

**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 120015-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: PETITION FOR RATE INCREASE BY
FLORIDA POWER & LIGHT COMPANY**

COM	5
APA	1
ECR	10
GCL	1
RAD	1
SRC	1
ADM	
OPC	
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TESTIMONY & EXHIBITS OF:

ROXANE R. KENNEDY

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
FLORIDA POWER & LIGHT COMPANY
DIRECT TESTIMONY OF ROXANE R. KENNEDY
DOCKET NO. 120015-EI

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1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 A. My name is Roxane R. Kennedy, and my business address is 700 Universe
5 Boulevard, Juno Beach, Florida, 33408.

6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Florida Power & Light Company (“FPL” or the
8 “Company”) as Vice President of Power Generation Operations.

9 **Q. Please describe your duties and responsibilities in that position.**

10 A. I am responsible for the overall management and direction of the non-nuclear
11 power plants for the Company. This fleet consists of more than 20,000
12 megawatts (“MW”) of electric generating capability including traditional
13 fossil fuel fired steam boilers, and combined cycle, aero-derivative and large
14 frame simple cycle combustion turbine (“CT”) technologies.

15 **Q. Please describe your educational background and professional
16 experience.**

17 A. My professional background with FPL involves technical, managerial and
18 commercial experience in progressively more demanding assignments over 25
19 years. I received a Bachelors degree in Chemical Engineering from the
20 University of Florida in 1985. I am a Registered Professional Engineer in
21 Florida and have held my license for over 14 years. Between 1985 and 2008,
22 I held various staff, technical, maintenance, operating and business
23 management roles at several FPL and NextEra Energy Resources’ sites. In

1 March 2009, I became the FPL Power Generation Division (“PGD”) Director,
2 and subsequently Vice President of Production Assurance and Business
3 Services where I was responsible for providing production standardization and
4 commercial management of PGD’s generating fleet. In January 2010, I
5 assumed my current position as Vice President of FPL’s Power Generation
6 Operations with more than 700 employees.

7 **Q. Are you sponsoring any exhibits in this case?**

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

9 RRK-1, Summary of MFRs Sponsored and Co-sponsored by Roxane R.
10 Kennedy

11 RRK-2, FPL Fossil Generating Capability and Mix Changes

12 RRK-3, FPL Fossil Performance Improvements

13 RRK-4, FPL Fossil Net Heat Rate Comparison

14 RRK-5, FPL Fossil Availability Comparison

15 RRK-6, FPL Fossil Forced Outage Rate Comparison

16 RRK-7, FPL Fossil Total Non-Fuel O&M Production Cost Comparison

17 RRK-8, FPL Fossil Emission Rate Reductions

18 RRK-9, Drivers of 2013 Base O&M Benchmark Variance

19 RRK-10, FPL Fossil Capacity-Managed per Employee Improvements

20 **Q. Are you sponsoring or co-sponsoring any Minimum Filing Requirements**
21 **(“MFRs”) filed in this case?**

22 A. Yes. Exhibit RRK-1 contains a listing of the MFR schedules that I am
23 sponsoring or co-sponsoring.

24

1 **Q. What is the purpose and key points of your testimony?**

2 A. The purpose of my testimony is to communicate FPL's fossil fleet
3 performance in providing efficient, reliable and cost-effective service for our
4 customers. My testimony addresses three major areas: (1) FPL's fossil
5 generating fleet performance; (2) FPL's fossil fleet non-fuel operating and
6 maintenance ("O&M") expenses and (non-construction) capital additions; and
7 (3) the construction cost and Test Year non-fuel O&M costs of placing an
8 additional nominal 1,200 MW of generating capacity into commercial
9 operation in 2013, with the completion of the Canaveral Modernization
10 Project.

11

12 The Power Generation Division is responsible for the operation and
13 maintenance of FPL's fossil power plants. Through its leadership,
14 management systems and processes, the Power Generation Division has
15 helped successfully defer the need for new generating units and avoid costs by
16 improving the operating performance of FPL's existing fossil fleet for the
17 benefit of FPL's customers. Additionally, FPL's fossil fleet performance has
18 consistently exceeded fossil industry performance averages and frequently
19 ranked "Top Decile" or "Best-in-Class" among our large electric utility fossil
20 fleet peers.

21 **Q. Please summarize your testimony.**

22 A. In just over 20 years, FPL's fossil fleet capacity will have nearly doubled from
23 10,700 MW in 1990 to 20,800 MW in 2013 with the completion of the

1 Canaveral Modernization Project, and evolved from older conventional steam
2 technology to primarily modern combined cycle technology. Based on the
3 Federal Energy Regulatory Commission's ("FERC") Electric Power
4 classifications of fossil Steam Production (e.g., conventional boiler based
5 units) and Other Production (e.g., combustion turbine based units), FPL's
6 fossil capacity will have been distinctively transformed over the same period
7 from approximately an 80:20 mix to a 20:80 mix of "Steam" vs. "Other" (see
8 Exhibit RRK-2).

9
10 It's worth noting that FPL's fossil generation fleet is managed as a combined
11 portfolio of units for availability, reliability and cost with centralized support
12 from technical services (engineering/environmental/quality), maintenance
13 planning/execution, production assurance and business services. This
14 streamlined approach allows FPL to manage the fleet more efficiently as
15 opposed to the less efficient system of managing separate FERC Steam
16 Production vs. Other Production functions.

17
18 The doubling of FPL's fossil generating capacity to serve FPL's long term
19 customer electricity needs and the dramatic transformation of its generating
20 mix to cleaner and highly efficient combined cycle units are both key drivers
21 of FPL's fossil fleet trends in non-fuel O&M expenses and capital
22 expenditures.

1 Since 1990, as FPL transformed the fossil generating fleet, we substantially
2 improved our operating performance across key factors integral to generating
3 electricity for our customers. These performance factor improvements include
4 the reduction of heat rate, forced outage rate, total non-fuel O&M costs and
5 carbon dioxide (“CO₂”) emissions (see Exhibit RRK-3).

6
7 The impressive performance of FPL’s fossil fleet is also evident in FPL’s
8 consistent industry-leading results. As illustrated in Exhibit RRK-4, FPL’s
9 fossil fleet net heat rate, a reflection of generating efficiency, improved almost
10 24 percent over the 1990 to present timeframe and by 19 percent over the last
11 ten years (2001-2011). As a result, the Company has been able to cut fuel
12 costs by a cumulative \$5.5 billion since 2001. Such excellent performance
13 results in significantly lower fuel costs and reduced emission rates for the
14 benefit of FPL’s customers.

15
16 To put this in perspective and in simple terms, a 19 percent heat rate
17 improvement in FPL’s fossil generating fleet with \$3.5 billion in fossil fuel
18 cost in 2011 would represent more than \$650 million in fuel cost savings.
19 Furthermore, this 19 percent cumulative improvement in fuel efficiency that
20 FPL’s fossil fleet has achieved will continue to benefit customers by
21 providing an equal percentage in fuel cost savings regardless of fuel prices.
22 FPL’s fossil fleet fuel efficiency is expected to improve even further with the

1 full year of operation of West County 3 in 2012 and again with the completion
2 of the Canaveral Modernization Project in 2013.

3
4 As shown in Exhibits RRK-5 and RRK-6, over the past decade through 2011,
5 FPL's fossil fleet demonstrated excellent plant availability, averaging more
6 than 92 percent Equivalent Availability Factor ("EAF") and reliability
7 performance of approximately 2 percent Equivalent Forced Outage Rate
8 ("EFOR"). These results are impressive when compared to fossil industry
9 averages of approximately 87 percent EAF and 7 percent EFOR over the last
10 ten years through 2010. This outstanding plant availability and reliability
11 performance allows FPL to continue to provide customers with the cleanest,
12 most fuel-efficient generation that can be produced from its fossil fleet and
13 pass along the resulting fuel savings to its customers. Further, the high
14 availability and reliability of FPL's fossil fleet have helped FPL avoid or defer
15 the need to add additional capacity to the system.

16
17 What makes FPL's fossil fleet performance more noteworthy is that, in
18 addition to significant improvements in its operating performance, FPL was
19 able to reduce fossil "Total" (i.e., Base Rate plus Environmental and Capacity
20 Clauses) non-fuel O&M cost per unit of installed capacity by 41 percent, from
21 \$18.5/installed kilowatt ("kW") in 1990 to \$10.9/kW in 2011 (see Exhibit
22 RRK-7). Another indication of FPL's superior performance is that this
23 \$10.9/kW cost was more than \$20/kW lower than the 2011 Consumer Price

1 Index (“CPI”) adjusted fossil industry average cost of \$33.4/kW and FPL’s
2 2011 fossil cost of \$31.9/kW if escalated at CPI from 1990 to 2011. This
3 \$20/kW difference (about two-thirds less) represents significant annual fossil
4 non-fuel O&M cost avoidance (more than \$400 million in 2011) for an FPL
5 fossil fleet of more than 20,000 MW.

6
7 In addition, since 1990, FPL significantly reduced its CO₂ emission rate by 31
8 percent, resulting in less greenhouse gas emissions, as well as reduced its
9 sulfur dioxide (“SO₂”) and nitrogen oxides (“NO_x”) emission rates by 92
10 percent each (see Exhibit RRK-8) contributing to a cleaner environment.
11 FPL’s fossil fleet fuel cost savings and emission benefits from efficiency
12 improvements will continue to grow as new and modernized units are placed
13 in service.

14
15 FPL has historically provided its customers with excellent cost control and
16 plant operating performance, while continuing to transform and grow its
17 generating fleet with highly efficient combined cycle generating capacity
18 (e.g., West County Energy Center). This new technology/growth
19 transformation is shifting FPL’s FERC Production O&M cost category from
20 “Steam” to “Other” beyond a Florida Public Service Commission (“FPSC” or
21 “Commission”) benchmark that is purely based on CPI. FPL’s fossil 2013
22 Base non-fuel O&M request of \$246.5 million, which includes more than
23 2,400 MW of new highly efficient combined cycle capacity since 2010 (West

1 County 3 and Canaveral Modernization Project), is \$12.1 million more than
2 the adjusted 2013 benchmark of \$234.4 million. However, this benchmark
3 calculation has no allowance for fossil capacity growth. The drivers of the
4 \$12.1 million benchmark variance are new units (\$17.4 million) and planned
5 maintenance overhauls (\$18.1 million), partially offset by unit retirements and
6 miscellaneous reductions (-\$23.4 million) as shown in Exhibit RRK-9.
7 Moreover, through 2013, FPL's \$13.1/kW Total fossil non-fuel O&M cost is
8 projected to remain more than 60 percent lower than what the cost would have
9 been (i.e., \$33.2/kW) if FPL's 1990 fossil cost were escalated by CPI since
10 1990, and almost 30 percent lower than even FPL's un-escalated 1990 fossil
11 cost of \$18.5/kW (see Exhibit RRK-7). This further demonstrates FPL's long
12 term efforts and success in controlling and containing costs.

13
14 Contributing to this excellent performance is PGD's consistent improvement
15 in resource management. From 1990 and through 2013, the level of fossil
16 capacity-managed per employee is projected to improve from less than 5
17 MW/employee in 1990 to 19 MW/employee in 2013 (see Exhibit RRK-10).

18
19 Lastly, the construction estimates and non-fuel O&M costs for the Canaveral
20 Modernization Project remain reasonably consistent with the estimates
21 provided to the Commission in Docket No. 080246-EI. This project will
22 allow for the modernization of FPL's less efficient, 1960s-era Cape Canaveral
23 plant into a nominal 1,200 MW clean and 33 percent more fuel efficient state-

1 of-the-art generating plant. The Canaveral Modernization Project will benefit
2 customers in many ways. It will provide additional base load firm generating
3 capacity necessary to maintain system reliability, while reducing customers'
4 fuel costs and FPL's system air emissions, all without using new land or water
5 resources.

6

7 **II. FPL's FOSSIL GENERATION FLEET PERFORMANCE**

8

9 **Q. What indicators does FPL use to measure the operating performance of**
10 **its fleet of fossil generating units?**

11 A. The Power Generation Division's mission is to: Deliver Certainty - the
12 certainty that its generating units are efficient, available, reliable and cost-
13 effective to meet the needs of FPL's customers. FPL uses a number of
14 indicators to measure the performance of its fossil fleet to deliver certainty.
15 These indicators include net heat rate to measure efficiency, EAF to measure
16 availability, EFOR to measure reliability, and non-fuel operating and
17 maintenance cost (O&M \$/installed kW of capacity) to measure the
18 effectiveness of resource management and utilization.

19

20 As shown in several exhibits within this testimony, FPL's fossil fleet
21 performance in these measures is compared against both FPL's own long-term
22 historical performance as well as that of the fossil industry.

23

1 **Q. Please define FPL's indicator used to measure the efficiency of its fossil**
2 **fleet.**

3 A. FPL's indicator of fossil fleet efficiency is net heat rate in British Thermal
4 Units/kilowatt hour ("Btu/kWh"), which is calculated by dividing the total
5 heat input in Btu, from fuel burned by FPL's fossil fleet, by the net kWh of
6 electricity produced from those units. The lower the heat rate, the more
7 efficient the generating fleet is and the greater the fuel savings are for the
8 benefit of FPL's customers.

9 **Q. Please show how the efficiency of FPL's fossil generating fleet has**
10 **improved over time.**

11 A. The trend in efficiency of FPL's fossil fleet is provided in Exhibit RRK-4.
12 Since 1990, FPL has improved the net heat rate of its fossil fleet from 10,214
13 Btu/kWh to 7,803 Btu/kWh in 2011, representing an almost 24 percent
14 improvement in efficiency. With the completion of the Canaveral
15 Modernization Project in 2013, the net heat rate of FPL's fossil fleet is
16 expected to drop further, providing greater fuel savings for the benefit of
17 customers.

18 **Q. How does FPL's fossil fleet net heat rate performance compare to that of**
19 **others in the industry?**

20 A. As shown in Exhibit RRK-4, FPL's fossil fleet net heat rate is extremely
21 favorable compared to the industry. The industry average for all
22 representative fossil plants has exhibited little long-term improvement and has
23 remained above 10,000 Btu/kWh. By comparison, over the ten year period

1 between 2001 and 2011, FPL's fossil fleet average net heat rate improved 19
2 percent from 9,635 Btu/kWh to 7,803 Btu/kWh. FPL's fossil fleet net heat
3 rate performance has also been either "Top Decile" or "Best-in-Class" over
4 the last ten years.

5 **Q. Please provide an example of how an improved net heat rate benefits**
6 **FPL's customers.**

7 A. In simple terms, a 19 percent heat rate improvement in FPL's fossil fleet with
8 \$3.5 billion in fossil fuel cost in 2011 would represent more than \$650 million
9 in fuel cost savings.

10

11 Furthermore, this 19 percent improvement in fuel efficiency that FPL's fossil
12 fleet has achieved will continue to benefit customers by providing an equal
13 percentage in fuel cost savings regardless of fuel prices. FPL's fossil fleet
14 fuel efficiency is expected to improve even further with the full year of
15 operation of West County 3 in 2012 and again with the completion of the
16 Canaveral Modernization Project in 2013.

17

18 Another benefit of an improved net heat rate is the reduction of FPL's fossil
19 fleet air emission rates. Since 1990, FPL has reduced its fossil CO₂ emission
20 rate 31 percent, as well as reduced fossil SO₂ and NO_x emission rates by 92
21 percent each resulting in less greenhouse gas and other pollutant emissions
22 and contributing to a cleaner environment (see Exhibit RRK-8). FPL's fossil
23 fleet fuel cost savings and emission benefits from efficiency improvements

1 will continue to grow as new and modernized units are placed in service. The
2 Canaveral and Riviera Modernization Projects further exemplify FPL's
3 commitment to both fuel cost reduction and environmental sustainability.

4 **Q. What actions has FPL taken to improve overall fossil fleet efficiency**
5 **performance (i.e., improvements in system heat rate)?**

6 A. In the power generation industry, the natural course of events is for power
7 plants to suffer deterioration in performance as they age and experience wear
8 and tear. The ongoing challenge is to minimize the rate of heat rate
9 degradation and restore it when possible. So, restoring performance actually
10 represents an improvement in an operating environment that otherwise would
11 result in decline. FPL works diligently to minimize degradation of, and to
12 restore, this lost generating unit performance. This has been accomplished
13 through practices such as condition-based maintenance.

14
15 However, the major step-change system heat rate performance gains have
16 been achieved through plant modernizations (conversions of conventional
17 plants to combined cycle technology) and the addition of new, highly efficient
18 generating technology. FPL is a leader in converting older power plants to
19 modern combined cycle technology, which significantly increases the
20 efficiency of these plants, providing significant fuel cost savings to customers
21 and reduced emissions while reutilizing existing sites.

22

1 **Q. Please define the indicators used to measure plant availability and**
2 **reliability.**

3 A. EAF represents plant availability and is a measure of the percent capacity
4 available from a generating unit to provide electricity throughout the year,
5 regardless of whether the generating unit is actually called upon to operate.
6 Planned and Forced outages are the main components typically associated
7 with measuring FPL's fossil fleet EAF. EAF is reported in terms of the hours
8 in a given period (e.g., a year) that a generating unit is available to deliver
9 electricity, as a percentage of all the hours in the period. FPL strives for and
10 has achieved a high fossil fleet EAF.

11

12 EFOR represents plant reliability and is a measure of a generating unit's
13 inability to provide electricity when required to operate. EFOR is reported in
14 terms of the hours when a generating unit could not deliver electricity as a
15 percentage of all the hours during which that unit was called upon to operate.
16 Since a lower EFOR also results in greater availability of the most-efficient
17 generating capacity serving customers, FPL strives for and has achieved a low
18 fossil fleet EFOR.

19 **Q. Has the EAF of FPL's fossil fleet improved over time?**

20 A. Yes. As shown in Exhibit RRK-5, FPL has improved the EAF of its fossil
21 fleet from less than 82 percent in 1990 to almost 92 percent in 2011.

22

1 **Q. How does the EAF of FPL's fossil fleet compare to that of others in the**
2 **industry?**

3 A. FPL's fossil fleet has maintained an industry-leading position in EAF. As
4 shown in Exhibit RRK-5, FPL's fossil fleet has performed significantly better
5 than the fossil industry. Over the decade ending 2011, FPL's fossil fleet
6 demonstrated excellent plant availability, averaging more than 92 percent
7 EAF. These results are impressive when compared to the fossil industry
8 average of approximately 87 percent EAF over the last ten years ending in
9 2010. FPL's fossil fleet EAF performance has also been either "Top-Decile"
10 or "Best-In-Class" for eight of the last ten years.

11 **Q. Has the EFOR of FPL's fossil fleet also improved over time?**

12 A. Yes. As shown in Exhibit RRK-6, the EFOR of FPL's fossil fleet has been
13 exceptionally low. Even at this excellent performance level, FPL's fossil fleet
14 EFOR has improved from an average of approximately 3 percent during the
15 1990s to an average of approximately 2 percent during the decade ending
16 2011.

17 **Q. How does the EFOR of FPL's fossil fleet compare to that of others in the**
18 **industry?**

19 A. FPL's fossil fleet EFOR performance has significantly outperformed the fossil
20 industry, as shown in Exhibit RRK-6. Over the decade ending 2011, FPL's
21 fossil fleet EFOR averaged approximately 2 percent compared to the fossil
22 industry EFOR average of approximately 7 percent. FPL's fossil fleet EFOR

1 performance has also been either “Top Decile” or “Best-in-Class” for eight of
2 the last ten years.

3 **Q. What is the significance of FPL's fossil fleet EAF and EFOR performance**
4 **to this case?**

5 A. During the early 1990s, FPL’s fossil fleet EAF and EFOR improvements
6 helped defer the need for new capacity additions. Currently, with the
7 progressive transformation of its fossil fleet to cleaner combined cycle units,
8 FPL’s excellent fossil fleet EAF and EFOR performance results in more
9 opportunity for this highly efficient capacity to be operating, thus minimizing
10 customer fuel costs and emissions.

11 **Q. Are there other actions FPL has taken to help avoid or defer the need for**
12 **new generating capacity?**

13 A. Yes. In the early 1990s, PGD implemented a program known as Perfect
14 Execution of Peak Operations (“PEPO”). The PEPO program was designed to
15 systematically assess the peak generating capacity of units within their design
16 capabilities. This program allowed PGD to operate its fossil fleet at peak
17 capacity during high load demand periods. The PEPO program raised FPL’s
18 level of confidence in the reliability of these peaking MWs to the point that
19 they could be included in the rated capacity for the FPL fossil fleet when
20 determining the need for new generating capacity. In the mid-1990s, PEPO
21 was integrated into the normal operation and rating of the fossil fleet and
22 made more than 600 MW available to FPL. Over the last 15 years, FPL has
23 been able to utilize this philosophy of providing peak capacity, amounting to

1 more than 2,000 MW of cumulative additional generating capability
2 benefiting customers through today.

3 **Q. Please summarize your position on the performance of FPL's fossil fleet.**

4 A. Since 1990, as FPL transformed its fossil generating fleet, it significantly
5 improved its operating performance across key factors (see Exhibit RRK-3)
6 integral to generating electricity for our customers by reducing heat rate by
7 almost 24 percent, forced outage rate by 51 percent, total non-fuel O&M costs
8 per kW by 41 percent (see Section III below) and CO₂ emissions by 31
9 percent, resulting in industry-leading performance and frequently achieving
10 "Top Decile" or "Best-in-Class" performance.

11

12 **III. FPL's FOSSIL FLEET NON-FUEL O&M EXPENSES AND CAPITAL**
13 **EXPENDITURES**

14

15 **Q. What has been FPL's experience with non-fuel O&M cost performance?**

16 A. FPL has worked aggressively to reduce and contain expenses. Over the
17 decade 2001 through 2011, FPL's fossil fleet total non-fuel O&M expense,
18 measured in actual dollars per installed kW of generating capacity, has
19 remained essentially constant despite a 27 percent cumulative increase in CPI
20 during the same period. Over the longer period from 1990 to 2011, FPL
21 reduced fossil fleet total non-fuel O&M cost per kW of installed capability by
22 more than 41 percent (from \$18.5/kW to \$10.9/kW) as shown in Exhibit
23 RRK-7. This is exceptional performance considering this \$10.9/kW cost was

1 more than \$20/kW lower than the 2011 CPI-adjusted fossil industry average
2 cost of \$33.4/kW and FPL's 2011 fossil cost of \$31.9/kW if escalated at CPI
3 from 1990 to 2011. For an FPL fossil fleet of more than 20,000 MW, this
4 \$20/kW difference represents a significant non-fuel O&M cost avoidance of
5 more than \$400 million in 2011. Also, over the last decade, FPL's fossil fleet
6 has been "Top Decile" or "Best-in-Class" in total non-fuel O&M per kW.
7 Contributing to this excellent performance is PGD's improving resource
8 management trends since 1990 (see Exhibit RRK-10) showing that by 2013,
9 FPL's fossil fleet capacity-managed per employee is projected to be almost
10 four times better than the rate achieved in 1990 (from less than 5
11 MW/employee to 19 MW/employee).

12 **Q. What steps has FPL taken to reduce fossil fleet non-fuel O&M expenses**
13 **associated with maintaining the fleet?**

14 A. To control costs, FPL has leveraged contracts for goods and services during
15 overhaul seasons to reduce pricing, improved efficiencies by introducing Lean
16 Six Sigma techniques, and utilized the skilled resources of its fleet equipment
17 experts to optimize maintenance recommendations for critical equipment.

18
19 FPL applies a centralized maintenance concept which adds efficiency to the
20 process by planning and allocating resources at a fleet-wide level, instead of
21 having each site determine its requirements independently. The team then
22 uses Lean Six Sigma concepts during overhaul planning and execution to
23 optimize the outage duration, with input from the fleet equipment experts,

1 who also provide engineering support from a centralized location. This “Fleet
2 Team” approach organizes its technical support groups around major plant
3 components such as boilers, steam turbines, combustion turbines and
4 generators. The Fleet Teams contain experienced subject matter experts
5 (“SMEs”) who provide technical recommendations during an outage and,
6 based on the condition of the equipment, determine if the equipment can
7 operate safely and reliably until a future maintenance interval. Programs to
8 assess and monitor the condition of the equipment allow the team to lower
9 costs by safely extending the maintenance requirements to a future date, using
10 data to support the recommendation.

11

12 The data needed to monitor and support condition-based maintenance
13 decisions comes from physical inspection of the equipment, as well as from
14 the FPL Fleet Performance and Diagnostic Center (“FPDC”). Here, critical
15 fossil fleet operating parameters are monitored “24/7” online using advanced
16 statistical techniques. Automated statistical applications detect change in
17 performance and alert employees. FPL can also analyze the equipment’s
18 ability to perform according to its rated specifications and evaluate ways to
19 improve efficiencies. The goal is to identify equipment degradation far
20 enough in advance of a failure so corrective measures can be put in place.
21 These initiatives and efforts are focused on preventing or mitigating failures
22 and optimizing efficiency.

- 1 **Q. Comparing the 2013 Test Year to the 2012 Prior Year, are there any**
2 **accounts in which the change to PGD's non-fuel O&M expenses exceed**
3 **the threshold defined in MFR C-8?**
- 4 A. FPL has two Fossil FERC accounts (512 and 553) which exceed the defined
5 threshold referenced in MFR C-8. In account 512 (Maintenance of Boiler
6 Plant) the decrease of \$8.3 million is primarily associated with an anticipated
7 lower level of boiler work in fiscal year 2013 relative to fiscal year 2012.
8 Scherer Unit 4 boiler overhaul maintenance is scheduled every two years, and
9 the current cycle places a boiler outage in 2012, while no boiler outage is
10 planned for fiscal year 2013. The jointly-owned Scherer Unit 4 operator
11 (Georgia Power Company) is contractually obligated to operate and maintain
12 the facility in a manner consistent with prudent utility practices. With respect
13 to account 553 (Maintenance of Generating and Electric Plant), the \$18.7
14 million increase is primarily driven by \$17.4 million of planned overhaul
15 work at Ft. Myers 2, Turkey Point 5, Martin 3, 4 and 8 and West County 1 and
16 3 and \$1.1 million for 7 months of daily-maintenance work at the new Cape
17 Canaveral combined cycle plant starting in June 2013. The increase is
18 required to repair, refurbish and overhaul plant equipment necessary to sustain
19 the reliability and availability of this highly fuel efficient fleet.
20

1 **Q. Please discuss the comparison of FPL’s January 2013 through December**
2 **2013 fossil fleet Base non-fuel O&M for the FERC Steam Production and**
3 **Other Production functional areas to the Commission’s benchmarks (on**
4 **MFR C-41) using 2010, as adjusted based on FPSC Order No. PSC-10-**
5 **0153-FOF-EI, as the benchmark year.**

6 A. Comparing FPL’s projected 2013 fossil fleet Base non-fuel O&M expenses to
7 the Commission’s benchmarks for the FERC functional areas indicates that
8 FPL’s Steam Production expenses are approximately \$50.4 million below the
9 2013 Steam benchmark. Conversely, FPL’s Other O&M Production expenses
10 are approximately \$62.5 million above the 2013 Other Production benchmark.
11 However, as shown earlier in Exhibit RRK-2, FPL’s fossil fleet portfolio has
12 distinctively evolved from approximately an 80:20 mix to a 20:80 mix of
13 “Steam” vs. “Other” units operated and maintained as a generating fleet for
14 availability, reliability and cost considerations; not managed at a FERC
15 function level (Steam Production vs. Other Production). If one were to
16 compare FPL’s fossil fleet Base non-fuel O&M for the combined Steam
17 Production and Other Production functions to the CPI inflation benchmark of
18 \$234.4 million at the portfolio level, FPL’s projected fossil Base non-fuel
19 O&M request of \$246.5 million for 2013 is a net \$12.1 million above the
20 benchmark with the addition of more than 2,400 MW of clean and fuel
21 efficient combined cycle capacity for West County Unit 3 in 2011 and the
22 Canaveral Modernization Project in 2013. The drivers of the 2013 CPI-based
23 benchmark variance for FPL’s fossil production fleet are planned maintenance

1 overhauls (\$18.1 million), unit retirements and miscellaneous reductions
2 (-\$23.4 million), and new units (\$17.4 million) as shown in Exhibit RRK-9.

3

4 These results are not surprising considering both the dramatic growth of
5 FPL's Other Production generating capacity and the transformation of FPL's
6 fossil fleet from predominantly Steam Production to primarily highly efficient
7 Other Production capacity and the fact that the Commission's benchmark
8 calculation has no allowance for fossil capacity growth. FPL's fossil fleet
9 Base non-fuel O&M cost is a reflection of both the increase in planned CT
10 outages associated with the expanded combined cycle fleet and the addition of
11 O&M costs for the new, high efficiency West County Unit 3 and the
12 Canaveral Modernization Project.

13 **Q. What actions has FPL undertaken to reduce non-fuel O&M costs in light**
14 **of the economic downturn?**

15 A. FPL reviewed its operating fleet and determined that some of its older, less-
16 efficient units should be placed into Inactive Reserve status. This enabled
17 specific units, given adequate notice, to return to service when needed while
18 allowing FPL to reduce the operating and maintenance costs for these units.
19 This action, along with FPL's plan to retire its three oldest and least efficient
20 1950's vintage steam units (Cutler 5 & 6 and Sanford 3) by the end of
21 November 2012, permit FPL to reduce steam plant operations and
22 maintenance costs and allow FPL to redeploy its skilled workforce within the
23 business unit and reduce contractor usage for unit outages. FPL will be

1 examining other potential uses for these sites, including their potential use as
2 sites for new renewable energy facilities. In addition, FPL reduced spending
3 plans at the Cape Canaveral and Riviera sites by retiring them in 2010 and
4 2011 respectively, for the FPSC-approved modernizations. FPL also plans to
5 retire the four steam units at its Port Everglades site by the end of January
6 2013 pending FPSC approval of FPL's petition to modernize these units into a
7 nominal 1,200 MW clean and approximately 35 percent more fuel efficient
8 state-of-the-art generating plant. The modernized units are scheduled to return
9 to service in June 2013 (Canaveral), June 2014 (Riviera) and June 2016 (Port
10 Everglades). The unit retirement initiatives are expected to reduce non-fuel
11 O&M costs on FPL's fossil steam units by approximately \$20.4 million in
12 2013 when compared to the 2010 rate case adjusted benchmark.

13 **Q. What assurance can you provide that FPL's 2012 and 2013 forecasts for**
14 **non-fuel O&M expenses are reasonable?**

15 A. First, the Company's historical performance demonstrates its ability to cost-
16 effectively manage its resources while achieving industry-leading
17 performance in availability, reliability and net heat rate.

18
19 Second, throughout the 2011-2013 timeframe, FPL's fossil Total non-fuel
20 O&M cost in \$/kW is expected to remain more than \$20/kW lower (or almost
21 two-thirds less) than what the cost would have been if escalated by CPI since
22 1990. Even by 2013, FPL's Total fossil fleet non-fuel O&M cost of \$13.1/kW
23 is projected to remain almost 30 percent below even FPL's un-escalated 1990

1 fossil cost of \$18.5/kW (from Exhibit RRK-7). This further exemplifies
2 FPL's long term efforts to control and contain costs.

3

4 Third, FPL has the processes, procedures and structure in place, such as
5 condition-based maintenance, a centralized maintenance organization,
6 overhaul services contract leveraging, Lean Six Sigma techniques, the Fleet
7 Performance and Diagnostic Center, and Fleet Teams to continue to manage,
8 assess, and sustain the outstanding performance of FPL's fossil fleet. FPL's
9 team is committed to maintaining the industry-leading performance it has
10 achieved with excellent availability, reliability, efficiency and low cost.

11 **Q. Please summarize FPL's fossil fleet Base capital difference when**
12 **comparing the 2013 Test Year to the 2010 actual.**

13 A. FPL's annual fossil Base capital expenditures are projected to increase \$164.8
14 million from \$206.6 million in 2010 to \$371.4 million in 2013. The primary
15 drivers of the increase are investments in CT hot end component upgrades
16 (\$95.6 million), CT planned maintenance overhauls (\$41.1 million), work
17 being done on Martin Unit 1 (\$12.7 million) while the Electrostatic
18 Precipitator ("ESP") outage is performed, and maintenance work at West
19 County 3 (\$11.3 million) and Canaveral Modernization Project (\$2.7 million)
20 units which were not in operation in 2010. In addition to capacity and
21 efficiency improvements, the CT hot end component upgrades will extend hot
22 gas path parts life by 33 percent from 72,000 to 96,000 hours and extend the

1 hot gas path maintenance interval also by 33 percent from 24,000 to 32,000
2 hours.

3 **Q. Has FPL undertaken any steps to control or reduce capital expenditures**
4 **in light of the economic downturn?**

5 A. Yes. As explained previously, FPL reviewed its operating fleet and
6 determined that some of its older, less efficient units should be placed into
7 Inactive Reserve status. This would enable the units to return to service when
8 needed in the future to satisfy load growth, as well as, with adequate notice,
9 meet FPL's reliability needs. In addition, FPL has been able to reduce the
10 spending plans for the Canaveral and Riviera plants by retiring them in 2010
11 and 2011 for the FPSC-approved modernizations. There are no capital dollars
12 in the 2012 fiscal forecast to operate the modernized units.

13

14 **IV. CANAVERAL MODERNIZATION PROJECT**

15

16 **Q. Please provide a brief description of the Canaveral Modernization**
17 **Project.**

18 A. The Canaveral Modernization Project is an integral part of FPL's long term
19 infrastructure investment effort to meet the growing resource needs of its
20 customers and reduce the emission of CO₂ and other substances in the most
21 cost-effective manner and thereby continue to deliver electricity at a
22 reasonable cost, while complying with existing and currently anticipated
23 environmental requirements. Therefore, in June 2010, FPL removed its two

1 400 MW 1960s-era oil and natural gas steam generating units from service at
2 the Cape Canaveral plant in Brevard County to replace them with a modern,
3 nominal 1,200 MW highly efficient combined cycle power plant beginning
4 service in June 2013. The new unit will be configured with three of the latest
5 generation advanced combustion turbines and three heat recovery steam
6 generators (“HRSGs”) combined with one steam turbine. The project will use
7 natural gas as the primary fuel and will be capable of burning ultra low sulfur
8 light oil as a backup fuel.

9 **Q. What are the benefits of the Canaveral Modernization Project?**

10 A. The Canaveral Modernization Project will benefit customers from multiple
11 generating perspectives: capacity, reliability, efficiency, environmental,
12 aesthetics and resource utilization. This investment will provide additional
13 firm electric generating capacity necessary to maintain system reliability
14 while reducing customers’ fuel costs by utilizing 33 percent less fuel for an
15 equivalent amount of electricity production. These fuel savings will begin
16 flowing directly to FPL customers through the fuel clause as soon as the
17 modernized plant enters service. The new unit will also reduce CO₂
18 greenhouse gas and other air emissions, benefiting FPL customers through
19 lower environmental compliance costs and all Florida residents through better
20 environmental quality. The modernized unit also has other benefits. For
21 example, the aesthetics will improve significantly since the old stacks will be
22 lowered from approximately 400 feet to 150 feet. In addition, the modernized
23 plant will be able to receive light oil backup fuel from water born deliveries

1 which provides flexibility particularly in emergency situations. Furthermore,
2 all these benefits will be obtained without the use of additional land or water
3 resources.

4 **Q. What is FPL's forecasted annual non-fuel O&M expense for the first full**
5 **year of operation for the Canaveral Modernization Project?**

6 A. The first full year of operation (June 1, 2013 through May 31, 2014) non-fuel
7 O&M expense (FERC account 546 through 554) for the Canaveral
8 Modernization Project is expected to be \$10.5 million.

9 **Q. Is the non-fuel O&M expense reasonable for the first full year of**
10 **operation for the Canaveral Modernization Project?**

11 A. Yes. The non-fuel O&M expense is reasonably consistent with the cost
12 estimates provided to the Commission with FPL's petition for a determination
13 of need for the Canaveral Modernization Project taking into consideration that
14 the current estimate includes additional costs mainly due to an increase in
15 skilled labor personnel, the inclusion of plant start-up costs which traditionally
16 are not included in the project bidding process and the change in the ammonia
17 (used in the NO_x emissions reduction process) to a different type due to
18 environmental and safety reasons.

19 **Q. Is the currently forecasted cost of the Canaveral Modernization Project**
20 **consistent with Docket No. 080246-EI and the Commission's Final Order**
21 **(No. PSC-08-0591-FOF-EI issued September 12, 2008) granting FPL's**
22 **petition for a determination of need for the proposed unit?**

1 A. Yes. It is reasonably consistent but lower. In FPL's approved 2013 forecast,
2 the construction cost for the Canaveral Modernization Project is \$976 million.
3 This is \$139 million lower than the estimate of \$1.115 billion reflected in the
4 Final Order. FPL has been able to achieve this reduction by taking advantage
5 of favorable market conditions, including negotiation of the Engineering,
6 Procurement and Construction ("EPC") contract for the Canaveral
7 Modernization Project at a substantially lower cost than originally estimated.
8 FPL customers will benefit directly from FPL's initiative in reducing
9 construction cost by \$139 million because the Canaveral Step Increase that
10 FPL is seeking in this docket is based on the approved forecast of \$976
11 million rather than the original estimate of \$1.115 billion reflected in the Final
12 Order.

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

14 A. Yes.

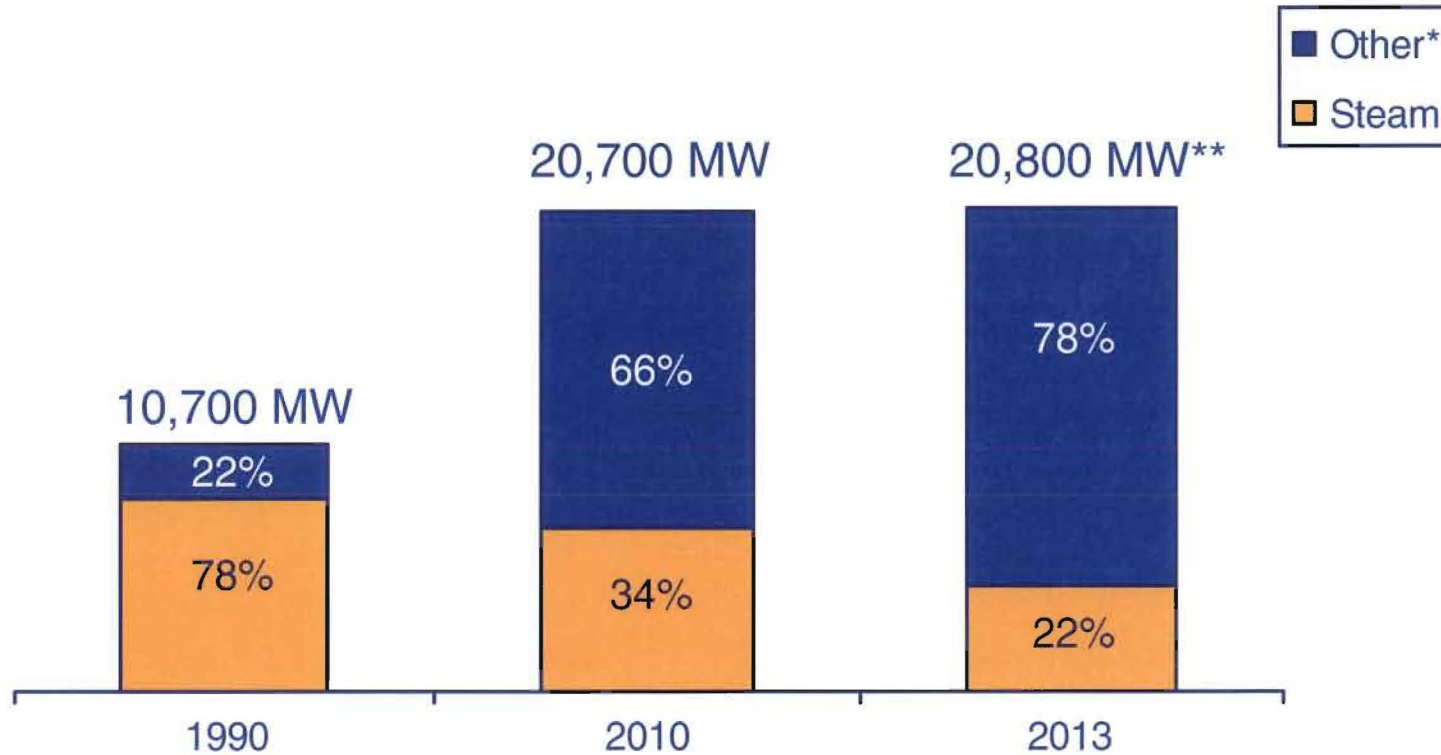
FLORIDA POWER & LIGHT

SUMMARY OF MFRs SPONSORED AND CO-SPONSORED BY ROXANE R. KENNEDY

MFR Schedule	Period	Title	Sponsorship
SPONSOR:			
B-18	Test Prior	Fuel Inventory by Plant	Entire Schedule
CO-SPONSOR:			
B-12	Test Prior	Net Production Plant Additions	Classification for Steam and Other Production Plant Additions
B-13	Test	Construction Work in Progress	Data for Steam and Other Production
B-15	Test Prior	Property Held for Future Use - 13 Month Avg.	Data for Steam and Other Production
B-24	Test Prior	Leasing Arrangements	West County Reclaimed Water
C-8	Test Prior	Detail of Changes in Expenses	Reasons for Changes in Accounts 512 & 553
C-41	Test	O&M Benchmark Variance by Function	Variance Explanations for Steam and Other Production Functions
C-43	Test Prior Historical	Security Costs	Fossil Plant Security Costs
F-8	Test	Assumptions	Fossil Unit Outage Schedule

From 1990 to 2013, FPL's fossil capacity will have doubled and evolved from traditional FERC "Steam" to modernized combustion turbine-based "Other*" Production technology.

FPL Fossil Generating Capability and Mix Changes (by FERC "Steam" and "Other" Production Categories)



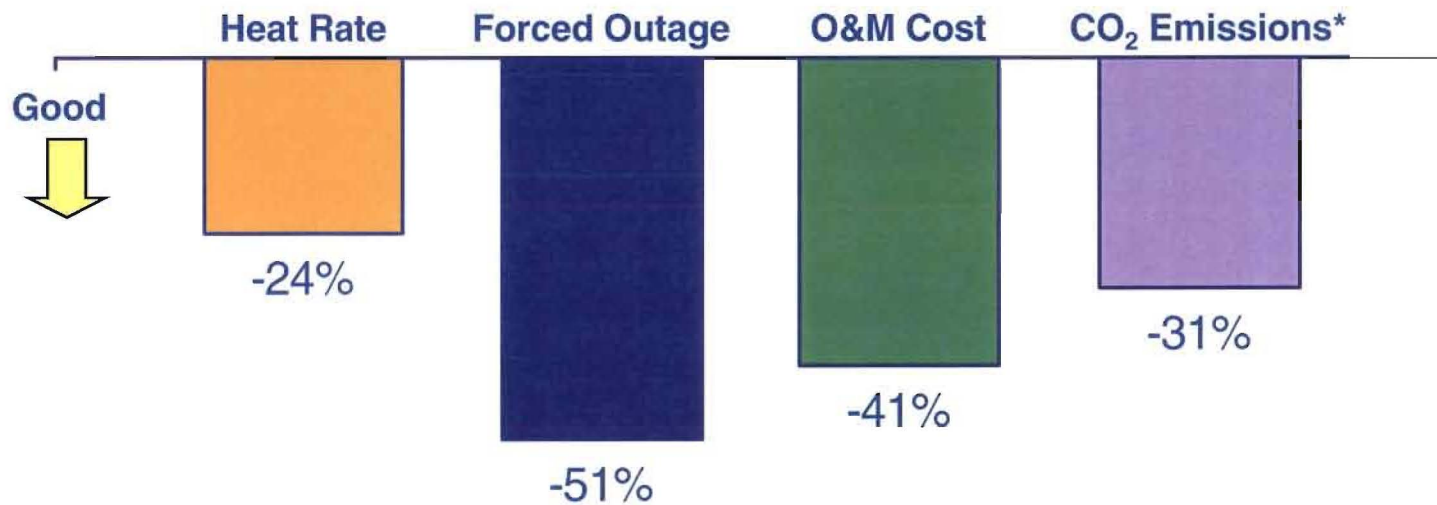
* FERC "Other" Production capacity represents combined cycle, simple cycle, & gas turbine units in FPL's fossil fleet (excludes 35 MW of Solar PV).

** 2013 MW reflects unit additions, retirements, and miscellaneous capacity changes since 2010.

FPL investments to modernize its fossil fleet provide customers with state-of-the-art electric power generation.

As FPL transformed the fossil generating fleet, we substantially improved our operating performance across key metrics.

FPL Fossil Performance Improvements (1990-2011)

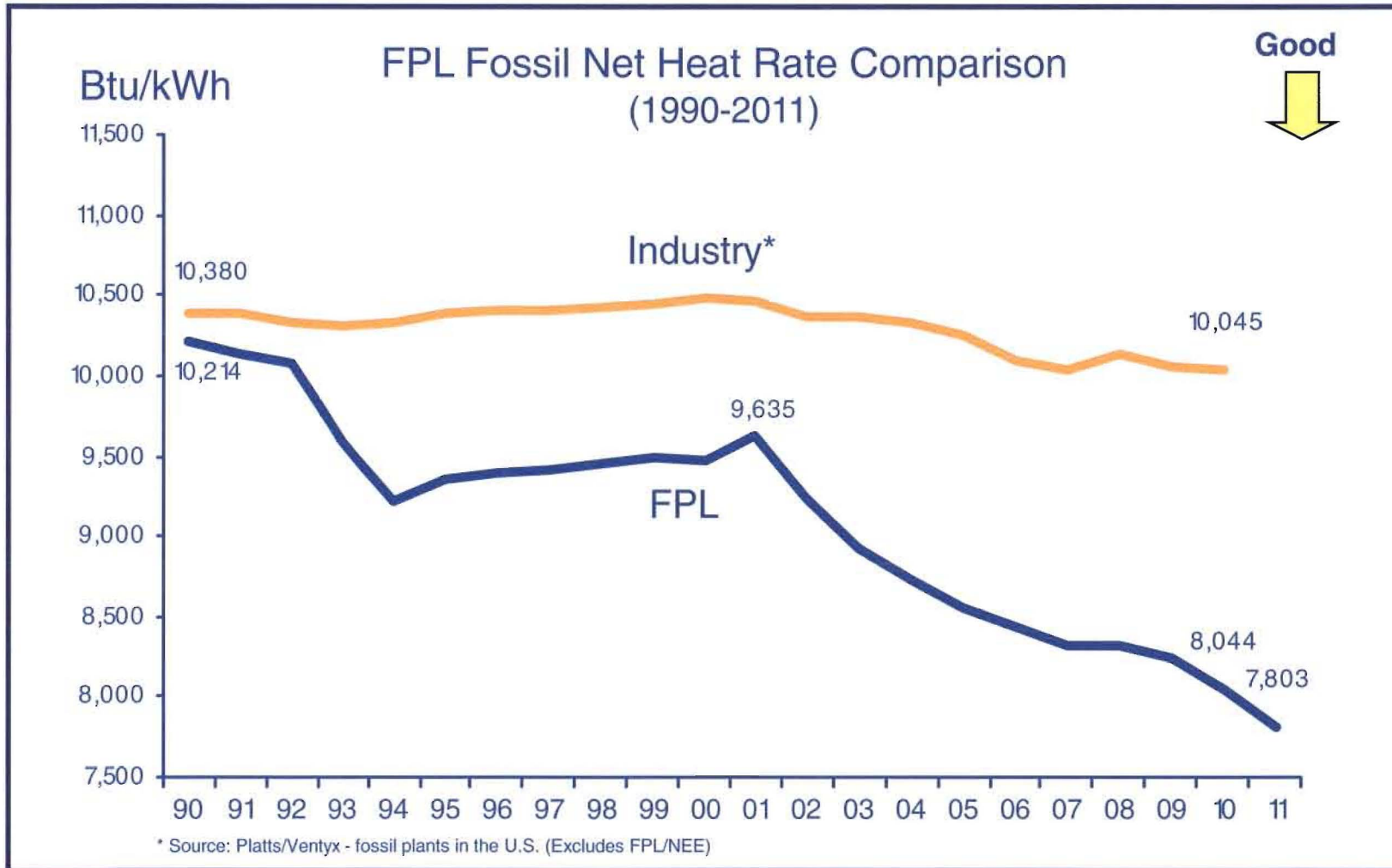


Year	Heat Rate (Fuel Use - Btu/kWh)	EFOR% (Forced Outage Rate)	Total Non- Fuel O&M Cost (\$/kW)	Emissions* (CO ₂ Rate - Lbs/MWh)
1990	10,214	2.77	18.5	1,464
2011	7,803	1.35	10.9	1,011
Results =>	More Efficient	More Reliable	Lower Cost	Cleaner

* Excludes solar PV reduction contribution

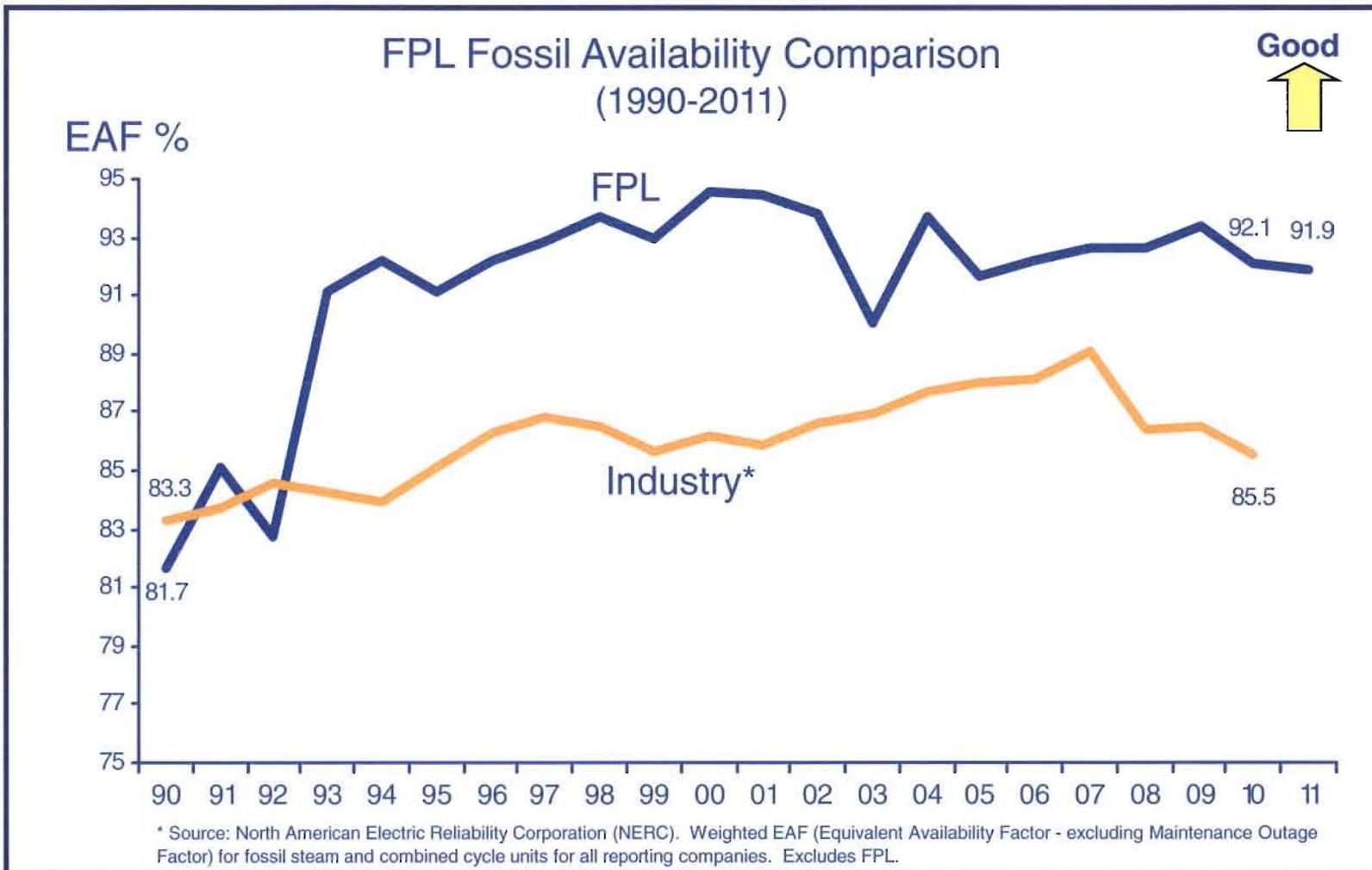
FPL's fossil fleet improvements include efficiency, reliability, cost and environmental performance factors integral to generating electricity for our customers.

FPL's fossil generating efficiency as Net Heat Rate is almost 24% better than our 1990 performance and 22% better than the fossil industry average.



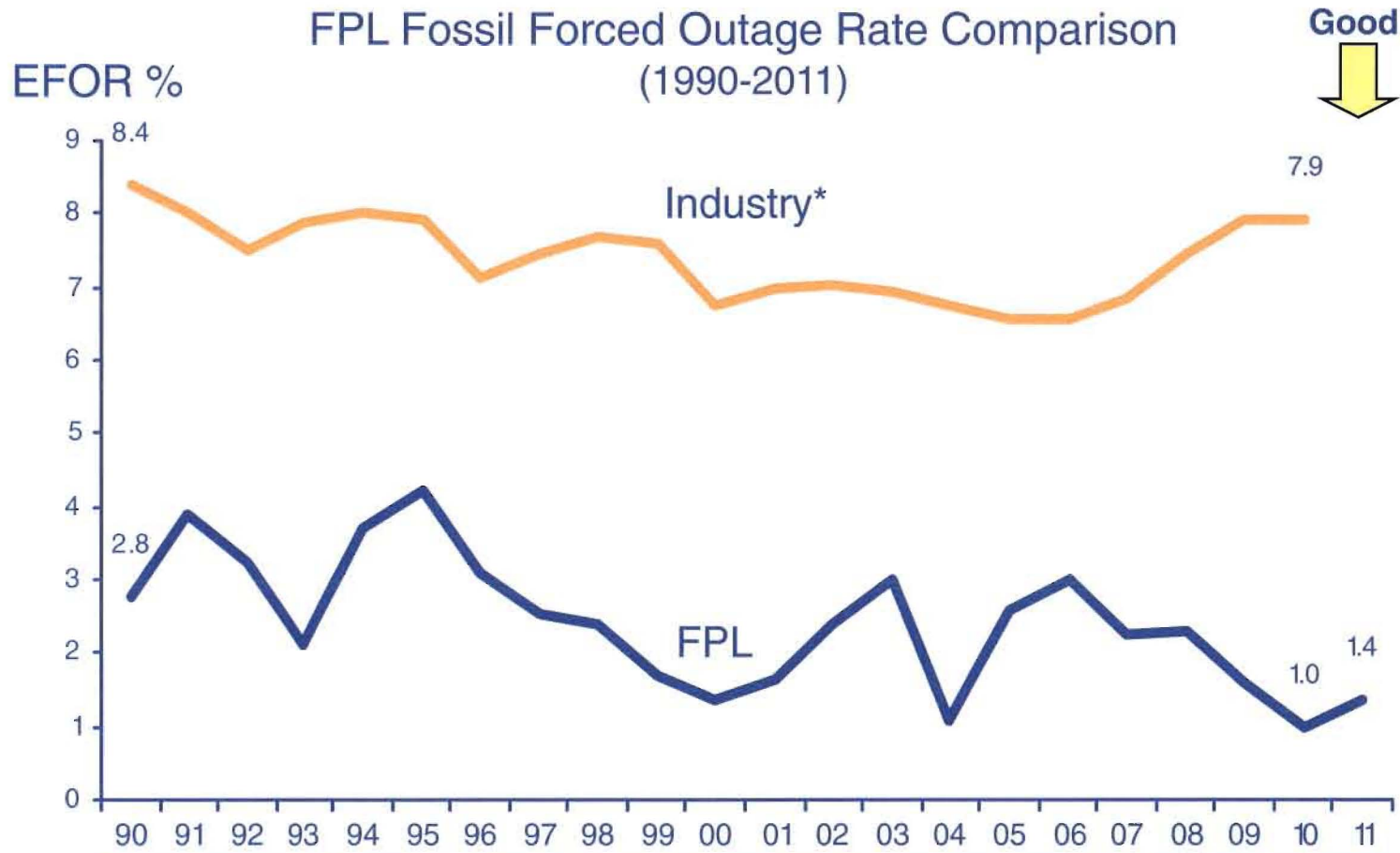
Such generating efficiency improvement in a fossil fleet the size of FPL's avoids hundreds of millions in fuel cost yearly for FPL customers.

FPL's fossil fleet Availability has averaged 6% better than the overall fossil industry for more than a decade.



FPL's excellent fossil availability results in more opportunity for highly efficient capacity to be operating, minimizing fuel costs and emissions.

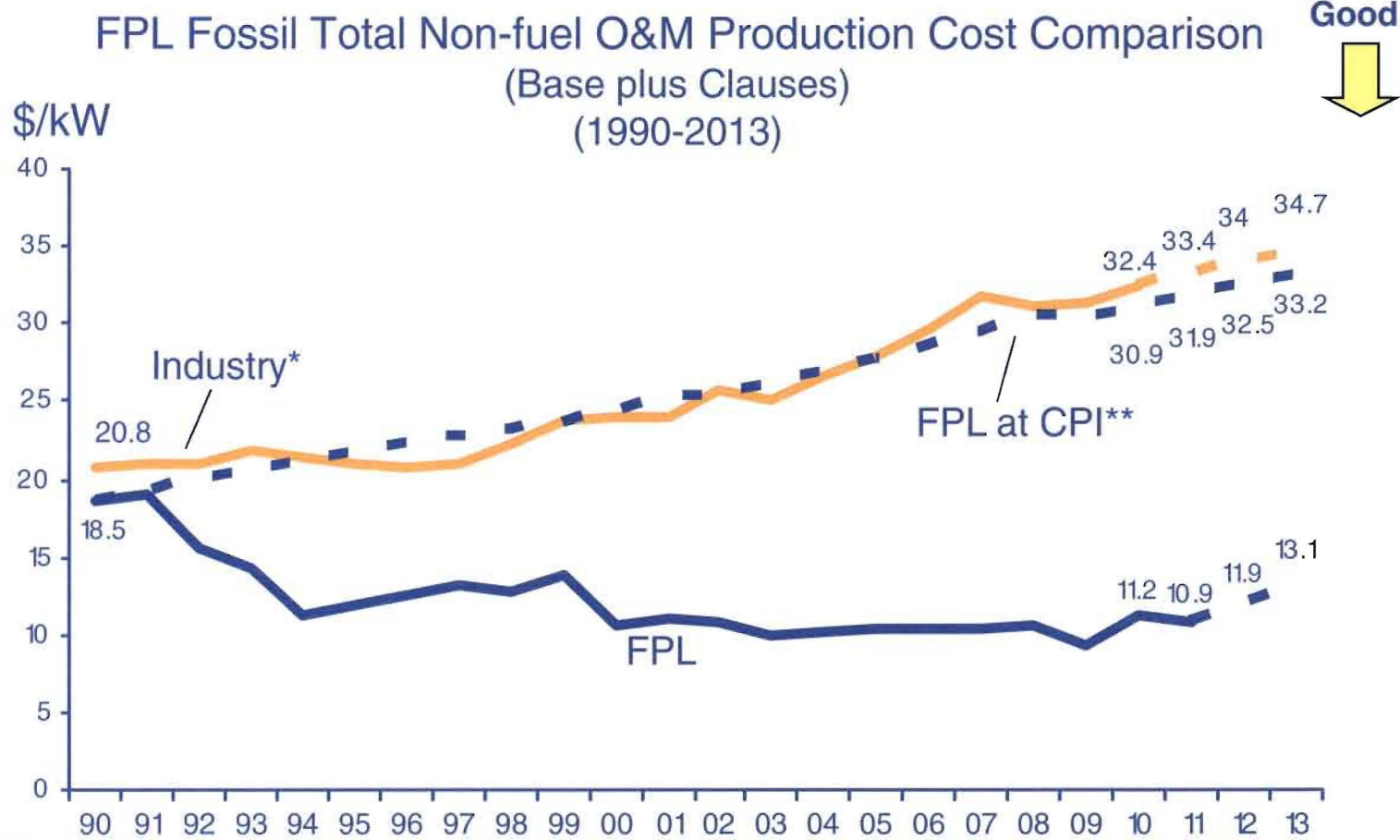
FPL's fossil fleet Reliability has averaged 70% better than the overall fossil industry for more than a decade.



*Source: North American Electric Reliability Corporation (NERC). Weighted EFOR (Equivalent Forced Outage Rate) for fossil steam and combined cycle units for all reporting companies. Excludes FPL.

FPL's excellent fossil fleet reliability results in more opportunity for highly efficient capacity to be operating, minimizing fuel costs and emissions.

FPL's fossil fleet total non-fuel O&M cost per kW was reduced 41% since 1990 and is almost two-thirds below both corresponding CPI and fossil industry trends.

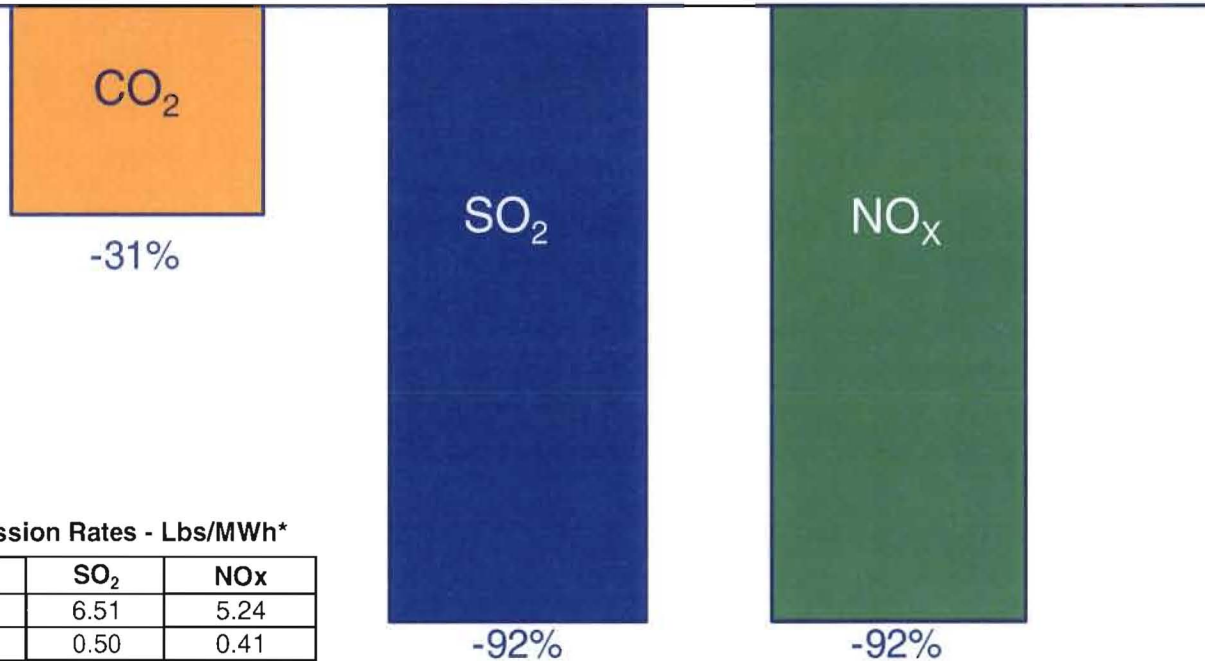


* Source: Platts/Ventix - FERC Form 1 Steam plus Other cost. (Capacity based on summer capability and excludes FPL). ** CPI used for calculating FPSC's FPL O&M Benchmark

FPL's exceptional non-fuel O&M performance has avoided hundreds of millions in non-fuel O&M cost yearly to FPL customers.

FPL's fossil emission rates have been significantly reduced since 1990 primarily through the use of cleaner, highly efficient gas-fired combined cycle technology.

FPL Fossil Emission Rate Reductions (1990-2011)



FPL Fossil Emission Rates - Lbs/MWh*

Year	CO ₂	SO ₂	NO _x
1990	1,464	6.51	5.24
2011	1,011	0.50	0.41

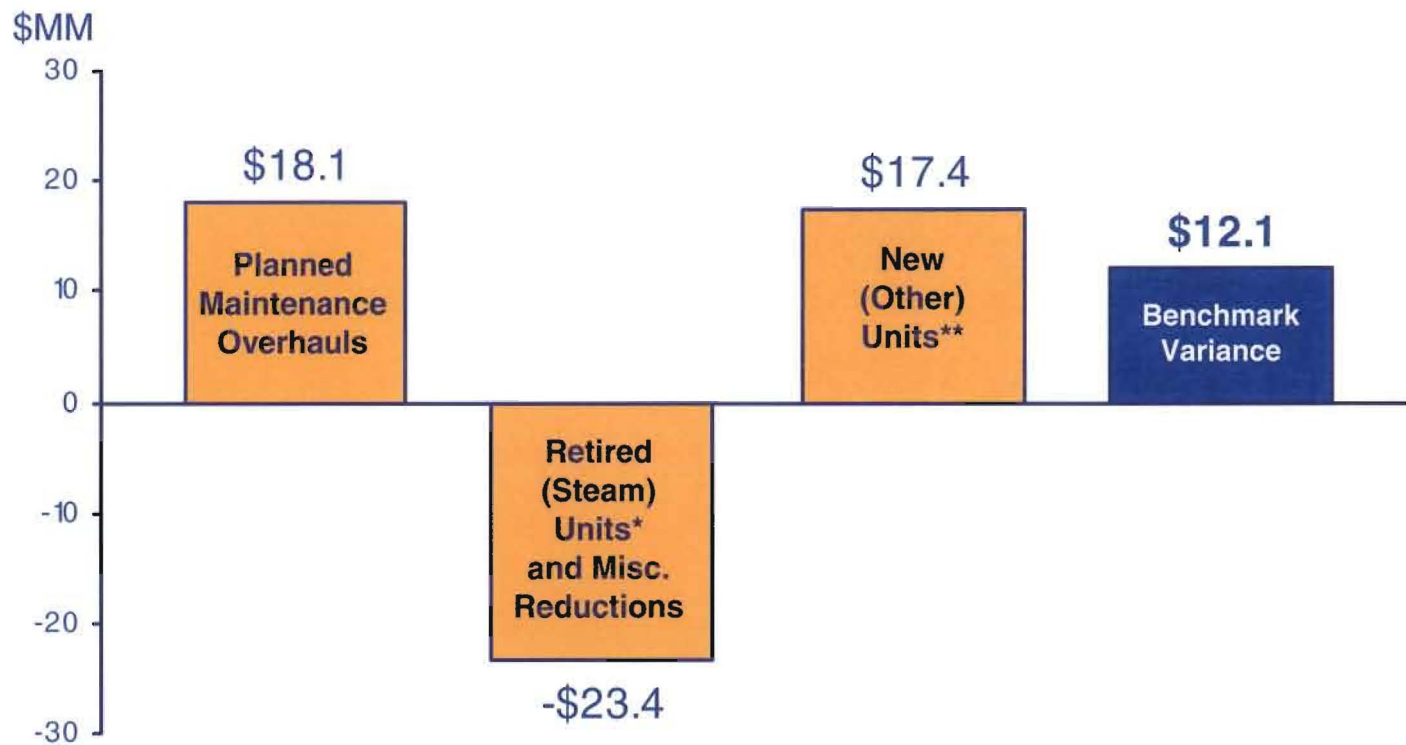
* Excludes solar PV reduction contribution

Source: FPL Environmental Dept. (Note: Emission rates represent FPL's capacity ownership share.)

Lowering emission rates significantly avoids greenhouse gas releases and other pollutants, contributing to a cleaner environment.

Drivers of the 2013 CPI-based benchmark variance for FPL's fossil production fleet are planned maintenance overhauls, unit retirements/miscellaneous reductions and new units.

Drivers of 2013 Base O&M Benchmark Variance for FPL's Fossil Fleet (Steam & Other Production)



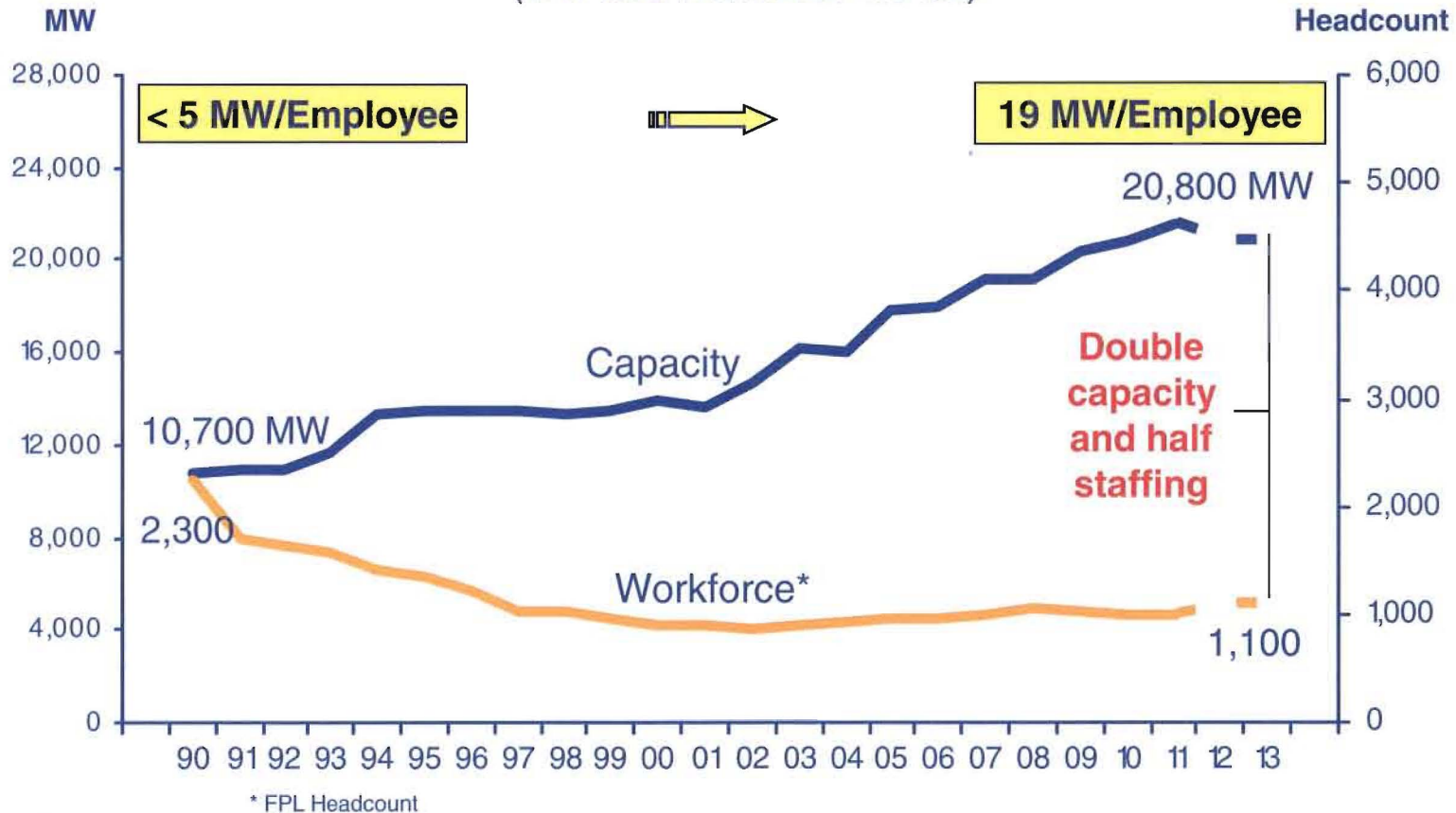
* ~3,000 MW of Steam units at Cape Canaveral 1&2, Riviera 4&5, Cutler 5&6, Sanford 3, and Port Everglades 1-4

** ~2,400 MW of Other (Combined Cycle) units at West County 3 and Cape Canaveral Modernization

Over the 2010-2013 timeframe, FPL has offset fossil planned maintenance overhaul increases and partially offset new unit cost increases through steam unit retirements and miscellaneous reductions.

By 2013, FPL's fossil capacity-managed per employee is projected to be nearly four times better than the rate achieved in 1990 – from less than 5 MW/employee to 19 MW/employee.

FPL Fossil Capacity-Managed per Employee Improvements (MW and Workforce Trends)



Improving generating capacity management also results in lower non-fuel O&M cost to FPL customers.