

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

ORIGINAL

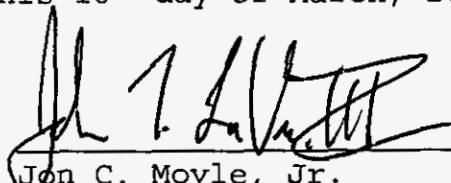
In re: Petition for Determination )  
of Need for an Electrical Power Plant) DOCKET No. 991462-EU  
in Okeechobee County by Okeechobee )  
Generating Company, L.L.C. ) Filed: March 14, 2000

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**OKEECHOBEE GENERATING COMPANY'S  
NOTICE OF FILING AND SERVICE OF  
SUPPLEMENTAL REBUTTAL TESTIMONY OF DALE M. NESBITT**

Okeechobee Generating Company, L.L.C., by and through its undersigned attorneys, hereby gives notice that on this 16<sup>th</sup> day of March, 2000, it filed the supplemental rebuttal testimony of its witness, Dale M. Nesbitt, and served copies of same as indicated on the attached Certificate of Service.

Respectfully submitted this 16<sup>th</sup> day of March, 2000.



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**CERTIFICATE OF SERVICE**  
**DOCKET NO. 991462-EU**

I HEREBY CERTIFY that a true and correct copy of the foregoing has been served by hand delivery (\*), Federal Express (\*\*), or by United States Mail, on the following individuals this 16<sup>th</sup> day of March, 2000.

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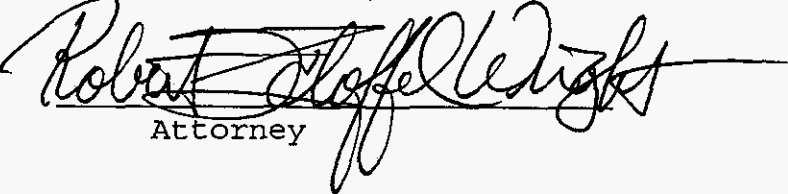
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ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition for Determination )  
of Need for an Electrical Power )  
Plant in Okeechobee County )  
by Okeechobee Generating )  
Company, L.L.C. )

DOCKET NO. 991462-EU

FILED: MARCH 16, 2000

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REPORTING

SUPPLEMENTAL REBUTTAL TESTIMONY

OF

DALE M. NESBITT, Ph.D.

ON BEHALF OF

OKEECHOBEE GENERATING COMPANY, L.L.C.

REBUTTAL TO THE TESTIMONY OF CHARLES J. CICCHETTI, Ph.D.,  
TO THE TESTIMONY OF DAVID W. SOSA, Ph.D., TO THE  
SUPPLEMENTAL TESTIMONY OF JOHN H. LANDON, Ph.D.,  
AND TO THE SUPPLEMENTAL TESTIMONY  
OF SAMUEL S. WATERS

AFA \_\_\_\_\_  
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CAF \_\_\_\_\_  
CAN \_\_\_\_\_  
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EAO \_\_\_\_\_  
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**SUPPLEMENTAL REBUTTAL TESTIMONY OF**

**DALE M. NESBITT, Ph.D.**

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

**A: My name is Dale M. Nesbitt, and my business address is 27121 Adonna Court, Los Altos Hills California 94022.**

**Q: Are you the same Dale M. Nesbitt who has previously submitted direct and rebuttal testimony in this proceeding?**

**A: Yes, I am.**

**Q: What is the purpose of your supplemental rebuttal testimony?**

**A: The purpose of my supplemental rebuttal testimony is to rebut various erroneous assertions in the testimony of Charles J. Cicchetti, in the testimony of David Sosa, in the supplemental testimony of John H. Landon, and in the supplemental testimony of Samuel S. Waters.**

**REBUTTAL TO THE TESTIMONY OF DR. CHARLES J. CICCETTI**

**Q: What is your overall assessment of Dr. Cicchetti's testimony?**

1 A: It is a misguided, unwise, and unsound appeal for denial of merchant  
2 entry in favor of continuation of cost of service regulation. Dr. Cicchetti's  
3 position is particularly egregious against the backdrop of both (a) reality,  
4 where merchant plants are flourishing with regulatory encouragement  
5 throughout the U.S. and the world; and (b) theory, where the guiding  
6 principle of regulation is to achieve a result as close as possible to that  
7 which would obtain in a competitive market. Here, the market is  
8 competitive, or at least has the potential to be with artificial constraints on  
9 entry, yet Dr. Cicchetti argues against letting the market do its job. I am  
10 not aware of a single failure of relying on competitive markets in any  
11 industry anywhere in the United States or the world (although the jury  
12 may still be out for some). Allowing the emergence of unregulated,  
13 merchant, fringe competitors such as OGC is the ideal way to get started.  
14 In my view, Dr. Cicchetti's idea of perpetuating cost of service regulation  
15 by thwarting merchant entrance is so anachronistic and archaic as to be  
16 virtually self rebutting. However, I have specific disagreements  
17 throughout Dr. Cicchetti's flawed testimony that I will discuss in this  
18 rebuttal testimony.

19 I should also mention that Dr. Cicchetti wrongly and misleadingly  
20 asserts that entry of the OGC facility will not cause price decreases

1 throughout the FRCC, and the vast majority of the analysis he puts forth  
2 in his rebuttal centers on that assertion. Even though he tries to obscure  
3 the dependence of virtually all his analysis on that assertion, it lies at the  
4 heart of his testimony. Once his assertion that the OGC facility will not  
5 reduce market clearing prices throughout Peninsular Florida is debunked,  
6 it is apparent that Dr. Cicchetti's testimony is largely meaningless.

7

8 **Q: On page 4 of his testimony, Cicchetti states that : “Perfect**  
9 **competition should not be compared either with imperfect regulation,**  
10 **biased descriptions of regulation, or the current form of regulation in**  
11 **Florida.” Please comment.**

12 **A: I ardently disagree with Dr. Cicchetti. I agree with the sentiment**  
13 **expressed in the work of Dr. Alfred Kahn, who states on page 17 of his**  
14 **classic textbook on regulation entitled The Economics of Regulation:**  
15 **Principles and Institutions, (MIT Press, Cambridge, 1988) that: “ . . . the**  
16 **single most widely accepted rule for the governance of the regulated**  
17 **industries is regulate them in such a way as to produce the same results as**  
18 **would be produced by effective competition.” Dr. Kahn himself holds out**  
19 **the competitive market paradigm as the paragon, the ultimate yardstick.**  
20 **Dr. Kahn would disagree with Dr. Cicchetti’s self appointed repeal of the**

1 paradigm of the perfect competition yardstick in favor of some other  
2 unspecified form.

3 Dr. Kahn goes on to state on page 65 of his classic text: “The  
4 central policy prescription of microeconomics is the equation of price and  
5 marginal cost.” Again, perfect competition is held out as the regulatory  
6 ideal. Dr. Kahn continues: “As almost any student of elementary  
7 economics will recall, marginal cost is the cost of producing one more  
8 unit; it can equally be envisaged as the cost that would be saved by  
9 producing one less unit. Looked at the first way, it may be termed the  
10 incremental cost—the added cost of (a small amount of) incremental  
11 output. Observed in the second way, it is synonymous with avoidable  
12 cost—the cost that would be saved by (slightly) reducing output.”

13 Dr. Cicchetti’s statement is directly contradicted by the work of Dr.  
14 Kahn. Dr. Kahn’s argument demonstrates that Dr. Cicchetti’s comment is  
15 inconsistent with what “almost any elementary student of elementary  
16 economics will recall” -- in the words of Dr. Kahn -- that perfect  
17 competition is indeed the ideal, both of regulation and of unregulated  
18 competitive markets. Perfect competition is known to “almost any  
19 elementary student of elementary economics” to maximize economic  
20 efficiency. Perfect competition is de facto more efficient and creates a



1 bigger pie than any other market structural form. This is not a question of  
2 opinion. It is a question of established mathematical and economic fact  
3 and cannot be repealed on the whim of Dr. Cicchetti.

4

5 **Q: On page 5 of his testimony, Cicchetti states that “Competition should**  
6 **not be micromanaged if economic efficiency is to be achieved.” Please**  
7 **comment.**

8 **A:** I agree with the sentiment of that comment. Specifically, I would  
9 heartily agree that entry of willing and able competitors should not be  
10 micromanaged by attempting to determine how many competitors is "too  
11 many" and to draw a regulatory line foreclosing further entry. Dr.  
12 Cicchetti's statement, however, is utterly at odds with the rest of Dr.  
13 Cicchetti's testimony. (On page 10 in lines 17-18 he advocates “prudence  
14 reviews, hearings on need, and used and useful concepts to disallow costs  
15 . . . ” On page 11 in lines 16-18 he mentions “ . . . regulators across the  
16 nation have generally adopted and used integrated resource planning and  
17 similar regulatory approaches . . . ” On page 12, he states “Regulators  
18 generally use least cost planning to prevent unnecessary investments and  
19 to cause necessary investments to be made. Regulators also have  
20 sufficient rate making control . . . . Disallowances at past prudence

1           hearings . . . the omnipresent prudence review threat . . . . Further,  
2           regulators can control utilities through the allowed Return on Equity  
3           (ROE)...” Dr. Cicchetti gives a literal cornucopia of regulatory  
4           micromanagement alternatives – applicable to conventional, rate-base-  
5           regulated utilities -- throughout his testimony as an alternative to allowing  
6           the simplest possible alternative—entry of the OGC plant. He is not even  
7           consistent within his own testimony.

8           Dr. Cicchetti’s comment that competition should not be  
9           micromanaged is ironic in that it is immediately contiguous to literally  
10          100 pages of testimony telling the Florida PSC exactly how and why to  
11          micromanage the delay of merchant entry and how and why to perpetuate  
12          cost of service regulated electric utilities. Cost of service regulation is the  
13          quintessential micromanagement technique. To ensure proper  
14          administration of the type Dr. Cicchetti advocates requires extreme  
15          micromanagement in many of the forms Dr. Cicchetti himself puts forth,  
16          as contrasted with fostering a flourishing competitive merchant sector  
17          starting with bona fide, high quality, low cost entrants such as OGC.

18          Dr. Kahn tells us that the most efficient solution in an industry that  
19          is not a natural monopoly is the perfectly competitive solution, which, in  
20          wholesale power markets (which are intrinsically competitive) is best

1 achieved by regulators limiting their intervention and allowing entry and  
2 operation by independent, autonomous, atomistic, competitive merchant  
3 entrants. That is precisely what OGC is, an independent, autonomous,  
4 atomistic, competitive merchant entrant. The OGC proposal for merchant  
5 entry is literally a classic textbook example of what regulators should  
6 allow because it conforms exactly with the perfect competition paradigm.  
7 In my view, electric generation displays generally constant returns and  
8 ultimately decreasing returns to scale, and entry with virtually identical  
9 equipment by any atomistic producer is easy.

10 In order to argue against a perfectly competitive wholesale  
11 electricity market, one would have to argue that the factor markets or the  
12 customer markets are imperfect and in fact so highly distorted that the  
13 “second best” problem would point toward suspension of or intervention  
14 in an otherwise competitive wholesale electricity market. None of these  
15 factors is present in wholesale power markets. Assuredly upstream fuel  
16 markets are highly competitive and are far from imposing second best  
17 reconsiderations on power markets that would point toward continued  
18 regulation. The demand side of the wholesale power market is likewise  
19 not so distorted as to obviate a competitive wholesale market. Regulatory  
20 rules favor least cost power purchase (Dr. Cicchetti’s least cost purchase

1 policy), and they need not impose second best reconsiderations on power  
2 markets that point toward continued regulation. The wisdom of  
3 promoting competitive wholesale power markets cannot be refuted or  
4 overturned based on second best distortionary arguments such as Dr.  
5 Cicchetti advances.

6

7 **Q: On page 5 of his testimony, Cicchetti states that “Deregulation works**  
8 **best in the short run for consumers when supply exceeds demand, not**  
9 **vice versa.” On page 25 of his testimony, Dr. Cicchetti states: “A**  
10 **regulatory policy that encourages both 'least cost' and 'least price'**  
11 **when these concepts conflict works best when supply is short relative**  
12 **to demand. Regardless, few politicians are brave enough to**  
13 **deregulate when supply is tight. The only imaginable circumstance**  
14 **would be when, ‘but for’ deregulation, there would be insufficient**  
15 **incumbent investment to expand supply and/or to capture the**  
16 **efficiency improvements of new technology. These exceptions are not**  
17 **relevant for Florida. I mostly find them in third world nations.” Do**  
18 **you agree?**

19 **A: No. This argument is contradicted and disproven by the major**  
20 **deregulations of our time. The United States has undergone and**

1 flourished under precisely the same type of deregulation he eschews at  
2 least four times in the past. Dr. Cicchetti implies that the type of  
3 deregulation we have experienced in the past two decades is specific to  
4 “developing countries.” Would he therefore argue that the United States  
5 is or has been what he terms a third world country, for the United States  
6 has at least four times in the past done exactly what Dr. Cicchetti has  
7 argued they would not have the political will to do.

8 Consider one of the classic deregulations of our era—crude oil  
9 wellhead price deregulation. Crude oil wellhead price controls were lifted  
10 in approximately 1978 when United States and world crude oil production  
11 outside OPEC were at or near their approximately all-time level of  
12 scarcity of supply relative to demand. Crude oil wellhead price was  
13 decontrolled at literally the height of crude oil scarcity, between the 1973  
14 interruption and the 1979 Iranian revolution. Since the day of wellhead  
15 price decontrol, the path of real, inflation adjusted crude oil price has been  
16 inexorably down following the Iranian revolution, which was an  
17 anomalous, external event. In fact the pathway downward was so  
18 continuous and so relentless that the infamous “windfall profits taxes” that  
19 were designed to slay precisely the same nonexistent dragons -- price  
20 flyup and excessive rents by domestic producers – that Dr. Cicchetti

1 would have us believe haunt the FRCC electric business, were quietly and  
2 unceremoniously abandoned by the same Congress that had enacted them  
3 several years earlier. If Dr. Cicchetti had been advising Congress the  
4 same way in 1978, perhaps they might never have decontrolled wellhead  
5 prices because it would have hurt consumers in the short run—such  
6 deregulation would not have “worked best” to coin Dr. Cicchetti’s  
7 lexicon. The reality of post 1978 crude oil wellhead price decontrol was  
8 inexorable and continuous erosion in world and domestic oil price. In  
9 sharp contrast to Dr. Cicchetti’s comments, crude oil was deregulated  
10 literally at the height of its scarcity, literally at the height of the time at  
11 which demand exceeded supply and OPEC’s market share was at its apex.  
12 The history and consumer benefits of crude oil price decontrol is  
13 spectacular in spite of the fact that it directly contradicts Dr. Cicchetti’s  
14 incorrect assertion that such deregulation should occur at a time of surfeit  
15 supply. Real crude oil prices may have fallen by ½ or so since that time.

16 Natural gas price decontrol at the wellhead has followed quite the  
17 same pattern as crude oil and precisely the pattern Dr. Cicchetti said  
18 would not occur. Natural gas wellhead price was decontrolled in 1978 at  
19 precisely the height of domestic natural gas scarcity. Public law was not  
20 allowing gas generation units to be built, and such units were the first to

1 be curtailed because of chronic natural gas shortages. Curtailments and  
2 rationing were occurring virtually every winter. Most people believed we  
3 were “running out of gas.” The Gas Research Institute (GRI) was  
4 founded to accelerate gas-related research and development. Oil and gas  
5 drilling were at a literal standstill because of lack of producer incentives at  
6 the then-prevailing low, price-capped gas and oil prices. We were hearing  
7 the deregulation dragonslayers continuously citing the impending “gas  
8 price flyups” that were positioned to harm gas customers the minute  
9 Congress released the price caps.

10 When wellhead prices were decontrolled, real, inflation-adjusted  
11 natural gas prices began an inexorable and continuous fall, not just at the  
12 wellhead but throughout the entire natural gas system including the  
13 residential sector, the commercial sector, the industrial sector, and the  
14 generation sector alike. Prices fell in every sector as the commodity price  
15 fell and as the pipeline and distribution costs fell along with it, buoyed by  
16 the landmark, watershed FERC Order 436. Natural gas deregulation,  
17 which was initiated at the height of the shortage of supply in the United  
18 States gas industry history, has been a rousing success that directly  
19 contradicts Dr. Cicchetti’s assertion.

1           As a third example, airline deregulation also directly contradicts Dr.  
2           Cicchetti's allegation. When airlines were deregulated, the consulting  
3           company I had co-founded, Decision Focus, Incorporated (DFI) was hired  
4           to work for United Airlines to conceive and build what ultimately became  
5           the seat pricing software and the fleet assignment software that is still in  
6           use today. Was North America short or long on airplane capacity when  
7           deregulation first occurred? Some might argue that the industry was long,  
8           but that was not the case. To see why we were short of capacity, consider  
9           that when deregulation first occurred, United Airlines was maintaining  
10          and keeping some 20 planes sitting in reserve on the tarmac at O'Hare  
11          (and other airports) to backstop the reliability of a 600 plus plane fleet of  
12          DC-8, DC-10, 727, 737, and 747 aircraft. Within the blink of an eye,  
13          United sold off virtually its entire fleet of DC-8 aircraft to lesser overseas  
14          airlines and replaced them with DC-9 (later MD-80) and 737 aircraft and  
15          moved to much lower cost hub and spoke operations. United was actually  
16          very short of cost effective capacity and cost effective management  
17          practices when deregulation occurred and was very long on expensive  
18          capacity and practices, precisely the situation Dr. Cicchetti fears. Now,  
19          some fifteen years later, reliability expressed in terms of the number of  
20          airplane equipment failures has remained approximately constant, but



1 passenger miles have tripled and real airline ticket prices have dropped by  
2 perhaps half. (Dr. Noll of Stanford assembles and publishes such  
3 statistics.)

4 As a final example, expressed in real 2000 dollars of the day, world  
5 gold prices were probably 3-5 times as high as they are today when  
6 Bretton Woods was repealed and gold prices were effectively deregulated.  
7 Back then, gold production was much lower, and gold was in short  
8 supply. Technology for gold production was primitive by today's  
9 standards (heap leaching, improved cyanate and chloride production).  
10 People were hoarding gold as an investment. Now some 25 years later,  
11 gold prices are literally in the basement and gold supply is at an all time  
12 high. Technology has rocketed ahead. This is yet another case of  
13 deregulating a commodity at the height of its scarcity producing lower  
14 prices and increased supply, again contradicting Dr. Cicchetti's assertion.

15

16 **Q: Dr. Cicchetti asserts that rate base regulation, or cost-of-service**  
17 **regulation, is less costly if Florida is relatively certain about what is**  
18 **needed and how it should be supplied. Please comment.**

19 **A: Dr. Cicchetti is implicitly arguing that a centralized, command and control**  
20 **Florida electric system managed by a single, omniscient, central**

1 regulatory decision-maker would lead to lower cost power in the state.  
2 That theory has been soundly debunked in every industry that has  
3 deregulated or privatized from highways in Alberta to gas in the United  
4 States. The only instance in which this assertion would be true would be  
5 where the competitive market was inefficient at attracting the  
6 economically efficient amount of entry but the regulatory process did  
7 achieve exactly the efficient amount of entry. If the regulatory system did  
8 achieve the efficient result, it would be at the output and price levels at  
9 which price equals long run marginal cost, including a normal rate of  
10 return on investment, which is exactly the same output-price outcome that  
11 a competitive market would be expected to produce There is every reason  
12 to believe that the wholesale power market in Peninsular Florida is  
13 relatively efficient at attracting entry, given the known number of  
14 announced entrants into this market (Duke, PG&E Generating, Panda,  
15 Calpine, and others). In fact, the objective evidence of this significant  
16 population of willing and able entrants into the Peninsular Florida market  
17 tends to prove that Florida's utilities have not been induced by either  
18 profit motive or regulatory stimulus to construct the economically  
19 efficient amount of the right kinds of capacity here. Thus, it is simply not  
20 true (except in the most rare and fortuitous of circumstances) that rate

1 base regulation will produce a cheaper result for Florida than a market  
2 governed by competition and the antitrust laws. (It is possible, but by no  
3 means certain, that differences between regulated returns and market  
4 returns could produce different results, but considering the group of  
5 announced merchant entrants who appear ready, willing, and able to  
6 construct and operate plants on a competitive basis, it would be  
7 speculative at best to suggest that the regulated return would produce an  
8 economically efficient result where the competitive alternative would  
9 not.)

10

11 **Q: On page 13, lines 6-8, Dr. Cicchetti states the “utilities are**  
12 **economically efficient” in Florida. What is your view on that?**

13 **A: It is wrong based on what I understand to be true of the utilities in Florida,**  
14 **and it is wrong because wholesale power price is well above long run**  
15 **marginal cost and promises to stay there for some time to come under the**  
16 **FRCC ten year plan. By Dr. Cicchetti’s own admission, utilities are**  
17 **pricing generation at average cost rather than marginal cost, which is**  
18 **inefficient except in certain limited cases.**

19 To get technical, regulated utilities textbooks tell us that cost of  
20 service regulated utilities subject to a cost recovery constraint with a

1 segmented downstream market (which exists in the FRCC) must engage  
2 in Ramsey pricing in order to be efficient if there are multiple classes of  
3 consumers (as characterized by differences in the elasticities of their  
4 demand curves.) In other words, efficient pricing is Ramsey pricing, and  
5 efficient pricing is needed to achieve efficiency. Ramsey pricing means  
6 very large, major, and visible price discrimination among residential,  
7 commercial, industrial, electric, and other customers and customer  
8 segments in Florida. I would conjecture that Florida does not have price  
9 discrimination in wholesale electricity markets, and I doubt whether the  
10 political will exists in Florida any more than it does in other states to  
11 charge core electric ratepayers (e.g., residential ratepayers) 1, 2, 5, or 10  
12 times the price of noncore ratepayers for the same commodity. It is my  
13 understanding that Florida engages in fairly standard, general pricing,  
14 which is known to be economically inefficient for a cost of service  
15 regulated company selling into markets with multiple segments. It is also  
16 inefficient because there is evidence of market power that is being  
17 exercised and because there is an Averch-Johnson effect.

18

19 **Q: On page 24 of his testimony, Dr. Cicchetti states: "If additional new**  
20 **entrants are also restricted from free entry, the first entrants will**

1        **reap the benefits of imperfect competition and achieve monopoly**  
2        **power in the form of higher margins, profits, and economic rents**  
3        **when they price the product and enter infra-marginally. These first**  
4        **in merchant plants would be better off if they can maintain their**  
5        **beneficial initial position and additional new supply is not added."**

6        **What is your response to this assertion?**

7    A:    I heartily disagree with this assertion because it will never occur in  
8        Florida. There is no evidence that this assertion has now or has ever been  
9        true. Quite the contrary. I live in the Silicon Valley of California. There  
10       is a term that has been coined in the Internet startup and venture capital  
11       businesses (and perhaps elsewhere) called "first mover advantage." The  
12       term means that the advantage goes to the fleet of foot. First mover  
13       advantage is thought to be a "good" thing in the sense that it strongly  
14       motivates early entry. Companies that enjoy first mover advantage are  
15       usually quickly confronted by second movers right on their heels, who  
16       themselves are motivated by "second mover advantage." Second mover  
17       advantage is almost but not quite as strong as first mover advantage.  
18       Thereafter the third movers enter, then the fourth, then the fifth, and so on  
19       and so forth until the incentives to further entry are eliminated. Each  
20       successive entrant sees declining returns because each new entrant drives

1 down the price of industry output and drives up the price of its factors of  
2 production, but each successive entry is nonetheless profitable and attracts  
3 participants. This is the story of competitive capitalism—good incentives  
4 attractive entry.

5 First mover advantage is recognized as a very strongly positive  
6 thing, not the deleteriously negative thing Dr. Cicchetti argues for. I use  
7 an analogous term to characterize first mover advantage, namely  
8 Schumpeterian rents (after the economist Schumpeter). Schumpeter  
9 argued that first movers can and should obtain ephemeral scarcity rents,  
10 for that is what catalyzes them to move in the first place. I believe it to be  
11 a powerful example that first mover advantage has been firmly and  
12 eagerly institutionalized in the United States economy via the patent  
13 system, which offers ephemeral Schumpeterian rents to first movers as an  
14 inducement for those first movers to participate and innovate. The patent  
15 system bestows only temporary Schumpeterian rents to first movers, but it  
16 is enough to encourage the innovation and entry we all want to catalyze  
17 new technology. The United States patent system recognizes that second  
18 movers, third movers, and so forth will enter and capture part of the  
19 benefits the first movers would otherwise capture. So it is with all  
20 competitive markets. If they are profitable, people enter and profits are

1 reduced to long run marginal cost, all without any regulatory oversight,  
2 collectivism, political overhead, or other inefficiencies attendant with  
3 regulation. That is precisely the paradigm Florida should follow and  
4 precisely the reason there is a need for OGC.

5 My testimony agrees that OGC stands to attain first mover  
6 advantage (or, more likely, second mover or third mover advantage  
7 behind Duke's New Smyrna Beach Power Project and behind FPL's Ft.  
8 Myers and Sanford repowerings). I state that OGC stands to make  
9 roughly twice the return necessary to motivate a marginal entrant, at least  
10 initially. I would term OGC's profits as Schumpeterian in nature,  
11 significant initially but ephemeral. Keep in mind, the bulk of the benefit  
12 that OGC earns occurs not because of the first mover advantage OGC  
13 gains because of its early entry into a market that is chronically short of  
14 capacity if the FRCC ten year plan is followed, but rather because of the  
15 slower-than-efficient rate of entry contained in the FRCC ten year plan.  
16 Under the FRCC ten year plan, entry is so slow and sluggish relative to  
17 what is truly needed that prices remain higher in the NARE model than  
18 long run marginal cost for the horizon of the study. In such a market in  
19 which entry is restricted and sluggish, incumbents as well as new entrants  
20 lucky enough to enter the market obtain scarcity rents but not necessarily

1 monopoly rents. In more technical terms, the best assurance that such  
2 rents will be truly Schumpeterian in nature (i.e., short in duration and  
3 ephemeral but nonetheless real enough to attract appropriate levels of  
4 entry) is to ensure that entry is not restricted into the FRCC, and the best  
5 way to do so is to approve and encourage merchants such as OGC. In lay  
6 terms, even if these temporary rents were a problem (which they are not –  
7 they provide an appropriate and meaningful incentive to stimulate the  
8 proper amount of new entry). The solution would not be to restrict entry,  
9 but rather to encourage it!

10 The idea expressed on page 5, lines 10-12 of Dr. Cicchetti's  
11 testimony must in my view be complemented by one additional phrase at  
12 the end that reads: "...until entry catches up and drives prices down to  
13 long run marginal cost where they belong." Lacking that concluding  
14 phrase, the statement is false and I disagree with it.

15 Dr. Cicchetti states correctly on page 26, line 8-9 that the margin  
16 earned on the merchant OGC plant will be the price minus the average  
17 cost at the level of output of the plant, i.e.,  $p-AC(q)$ , but the price received  
18 by OGC will, in the vast majority of hours, be at or very near the  
19 marginal production cost in Peninsular Florida. (Even in the superpeak  
20 hours, when the price received may exceed system incremental production



1 cost, the price will never be greater than the alternative cost of the same  
2 amount and type of power available to any of its purchasers from another  
3 source. In other words, OGC's price will be the system (market) marginal  
4 cost. Note that this is true where the use of generation resources for  
5 energy supply may also be in competition with their use for ancillary  
6 services.

7 Dr. Kahn argues that regulation should strive toward that end as  
8 well. Therefore, the margin earned under efficient pricing, i.e. marginal  
9 cost pricing, will be  $MC(q)-AC(q)$ . There is an implication in Dr.  
10 Cicchetti's next sentence that is painfully misleading. If instead of  
11 marginal cost pricing, FRCC were to engage in average cost pricing such  
12 as rate base pricing would imply, such rate base pricing is known to be  
13 inefficient and therefore could never capture the full efficiency benefits of  
14 marginal cost pricing (except in the rare instance where price equals both  
15 average cost and marginal cost simultaneously). Rate basing (average  
16 cost pricing) can never capture the same economic efficiency benefits as  
17 marginal cost pricing. In other words, rate base pricing is less efficient  
18 than marginal cost pricing. Florida loses economic efficiency benefits by  
19 mandating entry by incumbents under average cost pricing rather than

1           marginal cost pricing. When viewed from the perspective of “maximizing  
2           the total size of the pie” in Florida, competition is always better.

3

4   **Q: Laced throughout Dr. Cicchetti’s testimony is the idea that price**  
5   **decreases are a paramount or leading objective of electric regulation.**  
6   **Dr. Cicchetti apparently believes that low prices to customers and**  
7   **ratepayers are and should be the paramount or leading goal of the**  
8   **Florida electric system. Do you agree with that?**

9   **A: No. The objective is to foster or emulate a competitive market, just as Dr.**  
10   **Kahn said. (A competitive market maximizes the sum of producers’**  
11   **surplus plus consumers’ surplus and balances consumer and producer**  
12   **interests.) An important objective of electric system regulation is and**  
13   **must be to provide opportunities for profitable investment and production.**  
14   **Ealetric generation is best accomplished by atomistic competitive**  
15   **producers who discipline each other through entry and exit and drive**  
16   **prices toward long run marginal cost, but those producers make profits. I**  
17   **would caution Dr. Cicchetti that electric generation is not and should not**  
18   **be “consumerism.” It should be maximization of producers’ plus**  
19   **consumers’ surplus. Producers (both conventional regulated producers**  
20   **and competitive merchants) have a legitimate, profit seeking role in every**

1 power generation system, a role Dr. Cicchetti chooses to ignore. I would  
2 like to put forth a vignette to advocate my position and rebut Dr.  
3 Cicchetti's.

4 During my testimony in the Duke New Smyrna beach case,  
5 Commissioner Garcia several times restated the desire that investment,  
6 jobs, and positive spinoff from that merchant plant should occur in Florida  
7 rather than some other state. Investment, jobs, and other positive spinoff  
8 from the OGC plant, like the Duke New Smyrna Beach plant before it,  
9 represent the fruits of putting high productivity investments into Florida.  
10 I completely agree with Commissioner Garcia's expressed sentiments, yet  
11 Dr. Cicchetti is diametric from those sentiments. I live in the Silicon  
12 Valley of California, and I know first hand the positive spinoff of high  
13 productivity investment, jobs, and other positive spinoff. Houston, Texas  
14 is enjoying the prosperity of high productivity investment, jobs, and other  
15 spinoff. Evidently Dr. Cicchetti would rather attempt to claw the profits  
16 out of electric generation in favor of low prices, a strategy that will keep  
17 Florida behind the economic success stories of Houston and the Silicon  
18 Valley. I ardently disagree with that idea.

19 As it happens, under current and reasonably foreseeable conditions  
20 in the Peninsular Florida power supply market, encouraging merchant

1 entry will both promote an economically efficient result (price equal to  
2 long run marginal cost) and lower prices to consumers, because entry will  
3 alleviate the currently restricted supply conditions.

4

5 **Q: Dr. Cicchetti argues that the entry of OGC will not suppress prices.**  
6 **Please comment.**

7 **A: Dr. Cicchetti's analysis of the price suppression impacts of OGC are**  
8 **utterly wrong, biased, and misleading in many dimensions. The diagram**  
9 **Dr. Cicchetti uses to argue that prices will not fall with the entry of a**  
10 **merchant (Figure CJC-1A) completely misrepresents the critical aspects**  
11 **of the FRCC situation and the electric industry situation in general.**  
12 **Please refer to the FRCC supply stack from my direct testimony (Exhibit**  
13 **DMN-5, reproduced here for convenience along with the demand range).**

14 My testimony agrees that the aggregate supply stack in Figure  
15 DMN-3 is shifted rightward by 550 MW by the entry of OGC, just as both  
16 I in my testimony and Dr. Cicchetti in his has observed. He and I agree  
17 on that point. However, Dr. Cicchetti has, whether intentionally or  
18 inadvertently, misrepresented the situation by drawing the last tranche, the  
19 marginal tranche, as highly elastic, i.e. as flat, across the entire range of  
20 OGC plant entry. In effect, Dr. Cicchetti has only drawn a section of the

1 leftward portion of the supply stack in Figure DMN-3, and implicitly he  
2 has only considered a single hour at the leftward portion of the supply  
3 stack.

4 The leftward portion of the supply stack in Figure DMN-3 is the  
5 portion people normally term the “baseload” portion of the supply stack,  
6 the flat portion comprised by the low cost generators. The leftmost  
7 portion of the supply stack in Exhibit DMN-5 is indeed rather flat. Dr.  
8 Cicchetti’s assertion might well apply during those baseload hours when  
9 the supply stack is indeed flat as he suggests. During that period of time,  
10 rightward displacement of the curve by 550 MW does not raise the curve  
11 to any great degree and therefore the geometric configuration in Dr.  
12 Cicchetti’s figure might be correct at time of baseload. However, there is  
13 a very important aspect of Dr. Cicchetti’s numbers that are incorrect even  
14 at time of baseload. The market price at time of baseload, i.e., at the time  
15 when the demand curve is situated toward the left of the demand range, is  
16 nowhere nearly as high as the \$32 Dr. Cicchetti has presented. It is much  
17 closer to the range of \$15-20/MWH at time of baseload rather than the  
18 \$32/MWH his example asserts. (He has also misrepresented the situation  
19 by assuming a high rather than a low price during times when the supply  
20 stack is flat.) Given that it is closer to the range of \$15-20/MWH at time

1 of base loads, there are literally no profits to be realized during those  
2 times: OGC cannot sell at \$32/MWH when the utilities to whom it might  
3 potentially sell are experiencing short run marginal costs in the \$15-  
4 \$20/MWH range. During those periods of time during which Dr.  
5 Cicchetti's geometry might be right, the price is nowhere near the high  
6 level of \$32 he presents but closer to the range of \$15-20 where there are  
7 no margins to be earned by OGC anyway. This is rather obvious when  
8 we state the obvious—a plant as profitable as Dr. Cicchetti alleges OGC  
9 is certainly does not earn the bulk of those profits during time of baseload.  
10 It earns the bulk of those profits during time of peak. I should reiterate  
11 that Dr. Cicchetti is intrinsically biasing the analysis by using the wrong  
12 price at time of base. As everyone knows, the majority of margins that  
13 accrue to a generator do not occur for a gas combined cycle unit such as  
14 OGC during time of base.

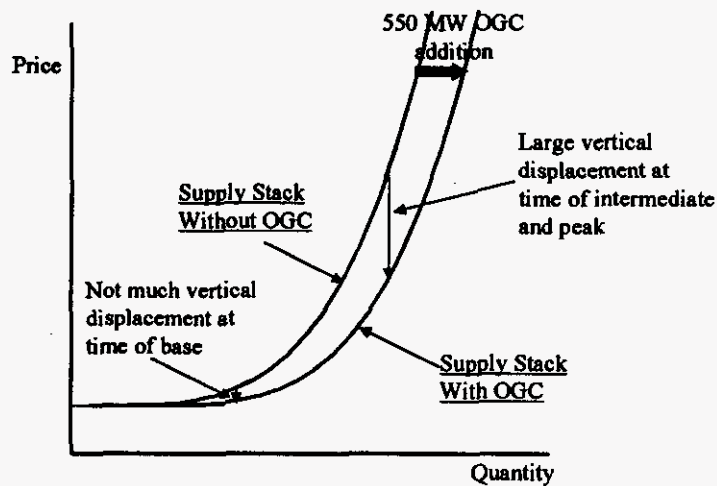
15 The situation during time of intermediate and peak is markedly  
16 different from the diagram Dr. Cicchetti uses in Figure CJC-1A, and this  
17 markedly different diagram has markedly different implications for price  
18 suppression. Dr. Cicchetti has conveniently omitted the situation at times  
19 of intermediate and peak loads, the most important situation of all.  
20 During time of intermediate and peak, the demand curve is passing

1 through the supply stack somewhere between its middle to the right of the  
2 supply stack. The rightward shift (i.e., horizontal addition of 550 MW  
3 associated with OGC) in the supply curve caused by the entry of 550 MW  
4 of new capacity causes the “with OGC” supply stack to differ vertically  
5 from the “without OGC” supply stack at the middle to right range of the  
6 curve. The situation at the right of the supply stack, the situation that  
7 occurs at time of intermediate and peak precisely when prices are highest,  
8 is diametrically different from the picture Dr. Cicchetti presents in his  
9 testimony. Figure 1 illustrates the true situation, not the situation  
10 advocated by Dr. Cicchetti, at time of peak, a situation in which the  
11 supply stack is strongly upward tilted in both the “with OGC” and  
12 “without OGC” cases. (I have dispensed with the “granularity” in Dr.  
13 Cicchetti’s curves to simplify the discussion and concentrate on the key  
14 insights. I will deal with the granularity issue later.) During such  
15 intermediate and peak hours, there is indeed a very large and pronounced  
16 erosion in market clearing price induced by the entry of the OGC project,  
17 as the diagram in Figure 1 illustrates. In the simplest terms, it is during  
18 these intermediate and peak load periods that OGC not only “pays for  
19 itself” from the perspective of its owners, it is also during these

1 intermediate and peak load periods that OGC "pays for itself" from the  
2 perspective of Florida's electric customers.

3

Figure 1: Vertical Displacement Resulting from Additon of OGC's 550 MW



4

5

6 Dr. Cicchetti's testimony is disingenuous and misleading for having  
7 omitted the very important intermediate and peak load situation from  
8 consideration, precisely the situation in which the prices in FRCC are  
9 ubiquitously the highest and when the potential for price suppression in  
10 FRCC are ubiquitously the strongest. In the vernacular, price suppression  
11 is the largest when the price is highest, precisely the situation Dr.  
12 Cicchetti chose to omit. In trying to make the types of arguments Dr.



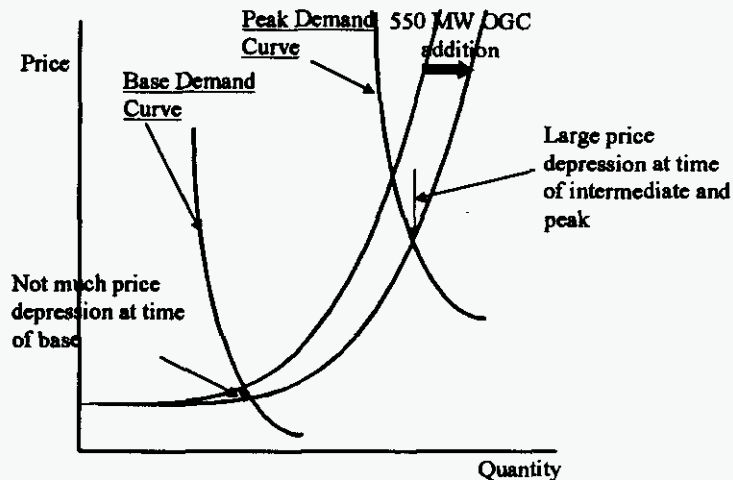
1       Cicchetti makes, it is unpardonable to omit the displacement curves across  
2       the entire range of load periods — base, intermediate, peak — and to  
3       arbitrarily select only base load periods and make a misleading argument  
4       represented by that period that there is no price suppression. (He also  
5       misrepresented the typical prices during the base load periods and omitted  
6       the fact that, if OGC makes any sales at all during the base periods, those  
7       sales will still have to be at or below the purchasing utility's short run  
8       marginal cost, thus producing a benefit for the purchasing utility and its  
9       ratepayers. (This is predicated only on the reasonable assumption that the  
10      purchasing utility, i.e., OGC's customer, will behave in an economically  
11      rational manner in minimizing its power supply costs.) Just as the Altos  
12      NARE model results show, the primary price depressions resulting from  
13      the OGC project occur during times of intermediate and peak loads, not  
14      during time of base. The plants makes the most money during time of  
15      intermediate and peak, but it “hands out” part of that money to the greater  
16      market in the FRCC through induced price suppression throughout the  
17      FRCC precisely during those period. As described above, it is during  
18      those periods that the OGC Project "pays for itself" both in value provided  
19      to its owners and in value provided to Florida electric customers.

1           Figure 2 indicates the correct interpretation of the price suppression  
2 situation that is being catalyzed by the entry of OGC. Figure 2  
3 conclusively refutes Dr. Cicchetti's assertion that OGC will not reduce  
4 market clearing price at any hour in any year. OGC will reduce the  
5 highest prices during the year by the greatest degree, precisely when such  
6 price reductions have the most value.

7           There is another very troubling bias inherent in Dr. Cicchetti's  
8 analysis. In order for the simplistic view in Dr. Cicchetti's Figure CJC-  
9 1A to be true even in baseload applications, the OGC plant would have to  
10 be smaller in size than EVERY demand tranche upon which it might  
11 reside during every hour of the year. If the marginal source in Dr.  
12 Cicchetti's example were a coal plant, OGC would have to be strictly  
13 smaller in size than the marginal coal plant over every part of the supply  
14 stack. If the marginal source were a gas combined cycle, OGC would  
15 have to be strictly smaller than the marginal combined cycle plant over  
16 every part of the supply stack. If the marginal source were a combustion  
17 turbine or an internal combustion plant, OGC would have to be strictly  
18 smaller than the marginal peaking unit over every part of the supply stack.  
19 Undeniably, the OGC plant is not smaller. OGC is larger than many of  
20 the plants in the FRCC supply stack, particularly the peaking plants and

1 the older units. The situation in Figure CJC-1A of Dr. Cicchetti's  
2 testimony simply does not occur. The OGC plant has a larger "grain size"  
3 than many of the plants in the FRCC supply stack, particularly those to  
4 the far right of the stack. If the entry of OGC pushes the market off of  
5 even one of the supply stack tranches in Dr. Cicchetti's figure, then  
6 necessarily prices fall even in baseload applications, just as Altos has  
7 predicted. The "granularity" assertions in Dr. Cicchetti's figures are  
8 simply not realistic across the aggregate supply stack in Exhibit DMN-3.  
9 Would Dr. Cicchetti ask the Commission to believe that there was not  
10 even one single hour during the year when the OGC would "fall  
11 backward" off at least one plant's tranche to the immediately preceding  
12 plant's tranche? The odds are infinitesimal and should be discounted  
13 completely by the Commission.  
14

Figure 2: Base and Peak Price Suppressions



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There is another aspect of Dr. Cicchetti's analysis that is highly incorrect and misleading. The Altos model does not use the aggregate supply stack from Figure DMN-5 but rather uses a set of regional substacks that sum in aggregate to the larger, aggregate FRCC supply stack. This insight raises yet another fatal flaw in Dr. Cicchetti's argument. The supply stack in DMN-5 represents the entire FRCC as a single aggregate. The Altos NARG model, however, represents each subregion of the FRCC as a subaggregate. For example, FPLS contains only those generators that physically reside within FPLS. FPLE contains only those generators that physically reside within FPLE, and similarly for all the other regions. Clearly each of these subregional supply stacks

1 is smaller and steeper than the aggregate. As we subregionalize and  
2 disaggregate, the upward tilt of the subregional supply stacks becomes  
3 increasingly pronounced and the small granularity of the curves in all but  
4 the most baseloaded units becomes more pronounced. Dr. Cicchetti's  
5 argument becomes weaker and weaker at smaller, finer levels of  
6 disaggregation. Furthermore, because there is a paucity of generation in  
7 southern Florida as compared with (growing) load, the steepness of the  
8 supply stack becomes even more pronounced in the region of actual peak  
9 load operation because demand is cutting across the supply stack  
10 increasingly further to the right on the supply stack. The fact that supply  
11 is short relative to load in southern Florida means that the supply stack is  
12 relatively steeper in South Florida when the demand curve cuts through it  
13 than at other locations. This means that the price suppression effect of  
14 OGC is very pronounced, much more so than if the plant were located in a  
15 northerly region in which generation is abundant relative to load.

16 I should also point out that the height of the maximum point in the  
17 FRCC supply stack in Exhibit DMN-3 is approximately \$80, yet we have  
18 seen periods when FRCC has experienced prices of \$150/MWH or higher.  
19 Clearly such prices are not being set by the marginal cost of production  
20 during such "shortage" hours. They are being set by such extreme

1 situations as congestion prices on transmission links, default costs, outage  
2 costs, and the like. During those times, I would submit that the FRCC  
3 supply curve is quite steep, perhaps almost vertical, as I believe it is in  
4 other areas as well. How else for example could the NERC region  
5 designated as "MAIN" (the Mid-America Interconnected Network) have  
6 experienced \$7400/MWH power during the summer of 1998 or FRCC  
7 have experienced prices well above the marginal cost of the highest  
8 indigenous unit? They could not. In such situations, the FRCC would be  
9 darn glad indeed to have the OGC unit in place. In the event of a shortage  
10 that drives prices above the \$80/MWH range at the top of the FRCC  
11 supply stack, the presence of the OGC unit can drive the price down from  
12 the astronomically high shortage price of \$150/MWH or more to the  
13 marginal cost of the most costly plant in the FRCC. The price depression  
14 benefits of shortage mitigation can be colossal, and they derive from the  
15 intrinsic verticality of the FRCC supply stack. Again, this view of OGC  
16 as providing insurance against the shortage scenarios is valid, and it is a  
17 steep supply curve scenario.

18 There is another issue Dr. Cicchetti misses in its entirety that serves  
19 to steepen the supply curves in the FRCC. There are a number of plants  
20 in the state that are not even resident within the supply stack at all because

1 they are reserved for production of ancillary services (spinning reserves,  
2 operating reserves, second contingency reserves, regulation, and the like).  
3 Holding such plants in reserve, which could consume ten percent of the  
4 supply stack in DMN-5, serves to further steepen the subregional supply  
5 stacks when considered for electrical energy production at the various  
6 nodal points around the FRCC. That is, ten percent of the plants in the  
7 supply stack in Exhibit DMN-5 might not even be present and resident.

8 A final issue Dr. Cicchetti misses altogether is what I term the  
9 “optionality value” or “hedge value” of capacity in Florida. One of the  
10 situations the FRCC wants to – or should want to -- hedge against is the  
11 extreme cold weather situation, say for instance 20-25 degrees Fahrenheit  
12 from Pensacola to Miami occurring in the middle of January. Dr.  
13 Cicchetti can rest assured that such a situation would be characterized by  
14 a profoundly steep supply stack in the vicinity of the demand curve,  
15 which during that cold day lies far to the right and perhaps even off the  
16 FRCC supply stack to the right altogether. In that situation, which is  
17 diametrically different from the simplistic granular example he puts forth  
18 in Figure CJC-1A, theoretically, the supply curve is vertical, meaning that  
19 the OGC plant would theoretically have an infinite value during that cold  
20 period. It could move the price down from infinity to the marginal cost of

1 the last unit. That is a pretty hefty price decrement attributable to the  
2 OGC plant. More significantly, in such a situation, the presence of the  
3 OGC Project will mean that an additional 550 MW of load will be served  
4 that would not otherwise be. While this example is perhaps a caricature,  
5 it certainly illustrates that the price depressive effects of OGC can be  
6 astronomical during certain hours given the true nature of the supply stack  
7 in the FRCC rather than the hypothetical nature Dr. Cicchetti postulates in  
8 his Figure CJC-1A.

9 To summarize, Dr. Cicchetti is plainly wrong on two counts: (1)  
10 he conveniently omits all consideration of intermediate and peak periods  
11 during which the supply stack is decidedly upward sloping rather than flat  
12 as he has suggested, and (2) he conveniently omits the fact that the OGC  
13 plant is simply too large, too "granular," to meet the simplistic  
14 assumptions of his figure. His figure and the underlying logic are wrong  
15 and biased.

16  
17 **Q: On page 8, Dr. Cicchetti argues that OGC does not provide reliability**  
18 **benefits. Do you agree?**

19 **A: No, I do not. Reliability is in a way a "public good" in the immediate**  
20 **vicinity of a plant in a competitive market. (Reliability is in part a "public**



1           good” in a competitive market—it accrues to everyone whether they pay  
2           for it or not.) The plant’s very existence bolsters reliability in the vicinity  
3           of that plant. I discussed the degree to which this occurs in my rebuttal to  
4           Mr. Waters’ testimony. Dr. Cicchetti is wrong the same way in which  
5           Mr. Waters is wrong in asserting that there are no reliability benefits from  
6           a merchant. Keep in mind, merchants physically deliver to the market  
7           hub most contiguous to their busbar, and they necessarily render supply  
8           more reliable at that busbar. Reliability accrues as a public good at that  
9           busbar by the very entry of that plant, even though its individual  
10          availability might not be 100 percent.

11                   The empirical evidence for my statement is everywhere around us.  
12           Is gold delivery reliable because of the flourishing spot and forward  
13           exchange markets? Yes, that is an attendant benefit, enhanced reliability  
14           of supply. What about natural gas? Again the answer is yes. I submit the  
15           answer is yes for everything traded on exchanges in highly competitive  
16           public settings—wheat, crude oil, soybeans, copper, yen, etc. It is  
17           preposterous to argue that the reliability is not enhanced by the entry of  
18           another plant like OGC. Reliability is enhanced by the entry of every  
19           plant as my previous rebuttal to Mr. Waters makes clear.

20

1 **Q: In lines 20-21 on page 8 and continuing onto page 9, Dr. Cicchetti**  
2 **argues: “Compared to the same plant built by an incumbent utility**  
3 **under cost-of-service regulation, the merchant plant will very likely**  
4 **cost consumers significantly more over its life.”**

5 **A: Even if one were to accept Dr. Cicchetti’s analysis in Figure CJC-1A**  
6 **(which I have already shown to be incorrect and do not at all endorse in**  
7 **the forthcoming comments), how in the world could a merchant plant cost**  
8 **consumers more? Dr. Cicchetti himself argues (incorrectly in my view)**  
9 **that the merchant plant does not change the price at all. In his example,**  
10 **the price stays the same at \$32 when a merchant enters by his argument.**  
11 **Thus, at worst, even under Dr. Cicchetti’s unrealistic assumptions, the**  
12 **merchant would be consumer-neutral. (And, I might add, under this**  
13 **scenario, the merchant would probably make no sales.) Most assuredly,**  
14 **entry of the merchant does not preclude any utility company from**  
15 **building a cost of service regulated plant in the long run, nor from buying**  
16 **from other sources in the short run. Merchant plant entry is completely**  
17 **disjoint and independent from any cost of service regulated plant. If it**  
18 **does not change the price, it will make no sales (unless it provides some**  
19 **other benefit to the utility that purchases its power at that utility’s short**  
20 **run marginal cost).**

1           Dr. Cicchetti cannot have it both ways. Merchant entry either  
2 leaves consumer prices constant (in which case it does nothing to  
3 wholesale prices), or it decreases consumer prices because it displaces a  
4 more expensive source (in which case it decreases wholesale prices).  
5 There is no way for the merchant plant to increase consumer prices as Dr.  
6 Cicchetti argues. It is certainly true that the wholesale price must be less  
7 than or equal with the merchant plant to what it would have been without  
8 the merchant plant. At the same time, the merchant plant is completely  
9 independent and decoupled from any incumbent's decision to build or  
10 repower anything, so the regulated incumbents are free to build anything  
11 they want. Dr. Cicchetti is dead wrong when he suggests that entry of the  
12 merchant will raise consumer prices; this assertion is rebutted effectively  
13 by Dr. Cicchetti's own Figure CJC-1A.

14

15 **Q: Dr. Cicchetti complains that the merchant plant examples given are**  
16 **for states with rather developed deregulation and for which a goodly**  
17 **bit of entry has occurred or is contemplated. Please comment.**

18 **A: Dr. Cicchetti's arguments are ironic. On the one hand, he argues that the**  
19 **incentives are so astronomically high in Florida that the first entrants**  
20 **make usurious amounts of profit. On the other hand he argues that states**

1           that have deregulated are the only ones who can attract merchant entrants,  
2           yet assuredly merchants entering those states see lower prices and margins  
3           than they do in Florida because of the massive announced entry. It is  
4           simple, objective economic fact that potential market entrants are most  
5           attracted to alternatives with the highest incentives. If the incentives for  
6           OGC are so much higher in the FRCC than elsewhere, entry is certainly  
7           more attractive in Florida than elsewhere, and entry decreases prices and  
8           margins more quickly in Florida than elsewhere. Dr. Cicchetti cannot  
9           have it both ways. Saying that Florida offers strongly positive incentives  
10          by virtue of the fact that it is bottled up from a regulatory standpoint while  
11          contending that merchant plants seek deregulated states for entry where  
12          the incentives are much lower is self-contradictory. Either Florida offers  
13          higher profits to merchants from entry and therefore more price  
14          depression from entry, or Florida has lower or equal profits from entry  
15          and therefore not as much price depression resulting from entry.

16

17   **Q: On page 27 of his testimony, Dr. Cicchetti essentially argues**  
18   **(paraphrased here) that (1.) the cost of capital for merchants is**  
19   **higher than for incumbents, (2.) regulators would stretch**

1           **depreciation out in time for IOUs, and (3.) regulation would require**  
2           **straight line rather than accelerated depreciation. Please comment.**

3    A:    Let me address the second and third points here and the cost of capital  
4           issue later. The second and third points have in my experience been  
5           soundly and roundly discredited by the experience of deregulation.

6           The idea put forth under item (2.) is a remnant of failed regulatory  
7           policies of the past. When I hear this outdated argument that regulators  
8           can and should extend the depreciable life of regulated equipment, I  
9           always recall two important vignettes. The first occurred when Judge  
10          Greene issued the Modified Final Judgment (MFJ) that broke up AT&T.  
11          When that occurred, I understood from Mike Ardley, Chief Statistician of  
12          Pacific Bell (I was working in the telecommunications industry at the  
13          time), that the average remaining depreciable life of rotary phonesets then  
14          in place was an astounding 13 years! There was 13 years of  
15          undepreciated embedded cost left in the average rotary phonesets then in  
16          place even though they were economically and technically obsolete and  
17          worth nothing in a fair market value sense. They were literally bookends.  
18          AT&T was being pressed by regulators with the mindset espoused by Dr.  
19          Cicchetti to stretch the depreciation life of rotary phones out to 20 years

1 and longer using precisely the logic espoused by Dr. Cicchetti so as to  
2 minimize near term rates.

3 In arguing for extended depreciation, Dr. Cicchetti is violating the  
4 very same TANSTAAFL “no such thing as a free lunch” principle he  
5 argues in his testimony. He is in effect arguing that extending the life is a  
6 free lunch to utility customers, leading to lower prices. That is wrong.  
7 Mandated longer-than-economic depreciation schedules daunts  
8 investment. Who wants to invest in forty year, highly non-liquid  
9 investments with regulators “clawing back benefits” by hammering on  
10 incumbents to depreciate over a longer life? Who wants to face stranded  
11 cost risks implicit in forty year non-liquid balance sheet entries with the  
12 knowledge that many other states have already deregulated and Florida  
13 might be next? Despite Dr. Cicchetti’s sinking fund math, extending  
14 depreciation lives is a certain ticket to hurting FPL, FPC, TECO, and their  
15 shareholders and discouraging investment in Florida.

16 Returning to our rotary phone example, when the MFJ was  
17 implemented, the then-remaining undepreciated embedded cost of those  
18 rotary phones was written off virtually immediately. Those phones and  
19 their 13 year remaining lives became instant stranded cost (as did a good  
20 bit of other phone company equipment). Recovery of those stranded costs

1 was lost to the phone companies precisely because they were uneconomic  
2 and their remaining depreciation was uneconomic. I should mention that  
3 some ten years after the MFJ, there was an article in Investors Business  
4 Daily announcing that NYNEX and Ameritech had finally been told by  
5 their accountants to write off the undepreciated portion of historical  
6 embedded cost they had been carrying on their balance sheets since the  
7 MFJ. It was reasoned that longer-than-economic or lower-than-market  
8 values of depreciation should be marked to market and the difference  
9 between marked-to-market depreciation and their actual depreciation  
10 should be sacrificed. (I understand this has in recent years become  
11 incorporated in the FASB standards, particularly Standard No. 121, which  
12 deals with long-lived equipment, so that balance sheets do not become  
13 cluttered with embedded costs and other non-mark-to-market items whose  
14 intrinsic value is less than their historical embedded cost.

15 With his comments, it seems that Dr. Cicchetti is arguing that  
16 regulators could or should extend the depreciation schedules for plant and  
17 equipment outward in time for longer than their true economic life. Using  
18 his logic, why not stretch power plants out to 100 years and water systems  
19 out to 150 years? It would be a great way to cut today's rates, and the  
20 present value of investment as Dr. Cicchetti argues is still preserved.

1           Such a suggestion is poor public policy indeed, with the effect of padding  
2           balance sheets of IOUs with uneconomic costs that are not justified on a  
3           marked-to-market basis. It is very poor policy indeed to be used as a way  
4           to subsidize entry by incumbents to the detriment of merchants

5                       With regard to cost of capital, that is not at all an issue here. OGC  
6           is bearing the entire capital cost and the cost of capital on the OGC  
7           project. There is no feedback or feedthrough to FRCC ratepayers. All  
8           arguments about cost of capital to merchants such as OGC are irrelevant.

9

10   **Q: In the next paragraph on page 27-8, Dr. Cicchetti then goes on to**  
11   **argue that “Both cost recovery methods yield the identical recovery**  
12   **“of” the initial investment. They can also be structured to yield**  
13   **identical net present value of the capital charges assigned to each**  
14   **year.**

15   **A: Dr. Cicchetti summarizes a simple, indeed simplistic, mathematical**  
16   **exercise to show that different margin streams have the same present**  
17   **value if one establishes them that way in the first place. (I along with two**  
18   **colleagues initially did the EPRI TAGTM (Technical Assessment Guide)**  
19   **financial work where we developed and presented the requisite**  
20   **calculations and equations that were used in the TAGTM for some years.)**



1        If one constructs a typical straight line depreciation schedule forward in  
2        time for  $N$  years at an interest rate  $r$  and postulates return of the increment  
3        of straight line depreciation in each year and return on the undepreciated  
4        portion of initially invested capital in each year and thereafter computes  
5        the present value of the stream of "return on and return of" the initial  
6        investment at the rate  $r$ , he will find that the present value is exactly equal  
7        to the magnitude of initial investment. This is a mathematical tautology  
8        by construction. It simply says that if you select a depreciable life and a  
9        discount rate and extend the life in a way so as to render the present value  
10       the same, the present value will be the same regardless of depreciable life.

11                The difficulty with Dr. Cicchetti's argument is that extending the  
12        life decreases the liquidity of the investment and increases the balance  
13        sheet and stranded cost risk in the event of future deregulation. I believe  
14        the market will punish companies who attempt to do so, and such  
15        punishment will take the form of lower credit ratings and lower share  
16        price appreciation. It is poor policy because it will devalue utility  
17        companies and can have the effect of inhibiting competition and  
18        efficiency by keeping merchants out. The simple tautological statement  
19        made by Dr. Cicchetti that there is no cost incurred from stretching out

1 companies depreciation schedules is just plain wrong. Ask the venture  
2 capitalists.

3

4 **Q: Dr. Cicchetti contends the Averch-Johnson effect does not apply and**  
5 **purports to give reasons for his assertion. Please comment.**

6 **A: Dr. Cicchetti is wrong because he is appealing only to a very narrow part**  
7 **of the Averch-Johnson-Wellisz effect. As Averch, Johnson, and Wellisz**  
8 **have pointed out, according to Dr. Kahn in the previously referenced**  
9 **monograph, the effect is not simply a padding or expansion of rate base**  
10 **but also a phenomenon of “paying too much for the same stuff others can**  
11 **get cheaper.” (Dr. Kahn’s discussion directly refutes Dr. Cicchetti’s**  
12 **assertion that there is no Averch-Johnson effect.) The aspect of the**  
13 **Averch-Johnson effect to which I am referring is the equivalent of the**  
14 **“\$400 toilet seat” whereby the offerors of the toilet seat know that the**  
15 **customer is incentivized to pay more for it because he or she can earn on**  
16 **it at or above market rates. Knowing there is a more secure market**  
17 **downstream from the utility company to its customers and that utilities**  
18 **can figure out how to earn in that market at or above market rates,**  
19 **vendors can simply charge more. As vendors and consultants know, a**  
20 **contract with a traditional cost of service utility can be a “meal ticket.” A**

1 contract with a utility is not as penurious as a contract with an unregulated  
2 company. The latter is always pinching the proverbial pennies because  
3 the contract comes directly out of its bottom line. However, the former  
4 can either capitalize what is provided and earn on it or pass it directly  
5 through to ratepayers, meaning that as long as the company can  
6 demonstrate prudence to its PUC it can earn on it. Therein lies the  
7 Averch-Johnson effect I am discussing, and the incentives are clear to  
8 cause it to occur.

9  
10 **Q: Dr. Cicchetti continually asserts that OGC will have monopoly power**  
11 **if it is admitted to Florida. How could that be possible?**

12 **A:** It is possible in one highly abstract, theoretical extreme, but it simply is  
13 not going to occur in the real world. Dr. Cicchetti is wrong, which I will  
14 prove with a simple example. The FRCC consists of some 40,000 MW of  
15 generating capacity, and OGC at 550 MW will comprise approximately  
16 1.36 percent of the FRCC market. Market power occurs when a player  
17 can drive prices upward by its unilateral control of quantity, most  
18 typically by a cutback or withholding of quantity from market. Market  
19 power is a “change in price/change in quantity effect.” Simply put, a  
20 plant or a company has market power if it can change (usually restrict) its

1           output and thereby unilaterally change the price in such a way as to make  
2           more money on the production it has not withheld from the market than it  
3           foregoes on the production it has withheld from the market. In other  
4           words, the company has to drive price up faster than the production it  
5           foregoes to drive the price up.

6           It is wrong to argue that OGC has any market power unless OGC is  
7           one of a very restricted number of merchant entrants into FRCC ever. Let  
8           us examine the case in which OGC is the only merchant anywhere.  
9           Suppose as an example OGC were to cut production by 250 MW down to  
10          300 MW during time of peak in that situation. As the FRCC market  
11          moves from 40.550 GW down to 40.300 GW to reflect the OGC cutback,  
12          there could be a relatively large price elevation during time of peak (but at  
13          no other time), and OGC's remaining 300 MW might be able to capture  
14          the benefits of the peak price elevation. This is the case of a classic  
15          textbook monopoly extracting market power during the hour (or hours) of  
16          peak.

17          Suppose, however, there is just one additional merchant entrant,  
18          and its size is 550 MW also. The total FRCC market is now 41.100 GW  
19          rather than the original 40.550 GW. In order for there to have been a  
20          large price elevation at time of peak in the monopoly (single entrant) case,

1 the price given 40.550 GW would have had to be soft. Had it not been  
2 soft, there could have been no elevation in the single plant case. If this is  
3 the case, assuredly the price at 41.100 GW would be even softer. There  
4 would be dramatically reduced gains from withholding output and  
5 dramatically reduced market power resident with either the first or second  
6 merchant at time of peak by the simple virtue of the second merchant's  
7 creating a merchant duopoly rather than a merchant monopoly. This  
8 phenomenon—allowing entry to dilute and eliminate market power—is  
9 well known in the economics literature. The Commission can verify my  
10 assertions rather than Dr. Cicchetti's by consulting the Nash-Cournot  
11 references (Friedman and Varian) provided in my previous rebuttal  
12 testimony to Dr. Landon so that they can see why Dr. Cicchetti's  
13 argument is wrong. The merchant fringe that is forming in the FRCC is  
14 small, atomistic, highly disparate, and ownership diverse. Duke New  
15 Smyrna Beach, OGC, Reliant, and two recently filed Panda merchants  
16 will collectively ensure that there is no market power and that all new  
17 merchants are pure, traditional price takers even at time of peak.

18 I should point out the flip side of this argument, one that Dr.  
19 Cicchetti might not want the Commission to hear. If OGC has market  
20 power by virtue of its entrance, the incumbents will most definitely have

1 market power if OGC were to be denied entrance. This is definitely a  
2 situation the Commission does not want—the incumbents being so short  
3 of on peak capacity that they are able to withhold production during time  
4 of peak and thereby drive up prices at time of peak. Also, the  
5 Commission will not want the State to be in a situation of such low  
6 reserves as Dr. Cicchetti's "OGC has market power at time of peak"  
7 scenario would imply.

8 Dr. Cicchetti returns to the market power issue on page 81 of his  
9 testimony, arguing that OGC or a group of merchants has market power.  
10 I believe I have dispensed with the Nash-Cournot aspects of that argument  
11 previously (each successive entrant reduces the market power of the  
12 individual members of the group of merchant plants). The only argument  
13 left is Dr. Cicchetti's argument that merchants will act as a collusive  
14 collective, withholding production at time of peak to drive up prices and  
15 garner monopoly rents. Dr. Cicchetti offers no example of a group of  
16 merchants who have ever colluded, let alone an example of merchants  
17 with the minimal market shares and market power of OGC or Duke New  
18 Smyrna. Clearly, there are other remedies available, such as the antitrust  
19 laws, to inhibit and prevent such collusion. His suggestion that as soon as

1 merchants are allowed into the market, they will break the law, is simply  
2 baseless.

3

4 **Q: Beginning on page 44 of his testimony, Dr. Cicchetti makes a**  
5 **calculation that he claims refutes the magnitude of your benefits**  
6 **calculation. Please comment.**

7 **A: His calculation is meaningless, incorrect, and disingenuous and**  
8 **demonstrates a lack of understanding of fundamental spatial equilibrium.**  
9 **Consider the simple example in my previous rebuttal testimony to Dr.**  
10 **Landon. In that example, a small supply augmentation in just one supply**  
11 **region causes an equilibrium price reduction in EVERY supply region and**  
12 **every demand region. The economic leverage achieved by such a supply**  
13 **augmentation is astronomical, just as the small example shows. The price**  
14 **reduction applies to every unit of commodity traded in every supply**  
15 **region and every demand region in the simple example and in Florida.**

16 **Extrapolating that example to my testimony, the consumer savings**  
17 **reported in my testimony is the price depression that occurs in EVERY**  
18 **market region of Florida times the quantity of energy transacted in every**  
19 **market region of Florida. That is the correct and appropriate measure of**  
20 **aggregate consumer benefit across all of Florida. (It is equivalent to**

1 consumers' surplus with inelastic market region demand.) The MWh  
2 affected by those price depressions is far larger than the 4,480,000 MWh  
3 used by Dr. Cicchetti in his calculation at the bottom of page 44 of his  
4 testimony. Dr. Cicchetti's calculation is meaningless in an economic  
5 welfare sense or in any other sense I know of. It is the total Florida  
6 consumers' surplus benefit divided by the output of the OGC plant, which  
7 perhaps gives an idea of the tremendous "leverage" achieved by the OGC  
8 plant. The leverage he calculates is entirely true, but it has no particular  
9 economic meaning. I should say that this high magnitude of "leverage" is  
10 achieved by the small supply augmentation in my rebuttal to Dr. Landon  
11 as well. It is entirely correct, notwithstanding Dr. Cicchetti's meaningless  
12 calculations. Keep in mind, Dr. Cicchetti is wrongly assuming that the  
13 Altos analysis assumes constant unchanging \$32 power supplied by a flat  
14 supply curve.

15 Beginning with the question on line 11 of page 46, Dr. Cicchetti  
16 makes an absolutely absurd set of statements. He says based on his  
17 meaningless "total-consumers-surplus-divided-by-OGC-output"  
18 calculation that the payback period for the plant would be one year. His  
19 calculation and underlying assumptions are ludicrous. First of all, his  
20 conclusion is based on his incorrect assertion that the OGC plant does not



1           depress prices and does not yield benefits to FRCC consumers. I have  
2           shown that it does. Second, his calculation assumes that the entire  
3           consumers surplus benefit of the plant (\$180 million) realized throughout  
4           the entire FRCC can somehow be confiscated from FRCC consumers and  
5           paid to the utility to buy its plant in a single year. The argument is  
6           patently absurd on its face and should be rejected.

7           Dr. Cicchetti summarizes his pernicious underlying assumption,  
8           namely zero price suppression by the plant. Having lost that assumption,  
9           Dr. Cicchetti is completely refuted in his line of reasoning in this section  
10          of his testimony.

11

12   **Q: On page 49 of his testimony, Dr. Cicchetti states “His analysis also**  
13   **assumes that OGC would sell its output into the current economic**  
14   **dispatch at \$19.00/MWH.” Is that true?**

15   **A: Absolutely not. My analysis assumes that all OGC output is sold to the**  
16   **FPLE market region at the market clearing price that persists there.**

17

18   **Q: Please comment on the analysis that follows lines 8-9 on page 49 of**  
19   **Dr. Cicchetti’s testimony.**

1 A: Lines 4-17 on page 50 of Dr. Cicchetti's testimony are without merit. I  
2 have shown repeatedly that the \$0.85/MWH market clearing price  
3 reduction does indeed apply to all MWH in the FRCC, actually does  
4 reduce the prices in Florida, and therefore that the consumers surplus  
5 benefits indicated in my testimony are indeed "for real." The price  
6 suppression attributable to the entry of OGC is indeed "for real," and it  
7 refutes the calculations presented by Dr. Cicchetti because they depend on  
8 price depressions of zero.

9  
10 **Q: Please comment on Dr. Cicchetti's analysis beginning at the top of**  
11 **page 53 and line 8 page 55.**

12 A: The flaw that ruins the entire argument made by Dr. Cicchetti is the  
13 sentence in lines 9-10: "He also suggests that his model priced OGC at its  
14 marginal cost, or \$19.00/MWH." I never suggested that. What I have  
15 stated is that OGC sells power into the FPLE market at the market  
16 clearing price there, which is the cost of the marginal unit in the FPLE  
17 market. It is not necessarily the marginal cost of the OGC unit. By  
18 making that assumption, i.e., by "assuming it is true" as he states in lines  
19 11-12 on page 53, the subsequent analysis on pages 53-55 is fatally  
20 flawed. In particular, the calculation in lines 15-19 is wrong. The

1 example in my rebuttal to Dr. Landon shows clearly that market clearing  
2 prices do not engage in some sort of “averaging” as Dr. Cicchetti would  
3 have you believe. Quite the contrary, they re-equilibrate at a new  
4 marginal cost, which can be quite far from an old marginal cost. Markets  
5 work at the margin, not at the average as Dr. Cicchetti would have you  
6 believe in the averaging calculations on page 53. Dr. Cicchetti's  
7 calculations cannot possibly be right unless they are margin-related  
8 calculations. The entire section through line 8 on page 55 is thus  
9 erroneous.

10

11 **Q: On page 55 of his testimony in lines 13-16, Dr. Cicchetti states that**  
12 **“Under the pricing terms set forth in the OGC petition and current**  
13 **circumstances, I suspect Florida’s consumers would pay more, not**  
14 **less, if the OGC petition were approved.” Hasn’t that already been**  
15 **proved impossible by your earlier analysis that shows that prices can**  
16 **only fall or stay the same with merchant entrance?**

17 **A: Yes.**

18

19 **Q: On pages 56-58, Dr. Cicchetti complains that Dr. Nesbitt’s prices are**  
20 **too high. Do you agree with Dr. Cicchetti’s assertion?**

1 A: No.

2

3 **Q: What is wrong with his argument?**

4 A: First of all, Dr. Cicchetti's argument is completely unsubstantiated; there  
5 is no empirical or scientific evidence offered. (Every time someone tells  
6 me "it is common sense," I grab for my wallet. "Common sense" is  
7 typically an appeal when rational argument is absent or has failed  
8 altogether.) There is no model and no analytical backing. Dr. Cicchetti's  
9 argument would be much akin for someone in the absence of any model,  
10 empirical judgment, or scientific backing to argue that "the speed of light  
11 is unrealistically high, higher than common sense would indicate.  
12 Assuredly anyone who argues that it is 186,000 miles per second is  
13 hopelessly wrong. It just cannot be that high. I just cannot believe it. It  
14 is just common sense that it would be slower.") In substantiating my  
15 argument, I have put forth a detailed competitive model of the FRCC, and  
16 I have put forth a detailed, cogent, correct example of spatial equilibrium  
17 in my rebuttal testimony to Mr. Waters.

18 I do agree with Dr. Cicchetti that forward prices in Florida are  
19 destined to be high under the retarded and restricted entry schedule of the  
20 FRCC ten year plan, higher than most other areas of the United States.

1           The FRCC ten year plan substantially underbuilds capacity and in my  
2           opinion might well be evidencing the exercise of market power by the  
3           incumbents in the FRCC. The NARE model keeps showing high market  
4           clearing prices just as Dr. Cicchetti suggests under the FRCC ten year  
5           plan, which strongly suggests to me that the plan is deficient in the  
6           amount of new capacity to be built. In particular, the reported \$32/MWH  
7           price predicted by the Altos model is the direct and logical consequence  
8           of the much-too-low capacity addition schedule implicit in the FRCC Ten  
9           Year Plan. The FRCC needs substantially more capacity, and there is  
10          room potentially for both utility and merchant capacity to be added.  
11          There is no zero sum game here between utilities and merchants. There is  
12          no need to restrict entry to conventional utilities only or to merchant  
13          utilities only. Let the markets and the merchant plant process decide, but  
14          do not restrict or decelerate anything.

15                 The consequences of the FRCC ten year plan are precisely what Dr.  
16                 Cicchetti fears—protracted very high prices in Florida accompanied by  
17                 disruptions, shortages, and periods of high (potentially astronomically  
18                 high) prices. This is precisely the world that entry in general and entry of  
19                 projects such as OGC in particular will preclude and prevent. I would  
20                 reply to Dr. Cicchetti: “The high prices you note are caused by your

1 client and its brethren restricting entry by merchants into its markets and  
2 perhaps restricting its own rate of entry below the competitively justified  
3 level so as to garner monopoly rents from the rest of its own capacity that  
4 it chooses to provide to the market.”

5  
6 **Q: Dr. Cicchetti performed a historical comparison on pages 56-59 of**  
7 **system lambdas to your calculated market clearing prices. Please**  
8 **comment.**

9 A: The NARE model prices contain BOTH the fair market value of energy  
10 (the system lambda component) as well as the fair market value of  
11 capacity fully arbitrated in the energy market and fully bundled with the  
12 energy component. Just as oil contains a single aggregate representation  
13 of capacity, reserves, and production, so do the NARE prices contain a  
14 single aggregate value for capacity plus energy. For that reason, the  
15 analysis that Dr. Cicchetti performs is an “apples and oranges”  
16 comparison and has no meaning as a result. My projected FRCC prices  
17 include bundled energy plus capacity, and system lambda is purely energy  
18 with perhaps some variable consumables.

19 I will, however, comment on Dr. Cicchetti’s estimate in line 20 on  
20 page 58 of his testimony that the all in cost of a combined cycle in FRCC

1 should be \$28/MWH or so. The results of our model agree. The reason  
2 the forward price in the NARE model has not fallen to that level, which I  
3 might interpret as long run marginal cost, is that the capacity construction  
4 schedule in the FRCC ten year plan is too slow and too small. There are  
5 not enough builds in that plan to drive prices down to the level of long run  
6 marginal costs, on which we apparently agree with Dr. Cicchetti. The  
7 difference between say \$28/MWH and \$32/MWH is scarcity rent borne of  
8 too little FRCC construction, whether it arises from exercise of market  
9 power by the incumbents or merely slowness or restrictions in entry.

10 On the basis that entry is restricted under the FRCC ten year plan,  
11 the statements in lines 14-21 on page 66 that conclude Dr. Cicchetti's  
12 comparative analysis are not at all unreasonable given that Altos' prices  
13 contain capacity as well as energy and that entry is too slow under the ten  
14 year plan to allow prices to fall to long run marginal cost. That is why  
15 prices in FRCC are higher than Dr. Cicchetti expects to see, and that is  
16 precisely why the OGC project and many more like it are needed. This  
17 set of comments refutes all the system lambda analysis performed by Dr.  
18 Cicchetti up through page 70.

19

1 **Q: Beginning on page 70 of his testimony, Dr. Cicchetti offers**  
2 **alternatives to OGC. Please comment on the alternatives and their**  
3 **viability and comparability to OGC.**

4 **A: In my view, Florida is in trouble. They are facing some of the highest**  
5 **prices in the nation under the ten year plan presently in place, in part**  
6 **because Florida's incumbent investor-owned utilities are strenuously**  
7 **resisting merchant entry, and in part because that ten year plan is**  
8 **insufficient, I would foresee shortages that do not diminish over time.**  
9 **There is assuredly both need and room for merchants and incumbents**  
10 **alike. Those options articulated by Dr. Cicchetti in lines 9-19 on page 70**  
11 **can be pursued completely independently of OGC. OGC has absolutely**  
12 **no effect whatsoever on those alternatives. The Commission should**  
13 **approve OGC and any of those other alternatives it wishes. What troubles**  
14 **me, and what I disagree with, is that merchant plants are not in Dr.**  
15 **Cicchetti's list, but nonmerchants are assuredly in my list and in OGC's**  
16 **list. There is a very troubling asymmetry here, one with which I disagree.**  
17 **I should also add that the list of five options consists of old, cost of**  
18 **service regulated options. OGC is needed to benchmark these other**  
19 **options to ensure that they are cost effective.**

20



1 **Q: On pages 72-3, Dr. Cicchetti states that OGC can ride price spikes to**  
2 **high profitability. Please comment.**

3 **A: Price spikes occur during shortages or emergencies, and presumably out**  
4 **of state backup sources ride the same price spikes. Furthermore, during**  
5 **such emergencies, people are often being blacked out or browned out.**  
6 **They are darned glad to have an OGC around when that happens,**  
7 **whatever the nature of the price spike. Is Dr. Cicchetti arguing that the**  
8 **price that occurs during the price spike is not a fair and appropriate price**  
9 **at that moment in time? I would contend that it is, and I would contend**  
10 **that people are crying out for power at that price. Furthermore, I would**  
11 **want people to see and feel the price spike during time of emergency so**  
12 **that they will be encouraged on an economic basis to husband power use.**  
13 **If that creates incentive for someone such as OGC to enter, so much the**  
14 **better. The idea that the utility should subsidize consumers during price**  
15 **spikes is wrong because it leads to inefficient allocation of resources.**

16  
17 **Q: Dr. Cicchetti suggests on page 76 that merchants do not want**  
18 **competition. Please comment.**

19 **A: No one wants competition if they can avoid it. However, venues where**  
20 **profits are high attract entrants rapidly, and such entry disciplines the new**

1 and old incumbents. Scarcity rents are their own worst enemy; they  
2 attract immediate competition that reduces or eliminates them. There is  
3 “negative feedback” in markets; the market moves to quickly moderate  
4 high incentives through entry. I have faith that the Florida Commission  
5 has the means at its disposal to encourage entry beyond OGC, and that  
6 such entry will quickly discipline OGC and every other entrant. I know  
7 for a fact that a large block of such entry is imminent. Despite all the  
8 fundamental lessons of microeconomic theory, and contrary to Dr. Kahn,  
9 Dr. Cicchetti refuses to see the competitive wholesale market with easy  
10 entry as the ideal answer. His position is misguided. Prices in Peninsular  
11 Florida promise to be higher than long run marginal cost for some time to  
12 come, without additional entry by merchant utilities such as OGC. In  
13 economic terms, that is inefficient. In lay terms, it means higher prices  
14 and restricted supply for customers. Either way, the Okeechobee Project  
15 is needed.

16  
17 **Q: On page 79, lines 15-16, Dr. Cicchetti states: “The OGC will take**  
18 **resources such as land, water, air and natural gas from Florida.”**

19 **Please comment.**

1 A: This statement is wrong. In the first place, there is an incumbent  
2 entitlement being inappropriately implied here. Do the citizens of Florida  
3 own the contents of Target, WalMart, Macy's, Ford Motors, etc.? Those  
4 are out of state entities, and assuredly they profit from Florida consumers  
5 and ship some of their profits out of state. Certainly no one would  
6 attempt to deny these firms entry into Florida. Those companies are free  
7 to do business in Florida under the law and pursue profits by so doing.  
8 OGC is no different. No one in Florida is giving them anything. They are  
9 lawful economic users of everything they will have. Moreover, because  
10 of the technical engineering efficiency of the Okeechobee Project, it is  
11 virtually certain that the Okeechobee Project will utilize less water and  
12 less natural gas than existing power plants, and that it will emit  
13 dramatically less air pollution, thus providing overall efficiency gains and  
14 environmental benefits to the State.

15  
16 Q: On page 86 lines 16-18, Dr. Cicchetti states that "...my primary  
17 concern is that the OGC output estimates fail to consider the fact that  
18 OGC will, in the future, cease to be the least-cost plant in the market.  
19 As other generating stations enter with lower costs and more

1           **efficiency, OGC's output will be displaced and the unit will be**  
2           **retired.**

3    A:    I disagree with the implication of this question that somehow the  
4           important issue is "new against new" and that each "new" plant must be  
5           the strict, undisputed lowest cost unit. That is wrong. The truth is that it  
6           is "new against old." New entrants compete against the marginal plant.  
7           Better new entrants that come along subsequently do not compete against  
8           recent new entrants; they compete against better marginal units but  
9           nonetheless marginal units. Dr. Cicchetti's discussion misses or  
10          underplays the "new against old" nature of electric plant competition.  
11          Even if a new plant remains the very best in class for only a year or two, it  
12          can nonetheless expect to be valuable throughout its entire life. There is  
13          nearly zero technological obsolescence risk facing OGC given the  
14          extreme shortage of low cost capacity and high need that exists in Florida  
15          today and into the future under the ten year plan.

16  
17    Q:    **On page 87, Dr. Cicchetti expresses concern about OGC hedging**  
18           **various risks. Please comment.**

1 A: This is not a legitimate concern. OGC is shouldering 100 percent of the  
2 risk of the unit. Only their shareholders and management need be  
3 concerned about hedging.

4  
5 **Q: On page 91, line 18, Dr. Cicchetti states: "Others, including IOUs,  
6 are prepared to meet any supply gap. Do you agree?"**

7 A: No. If the FRCC ten year plan is any indication, the IOUs are planning to  
8 meet less than the supply gap that will exist under that plan. Dr.  
9 Cicchetti's statement is absolutely incorrect. The FRCC ten year plan is  
10 shy of the necessary capacity, so much so that it keeps the capacity plus  
11 energy price in the \$32/MWH range and above long run marginal cost.

12  
13 **Q: On page 92, Dr. Cicchetti states: "I certainly do not think there is  
14 any evidence that OGC beats other ownership/regulatory  
15 approaches, or that infra-marginal merchant plants priced to market  
16 are the best approach for Florida."**

17 A: That comment does not address need at all. No individual plant such as  
18 OGC has to be the very best in class in order to meet need. There is only  
19 one very best in class plant in Florida at any one time, yet all the other  
20 plants are meeting need just as the very best in class plant is. I dispute the

1           implications in Dr. Cicchetti's testimony that only the very best in class  
2           need apply. That is a Trojan Horse for no entry by anyone other than an  
3           incumbent.

4  
5   **Q:   On page 100, Dr. Cicchetti states that "Dr. Nesbitt makes a fatal**  
6   **error . . . in failing to recognize that under cost of service regulation,**  
7   **there is no difference between price and cost." Please comment.**

8   **A:   I ardently disagree with this. I subscribe to the Kahn statement that price**  
9   **in a regulated world should strive to emulate marginal cost just as it**  
10   **should in a competitive world. Setting price equal to average embedded**  
11   **cost as rate of return regulation strives to do has been an inefficient,**  
12   **historically acceptable, but decreasingly acceptable surrogate. The**  
13   **inefficiencies and the regulatory intrusiveness are in my view what are**  
14   **contributing to its demise around the country and around the world. The**  
15   **analysis I have put forth to demonstrate need for OGC is based on the**  
16   **assumption of price equals marginal cost, and it represents the efficient**  
17   **allocation of FRCC resources subject to the build schedule in the FRCC**  
18   **ten year plan (which is too slow).**

19

1 **Q: On page 101, Dr. Cicchetti states: “Dr. Nesbitt’s analysis is fraught**  
2 **with so many logical and mathematical errors so as to render it**  
3 **utterly useless to the Commission in establishing that the proposed**  
4 **merchants plant satisfies the economic need requirement.” Please**  
5 **comment.**

6 **A: I believe that this is simply an inappropriate personal attack. Dr. Cicchetti**  
7 **has not disproved even one of my assertions. His whole argument hinges**  
8 **on his Figure CJC-1A, which I have shown both with my model and in**  
9 **this rebuttal is simply, but completely, wrong. Prices do fall with the**  
10 **entry of OGC, and accordingly, my conclusions are valid. Dr. Cicchetti**  
11 **has put forth only a conceptual supply stack in his Figure CJC-1A; I have**  
12 **put forth the actual supply stack, actually regionalized it, actually**  
13 **regionalized the demand, and actually calculated the consequent supply-**  
14 **demand equilibrium throughout Florida. It absolutely unequivocally**  
15 **refutes Dr. Cicchetti’s conjectures.**

16  
17 **REBUTTAL TO SUPPLEMENTAL TESTIMONY OF JOHN H.**  
18 **LANDON**  
19

20  
21 **Q: Dr. Landon alleges in lines 19-20 on page 1 that you failed to provide**  
22 **him “appropriate documentation and input files to the model in the**

1           **course of discovery.” Did you withhold anything or fail to provide**  
2           **anything to your knowledge?**

3    A:    No. To my knowledge, Altos provided Dr. Landon everything related to  
4           the model, its inputs, and its outputs, with the exception of the publicly  
5           available data bases of the FERC Form 714 and FERC Form 715 data,  
6           which are available through the FERC's home page. I instructed my  
7           associates to provide everything and withhold nothing. Information was  
8           provided in two phases. The first phase occurred last November when  
9           Altos provided everything that was not part of the MarketPoint product  
10          (which Altos does not own). The second phase occurred in February  
11          2000 when Altos provided MarketPoint 3.0, all MarketPoint files used for  
12          the September 1999 analysis, and the user guide to MarketPoint under  
13          personal and corporate guarantees pursuant to the Commission's order  
14          regarding this discovery.

15

16    **Q:    Dr. Landon criticizes the iterative solution technique of the Altos**  
17          **NARE Model and the MarketPoint™ platform. Is this criticism**  
18          **valid?**



1 A: No. Dr. Landon's criticism centers on the alleged failure of the Model to  
2 produce a satisfactorily converged solution set of equilibrium prices and  
3 quantities. His criticism, however, is inappropriate and incorrect.

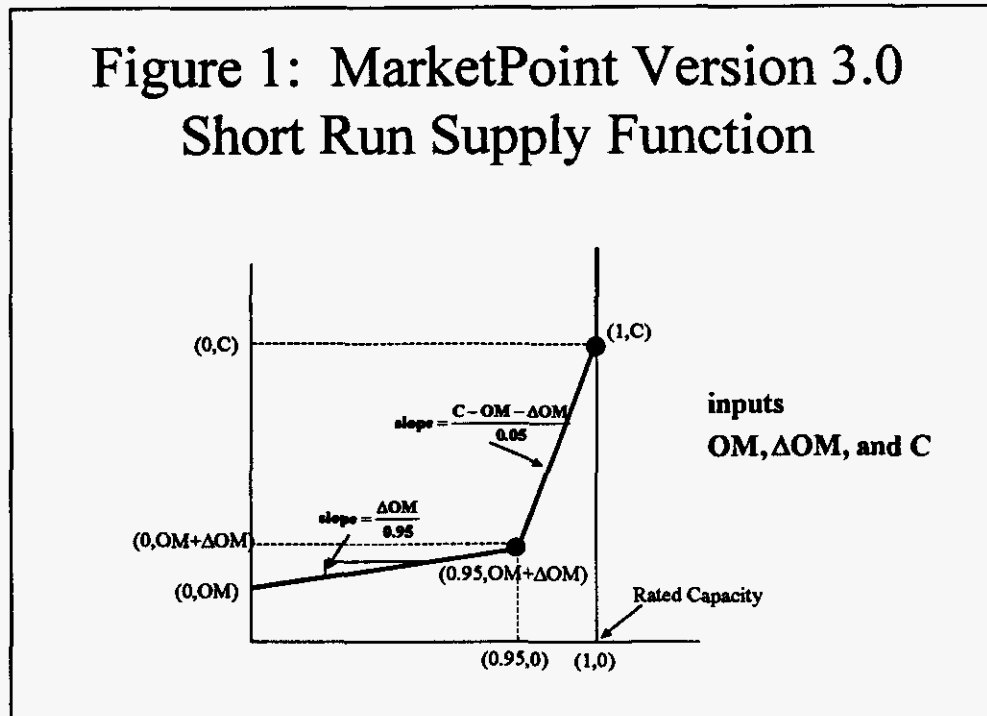
4

5 **Q: Would it be helpful to understand the nature of the short term supply**  
6 **curve in MarketPoint™ 3.0 to understand the nature of the iterative**  
7 **solution technique?**

8 A: Yes, it would.

1 Q: Please briefly explain.

2 A: The short term supply curve embedded in MarketPoint Version 3.0 that



3 pertains for every "node" in the model, whether that node represents a  
4 single plant or an aggregate of plants, has the form in Figure 1. I interpret  
5 this curve as a short run marginal cost function. It is useful to write the  
6 equations for the short term marginal cost function, the short term total  
7 cost function, and the short term average cost function given by the curve  
8 in Figure 1. Denoting by  $q$  the distance out the horizontal axis, we write  
9 the various short term cost functions in the range  $0 \leq q \leq 0.95$  as follows:

10

$$MC(q) = \frac{\Delta OM}{0.95} q + OM$$

1  $TC(q) = \frac{\Delta OM}{0.95} \frac{q^2}{2} + OMq$

$$AC(q) = \frac{\Delta OM}{0.95} \frac{q}{2} + OM$$

2 At the point  $q=0.95$ , the foregoing values are

$$MC(0.95) = \Delta OM + OM$$

3  $TC(0.95) = \frac{0.95}{2} \Delta OM + 0.95OM$

$$AC(0.95) = \frac{\Delta OM}{2} + OM$$

4 For the portion of production between  $q=0.95$  and  $q=1$ , we write

5 the marginal cost function

6  $MC(q) = \frac{C - OM - \Delta OM}{0.05} q - \frac{0.95C - OM - \Delta OM}{0.05}$

7 Thereafter, we calculate the total cost and average cost functions as

8 follows

$$MC(q) = \frac{C - OM - \Delta OM}{0.05} q - \frac{0.95C - OM - \Delta OM}{0.05}$$

9  $TC(q) = \frac{C - OM - \Delta OM}{0.05} \frac{q^2}{2} - \frac{0.95C - OM - \Delta OM}{0.05} q + \frac{0.95}{2} \Delta OM + 0.95OM$

$$AC(q) = \frac{C - OM - \Delta OM}{0.05} \frac{q}{2} - \frac{0.95C - OM - \Delta OM}{0.05} + \frac{\frac{0.95}{2} \Delta OM + 0.95OM}{q}$$

10 From the perspective of the model solution and the algorithm, it is

11 the marginal cost function that requires discussion. I rewrite it here for

12 convenience

13

$$MC(q) = \frac{\Delta OM}{0.95}q + OM \quad 0 \leq q \leq 0.95$$

$$1 \quad MC(q) = \frac{C - OM - \Delta OM}{0.05}q - \frac{0.95C - OM - \Delta OM}{0.05} \quad 0.95 \leq q \leq 1$$

$$MC(q) = \infty \quad q > 1$$

2           I believe I can make clear from the marginal cost equation that  
 3           indeed the model has converged within its design tolerance limits and is  
 4           reproducible, contrary to the allegation made by Dr. Landon. To do so,  
 5           let me input some representative values that might characterize a gas  
 6           combined cycle unit such as OGC. Assume that  $OM = \$18/\text{MWH}$ ,  
 7            $\square OM = \$2/\text{MWH}$ ,  $C = \$250/\text{MWH}$ . The middle equation for marginal cost,  
 8           i.e., the steep segment of the marginal cost curve, has the form

$$9 \quad MC(q) = 4600q - 4350 \quad 0.95 \leq q \leq 1$$

10          and the top equation for marginal cost, i.e., the flat segment of the  
 11          marginal cost curve, has the form

$$12 \quad MC(q) = 2.105263q + 18 \quad 0 \leq q \leq 0.95$$

13           Beginning with the steep portion of the marginal cost curve, if we  
 14          can converge the quantity to a tolerance of 1 percent (0.01), that means  
 15          we converge the marginal cost (and therefore the market clearing price) to  
 16          a tolerance of \$46/MWH. If we can converge the quantity to a tolerance  
 17          of 0.001 (0.1 percent), that means we converge the price to a tolerance of  
 18          \$4.60/MWH. If we can converge the quantity to a tolerance of 0.0001

1 (0.01 percent), that means we converge the price to a tolerance of  
2 \$0.46/MWH. Finally, if the market equilibrium occurs on the steep part  
3 of the supply curve (which it does at time of peak in FPLE), if we can  
4 converge the quantity to a tolerance of 0.00001 (0.001 percent), that  
5 means we converge the price to a tolerance of \$0.046/MWH).

6 The flat portion of the curve is much less problematic. If we can  
7 converge the quantity to within 0.01 (1 percent), the marginal cost and  
8 hence the price will be converged to within \$0.021/MWH. If we can  
9 converge the quantity to within 0.001, the price will be converged to  
10 within \$0.0021/MWH. If we can converge the quantity to within 0.0001,  
11 the price will be converged to within \$0.00021/MWH. Clearly the flat  
12 portion of the curve is the easy portion to converge. Comparison between  
13 the September model runs at time of base and the February model runs at  
14 time of base would bear this out. They reproduce each other to a high  
15 degree of precision.

16 It is evident from this example why it took so much time for  
17 MarketPoint Version 3.0 to converge to tenths or hundredths of dollars  
18 per MWH during time of peak. Clearly the quantity will have long since  
19 converged (e.g., quantity correct to within 0.00001) while the price will  
20 have only converged to a tolerance of \$0.046/MWH. In such a situation,

1 the market would be vanishingly close to being in exact balance; however,  
2 to obtain even greater accuracy in price than a nickel per MWH at time of  
3 peak, would require making many more iterations with smaller  
4 convergence criteria than 0.00001.

5  
6 **Q: What convergence criterion did you use for the September 1999**  
7 **model runs that formed the basis for your direct testimony and**  
8 **exhibits in this proceeding?**

9 **A:** In MarketPoint™ Version 3.0, Altos generally used the criterion of  
10 converging the quantity to within 0.001 (0.1 of 1 percent), which I believe  
11 is quite reasonable for a large iterative model of this type. This degree of  
12 convergence on the quantity side yields a tolerance in price at time of  
13 peak of \$4.60/MWH against a base price of say \$120/MWH. This is a 3  
14 percent tolerance in price at time of peak, which is, in my opinion,  
15 entirely acceptable. (One should remember that forecasts and projections  
16 are only estimates of future values, and accordingly, they are appropriate  
17 when projected within a reasonable range.) To go beyond that, it is  
18 understandable why one has to run so many iterations with such small  
19 adjustment factors.

1           Based on this insight, it is not the case that the model failed to  
2 converge. It did. However, Mike Blaha and the various intervenor  
3 consultants were comparing a run from last September converged within 1  
4 percent or so (on the quantity side) to a model run in February 2000 also  
5 converged to 1 percent or so on the quantity side. These runs demonstrate  
6 that the Model was quickly within the degree of difference between two  
7 cases that were each individually converged to within 1 percent or so on  
8 the quantity side. In short, the Model converged to within the 1 percent  
9 tolerance MarketPoint Version 3.0 was designed to achieve

10

11 **Q: Based on your analysis thus far, would you agree that the intervenors**  
12 **were not able to reverify the September 1999 original MarketPoint**  
13 **Version 3.0 runs that were the basis of the OGC filing?**

14 **A: No.** As explained above, I believe the runs I reviewed did reproduce the  
15 earlier runs to within the tolerance that those runs were constructed to  
16 meet. All but the superpeak prices in August and September were  
17 lockstep consistent, and the superpeak prices in August and September  
18 were within the intrinsic tolerances of the model as it existed at that time.

19

20 **Q: Did Altos fail to include the OGC plant in the analysis?**

1 A: That is not my interpretation at all. The with OGC and without OGC runs  
2 differed by exactly the 550 MW of the OGC project. The cost of the 550  
3 MW difference between the two cases was consistent with and  
4 representative of gas combined cycle heat rates and operating costs in the  
5 region. Notwithstanding what the various plants might have been called  
6 in the XLS (Microsoft EXCEL) input files, the with versus without case  
7 properly represented and compared an OGC-equivalent plant and its  
8 impact on the FRCC market under the assumptions made throughout  
9 Florida in the Altos cases. One should not assume that the input XLS  
10 spreadsheets are not representative of the situation just because the names  
11 are different. One must assess the specific numbers resident within  
12 MarketPoint itself. Those numbers properly represented the impact of an  
13 OGC class plant with same or similar parameters operating within FPLE.

14 What did happen in these runs is that the "backdrop" of the FPLE  
15 subregional generating fleet included only approximately 1,000 MW of  
16 natural gas-fired combined cycle capacity; had the "backdrop" case been  
17 properly specified, it would have contained about 1,500 to 1,600 MW of  
18 gas-fired combined cycle capacity, including an amount of capacity equal  
19 to the equivalent capacity of both FPL's Martin 3 and 4 units and the  
20 Okeechobee Generating Project in the "with OGC" case. Thus, the run in



1 the "with OGC" case was approximately 500 to 550 MW of gas combined  
2 cycle capacity "light," and the "without OGC" case was similarly "light"  
3 in terms of the total gas combined cycle capacity.

4

5 **Q: What, if any, effect would this omission have on the numeric results**  
6 **presented in your direct testimony regarding wholesale price**  
7 **suppression effects?**

8 **A:** It would, in all likelihood, result in the estimated wholesale price  
9 suppression effects being slightly overstated. This would be because the  
10 overall costs would be less from a base of 1,500-1,600 MW of combined  
11 cycle capacity than from a smaller base of 1,000 MW or so of combined  
12 cycle capacity.

13

14 **Q: Dr. Landon on page 8 of his supplemental testimony states that "Dr.**  
15 **Nesbitt's price suppression effect derives from a reduction in his**  
16 **computed 'market price' due to the OGC Project's indirect**  
17 **displacement of what would otherwise be the marginal unit in the**  
18 **market. Dr. Nesbitt is correct that the plants at the margin in Florida**  
19 **are relatively expensive, this is especially true during the peak periods**  
20 **which is why most of Dr. Nesbitt's calculated consumer benefits occur**

1           **during his estimated peak periods. Because the costs of the marginal**  
2           **generating unit at peak are so high, building virtually any new plant**  
3           **in Florida will have the effect of displacing the marginal units at**  
4           **peak, establishing a new, lower cost marginal unit, and reducing the**  
5           **computed peak period ‘market price.’ Do you agree?**

6    A:    Yes.    Furthermore, this statement by Dr. Landon directly and  
7           unequivocally rebuts and refutes the testimony of Dr. Cicchetti and shows  
8           it to be utterly wrong and utterly worthless. Dr. Landon is diametrically  
9           opposite of Dr. Cicchetti, and Dr. Landon is correct.

10           Dr. Landon goes on to state on page 9 of his supplemental  
11           testimony that “As can be seen from Dr. Nesbitt’s Exhibit 5, the slope of  
12           the supply curve becomes progressively steeper, i.e., each of the last units  
13           in the supply curve are more expensive than the prior unit by an  
14           increasing amount. This means that the greatest initial price suppression  
15           effect will accrue to the first plant to enter the market, since it will  
16           displace, albeit indirectly, the most expensive plants available.  
17           Thereafter, the price suppression effect associated with additional plants  
18           will be progressively smaller as the displaced generation is progressively  
19           less expensive until a new equilibrium is reached in which entry is no  
20           longer economic.” I agree with Dr. Landon.

1

2 **REBUTTAL TO SUPPLEMENTAL TESTIMONY OF DAVID W. SOSA**

3

4 **Q: Dr. Sosa alleges on page 4 of his testimony that he has been unable to**  
5 **replicate your results. Please comment.**

6 A: In my rebuttal of supplemental testimony to John H. Landon, I show why  
7 that is not true, at least not for the replication runs by Dr. Sosa and his  
8 associate intervenors that I saw. In particular, the NARE models runs Dr.  
9 Sosa and his associates made replicated Altos' September model runs  
10 within the tolerance that was built into the MarketPoint Version 3.0  
11 software.

12

13 **Q: Dr. Sosa alleges that Altos did not include the OGC project in its**  
14 **analysis. Please comment.**

15 A: I disagree for the reasons set forth in my rebuttal to the supplemental  
16 testimony of John H. Landon (above).

17

18 **Q: On page 21 of his testimony, Dr. Sosa lists files that were not provided**  
19 **by Altos during the original discovery requests. Please comment.**

20 A: These files were not delivered because they were part of MarketPoint™,  
21 which Altos agreed to deliver only after the Prehearing Officer ruled on

1 OGC's motion for protective order with respect to the MarketPoint™  
2 software and the Altos Models.

3 I should also mention that the GE MAPPS results are not the  
4 property of Altos and therefore could not be delivered by Altos. It is my  
5 understanding that the specific GE MAPPS transmission constraint  
6 information used in the Altos analyses was delivered in early responses to  
7 the intervenors' document production requests.

8  
9 **Q: On page 36, Dr. Sosa states “. . . for the peak period (P1) in August**  
10 **2003, Dr. Nesbitt does not rely on the price estimated by his model**  
11 **under the 'without OGC' scenario. Rather than rely on his model**  
12 **output for the August 2003 peak period, Dr. Nesbitt substitutes a**  
13 **figure that he has calculated independent of his model.” On page 37,**  
14 **Dr. Sosa states “Dr. Nesbitt has not explained his rationale for using**  
15 **higher prices during the August peak than his model reports to**  
16 **calculate a price suppression effect.” Are those allegations true?**

17 **A: No. I never substituted a number not calculated by the model for any**  
18 **number that would otherwise have been calculated by the model, and**  
19 **neither did Mr. Blaha or any other Altos person to my knowledge. Dr.**  
20 **Sosa offers no evidence whatsoever for this allegation.**

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**REBUTTAL TO SUPPLEMENTAL TESTIMONY  
OF SAMUEL S. WATERS**

**Q: Mr. Waters states that the Altos Model is not representative of the Florida markets of today or of the past. Is this an accurate assertion?**

**A: No. The Altos Model depicts the Florida markets as an interrelated set of sub-markets, defined by transmission constraints and load centers, which they most certainly are, and it depicts the markets operating in such a way as to match load to supply in the least-cost manner, taking account of transmission constraints between sub-regions. Frankly, I believe that this is a very good depiction and representation of the Florida wholesale power market. Moreover, except in the superpeak hours, the Altos Model estimates market-clearing price at the marginal cost of the last generation resource on line; and in the superpeak hours, the Altos Model reflects (realistically, in my opinion) the observed fact that scarcity drives prices up. In part, this is due to competition for generation resources to supply energy and ancillary services. Also, the latter portion of Mr. Waters' attempted critique is nothing but a comparison of average cost methods (cost of service regulatory methods) versus marginal cost methods. I**

1 believe my rebuttal of Dr. Cicchetti's testimony has fully rebutted that  
2 argument.

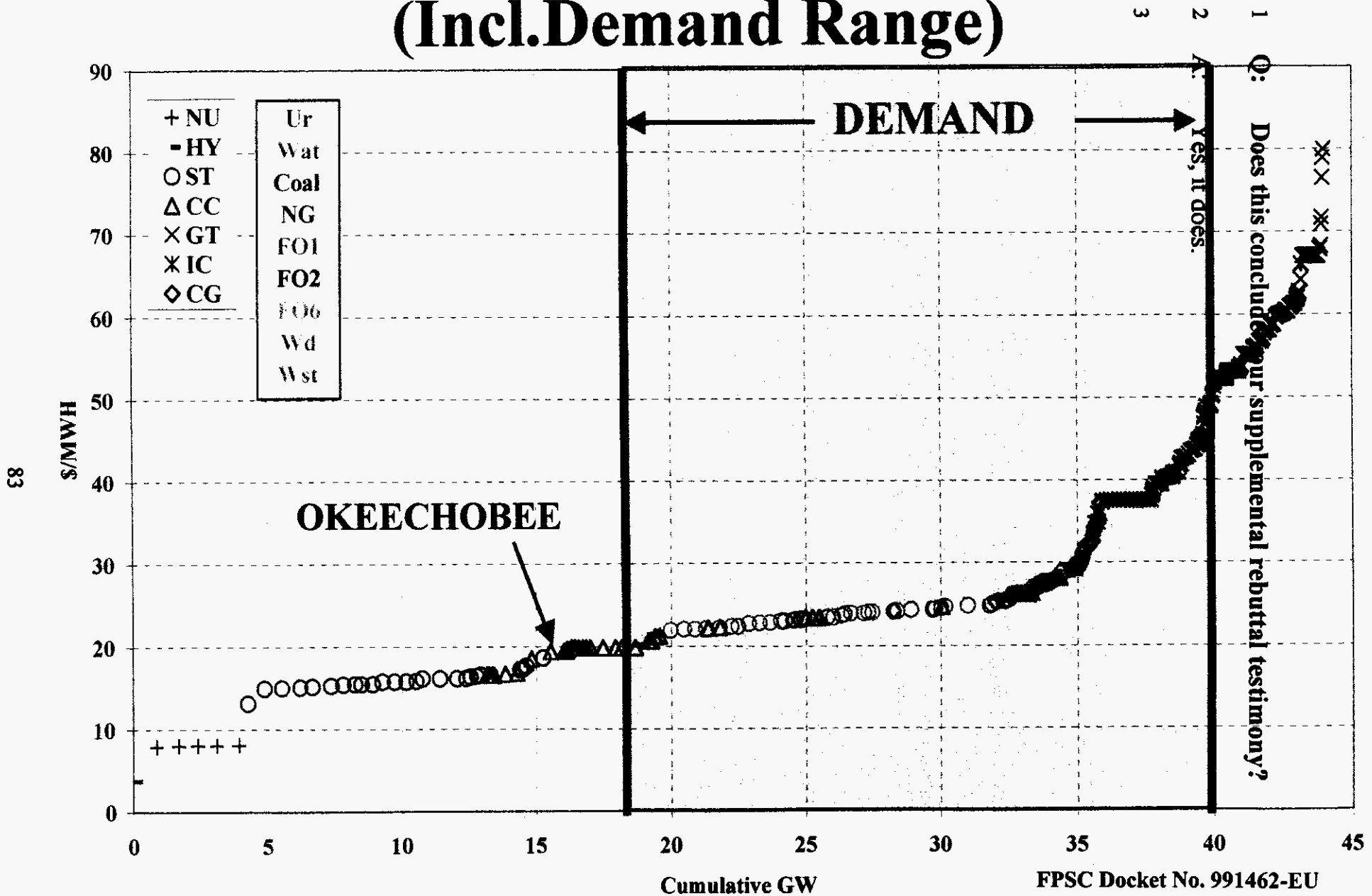
3

4 **Q: On page 6, line 16 of his testimony, Mr. Waters alleges that Dr.**  
5 **Nesbitt's results assume a fundamental market restructuring in**  
6 **Florida. Please comment.**

7 A: That assertion is incorrect. I have simply assumed that the wholesale  
8 power markets in FRCC will be competitive, as they are supposed to be  
9 today. It does not matter whether prices are quoted, and business  
10 transacted, through an electronic bulletin board, or by numerous phone  
11 calls between the power trading entities active in the Florida market, or  
12 through some other medium, so long as there are a reasonable number of  
13 sellers and buyers trading with relatively transparent price information. I  
14 believe that the fundamentals of such a competitive trading system exist  
15 today in Florida, and that is all that the Altos Model assumes. I should  
16 add that if such effective and transparent trading is not occurring, the lack  
17 thereof would represent a relatively serious deficiency in the market that  
18 would lead to inefficient operations and decisions, to the detriment of  
19 Florida's electric customers.

20

# Exhibit 5: FRCC 2003 Supply Stack (Incl. Demand Range)



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