

City of Miami

Victoria Méndez
City Attorney



Telephone: (305) 416-1800
Telecopier: (305) 416-1801
E-MAIL: Law@miamigov.com

June 23, 2015

Ms. Carlotta Stauffer, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd
Tallahassee, FL 32399

RE: Docket No. 150009-EI

Dear Ms. Stauffer:

Please find enclosed for filing in the above referenced docket the Direct Testimony of **Eugene T. Meehan**. This document is being resubmitted due to formatting errors in the original, which was submitted on June 22, 2015. Other than formatting, the two documents are identical.

If you have any questions or concerns, please do not hesitate to contact me. Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Haber". The signature is fluid and cursive, with a long horizontal stroke at the end.

Matthew Haber
Assistant City Attorney

mh:548206

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 150009-EI

THE CITY OF MIAMI

JUNE 22, 2015

IN RE: NUCLEAR POWER PLANT COST RECOVERY

FOR THE YEAR ENDING

DECEMBER 2016

TESTIMONY & EXHIBITS OF:

EUGENE T. MEEHAN

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **THE CITY OF MIAMI**

3 **DIRECT TESTIMONY OF EUGENE T. MEEHAN**

4 **DOCKET NO. 150009-EI**

5 **June 22, 2015**

6
7 **1. Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.**

8 A. My name is Eugene T. Meehan. I am an independent energy and utility
9 consultant. My address is 7042 Powderhorn Ct., Park City, Utah, 84098. I have
10 prepared pre-filed testimony on behalf of the City of Miami (“the City”).

11
12 **2. Q. PLEASE SUMMARIZE YOUR PROFESSIONAL QUALIFICATIONS.**

13 A. I have over thirty five years of experience consulting with electric and gas
14 utilities. That work has involved examination and advice on many issues related
15 to power markets, power contract design, long term generation expansion
16 planning, competitive bidding and contract evaluation. For the past fifteen years,
17 I have been extensively involved in advising clients on restructuring-related
18 issues, including risk analysis, risk management, power plant and power contract
19 valuation, and post-transition regulatory issues. In recent years, I also have

1 advised several utilities with respect to the acquisition of power from third parties.
2 These assignments have involved the review of power contract offers made by
3 competitive power marketers and owners of generation assets. I have testified
4 several times with respect to the prudence of utility planning and power
5 procurement and the economic implications of specific generation investment
6 decisions, primarily in regard to investment in nuclear facilities. I have performed
7 these assignments as a Senior Vice President with NERA Economic Consulting
8 (“NERA”) (a position I retired from in November 2014), as a Principal at Deloitte
9 Consulting, and a Vice President at Energy Management Associates (“EMA”).
10 Exhibit ETM - 1 contains a more detailed statement of my qualifications.

11
12 **3. Q. PLEASE BRIEFLY SUMMARIZE YOUR EXPERIENCE AS A**
13 **CONSULTANT PROVIDING ADVICE AND TESTIMONY RELATED TO**
14 **THE ECONOMIC ANALYSES OF NUCLEAR INVESTMENTS.**

15 A. In the early 1980s, I advised the owners of the Nine Mile Point 2 on the
16 economics of continuing with construction of the Nine Mile Point 2 nuclear unit.
17 This analysis examined the costs and benefits of continuing with construction of
18 the unit versus abandoning the unit and recovering the investment to date. I
19 testified on the topic before the New York Public Service Commission. In the

1 same general time frame, I worked on similar analyses for the owners of the
2 Allen's Creek and Black Fox nuclear plants. In the mid and late 1980s, I
3 analyzed and testified as to the prudence of the Nine Mile Point 2 nuclear unit and
4 to the prudence of the decision to complete unit 2 at the South Texas Project
5 nuclear plant. In the 1990s, I directed projects for the Public Service Company of
6 Colorado examining the retirement of the Fort St. Vrain nuclear unit, for Central
7 Maine Power Company examining the potential retirement of the Maine Yankee
8 nuclear plant and for Niagara Mohawk Power Company examining the potential
9 retirement of unit 1 at the Nine Mile Point nuclear facility. In 2012, I testified
10 before a Nuclear Regulatory Commission ("NRC") atomic safety and licensing
11 board with respect to the implications of the NRC taking no action regarding the
12 extension of the operating license for the Indian Point nuclear facility. I am
13 currently retained by the Ontario Independent Electricity System Operator to
14 provide a Fairness Opinion with respect to a long term (through the early 2060s)
15 contract for securing the refurbishment and operation of the 6300 MW Bruce
16 nuclear facility.

1 **4. Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE FLORIDA**
2 **PUBLIC SERVICE COMMISSION (“COMMISSION”)?**

3 A. Yes. In 1987, I testified before the Commission on behalf of the investor-owned
4 and larger non investor-owned electric utilities in peninsular Florida on the
5 subject of electric system generation planning and the appropriateness of the
6 model used by those entities in the context of calculating avoided costs.

7
8 **5. Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY.**

9 A. I have been asked by the City to examine the evidence provided by Florida Power
10 & Light Company (“FP&L”), and the consequences for ratepayers, concerning the
11 continued development of Turkey Point units 6 and 7. The purpose of my
12 testimony is to present to the Commission the results of that examination.

13
14 **6. Q. PLEASE EXPLAIN THE FEASIBILITY ANALYSIS CONDUCTED BY**
15 **FP&L WITH RESPECT TO CONTINUING LICENSING AND**
16 **CONSTRUCTION OF UNITS 6 AND 7 AT TURKEY POINT.**

17 A. FP&L has presented the Commission with a lifetime Net Present Value (“NPV”)
18 analyses of the economic implications for ratepayers of continuing to develop
19 Turkey Point units 6 and 7. The need for the first of those units has been delayed

1 until 2027. The analyses presented by FP&L to the Commission in support of the
2 economic case for continued development of the units are based on 40 and 60
3 year operating lives for the units and show the break even capital cost in 2015
4 dollars. If a unit is completed below the break even capital cost, customers
5 benefit on an NPV basis from completion. If a unit is completed at a cost above
6 the break even capital cost, customers will pay more on an NPV basis from
7 completion. In addition to examining 40 and 60 year operating periods, FP&L's
8 analyses also examine several cases with alternate assumptions for items such as
9 natural gas prices and alternate environmental cost assumptions. FP&L's
10 interpretation of its analyses alleges that completing Turkey Point units 6 and 7 is
11 the clear economic choice for customers because in 8 of the 14 scenarios
12 examined the break even costs are above the range of the non-binding
13 construction cost estimate. Similarly, FP&L alleges that in 6 of the 14 scenarios
14 examined, the break even cost is within the range of non-binding construction
15 costs estimates. For those 6 cases, FP&L's position is that the units may be
16 economic. As expected, the results for Turkey Point units 6 and 7 are more
17 favorable when a 60 year operating life is assumed. FP&L's analyses only
18 consider going forward capital costs for the units since the sunk, or already

1 invested, costs will be recovered from customers whether or not construction is
2 completed.

3
4 **7. Q. WHY IS IT PARTICULARLY IMPORTANT TO REVIEW CAREFULLY**
5 **FP&L'S FEASIBILITY ANALYSIS THIS YEAR?**

6 A. The economic analysis of continued construction is very important. While it is
7 true that FP&L has spent approximately \$250 million on Turkey Point units 6 and
8 7 to date and will not be spending very large sums in 2016 given that the date of
9 initial operation has been deferred to 2027, the framework for analyzing the
10 economics of Turkey Point units 6 and 7 ignores sunk costs and considers only
11 costs not yet spent or pledged. This is the correct way to analyze the economics
12 of the investment, but requires that at some points a very hard look be taken at the
13 outlook for the feasibility of the investment. By feasibility I mean the prospect
14 that the investment will be beneficial for ratepayers. There is a danger that an
15 investment such as Turkey Point units 6 and 7 is initially approved, that gradual
16 investments are made over time, that despite changing circumstances continued
17 creeping investments are made without a fundamental re-examination, that sunk
18 costs build up, and that ultimately the plant is justifiably completed based on
19 going forward cost analysis but results in much higher costs for customers than

1 the alternative because sunk costs that are ignored in the economic analysis are
2 reflected in the rate base. The only protection against this situation is periodic,
3 in-depth analyses of completion before significant additional costs are expended
4 or pledged and become sunk costs.

5
6 **8. Q. ARE YOU AWARE OF ANY CURRENT SITUATIONS WHERE SUNK**
7 **COSTS HAVE GROWN TO A VERY HIGH LEVEL AND THE**
8 **CIRCUMSTANCES JUSTIFYING THE INVESTMENT HAVE**
9 **CHANGED?**

10 A. Yes. A recent press report describes claims by a group that allege that that the
11 expansion of Plant Vogtle, which is currently underway in Georgia, has become
12 unnecessary and notes that over \$ 6 billion has been spent. This is an example of
13 a case where plant economics appear to have radically changed since the initial
14 approval to proceed was granted and where there may be a possibility that billions
15 of dollars of investment will be required to be paid for by ratepayers for an
16 investment that could be abandoned or is only viable on a going forward basis
17 because sunk costs are not relevant to decisions concerning future investment.
18 This is a position that the Commission would not want to be in. A very hard look
19 now, before the sunk costs of Turkey Point units 6 and 7 related costs grow to

1 very high levels, could avoid this situation. While it is true that sunk costs are not
2 relevant to going forward economic decisions, it is hard to be objective when sunk
3 costs are significant and it could be difficult to abandon an investment with
4 billions of dollars in sunk costs despite the prospect that returns on future
5 investment would be negative. I do not have any view as to whether the
6 investment in the units in Georgia remains economic, but do believe it is correct
7 that sunk costs have reached high levels and that assumptions have changed with
8 respect to the cost of alternatives.

9
10 **9. Q. IN YOUR OPINION IS THE FEASIBILITY ANALYSIS SUBMITTED BY**
11 **FP&L A REASONABLE BASIS FOR CONCLUDING THAT TURKEY**
12 **POINT UNITS 6 AND 7 REMAIN COST-EFFECTIVE FOR**
13 **RATEPAYERS?**

14 A. No. While I recognize that the analysis continues a process of presenting the
15 feasibility of Turkey Point units 6 and 7 by comparing NPV break even costs to
16 the non-binding construction costs range, I do not believe it is reasonable at this
17 time. The Turkey Point units 6 and 7 project is at a critical point in its life cycle.
18 First, there have been major changes in the long term outlook for the primary
19 alternative, which is natural gas. Second, the need for Turkey Point units 6 and 7

1 has been delayed to the latter half of the next decade and environmental
2 regulations on alternatives that are still speculative may be known with more
3 certainty in a short time. Third, new nuclear units that have progressed more
4 rapidly than Turkey Point have been experiencing construction delays and costs
5 increases. Fourth, new nuclear units that were not supported by ratepayer backing
6 that were planned around the same time as Turkey Point have been essentially
7 abandoned. Finally, the economic justification for Turkey Point units 6 and 7 is
8 increasingly dependent upon a 60 year life assumption, with that 60 year life
9 starting twelve years from now. In FP&L's analysis in 5 of the 7 cases assuming
10 a 40 year life, Turkey Point falls in the category that FP&L categorizes as "may"
11 be economic. That is a weak endorsement of an investment that according to
12 FP&L witness Steven Scroggs will range from \$13.7 to \$20 billion. All signs
13 clearly point to the need for a thorough, in-depth evaluation of the Turkey Point
14 units 6 and 7 investment at this time, when it is clear that the circumstances under
15 which the investment was approved have changed radically. Additionally, the
16 time is opportune. Sunk costs are still relatively low and the need for the capacity
17 is well into the future. At this juncture, the impact on customers of terminating
18 the project and having the sunk costs reflected in rates would be manageable. A
19 thorough investigation at this time could avoid two potentially bad outcomes.

1 The first would be an outcome where several years down the road such an
2 examination reveals the plant is not viable and sunk costs have grown to the point
3 where they are a much larger burden on ratepayers. The second is an outcome
4 where several years down the road such an examination reveals the plant is viable
5 on a going forward basis but will be more costly on a total costs basis than the
6 alternative. The point is that the circumstances at the current time both require
7 and facilitate a more in depth examination of the Turkey Point units 6 and 7
8 investment than FP&L has conducted. Projects can take on a life of their own
9 and the simple facts that, first, the natural gas price outlook has changed radically
10 from when Turkey Point units 6 and 7 were initially approved and, second, the
11 need for capacity has moved far enough into the future to raises concerns over
12 how the project can maintain economic feasibility.

13
14 **10. Q. ARE THERE SPECIFIC FACTORS THAT SHOULD BE CONSIDERED**
15 **BUT THAT ARE NOT CONSIDERED IN FP&L'S FEASIBILITY**
16 **ANALYSIS?**

17 A. Yes. The FP&L feasibility analysis in this case does not sufficiently consider or
18 explain the following factors:

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- The consequences of assuming that natural gas-fired alternatives will add \$ 1.7 billion in the NPV of revenue requirements.
- The consequences of the assumptions with respect to carbon (“CO²”) costs.
- The time pattern of rate impacts and the risks associated with benefits that take so long to materialize.
- The uncertainty of the construction schedule and costs assumptions.

At a minimum, these issues need to be fully explored.

11. Q. WHAT FLAWS DO YOU SEE WITH THE ASSUMPTIONS MADE FOR THE TRANSMISSION COSTS AND THE CARBON (“CO²”) COST BENEFITS OF TURKEY POINT UNITS 6 AND 7?

A. The units only appear economic because of these two assumptions. Absent these projected savings in transmission and CO² costs, the breakeven cost would be at least 20% below the bottom end of the non-binding cost range in all seven scenarios that FP&L examined assuming a forty year life of the reactors. Assuming a 60 year life, the breakeven cost would be below the bottom end of the non-binding cost range in five of the seven scenarios that FP&L examined and would be below the midpoint of the non-binding cost range in two of the seven

1 scenarios that FP&L examined. In no scenario would the breakeven cost exceed
2 the midpoint of the non-binding cost range. I believe it is fair to say that given
3 these economics, the project could not be viewed as viable. Hence, it is also fair
4 to say that the feasibility of the project depends upon the assumptions made with
5 respect to the transmission costs associated with the gas-fired alternative to
6 Turkey Point units 6 and 7 and with respect to the carbon cost assumptions.

7
8 **12. Q. WHAT CONCERNS DO YOU HAVE WITH RESPECT TO THE**
9 **ASSUMPTION MADE IN FP&L'S SUBMISSION CONCERNING THE**
10 **TRANSMISSION COMPONENT OF THE ALTERNATIVE TO THE**
11 **PROJECT?**

12 A. It is my understanding that FP&L's analysis assumed that if gas-fired combined
13 cycle units ("CCs") are constructed as an alternative to Turkey Point units 6 and
14 7, they will not be able to be constructed in southeast Florida. Hence, an
15 alternative will require a transmission investment with a NPV of revenue
16 requirements of \$ 1.7 billion in excess of that transmission investment associated
17 with Turkey Point units 6 and 7 to import the power from the north. This one
18 assumption increases the breakeven cost by over \$ 800 per KW. Prior to the
19 Commission accepting, as reasonable, FP&L's feasibility analysis, which would

1 result in substantial commitments and investment costs, it should require FP&L to
2 fully examine and support this assumption. To do otherwise would be imprudent.

3
4 **13. Q. WHAT CONCERNS DO YOU HAVE WITH RESPECT TO THE CARBON**
5 **(“CO²”) COST ASSUMPTION IN FP&L’S FEASIBILITY ANALYSIS?**

6 A. This assumption is even more critical. I estimate that carbon costs, depending
7 upon the environmental case, add from just over \$ 1400 per KW to over \$ 2600
8 per KW to the breakeven cost. I do not think it is unreasonable to attach a
9 monetary value to carbon as over the 2027 to 2088 period during which Turkey
10 Point units 6 and 7 would operate, some type of carbon limit and associated costs
11 would appear more likely than not. At a minimum, however, the Commission
12 should be fully informed of the importance of this assumption and the very large
13 contribution of this factor to the economic feasibility of Turkey Point units 6 and
14 7. With carbon costs adding between \$ 1400 per KW and \$ 2600 per KW to
15 breakeven costs, it is reasonable to say that the economic feasibility of Turkey
16 Point units 6 and 7 hinges on the avoided carbon costs. However, the carbon
17 price assumptions made by FP&L do not pass a common sense test. The carbon
18 price assumed in 2026 rises over a 43 year period by a factor of over 20 times
19 reaching up to eight times that which would result from inflation alone. In

1 comparison, over a 43 year period from 1972 to the present, the cost of tuition at
2 Harvard rose by three times that which would result from inflation alone. I use
3 this example because the cost of college tuition is a primary example of a cost that
4 is out of control and rising rapidly in real terms. A price forecast that predicts a
5 price will be 8 times the increase resulting from inflation is not consistent with
6 common sense. I would also note that FP&L forecasts sulfur dioxide allowance
7 prices to be zero. This is in line with consensus. But it does raise a concern that
8 if over time market prices for sulfur dioxide allowances, which reached as high as
9 \$ 800 a ton, have fallen to zero in just over 20 years, does it make any sense that
10 CO² prices in 54 years from the present will be at level 8 times that which would
11 result from just inflation? Because the assumption is so critical to the feasibility
12 of the plant, it would be imprudent to not thoroughly examine this assumption
13 before making a commitment of investment that ratepayers will bear whether or
14 not the plant is completed. The current forecast used by FP&L was developed by
15 one outside consultant and is not supported by testimony in this proceeding, but is
16 critical to the conclusion that the Turkey Point units 6 and 7 project is reasonable
17 and viable. I calculated carbon impacts by ratably spreading the 290 million tons
18 of carbon that is claimed to be avoided by the addition of Turkey Point units 6 and
19 7 (see page 26, line 14 of testimony of Richard O. Brown) over the units'

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operating life and then valuing each year's ratable reduction by the annual carbon price assumption for the relevant environmental scenario. Carbon reductions should be more or less ratable as Turkey Point is replaced with very efficient capacity in the alternate scenario. In any case given the pattern of carbon price escalation variations in annual carbon reductions from a ratable pattern would not have a material impact on results. I discounted the aggregate carbon values to the beginning of 2015, while FP&L discounts these values to year end 2015, thereby conservatively underestimating somewhat the impact of FP&L's extreme carbon assumption. Additionally, I calibrated the reasonableness of the estimates I made of the carbon costs impact assumption on breakeven costs by comparing the breakeven cost differences between FP&L's Environmental 1 and Environmental 2 cases. The primary difference between those two cases is the cost of carbon.

1 **14. Q. ASSUME HYPOTHETICALLY THAT FP&L'S CARBON ("CO²") COST**
2 **FORECAST WAS REASONABLE. WOULD THE FP&L FEASIBILITY**
3 **ANALYSIS THEN BE A REASONABLE BASIS FOR CONCLUDING**
4 **THAT TURKEY POINT UNITS 6 AND 7 WAS COST-EFFECTIVE FOR**
5 **RATEPAYERS?**

6 A. No, the FP&L analyses would still be seriously deficient. In any planning
7 analysis, simplifications are required to perform reasonable analysis without
8 examining every possible option. These simplifications must be examined to
9 understand what assumptions have been made and their effects on the resulting
10 analysis. One simplification that FP&L has made is to not look at timing options.
11 By this I mean that FP&L has not looked at deferring new nuclear in service dates
12 until, for example, 2047 and meeting interim needs with gas plants. FP&L has
13 not looked at other non-carbon emitting technologies that are, in the long run,
14 potentially more economic than new nuclear plants. The extremely high emission
15 costs assumed by FP&L could result in radical changes to the level and to the
16 seasonal and hourly pattern of demand and there is no indication that FP&L has
17 examined these potential changes. Normally, judgments must be made to keep
18 the analysis tractable. Even given the scope of investment, \$ 13 to \$ 20 billion,
19 such judgments that limit scope can be reasonable. However, FP&L's judgments

1 fail to be reasonable because the future assumed is radically different from the
2 present. FP&L assumes that carbon prices will rise by eight times inflation. A
3 scenario where the cost of carbon rises by eight times inflation qualifies as
4 radically different. In such a case, an experienced planner would recognize that
5 the typical analyses and typical simplifications are not reasonable in the context of
6 a radically different carbon cost scenario. Hence, even if FP&L's carbon
7 assumptions, as posited in the hypothetical, were reasonable, FP&L's analysis
8 cannot be relied on by an experienced planner to produce a reasonable result with
9 respect to the costs effectiveness of Turkey Point units 6 and 7.

10
11 **15. Q. CAN YOU PROVIDE AN ADDITIONAL EXAMPLE OF WHY YOU**
12 **CONSIDER FP&L'S CARBON COST ASSUMPTIONS EXTREME?**

13 A. Yes. In reviewing data that FP&L provided in a request for a production of
14 documents, I observed that in the high fuel cost scenario for Environmental Case
15 3 without Turkey Point units 6 and 7, total system fuel costs in 2067 are \$ 28
16 billion while total system emission costs are \$ 57 billion. Nitric oxide costs are
17 included in emission costs but are constant in real terms and it is carbon costs that
18 drive this result. In my opinion an analysis that shows total system emission costs
19 being double total system fuel costs (and remember this is the high fuel cost

1 scenario), is extreme and cannot be relied upon to support a finding of feasibility
2 without extensive probing of the reasonableness of the assumption leading to such
3 a result.

4
5 **16. Q. HAVE YOU PREPARED EXHIBITS THAT WOULD SHOW THE**
6 **IMPACT ON BREAKEVEN COST OF ALTERNATE ASSUMPTIONS**
7 **WITH RESPECT TO THE TRANSMISSION ADVANTAGE AND**
8 **CARBON COST ADVANTAGE?**

9 A. Yes. Exhibits ETM-2 and ETM-3 show the impact of alternate assumptions for
10 several different scenarios with respect to the transmission and carbon cost
11 advantages of Turkey Point units 6 and 7. I have used FP&L's assumptions for
12 all other factors and FP&L's methodology. In the vast majority of scenarios
13 assuming a forty year life, breakeven costs are below the bottom end of the non-
14 binding cost range. In the vast majority of scenarios assuming a sixty year life,
15 breakeven costs are within the non-binding cost range – the zone that FP&L
16 characterizes as “may” be economic. These exhibits clearly illustrate that
17 economic feasibility comes from a single source: the extreme assumptions made
18 with respect to carbon value.

19

1 **17. Q. WHAT CONCERNS DO YOU HAVE WITH THE NUMBER OF YEARS**
2 **REQUIRED FOR THE INVESTMENT TO PRODUCE A NET PRESENT**
3 **VALUE (“NPV”) BENEFIT?**

4 A. The difference between the 40 year and the 60 year projections raise significant
5 concerns in this regard. The time pattern of costs and benefits is difficult to
6 visualize as the cases with Turkey Point and without Turkey Point have radically
7 different rate impacts over time. Even assuming that costs and schedule are as
8 planned, FP&L customers will pay over \$2 billion toward Turkey Point units 6
9 and 7 before a single KWH is produced. With the gas alternative, the amounts
10 paid before the plant produces would be an order of magnitude lower as the plants
11 are much less capital intensive and have a much shorter construction period. I do
12 not question the likelihood that Turkey Point, if built would operate for 60 years.
13 However, the economic feasibility seems to rely on the 60 year case and in my
14 opinion, the fact the plant will likely operate for 60 years is not the largest issue.
15 The largest issue is: if an investment is not feasible over 40 years and requires 60
16 years to attain feasibility on a present value basis, does the investment present an
17 acceptable risk profile? In this case, we have an investment that will not produce
18 power until 2027, will require ratepayer funding of at least \$ 2 billion through
19 2027 and will only begin to breakeven on a present value basis 40 years after it

1 enters service, in the late 2060s or 50 years from today. Only a minority of
2 ratepayers who pay the \$ 2 billion in pre operation funding will ever receive a
3 present value payback and even they will have to wait over 50 years from today to
4 break even. That is a very long term view. A legitimate question for the
5 Commission to address is whether the time pattern of costs and benefits is
6 reasonable even if it finds that over a 60 year life or over 70 years from today the
7 investment is likely to eventually result in a present value benefit. A very
8 different set of ratepayers will pay than the set that will benefit.

9
10 **18. Q. WHAT CONCERNS DO YOU HAVE WITH THE COST AND SCHEDULE**
11 **ASSUMPTIONS?**

12 A. Cost and schedule are always a concern with a major construction project. It is
13 likely that if the Commission were to require a thorough examination of the
14 transmission and carbon advantage of Turkey Point 6 and 7, that achieving
15 ultimate construction on schedule and near the low end of the non-binding cost
16 range will be critical to feasibility. FP&L's economic feasibility analyses make it
17 appear that the project is robust to the final cost. I do not believe this is correct.
18 If a thorough examination were to confirm feasibility through breakeven costs in
19 the range of the non-binding costs estimate, the finding of feasibility would be

1 contingent on the plant coming in on schedule and on budget. Hence, in my
2 opinion a more complete review of construction costs and schedule is needed.

3
4 **19. Q. DO YOU BELIEVE IT IS LIKELY THAT THE VALUE OF FUEL**
5 **DIVERSITY PROVIDED BY TURKEY POINT UNITS 6 AND 7 COULD**
6 **OUTWEIGH POTENTIAL SHORTCOMINGS IN THE ANALYSIS WITH**
7 **RESPECT TO CARBON COST ASSUMPTIONS?**

8 A. In my opinion, that would be unlikely. If feasibility is to be justified based on fuel
9 diversity, the value of that diversity should be quantified. FP&L has not quantified
10 the value to ratepayers of increased fuel diversity.

11
12 **20. Q. PLEASE SUMMARIZE YOUR FINDINGS.**

13 A. The investment in Turkey Point units 6 and 7 was approved at a time when the
14 natural gas supply and price outlook was much less optimistic than it is today.
15 Since the time that the investment in Turkey Point units 6 and 7 was approved, the
16 need for capacity from the units has slipped to 2027. FP&L's analyses in this
17 proceeding show that there is an alternative plan that would and could be
18 implemented if Turkey Point units 6 and 7 were cancelled. FP&L's analyses also
19 provide data that clearly demonstrates that Turkey Point units 6 and 7 are only

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economically feasible at the current time because of FP&L's assumptions with respect to the incremental transmission costs associated with the alternative and the carbon costs savings alleged by FP&L from Turkey Point units 6 and 7. Believing those assumptions requires believing that, in 2067, FP&L's total system emission costs will be twice FP&L's total system fuel costs in a high fuel cost scenario. Nuclear plants that were planned on a merchant basis around the time that Turkey Point units 6 and 7 were approved are not moving forward. The Plant Vogtle expansion in Georgia that was also approved in a similar time frame is well behind schedule and is being challenged after having expended over \$ 2 billion. Even assuming that FP&L's assumptions and analyses were all perfect, present value benefits in many cases are not achieved until 50 years from now, while customers pay \$ 2 billion toward construction financing over the next 12 years. This constitutes a very long payback period and many current customers will never be paid back. Currently, only \$ 250 million has been invested in Turkey Point units 6 and 7. Prior to approving any significant additional expenditures or commitments it would be prudent for the Commission to require an in-depth investigation that, at a minimum, examines the reasonableness of the transmission costs advantage attributed to Turkey Point units 6 and 7, the reasonableness of the magnitude of the carbon cost advantage attributed to Turkey

1 Point units 6 and 7, the degree of confidence in the non-binding construction cost
2 range and the construction schedule and the reasonableness of proceeding with an
3 investment that may only achieve a present value breakeven over 50 years from
4 today. The time is opportune for such an investigation because the level of sunk
5 investment that would need to be recovered is manageable. While the record and
6 schedule in this proceeding does not allow for such in depth examinations, FP&L
7 is not intending to make significant additional investments or commitments over
8 the next year. The Commission would be prudent to require a more in depth
9 examination of Turkey Point units 6 and 7 before any such investments or
10 commitments are made.

11
12 **21. Q. DOES THIS COMPLETE YOUR TESTIMONY?**

13 A. Yes.