exposure to a not-to-exceed cap of approximately [REDACTED] for costs associated
8 with the preliminary work. Copies of the LOI and amendments are provided as Exhibit
9 No. __ (TL-3) to my testimony.

10
11 The amended LOI provides an expiration date of June 30, 2007. PEF and EPCR are in
12 the final stages of negotiation and both parties anticipate having a contract in place by
13 June 30, 2007.

14
15 **Q. What steps have PEF taken to ensure the proposed price quoted by EPCR is**
16 **reasonable and fair?**

17 As part of the detail review process, Progress Energy personnel and outside engineers
18 and estimators have reviewed the scope and associated quantities of commodities,
19 equipment, subcontracts, labor and other project indirect components submitted by
20 EPCR, as well as the prices quoted by EPCR. In addition, an assessment of project
21 scope has enabled PEF to evaluate potential cost reduction opportunities, such as further
22 engineering and scope optimization and removing project components from the scope of
23 the EPC contract if they can be more cost-effectively performed by PEF or other
24 contractors. The final contract will include the benefits of this work.

1 **Q. What responsibilities will the individual members of the EPCR joint venture have**
2 **under the EPC contract?**

3 A. The joint venture companies, each of whom is jointly and severally liable in the EPC
4 Contract, have an ownership structure as follows:

- 5 • Zachry Construction Corporation 50%
- 6 • Burns & McDonnell, Inc. 45%
- 7 • Utility Engineering Corporation 5%

8 Under this joint venture arrangement Burns & McDonnell, Inc. will have ultimate
9 responsibility for all balance of plant engineering, specification of engineered equipment,
10 and technical support during construction and start-up and commissioning. Utility
11 Engineering Corporation will support Burns and McDonnell engineering efforts in
12 specialized areas, namely detailed civil design and material handling. Zachry
13 Construction Corporation will perform or manage all aspects of procurement and
14 construction of the project and shall furnish all required management, labor, tools,
15 equipment, material, parts, transportation, and supervision necessary to complete the
16 project. The joint venture also has the responsibility to act as the owner's agent to
17 administer all of the Company's purchased equipment (B&W equipment, stack,
18 absorbers, induced draft ("ID") fans, catalyst, field erected tanks, precipitators, etc.).

19
20 **Q. What are the anticipated costs for the EPC contract?**

21 A. PEF has been working with EPCR to refine scope and negotiate all aspects of the final
22 contract. EPCR has provided price estimates at various intervals during the negotiations.
23 To date, Zachry provided indicative, lump sum pricing of approximately [REDACTED].

1 The final price contract value will be determined at the completion of the contract
2 negotiations.

3
4 **Q. You mentioned that preliminary engineering, design and procurement work being**
5 **done by B&W and WorleyParsons under existing agreements. Please explain how**
6 **those agreements came about.**

7 A. In June 2002, the North Carolina General Assembly enacted the North Carolina Clean
8 Smokestacks Act, which required significant reductions in sulfur dioxide (“SO₂”) and
9 nitrogen oxide (“NO_x”) emissions from power plants in North Carolina, including units
10 operated by PEF’s sister utility, PEC. In response to the new statute, PEC undertook a
11 two-phased evaluation process to select contractors to provide engineering, equipment
12 and construction for multiple FGD and SCR systems to be installed on PEC units. PEC
13 first developed a short list of firms based on technical evaluations of statement of
14 qualifications submitted by bidders. PEC then conducted interviews, site visits, and
15 evaluations of additional information provided by the short-listed vendors to evaluate
16 their experience, qualifications and project management programs. Based on this
17 evaluation process, B&W was selected to design and supply the major equipment for the
18 FGD system and Worley Parsons (f/k/a Parsons Energy & Chemicals Group, Inc.) was
19 selected as the Architect/Engineer. PEC entered into a contract with WorleyParsons in
20 November 2002 and with B&W effective March 2003.

21
22 After it became clear that CAIR would require installation of FGD and SCR controls on
23 the Crystal River units, PEF became a party to the B&W and WorleyParsons contracts so
24 that preliminary design and engineering work could begin expeditiously. Because both

1 companies were involved in the PEC projects and that both have previously performed
2 work on the Crystal River units, they were qualified and able to begin preliminary
3 engineering and design within a relatively short time-frame.

4
5 **Q. Please briefly describe the scope of the B&W contract with regard to work on the**
6 **Crystal River projects.**

7 A. PEF has selected B&W to design and provide the major equipment for the Crystal River
8 FGD, LNB, and SCR projects in order to take advantage of the continuity and
9 efficiencies available as a result of Progress Energy's prior experience with B&W on the
10 PEC projects. The total estimated cost of B&W's work under the contract, which is
11 provided as Exhibit No. __ (TC-4) to my testimony, is approximately [REDACTED]. The
12 current contract provides for incremental release of work to B&W through specific work
13 authorizations. However, this contract is being revised to be better aligned with the
14 project with fixed pricing, schedule delivery guarantees, and performance guarantees.
15 The final price contract value will be determined at the completion of the contract
16 negotiations. To date, PEF has issued B&W authorizations totaling approximately [REDACTED]
17 [REDACTED]. The work authorized to date includes:

- 18 • Project planning, scheduling and engineering associated with the FGD, LNB, and
19 SCR work;
- 20 • Process design, general arrangement and equipment layout drawings, design
21 specifications, material selections, vendor supply evaluations, water balances,
22 limestone analyses and purchasing critical long-lead-time equipment;

- 1 • Procurement of long-lead-time equipment, common equipment, and other
- 2 materials required in preliminary stages, such as ball mills, absorber recycle
- 3 pumps, sonic horns, absorber oxidation air lances;
- 4 • Material and labor costs for the Unit 4 SCR Expansion Joints; and
- 5 • Design and manufacture of LNBS

6

7 **Q. Please briefly describe the scope of PEF's contract with WorleyParsons.**

8 A. PEF has contracted with WorleyParsons to provide preliminary work for the Crystal

9 River project. A copy of the contract is provided as Exhibit No. __ (TC-5) to my

10 testimony. The WorleyParsons contract provides for incremental release of work

11 through specific work authorizations. To date, PEF has issued WorleyParsons

12 authorizations totaling [REDACTED]. Work performed under those authorizations

13 includes:

- 14 • Services for Units 4 and 5 steel support, including detailed engineering and design;
- 15 • Preliminary engineering services for SCR steel design;
- 16 • Completion of sulfur trioxide ("SO₃") mitigation study;
- 17 • Preliminary engineering of the limestone and gypsum handling system;
- 18 • Completion of a pressure transient study;
- 19 • Establish costs and schedules to implement Continuous Mercury Monitoring
- 20 Systems and integrate with the existing CEMS;
- 21 • Bid evaluation and procurement for ID fans and motors; and
- 22 • Assistance in EPC technical evaluation, scope finalization, review of EPC
- 23 engineering documents, schedule and vendor documents.

1

2 Once the EPC contract is finalized, the WorleyParsons work will be shifted to EPCR
3 and/or phased out.

4

5 **Q. You mentioned that PEF has entered or is in the process of entering into contracts**
6 **for certain distinct project components. Please identify those contracts.**

7 A. In order to ensure that in-service dates are met, PEF has entered into the following
8 contracts for specific project components that typically have long manufacturing and/or
9 construction lead-times:

- 10 • The Stebbins Engineering and Manufacturing Company (“Stebbins”) has been
11 contracted to design, fabricate, construct, and assemble two FGD Absorber Towers
12 for the Crystal River Units 4 and 5 scrubber projects;
- 13 • CERAM Environmental, Inc. (“CERAM”) has been contracted for the design,
14 fabrication, delivery, and testing of the SCR catalyst for the Crystal River Units 4
15 and 5 SCR projects; and
- 16 • Commonwealth Dynamics, Inc. (“CDI”), for the design, fabrication, and
17 construction of a Flue Gas Chimney as part of the Crystal River Units 4 and 5
18 scrubber projects.

19

20 **Q. What is an FGD Absorber Tower?**

21 A. The absorber tower is a major component of any wet FGD system. The absorber tower
22 is essentially a large vessel in which combustion product gases or “flue gases” containing
23 SO₂ are mixed with a liquid limestone slurry solution. This produces a chemical reaction
24 that reduces SO₂ from the flue gas stream. Due to the corrosive nature of the limestone

1 slurry solution, the selection of the materials for the absorber tower and the tower
2 internals is critical. There are three basic material options—metallic alloy material,
3 carbon steel material with a rubber or flaked glass lining, or a concrete and tile design.
4 Technical studies performed by WorleyParsons for PEC as part of PEC’s scrubber
5 installation program determined that a concrete and tile design is the best alternative due
6 to its ability to withstand high chloride concentrations and the high uncertainty
7 associated with future pricing of alloy materials used in other design alternatives.
8 Evaluations performed by WorleyParsons and PEC also determined that a concrete and
9 tile design was price competitive with alloy towers.

10
11 **Q. How did PEF select Stebbins for the FGD Absorber Tower contract?**

12 A. Stebbins is the only company in the United States that designs and erects concrete and
13 tile absorber towers. B&W provides alloy absorber towers. As part of the PEC scrubber
14 program, Progress Energy obtained cost estimates and performed a technical evaluation
15 of both approaches and concluded that the concrete and tile tower design was price
16 competitive with an alloy tower and would be superior to the alloy design in its ability to
17 withstand the corrosive nature of the limestone slurry that would be in the tower. Due to
18 the potential use of brackish water, the ability of the tower design to withstand the
19 corrosive nature of the limestone slurry was even more important for Crystal River.

20
21 For Crystal River, the actual costs for PEC’s Roxboro Unit 2 absorber tower were used
22 to negotiate a price with Stebbins. The negotiated price was consistent with the actual
23 Roxboro 2 cost with adjustments for quantity differences and material and labor
24 escalation.

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Stebbins has performed well and met schedules on the PEC projects. By using Stebbins at Crystal River, PEF will have the benefit of engineering efficiencies gained from PEC's experience. Further, PEF obtained a place in the tight production queue for such equipment. Based on these considerations, PEF selected Stebbins to perform this work and executed a contract with Stebbins on January 24, 2007. A copy of the contract is provided as Exhibit No. __ (TC-6) to my testimony.

Q. What is the cost of the Stebbins FGD Absorber Tower contract?

A. In order to mitigate the risk of cost increases, the Stebbins contract includes a fixed price of [REDACTED], subject to increase only by written change orders authorized by PEF. This price reflects fleet discount pricing due to the fact that multiple towers are being purchased for absorber towers to be installed at Crystal River Units 4 and 5 and other towers purchased by PEC. Taking into account the differences between the various units, the prices for the Crystal River towers are consistent with the prices for the PEC towers, which, as I previously indicated, were initially established by competitive bidding

Q. You mentioned that PEF has entered into a contract with CERAM for the manufacture of SCR catalysts. What is an SCR catalyst?

A. The catalyst is the key component of an SCR system. The SCR process begins with injection of ammonia into the flue gas stream. The flue gas then enters the catalyst chamber where the ammonia is absorbed onto the catalyst surface. Ammonia on the catalyst surface reacts with NOx in the presence of oxygen to form water and elemental

1 nitrogen. As a result of this chemical reaction, NO_x is removed from the flue gas
2 stream.

3
4 **Q. How did PEF select CERAM for the SCR Catalyst contract?**

5 A. On behalf of PEF, B&W reviewed the market and identified two potential vendors for
6 the SCR Catalyst: CERAM and Cormetech, Inc. Both CERAM and Cormetech
7 submitted bids for the design and manufacture of the SCR Catalyst. PEF determined that
8 CERAM's bid provided the best offer, in terms of lowest cost and more favorable terms
9 and conditions. PEF selected CERAM to negotiate a final agreement and executed a
10 contract with CERAM on December 27, 2006. The contract provides for a fixed price
11 of approximately [REDACTED], with payment retention provisions tied to specific
12 milestones. A copy of the contract is provided as Exhibit No. __ (TC-7) to my
13 testimony.

14
15 **Q You mentioned that PEF has entered a contract with CDI for the manufacture of a**
16 **new Flue Gas Chimney as part of the Crystal River FGD projects. Why is a new**
17 **Flue Gas Chimney required?**

18 A. The flue gas chimney or "stack" is the structure through which the flue gas is exhausted.
19 Installation of the wet FGD systems on the Crystal River units will increase the amount
20 of moisture in the flue gas, which can cause corrosion of the Flue Gas Chimney.
21 Because the existing Flue Gas Chimneys for Units 4 and 5 are not designed for these
22 conditions, a new Flue Gas Chimney will be installed with FRP (fiberglass) liners, one
23 for each unit. The new, dual Flue Gas Chimney will replace the two existing stacks
24 currently used for Units 4 and 5.

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Q. How did PEF select CDI for the Flue Gas Chimney contract?

A. As with the Absorber Towers, PEF made its selection of CDI to design and erect the Crystal River chimney on the basis of both competitive pricing and technical and commercial evaluations performed as part of the PEC scrubber program. Early in the PEC program, the Company reviewed the marketplace and found only three companies with the capability to design and manufacture Flue Gas chimneys for scrubber projects: CDI, Pullman Power, and Hamon-Custodis. PEF obtained proposals from those companies and after evaluation of appropriate competitive factors, including safety programs, cost, design, resource availability, and ability to meet required schedules, awarded the PEC chimney work to CDI.

For Crystal River, PEF negotiated a price with CDI based on the PEC competitive prices adjusted for quantity differences and material, equipment, and labor escalation. At the time the Crystal River contract was negotiated, the market for chimney work had changed significantly since the PEC projects were bid. As more utilities initiated scrubber additions, the demand for the limited resources of three chimney erectors increased significantly along with corresponding escalation in material, equipment, and labor costs. During negotiations, CDI agreed to hold its profit, overhead, and contingency to those percentages that had won the competitive bids at PEC and adjust labor and material prices based on current market conditions. Negotiating a contract with CDI on this basis provided PEF an opportunity to “lock-in” the chimney work for Crystal River on a reasonable price basis and on a schedule that supported the needs of the Crystal River project. At the conclusion of the negotiations, PEF executed a contract

1 for the Crystal River chimney with CDI on January 26, 2007. The CDI contract
2 provides for a lump sum, fixed price of [REDACTED], subject to increase only by written
3 change orders authorized by PEF. A copy of the contract is provided as Exhibit No. __
4 (TC-8) to my testimony.

5
6 **Status of Anclothe Projects**

7 **Q. What is the status of the Anclothe LNB/SOFA projects?**

8 A. Our Anclothe LNB/SOFA project continues to be a primary outstanding issue.
9 Information provided by vendors tells us that while LNB/SOFA installations are
10 effective at reducing NOx emissions, they also have the potential to increase particulate
11 emissions. PEF is engaged in a current study to determine the magnitude of potential
12 increases. For example, it is likely that LNB/SOFA at the Anclothe Unites would require
13 additional particulate controls, such as ESP's. If it is determined that additional
14 particulate controls are needed, PEF will evaluate the most cost-effective control options
15 and whether the cost of such additional controls would increase the cost per ton of NOx
16 removal above the expected cost of NOx allowances.

17
18 **Conclusion**

19 **Q. Has PEF acted prudently in implementing its Integrated Clean Air Compliance**
20 **Plan?**

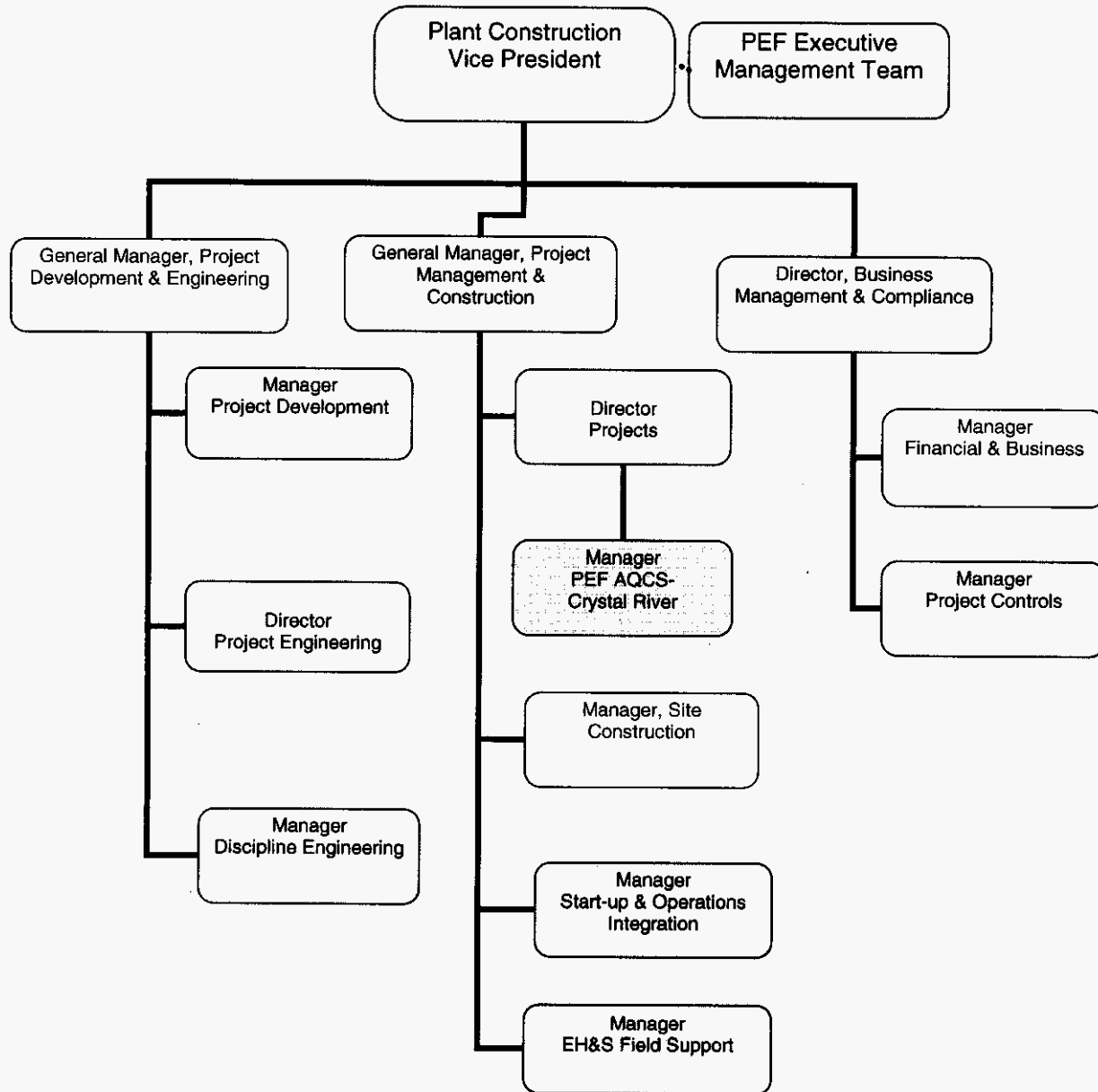
21 A. Yes. PEF has established a detailed organizational structure to ensure prudent decision-
22 making and project oversight as implementation of the Integrated Clean Air
23 Compliance Plan proceeds. In addition to ensuring timely and safe implementation of
24 the various construction projects, this organizational structure will enable the

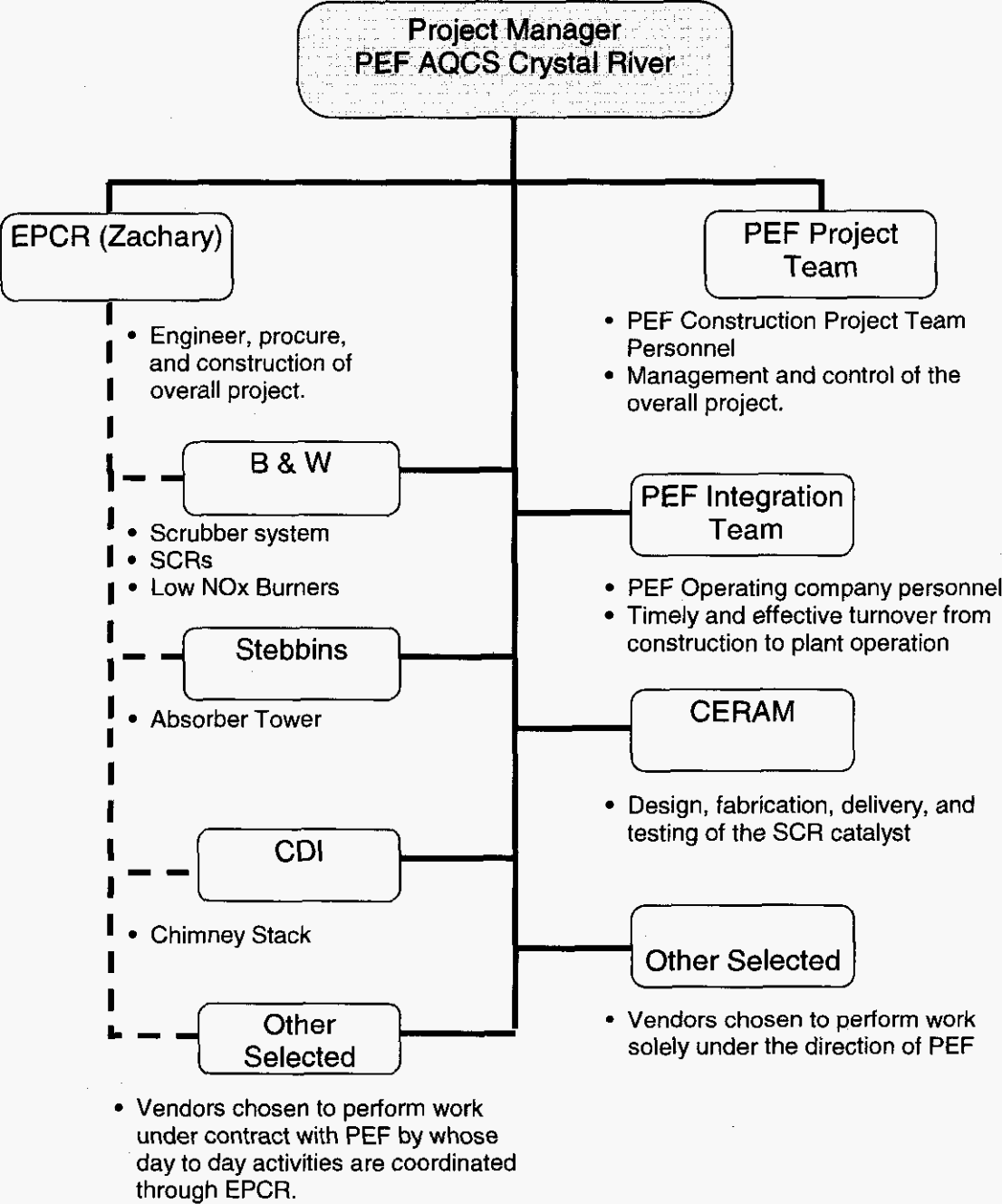
1 Company to monitor costs against detailed project scopes to ensure that PEF receives
2 what it contracted for and that any scope changes are properly evaluated and
3 documented. The Company also has pursued an aggressive scoping assessment and
4 contracting strategy that has enabled PEF to negotiate contract terms that will mitigate
5 the risk of price increases to the Company and its customers without jeopardizing
6 construction time-frames necessary to ensure compliance with the new regulatory
7 requirements. As part of the process, internal PEF personnel and third party evaluators
8 have reviewed and benchmarked projected costs to ensure they are reasonable in light
9 of costs being incurred for similar projects through the country. For these reasons,
10 entering into the agreements that I have discussed represents reasonable and prudent
11 action by the Company to ensure compliance with CAIR, CAMR and CAVR.

12

13 **Q. Does this conclude your testimony?**

14 A. Yes, it does.





COMPOSITE EXHIBIT NO. __ (TC-3)

REDACTED IN FULL

Progress Energy Florida, Inc., Crystal River Unit 4 and Unit 5, Letter of Intent,
November 2, 2006

Progress Energy Florida, Inc., Crystal River Unit 4 and Unit 5, Letter of Intent dated
November 2, 2006, Amendment 1, December 12, 2006

Progress Energy Florida, Inc., Crystal River Unit 4 and Unit 5, Letter of Intent dated
November 2, 2006, Amendment 2, February 23, 2007

Progress Energy Florida, Inc., Crystal River Unit 4 and Unit 5, Letter of Intent dated
November 2, 2006, Amendment 3, March 29, 2007

Progress Energy Florida, Inc., Crystal River Unit 4 and Unit 5, Letter of Intent dated
November 2, 2006, Amendment 4, April 23, 2007

COMPOSITE EXHIBIT NO. __ (TC-4)

REDACTED IN FULL

The Babcock & Wilcox Company ("B&W")

Contract 242070 executed July 14, 2005

Contract 119440, Effective March 14, 2003

Contract 119440, Amendment No. 9, Effective February 27, 2006

Contract 119440, Work Authorization 14, Effective April 20, 2006

Contract 119440, Work Authorization 14, Amendment No. 1, Effective December 5, 2006

Contract 119440, Work Authorization 15, Effective May 1, 2006

Contract 119440, Work Authorization 15, Amendment No. 1, Effective November 8, 2006

Contract 119440, Work Authorization 15, Amendment No. 2, Effective January 1, 2007

Contract 119440, Work Authorization 15, Amendment No. 3, Effective April 11, 2007

Contract 119440, Work Authorization 16, Effective May 1, 2006

Contract 119440, Work Authorization 16, Amendment No. 1, Effective October 16, 2006

Contract 119440, Work Authorization 16, Amendment No. 2, Effective January 1, 2007

Contract 119440, Work Authorization 17, Effective May 1, 2006

Contract 119440, Work Authorization 17, Amendment No. 1, Effective October 16, 2006

Contract 119440, Work Authorization 17, Amendment No. 2, Effective January 1, 2007

Contract 119440, Work Authorization 19, Effective October 20, 2006

Contract 119440, Work Authorization 19, Amendment No. 1, Effective January 1, 2007

COMPOSITE EXHIBIT NO. __ (TC-5)

REDACTED IN FULL

WorleyParsons Group, Inc.

Contract 114016, Amendment No. 7, Effective November 11, 2002

Contract 114016, Work Authorization No. 24, Effective July 10, 2006

Contract 114016, Work Authorization No. 24, Amendment No. 1, Effective November 30, 2006

Contract 114016, Work Authorization No. 24, Amendment No. 2, Effective January 23, 2007

Contract 114016, Work Authorization No. 25, Effective August 1, 2006

Contract 114016, Work Authorization No. 25, Amendment No. 1, Effective November 9, 2006

Contract 114016, Work Authorization No. 26, Effective August 1, 2006

Contract 114016, Work Authorization No. 29, Effective September 19, 2006

Contract 114016, Work Authorization No. 29, Amendment No. 1, Effective December 31, 2006

Contract 114016, Work Authorization No. 42, Effective February 14, 2007

EXHIBIT NO. __ (TC-6)

REDACTED IN FULL

**CONTRACT NO.
298908**

Between

Progress Energy Florida, Inc.

and

**The Stebbins Engineering
and Manufacturing Company**

EXHIBIT NO. __ (TC-7)

REDACTED IN FULL

Purchase Order Agreement

Between

Progress Energy Florida, Inc.

and

CERAM Environmental, Inc.

EXHIBIT NO. __ (TC-8)

REDACTED IN FULL

**CONTRACT NO.
300611**

Between

Progress Energy Florida, Inc.

and

Commonwealth Dynamics, Inc.