ORIGINAL




# BEFORE THE
# ARIZONA CORPORATION COMMISSION

E-00000A-02-0051
E-01345A-01-0822
E-00000A-01-0630
E-01933A-02-0069
E-01933A-98-0471

## Supplemental Affidavit of
## Charles J. Cicchetti, Ph.D.

## Docket No. E-00000A-02-0051, et al.

## On Behalf of

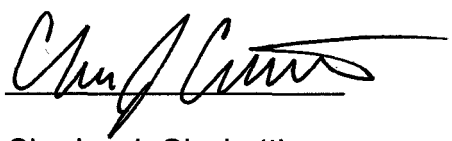
## Arizona Public Service Company

## June 26, 2002

1. My name is Charles J. Cicchetti. I previously testified before the Arizona Corporation Commission in the Generic Electricity Competition proceeding. When I was cross-examined, I was asked to review my files for two types of information. I have now done so.
2. The first matter relates to my checking the California data files to determine whether Panda or TECO traded together or separately in either the California Power Exchange (CPX) or California Independent System Operator (CAISO) markets during the California Refund Period of October 2, 2001 through June 20, 2001. In reviewing the data in the FERC proceeding, I can confirm that neither Panda nor TECO traded as a Scheduling Coordinator (this is the level of aggregation in the FERC related data) in these California energy markets.
3. I have confirmed with respect to the second matter I was requested to check that Panda proposed two merchant operating plants in Florida and that I became familiar with these applications, as well as a similar filing by PG&E with respect to the Okeechobee Generating Plant. The two separate Panda filings were in Lake County (the Leesburg Power Partners, L.P.) and St. Lucie County (Panda Midway Power Partners, L.P.). All three generating units employed the same economic consultant in their respective Need Petitions. This consultant was Dr. Dale Nesbitt (Altos Management Partners).
4. Dr. Nesbitt's analyses in all three merchant generating cases were predicated on a wholesale arrangement in which merchant generators

would be paid on the basis of maximum supply stack marginal production costs. Accordingly, my detailed testimony in the first of these applications (PG&E's Okeechobee in Florida Power's territory) demonstrates that Florida's retail electricity consumers would pay much more over a 30-40 year life and the merchant owner would expect to earn much more profit as compared to either a traditional cost of service treatment or a long-term bilateral amortization using traditional utility type financing. I have attached the testimony and exhibits I filed in that proceeding as Exhibit A to this affidavit.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Executed this 26th day of June 2002, at Pasadena, California.



Charles J. Cicchetti

# EXHIBIT A

FILE

# BEFORE THE PUBLIC SERVICE COMMISSION

# INTERVENOR TESTIMONY OF

# CHARLES J. CICCHETTI

# DOCKET NO. 991462

# On behalf of

# FLORIDA POWER CORPORATION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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: PETITION FOR DETERMINATION OF NEED FOR THE

OKEECHOBEE GENERATING PROJECT, FPSC DOCKET NO. 991462-EU

DIRECT TESTIMONY OF CHARLES J. CICCHETTI, PH.D.

# SECTION I: INTRODUCTION

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Charles J. Cicchetti. My address is Pacific Economics Group, 201 South Lake Street, Suite 400, Pasadena, California 91101.

**Q. WHAT IS YOUR POSITION WITH PACIFIC ECONOMICS GROUP?**

A. I am a Co-Founding Member of Pacific Economics Group.

**Q. WHAT ARE YOUR DUTIES AS A MEMBER OF PACIFIC ECONOMICS GROUP?**

A. I actively consult with clients on price, costs, environmental, natural gas and electricity market issues and antitrust policies, particularly as those policies relate to regulated industries.

**Q. DO YOU HOLD ANY OTHER POSITIONS?**

A. I am the Jeffrey J. Miller Chair in Government, Business, and the Economy at the University of Southern California.

**Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

A. I attended the United States Air Force Academy and I received a B.A. degree in Economics from Colorado College in 1965 and a Ph.D. degree in Economics from Rutgers University in 1969. From 1969 to 1972, I engaged in post-doctoral research at Resources for the Future.

**Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

A. I served as chief economist for the Environmental Defense Fund from 1972 to 1975, and was a faculty member at the University of Wisconsin from 1972 to 1985, ultimately earning the title of Professor of Economics and Environmental Studies. From 1975 through 1976, I served as the Director of the Wisconsin Energy Office and as Special Energy Counselor for the Governor. In 1977, I was appointed by the Governor as Chairman of the Public Service Commission of Wisconsin and held that position until 1979 and served as a Commissioner until 1980. In 1980, I co-founded the Madison Consulting Group, which was sold to Marsh & McLennan Companies in 1984, and merged into National Economic Research Associates, and I became Senior Vice President and held that position until 1987. From 1987 until 1990, I served as Deputy Director of the Energy and Environmental Policy Center at the John F. Kennedy School of Government at Harvard University and from 1988 to 1992, I was a Managing Director and ultimately Co-Chairman of the economic and management consulting firm, Putnam, Hayes & Bartlett, Inc. In 1992, I served as National Director and formed Arthur Andersen Economic Consulting, a division of Arthur Andersen, LLP. In 1996, I left Arthur Andersen to co-found Pacific Economics Group. In 1998, I accepted the Jeffrey J. Miller Chair at the University of Southern California.

**Q. HAVE YOU PUBLISHED ANY PAPERS OR ARTICLES?**

A. Yes. I have published a number of articles on energy and environmental issues,

public utility regulation, competition and antitrust. A complete listing of my publications is included in Exhibit CJC-1.

**Q. HAVE YOU EVER GIVEN EXPERT TESTIMONY IN A COURT OR ADMINISTRATIVE PROCEEDING?**

A. Yes. A list of the proceedings in which I have provided expert testimony since 1980 is also included in Exhibit CJC –1.

**Q. WHO RETAINED YOU FOR THIS TESTIMONY?**

A. I have been retained by Florida Power Corporation (FPC).

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. I have been asked to consider and address the prefiled testimony submitted by Dr. Dale Nesbitt, who appears for the Petitioner, in support of permitting the Okeechobee Generating Company (OGC) to enter the Florida market under current rules, regulations and conditions. In so doing, I analyze the relevant economic and regulatory principles that should be applied by the Florida Public Service Commission (the "FPSC" or "Commission") in making its decision.

**Q. ARE YOU SPONSORING ANY EXHIBITS?**

A. Yes.

- Exhibit CJC-1 is my resume.
- Exhibit CJC-2 consists of seven pages. This exhibit shows the way in which a merchant plant would collect its capital costs and contrasts that

with the way in which an incumbent would collect those same capital costs.

- Exhibit CJC-3 consists of five pages. The first page shows graphically the profits that the OGC plant would expect to receive. Pages two and three discuss the assumptions that I used in this Exhibit and presents the steps used in this analysis. Pages four and five are reproductions of Dr. Nesbitt's Exhibits DMN-5 and DMN-6, respectively.
- Exhibit CJC-4 is a copy of the FRCC's Y2K plan.
- Exhibit CJC-5 is a copy of Reliant Energy's initial refusal to operate its plants in response to the FRCC's request that Reliant do so to comply with the FRCC's Y2K plan.
- Exhibit CJC-6 shows the sources of electricity in the State of Florida.
- Exhibit CJC-7 details the purchase power expenses for the three investor owned utilities (IOUs) in Florida.
- Exhibit CJC-8 details the estimated energy costs in Florida.

**Q. WHAT ARE THE PRINCIPAL ECONOMIC AND REGULATORY CONCEPTS THAT YOU CONSIDER IN YOUR TESTIMONY?**

A. I begin by addressing some very fundamental concepts. These are:

- Perfect competition should not be compared either with: imperfect regulation, biased descriptions of regulation, or the current form of regulation in Florida.

- Competition should not be micromanaged if economic efficiency is to be achieved.
- TANSTAAFL: There Ain't No Such Thing as a Free Lunch. Merchant plants are neither "manna from heaven" nor do they represent the unlikely outcome of pure benefits without costs.
- Deregulation works best in the short-run for consumers when supply exceeds demand, not *vice versa*.
- Rate base, or cost-of-service regulation, is less costly if Florida is relatively certain about what is needed and how it should be supplied.
- Infra-marginal generating stations "priced-to-market" would generally expect to achieve supra-marginal or above-normal returns as they "cream skim the system."
- The economic value of a generation station needs to be forward-looking, not backward or contemporaneous looking.
- Restructuring, customer choice, and competition comprise a political process of "Gives" and "Gets" in which the objectives are clear: lower prices, free entry, new products, customer protection through choice and regulatory policing, and specific mandates and requirements. Merchant plant proposals are simply not on the same page.

If regulators in Florida wanted to place cost-of-service performance on a par with price-to-market merchant plants they could consider expanding performance incentives for rate-base financed generators.

**Q. HOW IS YOUR TESTIMONY ORGANIZED?**

A. A. In Section II, by way of background, I begin by addressing each of the economic and regulatory principles I mentioned above, and explain how they have been neglected or misapplied by Dr. Nesbitt. In Section III, I demonstrate that Dr. Nesbitt's claims concerning the savings that the OGC plant would produce for consumers are false and misleading. In Section IV, I address additional arguments that Dr. Nesbitt has made in support of OGC's Petition and explain why those arguments are, at best, misleading and overstated, and, at worst, untrue and purposely obfuscating. In Section V, I summarize my conclusions.

**Q. HAVE YOU REVIEWED DR. NESBITT'S PREFILED DIRECT TESTIMONY IN THIS PROCEEDING?**

A. Yes.

**Q. WHAT IS YOUR OPINION OF DR. NESBITT'S TESTIMONY?**

I admire his enthusiasm and language use. However, his testimony is marred by a lack of both economic and common sense. I find that Dr. Nesbitt's numerical results are so false that he should have discovered or surmised that something was amiss.

I find that Dr. Nesbitt analyzes OGC relative to a world that does not exist in Florida. He uses issues from this world (e.g., alleging potential FPL and FPC market power) that do not pertain in Florida at this time. Worse, he claims a pricing outcome and estimates benefits for a setting with market rules that OGC does not propose to follow.

He overstates OGC's advantages, erroneously claiming that others could not replicate them. He fails to admit OGC's differences, which would shed unfavorable light on OGC's petition. Dr. Nesbitt's testimony is utterly transparent and devoid of any substantive value.

**Q. AS A GENERAL PROPOSITION, DOES DR. NESBITT'S TESTIMONY PROVIDE SUPPORT FOR THE COMMISSION GRANTING OGC'S PETITION?**

A. No. Dr. Nesbitt grossly overstates any unique case for OGC. (1) Real alternatives are given short shrift and otherwise distorted. (2) The Case for merchant plants over similar plants financed through cost-of-service regulation has not been made. (3) OGC's value is inflated due to the fact that it is compared to Florida's past, not its future, regardless of whether the future is regulated, competitive, or some combination.

**Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

A. There are three key points that I need to make. First, contrary to Dr. Nesbitt's assertions in this case, the proposed merchant plant would not address reliability issues in Florida. Simply put, a merchant plant that is uncommitted cannot be

counted upon for this reliability requirement. The merchant plant is free to sell anywhere and chase high spot prices whenever it chooses. Worse, it uses up scarce resources (transmission, air, water and land) that may, in the future, prevent an incumbent IOU from building a plant that would actually address reliability issues. Unless regulators impose some form of must-run, must-bid, and capped price restrictions on the merchant plant, they simply cannot rely on that plant for reliability purposes at reasonable prices.

Second, the proposed merchant plant would not meet an economic need for additional capacity. Here, Dr. Nesbitt assumes that there is no difference between price and cost. Dr. Nesbitt's assumption is simply not true in a hybrid regulated cost-of-service world where a merchant plant is permitted to price to market. Dr. Nesbitt compounds his error by assuming something that does not exist in Florida, a perfectly competitive electricity market that will discipline merchants. Contrary to his assumption, Florida is a least cost of service or regulated environment that does not distinguish between least price and least cost. Allowing a merchant plant to enter and "compete" in this environment introduces imperfect competition, which will benefit only the merchant to the detriment of the incumbent utilities and their customers.

Third, contrary to what Dr. Nesbitt claims, the proposed merchant plant would not be cost effective for consumers. Compared to the same plant built by an incumbent utility under cost-of-service regulation, the merchant plant will very

likely cost consumers significantly more over its life. The merchant plant would have a higher cost of capital and shorter pay back period, which would translate into higher prices for consumers when compared to utility owned generation. Further, over its expected operating life, the merchant plant would collect more revenue from retail ratepayers than the same plant built by an incumbent utility under cost-of-service regulation. This would be anti-consumer and hurt the Florida economy.

## SECTION II: BASIC FUNDAMENTAL PRINCIPLES OF REGULATION AND ECONOMICS

**Q. LET'S BEGIN WITH YOUR PERSONAL VIEWS ON REGULATION AND COMPETITION. AS A FORMER REGULATOR AND CARD-CARRYING ECONOMIST, ARE YOU PRO-REGULATION OR PRO-MARKET?**

A. That is a fair question. I am more pro-market than anything else. However, I have never been accused of having simple views on important matters of public policy.

The world is complex and it is often easy to trash the past or *status quo* when one is on a mission to sell a new approach. Yet, this is precisely what Dr. Nesbitt has done in this case. This is a mistake for two reasons. First, misrepresenting how we got here means that we risk throwing out the good with any bad. Second, it is dangerous to over-promise or exaggerate and, in the

process, to establish false, unachievable expectations. Such approaches most likely mean that reforms will fail to live up to their advanced billing.

In this particular context, the promises of achieving perfect competition by granting a license to a merchant plant are incorrectly and unfairly matched up against cost-of-service regulation. This deceptive comparison takes three forms.

1. It is ridiculously averred that incumbent IOUs bear no risk and can rely on regulators to give them a full return "on" and "of" their investments.
2. It is falsely observed that IOUs would, and do, pad their rate base with unnecessary and overly expensive investments, and regulators either look the other way or are inept.
3. It is incorrectly claimed that fringe market competitors can, and will, discipline centrally-dispatched short-term power markets and provide a useful benchmark or yardstick for new incumbent generation investments.

**Q. HOW CAN AND DO INCUMBENT IOUs EXPERIENCE RISK UNDER COST-OF-SERVICE REGULATION?**

A. Regulators do not necessarily allow all costs incurred by IOUs to be placed in rate base. Regulators sometimes use prudence reviews, hearings on need, and used and useful concepts to disallow costs that they deem excessive. For more than two decades, there are no, and have been no, regulatory guarantees that IOUs and their investors can take to the bank. In addition, there are business, operational, and financial risks that IOUs experience. Also, regulation is mostly

asymmetric, with regulators strongly tilting any benefits towards retail consumers, while attempting to avoid passing through all costs. Thus, to imply that IOUs face no risk is to misrepresent cost-of-service regulation and to ignore business, financial, regulatory, economic, and operating risks.

**Q. DO REGULATED UTILITIES "PAD" THEIR RATE BASE WITH OVERLY EXPENSIVE CHOICES?**

A. No. First, the Averch-Johnson Effect (A-J Effect), which postulates potential rate base padding, is dependent on utility companies expecting to earn rates of return under regulation that exceed their weighted average cost of capital. Just the opposite behavior (*i.e.*, under-investing in costly rate base additions) is hypothesized under the A-J Effect if utilities companies have costs of capital (WACC) that exceed either their authorized regulated or actual rate of return. Under current and past (at least nearly three decades) financial conditions, the necessary A-J Effect conditions that would potentially cause some excess utility investment are simply not present, realistic or consistent.

Second, and more important, regulators across the nation have generally adopted and used integrated resource planning and similar regulatory approaches to insure that unnecessary utility investments are not made, while requiring that necessary investments be made to insure reliability and reasonable costs. All this has taken place with a complementary form of cost-of-service regulation that pushes down to shareholders any costs that regulators find to be

excessive or unnecessary. If there have been guarantees, they take the form of a pro-consumer bias.

In short, regulation, certainly for the past decade and a half, has essentially guaranteed that there would be no rate base padding. The opposite tendency (*i.e.*, under-investment) might have been present. However, under-investment in electricity has generally not been a significant problem.

**Q. PLEASE EXPLAIN HOW REGULATORS PREVENT UTILITIES FROM OVERBUILDING.**

A. Regulators generally use least cost planning to prevent unnecessary investments and to cause necessary investments to be made. Regulators also have sufficient rate making control to ensure that utilities do not overbuild. Regulators can disallow certain costs associated with a plant and prevent their inclusion in rate base. Disallowances at past prudence hearings involving nuclear plants ran into the billions of dollars. Utilities well remember these disallowance and are not likely to overbuild with the omnipresent prudence review threat. Further, regulators can control utilities through the allowed Return on Equity (ROE). Regulators can remove a utility's incentive to overbuild by controlling earnings through simply reducing the allowed ROE relative to the cost of capital. As long as regulators provide just and reasonable returns, utilities will build the correct amount. And even when returns are not high enough, utilities will generally be

required to build to satisfy their duty to serve. I find no evidence of overbuilding in the last ten years in the United States.

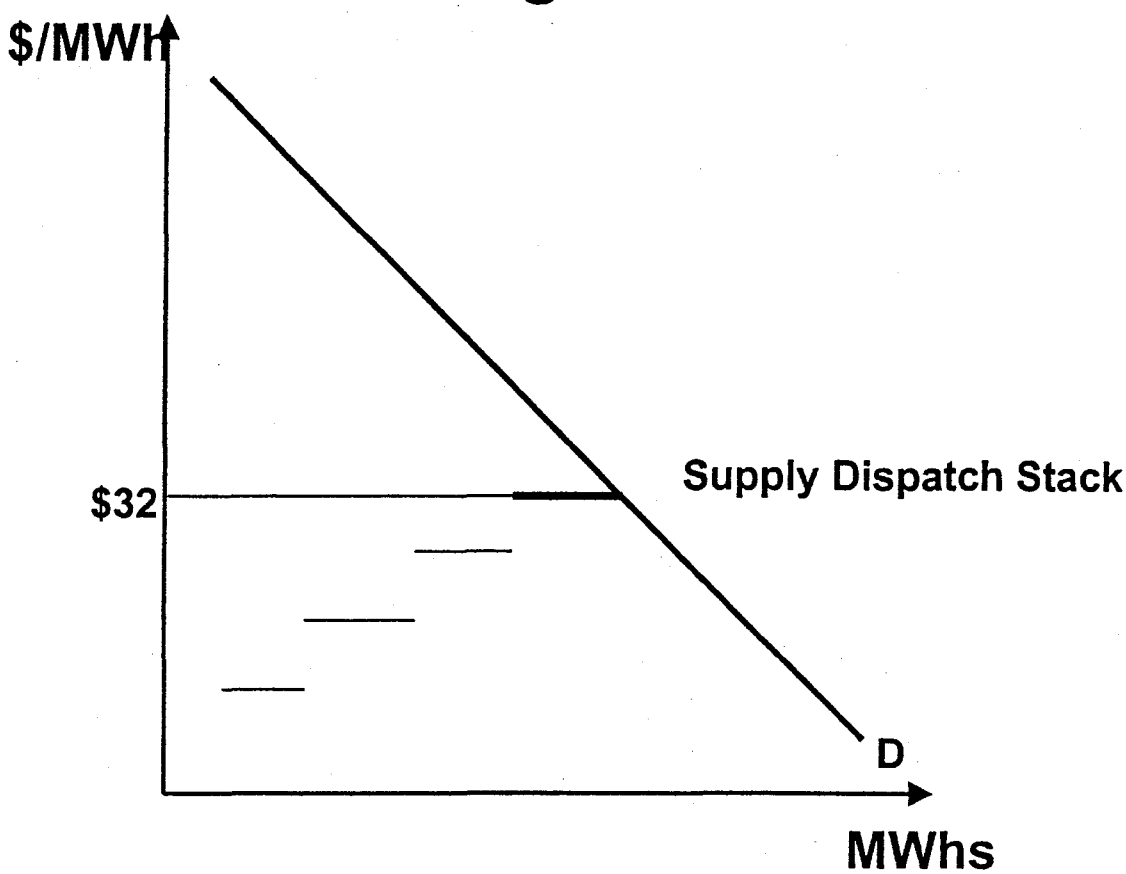
**Q. DO YOU DISAGREE WITH DR. NESBITT'S ASSERTION THAT MERCHANT PLANTS WOULD YIELD POSITIVE COMPETITIVE FRINGE MARKET YARDSTICK OR BENCHMARK BENEFITS?**

A. Yes, I disagree with this position. In Florida, merchant plants would be entering a pre-existing utility market that already operates in an economically efficient manner under joint generation dispatch conditions. Long-term planning also insures that efficient investments and alternatives are identified and pursued. The "priced-to-market" terms OGC proposes will not serve any yardstick or benchmark function because these units are not "paid" their marginal running costs. Instead, they are paid the market price.

Consider Figure CJC-1A. This shows a supply stack with a $32 clearing price that Dr. Nesbitt and the applicant apparently believed would be the approximate average annual competitive price of electricity in the Florida Peninsula before the merchant plant enters the market.[1] For the discussion that immediately follows, I use Dr. Nesbitt's $32/MWh clearing price. However, I will explain later in my testimony why I disagree with Dr. Nesbitt's $32/MWh clearing price.

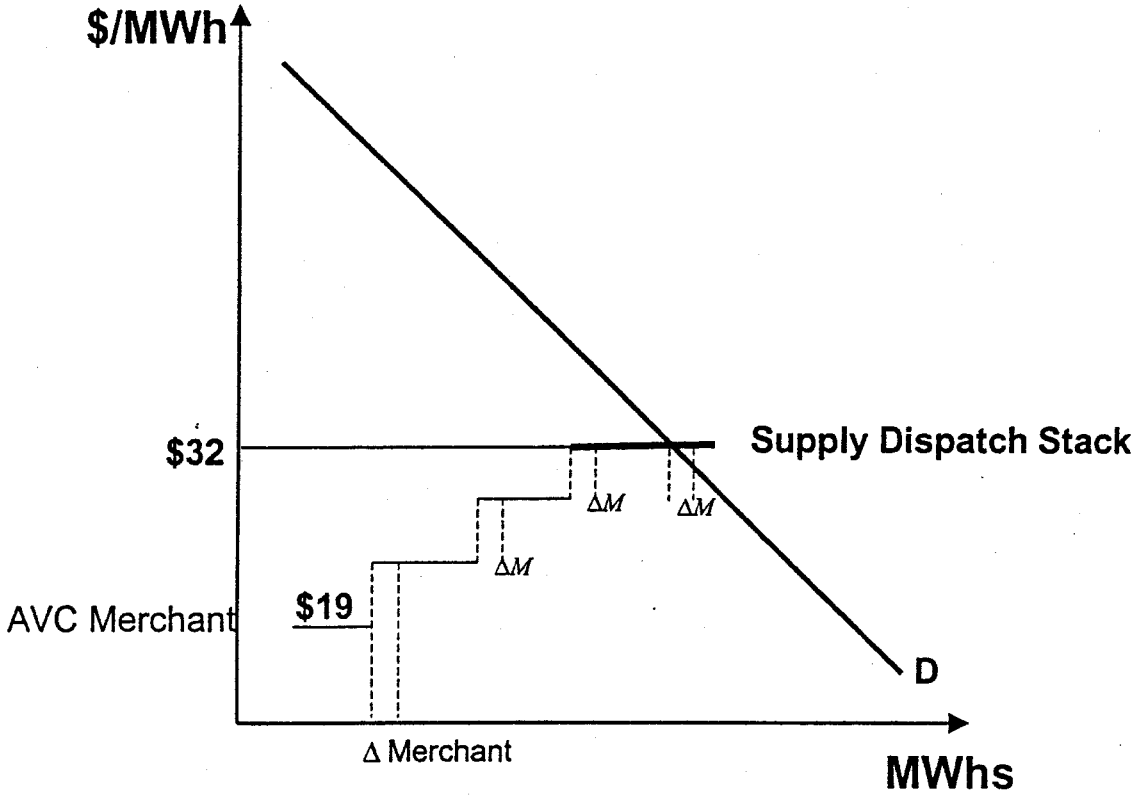
[1] See page 103 of Dr. Nesbitt's testimony in which he states that his model estimates a price of $31.68/MWh, which for discussion purposes I have rounded to $32/MWh.

# Figure CJC-1A




Now consider Figure CJC-1B, which shows the infra-marginal merchant plant being added to the same supply stack, continuing to use applicant's approximate assumption of a $32 MWh price to market sale.

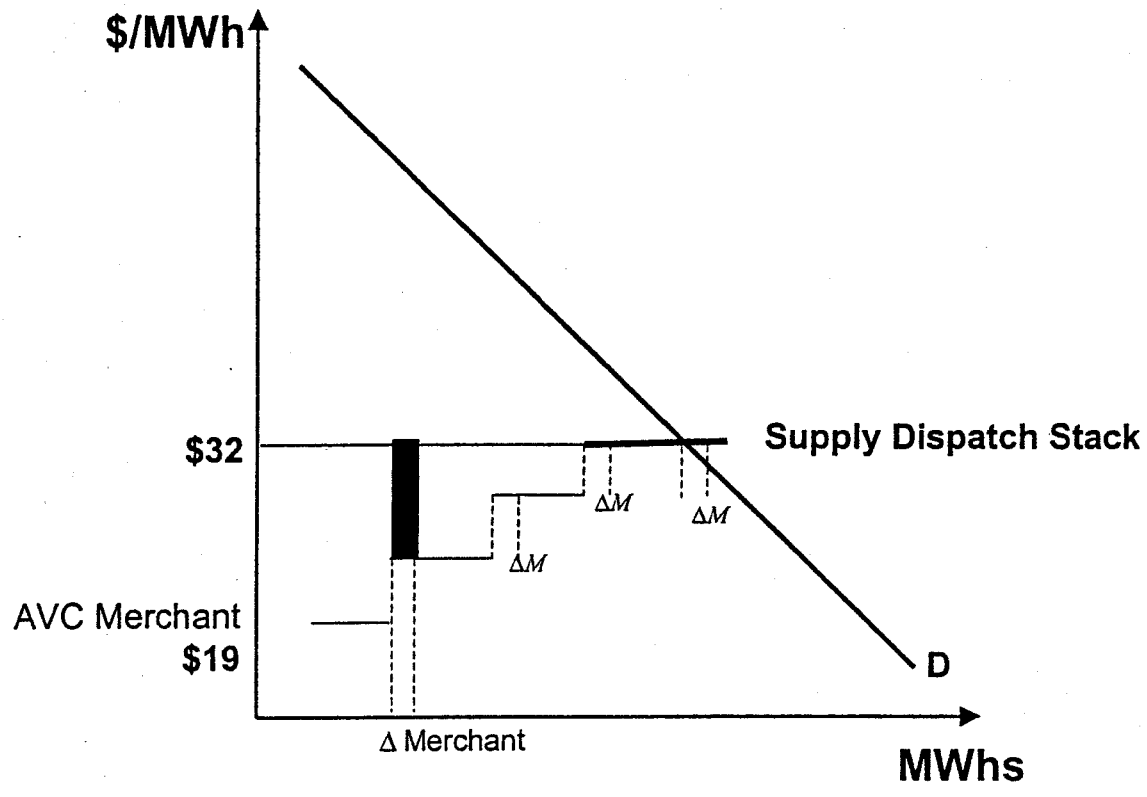
# Figure CJC-1B




In CJC-1B, even after the infra-marginal merchant plant enters, the supply dispatch stack (SDS) would still tend to set the market-clearing price at $32 per MWh. This result will hold so long as there are more plants at the $32 per MWh price than are displaced by the merchant plant's output (Δ Merchant .) In CJC-1B, I show the merchant plant coming into the competitive dispatch sequence infra-marginally. This means that it shifts the supply stack to the right by $\Delta M$. However, because the merchant plant is infra-marginal, the market-clearing price remains unchanged at $32 per MWh. The cost, but not the price, of supplying electricity is reduced by the difference in the $32 average variable cost (AVC)

that is backed out and the merchant plant's AVC times the merchant plant's output. Had this plant been brought on line by an incumbent IOU under cost-of-service regulation, this cost savings would be used by the IOU to reduce prices. (Any rate base cost recovery of fixed costs also needs to be considered. This is addressed below.) However, under a priced-to-market regime for the merchant plant, regulated prices for energy will remain unchanged. Under cost-of-service regulation, this cost saving reduces prices. With a merchant plant priced-to-market, regulated energy prices stay the same if the merchant plant is infra-marginal. Further, because the market price does not change, the cost savings inure instead as increased profits to the owners of the merchant plant. This result yields no yardstick benefits. Instead, under infra-marginal conditions, it could very likely push merchant plant profit to exceptional levels causing other merchants to attempt to imitate OGC, but not likely seeking competition that would reduce merchant plants' income and effective prices. Consider Figure CJC-1C to understand OGC's profit motive.

# Figure CJC-1C




The shaded area above the merchant plant's AVC is the difference between the merchant plant's average variable costs (approximately $19 per MWh) and the assumed market-clearing price ($32 per MWh). This represents the merchant plant's operating profit of $13 per MWh. With restricted entry and central dispatch, this would be a very rewarding outcome for merchant plant owners who would use revenues from the project to recover investment costs and earn income. Regardless, there would be no corresponding yardstick benefits.

Introducing a merchant plant that prices-to-market would also most likely, as I discuss below, mean that consumers pay more for electricity than if IOUs had built the same plant under cost-of-service, or rate base, regulation. Accordingly, I find no yardstick benefits under such an outcome. I find only anti-consumer, ineffective regulation.

**Q. HOW DOES REGULATION ACHIEVE ECONOMICALLY EFFICIENT DISPATCH?**

A. Competitive markets bring together and match multiple suppliers (generators) against consumers in short-term (hourly) markets. Split saving, centrally dispatched generation in a regulated utility power pool yield the same economically-efficient dispatch result. This is true even in regulated markets with as few as two generation owners that jointly dispatch their generation.

Merchant plants are simply not necessary to achieve operational economic efficiency in generation dispatch. If merchant plants are priced-to-market and do not, and are not expected to, change the market clearing price, their presence is an economic non-event. Nevertheless, merchant plant owners experience significant mark-ups over their average variable costs (AVC). Consumer prices, however, are not reduced due to the merchant plant's entry. Moreover, the opportunity to reduce consumer prices under cost-of-service entry would be reduced. Thus, consumers would most likely pay more, not less, than they would have without merchant plant entry and with similar generation built by

an incumbent utility. I expand on this and describe other reasons for this anti-consumer result below.

**Q. DR. NESBITT ASSERTS THAT UTILITIES WOULD BUY FROM MERCHANT PLANTS ONLY IF IT WAS THE MOST COST EFFECTIVE PLANT. DO YOU AGREE?**

A. I have trouble with Dr. Nesbitt's "cost effective" logic. Even if one were to assume that a merchant plant was the most cost effective plant, it would be cost effective only in the sense that it had the lowest AVC (i.e., running cost) in the market. Under cost-of-service regulation, least price and least cost are the same. This is not necessarily the case with the merchant plant, because even if the merchant plant was the lowest cost plant, it would still require the IOU, and retail consumers indirectly, to pay a price equal to the most expensive alternative in use. In such a situation, regulators should prefer that the utility build the plant itself or enter into long-term firm contracts. In these circumstances, approving the merchant plant would simply not be best for Florida's ratepayers.

**Q. EARLIER IN YOUR TESTIMONY, YOU MENTIONED THAT COMPETITION SHOULD NOT BE MICROMANAGED IF ECONOMIC EFFICIENCY IS TO BE ACHIEVED. WHAT DO YOU MEAN BY MICROMANAGING COMPETITION?**

A. Several industries and many nations have been restructuring their comprehensively-regulated natural monopolies (e.g. utilities and telephone companies). These changes take several forms: (1) unbundling traditional, all-

inclusive tariffs that recover commodity, delivery, and customer service costs; (2) separating functions and business units that previously were vertically interconnected into competitive pieces and regulated natural monopoly pieces; (3) encouraging new competitive entry, divestiture, and incumbent restrictions for the purpose of kick-starting competition in those sectors that are deemed not to be natural monopolies; (4) providing for retail customer choice and encouraging the use of new products and services to provide consumer benefits; and, (5) designing and creating new regulatory functions and institutions to restrict any vertical or horizontal market power and to promote competitive market outcomes.

The specific details, processes and policies differ from industry to industry, state to state, and nation to nation. Nevertheless, there is great commonality, some important lessons learned, and some problems to be avoided. The most significant lessons learned, in my experience, have to do with transition rules and regulatory handicaps or restrictions imposed on incumbents.

I have found, in my experience and in the relevant literature, numerous examples of excessive political and regulatory efforts that attempt to micromanage these changes. There are two obvious dangers to avoid. First, economic efficiency will not flow from competition when markets are politically controlled and non-market forces and self-serving entities attempt to cause directed outcomes. Second, if a state or nation is considering changes, it should not compare its past and/or present regulatory circumstances to perfect

competitive markets because transition rules that regulate the market and/or market power will prevent the perfectly competitive market from being formed and yielding economically-efficient outcomes.

Third, and most important, regulators should not excessively reward the "first newcomers to enter the restructuring process." This type of regulatory/political request is very often overplayed and exaggerated. I believe regulators and incumbents make the changes possible. Therefore, regulators should claim credit, incumbents should not be victimized, and newcomers should not be given carte blanche to cream-skim and keep huge profits for themselves.

The point I want to emphasize is that much of this is essentially a zero-sum game. The costs and benefits will be the same regardless of who builds an identical new infra-marginal plant. Nevertheless, an important difference is that under cost-of-service regulation, consumers will realize this lower cost benefit. Conversely, under the cost-of-service regulation that exists in Florida today, the merchant plant owner would keep the benefit of the lower costs. Under the current regulatory regime in Florida, consumers, as I explain below, are undeniably better off if an incumbent IOU constructs the plant.

The key conceptual policy point is that imperfect competition is not always superior to cost-of-service regulation. Even imperfect regulation can be shown to be more efficient than imperfect competition. Sensible, fair regulation will always trump incomplete or imperfect competition. Combining micro-managed

regulation/competition and market impediments (*e.g.*, transmission bottlenecks, environmental restrictions, horizontal market power, etc.) could be even worse. Such actions would virtually always be less economically efficient than unbiased, albeit flawed by the human condition, traditional cost-of-service regulation practiced with diligence, intelligence, and integrity.

**Q. WHAT DO YOU MEAN BY THE ACRONYM TANSTAAFL?**

A. I mean that "There Ain't No Such Thing as a Free Lunch." One of my first remembrances as a kid was my Uncle Joe, the bartender. I remember free lunch served in his bar each Wednesday. I soon learned that the price of beer was bumped up each Wednesday (the 5-cent tap was not even available). I put "two and two" together and learned my first economic principle – TANSTAAFL!. The beer drinkers had to buy more beer and pay higher prices with bigger margins to get their not so free lunch.

In this context, merchant plants are a tempting option. Some have mistakenly called them "manna from heaven." My reaction is "not so fast." There are several reasons why I urge caution and am reminded that "manna," a biblical form of lunch bread, may not be free at all!

First, infra-marginal generation priced-to-market is a good deal, perhaps even a super normal deal for merchant plant owners. However, consumers will not find lower fuel adjustment or energy pass-through costs when they are forced to pay the same market price that existed before the merchant plant entered the

market. Regulators, therefore, need to compare the higher margins anticipated by such infra-marginal sales priced-to-market clearing levels with the annual fixed cost recovery of cost-of-service regulation. Regulators also need to net against the fixed rate base recovery costs of such plants the fuel and efficiency savings that would also be passed on to regulated retail consumers under cost-of-service regulation if IOUs build and operate similar plants.

Second, regulated rates of return, depreciation, and cost-of-service pricing, in my experience, will probably result in lower costs than if similar plants are built by competitive merchants. Similar plants financed and built by competitive firms would confront quite different conditions relating to risk, business, financial and opportunity costs of capital. I will discuss this in more detail below.

Third, regulatory principles, such as "duty to serve," "native load priority," and "comprehensive state regulation" are not shallow phrases. They combine to explain that "merchant plants" may fly to other markets, and they may, without full or perfect competition, withhold supply to maximize profits. Self-interest and profit-maximizing under imperfect competition will not always yield the same short, intermediate, and long-term results as cost-of-service regulation.

Fourth, politically and practically, no regulated industry is ever deregulated unless there is excess capacity. To do otherwise (e.g. deregulate when there are shortages) would cause prices to go up.

**Q. WHY DOES COMPETITION WORK BEST FOR CONSUMERS WHEN SUPPLY EXCEEDS DEMAND?**

A. Virtually all political decisions to restructure regulated industries to competitive markets have occurred when supply exceeds demand; and/or new technologies (future supply) are available that would cause the same excess supply and lower price result. Restructuring and competitive choice in electricity markets are no different. If lower prices are the goal, and they always are for deregulators, the reform process needs (1) more supply than demand; (2) new entry with lower cost technology; and, (3) no market power, either vertical or horizontal.

When supply exceeds demand, competition pushes down consumer prices. When more efficient entry accompanies competition, there is additional pressure for market-clearing prices to decline and benefit retail consumers.

When demand exceeds supply, new entrants that are more efficient may back down or push out less efficient competitive suppliers some of the time. However, if the excess demand conditions prevail and/or the new entrant is infra-marginal, consumers will not experience lower prices because prices would increase. New entrants will simply earn high margins and consumers could pay more.

If additional new entrants are also restricted from free entry, the first entrants will reap the benefits of imperfect competition and achieve monopoly power in the form of higher margins, profits, and economic rents when they price

to market and enter infra-marginally. These "first-in" merchant plants would be better off if they can maintain their beneficial initial position and additional new supply is not added. This results because excess demand (or short-supply) benefits producers that are not regulated at the expense of consumers.

A regulatory policy that encourages both "least cost" and "least price" when these concepts conflict works best when supply is short relative to demand. Regardless, few politicians are brave enough to deregulate when supply is tight. The only imaginable circumstance would be when, "but for" deregulation, there would be insufficient incumbent investment to expand supply and/or to capture the efficiency improvements of new technology. These exceptions are not relevant for Florida. I mostly find them in third world nations. I find that in the regulated electric industry found in Florida, an incumbent IOU could build the proposed plant more economically than could the petitioner. I also find that a profitable merchant investment is not necessarily good for consumers, and I do not know any other kind that are concerned with least cost/prices.

**Q. HOW CAN COST-OF-SERVICE REGULATION BE LESS COSTLY THAN MERCHANT PLANTS WHEN THE INCUMBENT AND NEW ENTRANT WOULD BUILD THE SAME PLANT, IN THE SAME LOCATION, AND OPERATE IT SIMILARLY?**

A. I previously explained that, in the merchant plant price-to-market world, "least cost" may not result in the "least price" for consumers. Under cost-of-service

regulation, there is no such dichotomy between low costs and low prices because regulation ensures that lower costs flow through to consumers in lower prices.

Aggressive competitors and perfect competition would work to do the same thing. However, as I understand the OGC application, a merchant plant would enter infra-marginally and price to market, not to cost-of-service. There would not be any form of bidding or near perfectly competitive wholesale power market in Florida. It is possible, although doubtful, that the extra margins (*i.e.*, price minus AVC) earned by the merchant would just equal the rate base cost recovery assigned to a similar plant constructed by incumbent IOUs. It is more likely that in such a scenario, the margins earned by the merchant plant would exceed the incumbent's rate base recovery for a similar plant. And, without full competition, merchant plant owners would earn super normal profits.

**Q. WHY WOULDN'T YOU EXPECT MERCHANT PLANTS AND IOUs TO PRODUCE SIMILAR CONSUMER PRICES?**

A. I have prepared Exhibit CJC-2 to illustrate some important aspects of the differences between regulated IOU cost-of-service pricing and possible merchant plant investment and business strategy.

In my experience, there are at least three differences between these two circumstances, holding everything else such as cost, technology, fuel, etc. constant. These are:

(1) Weighted Average Cost of Capital (WACC), or opportunity costs, are likely greater for merchant plants than for IOUs. Currently, I find most IOUs expect to earn a weighted average rate of return of about 10 percent after taxes on rate base. I expect that "competitive" merchant plants would, by comparison, seek something in the 12 to 14 percent rate of return on their investment. In any event, their hurdle rates would be greater.

(2) Regulators would time the recovery of generation differently. Under cost-of-service regulation, regulators would allow the IOUs to recover the plant's cost over a 30 to 40-year time period. Merchant plant owners would not be so patient and would seek a shorter payback period. In Exhibit CJC-2, I consider two payback scenarios, 20 years and 10 years, for merchant plants.

(3) Regulation would also require straight-line depreciation for ratemaking purposes. This means higher revenue requirements up-front, constant annual depreciation, and declining regulated prices as rate base declines. Merchant plants would more likely be financed using an amortization schedule with constant annual capital recovery matched to annual revenue and income targets. This is called sinking fund depreciation.

Both cost recovery methods yield the identical recovery "of" the initial investment. They can also be structured to yield identical net present values of the capital charges assigned to each year. Nevertheless, Exhibit CJC-2 shows

that these three differences combine to yield substantially higher annual prices and fixed costs (*i.e.*, revenue requirements) for merchant plants than for rate base plants with identical capital (or investment) costs and capacity.

For example, the highest costs allocated with a 30-year life, 10 percent ROR, and straight-line depreciation under rate base regulation in Year 1, would require a pre-tax charge of $25,333,333 (see page 1 of Exhibit CJC-2). These costs decline to $6,966,667 in Year 30. The lowest cost annual pre-tax revenue target for a merchant plant (namely 20 years amortization and 12 percent WACC or ROR) is the same each year, $25,436,968 (see page 5 of Exhibit CJC-2). The merchant would target this annual amount each year for 20 years. Therefore, even if merchants set "normal" returns at 12 percent, "normal" paybacks of 20 years would yield prices well above cost of service levels every year.

Quite obviously, regulated plants and merchant plants are not financed with similar expectations, even when they cost the same and operate similarly. Regulation is not flawless. However, lower prices will result, other things equal, under cost-of-service regulation.

Petitioners propose to allow a merchant plant to enter and sell into a regulated cost-of-service world. This is not competition. It is imperfect competition and new merchants are given significant market power that would not be checked by competition. Regulators should not allow this to happen. Supply needs to exceed demand in order to push down margins. Further, cream

skimming price-to-market merchants cannot be permitted to soak up rents that neither perfect competition nor cost-of-service regulation would or should condone. These all need to combine to extend the payback for competitive merchants beyond 30 years and/or reduce returns below 10 percent.

**Q. HAVE YOU PERFORMED AN ANALYSIS TO DETERMINE THE REASONABLENESS OF THE PROFIT TARGETS USED IN YOUR EXHIBITS FOR THE OGC MERCHANT PLANT?**

A. Yes. In comparing OGC's cost recovery as a regulated cost of service plant versus what a merchant plant would require, I made three assumptions. Specifically, I assumed a 14 percent required return, a 20-year life and sinking fund depreciation, or amortization for a new merchant plant.

Based on this analysis and these assumptions, I estimated that merchant plant owners would seek about $28,687,340 in annual profits or net income from the plant. I have performed a second analysis to check the reasonableness of these assumptions and pricing results. I base this analysis on the information contained in Dr. Nesbitt's supply stack exhibits and annual load duration curves for the Florida Peninsula.

This analysis is contained in Exhibit CJC-3. First, I simplify Dr. Nesbitt's load duration curves and divide the year into base and intermediate load, with running costs in Florida ranging from $20 per MWh to $27.50 per MWh. This represents 83 percent of the dispatch hours in the year. I then assume that peak

hours would approximately be the other 10 percent of the hours in which OGC would operate. The running costs for the plants that are likely to operate during peak hours would likely range from $27.50 per MWh to $50 per MWh during this period.

**Q. WHAT DO YOU THEN DO IN EXHIBIT CJC-3?**

A. In this Exhibit, I calculate what OGC's margin and projected income would be, given its running cost of $19 per MWh and its projected output of 4,480,740 MWhs. I find that these combine to yield a projected income of $28.51 million, which is essentially the annual amount I estimated in CJC-2 for a merchant plant seeking a 14 percent rate of return after taxes for 20 years, using sinking fund depreciation. I show this in Exhibit CJC-3.

**Q. WHAT DOES THIS MEAN?**

A. This analysis shows that OGC owners could expect to earn 14 percent and to recover their investment over 20 years with little risk. Additionally, after 20 years, all the initial capital expenditures would have been recovered. Consequently, margins earned would increase shareholder value.

**Q. AT PAGE 104 OF HIS PREFILED DIRECT TESTIMONY, DR. NESBITT STATES THAT "OGC INDUCES THESE SAVINGS WHILE ACHIEVING A PRODUCTION MARGIN NEARLY TWICE THE VALUE REQUIRED TO JUSTIFY THE PROJECT FINANCIALLY." PLEASE COMMENT ON THIS STATEMENT.**

A. This statement by Dr. Nesbitt confirms the fact that he thinks that the plant's owners expect to sell OGC's output at about $32 per MWh, 93 percent of the hours in the year. As I showed above, using some reasonable investor expectations regarding a 14 percent return and a 20-year capital recovery period, OGC would need to collect about $28.5 million per year more than its operating cost in order to achieve their target return. Dr. Nesbitt assumes that the plant would have running costs of $19 per MWh and that a market price of $32 per MWh would prevail on average in each hour of the year. OGC would, therefore, have an operating margin of $13 per MWh. Applied to the 4,480,740 MWh that the plant is projected to sell, the annual operating income would be about $58 million, about twice the amount I estimated the plant owners would require with a 14 percent return and 20 year payback. Assuming Dr. Nesbitt has reasonably estimated market prices, this plant would be an extraordinarily profitable investment for the owners under Dr. Nesbitt's assumed conditions in which OGC is priced to market (average of $32 per MWh and with running costs of $19 per MWh). And, this also shows that Dr. Nesbitt's alleged price suppression effects from selling at $19 per MWh will never materialize because the plant's owners, without competitive pressure, would price to market at $32 per MWh according to Dr. Nesbitt and the applicant's proposal. As I noted earlier, I will explain later in my testimony why I think that Dr. Nesbitt has overstated the likely market clearing price and, therefore, his claimed benefits.

**Q. WHAT DO YOU MEAN BY "CREAM SKIMMING" WHEN YOU REFER TO "INFRA-MARGINAL PLANTS PRICED-TO-MARKET" EXPECTING SUPRA OR ABOVE MARGINAL PROFITS?**

A. Suppose the identical generating plant could be built by either a merchant owner or an IOU. Furthermore, let us assume the same heat rates, fuel contracts and prices, operating and maintenance costs, and identical availability factors and place in the dispatch stack. In short, everything is identical, except the means by which owners or investors price their output to recover their investment and earn income.

An IOU that builds a rate base plant under cost-of-service regulation faces some risk of investment cost disallowance; cost recovery is spread over 30 to 40 years; and, there is no upside if the generating station beats other energy and fuel prices, yielding fuel savings and lower marginal costs than other generating stations.

A merchant plant sells its output to a centrally-dispatched entity, presumably making its sales based upon its system lambda (*i.e.*, location adjusted short-run marginal (running) costs) and is paid the price that clears the market. There is no cap on the merchant plant's upside in terms of how much annual income the merchant earns.

A merchant plant's annual operating income equals the sum of the operating margins (roughly weighted average generating price ($\overline{P}$) minus AVC

times output measured in MWhs). An IOU passes through to its customers operating costs. Thus, IOU operating margins are effectively zero. Merchant plants use their earned operating margins to recover their investment costs and earn income. IOUs use their regulated return on rate base to do the same thing.

Investors generally trade off risk and return. This means that investments with higher risks require higher expected returns, and vice versa. The Petitioner seems to want higher returns. However, there is no real risk under the "price to market" conditions contemplated by this petition. Consequently, OGC would earn super normal profits with virtually no risk.

Regulators seeking to hold prices to the lowest, while still "just and reasonable" levels, should attempt to set prices based on costs of service. Project sponsors are disingenuous when they falsely claim that merchant plants are "win-win." The OGC petition obfuscates the fact that they plan to price to market, not to cost, with well-placed distortions that strike useful chords (saves energy, better for clean air, free lunch, etc.) In fact, by claiming competition is the result, merchants that build in Florida and price to market would have no economic interest in expanded competition coming to Florida, once they build. They would prefer to sit in the middle of the stack, operate most of the year without competitive risk, and receive prices and income based upon older, less efficient units establishing a "regulated," not a competitive price.

Priced-to-market, infra-marginal plants with no competitive risk or pressure are simply "cream skimming" the market. Their claims are meant to deceive regulators. And, we need to ask: "what market?"

**Q. WHY DO YOU THINK THAT REGULATORS AND INVESTORS NEED TO BE "FORWARD" LOOKING NOT "BACKWARD" OR EVEN "CURRENT" LOOKING IN THE WAY THEY ANALYZE A GENERATING STATION'S POTENTIAL VALUE?**

A. Power stations come on line and supply additional capacity. If they are combined-cycle units, or intermediate size, they will also generally displace less efficient units, thereby reducing operating costs over the course of the year.

Proponents of merchant plants point to these expected fuel, heat-rate, environmental, and other efficiency gains. These are probably valid claims. However, such statements are potentially very misleading because at least two factors can, with virtual dead-on certainty, work to reduce the economic value of these "new" power stations over the course of their life.

These factors are as follows. First, a new plant comes on line after a "teething" period, expecting to perform at a "best in its class" level, thereby achieving very high capacity factors. As these new generating stations age, "newer" stations would come on line and are expected to displace the former "best in class" units. It is typical, especially in large electric markets such as Florida and the Southeastern Electricity Reliability Council (SERC), for units to

experience declining capacity factors over their operating or economic life. This life-cycle expectation is virtually ubiquitous across the world and over time for power stations.

Second, technology does not stand still. Newer stations built in the future will incorporate the best of what we now know, as well as what we learn and can reasonably use by the time these future plants are added to a region's or market's generation portfolio or mix.

**Q. WHY ARE THESE TWO FACTORS IMPORTANT FOR EVALUATING A NEW MERCHANT PLANT'S CONTRIBUTION TO FLORIDA?**

A. Any new plant will compete over its life with what we have in the future, not what we have at the time it is built. My first major effort in explaining electricity economics to regulators was on this very point thirty years ago. Indeed, I explained that the NPV of "new" generating stations is always less than it appears when it first enters the dispatch stack. Both declining capacity factors and technological advances effectively increase the discount factors that determine a new merchant plant's NPV. Increased discount factors reduce the plant's NPV.

These conclusions pertain, regardless of ownership. If there are differences between a merchant plant and an incumbent IOU owned plant, they are probably related to the operating life and time period of cost recovery used for plants built under rate base regulation. Merchant plant owners seek a higher

payback and higher return. These realities both mean that merchant plant owners want higher prices than IOUs would expect to be allowed from regulation. Other differences also, as explained elsewhere in my testimony, affect NPV.

The FRCC has identified a need for new plants in Florida and the utilities that comprise the FRCC have proposed plans to build new plants to meet this need. There is simply no need to overstate the value of a new generating station in Florida. Eventually, all new plants are displaced and progressively moved off the generation dispatch stack and retired. Florida most likely "needs" new combined-cycle natural gas fired power stations. The regulatory questions are how much do you want to pay to get them and how soon do you want to pay them off. There are "no free lunches" or "manna from heaven."

Any implication that Florida needs this merchant plant to get caught up to the rest of the country with regard to competition is simply not correct. The states that have undergone restructuring have done so because regulation was generally perceived not to be working in their jurisdiction and they were seeking new, lower priced alternatives. Florida has an effective functioning market that is working to get lower energy prices. There is little need to "fix" that which is not broken, especially when that "fix," most likely, will result in higher prices for small retail customers.

**Q. WHAT DOES THE RESTRUCTURING TAKING PLACE AROUND THE NATION HAVE TO DO WITH MERCHANT PLANT ENTRY IN FLORIDA?**

A. One of the most important things to glean from the restructuring that is underway in several states across the country is that the restructuring process is extremely complicated and fraught with many thorny issues. If the Florida Legislature and this Commission decide to proceed with restructuring the electric industry in Florida, there are many things that need to be done to protect consumers who currently benefit from cost-of-service regulation in the form of lower prices than they might pay under competition. I am not anti-competition. To the contrary, I support competition when all consumers are "winners". However, when it is likely that some current consumers could pay more under restructuring, I urge state regulators to take a more cautious, go-slow approach.

The national utility restructuring attempts to do several things. First, proponents of restructuring seek to remove transmission bottlenecks and form independent transmission entities (regional transmission organizations) to achieve reliability and access without discrimination. Second, proponents of restructuring seek to form or encourage wholesale markets that are sized so as to reduce any potential horizontal market power. Third, proponents of restructuring seek to form new entities and regulatory structures to achieve and police the first two objectives. Fourth, proponents of restructuring want customer choice to evolve to new products, new suppliers, and retail choice.

Florida regulators and legislators are aware of all this activity. Florida also sits on the edge of a low-cost/low-price region that understandably wishes to go

slow in order for restructuring to produce consumer benefits, not higher prices. I have little doubt that change is coming throughout the nation. Nevertheless, lower-priced and transmission-congested regions are different from the areas that have gone through, or are currently, restructuring.

A particular aspect of this difference is that the states that are restructuring generally contemplate a transition period in which incumbent utilities offer a "price to beat," or guaranteed, retail rate cap. This approach means that all actions that lower "cost of service" prices today will be available to consumers during the transition period. New IOU rate base investment in combined cycle natural gas fired stations in Florida would do this, but merchant plants would not under current circumstances in Florida.

For efficient competition to emerge, many steps must be undertaken within a comprehensive policy setting arena. This needs to occur before the existing regulatory structure is altered. A state cannot hope to jumpstart the competitive market or restructuring process by simply dropping a merchant plant into a regulated cost-of-service world. Merchant plants are either irrelevant to the main stream of a very complex restructuring process and regulation's principal consumer protection purpose, or, worse, they mistakenly take the regulatory eye off the restructuring process. Merchant plants are not competitive outcomes. They do not advance market competition or customer choice. And, they would likely increase prices for consumers.

Restructuring is about "gives" and "gets." It is potentially disruptive and costly to insert a new stakeholder into the process when incumbent relationships are untangled. Worse, incumbent utilities should not be weakened under the old rules before the restructuring process starts in Florida. Starting with a level and fair playing field will make any transition less costly. Regulators would seek reliability and lower prices under traditional, transitional and competitive regulation. The regulatory and economic objectives are always the same: low prices and customer service.

I fail to see how new merchant plants help consumers or regulators under either cost-of-service regulation or competitive restructuring in Florida.

**Q. AT PAGES 31-32 OF HIS TESTIMONY, DR. NESBITT IDENTIFIES MERCHANT PLANTS THAT WERE OPERATIONAL AS OF MAY 25, 1999. PLEASE COMMENT ON DR. NESBITT'S LIST.**

A. Dr. Nesbitt includes 32 plants in his list. Sixteen are located in California, a state that has undergone restructuring and a state that required its three IOUs to divest their fossil fuel fired plants. Similarly, 11 of the remaining 16 merchant plants in Dr. Nesbitt's list are located in states that have passed restructuring legislation and/or are actively undergoing restructuring. Similarly 14 of the 16 merchant plants that Dr. Nesbitt identifies as under construction are located in states that are undergoing restructuring. Most of these states had very high-priced electricity. In those states, a political decision was made to give up on the

existing cost-of-service regulation, which was correctly perceived to be broken in these states.

**Q. WHAT, IF ANYTHING, CAN REGULATORS DO TO CAUSE IOUs TO ACHIEVE MERCHANT PLANT PERFORMANCE?**

A. Merchant plants have strong incentives to maximize profits. Under perfect competition, there are price-takers, and merchant plant owners would attempt to maximize plant availability factors or sales.

Generating stations that are a similar type and vintage as merchant plants can also be encouraged to achieve similar operating and availability factor performance. In fact, cost-of-service ratemaking has been enhanced in a number of jurisdictions and industries through incentives.

Specifically, cost-of-service ratemaking can be amended with incentives to share the benefits of above-target output or availability performance between shareholders and consumers of regulated services. Generally, cost-of-service regulation that is amended with incentives is less costly for consumers than "priced-to-market" infra-marginal merchant plants would prove to be. Performance incentives can yield outcomes similar to the perfectly competitive market that does not exist in Florida.

Florida does not have immediate plans for wholesale power markets that approach perfect competition. Therefore, at least for the short and intermediate terms, cost-of-service/rate base treatment utilizing incentives would be better for

consumers in Florida than merchant plants that enter most likely contemplating "cream skimming" strategies.

**Q. HOW WOULD ANY MERCHANT PLANT OWNERS' INTENTIONS TO CONVERT THEIR UNITS TO PLANTS ENGAGED IN LONG-TERM CONTRACTUAL SALES AFFECT THE VALUE OF MERCHANT PLANTS RELATIVE TO RATE BASE TREATMENT FOR SIMILAR GENERATING STATIONS?**

A. If merchant plants are used to make long-term sales to incumbent utility companies, these contracts effectively become very similar to qualifying facility (QF) contracts. The specific "take" and "pricing to or above market" terms matter. Regardless, long-term power contracts between merchant plant owners and incumbent IOUs would mean that the merchant plant owners could, and would, effectively lean on the IOUs' balance sheets. I would, therefore, expect the merchant plant owners to capitalize these very certain cash flow streams. This would permit the owners to leverage these gains, perhaps elsewhere in the world or in other businesses.

There is nothing unsavory about such business leverage practices. However, Florida regulators need to be relatively certain that there are merchant plant benefits that otherwise could not be achieved under traditional cost-of-service regulation, incentive modifications, or some "third way." Regardless, before regulators support plans that cause merchant owners to act like IOUs and

engage in long-term contractual sales back to IOUs, regulators need to question why they do not simply order the incumbent IOU to do the same thing -- keep consumer prices down.

If competition and the efficiency gains of competitive markets are the goal, regulators should recognize that "priced-to-market," infra-marginal merchant plants, with or without sales contracts, are not competitive outcomes. At best, they represent "high-priced" experiments to prove that generation is not a natural monopoly. But, we already know this, and that information is freely available.

## SECTION III: A CRITIQUE OF DR. NESBITT'S CLAIMED SAVINGS

**Q. WHAT ARE YOUR VIEWS CONCERNING DR. NESBITT'S SIMULATION MODELS?**

A. I have two primary opinions. First, no model is better than the data and assumptions used to run it. Dr. Nesbitt's assumptions are very misleading. Second, common sense should make it apparent that the results from his model are not reasonable.

**Q. CAN YOU PROVIDE AN EXAMPLE OF BAD OR MISLEADING ASSUMPTIONS PRODUCING AN UNREASONABLE RESULT?**

A. Yes. First, I recall a rather dull story I have recounted so often that I can no longer even remember how much is accurate. Regardless, many years ago, I told my son that if he walked home from school, I would pay him the money he saved on public transit. I knew buses cost about 50 cents. Thus, my maximum

exposure was $2.50 per week. After a week, I asked him how much I owed him. He said about $50.00. I was taken aback because this was 20 times what I knew it could reasonably be. Upon questioning his math, he told me that he walked home five days, avoiding the $10 cost of a taxicab and the appropriate tip each day. So, we talked about least cost and reasonable alternatives. I paid him $2.50, and complimented him for his cleverness and nice try.

Dr. Nesbitt has done something very similar. He assumes that OGC's owners would sell their output, some 4.48 million MWh per year, "priced to market." He also assumes a vigorous competitive wholesale market that does not exist. If such a market existed, it might price OGC's output at close to $19.00 per MWh. This is not an insignificant assumption. In fact, OGC proposes to price its output to market and sell at about $32.00 per MWh, not $19.00 per MWh. Assuming that a competitive wholesale market for OGC's output exists when no such market actually exists is as unreasonable as a sixth grader taking a $10 taxi ride home from school when 50 cents-per-ride buses run often.

To elaborate further, Dr. Nesbitt concludes that the annual savings achieved if OGC sells at $19.00 per MWh (which it does not propose to do) would be about $179,540,000 per year, or just about what the plant would cost (about $190,000,000) to build. Wow! Back when my son claimed I owed him $50 for one week, a good used car cost $2000, or 40 weeks times $50. If I gave my son a car, he would save enough taxicab fees to pay for it in a year. My

arithmetic and logic then, as well as my logic and reasonableness now, make it very apparent that Dr. Nesbitt is way off the mark.

**Q. HAVE YOU PERFORMED ANY CALCULATIONS TO DEMONSTRATE DR. NESBITT'S ERRORS?**

A. Yes. First, I note that he observes that OGC is "infra-marginal". This means that it will reduce average cost but not affect the marginal cost or price. OGC would be paid the marginal plant's cost, which Dr. Nesbitt assumes is about $32.00 per MWh over the year. Thus, if prices do not change, there would be no price suppression benefits. Certainly, price suppression benefits would not approach or equal OGC's all-in investment.

Second, Dr. Nesbitt overstates and confuses both OGC's annual profit and consumer benefits for Floridians. Consider the $179,540,000 of annual price suppression savings that Dr. Nesbitt claims in his Revised Table 10, for the year 2004. Attributing nearly $180 million to OGC is misleading because OGC does not "save" this amount in the sense that this is OGC's margin. Dividing this "estimated" savings by one year of OGC output yields the per MWh margin or cost savings that Dr. Nesbitt implies. Therefore,

$$\text{Per MWh of Dr. Nesbitt's Savings} = \frac{\$179{,}540{,}000}{4{,}480{,}000 \text{ MWh}} = \$40.08 \text{ per MWh}$$

Thus, Dr. Nesbitt's calculations imply an OGC margin over the entire year of about $40 per MWh. Adding this margin to OGC's estimated running or operating costs of about $19 per MWh shown on Dr. Nesbitt's Exhibit 5 for the Florida Supply Stack, yields a marginal cost, price-to-market displaced price of $59 per MWh all hours of the year.

However, there are several facts that demonstrate that Dr. Nesbitt's suggestions are off the mark. For example, Dr. Nesbitt's supply stack and other exhibits show that a $50 per MWh price would occur less than 1 percent of the hours, not nearly the 100 percent he needs to get his calculated savings. Further, the $59 per MWh price implied by his analysis would virtually never occur; just as my son would virtually never take a taxi home from school. And, in order for Dr. Nesbitt's calculations to work, this non-existent $59 per MWh price would need to be displaced all year, or about 8760 hours; just as my son would have to plan to ride a taxi home from school every day in order to justify purchasing a $2000 second car for a sixth grader. Dr. Nesbitt's calculations simply make no sense.

**Q. IS THERE ANYTHING ELSE WRONG WITH DR. NESBITT'S ANALYSIS?**

A. Yes. The OGC proposal does not plan to pass its operating margins (price minus cost savings) on to retail customers. Dr. Nesbitt, on the one hand, assumes that vigorous wholesale competition would eat away at OGC's margins, drawing the price down to OGC's marginal cost of $19.00 per MWh. However,

OGC is only about 500 MWs in a 40,000 MW system, or about 1.25 percent of the available capacity in Florida. All other units are dispatched on a system lambda basis. Retail customers pay no margins above these regulated plants' operating or running costs.

OGC would be the proposed exception. The OGC petition proposes allowing OGC to price to market. Thus, retail customers would pay as much as $50 per MWh, or whatever, when OGC runs at about $19 per MWh. Therefore, Dr. Nesbitt's competitive assumptions are contrary to Florida regulation, which already captures all the operating savings from a rate base or IOU plant in exchange for rate base fixed cost recovery on all such infra-marginal plants.

**Q. IF DR. NESBITT'S ANALYSIS WERE CORRECT, WHAT WOULD THIS MEAN FOR FLORIDA REGULATORS?**

A. If a new plant costs about the same to build and own as the annual energy cost or retail price savings, regulators should require incumbent utilities to build such plants and pay them off (i.e., expense them) in one year. After that, they would be "manna from heaven" and "free lunches" and customers would not have to pay any fixed charges or "price to market" prices.

OGC's output will not be priced at its running cost of $19 per MWh. And, OGC's output will not replace $59 per MWh electricity 8,760 hours in the year because the annual average price to market is, according to Dr. Nesbitt, about $32 per MWh, not $59 per MWh. Thus, consumers would not receive any

savings under the OGC petition since the $32 per MWh price for electricity they pay after OGC would enter the market is the same $32 per MWh Florida customers currently pay.

This is not an example of "manna". This is not a "free lunch". Combined cycle natural gas-fired plants may be sensible choices for Florida. How to pay for them, who should own them, and whether they should be placed into a cost-of-service rate base and centrally dispatched are still important regulatory questions.

Accordingly, it is unfortunately not possible to invest $190 million and recover it entirely in one year, or to expect it to yield more than $750 million of NPV savings over ten years. And, there is no way this can happen if the plant's output is priced-to-market at about $32.00 per MWh, or more, as Dr. Nesbitt assumes.

Dr. Nesbitt's results are based upon a $19.00 per MWh price that will not be used by OGC and price suppression effects that will not occur in the supply stacks. His results are bogus, unreasonable and should be given short shrift by regulators.

**Q. HOW DOES DR. NESBITT CLAIMS A $0.85 PER MWh SAVINGS IN THE FIRST YEAR FROM THE OGC PLANT?**

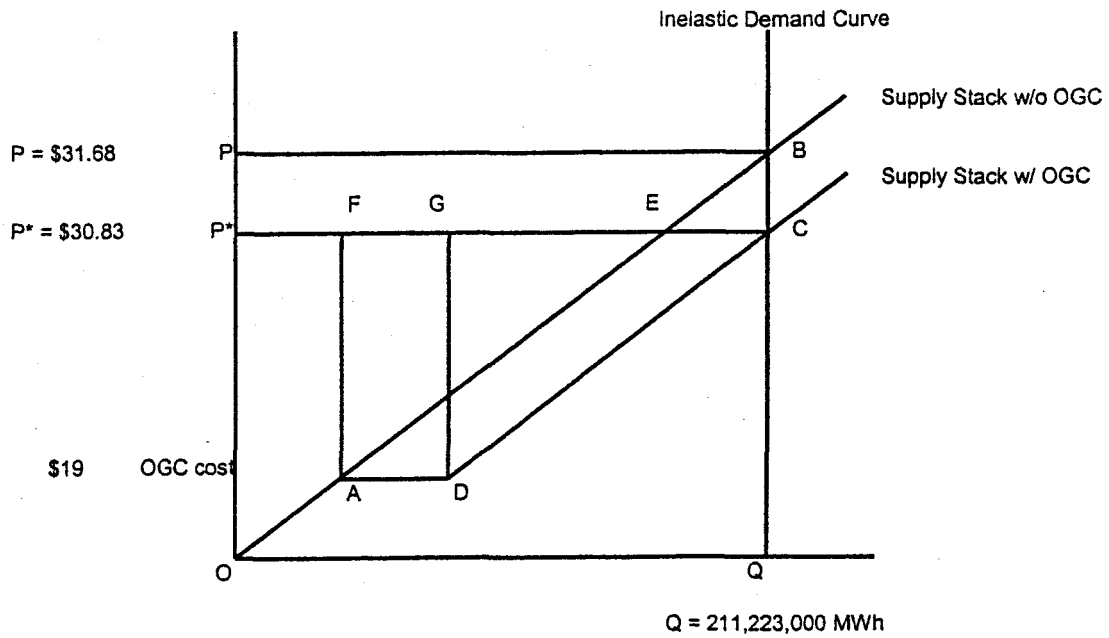
A. Dr. Nesbitt states that without OGC, the average electricity price would be $31.68 per MWh. He also shows OGC with a running cost of $19 per MWh in his

stacking exhibits. He effectively assumes, contrary to OGC's petition, that OGC would be priced at its running costs and would shift the entire supply curve to the right, causing all prices to fall on average $0.85 per MWh for every MWh produced in the Florida Penninsula for the entire year. This is not what the OGC petition, in fact, proposes to do, and Dr. Nesbitt's claimed savings of nearly $180 million per year are completely false. Instead, the OGC plant would be "priced" at the assumed market clearing price of about $32 per MWh, or at just enough of a discount to dispatch the plant, for each of the nearly 8760 hours in the year it is expected to run. Therefore, consumers would not realize lower prices because OGC does not propose to charge its running cost.

**Q. WHY ARE THE CLAIMED $180 MILLION IN SAVINGS FALSE?**

A. There are two analyses that demonstrate the serious flaws in Dr. Nesbitt's false claim of $180 million in annual savings for consumers. First, consider the diagram in Figure CJC-2.

Figure CJC-2




The rectangle PBCP* appears to be how Dr. Nesbitt calculates benefits of $180 million per year. He assumes that demand is totally inelastic, hence the demand function in Figure CJC-2, represented by the vertical line Q. Dr. Nesbitt also assumes that the supply schedule would shift to the right, lowering the market clearing price in every hour from P to P*, or an average hourly price reduction of $0.85 per MWh. The totally inelastic demand schedule significantly exaggerates this claim.[2] His analysis also assumes that OGC would sell its output into the current economic dispatch at $19.00 per MWh. This is not what OGC proposes.

OGC would price to market essentially selling electricity at $31.68 per MWh. Accordingly, ratepayers would not receive the average per MWh reduction of $0.85 per MWh contemplated in Dr. Nesbitt's analysis.

This is not Dr. Nesbitt's most serious mischief. Dr. Nesbitt also uses this impossible percent price reduction to determine his approximate Ratepayer Savings by multiplying $0.85 per MWh by the entire output of all generators in the Florida Peninsula, as follows:

$31.68 - $30.83 = $0.85

$0.85 per MWh * 211,223,000 MWh = $180 million

This is simply not correct. Florida consumers would not receive the $0.85 per MWh reduction over their entire annual output because OGC does not propose to pass on its operating margin to consumers under current regulation. Furthermore, there is no competitive retail market in Florida that would allow Dr. Nesbitt to assume falsely that OGC would be forced by competition to sell its output at $19.00 per MWh versus its price to market "proposal", which would yield OGC a price close to $31.68 per MWh. Consequently, his claimed annual savings of $180 million are similarly non-existent.

**Q. WHAT IS DR. NESBITT'S NEXT ERROR?**

[2] If the demand curve is drawn to show an elastic demand, which is more likely than an inelastic demand, the demand curve will be downward sloping, as opposed to the vertical line drawn by Dr. Nesbitt. The point at which the supply stack with OGC intersects an elastic demand curve would necessarily occur at a price higher than where the same supply stack intersects Dr. Nesbitt's inelastic demand curve. Thus, the price differential would be lower than that claimed by Dr. Nesbitt if a more appropriate elastic demand curve was used.

A. Dr. Nesbitt's second error is more serious. In addition to failing to recognize the market that currently exists in Florida, Dr. Nesbitt fails to address the reality of the OGC Petition. Figure CJC-2 can be used to understand how small the ratepayer benefit would actually be even if we use Dr. Nesbitt's totally inelastic demand schedule and assume his $0.85 per MWh average price reduction is correct.

Societal net benefits would not conceptually equal Dr. Nesbitt's rectangle (PBCP*). Instead, Societal net benefits in Florida would be represented by the trapezoid ABCD. This trapezoid represents the increase in consumers' and producers' surplus from a shift in marginal production costs under Dr. Nesbitt's unreasonable assumptions. Thus, Florida consumers and producers would experience, under Dr. Nesbitt's biased assumption, a gain of combined consumers' and producers' surplus equal to the trapezoid ABCD. This is clearly smaller than rectangle PBCP*.

Most of this gain would go to OGC leaving very little for all others in Florida. Consider rectangle AFGD in Figure CJC-2. This is OGC's expected profit at the lower market clearing price of P*, output AD, and a running cost of $19 per MWh. Rectangle AFGD, OGC's profit, is mathematically equal to the parallelogram AECD. This is because the rectangle and parallelogram share the same base AD and the same height GD. Therefore, most of the cost "savings" actually go to pay for OGC's profit

**Q. IS ANYTHING LEFT FOR OTHERS IN FLORIDA?**

A. After deducting OGC's profit and running costs, Florida consumers would receive the residual benefit represented by triangle EBC, since this triangle is formed by subtracting OGC's profits from the trapezoid ABCD.

ABCD – AFGD = ABCD – AECD = EBC

**Q. CAN YOU DETERMINE HOW MUCH OF A BENEFIT THIS IS?**

A. Yes. It is possible to determine the size of this benefit for Floridians excluding OGC's profits. This is possible because the area of triangle EBC is:

ΔEBC = ½($0.85 per MWh * 4,480,000) = $1.9 million.

Thus, the benefit to Florida consumers after extracting OGC's profits (represented by AFGD) is not $180 million per year as implied by Dr. Nesbitt. Rather the benefit to others in Florida (not OGC) is actually only about one percent of that claim, or $1.9 million per year. Thus,

- Social benefits do not equal $180 million per year.
- Out of state owners of OGC would earn significant profits.
- Using Dr. Nesbitt's biased assumptions, benefits for others in Florida would only be about $1.9 million per year, which is far less than the savings that would be produced by a similar plant built by an incumbent investor owned utility.

**Q. WHAT IS THE SECOND ANALYSIS THAT DEMONSTRATES DR. NESBITT'S MISLEADING AND BIASED CONCLUSIONS ABOUT CONSUMER BENEFITS?**

A. In order to reduce the average retail price as much as Dr. Nesbitt claims, the OGC plant would need to make up 6.67 percent of the Florida market. However, it would make up only 2.12 percent[3] of the MWhs sold in Florida. Dr. Nesbitt's conclusions make no mathematical sense. I show this below. Dr. Nesbitt claims his model would reduce the average price for all Florida MWhs, or some 211.223 million MWh from $31.68 per MWh to $30.83 per MWh. He also suggests that his model priced OGC at its marginal cost, or $19.00 per MWh. Although this is contrary to what the petition states at pages 24 and 27, let's assume that this is true. I asked myself what it would take to move the average price from $31.68 per MWh to $30.83 per MWh (i.e., an 85¢ per MWh reduction), assuming one unit such as OGC was added to Florida at $19.00 per MWh.

I used interpolation and calculated the following:

(1) $30.83 = $31.68 (1-X) + $19 (X)

(2) $30.83 = $31.68 - $31.68X + $19X

(3) .85 = 12.68X

(4) x = 6.67

[3] Note that while OGC would make up about 1.25 percent of the available capacity in Florida (see page 58), it would make up 2.12 percent of the MWhs actually sold in Florida. The difference results from OGC's initially higher than average availability factor (i.e., its utilization rate).

The previous calculation shows that OGC would need to equal 6.67 percent of the output in Florida, if its introduction to the supply stack in Florida at $19.00 was to pull the average price from $31.68 to $30.83.

Dr. Nesbitt made two errors here. First, the calculation shown above assumes OGC is paid its running cost just like all regulated units in Florida that the IOUs centrally dispatch. However, Dr. Nesbitt and OGC describe how, unlike rate base generation, OGC would monetize its margins to provide a return "on" and "of" capital to its owners. This means that OGC, by pricing to market, would charge an average price essentially equal to $31.68 per MWh, based on Dr. Nesbitt's assumed average price. The difference between this price and its $19.00 per MWh running cost represents OGC's average hourly margin of $12.68 ($31.68 - $19.00). Such an arrangement would leave little or no room for any retail price reduction; and certainly not the falsely claimed $0.85 per MWh reduction that would only materialize if OGC could more than triple its output (which is physically impossible) and sell at $19.00 per MWh (which is not what OGC proposes to do).

Second, the OGC output is projected to be 4.48 million MWh at a high 93 percent capacity factor. Dividing OGC's output by Dr. Nesbitt's estimate of the Florida Peninsula's output of 211.2 million MWh shows that OGC would represent about 2.12 percent, not nearly the more than three times greater 6.67 percent of total output, shown in my calculation above. Additional output

stimulation and/or displacement due to supply curve shifts would not be sufficient to overcome this gap. This is extremely important. If OGC constitutes 2.12 percent of the energy market (MWhs) when it runs at a 93 percent capacity factor, then it would need to run at a 292 percent capacity factor. In other words, in order for Dr. Nesbitt to be correct, OGC would need to run more than 25,000 hours each year out of a possible 8760 hours in a year. In other words, the OGC plant would need to run nine eight hour shifts per day! This is obviously impossible. Dr. Nesbitt's calculations are wrong!

**Q. WHAT DO THESE CONCLUSIONS MEAN FOR DR. NESBITT'S CLAIM THAT OGC WILL YIELD $764 MILLION IN BENEFITS OVER TEN YEARS?**

A. Since the price suppression benefits to consumers are insignificant or even negative, Dr. Nesbitt's NPV claim is utterly false and will not materialize in nearly three-fourths of a billion dollars in benefits for Florida consumers. Under the pricing terms set forth in the OGC petition and current circumstances, I suspect Florida's consumers would pay more, not less, if the OGC petition were approved.

**Q. HAVE YOU CONSIDERED THE POSSIBILITY THAT DR. NESBITT MAY HAVE OVERESTIMATED THE AVERAGE ANNUAL HOURLY MARKET CLEARING PRICE OF ELECTRICITY IN HIS ANALYSIS OF THE FLORIDA PENINSULA ELECTRICITY MARKET?**

A. Yes. Dr. Nesbitt has used an average annual market-clearing price for generation of $31.68 per MWh or about 3.2¢ per KWh. This price is about one third higher than the highest prices I have generally encountered in my analysis and consulting related to competitive electricity markets. Typically, I find the higher estimates to be about 2.5¢ per KWH, or $25 per MWh. I also have often found estimates as low as 1.8¢ per KWH, or $18 per MWh. The lower end of the estimates suggest Dr. Nesbitt's estimated average hourly prices could be more than 75% higher than what others around the nation are predicting and relying upon. Accordingly, my first reaction to Dr. Nesbitt's $32 per MWh estimate was that it most likely was not a competitive market clearing price. Up to this point in my analyses and discussion, I have nevertheless used this $32 per MWh price to explain why Dr. Nesbitt's conclusions and policy recommendations are fatally flawed.

**Q. DID YOU PERFORM ANY QUANTITATIVE ANALYSES TO DETERMINE IF DR. NESBITT'S APPROXIMATELY $32 PER MWh PRICE WAS CONSISTENT WITH THE FACTS AND CIRCUMSTANCES IN FLORIDA?**

A. Yes. Dr. Nesbitt relied upon FERC Form 714 load data. Therefore, I collected the FERC Form 714 data for three of Florida's IOUs from 1996 to 1998. These forms show the short-run marginal cost, which is called system lambda, essentially for each hour in the year. I also combined this information to calculate the average annual hourly price for Florida Power & Light (FPL), Florida

Power Company (FPC), and Tampa Electric Company (TECO) based upon a least cost dispatch for each company's system lambda. It is important to realize that the system lambda is the running cost of the most expensive to operate generation used by an IOU in any particular hour of the year.

In addition, I combined the FERC Form 714 hourly data for these three Florida Peninsula utility companies to determine a combined or joint least cost dispatch system lambda for the Florida Peninsula. I did this by selecting the highest running cost of each of these utility companies in each hour of the year because I assume these three companies would engage in joint least cost dispatch.

**Q. WHAT DID YOU FIND IN THIS ANALYSIS?**

A. The most recent year for which FERC Form 714 data is available is 1998. I think that this year should be given greater weight than previous years for predicting future prices and in reflecting current purchases.

In 1998, the average annual hourly system lambdas are as follows:

**1998 AVERAGE HOURLY RUNNING COSTS**

**Of the Most Expensive Unit Dispatched (System Lambda)**

**($ Per MWh)**

| | |
|---|---|
| FPL | $20.30 |
| FPC | $18.30 |
| TECO | $15.91* |

| | |
|---|---|
| | ($13.94) |
| *Joint Dispatch* | $21.14 |

*1998 data is not available. Therefore, I show 1997 data. In parentheses, I also show an estimate for 1998 after scaling the 1997 TECO data to match FPL and FPC's running cost.

**Q. WHAT WOULD HAPPEN IF YOU USED THE TWO PREVIOUS YEARS IN YOUR ANALYSIS?**

A. The average hourly system lambda's increase by about $3 per MWh for FPL and FPC. TECO's system lambdas are on average about $1 less in 1996 than 1997. The joint dispatch data for these three combined generating companies would also increase by about $3 per MWh for 1997 and about $4 per MWh for 1996.

**Q. WHAT DO YOU CONCLUDE FROM THIS ANALYSIS?**

A. All three utility companies have average annual running costs at or below the approximate $25 per MWh "all-in" costs that I have generally been finding around the nation for a new, efficient combined cycle natural gas generating station. Further, Florida's unique geographic location at the end of the natural gas pipelines isolates it from natural gas supplies, driving up natural gas transportation costs. This is in turn, is likely to drive the "all-in" cost in Florida above the $25 per MWh price I often find nationally for a new combined-cycle plant. The "all-in" cost could perhaps go as high as $27 to $28 per MWh, but still much less than Dr. Nesbitt's $32 per MWh price. The IOUs actual average

annual running costs suggest to me that these utility companies have been adding new capacity both to meet growth and to minimize the long-term present value of their system expansion costs. In other words, the Florida Peninsula investor owned electric utility companies have been using least cost planning, which takes into account minimizing operating costs and the present value of generation costs, to meet load growth.

**Q. WHY DO THESE DATA AND ANALYSES SUGGEST THIS CONCLUSION TO YOU?**

A. A utility that, for example, simply adds combustion turbines to meet increased demand would, on average over the hours in a year and over time, likely have higher average system lambdas than the "all-in" cost (i.e., average annual total costs) of an efficient new generating plant that could be built both to meet load growth and to minimize system costs over the life-cycle of that new plant. There are exceptions in the real world. However, the similarity between these average hourly system lambdas and the average total costs of new, efficient combined cycle plants suggests to me that the Florida Peninsula is currently essentially in a long-run planning equilibrium. Simply put, Florida regulation and utilities have been doing their combined job and meeting their collective responsibility for Florida's consumers. This is demonstrated by average hourly system lambdas that approximate the $25 per MWh that I often find used nationally as a benchmark price for new combined cycle natural gas-fired generation, and that

beat the likely higher "all-in" cost of a new combined-cycle plant in Florida by as much as $2 to $3 per MWh.

**Q. WHY DO YOU THINK THAT THE "ALL-IN COST" ESTIMATES FOR FLORIDA ARE ABOVE WHAT YOU GENERALLY FIND NATIONALLY?**

A. Florida's weather and above average natural gas delivery costs are the most likely reasons for any differences. I have not, however, performed a detailed analysis. Nevertheless, I am very certain that Dr. Nesbitt's $32 per MWh "competitive" price estimates are too high for Florida.

**Q. IS THIS THE END OF THE STORY?**

A. No. The joint dispatch and FERC Form 714 data reflect the highest running cost of each unit owned and operated by these three utility companies in the Florida Peninsula. In addition, there are energy purchases that each utility makes over the course of the year.

**Q. HAVE YOU ANALYZED UTILITY PURCHASES IN FLORIDA?**

A. Yes. I also collected cost and quantity data for the purchases made by these three Florida utilities over the same time period from their respective FERC Form 1 filings. I segregated this data into purchases made from within Florida, as well as energy purchased from generators outside the state of Florida.

**Q. WHY DID YOU MAKE A DISTINCTION BETWEEN ENERGY PURCHASED FROM WITHIN AND OUTSIDE FLORIDA?**

A. Utility purchases from privately owned, customer owned, and governmentally owned utilities from within Florida typically cause lower retail or wholesale prices for the selling utility company's customers. Further, when TECO purchases electricity for a lower price and this reduces the retail prices that would have been paid by its customers, this is an unambiguous benefit for TECO's retail customers. This conclusion is true regardless of where the generation is physically located and who owns it.

There is, however, an important distinction. Suppose FPL sells TECO the energy that lowers prices below what retail customers otherwise would pay in Tampa. Suppose also that the price paid for the electricity includes both a demand or capacity charge and an energy charge. This effectively means that the full price TECO pays FPL exceeds FPL's running cost. The extra margin paid to FPL, a regulated Florida utility, is then typically used to reduce the prices paid by FPL's customers. This within state transaction is a "win" for TECO's ratepayers and a "win" for FPL's ratepayers. Joint economy dispatch or transactions would lower prices for both sets of retail customers in Florida. A similar set of mutual "wins" would also occur when a within state cooperative (customer owned utility) or a municipal utility is involved in similar transactions with IOUs in Florida.

Now, suppose that an unregulated merchant or an out-of-state marketing entity, (e.g. Southern Company) sells energy to TECO. There would be one

round of Florida ratepayer benefit if TECO's prices continue to be less than they would otherwise be. However, the margins earned (i.e., energy prices above running costs,) would not reduce retail rates for other Florida retail or wholesale customers. Any such margins would instead be used to increase the net income of the merchant or out-of-state marketer. As matters of economic efficiency and the effect on retail rates in TECO, this distinction would scarcely matter. However, regulators should, and in my experience generally do, recognize the important difference when similar sales yield margins that produce a second customer benefit from reducing retail rates for other customers under their purview, (e.g., FPL ratepayers in this example).

**Q. ISN'T THIS TYPE OF THINKING JUST SOME SORT OF PAROCHIAL BIAS?**

A. I do not think so. Regulation is based on the premise of a just and reasonable return for a prudent investment. If customers in the regulated entities can sometimes effectively share or utilize the same fixed costs (e.g., FPL's generation investment), and both are better off, then regulators should, other things equal, favor such results over merchant plants and out-of-state marketers. The latter generators are not evil. Their generation profits are generally not obscene. However, if regulators seek lower regulated prices, not just economic efficiency, they would and should favor the transactions that are "win/win" for two groups of regulated customers, such as TECO and FPL customers in this discussion.

**Q. HOW SIGNIFICANT ARE UTILITY PURCHASES, AND THEREFORE THIS EXTENSION IN YOUR DISCUSSION, IN THE FLORIDA PENINSULA?**

A. I show in Exhibit CJC-6 the total electricity requirements and their source, (i.e., self-generation, Florida purchases, out-of-state purchases) for the three investor owned utilities in the Florida Peninsula in 1996 through 1998.

In general, about eighty percent of the IOU requirements are self-generated and twenty percent are purchased. About two-thirds of these IOU purchases come from within the state and about one third is purchased from outside the state.

**Q. HOW WOULD THESE PURCHASES AFFECT YOUR CONCLUSIONS CONCERNING THE REASONABLENESS OF DR. NESBITT'S APPROXIMATE $32 PER MWh PRICE?**

A. The answer to this question is complicated by how one supposes the prices paid would be treated and would affect the dispatch or market-clearing price. Most purchases have both an energy and demand charge component. The former payment varies with the MWhs sold in any hour of the year. Accordingly, the energy charge is a variable cost that system dispatchers would use in a regulated market to determine when it is cheaper to purchase than to generate electricity.

In a competitive market, if potential sellers were forced to compete by bidding against each other to make a sale, it would also be reasonable to expect

each generator to bid each generating unit at its short-run marginal cost, (i.e. its system lambda or variable energy and variable O&M cost). Assuming the purchase price for energy is based on short- run running cost, we could use the energy charges for these utility purchases in our analysis to determine the effect of such purchases on the average annual market clearing prices in either a regulated centrally dispatched world or in a perfectly competitive market in which no generator had market power and all units bid their system lambda, or marginal running cost. The resulting average annual market clearing prices would essentially be the same under both circumstances.

**Q. DID YOU PERFORM SUCH AN ANALYSIS?**

A. Yes. I began by determining the average energy charges for all the purchases made by the three utilities for the three years in my analysis. While not relevant at this point, I also calculated the average annual prices for demand charges based upon the demand charges and annual energy purchased for the same years and utilities. Both types of prices are shown in Exhibit CJC-7. While not exactly a joint dispatch price because I did not have energy prices for purchases on an hourly basis, I find that the combined average Florida Peninsula energy prices would be slightly less when I add energy purchases at their average prices and amounts to the supply stack (i.e., average hourly system lambda prices) of owned and operated utility plants in the Florida Peninsula.

For example, in 1998, the weighted average of average energy purchases and the average annual hourly system lambda are as follows:

**1998 WEIGHTED AVERAGE PRICE OF ENERGY PURCHASES**

**And the Hourly Prices of the Most Expensive Dispatched Unit**

**($ Per MWh)**

| | System Lambda | Weighted Average |
|---|---|---|
| FPL | $20.30 | $19.73 |
| FPC | $18.30 | $19.18 |
| TECO | $13.94 | $15.46* |
| Combined | $21.14 | $20.87 |

*I used scaled values for TECO. These prices adjust 1997 system lambda for changes between 1997 and 1998 in the running costs for Florida electricity generation. Often these TECO prices would be inframarginal and not affect the hour's system lambda and *vice versa*.

I conclude that combining energy purchases and system lambdas would mean that FPL's weighted average price declines; TECO's and FPC's prices increase. This is because FPL is the dominant utility seller to other utility companies in Florida. The overall Florida Peninsula price is essentially unchanged ($21.14 versus $20.87.) This is shown in Exhibit CJC-8.

**Q. WHAT DOES THIS REFINEMENT TO YOUR ANALYSIS MEAN?**

A. First, I conclude that energy purchases are currently used by Florida utilities, along with self-generation, to minimize retail prices and system costs. There is nothing new in this analysis that would cause me to accept Dr. Nesbitt's projected $32.00 average price for new generation. Dr. Nesbitt's estimate is not consistent with the current dispatch costs, purchase power and other facts in the Florida Peninsula. By overstating the price of energy significantly, Dr. Nesbitt has grossly overestimated the benefits he claims for either a new merchant plant, or any combined cycle plant, regardless of ownership, in the Florida Peninsula.

Second, I observe that if the generation currently sold in the Florida Peninsula was bid against the current supply stack owned by these three utilities at system lambdas and average energy prices, the average hourly price result would yield about the same average hourly market clearing price of about $21 per MWh in 1998, and not the $32 per MWh that Dr. Nesbitt used in his analysis.

Regardless of regulation, (i.e., the *status quo*), or perfect competition, (i.e., bidding short-run marginal costs), there is no reason to expect prices that would approach the approximate $32 per MWh that Dr. Nesbitt used to inflate his benefit calculations and falsely conclude that new merchant plants would be virtually paid for in one year and represent "manna from heaven." There are no free lunches! Dr. Nesbitt simply overstates his falsely claimed benefits by using projected market clearing prices of $32/MWh that exceed by more than fifty percent more realistic market clearing price estimates and current costs in

Florida. I show these results in greater detail in Exhibit CJC-8. In the first panel, I show the system lambda dispatch average prices exclusively. The second panel shows the energy charge for power purchased within Florida. The third panel shows the energy charge for power purchased from outside Florida. The fourth panel shows the effect of adding average (weighted) energy purchases prices from both within and outside of Florida to these system lambda average prices.

**Q. DOES THIS COMPLETE YOUR REFINEMENTS TO DETERMINE THE REASONABLENESS OF DR. NESBITT'S PROJECTED PRICE OF $32 PER MWh?**

A. No. I performed an additional sensitivity test. I added the average annual demand charges per MWh for out-of-state purchases to reflect the fact that, currently, these prices are paid to non-Florida generators for sales made in the Florida Peninsula. I specifically did not add such demand charges for energy supply by Florida generators because, as I explained above, these payments over energy costs would typically be used to reduce other retail rates in Florida. The effect of adding out-of-state demand charges for the combined weighted average prices is as follows: **($ Per MWh)**

| | Energy Only | Including Out-of-State Demand Charges |
|---|---|---|
| 1998 | $20.87 | $21.91 |
| 1997 | $23.37 | $24.61 |

| | | |
|---|---|---|
| 1996 | $24.00 | $25.21 |

**Q. WHAT DOES THIS REFINEMENT DEMONSTRATE?**

A. In competitive markets, fixed costs (i.e., demand charges) will mostly not affect marginal bids or market clearing prices. Therefore, in a competitive market, this refinement would not be appropriate unless the market had short-term supply shortages, transmission constraints or some other temporary emergency.

Under regulation, these contract prices would be paid by Florida ratepayers and be recovered by owners (i.e., not used to affect other Florida rates). Therefore, I calculated the effect of these payments. However, when I do so, I still find 1998 weighted average "energy" prices are below $22 per MWh for the Florida Peninsula. This is about $10 per MWh below the price Dr. Nesbitt used to inflate his claimed benefits and other exaggerations.

**Q. WHAT PERCENT OF WITHIN FLORIDA SALES DO NOT RESULT IN LOWER RETAIL PRICES FOR THE SELLERS' RETAIL CUSTOMERS?**

A. Sales made by qualifying facilities in Florida and by within state merchants comprise about seventy percent of the within state purchases of the three investor owned utilities. These sales are also about ten percent of the annual electricity requirements for these IOUs. I have included the demand charges for these sales along with the demand charges for out-of-state to determine a final estimate of system-wide energy prices for 1998, as follows:

**1998 WEIGHTED AVERAGE PRICE OF ENERGY**

**PURCHASES WITH OUT-OF-STATE AND NON-UTILITY WITHIN STATE DEMAND CHARGES AND THE MOST EXPENSIVE DISPATCHED UNIT**

**($ Per MWh)**

| | Include Only System Lambda & Energy Charges | Add Out-of-State Demand Charges | Add Non-Utility Demand Charges |
|---|---|---|---|
| FPL | $19.73 | $20.88 | $23.99 |
| FPC | $19.18 | $20.44 | $25.65 |
| TECO | $15.46 | $15.55 | $16.51 |
| Combined | $20.87 | $21.91 | $25.28 |

This table shows that the Florida Peninsula utility supply mix is essentially in long-run equilibrium with a combined running rate of about $25 per MWh. This is consistent with new combined cycle natural gas-fired power stations at about $25 per MWh (all-in annual average costs), on a national basis, and about $2 to $3/MWh higher in Florida most likely due to higher natural gas transportation costs and weather. Thus, there is no reason to believe Dr. Nesbitt's assertion that a $32 per MWh price should be used to calculate benefits, to plan system expansion, or to formulate regulatory policy.

**Q. IS IT YOUR CONCLUSION THAT A $32 PER MWh AVERAGE ANNUAL MARKET CLEARING PRICE IS IMPOSSIBLE IN THE FLORIDA PENINSULA?**

A. I would not say with absolute certainty that a $32 per MWh price is impossible. What I will say, however, is that under current and likely fuel costs, some form of economic dispatch under regulation, likely technology and/or highly competitive power markets in the future, that a $32 per MWh price is unreasonable and highly unlikely. Furthermore, under the above conditions, for such a price to occur it would most likely be due to an extreme emergency, unfair and inefficient competition, and most likely could not be sustained for very long.

**Q. HOW WOULD AN EMERGENCY POSSIBLY CAUSE SUCH A HIGH "MARKET" OR REGULATED PRICE IN FLORIDA?**

A. Electricity is about supply and demand, and/or matching loads and dispatch in least cost or merit order. Excess unanticipated demand matched with unplanned outages and transmission interruptions or constraints could cause very high prices until either a reasonable degree of normalcy was restored to the market and/or new investments were made.

**Q. DOESN'T EVEN THE VERY SLIM POSSIBILITY OF SUCH ADVERSE OUTCOMES MAKE THE CASE FOR NEW MERCHANT PLANTS THAT PROPOSE TO ENTER FLORIDA AND PERHAPS ASSUME ALL INVESTMENT COST RECOVERY RISK?**

A. No. Absolutely not! First, Dr. Nesbitt is claiming falsely that the benefits from a new merchant plant are based on roughly a $32 per MWh price year in and year out, not some sort of emergency condition of excess demand or grossly

inadequate supply. My first rule of public policy analysis is "to stick to reasonable facts, assumptions and logic; and, do not overstate the case." Dr. Nesbitt has not followed this rule.

Second, I find few facts and no evidence suggesting that Florida faces the prospect of any such chronic reliability emergency. Instead, I find IOUs willing and able to build new generating stations, sign new long-term contracts and promote demand side management and conservation. They are not alone in this effort in Florida.

Third, if OGC is being built to collect above normal market and/or long-term least cost planning prices (i.e., $32 per MWh versus about $25 to $28 per MWh,) this fact needs to be understood. If it is understood, this Commission should recognize that there are much less costly pro-retail consumer options available. These include: (1) building new combined-cycle natural gas-fired generating plants under rate base regulation; (2) extending the life of existing regulated, perhaps nearly fully depreciated, power stations; (3) adding new advantageous purchase power contracts to the mix; (4) expanding demand side management and conservation; and, (5) supporting and encouraging customer supplied options, distributed energy and/or renewables. There may even be additional options.

The bottom line is that Florida would not be well served by a new merchant plant that positioned itself in a non-competitive market in order to

cream skim economic rents that are caused by emergency conditions and that result in extraordinary and exceptional reliability payments. Florida regulators should, in my opinion, reject any such proposal or plan. Instead, Florida should continue to favor least cost solutions to both normal and emergency outcomes. Merchant plants should not be allowed to take unfair advantage and be subsidized through excessive payments. Competitive markets would not do so. Neither should Florida regulation.

**Q. CAN YOU PROVIDE AN EXAMPLE OF HOW AN EMERGENCY SITUATION COULD LEAD TO EXTRAORDINARY AND EXCEPTIONAL RELIABILITY PAYMENTS?**

A. Certainly. Assume that OGC is built but does not execute any long-term contracts for its power. In such a situation, it would generally be selling into the Florida wholesale market and receiving ordinary profits for any sales that it makes. Now assume that an unplanned outage caused by an accident or natural disaster causes a severe shortage of power. While demand remains relatively constant, in any such emergency situation, prices could skyrocket, much as they did when prices hit $7000 per MWh in the Midwest last summer. In such a situation, OGC would be able to profit enormously by selling its power for these extraordinary and exceptional market clearing reliability payments. The IOUs in Florida and their customers would have two options under such a scenario: (1) pay the inflated prices demanded by OGC or (2) suffer outages and blackouts.

A second such scenario could play out where an unplanned outage caused by an accident or natural disaster strikes a neighboring state. Again, demand could outstrip supply, causing prices to soar. Given a high enough price, OGC could find it profitable to abandon Florida markets and chase price spikes in neighboring states. This sudden departure for more profitable venues could cause demand to outstrip supply in Florida, causing prices to spike here as well.

It is important to remember that if a plant like OGC proposes was instead built by the incumbent IOUs, these severe price risks to Florida customers would not exist because incumbent IOUs would build these plants under long-term contracts or rate base regulation. Florida regulators should take care not to create an opportunity for merchant plant owners to earn excessive profits and thereby put Florida customers at risk.

**Q. WOULD OGC PROVIDE GREATER PRICE SPIKE PROTECTION TO FLORIDA CONSUMERS THAN WOULD A SIMILAR PLANT OR PURCHASE POWER CONTRACT ENTERED INTO BY A REGULATED UTILITY?**

A. No. Merchant plants selling into a spot energy market would ride the price spike curve to increase profits. They would also attempt to chase out of Florida price spikes elsewhere in the nation.

Regardless, merchant plants would use either spikes as an opportunity to increase profits. Regulated utilities could not and would not do this with rate base plants. This difference is important for Florida regulation and consumers.

**Q. DO YOU AGREE WITH DR. NESBITT'S CHARACTIZATION THAT THE FRCC REPORT "SHOULD BE VIEWED AS INSUFFICIENT IN TERMS OF THE AMOUNT OF CAPACITY ADDITION IT ADVOCATES"?**

A. No. I find that the FRCC approach is a reasonable one for Florida. I also note that the FPSC recently approved a stipulation entered into by FPC, FPL and TECO, to increase their respective reserve margins from 15 percent to 20 percent by summer of 2004.[4] These three utilities make up 85 percent of the load in Florida. This commitment should provide the Commission with additional security that OGC is not required for reliability purposes.

**Q. WHAT WOULD CAUSE AN IOU NOT TO BUILD A NEW UNIT WHEN A MERCHANT PLANT OWNER WOULD PROPOSE TO BUILD A NEW UNIT?**

A. Dr. Nesbitt would build every plant that could make money (i.e. earn a positive NPV) by beating the marginal market clearing centrally dispatched running cost. From an investor's perspective, this is reasonable.

From a least cost regulatory perspective, this is not reasonable. Regulated utilities are forced to equate least cost and least price. Earnings are capped by regulation. Cost efficiency is encouraged and mostly always achieved.

If a regulated utility can extend existing plant life for less costs and lower retail prices than those associated with building a new unit, the IOU usually has a

[4] In re: Generic Investigation Into the Aggregate Electric Utility Reserve Margins Planned For Peninsular Florida, Docket No. 981890-EU, Order No. PSC-99-2507-D-EU, December 22, 1999.

statutory obligation to do so. Incumbents own some nearly fully depreciated generators with high running costs and no significant fixed costs. Replacing these plants to save operating costs would increase fixed costs. Accordingly, regulators and utilities balance these two costs and seek least cost solutions for consumers in Florida. Merchants would not address this balance. Instead, merchants would build when they can take the margin and be content to leave prices high. Utilities are often forced to eschew higher income or profits to keep regulated prices in check. Therefore, IOUs should extend a generator's operating life when overall tariffs are suppressed by retaining older plants that have little or no fixed costs and fuel savings from a new unit do not recover their fixed costs.

These differences between utility owned and operated plants and investments and merchant plants are significant. Regulators seek the scale and scope cost reducing benefits of a regulated monopoly, attempt to set authorized returns at competitive levels for comparable risk, and require utilities to utilize long-term least cost planning. When there are differences, regulated ratepayers receive the benefit. Regulators equate least cost and least price.

Merchant plants propose to alter this convention and establish a unique profit maximizing foothold by extracting the difference between price and cost. The problems represented by this strategy are two-fold. First, under current conditions, consumers would pay more and merchant owners would earn more

than consumers would pay and IOUs would earn under cost-of-service, least cost regulation. Second, without full competition, there are virtually no competitive checks on merchant plant profits or incentives to supply and/or any attempt to game the Florida market. These would raise prices for consumers in Florida.

**Q. DO YOU AGREE WITH THE SUGGESTION THAT MERCHANT PLANT APPLICANTS WANT MORE COMPETITION?**

A. No. I find that businesses that sing of competition's glory are usually seeking a special governmentally sanctioned advantage. I see much of this line of logic in the OGC petition and throughout Dr. Nesbitt's discourse.

**Q. WHY IS THIS SO?**

A. Competition makes suppliers face all sorts of business risks and economic challenges. If there is an easier and less risky path, businesses will almost always take it. Regulation in Florida has not failed. Other states that are moving quickly to restructure have had significant regulatory problems. Merchant plant investments around the nation are mostly entering high cost and high priced states. Elsewhere, merchant plants are proceeding by telling regulators that they are free, provide enormous benefits and that they will encourage competition.

These plants are not free. They will benefit owners, not retail consumers. Once the merchant plants are established, I do not expect newly built merchant plant owners to seek regulatory changes that would expand competition, and thereby reduce their profits by altering the *status quo*.

**Q. DO YOU AGREE WITH DR. NESBITT'S CONCLUSION THAT, GIVEN GEORGIA'S COAL FIRED GENERATION BASE, GEORGIA WILL KEEP ITS COMPETITIVE ADVANTAGE OVER FLORIDA?**

A. This depends upon natural gas transportation into Florida and the Clean Air Act compliance costs in Georgia. Dr. Nesbitt tells only part of the story.

**Q. DO YOU AGREE WITH DR. NESBITT'S DISCUSSION OF THE A-J EFFECT?**

A. No. I know of no U.S. utility, certainly not Dr. Nesbitt's recent Florida clients Duke and PG&E, that padded their rate base to increase their net income and/or shareholder value.

As I explained above, the A-J effect is only conceptually valid if regulated companies can expect to earn higher returns than their marginal cost of capital. Dr. Nesbitt is obfuscating facts, ignoring economic theory, and incorrectly and unreasonably criticizing both regulators and all IOUs, including his own clients.

**Q. DO YOU AGREE WITH DR. NESBITT THAT INCUMBENT UTILITIES WILL BUILD PLANTS AND CHARGE PRICES THAT WILL ALWAYS HAVE HIGHER COSTS AND PRICES THAN MERCHANT PLANTS?**

A. Of course not! I explain just the opposite would happen in Florida under current conditions.

**Q. DOES THIS MEAN THAT FLORIDA NEEDS TO DROP REGULATION AND JUMP TO COMPETITION QUICKLY?**