BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 080317-EI

In the Matter of:

PETITION FOR RATE INCREASE BY
TAMPA ELECTRIC COMPANY.
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VOLUME 12

Pages 1741 through 1948

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PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN MATTHEW M. CARTER, II COMMISSIONER LISA POLAK EDGAR COMMISSIONER KATRINA J. McMURRIAN COMMISSIONER NANCY ARGENZIANO COMMISSIONER NATHAN A. SKOP
DATE:	Wednesday, January 28, 2009
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	LORI DEZELL, RPR, CCR
APPEARANCES:	(As heretofore noted.)

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EXHIBITS

NUMBER		ID.	ADMT.
113	Load Research Report	1746	1840
114	Document titled Open Lines	1785	1840
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PROCEEDINGS

CROSS-EXAMINATION (CONTINUED)

BY MS. KAUFMAN:

Q Now, if you turn to your rebuttal testimony, actually at the bottom of page 4, going over to the top of page 5 there, you are talking about the difference in service characteristics in the three classes, correct?

A That's correct.

Q And I take your testimony there you -- you recognize that there are differences among the three classes but you don't think they're significant enough to prevent the combination that you're seeking in this case, right?

A Two -- two parts. That's one part, is that the significance of difference is not enough to justify keeping them separate. The second is that the rate design I'm proposing for the GSD recognizes many of the differences I'm describing here just in the rate design, and therefore they're captured within the rate design of GSD, so the differences aren't critical but it wouldn't be keeping an IS group separate anymore.

Q So you think there are significant differences, but you think that you have ameliorated those through the rate design --

A In part, yes.

MS. KAUFMAN: Mr. Chairman -- Madam Chairman, excuse me. I'm distributing a document. If we could have it identified, I guess it's -- I guess it's 113.

THE WITNESS: Thank you.

MS. KAUFMAN: Sure. And I think we could call it Load Research Report.

COMMISSIONER EDGAR: Okay. Let me -- Ms. Brown, I think I may have missed one of the last ones, so hold on for just a second. What number?

MS. BROWN: I have exhibits up to 113.

COMMISSIONER EDGAR: As do I. I thought maybe I had missed one.

MS. KAUFMAN: I'm sorry. I missed one.

COMMISSIONER EDGAR: That's all right.

MS. BROWN: So we would be at 114.

COMMISSIONER EDGAR: Well, I think we decided not to use 113.

MS. BROWN: That's right.

COMMISSIONER EDGAR: That's what I had, but again -- so I think we're all on the same page, and if I need corrected later we can do that. But as we are now, we will mark this as Exhibit 113. And, Ms. Kaufman, you said Load Research Report?

MS. KAUFMAN: Yes, ma'am.

COMMISSIONER EDGAR: Okay. We will so mark and go from there. Thank you.

(Exhibit No. 113 was identified.)

BY MS. KAUFMAN:

Q Okay, Mr. Ashburn, you're familiar with this document, are you not?

A I did not prepare it but I do know what it is, yes.

Q Okay. You've seen it before?

A Yes.

Q And would you agree or accept subject to check that Tampa Electric is required to file this report pursuant to Commission rule?

A I agree, that's true.

Q And Tampa Electric files it every year, correct?

A That is correct.

Q Take a look at -- I have not provided the entire report, I've only provided the pages that I want to talk to you about, so if you would flip to the second page, which is actually Bates stamped 22.

A I have that.

Q Okay. And this page shows class total monthly energy, right?

A That is what it shows.

Q And it shows the energy that is consumed by each class, correct? By month?

A By month, yes.

Q Okay. And I guess we might just go down to the total, though we could look at each month. You would agree with me, would you not, that there is a significant difference between the amount of energy consumed by the IS class and the amount consumed by the GSD class?

A There is certainly a difference, yes.

Q Take a look at the next page, which is Bates stamped 23. And this shows us the customer average monthly energy usage by kWh, correct?

A That's what it does.

Q Okay. And let's just look at December, though I think we could really look at any month. And again, there's a significant difference between the IS class and the GSD class, correct?

A That is correct.

Q And the next page is page 24, which shows us coincident peak load factor?

A That's what it shows.

Q Can you tell us what coincident peak load factor is?

A It's looking at the coincident peak of the class, which isn't necessarily that class's peak on its own, and then compares that peak demand with the energy use it consumes during that month. So that's why in some cases the load factor can be higher than 100 percent because it's lower than the total system peak of the -- the total peak of the class as a whole.

Q And you would agree, would you not, again, if there's a pretty significant difference, for example, between the GSD class and the IS class?

A There is a difference, yes.

Q Now, I take it from your summary that you are familiar with Mr. Pollock's testimony, because you referred to it several times?

A Yes.

Q Do you have Mr. Pollock's testimony with you?

A I think I do. Let me get it.

Q Thank you.

A I have it.

Q Okay. Take a look at -- if you flip back to Mr. Pollock's exhibit, take a look at Exhibit JP-5 if you would.

A I have that.

Q Okay. And in this exhibit, Mr. Pollock is -- he sets out the different usage characteristics of the

three classes that we're talking about; is that right?

A He sets out certain differences, yes.

Q Okay. We were talking a little bit earlier about the sub-transmission customers, weren't we? Take a look at line three of Mr. Pollock's exhibit, and would you agree that over half of the IS customers take service at the sub-transmission level?

A Yes, that is true.

Q And that's compared to one-half of one percent of the GSLD customers, right?

A That is correct.

Q Now, in your rebuttal testimony, you attached what you've called scattergrams?

A Yes, I did.

Q And, as I understand it, the purpose of those scattergrams is to attempt to show the similarity among the three classes?

A Well, they were intended to show -- intended to show relationships among the groups of customers within those classes, and to show the relationship particular of monthly coincident factor with monthly load factor, and show the relationship of those two together to show the relationship of the whole group and to show that there was some homogeneity within the groups for the GSLD and GSD, but not so much homogeneity

within the IS group, and that there was therefore no particular reason they should remain as a group, but could be folded in with the GSLD and the GSD groups.

Q Can you -- can you turn to -- I guess this is your rebuttal Exhibit WRA-2.

A Yes.

Q And there's three pages, but let's just look at the first page, which is an example of the scattergrams, correct?

A Yes.

Q Now, these charts or these scattergrams are by customer account, correct?

A They are.

Q They are not by customer.

A That's correct. There are -- there are -- one customer in particular has the vast majority -- not the vast majority, a majority of the accounts within IS, and there are a couple of other customers who have two accounts. But this is by account, not by customer.

Q You anticipated my question and that is, it's true, isn't it, that often in the interruptible class a customer, one customer will have multiple accounts?

A Yes.

Q And --

A Well, let me -- let me caveat that. It used

to be frequent there were several customers who have would have multiple accounts. Over the years those several customers have acquired each other, and there's now basically one customer that has the majority of multiple accounts, and there's a couple that have one or two.

Q Okay. And so because you've done this by customer account as opposed to by customer, we can't tell anything about the size of any particular customer in these scattergrams?

A That is correct. This does not reflect size of the customer's load. It just looks at load factor and coincident factor, which is a percentage, and therefore you can't see size.

Q And would you agree that the scattergrams that you've provided would look different if you had done it by customer as opposed to customer account?

A They would look different, I would agree. I'm not sure they would have meaning but they would look different.

Q Well, they would certainly tell us about the size of the particular customers, right?

A Well, to us a customer account is a customer. We do have a customer who has 20-something accounts, but we do deal with each meter independently for purposes of

rate design, not by group.

Q Right. But I think that we've already established, have we not, that you can have one customer, one company, one interruptible enterprise that might have multiple accounts are still one customer?

A That is true. We deal with one customer.

Q I want to switch gears a little bit on you, Mr. Ashburn. We talked about this some in your deposition. But you would agree with me generally, wouldn't you, that production plants should be classified to demand?

A Well, I wouldn't generally agree with that. I would say that production plant absent other factors is a demand-related cost, yes.

Q So absent some -- some special circumstance it should be classified to demand, production plant?

A Well, for example, that's true, but when we do certain allocations, for example, the Commission requirement is to file a cost of service with a 12 CP and 113th. So in that case 113th of that production plant is classified and allocated on energy, and my proposal is to increase that to 25 percent. So a portion of that production plant that is -- you're saying is generally called demand has some energy allocation. And in addition, I'm identifying certain

pieces of equipment that should be allocated on energy that are in the production area.

Q Understood. As a general rule, however, production plant should be classified to demand?

A As a fallout if you don't have other factors I would say that.

Q Now, when Tampa Electric builds a plant and it seeks a determination of need from the Commission to bring a new plant on line, it's doing so so that it can provide reliable service to its firm customers and so that it can meet its reserve margin requirements, correct?

A In part. It's seeking to serve all of the customer load in a reliable fashion, and that includes at times of peak and providing energy in the most cost-effective manner. So we do factor in all factors, including energy that's going to be produced, into that analysis.

Q I think when we started our discussion, you did agree with me that you don't consider the demand of interruptible customers when you're deciding what capacity to bring on line?

A Yes, I told you we don't consider their peak demand but we do consider their energy use.

Q I want to talk for a second about the

classification of the scrubber. And you're familiar with that issue and the fact that you and Mr. Pollock disagree on how that should be done?

A That is correct.

Q The scrubber removes emissions; is that correct?

A Yes. Its function is to remove emissions from the gases that come out from the combustion of coal at the power plant.

Q And Mr. Pollock has recommended the scrubber be classified to demand, and you've recommended that it be classified to energy, correct?

A I'm recommending that it continue to be classified to energy.

Q Did you hear Mr. Hornick's testimony? I think it was yesterday.

A I may have still been driving up here. I don't think I heard much of it.

Q I want to say yesterday. So you did not hear his testimony?

A I don't believe I did.

Q Would you accept subject to check that Mr. Hornick testified that once the SRCs are installed on the Big Bend units that they will not be permitted to run without the scrubbers?

A Are you talking about the SCRs?

Q What did I say? Yes, I'm talking about the SCRs.

A I did not hear his testimony so I don't know what he said.

Q Well, would you accept subject to check that that was his testimony?

A I don't know what he said so I don't know the context of the question or the answer, so I --

Q Well, I guess the record will speak for itself. Those SCRs were put on -- were put on and are being put on those plants in order to comply with the settlement that the company entered into with the federal DEP and the state DEP, correct?

A That's my understanding.

Q Okay. And in your testimony, your rebuttal, at page 12, line 4, you're careful to say there that there's no engineering requirement that the scrubber has to operate for the unit to operate. Would you agree that the scrubbers must be on the plants in order to comply with your settlements with the two DEPs?

A That's why they're being installed is to comply with those obligations, that's correct.

Q So -- so while they may be able to physically operate they could not operate and be in compliance with

your settlement, correct?

A Absent -- absent other factors. There may be emergencies or waivers or other things that could require -- allow us to run them without them. We're not required to run with them.

Q Well, absent some extraordinary circumstance from -- in which you've received or sought a waiver in accord with your settlement with the two environmental agencies, in order for those plants to operate the scrubbers have to be on them; is that right?

A I don't know all the details of exactly the settlement. My understanding is they are intended to operate with the SCRs on.

Q In your direct testimony you were talking generally about rate design. I think that you said that one of the criteria you used in designing rates was revenue stability and continuity. Does that sound right?

A That's one of them, yes.

Q And would you agree that that is certainly an important element of rate design?

A That is one of the elements, yes.

Q And would you agree it's an element that the Commission ought to consider in designing rates?

A I think the Commission probably has considered

that in the past when approving rate designs.

Q And would you agree they should consider it in this case?

A Yes, they should take that into consideration.

Q Okay. Would you also agree with me that, once base rates are set in this case, they -- the base rates will remain the same until there's another rate proceeding?

A Until the Commission changes the base rate, the rates will stay the same. How the revenues are collected may not, but the rates themselves would stay the same.

Q So whatever the Commission decides in this case, the rates will stay the same until the company comes in for another rate case, correct?

A Until the Commission approves a change.

Q So the customers generally are going to know what their base rates are and they're going to remain fixed; would you agree with that?

A To the extent they understand base rates, yes, they would know that.

Q Now, I want to talk about your -- what I'll call your credit approach for the interruptible customers. And, as I understand it -- and correct me if I'm wrong -- the interruptible customers will be treated

as firm customers and then they will receive a credit to reflect the fact that they can be interrupted in the -- I like to call it the inferior nature of their service; is that right?

A Well, let me say it this way.

Q Well, if you could just answer yes or no.

A I would say no to what you said. Let me try to say it and see if you'll agree with this way. What my proposal is is to treat the current IS customers as firm customers in the cost of service for purposes of allocating cost to them and developing base rates, and then the interruptible service would be recompensed through the credit mechanism, through the GSLM-2 and 3. But I think that's what -- I think that's fine. I think you'd agree with that.

Q Okay. So -- just so that we are on the same page with this --

A Right.

Q -- they -- it is your proposal that the interruptible customers receive a credit to reflect the nature of the service they're receiving?

A I would agree with that.

Q Okay. But rather than remaining fixed, like base rates do as we've just discussed, that credit is going to change and vary in between rate cases, correct?

A It may, yes.

Q Would you agree with me that fluctuation in the credit is going to impact what the interruptible customers will pay and their ability to predict what they will pay?

A Try the question again. There's a lot of elements there.

Q Let me try that. It was probably a compound question. I think you would agree with me that the credit that you're proposing to extend to the interruptible customers is going to change and very between rate cases, correct?

A I said it may. I mean, it's subject to a proceeding and the credit was reset again last November and it's subject to being reset every year. But it may stay the same. I don't know what it will be in the future.

Q But it may change too, correct?

A It could, just like base rates could change in a rate case.

Q Okay. But the credit is not going to be changing in base rates, right?

A That's correct. The proposal is it would follow the credit mechanism we already have in place and it's a conservation program and that's subject to change

in the conservation docket.

Q Okay. So since that credit is subject to change and fluctuation or may be subject to change and fluctuation, that is going to impact the interruptible customers' ability to predict what they're going to pay; isn't that right?

A What they're going to pay or what they're going to get? I mean, they're going to get a credit. They're not paying a credit.

Q Well --

A They're getting a credit.

Q Okay.

A But what they pay for their bill but what they receive as a credit is what you meant, I think.

Q Yes. It's going to impact the bottom line --

A It -- it changes their ability to predict. On the other hand they have to predict all the elements of rates which change, including the clauses which change every year in the same period of time.

Q But base rates don't change?

A That is correct, they do not change until a rate case. Well, like we're in now, and that is subject to a different uncertain future as well.

Q But the credit is, as you just said, is uncertain and it will or may change between rate cases,

especially if we have a 16-year lag till we're all together again?

A It may change. I will add also that the GSLM-2 and 3 credit mechanism has a lock-in period, so that once you have established the number that you're going to have credited to you, it's set for a three-year period, which -- which and then relock during that three-year period if you feel the new credit that's being provided by the company is a better credit or one you'd prefer to set up. So to some extent they have a little bit of control over what that rate is going to be by whether they lock or don't lock that credit going forward.

Q The maximum --

A Gives them a little bit of -- I'm sorry. Gives them a little bit of control over what they're going to receive as a credit.

Q The maximum period they can lock in the credit though is three years, right?

A That is correct.

Q So if we -- if we go 16 years without a rate case -- I hope I did my math here correctly -- the credit could change six times?

A Well, the credit could change 16 times, but their ability to lock and change would be, as you said,

six times.

Q Six times. You would agree with me that certainly there would be greater rate stability if that credit were fixed between rate cases, wouldn't there?

A It would provide rate stability for the customer, but it may not be an appropriate mechanism to reimburse them for the value of their interruptible service.

Q And I think you already agreed as we began this discussion that rate stability was a factor that the Commission should look at in this case.

A Rate stability, meaning the rate structure stability, that it stays the same. The rate level could vary and so stability of that is also a value. But it may not be more valuable than having the structure stay the same.

Q Do you think it's important for customers to have rate stability between rate cases?

A Say that question again.

Q Wouldn't you agree that it is important for customers to have rate stability between rate cases?

A Well, they have rate stability between rate cases. The rates stay the same until the next rate case, so they do have that rate stability.

Q But they don't have that stability as to the

credit, correct?

A Until the next case, when the lock-in period ends and they set the new case, the new number.

Q Right. But you're talking about a different docket. I want to stay focused on the rate case. They don't have the stability of knowing that the credit will remain the same until the next time you come in for a rate case?

A That is true. They also lose the opportunity to get a bigger credit if the credit goes up.

Q You and Mr. Pollock also disagree over the dollar amount of the credit, correct?

A Yes.

Q And you would agree with me, would you not, that the credit that you -- that you are recommending is based on avoiding a CT in -- is it in 2012?

A Well, first, I am not recommending the credit. The credit has been approved in the prior docket by the Commission in the conservation docket. I'm just reporting what the current credit is. So I'm not recommending the credit.

Q It's based on the avoidance of a CT, is it in 2012?

A I believe that's correct.

Q Okay. And we're in 2009 now, obviously. So

it doesn't assign any value for any plant that might be avoided from 2009 till 2012, right?

A No. It looks at our next avoided unit, which is the 2012 CT.

Q And it certainly doesn't assign any value for any plant that has been avoided in the past, does it?

A No. Because the value to the ratepayers and to the company of the interruptible service is what can be avoided in the future.

Q But we've already agreed that interruptible customers have certainly avoided plant in the past, correct?

A But their value is going forward, because they could tomorrow ask to become firm customers, and it's what they're avoiding now is what's important.

Q I understand. But they have avoided plant in the past, correct?

A We have not built some power plant because of our interruptible service, that is correct.

Q I just have one other area that I'd like to talk to you about, Mr. Ashburn, and that has to do with your -- the inverted energy rate that you're proposing.

A The residential rate?

Q Right. I think you talked about that in your direct at page 52.

A Yes.

Q And on that page at line 3, you talked about the fact that the Commission has approved a similar proposal for FPL and Progress, correct?

A That is correct.

Q Now, if I understand the way this works, residential customers pay one rate up to a thousand kWh, and on that first one thousand they receive a 10 percent discount?

A No, that's not exactly right. The first thousand kilowatt hours is set at a certain price. At -- all kilowatt hours above a thousand kilowatt hours are at that price plus one cent per kilowatt hour. So it adds -- it's a higher block and the price jumps at a thousand kilowatt hours the one cent, and then that applies to all kilowatt hours past one thousand kilowatt hours.

Q Okay. So over 1,000 you add the one cent?

A That's correct.

Q Is this supposed to be a conservation program?

A It's intended to provide a conservation incentive to residential customers because it tells them that the price of energy as you use more is more expensive to the system, and so it gives them a price signal to become more conservation-oriented. It gives

them an ability at the margin, particularly the larger users, to have a higher price to compare against investments they're going to make into new appliances and weatherization of their homes and so forth. So it makes it more cost-effective if they're going to be make investments in their home or in their appliances.

Q I'm not sure I heard the answer. So does Tampa Electric view this rate as some kind of conservation program?

A No. It's a conservation pricing mechanism. It's not a conservation program.

Q But it's -- it is intended to have residential consumers reduce consumption?

A It's intended to give them appropriate price signals and we're hoping they have a conservation response to it, and therefore perhaps use less energy at the higher end.

Q Do you expect this rate to lead to reduced sales?

A We hope to.

Q And would it be correct that if it does and sales decline you may need to come back for further rate relief?

A That depends. It depends on if the decline is enough to matter to cause us to have to recover the

cost. The other part of that is to the extent that they use less energy, they may use less of it on peak, and therefore we would not need to build that to any 2012 peak that you were talking about earlier, and therefore the reduced cost of having to add that generator means we don't have to come back.

Q Have you done any studies to figure out what Tampa Electric projects the impact of this rate to be?

A No, we have not.

Q So you don't know what impact it's going to have?

A We do not know, no.

Q Now, you would agree with me that a thousand kilowatt hours is not the typical residential bill, is it?

A The average residential bill is around 1250 or so, so it's slightly below that.

CHAIRMAN CARTER: Commissioner Skop.

COMMISSIONER SKOP: Thank you, Mr. Chairman. Good afternoon, Mr. Ashburn.

THE WITNESS: Good afternoon.

COMMISSIONER SKOP: With respect to the question that was just asked, and we heard quite a bit of consumer comment I think during the service hearings with respect to the thousand is lower than

the average household consumption of a small residence, is -- is a thousand an appropriate number for that inversion point, or should it be the average consumption? I know that we want to incentivize conservation.

But again, if you're -- you know, particularly for low income consumers that are using, you know, 1200 kilowatt hours or 1100 kilowatt hours per month, I mean, they could see a higher increase for that incremental consumption that is, you know, with the thousand being below the average consumption.

THE WITNESS: We chose a thousand in great reason because that's what's been used with the other companies, and it was certainly recognized and utilized by those companies, some for many, many years. Certainly it's below the average. We -- I have not done any recent studies, but when we talked about this many years ago here at the Commission, we did some analysis that -- with the staff, which did some determination about whether income and energy use are associated. And it's true that many people think that low income people use less energy. It's not always true, as you said. And so it's not really chosen to deal with

income values, and it's not intended to. It's simply intended to give the price signal at an appropriate point, and we picked a thousand because it had been chosen before and -- by the other companies and seems to have been accepted over time.

COMMISSIONER SKOP: And just in response to that, I think my concern would be to the extent that the thousand does not represent the low end of the average consumption, you know, that could be up for discussion, but also to previously on that thousand that's used as the benchmark, and I think that's been the subject of discussion at Commission proceedings to the extent that it doesn't reflect the average bill impact because people use more than the thousand, it's more like 1200, so it's so much of a not true representation.

But I think also too historically, you know, that -- at least when I grew up we had much smaller houses than new construction today. I think my parents' house was 1700 feet, which is a mere pittance. I've seen apartments that big today. But it was what it was back then in better times.

I just wanted to get some perspective on why the thousand was appropriate, and I know that we've

had some consumer concern about that too, so it's good to flush that out. Thank you.

CHAIRMAN CARTER: Let me go with Commissioner Argenziano, then Commissioner McMurrian.

COMMISSIONER ARGENZIANO: Well, I have several questions. But to that point, we flushed it out but I'm not sure it does any good, because --

THE WITNESS: You're not sure if it's stopped up or went down the drain.

COMMISSIONER ARGENZIANO: No. And to be very blunt, but if you're using a thousand, if the average is using a thousand, and of course you have families of three and four children too, which I think somehow get penalized for having more people, and I guess the more you use. But if you're using a thousand as the number and 1200 is the average, well, isn't that a way just for the company simply to make more money?

THE WITNESS: Well, no, it doesn't make any -- where we set the crossing point makes no difference as far as the design, as far as we're collecting the same amount of money. We would have changed the different rate points if we had set it at 1250 or 1500 or any other amount to collect the same amount of revenue.

COMMISSIONER ARGENZIANO: Okay. But, you know, we've heard a lot of people out there, and I understand that the Commission has set that for other companies. I just don't know -- and you had made a comment about some of the lower incomes not always necessarily use less.

THE WITNESS: That's correct.

COMMISSIONER ARGENZIANO: That's probably true. But I'd say probably from my experience, the majority of lower incomes, like a lot of the senior citizens on Social Security, which is a very fixed income, I know a neighbor of mine, an elderly lady, shuts off her water heater and puts it on every time -- you know, like once a week before she takes a shower because of necessity.

So -- and -- and I guess agreeing with you to a very minimal degree, I'm sure all -- just because you're lower income doesn't mean you're necessarily conserving. But I want to add that probably the majority of the people I met that are in lower income, more restricted incomes, really have conserved.

And my point is at that point, at the thousand, if that's below the average, how much can they really conserve without being penalized with

an addition -- you know, a higher rate?

THE WITNESS: Well, if we had -- like I said, Commissioner, if we had reset -- if we had reset the point at 1250 instead of a thousand, in order to collect the same amount of money you have to change the two rates. Even though there's a 1-cent differential, it would have raised the lower one a little bit because we're getting less kilowatt hours at the 1-cent differential, because that fixed amount of kilowatt hours doesn't change in the test period.

So if we had raised it to 1250, both of the rates would have gone up a little bit to make up the difference. So the customers at the lower end would have seen a little higher rate.

So if you think about it, if you go all the way down to zero, and say the break point is zero, it's all going to be the flat rate. And as you go up, the two rates get changed, so you're going to see that happen. So to some extent where you set the point is going to have a little bit of difference one way or the other.

Again, we picked a thousand because that's been what has been used at the state for many years now with the companies who have put in inverted

rates, and we just want to get that over with before we start thinking you were going to change where the crossover point was.

To be honest, we've been -- we have had a flat rate for many years, and it's been very difficult in comparisons with companies that have inverted rates, and we've been very big on the bandstand to newspapers and others saying, why don't you compare 1250 where the average is to compare to a thousand to an inverted rate, and it's not that this is making us change, but we recognize that that difference occurs, but we thought one thousand was where it had been for a while and we thought that was a good place to start.

COMMISSIONER ARGENZIANO: Okay. Probably something we should talk about in the future. And I might as well ask the other I think two questions that I have. I'm sorry, Commissioner Skop. While I'm here I might as well.

I think on page -- let's see -- 42 of your direct, and we're talking about, let's see, describing the three new service charges, two of the new charges provides a convenience service option for customers seeking to reconnect electric on service on an accelerated basis.

THE WITNESS: Yes, Commissioner.

COMMISSIONER ARGENZIANO: Or after normal business hours, I guess.

THE WITNESS: Right.

COMMISSIONER ARGENZIANO: Question. It says the connection charge will cost $40 more than the proposed fee for standard connection, but will provide a convenience option for customers who are in need of more immediate service. So are -- is that telling me that for after-hours connections or for the -- I'm sorry, for the standard connection right now the connection fee right now during business hours, is that going up $40 also?

THE WITNESS: No, ma'am. In the -- in the -- when we find the right E schedule to show you what the charges are.

COMMISSIONER ARGENZIANO: So the connection charge will cost $40 more than the proposed fee for a standard connection?

THE WITNESS: Right. What I was meaning to say is we proposed increases in the standard charge. We reconnect people -- of course we have a standard reconnect charge. We were reconnecting people during business hours. And so what we're proposing is the new reconnect charge, which is

proposed to go up, with this one, the after-hours one is $40 more than the newly reestablished level that we're trying to propose for a reconnection charge.

COMMISSIONER ARGENZIANO: That's what I'm thinking about. What is your newly reestablished level?

THE WITNESS: Well, let me find that.

COMMISSIONER ARGENZIANO: Okay. And while you're looking at that I'll just read one other line here that -- maybe it's confusing the way I'm reading it. It says -- well, I'll wait for you to do that.

THE WITNESS: Okay. That's the costs. Okay. Reconnecting service, under regular hours we had a proposed $50 charge.

COMMISSIONER ARGENZIANO: So the proposed for standard is $50?

THE WITNESS: Yes.

COMMISSIONER ARGENZIANO: And this would be 40 more than the 50. Is that -- is that how to read that?

THE WITNESS: Yes, but let me find that for sure here. Okay. I'm sorry. Here it is. The normal hour reestablishment of service is $25,

okay?

COMMISSIONER ARGENZIANO: Okay.

THE WITNESS: And then the same day would be $65. That's the proposal. The current charge for reconnecting a customer is $16. We're proposing to go up to 25.

COMMISSIONER ARGENZIANO: And that is during business hours?

THE WITNESS: Yes.

COMMISSIONER ARGENZIANO: Okay. So you're going from 16 to 25?

THE WITNESS: Sixteen to 25.

COMMISSIONER ARGENZIANO: Okay. And the $40 more?

THE WITNESS: Is for that -- working in the evening, getting it done the same day, and that's the $65 proposal.

COMMISSIONER ARGENZIANO: So that's getting it done the same day. Then what is the second charge, that reestablishment of service on -- oh, that's just for Saturdays?

THE WITNESS: That's just for Saturdays.

COMMISSIONER ARGENZIANO: And that goes up $275 more?

THE WITNESS: We're proposing a charge of

$300. This requires people to be called in from home and work a certain number of hours. It's very expensive to do. There's no question.

COMMISSIONER ARGENZIANO: Let me ask you, though. In the event -- because I've heard this in hearings -- in the event that it is the company's error that the disconnection was disconnected, some type of error, would that be reimbursed or would there still be a charge, or how would a customer on Saturday -- if it was the company's fault -- get the electric back on, or would they be charged that?

THE WITNESS: I don't believe we charge a connection charge if it's our error. This is just reconnecting service -- this is reconnecting after disconnect. So --

COMMISSIONER ARGENZIANO: Right. And I've heard on occasion that they've been disconnected and there's been a mistake --

THE WITNESS: Right. If there's a mistake we don't charge the customer.

COMMISSIONER ARGENZIANO: Okay. But otherwise on Saturdays if somebody just needs a real quick connection fee --

THE WITNESS: That was exactly the thought,

that somebody's coming from out of town and they're only going to be here on a Saturday and sometimes people call and ask us for that and we say we don't do that and --

COMMISSIONER ARGENZIANO: Okay. So it's just really for expediency --

THE WITNESS: It is, absolutely.

COMMISSIONER ARGENZIANO: -- and making it available on Saturday.

THE WITNESS: That's correct. That's correct.

COMMISSIONER ARGENZIANO: Okay. The second question I have is on the $5 charge. On page 44, and you can help me here, because maybe I'm just not reading it right. It's not sinking in right. I'm not sure what it tells me. And let me just read that paragraph on 44, the first full paragraph.

While there is no proposed change to the late payment charge itself, the company is proposing that a $5 minimum charge be established for all bills subject to a late payment of $10 or more.

THE WITNESS: Yes.

COMMISSIONER ARGENZIANO: What does that mean, the late payment of $10 more gets additional $5? I'm not sure what the -- if you're proposing a late

payment charge -- not proposing I a late payment charge itself, but you're proposing that a $5 minimum charge be established for all bills subject to a late payment of $10 or more, I'm not sure -- does that mean a bill of $10 or more?

THE WITNESS: A bill of $10 or more. I suspect the English wasn't so great on the sentence.

COMMISSIONER ARGENZIANO: Okay. That makes a lot more sense then.

THE WITNESS: Yes.

COMMISSIONER ARGENZIANO: Okay. Fine. Thank you.

CHAIRMAN CARTER: Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you. Mine's back on the inverted rate discussion we were having earlier. And first just I want to be clear on the 1250 you said was the average residential usage. Is that just for TECO or is that some kind of statewide number?

THE WITNESS: Well, that's about Tampa Electric's number. I suspect the other companies have a slightly different number than that. It's probably not very far off, but ours is 1250, so --

COMMISSIONER McMURRIAN: Okay. Thank you.

And the other question I really had -- and maybe I should ask it this way and maybe this makes sense, but we might need to go at it a different way.

But if you assume the inverted rate proposal that you put forward gets approved, and at the break point of 1,000 kilowatt hours like the other -- like the other utilities, or at least FPL and Progress Energy, if a customer uses 900 kilowatt hours generally, a customer that uses about that, clearly they'd be better off than before if the Commission approved your proposal, all other things equal, I suppose.

THE WITNESS: Well, they'd be better off under the inverted rate than they would under a flat rate.

COMMISSIONER McMURRIAN: Right. Right. And I'm saying --

THE WITNESS: Because the rates are going up. So, I mean, they might not be -- they may still have to pay a little higher bill if these rates are proposed than they would under our current rates, because all rates are going up. But under an inverted rate structure they will pay a lower bill than if it was on a flat rate. And that's true for something like 60 percent of our bills. So because

of the inversion an awful lot of the kilowatt hours under a thousand are at 1 cent below the higher rate, which is effectively halfway in between where a flat rate would be.

So you see a lot of bills would be below a thousand kilowatt hours and they would have a lower bill under the inverted rate than they would under a flat rate. And so this -- this rate design benefits versus the flat rate about 60 percent of the bills that we send out.

COMMISSIONER McMURRIAN: And I should have said, and I think what I was meaning by all other things equal, I wasn't also saying that we approved an increase. I guess if you assume that today you have the rates as they are that are in effect for Tampa Electric, and let's say the only thing we changed was the inverted -- we put in the inverted rate as you proposed it.

THE WITNESS: Yes. Yes, they would --

COMMISSIONER McMURRIAN: The customer uses on average 900 kilowatt hours --

THE WITNESS: They would be better off.

COMMISSIONER McMURRIAN: They would be better off. Now, a customer that uses 2,000 kilowatt hours, they would clearly be worse off, or at least

they would be paying more.

THE WITNESS: There's a crossing point where that happens, but that's probably from that area.

COMMISSIONER McMURRIAN: And that's what I want to get at. Where is the crossing point? I know it's somewhere between a thousand and 2,000, but where is that? And I guess I'm trying to get at what we've been talking about, the average use being 1250, is it possible that a customer who uses 1200 is actually better off under an inverted rate proposal?

THE WITNESS: Yes, that's true. There is a point where -- and, sorry, I don't know that I have the numbers right here. But there is a point where, as you have the higher rate and it's adding on to the lower rate of the first block, there's a point where it crosses over where you're -- versus the flat rate you're right even. And I think it's somewhere around 1700 or 1800. I'm looking around. I don't remember the number. But it's somewhere in that ballpark, and then it crosses over to being worse off under the inverted rate than you would have been under a flat rate.

But it's not exactly at a thousand, because you've gotten that benefit for the first thousand

kilowatt hours and then the higher rate starts eating into that benefit until it crosses over.

COMMISSIONER McMURRIAN: So if your average usage is around 1250, at least customers who use around that average usage amount --

THE WITNESS: They are still better off.

COMMISSIONER McMURRIAN: -- would be better off?

THE WITNESS: Yes.

COMMISSIONER McMURRIAN: Okay. Thank you for clarifying that.

CHAIRMAN CARTER: Commissioner Argenziano.

COMMISSIONER ARGENZIANO: I think you need to better clarify that for me, because I don't understand how, if an average customer at 1250 is going to get a better deal on the inverted rate if your first tier is at 900 kilowatts.

THE WITNESS: Right. If you're comparing whether you're going to do the inverted rate or a flat rate, which is I think what Commissioner McMurrian was asking about, when we set up the inverted rate, the first block is lower than what the flat rate would be and the upper block is above what the flat rate would be. So for the first thousand kilowatt hours, obviously you're better

off, because you're below what a flat rate would be.

COMMISSIONER ARGENZIANO: Right.

THE WITNESS: As you add kilowatt hours above a thousand kilowatt hours, you're paying above what the flat rate would be, a certain amount. That accumulation, it takes a while before you've eaten into the benefit that you had in the first thousand kilowatt hours. So there's a point you cross over where you would have been better off -- you're effectively even. You would have been paying the same bill under the flat rate as you would have been under the inverted rate.

COMMISSIONER ARGENZIANO: Wouldn't you be better off if you were an average customer under the inverted rate at 1200 -- using 1200, wouldn't you be just totally better off only using 900?

THE WITNESS: Certainly.

COMMISSIONER ARGENZIANO: Okay. That's what I'm talking about.

THE WITNESS: That's true.

COMMISSIONER ARGENZIANO: Okay. Thank you.

MR. WILLIS: Commissioner, I'd also like to point out that Exhibit No. 12 has an analysis of that, and it is included in the record. And that

would be something that both you and Commissioner McMurrian may want to refer to to help you understand this crossover.

CHAIRMAN CARTER: Anything further from the bench? Ms. Kaufman, you may proceed.

MS. KAUFMAN: Thank you, Mr. Chairman. I have another exhibit that I wanted to distribute.

CHAIRMAN CARTER: Do you need it marked?

MS. KAUFMAN: Yes, sir.

CHAIRMAN CARTER: Commissioners, this will be 114.

MS. KAUFMAN: And I think we can call it Open Lines.

CHAIRMAN CARTER: Open Lines?

MS. KAUFMAN: Yes, sir. That's what it's titled.

CHAIRMAN CARTER: Okay. 114, Open Lines. You may proceed. Wait, hang on a second for the attorneys to get a copy. You may proceed.

(Exhibit No. 114 was identified.)

BY MS. KAUFMAN:

Q Mr. Ashburn, have you seen this before, this document?

A I may have seen it. I know what Open Lines is and what this is. I don't know that I saw this. I

might have.

Q Is this -- is this a bill stuffer that Tampa Electric sends with its bills to its customers?

A That is exactly what it is.

Q Okay. And this was sent in November, correct, to advise --

A That is the -- that is the date on it. I assume that it was sent with the November bills.

Q To advise customers about what was going on with your rate filing here at the Commission?

A It is a -- it is a several folded piece of bill stuffer, so there's probably other information on it. This may be one article in it.

Q And this article here relates -- is to advise customers as to what is going on with your base rate case?

A I think it talks about the base rate case. I think it talks about the fuel as well.

Q Okay. If you take a look at the -- the middle column, toward the bottom there it says, "With FPSC approval of proposed base rates the overall increase for a Tampa Electric residential customer using one thousand kWh per month is anticipated to be approximately 8 percent," correct?

A That's what it says, yes.

Q Okay. And I think we've already discussed that -- that a thousand kilowatt hours is not a typical residential customer, correct?

A Well, I don't know -- you said typical.

Q Average.

A Average is 1250.

Q Okay. Would you also agree with me that this 8 percent increase doesn't include the 12 percent increase that customers recently saw in the fuel case?

A I think that sentence is only talking about the base rate increase, I believe.

Q And this 8 percent increase doesn't include, for example, the addition of gross receipts tax?

A It would appear not to.

Q Do you know how much the gross receipts tax is?

A I should. I don't know offhand the number. It's a percentage.

Q Would you accept subject to check that it's 8 percent?

A Yes.

Q Okay. And it -- the approximate 8 percent increase doesn't include city utility tax, does it?

A If you live in the city you pay a city utility tax, but not all of our customers live in that city.

Q Right. But for those that do it's not included in the 8 percent?

A It is not included in there. We don't put city or franchise fees on these Open Lines communications because they go to all our customers, and many of our customers are not in areas with franchise fees or city utility taxes.

Q Were -- I don't know if you were here. Were you here at the very beginning of the hearing or did you --

A I was not here.

Q -- or listen in? Okay.

A I was not here.

Q Did anyone tell you that the superintendent for the Hillsborough County schools testified here?

A I have heard that. In fact, I did hear her testimony.

Q Okay. And so you heard her say that her increase would be about 25 percent, correct?

A Yes, that's what she said.

Q And you would agree with me, would you not, that certainly this 8 percent number that you -- that the company has referenced in this bill stuffer is not what a typical increase will be if you get your full revenue requirement?

A Well, you used the word typical again.

Q I can use average if that helps.

A Well, it certainly wouldn't be the increase for a customer at 1250, if that would answer your question.

Q And it won't be the increase for the Hillsborough County schools either, will it?

A No. They are not a residential consumer.

Q And it won't be the increase for industrial customers either, will it?

A Every -- every customer group, depending on what rate class they're in and circumstances, would see some difference in their increase, that's correct.

Q And so this 8 percent here only applies to a residential customer using a thousand kilowatt hours per month?

A That is what it says, yes, and that's what it's intended to show.

MS. KAUFMAN: Thank you, Mr. Ashburn.

THE WITNESS: Thank you.

CHAIRMAN CARTER: Commissioner Skop.

COMMISSIONER SKOP: Thank you, Mr. Chairman. With respect to that late-filed exhibit, page 5, that shows the proposed monthly bill amounts, assuming the inverted fuel and energy charges

versus the flat fuel and energy charge, and I think that this has been useful because it does provide some visual indication of the potential rate impacts.

How would that change, that top graph or top chart change if the inversion point was 1250, to the extent of the percent of monthly --

THE WITNESS: I'm sorry, Commissioner. I don't know what you're looking at.

COMMISSIONER SKOP: I'm sorry. I thought it was something that Ms. Kaufman had directed. It was page 5, Late-Filed Exhibit 12, page 5 of 5. I'm sorry --

MS. KAUFMAN: I'm sorry, Commissioner, I --

COMMISSIONER SKOP: Okay. Let me refer to the tab, because there's a lot of paper in front of me. It's LFE 12, page 5, 5 of 5.

THE WITNESS: I don't have that, whatever it is. I'm sorry.

CHAIRMAN CARTER: Exhibits attached to your testimony?

COMMISSIONER SKOP: Testimony, prefiled.

THE WITNESS: Oh, on my testimony? I'm sorry.

MR. MAUREY: Is this hearing Exhibit 12?

THE WITNESS: Yes, I have this.

COMMISSIONER SKOP: Late-filed --

THE WITNESS: This is a late-filed exhibit to the service hearings, so it wasn't attached to my testimony. I do have it somewhere. But, yes, I have that now.

COMMISSIONER SKOP: Okay. Let me wait a second so my colleagues can have a copy of it. I guess this provides a visual indication of the differences between the flat rate and the inverted fuel rate and the respective increases and percent of monthly total increases based on the -- if they were -- TECO were to be granted its requested revenue requirement. How would that top graph change if the inversion point was 1250 versus one thousand in terms of the percentage?

THE WITNESS: Are you looking at page 5 again?

COMMISSIONER SKOP: Yes. Or could it be -- would it be possible or too much trouble to get a late-filed exhibit showing what it would be at 1250 as the inversion point?

THE WITNESS: I'm sure it's not trouble to redo the chart. I couldn't do it right here.

COMMISSIONER SKOP: Okay. Perhaps if we could do that, Mr. Chair, that might be useful.

CHAIRMAN CARTER: It will be Exhibit No. --

Late-Filed No. 115. Let me push the button. For the record, we'll put a placeholder. It'll be a late-filed but it will be Exhibit No. 115.

MS. BROWN: Mr. Chairman, I think it's 114.

CHAIRMAN CARTER: No, no. 114 was marked for Open Lines.

MS. BROWN: Okay. Sorry. I'm behind the eight ball.

CHAIRMAN CARTER: Stay on your toes here. So 115, late-filed exhibit. Commissioners, do you want to give us a title?

COMMISSIONER SKOP: Just late-filed exhibit showing 1250-kilowatt inversion point. Would that be acceptable, Mr. Ashburn?

THE WITNESS: Yes.

CHAIRMAN CARTER: Okay. 1250-kilowatt inversion point.

(Late-Filed Exhibit No. 115 was marked for identification.)

CHAIRMAN CARTER: Commissioner Argenziano?

COMMISSIONER ARGENZIANO: And if -- not at this time but at some later point maybe someone can get with Larry or staff can get with Larry. Someone could tell me when the thousand kilowatt hours was used. I think it may have been quite a

while ago when a thousand may have been the average. Just want to know if it was picked, if anybody knows, if that thousand was picked because it was an average at that time.

THE WITNESS: Commissioner, I can give you a little history. I don't know the exact date.

COMMISSIONER ARGENZIANO: Okay. Great.

THE WITNESS: I can give you a little bit. It started out with FPL back in the '80s. And at that point it was 750. At some point, and I must admit I don't know the exact year, but it's somewhere around -- I hate to say the turn of the century, we're so far in now, but somewhere around the late '90s, early 2000s, it was -- I think Progress came in with an inverted, and I think they went to a thousand and then FPL asked to switch to a thousand as well.

COMMISSIONER ARGENZIANO: Do you know -- do you know if it was based on the average use at that time?

THE WITNESS: I don't know why they picked 750 back -- it was the early '80s. And it may have been closer to the average for FPL at that time. Part of it is lower use at that time.

COMMISSIONER ARGENZIANO: Sure.

THE WITNESS: FPL also typically has a little bit lower average use than the other utilities because of where their service area is. A lot of the southern part of state doesn't have as high an average use as we do, say in the middle of the state, because it's not enough cooling load down there. There just isn't any winter. So they don't have as much an average because of the high winters. But, again, time moves it around a little bit.

COMMISSIONER ARGENZIANO: Okay.

THE WITNESS: And I would say, to the extent that the inverted rate is successful and as we're heading into more periods of time with customers who are going to be doing more conservation, more investment in efficiency, some customers are putting in their own generators, renewable generators and so forth, we probably are going to see that average come down. I think there's probably -- we talked about large housing stock. Over time people are probably going to be building smaller houses too. So I would think, even though we're at 1250 now, over a period of time you're going to see that average perhaps go down.

COMMISSIONER ARGENZIANO: Thank you.

CHAIRMAN CARTER: Commissioner Skop.

COMMISSIONER SKOP: Thank you. I think this is a useful chart and I just think having that additional data as a visual comparison I just think would make the analysis crystal clear. So I appreciate TECO's effort. Thank you.

THE WITNESS: Right. To make it clear, we're going to have to do that at 1250. You want us to redesign the energy rates for residential at 1250 to achieve the same revenue, and then apply that to create the chart.

COMMISSIONER SKOP: I'm not -- just to be clear, I'm not asking for a redesign or even saying a redesign's appropriate. I'm just merely trying to see the cause and effect of moving the inversion point.

THE WITNESS: Well, that's what I'm trying to say. By moving the inversion point, it will have to redesign the rates to get to the same revenue. So we'll have to redesign the rates at the new inversion point and then we can produce this chart.

COMMISSIONER SKOP: All right. Thank you.

CHAIRMAN CARTER: Very good. Anything further from the bench? Mr. -- wait a minute. Commissioner McMurrian.

COMMISSIONER McMURRIAN: And I don't mean to confuse it more, but is there some way, and I'm not sure, I haven't looked all the way through Late-Filed 12, but is there some way to see sort of what I was asking before, because this, I think, if I'm reading it right, would assume, when you have the column, Proposed Monthly Bill as of May 7th, that's assuming there's a rate increase?

THE WITNESS: Right.

COMMISSIONER McMURRIAN: Is there some way that you could show, you know, a customer's bill today, a customer's bill just with -- if you applied an inverted rate to it but you didn't have an increase in rates at all? Because I think that confuses it more, quite frankly.

THE WITNESS: I think we can provide information when we produce this to show you where the crossover point is that you were asking about.

COMMISSIONER McMURRIAN: I think that would be good, and it's fine to include that.

CHAIRMAN CARTER: Just make it a composite exhibit?

THE WITNESS: Yes.

CHAIRMAN CARTER: Is that what you're saying? Commissioner Argenziano.

COMMISSIONER ARGENZIANO: He may be able to answer this now. But do you have an idea of the percentage of people that are really -- I know it sounds funny, but -- or maybe not the percentage. The amount of people -- when we say an average of 1250, how many customers that represents in the residentials?

THE WITNESS: Well, it's the average, so there's 50 percent above and --

COMMISSIONER ARGENZIANO: I know. Total customers.

THE WITNESS: -- 50 percent below, around 1250, so that's kind of the average. I can give you a count of how many bills there are above and below, if that's what you're asking.

COMMISSIONER ARGENZIANO: Yeah. Because if we're looking at total savings of that class, and while I understand that if, you know, because there's the first tier and they save on that first 900, and then when they go above --

THE WITNESS: Right.

COMMISSIONER ARGENZIANO: -- I just want to know how many people now that maybe are conserving and are using 1250 would be paying more because they have to go above that thousand.

THE WITNESS: We can give you some bill frequency. We call it bill frequency information, how many bills are at the different levels.

COMMISSIONER ARGENZIANO: Sure.

THE WITNESS: And that might give you your answer.

COMMISSIONER ARGENZIANO: Thank you.

CHAIRMAN CARTER: Anything else from the bench? Mr. Wright?

MR. WRIGHT: Thank you, Mr. Chairman. It is very tempting, but I'm sure that you and Mr. Ashburn will appreciate the fact that I have no questions for him.

CHAIRMAN CARTER: Thank you, Mr. Wright.

Mr. Twomey, you're recognized.

CROSS-EXAMINATION

BY MR. TWOMEY:

Q Thank you, Mr. Chairman. Good afternoon, Mr. Ashburn.

A Good afternoon.

Q Ms. Kaufman started out discussing with you the fact that generally a rate case is a step -- two-step process that consists of establishing the revenue requirement first and then allocating that revenue responsibility to several customer classes,

correct?

A That's correct.

Q I like to over the years analogize that process, the first part being to baking a revenue responsibility pie and the second portion, dividing the pie up amongst the various customer classes to determine what their rates will be going forward. Is that a useful analogy?

A That is certainly one analogy that could be used.

Q But it's not used. Okay. Thank you. You're a good witness, Mr. Ashburn.

Now, isn't it true that as a generally -- a generally-accepted historical fact that not all customers cost the same to serve?

A That is true.

Q That's why we have different classes of customers, correct?

A We -- we attempt to aggregate customers of like cost of service together. Certainly within those groups we also have customers who have different cost of service within the group but, yes, we attempt to do that.

Q Right. And consistent with that overall plan, isn't it generally your goal to match the cost of

providing service, that is the rates, to the cost of providing service to each group of customers?

A Yes.

Q As closely as possible?

A We -- we use that classification to help allocate costs appropriately for those groups.

Q Now, you say at page 23 of your direct testimony, "Cost of service studies are useful in the design of rates to help ensure that the price the customers pay for electric service bear a reasonable relationship to the cost of providing that service," correct?

A Yes.

Q As I understand it, you and Tampa Electric Company now believe you have a better methodology, mainly the 12CP and 25 percent average demand methodology, that you propose in lieu of the existing 12CP and one-thirteenth method; is that correct?

A That's our proposal, yes.

Q Now, as I understand it from page 29 of your testimony, the distinction between the two methodologies is that the old methodology put 92 percent of the production demand classified costs on the -- allocated on the 12CP methodology and only 8 percent on energy; is that correct?

A That's correct.

Q The new methodology proposed would take and shift that so that 75 percent of the production demand classified costs were allocated on the 12CP and 25 percent on energy?

A That is correct.

Q Now, as I understand it, this has the general effect of increasing the cost of the consumption of energy; is that correct?

A I'm sorry, say that again.

Q This shift from one methodology to the other generally increases the cost of consuming energy?

A It allocates greater cost to the energy classification which has a tendency to then increase the energy charge, if that's what you're heading towards.

Q Yes, yes.

A Okay.

Q I think that's why the industrial customers don't like the methodology, right?

A You would have to ask them that.

Q Now, as I understand your testimony, you believe as well that the 12CP and 25AD methodology more appropriately matches rates for higher load factor customers to the benefits they receive from your installation of more base and intermediate load, that --

MR. KAVANAUGH: Excuse me, Mr. Chairman. I feel compelled to interpose an objection here based on your admonition against friendly cross-examination. I think that Mr. Twomey is simply asking Mr. Ashburn to expand upon what's already in his testimony, and I think that's inappropriate.

I think the parties have tried, I think, to stay away from what you term friendly cross, so I'd object.

MR. TWOMEY: Well, I'm --

CHAIRMAN CARTER: Mr. Twomey?

MR. TWOMEY: -- I'm very close to finishing up so I will -- I mean, it's rare that people accuse me of being friendly to utilities.

CHAIRMAN CARTER: That's why I was shocked. I was trying to see if I could keep myself from falling out of my chair.

MR. TWOMEY: But I'm almost -- I'm almost there. So if I can go ahead and I'll finish up very rapidly.

CHAIRMAN CARTER: How about I just give him a caution, Ms. Kaufman, since this is such a one-in-a-lifetime thing for Mr. Twomey.

MS. KAUFMAN: I don't want to argue with the

chairman.

CHAIRMAN CARTER: Okay. All right. Mr. Twomey.

MR. TWOMEY: Thank you, Mr. Chair, I'm be brief.

BY MR. TWOMEY:

Q Well, I want to know, there's -- there's a cost to much of what you propose by your changes, right?

A There's a cost?

Q That is a cost to one class versus the other?

A There's a shift, yes, a cost responsibility because of it, yes.

Q So I want to ask you if you would -- if you would look at your document number 3 to your direct testimony.

A Yes.

Q Does that table purport to show the difference -- that is the shift in revenue responsibility as a result of going from the one methodology to the other?

A That's what it does, yes, sir.

Q And on line 1 essentially that's classified as residential is the difference in the parens there of 6.892 million, does that reflect a reduction to the residential class?

A Yes, it's a reduction in the revenue requirement required for the residential class because of the methodology change.

MR. TWOMEY: Okay. That's all on that, Mr. Chairman.

Q Now, I have a -- another very short line of questions that I wouldn't consider as friendly cross but they're -- they're something that I think is a -- perhaps a -- an important aspect to study about this vis-a-vis global warming and gas house -- greenhouse gas reduction.

And that is, Mr. Ashburn, I wanted to explore whether there could be a salutary greenhouse gas reduction effect from, one, your proposed two-step inverted rate structure change for the residential customers; two, your use of a -- of the new methodology we just discussed; and your continued classification of the Big Bend 4 scrubber as energy related as well as what I understand is your proposal that's new of classifying the gasifier at Polk 1 on an energy basis.

And that is, the questions are, as I understand it, purported global warming is tied largely to the production of greenhouse gases; is that a correct assumption as you understand it?

A That's what I understand many scientists are

saying, yes.

Q Okay. And I understand as well that the production of greenhouse gases from fossil-fired generation is tied directly to consumption of energy, not to the capacity of those generators?

MS. KAUFMAN: I'm sorry, Mr. Chairman, I have to object again on two grounds. Number one, I think this is outside the scope of -- I don't recall Mr. Ashburn saying anything about greenhouse gases. I might have missed it. I do --

CHAIRMAN CARTER: Yeah, you're right, he did not. And Mr. Twomey, what else -- go to your other list, the third list.

MR. TWOMEY: Well, yes, sir. The -- I would just say -- I will, but I'll just say that to respond to Ms. Kaufman --

CHAIRMAN CARTER: Oh, you're recognized.

MR. TWOMEY: -- that, through you, is that she asked the witness if the inverted rate structure wasn't a purported conservation methodology to reduce energy. And this is precisely what my questioning is about here, is the -- is I took great care to include the rate structure that she talked about vis-a-vis conservation and what I'm asking -- trying to ask now.

And the goal here is, if I can tell it to you, is to suggest and get the answers from Mr. Ashburn, on whether these three or four different changes TECO is requesting wouldn't end up as a result of making energy more expensive, reduce the overall energy consumption and thereby with it the reduction of -- provide a reduction in greenhouse gases which would serve a salutary conservation effect. And with it, in this case, a reduction in greenhouse gases.

CHAIRMAN CARTER: Okay. One -- one moment. Ms. Helton, did you understand all of that?

MS. HELTON: I wish I could say I understood all of that. I'm trying to reflect back to the -- to the line of questions from not just Ms. Kaufman but I know there were quite a few questions from the bench as well concerning the inverted rate structure. And I may have heard the term conservation used once or twice, but that was not how I understood Ms. Kaufman's line of questions. And I -- I don't believe that I have heard the witness today talk about greenhouse gases. I think that was first brought up by Mr. Twomey.

CHAIRMAN CARTER: Okay. Well, I'm going to -- I'm going to sustain the objection, Mr. Twomey.

Just kind of rephrase.

COMMISSIONER ARGENZIANO: Mr. Twomey's got to get a gold star for trying. That was a good one.

CHAIRMAN CARTER: You can rephrase and then -- I mean, based upon the --

MR. TWOMEY: I'm not going to push my luck, Mr. Chairman. I may have to ask somebody else this question, or try to. That's all I have.

CHAIRMAN CARTER: You did get your once-in-a-lifetime get-out-of-jail free waiver on the objection though, for the record.

Commissioner Argenziano.

COMMISSIONER ARGENZIANO: I have a question for OPC. Given the -- I'm sorry, that was just really good. Given the testimony we just heard from Mr. Twomey about the new methodology, and it's not greenhouse gases, on the shift -- the shifting to consumers or the possibility of the shifting to consumers, does OPC take a position at all?

MS. CHRISTENSEN: Commissioners, we're very careful when it comes to rate design issues because we represent all consumers in the state of Florida. So we represent the industrial customers, the Retail Federation customers as well as the residential customers. And so it's one of those

that we would be pitting one of our constituencies against another one of our constituencies.

COMMISSIONER ARGENZIANO: Well, without pitting them, I guess, there's no position on whether you think he's correct or not?

MS. CHRISTENSEN: I have not formulated an opinion as to whether or not I think he's correct, and I have not truthfully taken an in-depth look at that because of the reasons that I've just explained.

CHAIRMAN CARTER: But you're right, Commissioner. It did sound very good. Some of Mr. Twomey's best work.

COMMISSIONER ARGENZIANO: Then OPC has no position then?

CHAIRMAN CARTER: Right, no position.

Okay. I can go to the bench and then go to staff or we can stay here and -- whatever you prefer, Commissioners. Why don't I go to staff first and come back. Staff, you're recognized.

CROSS-EXAMINATION

BY MS. BROWN:

Q Good afternoon, Mr. Ashburn.

A Good afternoon.

Q We have just a few questions on three

subjects, two of which came out of the customer hearing and one of which is the inverted rate proposal but I'm going to keep it really short because I don't want to confuse anything.

CHAIRMAN CARTER: Don't give Mr. Twomey a basis for it.

Q The other is on the separate rate for school boards that came up at the customer hearings and that Ms. Elia testified to here at the first -- the beginning of the hearing, and the third is just a clarification question on TECO's response to Staff Interrogatory No. 230. And I'm thinking perhaps we should take that first since it seems to me to be the easiest one --

A All right.

Q -- to deal with. Do you have a copy of that response to Staff's Interrogatory No. 230? It's titled Impact to Interruptible Class.

A Let me get it out. I have it.

Q All right. On the bottom of the schedule there is a line titled "Impact to IS Class." Do you see that? It's page 7 --

A You're talking about page 7 of 7?

Q Yes. I'm sorry.

A Yes, yes.

Q It shows a percentage amount of 14 percent.

Is this correct?

A Staff called us about this a day or two ago and we investigated the -- to confirm that this is the right number. We did identify there is a math error in the calculations and the percentage is around 11-and-a-half percent. And we're preparing a revised version of this.

Q All right.

MS. BROWN: I think we should identify a late-filed exhibit.

CHAIRMAN CARTER: Okay. Late-Filed Exhibit -- let's flip over here so I can give you a number for it.

MS. BROWN: I think it should be 116.

CHAIRMAN CARTER: You're not wrong, it is 116.

MS. BROWN: I redeemed myself.

CHAIRMAN CARTER: You're back in it.

MS. BROWN: And we'll call this Revision to Staff's -- TECO's Response to Interrogatory No. 230.

(Late-Filed Exhibit No. 116 was identified.)

BY MS. BROWN:

Q And one more question, Mr. Ashburn. What would that 11 percent represent? That's what your calculation is going to be, correct?

A Yes, yes. It will show the revised impact. It's -- it's the impact on the IS class of the -- of the rate case plus the CCB credits and all of the elements of rates so it's showing what the increase will be to the IS group.

Q Okay. Now to the inverted rate proposal. And if you'll switch to your Late-Filed Exhibit 12 from the service hearings.

A Yes, I have that.

Q And turn to page 2 at the bottom of the page, the last sentence on that page, would you read that sentence? And then it goes over to page 3.

A Yes. It says, "Based on this usage information, the breakeven for customers under a levelized design compared to an inverted rate design is at approximately 1500 kilowatt hours. That is the customers' rates with the same under both rate designs current and proposed."

Q And read the next sentence too, please.

A "Furthermore, approximately two-thirds of Tampa Electric's customers use less than 1500 kilowatt hours per month and will benefit from the proposed inverted rate."

Q Okay. Thank you.

CHAIRMAN CARTER: Excuse me, Ms. Brown, for

interrupting you. Have you -- did you ask about the school board?

MS. BROWN: Just about to.

CHAIRMAN CARTER: Oh, I'm sorry. You may proceed.

BY MS. BROWN:

Q All right. Switching now to questions about the school board, during the customer service hearings in Tampa, Ms. Elia, the Hillsborough superintendent of schools, raised the issue about establishing a separate rate for schools based on their usage characteristics.

What would be involved in designing a cost-based rate schedule for schools? That is, what information would the utility need to collect and how would that information be used to design a separate rate?

A In response to Interrogatory No. 226 of the staff's 14th set, we set out some steps that would be required to do that, to do it under the manner the Commission usually looks at rates. And that includes such things as we have to define the class and then we have to determine what transfers would occur between groups to that class, determine the billing determinants, start gathering load research from a -- either the entire group or a statistically significant

sample of the group; prepare allocation factors. The normal stuff going forward in a rate case. Prepare cost of service and unit costs to derive a rate.

That's the way we would go about it, is to derive a cost-based rate in the manner that we're doing other rates here in this proceeding.

Q And that is your standard practice, practice for establishing reasonable and prudent rates, correct?

A That's how we would establish a cost-based rate for a retail group, yes.

Q Right. Based on your experience, do you believe it is appropriate to establish a separate rate for schools in this proceeding or is it possible to do at this point?

A Well, we don't have enough information really in the manner I just described to come up with a cost-based rate class for the schools themselves as a group. First we have to identify when we say schools, who are they. I heard Ms. Elia's discussion, Elia's discussion. And she represents the Hillsborough school board. We do have several other school boards that we serve, Polk County, Pasco and so forth. So would it include them or not?

There are other types of schools than the public schools. Do you include those schools or not?

I'm assuming we're talking about K through 12. I don't know if it includes preschools. Does it include other types of schools?

So we'd have to identify that group and get guidance about that. Then gathering a sample of the right load research for all of those different types of schools would take some time. You have to then have a sample in place for a period of years to gather data to get the right kind of coincidence peak data and non-coincident peak data and so forth, the group.

So it would take some time to gather the information to do it in the manner that we normally do rate designs for rates like we're doing in this proceeding.

Q Ms. Elia, I think this was at the service hearings. I don't think she mentioned that in this proceeding. But she raised the issue of treating the schools as a single customer or adding the usage of all schools together for the purpose of determining the appropriate rate schedule for billing. To your knowledge, at this point, are all schools billed on the same rate schedule?

A My understanding is they're not. We have -- for Hillsborough County Schools after Ms. Elia did her presentation, we went and researched them particularly.

And they are some -- some of their schools are under our current GSLD, some under our GSD. They have some accounts under our GS schedule. They even have some accounts under our residential schedule. Then of course they have lighting. I assume lighting would not be part of this. But that's -- they do have quite a few lighting accounts as well.

So they're spread -- I don't believe any of the Hillsborough County schools are interruptible, but we do have one public school under the interruptible schedules. So they're spread effectively through all of our schedules and our entire cost of service.

Q If the usage for all county schools were to be consolidated and billed at a single large customer rate, what impact would that have on the relationship between costs and rates for individual locations?

A I'm sorry, say the question again.

Q If you were to consolidate all of the schools and bill them at a single large customer rate, what impact would that have on the relationship between costs and rates for individual locations?

A Well, one of the -- one of the difficulties in trying to aggregate many accounts like that into one is that each location loses its identity with regard to its own energy use. It's one of the reasons why the

Commission many, many decades ago did away with conjunctive billing.

The point is that if you send a bill for many, many accounts to one home office, the local facilities lose track of what their energy use. And the Commission did away with conjunctive billing in part, maybe a major part for that reason, to provide that those bills go to the local site where the meter is so they can see what their energy use and make decisions about that energy use.

Some of our school boards, I don't know about the Hillsborough one, but we've heard that some of our school boards make sure the principal of the school gets the bill and is responsible for that bill and therefore they -- they contract what's happening in their schools. They can walk around and make sure people are closing doors and closing windows and setting thermostats right and all of those things.

If you do conjunctive and it's all going to one place at the school board, then you're kind of relying on them to police all of the activities in the various schools and the people who really are operating the school don't have the -- the direct responsibility to act and must be following some guidelines that they may not be responsible for in the end.

So that's one of the reasons why we -- we think having separate bills to the locations makes sense. Also all of those schools are maybe served differently. I don't know about their voltage levels and other elements of the service they have.

Q So would the -- the possibility exists that this practice would create a mismatch in revenues so that schools with higher costs would be billed on a lower aggregate rate?

A It could.

Q Prior to the beginning of this hearing, Ms. Elia testified that you said you heard that testimony?

A Yes. I heard that she spoke at one of the service hearings and I went back to read her testimony at the service hearing and then I did hear her testimony earlier in the case.

Q And I think Ms. Kaufman brought up the fact that she testified that the county schools would see an approximate 25 percent increase in their bills, including the increase in fuel that went into effect in January. Can you tell us how much the fuel charges that went into effect in January increased bills for the county public schools?

A I don't know if I know the number offhand. I

know we've looked at the increase we were requesting in base and looked at the fuel increase and her 25 percent number was in the right -- right area. I think if you look at the fuel, it was around 15 percent and the base is around 10. So of her 25 percent that she was here speaking about, I think 15 has already happened with the fuel and other clause increases.

Q Have you done an analysis to calculate the base rate impact on the county public schools if TECO's requested rate increase in this proceeding gets approved? You said you've looked at it but have you done a written analysis to calculate that? What would that increase be?

A Well, I think we looked at, we looked at Hillsborough County schools to the extent we know -- know all of their accounts. And I think the 25 percent was about the right number.

Q Okay. You already said that before.

A I think so.

Q Ms. Elia also testified that schools have achieved a 10 percent reduction in electricity usage with various energy saving tactics. Can you describe some of the conservation measures that Tampa Electric has available for its commercial customers including public schools to reduce their bills?

A Yes. We provided an interrogatory on that as well. I don't know -- I have to go look it up. But generally nearly all of our commercial programs are available to schools. We've talked with the schools on a regular basis. We have a rep who talks to the schools constantly, and all of those programs are available to them.

And we have talked with them in the past about going on load management, about putting in insulation, about windows, doors, all of the various things you can think of, and spoke to them about the various program. All of those programs are available to them.

CHAIRMAN CARTER: Hang on a second. Commissioner McMurrian and then Commissioner Argenziano. Do you want to wait, Commissioner? Commissioner Argenziano, you're recognized.

COMMISSIONER ARGENZIANO: This issue kind of is a tough one for me. And I'm trying to understand all sides of it. Let me ask you a couple of questions first. Is there any -- and it may be very simplistic but it's just the way I'm going to have to ask the question.

Is there any government entity that gets a break from any electric company or from TECO as far as rates?

THE WITNESS: As far as discount because they are who they are?

COMMISSIONER ARGENZIANO: Yeah, because they're a government entity.

THE WITNESS: No, not really. I mean, other than -- other than they don't pay taxes and those kind of things. You know, they don't get assessed certain city taxes or things like that.

COMMISSIONER ARGENZIANO: Right. I think what's being asked from the school boards is, you know, that -- we're kind of all in this jam, this economic jam together. And when we say we don't know who the schools are, we do, they're the people who are teaching our children. And I know it's an emotional thing and we're trying to be realistic in the real world.

But I think when the issue of conservation comes up, it kind of -- it gets frustrating because I remember in the legislative process we used it for years, and I think we've gotten to the point where we've reached the point where the -- the rising costs of everything plus electricity and the slashed budgets have gone well beyond, you know, are you conserving, are the windows open. I think the doors have been closed and the windows have

been closed for a long time.

And as you indicated, you're saying that, you know, you've gone to the schools, you've been talking to them. If they had the money for the insulation, they should have done it. And I know many schools that have.

So I think we're beyond conservation, to be honest with you, and that's my personal opinion. We're beyond just conservation. I think they've tried everything because they are desperate at a point where the budgets have been slashed. So I don't think the answer is simply closing the doors and shutting the windows anymore.

I don't know -- I think from what I've read and what I've heard and what staff has told me, they're right in the sense that if you change their classification, however you want to say it, that it could possibly raise their rates.

Is there any -- any thought -- and I know that you say there's different schools out there. But when you're talking about trying to separate private schools from public schools, there's a big difference. Private schools are not subject to slashed budgets, government budgets. Government funded I think is a different story.

Is there anything that TECO or any company out there listening or maybe wanting to listen could do for our schools at a time we are all in this together. I think that's as simple as I could put it. I don't know if you could really answer that, but maybe somebody listening can answer that.

THE WITNESS: Well, Commissioner, let me say this. I'm a product of public schools. My kids went to public schools. My wife was a substitute teacher for many years. I feel for the public schools. I really do.

My job is to try to design rates which provide the right price signal for people to make a decision about purchasing energy or not purchasing energy.

To the extent we identify a group, and certainly the schools are a worthy group and I suspect there are other worthy groups, I suspect other groups, the fire department, the police department, other agencies are facing budget slashes and would be equally here telling you they're having problems and need help.

COMMISSIONER ARGENZIANO: They're not.

THE WITNESS: One came, I know. And I feel for them and that -- that issue.

But by providing a benefit, let me tell you the downside of it. Certainly the upside is easy. It's helping their budget problem and helping them get through a tough time. That's easy to see.

To the extent you do subsidize them, and that's what she's asking for, is a subsidy for circumstances, to the extent you subsidize them, you're giving them an untrue price for the electricity. You're basically reducing their cost of electricity below what the cost is to serve them and you're making the other ratepayers pick it up. So, I mean, it's not just going to go away. It has to get reallocated to the other classes for recovery.

And I know in her testimony here, she was concerned about that when asked about the tax increase. That would get spread across to the other people. Well, that's what's going to happen with electric rates if we give them a subsidy as well.

To the extent you reduce the price to them, it gives them a benefit and gets them through a tough time, but it also doesn't give them the price signal to make change when they can make change. And she is a busy woman and a very capable one, I'm

sure, and has many, many things on her plate. And this is a big one now.

If you take it off her plate because we've given her something, she now redirects her efforts elsewhere, which are all fires that are burning as well to deal with class size and other things. Will she come back to it? Will she continue the same focus on how do I get my energy use down because now I've gotten a reduced price. That's the other side of the argument.

So it's a policy question. It's a -- it's a -- it's something in your area to deal with. I'll tell you that that's the downside of it. We have a harder time selling programs to people who have lower rates because it's not as cost-effective for them to make the investments or the change in behavior to reduce their energy use.

I don't know for sure how much conservation they have done. I just -- I'm not in that area. We have a whole department that does that. And they go and try to talk to them and try to suggest things, but that's -- that's just the best I can give you. To the extent you do take the price signal away, the behavior changes and maybe it's not reflecting the true cost of electric service to

them.

COMMISSIONER ARGENZIANO: I can say more but I won't.

CHAIRMAN CARTER: Let me do this, Commissioner. I'm going to go back to staff and then I'm going to come back to Commissioner McMurrian. Staff, you're recognized.

BY MS. BROWN:

Q That being said, Mr. Ashburn, Tampa Electric will continue to work with the schools to see if they can help them achieve further savings, correct?

A Yes, certainly. All the time.

Q Now, one more question. TECO's proposed GSD rate offers an optional GSD rate which allows customers to pay a higher energy charge in return for zero demand charge.

A That's correct.

Q Would schools qualify for that optional GSD rate?

A Yes, if they have a lower -- that -- that optional rate is beneficial if your load factor is below a certain percentage. And if a school is at a lower load factor, then they are put on that rate.

Q Well, describe for me and the Commission what would be a lower load factor.

A Around 27 to 30 percent, somewhere in that range. One of the difficulties people have when they look at schools -- and I'll be honest. I looked when this came up and looked again and was surprised as well. People talk about the schools and say, well, they're not on on the weekend and they're not on all summer because the school's out.

Well, if look at their load, many of them are very high load factor. They are open well into the evening for after-school events and for cleaning of the buildings. They're there on weekends. During the summer they have summer classes and things. They're a relatively high load factor and very on peak again because the schools open up early for class size. And I know my kids were on split sessions. They were getting up at six in the morning to get to a seven o'clock class. They are often in the winter right on the middle of our winter peak. And in the summer of course they've got sessions that go late and they're on our summer peak as well.

So it's very difficult on a cost basis to justify a benefit to them because they are very on-peak and relatively high load factor.

However, to the extent we find accounts for the schools that are low load factor and would qualify

for that load -- the optional rate, we certainly put them on that and that's a benefit to them.

Q And wouldn't that be a benefit to not consolidating all of the schools' bills because some schools might qualify for this while others might not?

A Right. If you are a non-demand customer consolidating your loads from various sites doesn't help because it's the demand rate that gets accumulated and therefore you have the conjunctive billing benefit.

MS. BROWN: Thank you, Mr. Ashburn. We have no further questions.

CHAIRMAN CARTER: Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you. And my questions are all on the same line, Mr. Ashburn, and some of them probably have been answered but I'm going to ask them I guess again just to make sure I ask it the way I have it in my head.

I think you said that the schools have different rate options available to them. And you mentioned that some of the schools are on the GS and some are on the GSD and some of those. Do they have options of all of those rates including the interruptible?

THE WITNESS: Yes. They -- we -- in fact, that came up in I believe our '92 rate case where a

school that is currently on IS requested to go on the interruptible rates, and there was a debate whether they should be allowed to.

And at the time the Commission made the decision, I thought it was based on the plea from the school board saying -- many people were saying, why are you going to an interruptible rate? Somehow the company will turn you off in the middle of some important event at the school and that's a bad thing.

The school board said, give us the ability to make a choice on our own. We are -- we're grownups, we have our own people here and we know what's best about educating kids. Just give us choices and we'll make the right choices.

So the Commission I think rightly gave them the option to get on the interruptible rate, and one high school did. And has been on there since.

All of these are options that are available to the school to choose. We make them available to them. We can't force them on them. But they have availability to go to time and use rates, we've talked to them about that. They have looked at investing in coal storage devices at certain schools and taking advantage of time and use rates

to help reduce their costs. So we've talked to them about many, many options and continue to all the time. Clearly they are limited at times with how much budget they have to invest in equipment or make the kind of improvements that Commissioner Argenziano was mentioning about. But we are constantly working with them on options and helping them find ways to find funds elsewhere as well.

COMMISSIONER McMURRIAN: Well, they don't get any notice that they'll be interrupted, right, or generally interruptible customers don't get a notice before you interrupt them.

THE WITNESS: We don't have to under the tariff. We do have a program for our interruptible -- our IS customers where we send them information on a day when we know there's a high potential of interruption. Typically those are days when either we know it's going to get really hot and for some reason our generators are off for maintenance or something like that and there's a high likelihood we may not be able to buy in the market. We know sometimes those things in the morning. And we'll give them some information which tells them, this is a high likelihood.

There's not much the schools can do about it.

They have schedules and they have to meet them. But the larger industrial customers can sometimes then change schedules of their operations and therefore avoid having losses from their operations because an interruption might occur. But we don't have to and we're -- wherever we can, we give them notice.

COMMISSIONER McMURRIAN: Now, you're proposing to close at least one of your interruptible rates, right, in this rate case?

THE WITNESS: Well, we're proposing to close all of the IS rates and transfer the customers to the open GSLM 2 and 3 which are interruptible programs.

COMMISSIONER McMURRIAN: Okay.

THE WITNESS: So it's a restructuring of those -- how those customers receive their interruptible benefits.

COMMISSIONER McMURRIAN: Okay. And you talked a lot about working with them to address their needs. And I supposed you do energy audits for the schools in the same way that you do the others.

THE WITNESS: We do.

COMMISSIONER McMURRIAN: And we've talked about the conservation, and Commissioner

Argenziano's points are well taken.

But do you -- I think you said something about needing to track information better or something. Are you all working on ways to provide them with more information about their usage maybe as compared to other schools in the same school district or, you know, Pasco High School in Pasco County did this or changed to this rate and it was beneficial to them and here's what we can show you and perhaps you want to do that too?

THE WITNESS: I'm not certain how much communication has happened but I'm pretty certain Pasco has been very pleased with how they went on interruptible rates. I think that some of their high schools which are in Progress territory are also on interruptible. The schools talk to each other.

So I'm sure they know that Pasco schools, some of them are on interruptible rates. I don't know whether the Hillsborough Schools are aware of the benefits for sure. They may be concerned about the things we talked about back in '92 about I don't want the power going off when something is happening at the school. But we certainly make them aware of all of their options.

COMMISSIONER McMURRIAN: Okay. And I guess when you were talking about the -- needing the load data, and I think that was another area where you were talking about needing better information, how different -- and I was listening when you were talking about how high schools are really on later than we all think and that they're on the weekends too.

And I guess before you said that, I had it in my mind that something like the University of Tampa would have very different load data than a high school or definitely an elementary school. But is that not necessarily the case? Are they more alike? Because I think of course they're having night classes and all at the University of Tampa.

THE WITNESS: I really haven't compared the universities with the high schools. I will say that there's a wide range within the school districts. So if you look at a high school versus a middle school versus an elementary school, certainly there's different load shapes and demand and load factors and so forth between those groups. But even within the same middle schools or he same high schools, you'll see wide variation. And that's because some of the high schools have more

programs than others or may be running a different type of program there.

So it's -- it's -- there's no consistency in the load data that I've seen for the schools. Again we don't have 100 percent of the schools under this load data. We have -- we can measure their demand and their energy and their load factor but their coincidence we can only look if we have the load research type data.

We have that data for most of the high schools. They're large enough that we have recording meters on all of them so we have pretty much all of the high schools recorded and a few of the middle schools. And we even have a few of the elementary schools. A couple of them have load research meters but not enough to -- and it's not a statistically valid sample of schools.

So we have some data. We're certainly welcome to share that with them and show them how their use is. I would say that I think they're very aware of what's going on in their schools and they often know what's going on as far as what's keeping the lights on and so forth.

COMMISSIONER McMURRIAN: But as you mentioned, I guess one comment is that they're so busy putting

out so many different fires, that perhaps they're not -- I know they have organizations where they talk to each other, but perhaps they're not really sharing information among the schools and that you all could help them with that maybe more.

THE WITNESS: Yes. It's true of most businesses. I think an example where that's not true is the phosphate business where they have an energy manager who that's his only focus.

But most businesses are focused on their business which is in this case educating students. So they have, as Ms. Elia said, she has a little hit team or SWAT team, I forget what she called it, but she's got a group of some focused people who are trying to look at the energy issue. And I suspect until some of these things happen, she may not have had that. And I'm not sure of that.

But she's really focused on it now or may have hired some people or directed some people to take that on. And we work with them and we're willing to share with them whatever data they need and help them in their efforts.

COMMISSIONER McMURRIAN: Thank you, Mr. Chairman, that was all I had.

CHAIRMAN CARTER: Commissioner Argenziano.

COMMISSIONER ARGENZIANO: It's great that you can work with schools. My point was that they pretty much most -- not all of them but most of them have done everything they can do within the constraints of their budget, and I think the difference in comparing most businesses is that I guess the only way to say it is that basically you make a commercial profit on peoples' taxes. Our schools, our governments.

And I'm not saying that one way it's a good or bad thing, but I think that's a big difference. And I think my point was that in, I guess, looking at different classifications trying to understand if certain government entities could get some type of a different break. And I understand that that would be the police and the firemen and so on and so on. But I think there is a difference between the -- the regular business that's out there and the little guy that's, you know, paying his electric bills too, the schools.

And once again I think my point is that I don't know how much you can help a school as far as rates, how much I guess the companies can do there. You make healthy profits. We're all in this thing

together. I don't know how else to say it. And I know that some things are more complicated than I probably can imagine in the long run.

But I don't know what else you do as far as helping the schools. Is there anything, any kind of grants that you can give to certain schools for insulation, for lighting?

THE WITNESS: I don't know enough about that to answer directly. I think there are some programs like that where we do grants.

I know that the company does have many of its team members go off and teach at these teach-in things at the schools. We'll spend a day at the school and teach. So there's a lot of volunteering going on of the people in our company with the schools to help out. And certainly a vast, I don't know if it's a majority, but many, many of our employees of course have kids in the schools and volunteer and bake sales and all of the normal things you would expect from a parent. But the company is very aware of the schools and trying to help them at all times.

COMMISSIONER ARGENZIANO: If I can -- forgive me because it is a commercial rate the schools are paying, right?

THE WITNESS: It is -- it is a standard rate, that is correct.

COMMISSIONER ARGENZIANO: And there's nothing that can be done in looking at the possibility of like a sub-commercial rate?

THE WITNESS: I'm not suggesting to you that we don't have the ability to create a special school rate and identify it for them in some manner to subsidize them. I'm not saying you don't have that power.

I'm telling you the downside of it, and the downside of it is where do you stop. I mean, is it just the schools and then you have more and more and more. And the more that you do that and subsidize a group, that subsidy gets passed on to everybody else. And then as you increase the -- increase the rates for everybody else there, now they have a problem. It's a problem that maybe a lot -- a boulder-rolling-down-the-hill kind of thing.

COMMISSIONER ARGENZIANO: I know. While that ball is rolling as you say, everybody pays -- we're paying for commercial rates for our kids to go to public school. So everybody is paying. I don't know.

But I appreciate it. And believe me, I really appreciate the volunteers that go out from the companies because I know they do and they do a lot and that's wonderful that they do. God bless them because I don't know what we'd do without them.

THE WITNESS: Yeah. I'll say our officers do it as well. It's everybody.

CHAIRMAN CARTER: Commissioner Skop?

COMMISSIONER SKOP: Equally on that note, I want to commend Florida's utilities, Progress, FPL as well as TECO. I know that they've made inroads in trying to put solar on schools and I think that's commendable and hopefully we can do more of that throughout the state because that very effort by our utilities, bringing solar to the schools, does help mitigate electrical consumption to some extent, not as much as we'd like. But that provides that educational opportunity to educate students about energy conservation and renewable energy. Thank you.

CHAIRMAN CARTER: Thank you. Commissioners, anything further on the bench? Staff? Redirect?

MR. WILLIS: I have no redirect but I would like to move Exhibits 30 and 86.

CHAIRMAN CARTER: Okay. Commissioners, that

will be Exhibit No. 30. Any objections? Without objection, show it done, 30. And Exhibit 86, any objections? Without objection, show it done.

Ms. Kaufman.

(Exhibits No. 30 and 86 admitted into the record.)

MS. KAUFMAN: Thank you, Mr. Chairman. FIPUG would move 113 and 114.

CHAIRMAN CARTER: Any objections?

MR. WILLIS: I have no objection to that. I wanted to make sure.

COMMISSIONER EDGAR: Mr. Chairman, I'm wondering if this is the appropriate time to take up Exhibit 31, but I'll defer to TECO counsel.

MR. WILLIS: Yes, we would like to move Exhibit 31.

CHAIRMAN CARTER: Thank you, Commissioner. Any objections? Without objection, show it done. Thank you.

(Exhibit No. 31 admitted into the record.)

CHAIRMAN CARTER: There's so many pages here it's hard to keep track of them. You were thinking -- Mr. Willis, you were just taking a moment on 113 and 114?

MR. WILLIS: We don't object to them.

CHAIRMAN CARTER: Okay. Without objection, show it done.

(Exhibits Nos. 113 and 114 admitted into the record.)

CHAIRMAN CARTER: Okay. Commissioners, we -- Mr. Moyle was saying something yesterday about a biological break.

MR. WILLIS: Can we excuse Mr. Ashburn?

CHAIRMAN CARTER: No, let's make him suffer with the rest of us. Sure, he may be excused.

COMMISSIONER ARGENZIANO: Equal opportunity suffering.

CHAIRMAN CARTER: Yeah, equal opportunity suffering.

Let me do this, Commissioners. We've been at it a long -- you guys have not -- I mean, been true troopers there. Let me give at least you guys a biological break. We'll come back at a quarter after.

(Break taken.)

CHAIRMAN CARTER: We are back on the record. And before we proceed further, Staff, you're recognized.

MR. YOUNG: Thank you, sir. Commissioners, what was placed before you is an addendum to

Exhibit 96. I like to call it a supplement with Exhibit 96.

CHAIRMAN CARTER: Supplement?

MR. YOUNG: Yes. I've spoken to the parties and it's my understanding that no one has an objection to it.

CHAIRMAN CARTER: And this was the information that was requested yesterday, correct?

MR. YOUNG: Yes, sir.

CHAIRMAN CARTER: By a different sorting. Mr. Wright?

MR. WRIGHT: Yes, sir, Mr. Chairman. Thank you.

CHAIRMAN CARTER: Okay. Without objection.

COMMISSIONER EDGAR: Mr. Chairman, I do not have an objection but I do have a question.

CHAIRMAN CARTER: Okay. You're recognized for a question.

COMMISSIONER EDGAR: Thank you. And I'm not sure if I should put this to staff or TECO or to Mr. Wright. But refresh my memory if you would what it was additionally that you asked for and/or what are we getting now that is supplement to what we were given with 93 and 96.

MR. WRIGHT: Yes. Ms. Chairman, Commissioner

Edgar. Last week I had asked for an additional sort of the information that was originally present by Mr. Gillette as Exhibit 94, and I had asked for two sorts three. One into three groups of grouping the state regulatory commission as ranked by Regularly Research Associates into above average, average and below average. And then I had also asked for -- for ranking in date order.

What came in yesterday when we resumed was the first part of what I had asked for but it did not include a ranking and date order. Frankly, this document is satisfactory to me. It's not really what I asked for, which was all of them ranked in straight-up date order.

What this does is it divides the three groups, average, above average and below average state commissions as ranked by RRA, and then ranks them within date order within each of those ranking groups.

This is okay with me. I'm satisfied. So -- is that an adequate explanation of what it is?

COMMISSIONER EDGAR: Yes. Thank you. And then I just have one follow-up question.

CHAIRMAN CARTER: You're recognized.

COMMISSIONER EDGAR: And I guess I would pose

this to TECO since they're the ones who have supplied this document.

Because we have some of the information by date in different sorts, I'm wondering when I look through the Florida information, I don't see the most recent rate case that we have taken up as a commission which was in early '08 with Florida public utilities. And I -- since we do have information by date, I'm wondering why that's not included.

MR. WILLIS: I think it's because it's not in the RRA data and we did not supplement it beyond that data.

COMMISSIONER EDGAR: And do you know, is it not included in the RRA information because of -- because it's just T&D or -- I mean, I guess what is included and what is not, especially if we're looking nationally? What -- what is -- what is the classification of what is included versus utilities in other states that would not be.

And again, just because we -- what I'm trying to think through is we had some discussion about the applicability of different dates realizing changes in time and many change -- you know, many unique case-by-case circumstances. So I'm just

trying to understand what I do have versus what I don't.

MR. WILLIS: I think it's just because of when that database was updated, and I'm told that it was updated --

COMMISSIONER EDGAR: I don't want to be argumentative but I think there may be some dates on here that are more recent than that one.

CHAIRMAN CARTER: Mr. Wright?

MR. WILLIS: It's just simply not there.

COMMISSIONER EDGAR: It's just not there.

CHAIRMAN CARTER: Mr. Wright?

MR. WRIGHT: Thank you, Mr. Chairman. Just a further response to Commissioner Edgar's question. In my questioning of Mr. Gillette about this data, and it's all the same data that was in his Exhibit 94 which is in the record --

COMMISSIONER EDGAR: And actually I had a question about that and I just didn't ask it then. So since it came up again, I thought I would take advantage of the opportunity.

MR. WRIGHT: He -- he said -- you know, of course he was under oath and the transcript will reflect what he said. My recollection is that he said that he -- I asked him is this intended to be

a comprehensive list of all of the most current rate decisions affecting pretty much all of the investor-owned utilities subject to regulation in the country. His response was, yes.

And he said, but I noticed that there's a company that I know of that's not here and I don't know why that is. And then I -- I believe I clarified by asking him, well, is it your understanding it's the intention that this be close to as complete as possible and is it your understanding that's what it is, and I believe he said yes. So that's what we got.

There are some omissions. I think -- but I do believe the omissions go beyond Florida public utilities companies but --

COMMISSIONER EDGAR: Probably. I wouldn't necessarily know of all of them. I just happen to know of one obviously that was taken up in the past year or so.

MR. WRIGHT: My understanding is it's intended to be the most comprehensive list that anybody has available.

MR. YOUNG: Mr. Chairman?

CHAIRMAN CARTER: Wait one second. Commissioner Argenziano.

COMMISSIONER ARGENZIANO: And I agree it's missing. But the numbers reflected are not -- not accurate either. Because there are numbers that are on here that are indicating a different ROE than what is actually current.

So I don't know that you can rely on the numbers for any of these because what could have been stipulated somewhere is not reflected here.

If you look at the current ROEs for the Florida companies, they're not correct. So there's --

CHAIRMAN CARTER: Mr. Young, you wanted to be heard or were you just trying to bring some clarity to it? Mr. Willis.

MR. WILLIS: We were asked to produce the information. We took it from the database without making any changes in it and produced it straight up. So for whatever it's worth --

COMMISSIONER ARGENZIANO: Right. And I'm not blaming the company. You produced what you were asked. I'm just indicating that if you're going to rely on this, know that there's omissions and incorrect numbers.

CHAIRMAN CARTER: Okay.

MR. MOYLE: Mr. Chairman?

CHAIRMAN CARTER: Mr. Moyle.

MR. MOYLE: Yesterday when we had this discussion, I had indicated that I had asked a question about the reference in the exhibit handed out yesterday that seemed to suggest that RRA was going to put together a special report that had the listing of -- of all cases decided in 2007 and 2008, and I was going to try to check on that because I think that, you know, would be a two-year look and list them in chronological order, is how I read the exhibit.

So I spent a little time on the Internet this morning. I didn't make a lot of progress. But if that can be something that can be identified and say, hey, we're going to publish it Friday, then, you know, maybe we can work with TECO to get that information to you. I don't have a subscription to RRA but I don't mind trying to find out when actually it's coming out beyond what was represented in their -- in their document, which said the end of January 2009.

CHAIRMAN CARTER: What about it, Mr. Willis.

MR. WILLIS: Mr. Chairman, it just seems like we have kind of beat this thing to death or beat it as far as we can. We tried to get this information

and I think it just should have some closure to it.

CHAIRMAN CARTER: Okay. Well, what I think we've got here is information from a --

MR. YOUNG: Mr. Chairman?

CHAIRMAN CARTER: Yes, sir. You're recognized.

MR. YOUNG: Sorry for interrupting. I would like to hand it over to our technical staff and he can shed some light on this report. Andrew?

MR. MAUREY: Thank you. With respect to FPUC is not in the RRA database. We checked with RRA.

CHAIRMAN CARTER: Pull your mic a little closer.

MR. MAUREY: Oh, sorry. Is this good?

CHAIRMAN CARTER: That's better.

MR. MAUREY: We checked with RRA. They cover the majority of IOUs in the country but there are some, the smaller T&D only utilities. That doesn't mean all T&Ds are excluded. Larger T&D utilities are in the database but very small T&D utilities like FPUC are not included.

The other question regarding the special report that was to be issued in January, it has been issued. We have a copy. But I think it was asked for from the parties. But it is available,

is the --

MR. MOYLE: Is it in the record?

MR. MAUREY: No, not yet.

MR. YOUNG: Mr. Chairman, with your permission, we can have someone get that report and hand it out to all of the commissioners and the parties.

CHAIRMAN CARTER: Why don't we just make it part of the record and then everybody can see it.

MR. WRIGHT: I would make that request, Mr. Chairman. We've already got -- the big report came in already.

CHAIRMAN CARTER: Let's just make it part of the record. We'll go ahead on and admit this 96 as a composite. But let's go ahead and put on -- let's make it part of the record so everyone can see it, the Commissioners can see it, the parties can see it, and we'll save ourselves some time instead of dancing around in the dark. Okay. So that will be 117. And I just drew a brain cramp. Give me the tit1e.

MR. YOUNG: Staff's RRA report.

CHAIRMAN CARTER: Okay. And that will be a late-filed.

MR. YOUNG: And that will be dated January

12th.

CHAIRMAN CARTER: Okay.

(Exhibit No. 117 was identified.)

CHAIRMAN CARTER: Oh, Commissioners, I'm sorry, there's another preliminary matter I forgot. I did not mention the dinner break, and that will be -- my plans are to break around 6:00, from 6:00 to 6:30 for dinner. To the parties, the electronic locks go on -- Chris, what time do they -- at 6:00.

So, you know, you may want to send out a scouting party for grub so you can get back in because those locks, the go on electronically and if you don't have the swipe badge, it just won't for you.

But we'll do that. We'll go from 6:00 to 6:30 for a dinner break and go from there. Okay.

MR. WILLIS: Mr. Chairman, I have one other matter.

CHAIRMAN CARTER: You're recognized.

MR. WILLIS: Mr. Chairman, we have now gone through an indemnification and support for all of the minimum filing requirements. And I would request that a number -- exhibit number be assigned to the company's minimum filing requirements as revised and as noted by the witnesses when they

came to the stand and that be given an exhibit number for identification.

CHAIRMAN CARTER: Okay. Where are we? What number has it been given?

MR. WILLIS: I think it's 118.

CHAIRMAN CARTER: Okay. Well, that means it's a new one then. Okay. 118. You've got it. Without objection, show it done.

MR. WILLIS: And we'd request that it be received in evidence.

CHAIRMAN CARTER: Okay. I'm sure we all want to see that, right, guys? Show it done.

(Exhibit No. 118 was identified and admitted into the record.)

MR. YOUNG: So Mr. Chairman, that will be 118 TECO MFRs?

CHAIRMAN CARTER: You got it.

Okay. Any more preliminary matters before we go further from any of the parties? Staff, any more -- Ms. Brown.

MS. BROWN: Just to inform the Commission that Mr. Maurey's staff is making copies of that RRA report to pass out.

CHAIRMAN CARTER: All right then. Ms. Christensen, you're up. You're recognized.

MS. CHRISTENSEN: We would like to call Dr. Randy Woolridge to the stand and he's here.

Thereupon,

J. RANDALL WOOLRIDGE, Ph.D.

was called as a witness on behalf of OPC, and having been duly sworn, testifies as follows:

DIRECT EXAMINATION

BY MS. CHRISTENSEN:

Q Can you please state your name and business address for the record, please.

A My name is the initial J, Randall Woolridge. That's spelled W-O-O-L-R-I-D-G-E. My business address is 302 Business Building, University Park, Pennsylvania, 16802.

Q And did you cause to be prefiled in direct testimony November 26, 2008? In this docket?

A Yes.

Q And do you have any changes to your prefiled testimony?

A I have one change. There was an omission on page 11 at line 4. I have a sixth screen which was not -- it was part of this screening process and it was in the work papers. It wasn't included on this line, on line 4.

After Standard & Poor's there should be a

comma. And the sixth screen is -- should say "and 6," the number 6, "a three-year history of paying dividends." I'll repeat that, and 6, a three-year history of paying dividends.

That screen is simply intended because to use the DCF model, you have to use companies that pay dividends. And I think that in the end that eliminated a couple of companies, Allegheny Energy which just started paying dividends again, Portland General which was sold off and just started paying dividends again, as I remember.

But anyhow, that was one additional screen I had had that was in the work papers. It wasn't put in the testimony.

Q Okay. With that modification to your testimony, if I were to ask you the questions in your testimony today, would your answers be the same?

A Yes.

MS. CHRISTENSEN: I would ask that Dr. Woolridge's testimony be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony of the witness will be inserted into the record as though read.

BY MS. CHRISTENSEN:

Q And Dr. Rand -- or Dr. Woolridge, did your prefiled testimony contain exhibits?

A Yes.

Q And those exhibits were appendix 1 and JRW-1 through JRW-13; is that correct?

A I think it goes through JRW-16.

Q Okay. Do you have any changes to any of your exhibits?

A No.

Q Okay.

MS. CHRISTENSEN: I would ask -- I guess we have them already identified for the record, No. 32 through 48.

CHAIRMAN CARTER: It's marked for the record, identified for the record. Okay. 32 through 45 or does it go beyond 45? Through 48.

Okay. You may proceed.

DIRECT TESTIMONY

OF

DR. J. RANDALL WOOLRIDGE

On Behalf of the Office of Public Counsel

Before the

Florida Public Service Commission

Docket No. 080317-EI

Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION

A. My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration at the University Park Campus of the Pennsylvania State University. I am also the Director of the Smeal College Trading Room and President of the Nittany Lion Fund, LLC. A summary of my educational background, research, and related business experience is provided in Appendix A.

I. SUBJECT OF TESTIMONY AND SUMMARY OF RECOMMENDATIONS

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I have been asked by the Florida Office of People's Counsel ("OPC") to provide an opinion as to the overall fair rate of return or cost of capital for the Tampa Electric

Company ("Tampa" or "Company") and to evaluate Tampa's rate of return testimony in this proceeding.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First I will review my cost of capital recommendation for Tampa, and review the primary areas of contention between Tampa's rate of return position and OPC. Second, I provide an assessment of capital costs in today's capital markets. Third, I discuss my proxy group of electric utility companies for estimating the cost of capital for Tampa. Fourth, I present my recommendations for the Company's capital structure and debt cost rate. Fifth, I discuss the concept of the cost of equity capital, and then estimate the equity cost rate for Tampa. Finally, I critique Tampa's rate of return analysis and testimony. I have a table of contents just after the title page for a more detailed outline.

Q. PLEASE REVIEW YOUR RECOMMENDATIONS REGARDING THE APPROPRIATE RATE OF RETURN FOR TAMPA.

A. I am developed a capital structure and debt cost rate for Tampa that reflects its past and present capitalization. I have applied the Discounted Cash Flow Model ("DCF") and the Capital Asset Pricing Model ("CAPM") to a proxy group of publicly-held electric utility companies ("Electric Proxy Group"). My analysis indicates an equity cost rate in the range of 8.2%-9.8% for Tampa. I have used an equity cost rate at the upper end of the range, 9.75%, in recognition of the current volatile capital market conditions. However, I reserve the right to update my

equity cost rate recommendations prior to hearings. This is because, in my opinion, the current market conditions are in disequilibrium as investors attempt to sort out the economic consequences of the collapse of the financial sector and the unprecedented bail out by the U. S. government. In addition, certain financial data have not been updated to reflect the current economic situation. Using my capital structure and debt and equity cost rates, I am recommending an overall rate of return of 7.33% for Tampa. These findings are summarized in Exhibit JRW-1.

Q. PLEASE SUMMARIZE THE PRIMARY ISSUES REGARGING RATE OF RETURN IN THIS PROCEEDING.

A. Mr. Gordon L. Gillette provides the Company's proposed capital structure and debt cost rates and Dr. Donald A. Murry provides Tampa's proposed common equity cost rate. My analysis suggests that the Company's recommended capital structure with a common equity ratio of 55.3% is equity-rich when compared to the actual capitalization of the Company as well as the capitalization of electric utility companies. I have identified improper adjustments made by the Company that serve to inflate the projected equity in the capital structure. I have adjusted the Company's proposed debt cost rate to reflect market interest rates.

As for the equity cost rate, Dr. Murry's estimate is 12.0%, whereas my analysis indicates an equity cost rate of 9.75% is appropriate for Tampa. We have both used DCF and CAPM approaches to estimating an equity cost rate for the

Company. Dr. Murry has applied these approaches to a proxy group of electric utility companies as well as to TECO Energy.

In terms of the DCF approaches, the two major areas of disagreement are (1) the relevance of DCF equity cost rate results and (2) the estimation of the expected growth rate. With respect to (1), Dr Murry has ignored the vast majority of his own DCF results for the proxy group and TECO Energy in estimating a DCF equity cost rate range of 11.12% to 13.27%. In this regard, he argues that he uses the high end of his DCF range to account for flotation costs and market pressure. I demonstrate that this represents an erroneous adjustment since these costs are undocumented and unnecessary. With respect to (2), Dr. Murry has relied exclusively on the forecasted earnings per share growth rates of Wall Street analysts and *Value Line* in estimating a DCF equity cost rate. I have used both historic and projected growth rate measures, and have evaluated growth in dividends, book value, and earnings per share. A very significant factor that I consider and highlight is the upwardly-biased expected earnings growth rates of Wall Street analysts and *Value Line*.

The CAPM approach requires an estimate of the risk-free interest rate, beta, and the equity risk premium. Whereas there is general agreement on the beta and risk-free interest rate, we have significantly different views on the alternative approaches to measuring the equity risk premium as well as the magnitude of equity risk premium. As I highlight in my testimony, there are three procedures

for estimating an equity risk premium – historic returns, surveys, and expected return models. Dr. Murry relies solely on historic measures of the equity risk premium and has used equity risk premiums of 7.10% and 8.50% in his two versions of the CAPM. I provide evidence that risk premiums based on historic returns series are subject to a myriad of empirical flaws and, as a result, are upwardly biased measures of expected risk premiums. I have used an equity risk premium of 4.56% which (1) uses all three approaches to estimating an equity premium and (2) employs the results of many studies of the equity risk premium. As I note, my equity risk premium is consistent with the equity risk premiums (1) discovered in recent academic studies by leading finance scholars, (2) employed by leading investment banks and management consulting firms, and (3) found in surveys of financial forecasters and corporate CFOs.

Dr. Murry and I also disagree on the need for a size premium adjustment to the CAPM. The size premium is based on historical stock returns and, as discussed in my testimony, there are a number of errors in using historical market returns to compute risk premiums. In addition, I argue that any equity cost rate adjustment based on the relative size of a public utility is inappropriate. One study noted in my testimony tested for a size premium in utilities and concluded that, unlike industrial stocks, utility stocks do not exhibit a significant size premium. The primary reason that a size premium is not required for utilities is that utilities are regulated closely by state and federal agencies and commissions, and hence, their

financial performance is monitored on an on-going basis by agencies of both the state and federal governments.

In the end, the most significant areas of disagreement between Dr. Murry and me with respect to the cost of equity are (1) the relevance of the DCF model and its results in determining an equity cost rate for the Company, and (2) the measurement and magnitude of the equity risk premium.

II. CAPITAL COSTS IN TODAY'S MARKETS

Q. PLEASE DISCUSS CAPITAL COSTS IN TODAY'S MARKETS.

A. Long-term capital cost rates for U.S. corporations are currently at their lowest levels in more than four decades. Corporate capital cost rates are determined by the level of interest rates and the risk premium demanded by investors to buy the debt and equity capital of corporate issuers. The base level of long-term interest rates in the U.S. economy is indicated by the rates on ten-year U.S. Treasury bonds. The rates are provided in Exhibit JRW-2 from 1953 to the present. As indicated, prior to the decline in rates that began in the year 2000, the 10-year Treasury yield had not consistently been in the 4-5 percent range over an extended period of time since the 1960s.

The second base component of the corporate capital cost rates is the risk premium. The risk premium is the return premium required by investors to purchase riskier securities. The equity risk premium is the return premium required to purchase stocks as opposed to bonds. Since the equity risk premium is not readily observable in the markets (as are bond risk premiums), and there are alternative approaches to estimating the equity premium, it is the subject of much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historical periods. Measured in this manner, the equity risk premium has been in the 5-7 percent range. But recent studies by leading academics indicate the forward-looking equity risk premium is in the 3-4 percent range. These authors indicate that historical equity risk premiums are upwardly biased measures of expected equity risk premiums. Jeremy Siegel, a Wharton finance professor and author of the book *Stocks for the Long Term*, published a study entitled "The Shrinking Equity Risk Premium."[1] He concludes:

> The degree of the equity risk premium calculated from data estimated from 1926 is unlikely to persist in the future. The real return on fixed-income assets is likely to be significantly higher than estimated on earlier data. This is confirmed by the yields available on Treasury index-linked securities, which currently exceed 4%. Furthermore, despite the acceleration in earnings growth, the return on equities is likely to fall from its historical level due to the very high level of equity prices relative to fundamentals.

[1] Jeremy J. Siegel, "The Shrinking Equity Risk Premium," *The Journal of Portfolio Management* (Fall, 1999), p. 15.

Alan Greenspan, the former Chairman of the Federal Reserve Board, indicated in an October 14, 1999, speech on financial risk that the fact that equity risk premiums declined during 1990s is "not in dispute." His assessment focused on the relationship between information availability and equity risk premiums.

> There can be little doubt that the dramatic improvements in information technology in recent years have altered our approach to risk. Some analysts perceive that information technology has permanently lowered equity premiums and, hence, permanently raised the prices of the collateral that underlies all financial assets.
>
> The reason, of course, is that information is critical to the evaluation of risk. The less that is known about the current state of a market or a venture, the less the ability to project future outcomes and, hence, the more those potential outcomes will be discounted.
>
> The rise in the availability of real-time information has reduced the uncertainties and thereby lowered the variances that we employ to guide portfolio decisions. At least part of the observed fall in equity premiums in our economy and others over the past five years does not appear to be the result of ephemeral changes in perceptions. It is presumably the result of a permanent technology-driven increase in information availability, which by definition reduces uncertainty and therefore risk premiums. This decline is most evident in equity risk premiums. It is less clear in the corporate bond market, where relative supplies of corporate and Treasury bonds and other factors we cannot easily identify have outweighed the effects of more readily available information about borrowers.[2]

[2] Alan Greenspan, "Measuring Financial Risk in the Twenty-First Century," Office of the Comptroller of the Currency Conference, October 14, 1999.

In sum, the relatively low interest rates in today's markets as well as the lower risk premiums required by investors indicate that capital costs for U.S. companies are the lowest in decades.

Q. FINALLY, PLEASE DISCUSS THE IMPACT OF RECENT CAPITAL MARKET VOLATILITY CONDITIONS ON THE EQUITY RISK PREMIUM AND THE EQUITY COST RATE.

A. The mortgage, subprime, and credit crises on Wall Street have led to increased market volatility and the unprecedented actions by the U.S. government to resolve the financial crisis. To assess the impact of recent capital market volatility on the equity risk premium and the equity cost rate, one must look at the volatility of stocks relative to bonds. I have performed such an analysis below. To compare the volatility of stocks and bonds, one must standardize the volatility measure. This is normally done by dividing the volatility measure, the standard deviation, by the mean. This standardized volatility measure is known as the Coefficient of Variation ("CV").

Q. GIVEN THESE OBSERVATIONS, PLEASE PROVIDE YOUR ASSESSMENT OF THE IMPACT OF RECENT CAPITAL MARKET CONDITIONS ON THE EQUITY COST RATE.

A. I have performed an analysis of the volatility of stocks relative to bonds since 1997. I have used the S&P 500 and the Bear Sterns Bond Price Index ("BSBPI") and computed the CV using a 200-day mean and standard deviation. In Exhibit

JRW-5, I have graphed the ratio of the CV(Stock CV)/CV(Bond CV). Hence, this graph shows the standardized volatility of stocks relative to bonds. Higher levels of this ratio represent time periods when stock volatility is high relative to bond volatility, and low levels of this ratio occur during time periods when stock volatility is low relative to bonds. During the last two quarters of 2007, the volatility of bonds increased relative to stocks due to the subprime mortgage crisis. Through October of this year, stocks have increased in volatility relative to bonds. On the relative CV measure, stocks reached a five-year high in terms of relative volatility. As such, current market conditions suggest that stock volatility is high relative to bond volatility.

III. PROXY GROUP SELECTION

Q. PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE OF RETURN RECOMMENDATION FOR TAMPA.

A. To develop a fair rate of return recommendation for Tampa, I have evaluated the return requirements of investors on the common stock of a proxy group of publicly-held electric utility companies.

Q. PLEASE DESCRIBE YOUR PROXY GROUP OF ELECRIC UTILITY COMPANIES.

A. My Electric Proxy Group consists of thirteen electric utility companies. These companies met the following selection criteria: (1) listed as a Electric Utility in *AUS*

Utility Reports; (2) listed as a Electric Utility in the Standard Edition of the *Value Line Investment Survey*; (3) at least 75% regulated electric revenues; (4) operating revenues of less than $10B; and (5) an investment grade bond rating by Moody's and Standard & Poor's and (6) a three-year history of paying dividends. Summary financial statistics for the Electric Proxy Group are listed in Exhibit JRW-3. The average operating revenues and net plant for the group are $2,908.2M and $5,173.3M, respectively. On average, the group receives 91% of revenues from regulated electric operations, has a 'Baa1' Moody's bond rating, a current common equity ratio of 45%, and an earned return on common equity of 8.9%.

IV. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

Q. WHAT IS THE RECOMMENDED CAPITAL STRUCTURE OF THE COMPANY?

A. The Company's recommended capital structure is shown in Panel A of page 1 of Exhibit JRW-4. The Company is requesting a capital structure consisting of 0.24% short-term debt, 42.11% long-term debt, and a 55.32% common equity. This is a 2009 test-year capital structure average and includes a number of adjustments as well as several equity infusions from TECO Energy.

Q. IS THE COMPANY'S RECOMMENDED CAPITAL STRUCTURE APPROPRIATE FOR TAMPA?

A. No. This capital structure is not appropriate for Tampa for several reasons. First, the proposed capital structure ratios do not reflect the actual capitalization of

Tampa Electric. Panel B of Exhibit JRW-4 shows the average capital structure ratios for the Company over the past three years. The average common equity ratio over this time period is 49.02%. Second, the proposed capital structure ratios do not reflect the capitalization of electric utility companies. Panel C of Exhibit JRW-4 shows the average capital structure ratios for the Electric Proxy Group in 2008. The average common equity for the first eleven months of 2008 for the group is 45.7%. Third, the proposed capital structure includes a number of adjustments as well as proposed infusions which serve to increase the equity in the capital structure. The Company's proposed adjustments are discussed in the rebuttal section of my testimony.

Q. WHAT CAPITAL STRUCTURE ARE YOU EMPLOYING FOR TAMPA?

A. Page 4 of Exhibit JRW-4 provides the Company's capitalization for the years 2007, 2008, and 2009. As discussed, the 2009 pro forma capital structure includes a number of adjustments as well as proposed equity infusions. Some of these adjustments are improper, as will be discussed in my rebuttal testimony. The 2007 and 2008 capital structures are provided in Panel D of Exhibit JRW-4. These capital structures reflect the actual capitalizations of the company as it has been financed. As such, I am using the average of the 2007 and 2008 capital structures as my proposed capital structure ratios for Tampa. These figures are shown in Panel E of Exhibit JRW-4.

Q. WHY DO YOU BELIEVE THAT YOUR RECOMMENDED CAPITAL STRUCTURE IS MORE APPROPRIATE THAN THE CAPITAL STRUCTURE PROPOSED BY THE COMPANY?

A. My capital structure is more appropriate for four reasons. My capital structure, with a common equity ratio of 48.89%: (1) much more accurately reflects how the Company has been financed in the past. The Company's average common equity ratio over the past three years has been 49.02%; (2) much more closely reflects the capitalizations of electric utility companies. The average capital structure ratio for the Electric Proxy Group in 2008 is 45.7%; (3) does not include a number of questionable and uncertain adjustments and equity injections; and (4) much more accurately reflects the Company's capital structure as viewed by investors.

Q. WHAT SHORT-TERM DEBT COST RATES ARE YOU USING IN THE COST OF CAPITAL FOR TAMPA?

A. The Company's short-term debt cost rate is based on a short-term debt rate assumption of 4.5%. This rate, in turn, is based on the historic London Interbank Offered Rate ("LIBOR") between 1991-2008 (see Tampa response to OPC 3-60, part 1) of 4.37% plus a program financing fee. This has very little to do with current LIBOR rates. Page 5 of Exhibit JRW-4 shows LIBOR rates over the past five years. During 2008, LIBOR rates declined to the 2.75% range early in the summer in response to Federal Reserve actions to lower interest rates. These rates increased dramatically to the 4.75% range in September in response to the

spreading credit crisis. However, the intervention of the Federal Reserve, the Treasury Department, and U.S. government has resulted in a significant decline in the LIBOR rate. As of November 13, 2008, the three-month LIBOR rate was 2.15%. Including the financing program fee of 18 basis points, I will use a short-term debt cost rate of 2.33% (2.15% + 0.18% = 2.33%).

Q. WHAT LONG-TERM DEBT COST RATE ARE YOU USING IN THE COST OF CAPITAL FOR TAMPA?

A. The Company's long-term debt cost rate for rate year 2009 is 6.80%. Details of the development of this debt cost rate were provided in Tampa's response to OPC 3-60, part 2. This is shown on page 6 of Exhibit JRW-4. This debt cost rate includes a 2009 bond issue with a 6.90% coupon rate. I will adopt the Company's long-term debt cost rate of 6.80%.

V. THE COST OF COMMON EQUITY CAPITAL

A. Overview

Q. WHY MUST AN OVERALL COST OF CAPITAL OR FAIR RATE OF RETURN BE ESTABLISHED FOR A PUBLIC UTILITY?

A. In a competitive industry, the return on a firm's common equity capital is determined through the competitive market for its goods and services. Due to the capital requirements needed to provide utility services, however, and to the economic benefit to society from avoiding duplication of these services, some public utilities are monopolies. It is not appropriate to permit monopoly utilities to

set their own prices because of the lack of competition and the essential nature of the services. Thus, regulation seeks to establish prices that are fair to consumers and at the same time are sufficient to meet the operating and capital costs of the utility (i.e., provide an adequate return on capital to attract investors).

Q. PLEASE PROVIDE AN OVERVIEW OF THE COST OF CAPITAL IN THE CONTEXT OF THE THEORY OF THE FIRM.

A. The total cost of operating a business includes the cost of capital. The cost of common equity capital is the expected return on a firm's common stock that the marginal investor would deem sufficient to compensate for risk and the time value of money. In equilibrium, the expected and required rates of return on a company's common stock are equal.

Normative economic models of the firm, developed under very restrictive assumptions, provide insight into the relationship between firm performance or profitability, capital costs, and the value of the firm. Under the economist's ideal model of perfect competition where entry and exit is costless, products are undifferentiated, and there are increasing marginal costs of production, firms produce up to the point where price equals marginal cost. Over time, a long-run equilibrium is established where price equals average cost, including the firm's capital costs. In equilibrium, total revenues equal total costs, and because capital costs represent investors' required return on the firm's capital, actual returns equal

required returns and the market value and the book value of the firm's securities must be equal.

In the real world, firms can achieve competitive advantage due to product market imperfections. Most notably, companies can gain competitive advantage through product differentiation (adding real or perceived value to products) and by achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

James M. McTaggart, founder of the international management consulting firm Marakon Associates, has described this essential relationship between the return on equity, the cost of equity, and the market-to-book ratio in the following manner:[3]

> Fundamentally, the value of a company is determined by the cash flow it generates over time for its owners, and the minimum acceptable rate of return required by capital investors. This "cost of equity capital" is used to discount the expected equity cash flow, converting it to a present value. The cash flow is, in turn, produced by the interaction of a company's return on equity and the annual rate of equity growth. High return on equity (ROE) companies in low-growth markets, such as

[3] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1988), p. 2.

> Kellogg, are prodigious generators of cash flow, while low ROE companies in high-growth markets, such as Texas Instruments, barely generate enough cash flow to finance growth.
>
> A company's ROE over time, relative to its cost of equity, also determines whether it is worth more or less than its book value. If its ROE is consistently greater than the cost of equity capital (the investor's minimum acceptable return), the business is economically profitable and its market value will exceed book value. If, however, the business earns an ROE consistently less than its cost of equity, it is economically unprofitable and its market value will be less than book value.

As such, the relationship between a firm's return on equity, cost of equity, and market-to-book ratio is relatively straightforward. A firm that earns a return on equity above its cost of equity will see its common stock sell at a price above its book value. Conversely, a firm that earns a return on equity below its cost of equity will see its common stock sell at a price below its book value.

Q. PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE RELATIONSHIP BETWEEN RETURN ON EQUITY AND MARKET-TO-BOOK RATIOS.

A. This relationship is discussed in a classic Harvard Business School case study entitled "A Note on Value Drivers." On page 2 of that case study, the author describes the relationship very succinctly:[4]

> For a given industry, more profitable firms – those able to generate higher returns per dollar of equity – should have

[4] Benjamin Esty, "A Note on Value Drivers," Harvard Business School, Case No. 9-297-082, April 7, 1997.

higher market-to-book ratios. Conversely, firms which are unable to generate returns in excess of their cost of equity should sell for less than book value.

Profitability	*Value*
If ROE > K	*then Market/Book > 1*
If ROE = K	*then Market/Book =1*
If ROE < K	*then Market/Book < 1*

To assess the relationship by industry, as suggested above, I have performed a regression study between estimated return on equity and market-to-book ratios using natural gas distribution, electric utility and water utility companies. I used all companies in these three industries which are covered by *Value Line* and who have estimated return on equity and market-to-book ratio data. The results are presented in Panels A-C of Exhibit JRW-6. The average R-squares for the electric, gas, and water companies are 0.65, 0.60, and 0.92.[5] This demonstrates the strong positive relationship between ROEs and market-to-book ratios for public utilities. This means that utilities with higher expected ROEs sell at higher market-to-book ratios.

Q. WHAT ECONOMIC FACTORS HAVE AFFECTED THE COST OF EQUITY CAPITAL FOR PUBLIC UTILITIES?

A. Exhibit JRW-7 provides indicators of public utility equity cost rates over the past decade. Page 1 shows the yields on 10-year 'A' rated public utility bonds. These yields peaked in the 1990s at 8.5%, then declined and again hit the 8.0 percent range in the year 2000. They subsequently declined, hovering in the 4.5 to 5.0

[5] R-square measures the percent of variation in one variable (e.g., market-to-book ratios) explained by another variable (e.g., expected return on equity). R-squares vary between zero and 1.0, with values closer to 1.0 indicating a higher relationship between two variables.

percent range between 2003 and 2005. They increased to 6.0% in June 2006, declined and then once again increased to over 6.0% in the summer of 2007. They retreated to the 5.50% range by the end of 2007. Page 2 provides the dividend yields for the fifteen utilities in the Dow Jones Utilities Average over the past decade. These yields peaked in 1994 at 7.2% and have gradually declined over the past decade. As of 2007, these yields were 3.35%.

Average earned returns on common equity and market-to-book ratios are given on page 3 of Exhibit JRW-7. Over the past decade, earned returns on common equity have consistently been in the 11.0%-13.0% range. The average ROE peaked at 13.45% in 2001 and subsequently declined through the year 2006 before recovering in 2007. Over the past decade, market-to-book ratios for this group have increased gradually but with several ups and downs. The market-to-book average was 1.83 as of 2001, declined to 1.50 in 2003 and increased to 2.2 as of 2007.

The indicators in Exhibit JRW-7, coupled with the overall decrease in interest rates, suggest that capital costs for the Dow Jones Utilities have decreased over the past decade.

Q. WHAT FACTORS DETERMINE INVESTORS' EXPECTED OR REQUIRED RATE OF RETURN ON EQUITY?

A. The expected or required rate of return on common stock is a function of market-wide, as well as company-specific, factors. The most important market factor is the time value of money as indicated by the level of interest rates in the economy. Common stock investor requirements generally increase and decrease with like changes in interest rates. The perceived risk of a firm is the predominant factor that influences investor return requirements on a company-specific basis. A firm's investment risk is often separated into business and financial risk. Business risk encompasses all factors that affect a firm's operating revenues and expenses. Financial risk results from incurring fixed obligations in the form of debt in financing its assets.

Q. HOW DOES THE INVESTMENT RISK OF PUBLIC UTILITY COMPANIES COMPARE WITH THAT OF OTHER INDUSTRIES?

A. Due to the essential nature of their service as well as their regulated status, public utilities are exposed to a lesser degree of business risk than other, non-regulated businesses. The relatively low level of business risk allows public utilities to meet much of their capital requirements through borrowing in the financial markets, thereby incurring greater than average financial risk. Nonetheless, the overall investment risk of public utilities is below most other industries.

Exhibit JRW-8 provides an assessment of investment risk for 100 industries as measured by beta, which according to modern capital market theory is the only relevant measure of investment risk. These betas come from the *Value Line*

Investment Survey and are compiled by Aswath Damodoran of New York University.[6] The study shows that the investment risk of public utilities is relatively low. The average beta for electric utility industry is 0.88. This figure put electric utility companies in the bottom twenty percent of all industries and well below the *Value Line* average of 1.24. As such, the cost of equity for the electric utility industry is relatively low compared to other industries in the U.S.

Q. HOW CAN THE EXPECTED OR REQUIRED RATE OF RETURN ON COMMON EQUITY CAPITAL BE DETERMINED?

A. The costs of debt and preferred stock are normally based on historical or book values and can be determined with a great degree of accuracy. The cost of common equity capital, however, cannot be determined precisely and must instead be estimated from market data and informed judgment. This return to the stockholder should be commensurate with returns on investments in other enterprises having comparable risks.

According to valuation principles, the present value of an asset equals the discounted value of its expected future cash flows. Investors discount these expected cash flows at their required rate of return that, as noted above, reflect the time value of money and the perceived riskiness of the expected future cash flows. As such, the cost of common equity is the rate at which investors discount expected cash flows associated with common stock ownership.

[6] They may be found on the Internet at http:// www.stern.nyu.edu/~adamodar.

Models have been developed to ascertain the cost of common equity capital for a firm. Each model, however, has been developed using restrictive economic assumptions. Consequently, judgment is required in selecting appropriate financial valuation models to estimate a firm's cost of common equity capital, in determining the data inputs for these models, and in interpreting the models' results. All of these decisions must take into consideration the firm involved as well as current conditions in the economy and the financial markets.

Q. HOW DO YOU PLAN TO ESTIMATE THE COST OF EQUITY CAPITAL FOR THE COMPANY?

A. I rely primarily on the DCF model to estimate the cost of equity capital. Given the investment valuation process and the relative stability of the utility business, I believe that the DCF model provides the best measure of equity cost rates for public utilities. It is my experience that this Commission has traditionally relied on the DCF method. I have also performed a CAPM study, but I give these results less weight because I believe that risk premium studies, of which the CAPM is one form, provide a less reliable indication of equity cost rates for public utilities.

B. <u>Discounted Cash Flow Analysis</u>

Q. DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF MODEL.

A. According to the DCF model, the current stock price is equal to the discounted value of all future dividends that investors expect to receive from investment in the firm. As such, stockholders' returns ultimately result from current as well as future dividends. As owners of a corporation, common stockholders are entitled to a pro-rata share of the firm's earnings. The DCF model presumes that earnings that are not paid out in the form of dividends are reinvested in the firm so as to provide for future growth in earnings and dividends. The rate at which investors discount future dividends, which reflects the timing and riskiness of the expected cash flows, is interpreted as the market's expected or required return on the common stock. Therefore, this discount rate represents the cost of common equity. Algebraically, the DCF model can be expressed as:

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \ldots \frac{D_n}{(1+k)^n}$$

where P is the current stock price, D_n is the dividend in year n, and k is the cost of common equity.

Q. IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES EMPLOYED BY INVESTMENT FIRMS?

A. Yes. Virtually all investment firms use some form of the DCF model as a valuation technique. One common application for investment firms is called the three-stage DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model are presented in Exhibit JRW-9. This model presumes that a company's dividend payout progresses initially through a growth stage, then

proceeds through a transition stage, and finally assumes a steady-state stage. The dividend-payment stage of a firm depends on the profitability of its internal investments, which, in turn, is largely a function of the life cycle of the product or service.

1. Growth stage: Characterized by rapidly expanding sales, high profit margins, and abnormally high growth in earnings per share. Because of highly profitable expected investment opportunities, the payout ratio is low. Competitors are attracted by the unusually high earnings, leading to a decline in the growth rate.

2. Transition stage: In later years, increased competition reduces profit margins and earnings growth slows. With fewer new investment opportunities, the company begins to pay out a larger percentage of earnings.

3. Maturity (steady-state) stage: Eventually the company reaches a position where its new investment opportunities offer, on average, only slightly attractive returns on equity. At that time its earnings growth rate, payout ratio, and return on equity stabilize for the remainder of its life. The constant-growth DCF model is appropriate when a firm is in the maturity stage of the life cycle.

In using this model to estimate a firm's cost of equity capital, dividends are projected into the future using the different growth rates in the alternative stages,

and then the equity cost rate is the discount rate that equates the present value of the future dividends to the current stock price.

Q. HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED RATE OF RETURN USING THE DCF MODEL?

A. Under certain assumptions, including a constant and infinite expected growth rate, and constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to the following:

$$P = \frac{D_1}{k - g}$$

where D_1 represents the expected dividend over the coming year and g is the expected growth rate of dividends. This is known as the constant-growth version of the DCF model. To use the constant-growth DCF model to estimate a firm's cost of equity, one solves for k in the above expression to obtain the following:

$$k = \frac{D_1}{P} + g$$

Q. IN YOUR OPINION, IS THE CONSTANT-GROWTH DCF MODEL APPROPRIATE FOR PUBLIC UTILITIES?

A. Yes. The economics of the public utility business indicate that the industry is in the steady-state or constant-growth stage of a three-stage DCF. The economics include the relative stability of the utility business, the maturity of the demand for

public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process). The DCF valuation procedure for companies in this stage is the constant-growth DCF. In the constant-growth version of the DCF model, the current dividend payment and stock price are directly observable. However, the primary problem and controversy in applying the DCF model to estimate equity cost rates entails estimating investors' expected dividend growth rate.

Q. WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF METHODOLOGY?

A. One should be sensitive to several factors when using the DCF model to estimate a firm's cost of equity capital. In general, one must recognize the assumptions under which the DCF model was developed in estimating its components (the dividend yield and expected growth rate). The dividend yield can be measured precisely at any point in time, but tends to vary somewhat over time. Estimation of expected growth is considerably more difficult. One must consider recent firm performance, in conjunction with current economic developments and other information available to investors, to accurately estimate investors' expectations.

Q. PLEASE DISCUSS EXHIBIT JRW-10.

A. My DCF analysis is provided in Exhibit JRW-10. The DCF summary is on page 1 of this Exhibit, and the supporting data and analysis for the dividend yield and expected growth rate are provided on the following pages of the Exhibit.

Q. WHAT DIVIDEND YIELDS ARE YOU EMPLOYING IN YOUR DCF ANALYSIS FOR THE PROXY GROUP?

A. The dividend yields on the common stock for the companies in the proxy group are provided on page 2 of Exhibit JRW-10 for the six-month period ending November 2008. For the DCF dividend yields for the group, I am using the average of the six month and November 2008 dividend yields, which is 5.2%.

Q. PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT DIVIDEND YIELD.

A. According to the traditional DCF model, the dividend yield term relates to the dividend yield over the coming period. As indicated by Professor Myron Gordon, who is commonly associated with the development of the DCF model for popular use, this is obtained by: (1) multiplying the expected dividend over the coming quarter by 4 and (2) dividing this dividend by the current stock price to determine the appropriate dividend yield for a firm, that pays dividends on a quarterly basis.[7] In applying the DCF model, some analysts adjust the current dividend for growth over the coming year as opposed to the coming quarter. This can be complicated because firms tend to announce changes in dividends at different times during the year. As such, the dividend yield computed based on presumed growth over the coming quarter as opposed to the coming year can be quite different.

[7] *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No. 79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

Consequently, it is common for analysts to adjust the dividend yield by some fraction of the long-term expected growth rate.

Q. GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR WILL YOU USE FOR YOUR DIVIDEND YIELD?

A. I will adjust the dividend yield by one-half (1/2) the expected growth so as to reflect growth over the coming year.

Q. PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF MODEL.

A. There is much debate as to the proper methodology to employ in estimating the growth component of the DCF model. By definition, this component is investors' expectation of the long-term dividend growth rate. Presumably, investors use some combination of historical and/or projected growth rates for earnings and dividends per share and for internal or book value growth to assess long-term potential.

Q. WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE PROXY GROUP?

A. I have analyzed a number of measures of growth for companies in the proxy group. I have reviewed *Value Line's* historical and projected growth rate estimates for earnings per share ("EPS"), dividends per share ("DPS"), and book value per

share ("BVPS"). In addition, I have utilized the average EPS growth rate forecasts of Wall Street analysts as provided by Bloomberg, and Zacks. These services solicit five-year earnings growth rate projections from securities analysts, and compile and publish the means and medians of these forecasts. Finally, I have also assessed prospective growth as measured by prospective earnings retention rates and earned returns on common equity.

Q. PLEASE DISCUSS HISTORICAL GROWTH IN EARNINGS AND DIVIDENDS AS WELL AS INTERNAL GROWTH.

A. Historical growth rates for EPS, DPS, and BVPS are readily available to virtually all investors and presumably an important ingredient in forming expectations concerning future growth. However, one must use historical growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years), is unlikely to accurately measure investors' expectations due to the sensitivity of a single growth rate figure to fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles). However, one must appraise the context in which the growth rate is being employed. According to the conventional DCF model, the expected return on a security is equal to the sum of the dividend yield and the expected long-term growth in dividends. Therefore, to best estimate the cost of common

equity capital using the conventional DCF model, one must look to long-term growth rate expectations.

Internally generated growth is a function of the percentage of earnings retained within the firm (the earnings retention rate) and the rate of return earned on those earnings (the return on equity). The internal growth rate is computed as the retention rate times the return on equity. Internal growth is significant in determining long-run earnings and, therefore, dividends. Investors recognize the importance of internally generated growth and pay premiums for stocks of companies that retain earnings and earn high returns on internal investments.

Q. WHY ARE YOU NOT RELYING EXCLUSIVELY ON THE EPS FORECASTS OF WALL STREET ANALYSTS IN ARRIVING AT A DCF GROWTH RATE FOR THE PROXY GROUP?

A. There are several issues with using the EPS growth rate forecasts of Wall Street analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is the dividend growth rate, not the earnings growth rate. Nonetheless, over the very long-term, dividend and earnings will have to grow at a similar growth rate. Therefore, in my opinion, consideration must be given to other indicators of growth, including prospective dividend growth, internal growth, as well as projected earnings growth. Second, and most significantly, it is well-known that the EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and upwardly biased. Hence, using these growth rates as a DCF

growth rate will provide an overstated equity cost rate. This issue is discussed at length in the rebuttal section of this testimony.

Q. PLEASE DISCUSS THE HISTORICAL GROWTH OF THE COMPANIES IN THE GROUP AS PROVIDED IN THE *VALUE LINE INVESTMENT SURVEY.*

A. Historic growth rates for the companies in the group, as published in the *Value Line Investment Survey*, are provided on page 3 of Exhibit JRW-10. Due to the presence of outliers among the historic growth rate figures, both the mean and medians are used in the analysis.[8] The historical growth measures in EPS, DPS, and BVPS for the Electric Proxy Group, as measured by the means and medians, range from -2.3% to 3.0%, with an average of 1.0%.

Q. PLEASE SUMMARIZE *VALUE LINE'S* PROJECTED GROWTH RATES FOR THE COMPANIES IN THE PROXY GROUP.

A. *Value Line's* projections of EPS, DPS, and BVPS growth for the companies in the proxy group are shown on page 4 of Exhibit JRW-10. As stated above, due to the presence of outliers, both the mean and medians are used in the analysis. For the Electric Proxy Group, the central tendency measures range from 1.0% to 6.3%, with an average of 3.8%.

[8] Outliers are observations that are much larger or smaller than the majority of the observations that are being evaluated.

Also provided on page 4 of Exhibit JRW-10 is prospective internal growth for the proxy group as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. As noted above, internal growth is significant in a primary driver of long-run earnings growth. For the Electric Proxy Group, the average prospective internal growth rate is 3.6%.

Q. PLEASE ASSESS GROWTH FOR THE PROXY GROUP AS MEASURED BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR EPS GROWTH.

A. Zacks, and Bloomberg collect, summarize, and publish Wall Street analysts' five-year EPS growth rate forecasts for the companies in the proxy group. These forecasts are provided for the companies in the proxy group on page 5 of Exhibit JRW-10. The median of analysts' projected EPS growth rates for the Electric Proxy Group is 6.13%.[9]

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND PROSPECTIVE GROWTH OF THE PROXY GROUP.

A. Page 6 of Exhibit JRW-10 shows the summary DCF growth rate indicators for the proxy group. The average of the historic and projected growth rate indicators for the Electric Proxy Group is 3.63%. The average of the projected growth rate

[9] Since there is considerable overlap in analyst coverage between the three services, and not all of the companies have forecasts from the different services, I have averaged the expected five-year EPS growth rates from the three services for each company to arrive at an expected EPS growth rate by company.

indicators and internal growth, excluding historical growth, is 4.5%. I will use this figure as the expected DCF growth rate for the Electric Proxy Group.

Q. BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE GROUP?

A. My DCF-derived equity cost rate for the group is summarized on page 1 of Exhibit JRW-10.

$$\text{DCF Equity Cost Rate (k)} = \frac{D}{P} + g$$

$$\text{DCF Equity Cost Rate (k)} = 5.3\% + 4.5\% = 9.8\%$$

C. Capital Asset Pricing Model Results

Q. PLEASE DISCUSS THE CAPITAL ASSET PRICING MODEL ("CAPM").

A. The CAPM is a risk premium approach to gauging a firm's cost of equity capital. According to the risk premium approach, the cost of equity is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$k = R_f + RP$$

The yield on long-term Treasury securities is normally used as R_f. Risk premiums are measured in different ways. The CAPM is a theory of the risk and expected returns of common stocks. In the CAPM, two types of risk are associated with a stock: firm-specific risk or unsystematic risk, and market or systematic risk, which is measured by a firm's beta. The only risk that investors receive a return for bearing is systematic risk.

According to the CAPM, the expected return on a company's stock, which is also the equity cost rate (K), is equal to:

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

Where:

- K represents the estimated rate of return on the stock;
- $E(R_m)$ represents the expected return on the overall stock market. Frequently, the 'market' refers to the S&P 500;
- (R_f) represents the risk-free rate of interest;
- $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess return that an investor expects to receive above the risk-free rate for investing in risky stocks; and
- *Beta*—(ß) is a measure of the systematic risk of an asset.

To estimate the required return or cost of equity using the CAPM requires three inputs: the risk-free rate of interest (R_f), the beta (ß), and the expected equity or market risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is the yield on long-term Treasury bonds. ß, the measure of systematic risk, is a little more difficult to measure because there are different opinions about what adjustments, if any, should be made to historical betas due to their tendency to

regress to 1.0 over time. And finally, an even more difficult input to measure is the expected equity or market risk premium ($E(R_m)$ - (R_f)). I will discuss each of these inputs below.

Q. PLEASE DISCUSS EXHIBIT JRW-11.

A. Exhibit JRW-11 provides the summary results for my CAPM study. Page 1 shows the results, and the following pages contain the supporting data.

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE.

A. The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free rate of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn, has been considered to be the yield on U.S. Treasury bonds with 30-year maturities. However, when the Treasury's issuance of 30-year bonds was interrupted for a period of time in recent years, the yield on 10-year U.S. Treasury bonds replaced the yield on 30-year U.S. Treasury bonds as the benchmark long-term Treasury rate. The 10-year U.S. Treasury yields over the past five years are shown on page 2 of Exhibit JRW-11. These rates hit a 60-year low in the summer of 2003 at 3.33%. They increased with the rebounding economy and fluctuated in the 4.0-4.50 percent range in recent years until advancing to 5.0% in early 2006 in response to a strong economy and increases in energy, commodity, and consumer prices. In late 2006, long-term interest rates retreated to the 4.5 percent area as commodity and energy prices declined and inflationary pressures subsided. These rates rebounded to the 5.0% level in the first half of 2007. However, ten-year

Treasury yields have again fallen below 4.0 percent due to the housing and sub-prime mortgage crises and its affect on the economy and financial markets.

Q. WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?

A. The U.S. Treasury began to issue the 30-year bond in the early 2000s as the U.S. budget deficit increased. As such, the market has once again focused on its yield as the benchmark for long-term capital costs in the U.S. As noted above, the yields on the 10- and 30- year U.S. Treasuries decreased to below 5.0% in 2007 and have remained at these lower levels. In 2008 Treasury yields have been pushed even lower as a result of the mortgage and sub-prime market credit crisis, the turmoil in the financial sector, the prospect of an economic recession, and the government bailout of financial institutions. As of November 3, 2008, as shown on page 2 of Exhibit JRW-11, the rates on 10- and 30- U.S. Treasury Bonds were 3.93% and 4.35%, respectively. However, these yields have been highly volatile over the past two months. Given this recent range and volatility, along with the prospect of higher rates, I will use 4.5% as the risk-free rate, or R_f, in my CAPM.

Q. WHAT BETAS ARE YOU EMPLOYING IN YOUR CAPM?

A. Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to be the S&P 500, has a beta of 1.0. The beta of a stock with the same price

movement as the market also has a beta of 1.0. A stock whose price movement is greater than that of the market, such as a technology stock, is riskier than the market and has a beta greater than 1.0. A stock with below average price movement, such as that of a regulated public utility, is less risky than the market and has a beta less than 1.0. Estimating a stock's beta involves running a linear regression of a stock's return on the market return.

As shown on page 3 of Exhibit JRW-11, the slope of the regression line is the stock's ß. A steeper line indicates the stock is more sensitive to the return on the overall market. This means that the stock has a higher ß and greater than average market risk. A less steep line indicates a lower ß and less market risk.

Numerous online investment information services, such as Yahoo! and Reuters, provide estimates of stock betas. These services routinely report different betas for the same stock. The differences are usually due to: (1) the time period over which the ß is measured and (2) any adjustments that are made to reflect the fact that betas tend to regress to 1.0 over time. In estimating an equity cost rate for the proxy group, I am using the betas for the companies as provided in the *Value Line Investment Survey*. As shown on page 3 of Exhibit JRW-11, the average beta for the companies in Electric Proxy Group is 0.82.

Q. PLEASE DISCUSS THE OPPOSING VIEWS REGARDING THE EQUITY RISK PREMIUM.

A The equity or market risk premium - $(E(R_m) - R_f)$ - is equal to the expected return on the stock market (e.g., the expected return on the S&P 500 ($E(R_m)$) minus the risk-free rate of interest (R_f). The equity premium is the difference in the expected total return between investing in equities and investing in "safe" fixed-income assets, such as long-term government bonds. However, while the equity risk premium is easy to define conceptually, it is difficult to measure because it requires an estimate of the expected return on the market.

Q. PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING THE EQUITY RISK PREMIUM.

A. Page 4 of Exhibit JRW-11 highlights the primary approaches to, and issues in, estimating the expected equity risk premium. The traditional way to measure the equity risk premium was to use the difference between historical average stock and bond returns. In this case, historical stock and bond returns, also called ex post returns, were used as the measures of the market's expected return (known as the ex ante or forward-looking expected return). This type of historical evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of using historical financial market returns as measures of expected returns. Most historical assessments of the equity risk premium suggest an equity risk premium of 5-7 percent above the rate on

long-term U.S. Treasury bonds. However, this can be a problem because: (1) ex post returns are not the same as ex ante expectations, (2) market risk premiums can change over time; increasing when investors become more risk-averse and decreasing when investors become less risk-averse, and (3) market conditions can change such that ex post historical returns are poor estimates of ex ante expectations.

The use of historical returns as market expectations has been criticized in numerous academic studies.[10] The general theme of these studies is that the large equity risk premium discovered in historical stock and bond returns cannot be justified by the fundamental data. These studies, which fall under the category "Ex Ante Models and Market Data," compute ex ante expected returns using market data to arrive at an expected equity risk premium. These studies have also been called "Puzzle Research" after the famous study by Mehra and Prescott in which the authors first questioned the magnitude of historical equity risk premiums relative to fundamentals.[11]

Q. PLEASE SUMMARIZE SOME OF THE ACADEMIC STUDIES THAT DEVELOP EX ANTE EQUITY RISK PREMIUMS.

A. Two of the most prominent studies of ex ante expected equity risk premiums were by Eugene Fama and Ken French (2002) and James Claus and Jacob Thomas

[10] The problems with using ex post historical returns as measures of ex ante expectations will be discussed at length later in my testimony.

[11] R. Mehra and Edward Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economics* (1985).

(2001). The primary debate in these studies revolves around two related issues: (1) the size of expected equity risk premium, which is the return equity investors require above the yield on bonds and (2) the fact that estimates of the ex ante expected equity risk premium using fundamental firm data (earnings and dividends) are much lower than estimates using historical stock and bond return data.

Fama and French (2002), two of the most preeminent scholars in finance, use dividend and earnings growth models to estimate expected stock returns and ex ante expected equity risk premiums.[12] They compare these results to actual stock returns over the period 1951-2000. Fama and French estimate that the expected equity risk premium from DCF models using dividend and earnings growth to be between 2.55% and 4.32%. These figures are much lower than the ex post historical equity risk premium produced from the average stock and bond return over the same period, which is 7.40%. Fama and French conclude that the ex ante equity risk premium estimates using DCF models and fundamental data are superior to those using ex post historical stock returns for three reasons: (1) the estimates are more precise (a lower standard error); (2) the Sharpe ratio, which is measured as the [(expected stock return – risk-free rate)/standard deviation], is constant over time for the DCF models but varies considerably over time and more than doubles for the average stock-bond return model; and (3) valuation theory specifies relationships between the market-to-book ratio, return on

[12] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, (April 2002).

investment, and cost of equity capital that favor estimates from fundamentals. They also conclude that the high average stock returns over the past 50 years were the result of low expected returns and that the average equity risk premium has been in the 3-4 percent range.

The study by Claus and Thomas of Columbia University provides direct support for the findings of Fama and French.[13] These authors compute ex ante expected equity risk premiums over the 1985-1998 period by: (1) computing the discount rate that equates market values with the present value of expected future cash flows and (2) then subtracting the risk-free interest rate. The expected cash flows are developed using analysts' earnings forecasts. The authors conclude that over this period, the ex ante expected equity risk premium is in the range of 3.0%. Claus and Thomas note that, over this period, ex post historical stock returns overstate the ex ante expected equity risk premium because, as the expected equity risk premium has declined, stock prices have risen. In other words, from a valuation perspective, the present value of expected future returns increase when the required rate of return decreases. The higher stock prices have produced stock returns that have exceeded investors' expectations, and therefore, ex post historical equity risk premium estimates are biased upwards as measures of ex ante expected equity risk premiums.

[13] James Claus and Jacob Thomas, "Equity Risk Premia as Low as Three Percent? Empirical Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Market," *Journal of Finance.* (October 2001).

Q. PLEASE PROVIDE A SUMMARY OF THE EQUITY RISK PREMIUM STUDIES.

A. Derrig and Orr (2003), Fernandez (2007), and Song (2007) have completed the most comprehensive reviews to date of the research on the equity risk premium.[14] Derrig and Orr's study evaluated the various approaches to estimating equity risk premiums as well as the issues with the alternative approaches and summarized the findings of the published research on the equity risk premium. Fernandez examined four alternative measures of the equity risk premium – historical, expected, required, and implied. He also reviewed the major studies of the equity risk premium and presented the summary equity risk premium results. Song provides an annotated bibliography and highlights the alternative approaches to estimating the equity risk summary.

Page 5 of Exhibit JRW-11 provides a summary of the results of the primary risk premium studies reviewed by Derrig and Orr, Fernandez, and Song. In developing page 5 of Exhibit JRW-11, I have categorized the studies as discussed on page 4 of Exhibit JRW-11. I have also included the results of the "Building Blocks" approach to estimating the equity risk premium, including a study I performed, which is presented below. The Building Blocks approach is a hybrid approach employing elements of both historic and ex ante models.

[14] Richard Derrig and Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (August 28, 2003), Pablo Fernandez, "Equity Premium: Historical, Expected, Required, and Implied," IESE Business School Working Paper, (2007), and Zhiyi Song, "The Equity Risk Premium: An Annotated Bibliography," CFA Institute, (2007).

Q. PLEASE DISCUSS YOUR DEVELOPMENT OF AN EQUITY RISK PREMIUM COMPUTED USING THE BUILDING BLOCKS METHODOLOGY.

A. Ibbotson and Chen (2003) evaluate the ex post historical mean stock and bond returns in what is called the Building Blocks approach.[15] They use 75 years of data and relate the compounded historical returns to the different fundamental variables employed by different researchers in building ex ante expected equity risk premiums. Among the variables included were inflation, real EPS and DPS growth, ROE and book value growth, and price-earnings ("P/E") ratios. By relating the fundamental factors to the ex post historical returns, the methodology bridges the gap between the ex post and ex ante equity risk premiums. Ilmanen (2003) illustrates this approach using the geometric returns and five fundamental variables – inflation ("CPI"), dividend yield ("D/P"), real earnings growth ("RG"), repricing gains ("PEGAIN") and return interaction/reinvestment ("INT").[16] This is shown on page 6 of Exhibit JRW-11. The first column breaks the 1926-2000 geometric mean stock return of 10.7% into the different return components demanded by investors: the historical U.S. Treasury bond return (5.2%), the excess equity return (5.2%), and a small interaction term (0.3%). This 10.7% annual stock return over the 1926-2000 period can then be broken down

[15] Roger Ibbotson and Peng Chen, "Long Run Returns: Participating in the Real Economy," *Financial Analysts Journal*, (January 2003).

[16] Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003), p. 11.

into the following fundamental elements: inflation (3.1%), dividend yield (4.3%), real earnings growth (1.8%), repricing gains (1.3%) associated with higher P/E ratios, and a small interaction term (0.2%).

Q. HOW ARE YOU USING THIS METHODOLOGY TO DERIVE AN EX ANTE EXPECTED EQUITY RISK PREMIUM?

A. The third column in the graph above shows current inputs to estimate an ex ante expected market return. These inputs include the following:

CPI – To assess expected inflation, I have employed expectations of the short-term and long-term inflation rate. Page 7 of Exhibit JRW-11 shows the expected annual inflation rate according to consumers, as measured by the CPI, over the coming year. This survey is published monthly by the University of Michigan Survey Research Center. In the most recent report, the expected one-year inflation rate was 3.9%.

Longer term inflation forecasts are available in the Federal Reserve Bank of Philadelphia's publication entitled *Survey of Professional Forecasters*.[17] This survey of professional economists has been published for almost 50 years. While

[17]Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters,* (February 12, 2008). The *Survey of Professional Forecasters* was formerly conducted by the American Statistical Association ("ASA") and the National Bureau of Economic Research ("NBER") and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

this survey is published quarterly, only the first quarter survey includes long-term forecasts of gross domestic product ("GDP") growth, inflation, and market returns. In the first quarter 2008 survey, published on February 12, 2008, the median long-term (10-year) expected inflation rate as measured by the CPI was 2.5% (see page 8 of Exhibit JRW-11).

Given these results, I will use the average of the surveys of the University of Michigan and Federal Reserve Bank of Philadelphia (3.9% and 2.5%), or 3.2%.

D/P – As shown on page 9 of Exhibit JRW-11, the dividend yield on the S&P 500 has decreased gradually over the past decade. Today, it is far below its average of 4.3% over the 1926-2000 time period. Whereas the S&P dividend yield bottomed out at less than 1.4% in 2000, it is currently at 2.85% which I use in the ex ante risk premium analysis.

RG – To measure expected real growth in earnings, I use: (1) the historical real earnings growth rate for the S&P 500 and (2) expected real GDP growth. The S&P 500 was created in 1960. It includes 500 companies which come from ten different sectors of the economy. Over the 1960-2007 period, nominal growth in EPS for the S&P 500 was 7.36%. On page 10 of Exhibit JRW-11, real EPS growth is computed using the CPI as a measure of inflation. As indicated by Ibbotson and Chen, real earnings growth over the 1926-2000 period was 1.8%. The real growth figure over 1960-2007 period for the S&P 500 is 3.0 %.

The second input for expected real earnings growth is expected real GDP growth. The rationale is that over the long-term, corporate profits have averaged a relatively consistent 5.50% of U.S. GDP.[18] Real GDP growth, according to McKinsey, has averaged 3.5% over the past 80 years. Expected GDP growth, according to the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters,* is 2.75% (see page 8 of Exhibit JRW-11).

Given these results, I will use the average of the historical S&P EPS real growth and the projected real GDP growth (as reported by the Federal Reserve Bank of Philadelphia Survey) -- 3.0% and 2.75% -- or 2.85%, for real earnings growth.

PEGAIN – PEGAIN is the repricing gain associated with an increase in the P/E ratio. It accounted for 1.3% of the 10.7% annual stock return in the 1926-2000 period. In estimating an ex ante expected stock market return, one issue is whether investors expect P/E ratios to increase from their current levels. The P/E ratios for the S&P 500 over the past 25 years are shown on page 9 of Exhibit JRW-11. The run-up and eventual peak in P/Es is most notable in the chart. The relatively low P/E ratios (in the range of 10) over two decades ago are also quite notable. As of October 31, 2008, the P/E for the S&P 500 was 18.86. [19]

[18] Marc. H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.14.
[19] Source: www.standardandpoors.com.

Given the current economic and capital markets environment, I do not believe that investors expect even higher P/E ratios. Therefore, a PEGAIN would not be appropriate in estimating an ex ante expected stock market return. There are two primary reasons for this. First, the average historical S&P 500 P/E ratio is 15.74 – thus the current P/E exceeds this figure. Second, as previously noted, interest rates are at a cyclical low not seen in almost 50 years. This is a primary reason for the high current P/Es. Given the current market environment with relatively high P/E ratios and low relative interest rates, investors are not likely to expect to get stock market gains from lower interest rates and higher P/E ratios.

Q. GIVEN THIS DISCUSSION, WHAT IS YOUR EX ANTE EXPECTED MARKET RETURN AND EQUITY RISK PREMIUM USING THE "BUILDING BLOCKS METHODOLOGY"?

A. My expected market return is represented by the last column on the right in the graph entitled "Decomposing Equity Market Returns: The Building Blocks Methodology" set forth on page 6 of Exhibit JRW-11. As shown, my expected market return of 8.90% is composed of 3.20% expected inflation, 2.85% dividend yield, and 2.85% real earnings growth rate.

Q. GIVEN THAT THE HISTORICAL COMPOUNDED ANNUAL MARKET RETURN IS IN EXCESS OF 10%, WHY DO YOU BELIEVE THAT YOUR EXPECTED MARKET RETURN OF 8.90% IS REASONABLE?

A. As discussed above, in the development of the expected market return, stock prices are relatively high at the present time in relation to earnings and dividends, and interest rates are relatively low. Hence, it is unlikely that investors are going to experience high stock market returns due to higher P/E ratios and/or lower interest rates. In addition, as shown in the decomposition of equity market returns, whereas the dividend portion of the return was historically 4.3%, the current dividend yield is only 2.85%. Due to these reasons, lower market returns are expected for the future.

Q. IS YOUR EXPECTED MARKET RETURN OF 8.90% CONSISTENT WITH THE FORECASTS OF MARKET PROFESSIONALS?

A. Yes. In the first quarter 2008 *Survey of Financial Forecasters*, published on February 12, 2008, by the Federal Reserve Bank of Philadelphia, the mean long-term expected return on the S&P 500 was 6.8% (see page 4 of Exhibit JRW-7).

Q. IS YOUR EXPECTED MARKET RETURN CONSISTENT WITH THE EXPECTED MARKET RETURNS OF CORPORATE CHIEF FINANCIAL OFFICERS (CFOs)?

A. Yes. John Graham and Campbell Harvey of Duke University conduct a quarterly survey of corporate CFOs. The survey is a joint project of Duke University and

CFO Magazine. In the third quarter 2008 survey, the mean expected return on the S&P 500 over the next ten years was 7.79%.[20]

Q. GIVEN THIS EXPECTED MARKET RETURN, WHAT IS YOUR EX ANTE EQUITY RISK PREMIUM USING THE BUILDING BLOCKS METHODOLOGY?

A. As shown on page 2 of Exhibit JRW-11, the current 30-year U.S. Treasury yield is 4.35%. My ex ante equity risk premium is simply the expected market return from the Building Blocks methodology minus this risk-free rate:

Ex Ante Equity Risk Premium = 8.90% - 4.35% = 4.55%

Q. GIVEN THIS DISCUSSION, HOW ARE YOU MEASURING AN EXPECTED EQUITY RISK PREMIUM IN THIS PROCEEDING?

A. As discussed above, page 5 of Exhibit JRW-11 provides a summary of the results of the equity risk premium studies that I have reviewed. These include the results of: (1) the various studies of the historical risk premium, (2) ex ante equity risk premium studies, (3) equity risk premium surveys of CFOs, Financial Forecasters, and academics, and (4) the Building Block approaches to the equity risk premium.

[20] The survey results are available at www.cfosurvey.org.

There are results reported for over thirty studies, and the average equity risk premium is 4.56%, which I will use as the equity risk premium in my CAPM study.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS OF LEADING INVESTMENT FIRMS?

A. Yes. One of the first studies in this area was by Stephen Einhorn, one of Wall Street's leading investment strategists.[21] His study showed that the market or equity risk premium had declined to the 2.0 - 3.0 percent range by the early 1990s. Among the evidence he provided in support of a lower equity risk premium is the inverse relationship between real interest rates (observed interest rates minus inflation) and stock prices. He noted that the decline in the market risk premium has led to a significant change in the relationship between interest rates and stock prices. One implication of this development was that stock prices had increased higher than would be suggested by the historical relationship between valuation levels and interest rates.

The equity risk premiums of some of the other leading investment firms today support the result of the academic studies. An article in *The Economist* indicated that some other firms like J.P. Morgan are estimating an equity risk premium for

[21] Steven G. Einhorn, "The Perplexing Issue of Valuation: Will the Real Value Please Stand Up?" *Financial Analysts Journal* (July-August 1990), pp. 11-16.

an average risk stock in the 2.0 - 3.0 percent range above the interest rate on U.S. Treasury Bonds.[22]

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY CFOS?

A. Yes. In the previously referenced third quarter 2008 CFO survey conducted by *CFO Magazine* and Duke University, the expected 10-year equity risk premium was 3.99%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EX ANTE EQUITY RISK PREMIUMS OF PROFESSIONAL FORECASTERS?

A. Yes. The financial forecasters in the previously referenced Federal Reserve Bank of Philadelphia survey project both stock and bond returns. As shown on page 8 of Exhibit JRW-11, the mean long-term expected stock and bond returns were 6.80% and 4.84%, respectively. This provides an ex ante equity risk premium of 1.96%.

[22] For example, see "Welcome to Bull Country," *The Economist* (July 18, 1998), pp. 21-3, and "Choosing the Right Mixture," *The Economist* (February 27, 1999), pp. 71-2.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY THE LEADING CONSULTING FIRMS?

A. Yes. McKinsey & Co. is widely recognized as the leading management consulting firm in the world. It published a study entitled "The Real Cost of Equity" in which the McKinsey authors developed an ex ante equity risk premium for the U.S. In reference to the decline in the equity risk premium, as well as what is the appropriate equity risk premium to employ for corporate valuation purposes, the McKinsey authors concluded the following:

> We attribute this decline not to equities becoming less risky (the inflation-adjusted cost of equity has not changed) but to investors demanding higher returns in real terms on government bonds after the inflation shocks of the late 1970s and early 1980s. We believe that using an equity risk premium of 3.5 to 4 percent in the current environment better reflects the true long-term opportunity cost of equity capital and hence will yield more accurate valuations for companies.[23]

Q. WHAT EQUITY COST RATES ARE INDICATED BY YOUR CAPM ANALYSIS?

A. The results of my CAPM study for the proxy group are provided below:

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

$$K = 4.5\% + 0.82 * 4.56\%$$

$$K = 8.2\%$$

[23] Marc H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p. 15.

D. Equity Cost Rate Summary

Q. PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.

A. The results for my DCF and CAPM analyses for the Electric Proxy Group indicates equity cost rates of 9.8% and 8.2%, respectively.

Q. GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST RATE FOR THE GROUP?

A. Given these results, I conclude that the appropriate equity cost rate for the Electric Proxy Group is in the 8.2%-9.8% range. However, due to the current volatile market conditions which were discussed above, I am using the upper end of the range as the equity cost rate. Therefore, I am recommending an equity cost rate of 9.75% for Tampa. In addition, due to the uncertain market conditions, I reserve the right to update my study prior to hearings.

Q. ISN'T YOUR EQUITY COST RATE RECOMMENDATION LOW BY HISTORICAL STANDARDS?

A. Yes, it is and appropriately so. My rate of return is low by historical standards for two reasons. First, as discussed above, current capital costs are low by historical standards, with interest rates at a cyclical low not seen since the 1960s. And second, as previously discussed, the equity or market risk premium has declined.

Q. HOW DO YOU TEST THE REASONABLENESS OF YOUR COST OF EQUITY AND OVERALL RATE OF RETURN RECOMMENDATION?

A. To test the reasonableness of my equity cost rate recommendation, I examine the relationship between the return on common equity and the market-to-book ratios for the companies in the Electric Proxy Group.

Q. WHAT DO THE RETURNS ON COMMON EQUITY AND MARKET-TO-BOOK RATIOS FOR THE PROXY GROUP INDICATE ABOUT THE REASONABLENESS OF YOUR RECOMMENDATION?

A. Exhibit JRW-3 provides financial performance and market valuation statistics for companies in the proxy group. The mean current return on equity and market-to-book ratio for the group are 8.9% and 1.36, respectively. These results indicate that, on average, these companies are earning returns on equity above their equity cost rates. As such, this observation provides evidence that my recommended equity cost rate is reasonable and fully consistent with the financial performance and market valuation of the proxy group of electric utility companies.

VI. CRITIQUE OF TAMPA'S RATE OF RETURN TESTIMONY

A. Testimonies of Mr. Gordon Gillette and Dr. Donald Murry

Q. WHAT ISSUES DO YOU HAVE WITH THE COMPANY'S COST OF CAPITAL POSITION?

A. I have issues with the Company's debt cost rate, capital structure, and equity cost rate. The debt cost rate was previously discussed. I focus below on the capital structure and equity cost rate.

Q. PLEASE EVALUATE THE COMPANY'S RECOMMENDED CAPITAL STRUCTURE.

A. The Company's recommended capital structure is not appropriate for ratemaking purposes in this proceeding for four reasons. The recommended capital structure: (1) is not reflective of the recent capitalization of the company; (2) is equity rich and has a much higher common equity ratio than that employed by other electric companies; (3) includes a number of inappropriate adjustments that result in the inflated common equity ratio; and (4) is not reflective of the capital structure used by Tampa to attract capital from investors. Items (1), (2), and (4) were previously discussed. I will now turn to issue (3).

Q. WHAT ADJUSTMENTS ARE MADE TO THE COMPANY'S DEBT AND EQUITY AMOUNTS IN ARRIVING AT THEIR RECOMMENDED CAPITAL STRUCTURE?

A. The Company's recommended capital structure includes a number of adjustments to debt and equity amounts. These adjustments are detailed in MFR, Schedule D-1a and D-1b. OPC Witness Mr. Hugh Larkin has evaluated most of the adjustments.

The adjustment that I am focusing on is the $77M equity adjustment for the Company's Purchased Power Agreements ("PPAs").

Q. PLEASE EXPLAIN WHY AN ADJUSTMENT TO EQUITY TO ACCOUNT FOR PPAs IS NOT APPROPRIATE.

A. Mr. Gillette has adjusted Tampa's equity by $77M to account for the Company's PPAs. The $77M is computed by multiplying a risk factor of 25% to the present value of the Company's capacity contracts. In computing credit rating metrics, S&P applies such a risk factor ranging from 0% to 100% which is intended to reflect the risk of recovery of the PPA payments. However, S&P does not indicate how the risk factor that ranges from 0% to 100% is determined. Given a recovery mechanism for PPA payments, the financial condition of an electric utility company is not impaired by entering into these contracts. Hence, providing incremental revenues through a higher equity ratio and overall rate of return are unnecessary and would result in an unwarranted revenue benefit to the utility. I have identified several flaws in the adjustment.

<u>One: Risk Factor</u>

Given the methodology for imputing debt from PPAs, the risk factor is extremely important. Mr. Gillette has presumed that a risk factor of 25% is appropriate for Tampa. However, S&P does not indicate how the risk factor that ranges from 0% to 100% is determined. Hence, the S&P risk factor for imputing debt is not well defined and cannot be assessed in this situation Given the Commission's support

for the collection of long-term contractual payments, the risk of non-recovery appears to be extremely low (perhaps even zero percent). Hence, a risk factor as high as 25% seems out of line. But, given the lack of guidance from S&P, it is impossible to properly assess the risk factor in this situation.

In addition, as opposed to S&P, Moody's appears to recognize some of the benefits of PPAs and looks at them in a more positive manner. For example, Moody's states:[24]

> "If a utility enters into a PPA for the purpose of providing an assured supply and there is reasonable assurance that regulators will allow the costs to be recovered in regulated rates, Moody's may view the PPA as being most akin to an operating cost. In this circumstance, there most likely will be no imputed adjustment to the obligations of the utility."

In other words, under this scenario Moody's would rate the risk factor at 0% and there would be no imputed debt.

Two: S&P Adjustments are Not GAAP Accounting

Even if debt were imputed by S&P from a PPA (assuming a risk factor greater than 0%), no changes would be made to the company's GAAP financial statements. Hence, investors would not see the impact of S&P's adjustment. In addition, the Company does not incur a liability on its GAAP-based financial statements for the PPAs. Furthermore, given a regulatory-mandated recovery method for the payments, investors should be indifferent to a utility entering into a PPA.

[24] Moody's Rating Methodology: Global Regulated Electric Utilities, March 2005, page 10.

Three: From a Regulatory Perspective, PPA Payments are Unlike Debt

In a regulatory setting, a utility is given the 'opportunity to earn' its cost of debt as well as its overall cost of capital through the ratemaking process. Given the many uncertainties associated with revenues and expenses between rate cases, there is no guarantee that the overall cost of debt can be earned. However, with long-term PPAs, the timely and certain recovery of fixed payments is assured. That is, PPA costs do not feature the uncertainty associated with the 'opportunity to earn' as do debt payments. In sum, given S&P's lack of guidance on the risk factor, the Commission's support for the collection of payments for PPAs, the notion that these are not GAAP adjustments that are not recorded as liabilities on the books of the company, and the fact that, from a regulatory perspective, PPA payments are unlike debt, the PPA adjustment to the Company's capital structure is inappropriate.

Q. PLEASE REVIEW DR. MURRY'S EQUITY COST RATE APPROACHES.

A. Dr. Murry uses a proxy group of electric utility companies as well as TECO Energy and employs CAPM and DCF equity cost rate approaches.

Q. PLEASE SUMMARIZE DR. MURRY'S EQUITY COST RATE RESULTS.

A. Dr. Murry's equity cost rate estimates for Tampa are summarized in Panel A of Exhibit JRW-12. Based on these figures, he concludes that the appropriate equity cost rate for the Company is 12.0%.

Q. PLEASE DISCUSS YOUR ISSUES WITH DR. MURRY'S RECOMMENDED EQUITY COST RATE.

A. Dr. Murry's proposed return on common equity is too high primarily due to: (1) an inappropriate group of comparable electric companies; (2) an excessive adjustment to the dividend yield and an inflated growth rate in his DCF approach; (3) his use of the higher end of his DCF results to compensate for flotation costs, market pressure, and market value – book value adjustment; and (4) overstated equity risk premium estimates, as well as the inclusion of a size premium, in his CAPM approaches.

1. Comparable Electric Companies

Q. PLEASE DISCUSS THE PROBLEM WITH DR. MURRY'S ELECTRIC UTILITY GROUP.

A. Dr. Murry's utility proxy group includes a number of companies that are not appropriate because their operating revenues are from sources other than regulated electric utility services. These companies, and their percent of regulated electric revenues, include: OGE Energy Corp. - 48%, PEPCO Holdings - 55%, SCANA Corp. - 42%, and, and Wisconsin Energy - 62%.

2. DCF Approach

Q. PLEASE SUMMARIZE DR. MURRY'S DCF ESTIMATES.

A. On pages 33-52 of his testimony and in Documents DAM-13 – DAM-19, Dr. Murry develops an equity cost rate by applying a DCF model to TECO Energy and his group of comparable companies. In the traditional DCF approach, the equity cost rate is the sum of the dividend yield and expected growth. For TECO Energy and the comparable group, he performs two DCF analyses – a 52-week DCF using stock prices over the past year, and a Current DCF using stock prices over the past two weeks. For each of these DCFs, he computes equity cost rates using (1) projected DPS growth rates, (2) *Value Line* projected EPS over the 2002-04 to the 2011-13 time period, and (3) projected EPS growth rates estimates from *Value Line* (from 2006-07 to 2011-13) and from analysts as compiled by Yahoo! Dr. Murry's DCF results are provided in Panel B of Exhibit JRW-12. Based on these figures, Dr. Murry claims that the relevant DCF results for Tampa are in the range of 11.12% to 13.27%.

Q. PLEASE EXPRESS YOUR CONCERNS WITH DR. MURRY'S DCF STUDY.

A. I have several major concerns with Dr. Murry's DCF analyses. These are: (1) he has ignored results using projected DPS growth rates for both TECO Energy and the comparable electric utility group; (2) he has totally ignored the DCF results for TECO Energy and relied on highly selected results of his comparable group of electric utility companies; (3) his selected DCF results rely on the upwardly biased EPS growth rates estimates from *Value Line* and from Wall Street analysts

as compiled by Yahoo!; and (4) he has erroneously relied on the upper end of the DCF results to account for undocumented flotation costs and market pressure.

Q. PLEASE ADDRESS YOUR FIRST ISSUE.

A. Dr. Murry has ignored the DCF results for both TECO Energy and the comparable group using projected DCF growth rates. In the DCF model, the cash flows that investors receive are in the form of dividends. The average projected DPS growth for TECO Energy and the comparable electric utility group are in the 2.0% and 3.0% range, respectively. Ignoring the DCF results which use projected DPS growth rates leads to an upwardly biased estimate of a DCF equity cost rate.

Q. YOU CLAIM THAT DR. MURRY HAS ALSO IGNORED THE VAST MAJORITY OF HIS DCF RESULTS. PLEASE EXPLAIN.

A. Dr. Murry's summary results are provided in Schedule DAM-23. On page 64 of his testimony, Dr. Murry claims that the relevant DCF results are from 11.12% to 13.27%. However, these are the high-end of the range of DCF figures for the comparison group using: (1) 2000-02 to 2009-11 EPS growth rates; and (2) analysts' projected EPS growth rates from *Value Line* and Wall Street analysts as compiled by Yahoo! This relevant range simply represents the high end of the range using these two growth rate measures. As such, he has totally ignored the DCF results for TECO Energy as well as the majority of the DCF results for his comparable group of electric utility companies. By ignoring these results, he is recommending a DCF equity cost rate using the results for the company which is

200-300 basis points higher than that of his comparable electric utility company group.

Q. PLEASE REVIEW DR. MURRY'S EXCESSIVE RELIANCE UPON THE PROJECTED EPS GROWTH RATE ESTIMATES OF WALL STREET ANALYSTS' AND *VALUE LINE.*

A. It seems highly unlikely that investors today would rely excessively on the forecasts of securities analysts and ignore historical growth in arriving at expected growth. It is well known in the academic world that the EPS forecasts of securities analysts are overly optimistic and biased upwards. In addition, as I show below, *Value Line*'s EPS forecasts are excessive and unrealistic.

Q. PLEASE REVIEW THE BIAS IN ANALYSTS' GROWTH RATE FORECASTS.

A. Analysts' growth rate forecasts are collected and published by Bloomberg, Zacks, First Call, I/B/E/S, and Reuters. These services retrieve and compile EPS forecasts from Wall Street analysts. These analysts come from both the sell side (Merrill Lynch, Paine Webber) and the buy side (Prudential Insurance, Fidelity).

The problem with using these forecasts to estimate a DCF growth rate is that the objectivity of Wall Street research has been challenged, and many have argued that analysts' EPS forecasts are overly optimistic and biased upwards. To evaluate the accuracy of analysts' EPS forecasts, I have compared actual 3-5 year EPS

growth rates with forecasted EPS growth rates on a quarterly basis over the past 20 years for all companies covered by the I/B/E/S data base. In Panel A of Exhibit JTW-13, I show the average analysts' forecasted 3-5 year EPS growth rate with the average actual 3-5 year EPS growth rate. Because of the necessary 3-5 year follow-up period to measure actual growth, the analysis in this graph only: (1) covers forecasted and actual EPS growth rates through 1999 and (2) includes only companies that have 3-5 years of actual EPS data following the forecast period.

The following example shows how the results can be interpreted. For the 3-5year period prior to the first quarter of 1999, analysts had projected an EPS growth rate of 15.13%, but companies only generated an average annual EPS growth rate over the 3-5 years of 9.37%. This projected EPS growth rate figure represented the average projected growth rate for over 1,510 companies, with an average of 4.88 analysts' forecasts per company. For the entire twenty-year period of the study, for each quarter there were on average 5.60 analysts' EPS projections for 1,281 companies. Overall, my findings indicate that forecast errors for long-term estimates are predominantly positive, which indicates an upward bias in growth rate estimates. The mean and median forecast errors over the observation period are 143.06% and 75.08%, respectively. The forecast errors are negative for only eleven of the eighty quarterly time periods: five consecutive quarters starting at the end of 1995 and six consecutive quarters starting in 2006. As shown in the figure below, the quarters with negative forecast errors were for the 3-5 year periods

following earnings declines associated with the 1991 and 2001 economic recessions in the U.S. overall. Thus, there is evidence of a persistent upward bias in long-term EPS growth forecasts.

The post-1999 period has seen the boom and then the bust in the stock market, an economic recession, 9/11, and the Iraq war. Furthermore, and highly significant in the context of this study, we have also had the New York state investigation of Wall Street firms and the subsequent Global Securities Settlement in which nine major brokerage firms paid a fine of $1.5B for their biased investment research.

To evaluate the impact of these events on analysts' forecasts, the average 3-5year EPS growth rate projections for all companies provided in the I/B/E/S database on a quarterly basis from 1988 to 2006 are shown in Panel B of Exhibit JRW-13. In this graph, no comparison to actual EPS growth rates is made, and hence, there is no follow-up period. Therefore, 3-5 year growth rate forecasts are shown until 2006, and since companies are not lost due to a lack of follow-up EPS data, these results are for a larger sample of firms. Analysts' forecasts for EPS growth were higher for this larger sample of firms, with a more pronounced run-up and then decline around the stock market peak in 2000. The average projected growth rate hovered in the 14.5%-17.5% range until 1995 and then increased dramatically over the next five years to 23.3% in the fourth quarter of the year 2000. Forecasted EPS growth has since declined to the 15.0% range.

Q. WHAT IMPACT HAVE RECENT REGULATORY DEVELOPMENTS HAD ON ANALYSTS' EPS GROWTH RATE FORECASTS?

A. Analysts' EPS growth rate forecasts have subsided somewhat since the stock market peak of 2000. In addition, the apparent conflict of interest within investment firms with investment banking and analysts' operations was addressed in the Global Analysts Research Settlements ("GARS"). GARS, as agreed upon on April 23, 2003, between the SEC, NASD, NYSE and ten of the largest U.S. investment firms, includes a number of regulations that were introduced to prevent investment bankers from pressuring analysts to provide favorable projections. Nonetheless, despite the new regulations, analysts' EPS growth rate forecasts have not significantly changed and continue to be overly-optimistic. Analysts' long-term EPS growth rate forecasts before and after GARS, are about two times the level of historic GDP growth. Furthermore, historic growth in GDP and corporate earnings has been in the 7% range.

Finally, these observations are supported by a *Wall Street Journal* article entitled "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." The following quote provides insight into the continuing bias in analysts' forecasts:

> Hope springs eternal, says Mark Donovan, who manages Boston Partners Large Cap Value Fund. "You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not."

> These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed: Research remains rosy and many believe it always will.[25]

Q. IS THE BIAS IN ANALYSTS' GROWTH RATE FORECASTS GENERALLY KNOWN IN THE MARKETS?

A. Yes. Page 2 of Exhibit JRW-13 provides a recent article published in the *Wall Street Journal* that discusses the upward bias in analysts' EPS growth rate forecasts.

Q. ARE ANALYSTS' EPS GROWTH RATE FORECASTS LIKEWISE UPWARDLY BIASED FOR ELECTRIC UTILITY COMPANIES?

A. Yes. To evaluate whether analysts' EPS growth rate forecasts are upwardly biased for electric utility companies, I conducted a study similar to the one described above using a group of electric utility companies. The results are shown in Panel C of Exhibit JRW-13. The projected EPS growth rates have declined from about six percent in the 1990s to about five percent in the 2000s. As shown, the achieved EPS growth rates have been volatile. Overall, the upward bias in EPS growth rate projections is not as pronounced for electric utility companies as it is for all companies. Over the entire period, the average quarterly 3-5 year projected and actual EPS growth rates are 4.59% and 2.90%, respectively. These results are consistent with the results for companies in general -- analysts' projected EPS growth rate forecasts are upwardly-biased for utility companies.

[25] Ken Brown, "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." *Wall Street Journal*, (January 27, 2003), p. C1.

Q. ARE *VALUE LINE*'S GROWTH RATE FORECASTS SIMILARILY UPWARDLY BIASED?

A. Yes. *Value Line* has a decidedly positive bias to its earnings growth rate forecasts as well. To assess *Value Line*'s earnings growth rate forecasts, I used the *Value Line Investment Analyzer*. The results are summarized in Panel A of Exhibit JRW-14. I initially filtered the database and found that *Value Line* has 3-5 year EPS growth rate forecasts for 2,453 firms. The average projected EPS growth rate was 14.6%. This is high given that the average historical EPS growth rate in the U.S. is about 7%. A major factor seems to be that *Value Line* only predicts negative EPS growth for 47 companies. This is less than two percent of the companies covered by *Value Line*. Given the ups and downs of corporate earnings, this is unreasonable.

To put this figure in perspective, I screened the *Value Line* companies to see what percent of companies covered by *Value Line* had experienced negative EPS growth rates over the past five years. *Value Line* reported a five-year historic growth rate for 2,371 companies. The results are shown in Panel B of Exhibit JRW-14 and indicate that the average 5-year historic growth rate was 12.9%, and *Value Line* reported negative historic growth for 476 firms which represents 20.1% of these companies. It should be noted that the past five years have been a period of rapidly rising corporate earnings growth as the economy and businesses have rebounded from the recession of 2001.

These results indicate that *Value Line*'s EPS forecasts are excessive and unrealistic. It appears that the analysts at *Value Line* are similar to their Wall Street brethren in that they are reluctant to forecast negative earnings growth.

Q. FINALLY, ON PAGES 39-43 OF HIS TESTIMONY, DR. MURRY HAS ARGUED THAT HE HAS FOCUSED ON THE HIGHER DCF RESULTS AS AN ALTERNATIVE TO MAKING AN ADJUSTMENT FOR FLOTATION COSTS OR MARKET PRESSURE. PLEASE RESPOND.

A. Dr. Murry's argument for using the higher end DCF results to account for flotation costs or market pressure is in error. There is no need for such an adjustment. Usually it is argued that a flotation cost adjustment is necessary to prevent the dilution of the existing shareholders. Such an adjustment is commonly justified by reference to bonds and the manner in which issuance costs are recovered by including the amortization of bond flotation costs in annual financing costs. However, this is incorrect for several reasons:

(1) If an equity flotation cost adjustment is similar to a debt flotation cost adjustment, the fact that the market-to-book ratios for electric utility companies are nearly 2.0 actually suggests that there should be a flotation cost reduction (and not increase) to the equity cost rate. This is because when (a) a bond is issued at a price in excess of face or book value, and (b) the difference between market price and the book value is greater than the flotation or issuance costs, the cost of that debt is lower than the coupon rate of the debt. The amount by which market

values of electric utility companies are in excess of book values is much greater than flotation costs. Hence, if common stock flotation costs were exactly like bond flotation costs, and one was making an explicit flotation cost adjustment to the cost of common equity, the adjustment would be downward;

(2) It is commonly argued that a flotation cost adjustment is needed to prevent dilution of existing stockholders' investment. However, the reduction of the book value of stockholder investment associated with flotation costs can occur only when a company's stock is selling at a market price at/or below its book value. As noted above, electric utility companies are selling at market prices well in excess of book value. Hence, when new shares are sold, existing shareholders realize an increase in the book value per share of their investment, not a decrease;

(3) Flotation costs consist primarily of the underwriting spread or fee and not out-of-pocket expenses. On a per share basis, the underwriting spread is the difference between the price the investment banker receives from investors and the price the investment banker pays to the company. Hence, these are not expenses that must be recovered through the regulatory process. Furthermore, the underwriting spread is known to the investors who are buying the new issue of stock, who are well aware of the difference between the price they are paying to buy the stock and the price that the Company is receiving. The offering price which they pay is what matters when investors decide to buy a stock based on its expected return and risk prospects. Therefore, the company is not entitled to an

adjustment to the allowed return to account for those costs; and

(4) Flotation costs, in the form of the underwriting spread, are a form of a transaction cost in the market. They represent the difference between the price paid by investors and the amount received by the issuing company. Whereas Dr. Murry believes that the Company should be compensated for these transactions costs by using the high-end DCF results neither he nor I have accounted for other market transaction costs in determining a cost of equity for the Company. Most notably, brokerage fees that investors pay when they buy shares in the open market are another market transaction cost. Brokerage fees increase the effective stock price paid by investors to buy shares. If Dr. Murry and I had included these brokerage fees or transaction costs in our DCF analyses, the higher effective stock prices paid for stocks would lead to lower dividend yields and equity cost rates. To be fair then, if Dr. Murry is to make an upward adjustment for transaction costs in the form of using the high-end DCF results, he also should have made a downward adjustment for transaction costs in the form of brokerage fees.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. MURRY'S DCF GROWTH RATE.

A. Dr. Murry's DCF equity cost rate is overstated because he has: (1) employed an inappropriate group of comparable electric companies; (2) made an excessive adjustment to the dividend yield and used the upwardly biased EPS growth rate forecasts of Wall Street analysts and *Value Line* in his DCF approach; and (3)

selectively picked the high end of the range of his DCF equity cost rate estimates to account for undocumented flotation costs and market pressure.

3. CAPM Analysis

Q. PLEASE DISCUSS DR. MURRY'S CAPM.

A. On pages 52-63, in Documents DAM-24 and DAM-25, Dr. Murry applies the CAPM to TECO Energy and the comparison group of electric utility companies. The first CAPM, which he calls the size-adjusted CAPM, is a traditional CAPM with an incremental 0.92%-1.65% adjustment to account for the relative size of TECO Energy and the comparable electric utility companies. The second CAPM, which Dr. Murry calls a historical CAPM, is based strictly on historical stock and bond returns. Dr. Murry's historical CAPM is very untraditional in three ways: (1) the market total return is the average of the historical returns for large and small stocks as reported by Ibbotson Associates, (2) the historic bond return of 6.20% is for long-term corporate bonds, and (3) the risk-free rate Dr. Murry uses is the historic Aaa corporate bond return. The results of Dr. Murry's CAPM analyses are summarized in Panel C of Exhibit JRW-12

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. MURRY'S CAPM ANALYSES.

A. There are two primary flaws with Dr. Murry's CAPM analyses: (1) his explicit size adjustment of 0.92% for TECO Energy and the comparison electric utility

group in his size-adjusted CAPM and an implicit size premium in his historical CAPM; and (2) most significantly, his equity risk premium of 7.10% in his size-adjusted CAPM and his risk premium of 8.50% in his historical CAPM.

Q. PLEASE DISCUSS DR. MURRY'S EXPLICIT AND IMPLICIT SIZE ADJUSTMENTS.

A. As noted above, Dr. Murry uses explicit size adjustment of 0.92% for TECO Energy and the comparison group in his size-adjusted CAPM and uses an implicit size premium in his historical CAPM. The implicit size premium in his historical CAPM results from the fact that his market total return of 14.70% is the average of the arithmetic mean stock returns for large stocks and for small stocks from Ibbotson Associates. Dr. Murry supports the need for a size premium by citing the work of Ibbotson Associates.

There are several flaws in this analysis. First, as discussed later in my testimony, there are a number of errors in using historical market returns to compute risk premiums. Second, the Ibbotson study used for the explicit size premium is based on the stock returns for companies in the 9th decile. However, a review of the Ibbotson document indicates that these companies have betas that are much larger than the betas of electric utility companies. Hence, these size premiums are not associated with the electric utility industry.

Finally, and most importantly, any equity cost rate adjustment based on the relative size of a public utility is inappropriate. Professor Annie Wong has tested

for a size premium in utilities and concluded that, unlike industrial stocks, utility stocks do not exhibit a significant size premium.[26] As explained by Professor Wong, there are several reasons why such a size premium would not be attributable to utilities. Utilities are regulated closely by state and federal agencies and commissions and, hence, their financial performance is monitored on an on-going basis by both the state and federal governments. In addition, public utilities must gain approval from government entities for common financial transactions such as the sale of securities. Furthermore, unlike their industrial counterparts, accounting standards and reporting are fairly standardized for public utilities. Finally, a utility's earnings are predetermined to a certain degree through the ratemaking process in which performance is reviewed by state commissions and other interested parties. Overall, in terms of regulation, government oversight, performance review, accounting standards, and information disclosure, utilities are much different than industrials which could account for the lack of a size premium.

Q. PLEASE REVIEW THE ERRORS IN DR. MURRY'S EQUITY OR RISK PREMIUM IN HIS TWO CAPM APPROACHES.

A. The primary problem with Dr. Murry's two CAPM analyses is the size of the market or equity risk premium. Dr. Murry uses a risk premium of 7.10% in his size-adjusted CAPM. This is the arithmetic average risk premium of the 1926-

[26] Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis", *Journal of the Midwest Finance Association*, 1993, PP. 95-101.

2007 results from the Ibbotson study. He uses a risk premium of 8.50% in his historical CAPM which is the difference between his historic market return of 14.70% (the average of the arithmetic mean stock returns for large stocks of 12.3% and for small stocks of 17.1%) and 6.20% which is the historic long-term corporate bond return. Both of these risk premiums are based solely on the difference in the arithmetic mean stock and bond returns over the 1926-2007 period.

Q. PLEASE ADDRESS THE ISSUES INVOLVED IN USING HISTORICAL STOCK AND BOND RETURNS TO COMPUTE A FORWARD-LOOKING OR EX ANTE RISK PREMIUM.

A. Using the historical relationship between stock and bond returns to measure an ex ante equity risk premium is erroneous and overstates the true market equity risk premium. The equity risk premium is based on expectations of the future and when past market conditions vary significantly from the present, historic data does not provide a realistic or accurate barometer of expectations of the future. At the present time, using historical returns to measure the ex ante equity risk premium ignores current market conditions and masks the dramatic change in the risk and return relationship between stocks and bonds. This change suggests that the equity risk premium has declined.

Q. PLEASE DISCUSS THE ERRORS IN USING HISTORIC STOCK AND BOND RETURNS TO ESTIMATE AN EQUITY RISK PREMIUM.

A. There are a number of flaws in using historic returns over long time periods to estimate expected equity risk premiums. These issues include:

(A) Biased historical bond returns;

(B) The arithmetic versus the geometric mean return;

(C) The large error in measuring the equity risk premium using historical returns;

(D) Biased historical stock returns and transactions costs;

(E) Company survivorship bias;

(F) The "Peso Problem" - U.S. stock market survivorship bias;

(G) Market conditions today are significantly different than the past; and

(H) Changes in risk and return in the markets.

These issues will be addressed in order.

Biased Historical Bond Returns

Q. HOW ARE HISTORICAL BOND RETURNS BIASED?

A. An essential assumption of these studies is that over long periods of time investors' expectations are realized. However, the experienced returns of bondholders in the past violate this critical assumption. Historic bond returns are biased downward as a measure of expectancy because of capital losses suffered by bondholders in the past. As such, risk premiums derived from this data are biased upwards.

The Arithmetic versus the Geometric Mean Return

Q. PLEASE DISCUSS THE ISSUE RELATING TO THE USE OF THE ARITHMETIC VERSUS THE GEOMETRIC MEAN RETURNS IN THE IBBOTSON METHODOLOGY.

A. The measure of investment return has a significant effect on the interpretation of the risk premium results. When analyzing a single security price series over time (i.e., a time series), the best measure of investment performance is the geometric mean return. Using the arithmetic mean overstates the return experienced by investors. In a study entitled "Risk and Return on Equity: The Use and Misuse of Historical Estimates," Carleton and Lakonishok make the following observation: "The geometric mean measures the changes in wealth over more than one period on a buy and hold (with dividends invested) strategy."[27] Since Dr. Murry's study covers more than one period (and he assumes that dividends are reinvested), he should be employing the geometric mean and not the arithmetic mean.

Q. PLEASE PROVIDE AN EXAMPLE DEMONSTRATING THE PROBLEM WITHUSING THE ARITHMETIC MEAN RETURN.

A19 To demonstrate the upward bias of the arithmetic mean, consider the following example. Assume that you have a stock (that pays no dividend) that is selling for $100 today, increases to $200 in one year, and then falls back to $100 in two

[27] Willard T. Carleton and Josef Lakonishok, "Risk and Return on Equity: The Use and Misuse of Historical Estimates," *Financial Analysts Journal* (January-February, 1985), pp. 38-47.

years. The table below shows the prices and returns.

Time Period	Stock Price	Annual Return
0	$100	
1	$200	100%
2	$100	-50%

The arithmetic mean return is simply (100% + (-50%))/2 = 25% per year. The geometric mean return is $((2 * .50)^{(1/2)}) - 1 = 0\%$ per year. Therefore, the arithmetic mean return suggests that your stock has appreciated at an annual rate of 25%, while the geometric mean return indicates an annual return of 0%. Since after two years, your stock is still only worth $100, the geometric mean return is the appropriate return measure. For this reason, when stock returns and earnings growth rates are reported in the financial press, they are generally reported using the geometric mean. This is because of the upward bias of the arithmetic mean. As further evidence of the appropriate mean return measure, the U.S. Securities and Exchange Commission requires equity mutual funds to report historic return performance using geometric mean and not arithmetic mean returns.[28] Therefore, Dr. Murry's arithmetic mean return measures are upwardly biased and should be disregarded.

The Large Error in Measuring Equity Risk Premiums with Historic Data

[28] U.S. Securities and Exchange Commission, Form N-1A.

Q. PLEASE DISCUSS THE LARGE ERROR IN MEASURING THE EQUITY RISK PREMIUM USING HISTORICAL STOCK AND BOND RETURNS.

A. Measuring the equity risk premium using historical stock and bond return is subject to a very large amount of forecasting error. For example, the long-term equity risk premium of 6.5% has a standard deviation of 20.6%. This may be interpreted in the following way with respect to the historical distribution of the long-term equity risk premium using a standard normal distribution and a 95% +/- two standard deviation confidence interval: We can say, with a 95% degree of confidence, that the true equity risk premium is between -34.7% and +47.7%. As such, the historical equity risk premium is measured with a large degree of error.

Biased Historic Stock Returns and Transactions Costs

Q. YOU NOTE THAT HISTORIC STOCK RETURNS ARE BIASED USING THE IBBOTSON METHODOLOGY. PLEASE ELABORATE.

A. Returns developed using Ibbotson's methodology are computed on stock indexes and, therefore (1) cannot be reflective of expectations because these returns are unattainable to investors and (2) produce biased results. This methodology assumes: (a) monthly portfolio rebalancing and (b) reinvestment of interest and dividends. Monthly portfolio rebalancing presumes that investors rebalance their portfolios at the end of each month in order to have an equal dollar amount invested in each security at the beginning of each month. The assumption would obviously generate extremely high transaction costs and thereby render these returns unattainable to

investors. In addition an academic study demonstrates that the monthly portfolio rebalancing assumption produces biased estimates of stock returns.[29]

Transaction costs themselves provide another bias in historic versus expected returns. The observed stock returns of the past were not the realized returns of investors due to the much higher transaction costs of previous decades. These higher transaction costs are reflected through the higher commissions on stock trades and the lack of low cost mutual funds like index funds. Jeremy Siegel estimates that the transactions costs associated with replicating a market portfolio with reinvested dividends would subtract 100-200 basis points from the stock holder returns. In other words, the actual realized equity returns were probably 100-200 basis points below those calculated from historic data.[30]

Company Survivorship Bias

Q. HOW DOES COMPANY SURVIVORSHIP BIAS AFFECT DR. MURRY'S HISTORIC EQUITY RISK PREMIUM?

A. Using historic data to estimate an equity risk premium suffers from company survivorship bias. Company survivorship bias results when using returns from

[29] See Richard Roll, "On Computing Mean Returns and the Small Firm Premium," *Journal of Financial Economics* (1983), pp. 371-86.

[30] Jeremy J. Siegel, "Perspectives on the Equity Risk Premium," *Financial Analysts Journal* (November/December 2005), p. 65.

indexes like the S&P 500. The S&P 500 includes only companies that have survived. The fact that returns of firms that did not perform so well were dropped from these indexes is not reflected. Therefore, these stock returns are upwardly biased because they only reflect the returns from more successful companies.

The "Peso Problem" - U.S. Stock Market Survivorship Bias

Q. WHAT IS THE "PESO PROBLEM," AND HOW DOES IT RELATE TO SURVIVORSHIP BIAS IN U. S. STOCK MARKET RETURNS?

A. Dr. Murry's use of historic return data also suffers from the so-called "Peso problem," which is also known as U.S. stock market survivorship bias. The "Peso problem" issue was first highlighted by the Nobel laureate, Milton Friedman, and gets its name from conditions related to the Mexican peso market in the early 1970s. This issue involves the fact that past stock market returns were higher than were expected at the time because despite war, depression, and other social, political, and economic events, the U.S. economy survived and did not suffer hyperinflation, invasion, and/or the calamities of other countries. As such, highly improbable events, which may or may not occur in the future, are factored into stock prices, leading to seemingly low valuations. Higher than expected stock returns are then earned when these events do not subsequently occur. Therefore, the "Peso problem" indicates that historic stock returns are overstated as measures of expected returns because the U.S. markets have not experienced the disruptions of other major markets around the world.

Market Conditions Today are Significantly Different than in the Past

Q. FROM AN EQUITY RISK PREMIUM PERSPECTIVE, PLEASE DISCUSS HOW MARKET CONDITIONS ARE DIFFERENT TODAY.

A. The equity risk premium is based on expectations of the future. When past market conditions vary significantly from the present, historic data does not provide a realistic or accurate barometer of expectations of the future. As noted previously, stock valuations (as measured by P/E) are relatively high and interest rates are relatively low, on a historic basis. Therefore, given the high stock prices and low interest rates, expected returns are likely to be lower on a going forward basis.

Changes in Risk and Return in the Markets

Q. PLEASE DISCUSS THE NOTION THAT HISTORIC EQUITY RISK PREMIUM STUDIES DO NOT REFLECT THE CHANGE IN RISK AND RETURN IN TODAY'S FINANCIAL MARKETS.

A. The historic equity risk premium methodology is unrealistic in that it makes the explicit assumption that risk premiums do not change over time based on market conditions such as inflation, interest rates, and expected economic growth. Furthermore, using historic returns to measure the equity risk premium masks the dramatic change in the risk and return relationship between stocks and bonds. The nature of the change, as I will discuss below, is that bonds have increased in risk

relative to stocks. This change suggests that the equity risk premium has declined in recent years.

Page 1 of Exhibit JRW-15 provides the yields on long-term U.S. Treasury bonds from 1926 to 2007. One very obvious observation from this graph is that interest rates increase dramatically from the mid-1960s until the early 1980s and have since returned to their 1960 levels. The annual market risk premiums for the 1926 to 2007 period are provided on page 2 of Exhibit JRW-15. The annual market risk premium is defined as the return on common stock minus the return on long-term U.S. Treasury Bonds. There is considerable variability in this series and a clear decline in recent decades. The high was 54% in 1933, and the low was -38% in 1931. Evidence of a change in the relative riskiness of bonds and stocks is provided on page 3 of Exhibit JRW-15, which plots the standard deviation of monthly stock and bond returns since 1930. The plot shows that, whereas stock returns were much more volatile than bond returns from the 1930s to the 1970s, bond returns became more variable than stock returns during the 1980s. In recent years, stocks and bonds have become much more similar in terms of volatility, but stocks are still a little more volatile. The decrease in the volatility of stocks relative to bonds over time has been attributed to several stock related factors: (1) the impact of technology on productivity and the new economy; (2) the role of information (see former Federal Reserve Chairman Greenspan's comments on pages 8-9 in this testimony) on the economy and markets; (3) better cost and risk management by businesses; (4) several bond related factors; (5) deregulation of

the financial system; (6) inflation fears and interest rates; and (7) the increase in the use of debt financing. Further evidence of the greater relative riskiness of bonds is shown on page 4 of Exhibit JRW-15, which plots real interest rates (the nominal interest rate minus inflation) from 1926 to 2007. Real rates have been well above historic norms during the past 10-15 years. These high real interest rates reflect the fact that investors view bonds as riskier investments.

The net effect of the change in risk and return has been a significant decrease in the return premium that stock investors require over bond yields. In short, the equity or market risk premium has declined in recent years. This decline has been discovered in studies by leading academic scholars and investment firms, and has been acknowledged by government regulators. As such, using a historic equity risk premium analysis is simply outdated and not reflective of current investor expectations and investment fundamentals.

Q. DO YOU HAVE ANY OTHER THOUGHTS ON THE USE OF HISTORICAL RETURN DATA TO ESTIMATE AN EQUITY RISK PREMIUM?

A. Yes. Jay Ritter, a Professor of Finance at the University of Florida, identified the use of historical stock and bond return data to estimate a forward-looking equity risk premium as one of the "Biggest Mistakes" taught by the finance profession.[31] His argument is based on the theory behind the equity risk premium, the excessive

[31] Jay Ritter, "The Biggest Mistakes We Teach," *Journal of Financial Research* (Summer 2002).

results produced by historical returns, and the previously-discussed errors such as survivorship bias in historical data.

Q. PLEASE PROVIDE A SUMMARY ASSESSMENT OF DR. MURRY'S HISTORICAL EQUITY RISK PREMIUMS.

A. Dr. Murry's equity risk premiums of 7.1% and 8.5% are derived from historical stock and bond returns is not reflective of market expectations. As noted above, equity risk premiums estimated from historical returns are subject to a myriad of empirical problems that prevent them from being measures of market expectations. Perhaps reflective of these empirical issues, Dr. Murry's equity risk premiums are well in excess of the equity risk premium estimates discovered in recent studies by leading finance scholars.

Q. DO YOU BELIEVE THAT DR. MURRY'S EQUITY COST RATE OF 12.0% IS CONSISTENT WITH THE RETURN REQUIREMENTS OF INVESTORS IN THE FINANCIAL MARKETS?

A. No. Dr. Murry's analysis and results are especially out of touch with the real world of finance. Investment banks, consulting firms, and CFOs use the equity risk premium concept every day in making financing, investment, and valuation decisions. On this issue, the opinions of CFOs are especially relevant. CFOs deal with capital markets on an ongoing basis since they must continually assess and evaluate capital costs for their companies. Furthermore, as is the case with any student of finance, they are well aware of the historical equity risk premium results

as published by Morningstar/Ibbotson Associates. Exhibit JRW-16 shows the equity risk premium results from the Duke University – *CFO Magazine* survey on a quarterly basis from 2000 to 2008. The CFOs in the survey indicate that the appropriate equity risk premium at the present time is in the 4.0% range and certainly not in the 7.1%-8.5% range. As such, the appropriate equity cost rate for a public utility should be in the 9.0% range and not in the 12.0% range.

B. Testimony of Ms. Susan D. Abbott

Q. PLEASE SUMMARIZE MS. ABBOTT'S TESTIMONY.

A. Ms. Abbott's testimony provides an overview of the ratings process of credit rating agencies and also the ratings for Tampa. She discusses the role of rating agencies in the markets, provides an overview of the debt rating process and the impact of regulation of utilities, reviews the rating methodologies and categories of the major rating agencies, as well as the financial metrics employed in the debt rating process. Ms. Abbott also reviews Tampa's financial metrics and bond ratings, recent rating actions by the three major credit rating agencies, and discusses Tampa construction program and credit ratings.

Q. INITIALLY, DOES MS. ABBOTT PERFORM ANY STUDIES TO SUPPORT DR. MURRY'S RECOMMENDED RETURN ON EQUITY OF 12.0%?

A. No. Ms. Abbott does not perform any studies to evaluate the adequacy of Dr. Murry's 12.0% rate of return recommendation.

Q. PLEASE DISCUSS MS. ABBOTT'S EVALUATION OF TAMPA'S CREDIT RATINGS AND CONSTRUCTION PROGRAM.

A. Whereas Ms. Abbott discusses utility construction programs in the context of the debt rating process, her testimony is very general in nature and she performs no studies comparing the magnitude of Tampa's construction program relative to those of other electric utilities and/or the electric utilities in Dr. Murry's proxy group. Therefore, she has made no assessment of the construction program and investment risk of Tampa relative to other electric utility companies.

Q. PLEASE ADDRESS MS. ABBOTT'S DISCUSSION OF THE FINANCIAL METRICS ASSOCIATED WITH THE DEBT RATING PROCESS AND THEIR APPLICATION TO TAMPA.

A. Ms. Abbott reviews the three primary financial metrics used by the debt rating agencies – Funds From Operations/Total Debt ("FFO/TD"), Funds From Operations/Interest ("FFO/INT"), and Debt/Capital ("D/C"). She then computes these metrics for Tampa for the years 2004-2007 and for the year 2009 under two scenarios: (1) Tampa without rate relief; and (2) Tampa with the rate relief requested by the Company. Obviously, the metrics are much more favorable to Tampa under (2) than under (1). However, the metrics computed under (1) are

not realistic. They presume that Tampa gets no rate relief in the current rate case. Nonetheless, even without rate relief, the cash flow metrics (FFO/TD and FFO/INT) for Tampa for 2009 are at the very high end of the BBB rating category. Furthermore, as Ms. Abbott notes on page 19 of her testimony, the debt rating process is a very complex process that involves far more analysis than just the calculation of a few ratios. As Ms. Abbott says, "It is always difficult to predict what a rating agency will do." In addition, as highlighted by S&P, "The ratings matrix is a guideline, not written in stone. The ratings matrix is not meant to be precise. There can always be small positives and negatives that would lead to a notch higher or lower than the typical outcome. Moreover, there will always be exceptions – cases that do not fit neatly into this analytical framework."[32]

Q. ON PAGES 20 OF HER TESTIMONY, MS. ABBOTT CLAIMS THAT TAMPA SHOULD BE TARGETING AN 'A' BOND RATING. HAS EITHER SHE OR MR GILETTE PERFORMED A COST – BENEFIT STUDY TO ASSESS WHETHER THIS MAKES ECONOMIC SENSE?

A. As indicated in Tampa's response to OPC POD 3-82, no such study has been performed.

Q. PLEASE DISCUSS THE RECENT RATINGS DECISIONS ON TAMPA.

A. The three major rating agencies have most recently affirmed or enhanced the outlook for the ratings of Tampa Electric. An important factor in these decisions

[32] Standard & Poor's, *Corporate Ratings Criteria 2008*, page 21.

appears to be the deleveraging of the parent company, TECO Energy, in the wake of the sale of TECO's transport subsidiary.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BY MS. CHRISTENSEN:

Q Dr. Woolridge, can you briefly summarize your prefiled testimony?

A Yes, I can, and I'll keep this brief. With respect to the cost of capital in this proceeding, and in particular my position versus that of Dr. Murry, there's two primary issues. One is the capital structure that's proposed by the company; and secondly is the equity cost rate. Those are the primary issues.

On capital structure, the company has proposed a capital structure which is projected, and that capital structure has a common equity ratio of 55.3 percent. It includes some equity infusions and also includes a number of adjustments.

The primary -- one of the primary issues I have with this is that this is really out of line with the capital structures of other utilities and it includes a number of adjustments.

Now, Mr. Larkin has dealt with me. There's adjustments. The one adjustment I have dealt with is the adjustment for the purchase -- the purchased power agreements, and that's in my testimony.

Now, I have used the testimony which represents how the company has been financed in the past with investor capital, and it's the average of the

2007-2008 capitalizations based on investor-provided capital. That has a common equity ratio of 48.89 percent. And again this is much more in line with the electric utilities in the marketplace.

On the equity cost rate, Dr. Murry has proposed 12.0 percent. I have proposed 9.75 percent. Now, we've both used discounted cash flow and capital asset pricing model approaches, and we both applied these to proxy groups of electric utilities. Dr. Murry has also applied his to TECO but he hasn't used those results.

I have two major concerns with Dr. Murry's DCF results. Number one is he's ignored over three-quarters of his results. He has used his range of 11.12 to 13.27 percent, ignores 75 percent of his DCF results which are all below these numbers. So he's ignored the low end of the results and it's the vast majority of his results.

The second issue I have is in -- in use -- in developing a DCF growth rate, he's relied exclusively on the projected earnings for shared growth rates of Wall Street analysts and Value Line.

Now, in my testimony I conduct a couple studies that show that these things historically have been overly optimist and therefore they over state the

equity cost rate. In particular, it's well-known that the projected growth rate -- projected earnings for shared growth rates of Wall Street analysts are optimistic. And I think after the last two years, we kind of understand. You have to have trouble when you listen to these guys and what they say.

Anyhow, the second part is capital asset pricing model results. He has a range of 11.24 percent to 12.42 percent. My DCF -- my end result is 8.2 percent.

On a risk-free rate at the time we prepared our testimonies, we had pretty similar risk-free rates. He has 4.6, I have 4.5. The big issue with Dr. Murry's capital asset pricing model result is his equity risk premium. Now he uses two of them. One is 7.1 percent; the other is 8.5 percent.

Now, these -- there's different ways of estimating equity risk premium. He bases his totally on historic stock and bond returns. Now, I look at a group of studies, in fact, I use 30 different studies that include historical approaches to estimating the equity risk premium, they include studies by leading scholars in finance and investment banks, and they include surveys of CFOs, financial forecasters and that sort of thing. And my -- at the time I prepared my testimony,

my equity risk premium was 4.56 percent.

Now, just with respect, briefly with respect to Dr. Murry's approach to estimating risk premium, because that's the big issue, the use of historical stock and bond returns to estimate equity risk premium is really an outdated approach. It's an approach that was used 20 years ago.

In my testimony, I highlight a lot of the empirical errors that have been discovered in academic literature about using these returns as majors of expectations.

In addition, I highlight -- I -- there was an article a couple of years ago by a well-known finance professor from the University of Florida by the name of Jay Ritter who he said the use of historical stock and bond returns to measure an equity risk premium is one of the biggest mistakes we teach in the world of finance.

And finally, I also highlight the fact that these large equity risk premiums in the 7 to 8 percent are totally out of touch with the real world of finance. CFOs and others, investment banks, management consulting firms use the equity risk premium every day in making investment and financing decisions. They go with their surveys and studies, all of which I've included in my -- in my testimony. They -- their equity risk premiums are

more in the 4 to 5 percent range as opposed to the 7 to 8 percent range.

And again, these are people who use this. And every quarter there's an update to the CFO study and it's still in the 4 to 5 percent range which usually is a surveyor of five to six hundred CFOs. And I think that's fairly significant, since it's the concept they apply every day.

In the end, in summary, I've used 9.75 percent. It's the top end of my range. As I explain in the testimony, I use the top end because of the market volatility we were experiencing in the fourth quarter of 2008.

CHAIRMAN CARTER: Thank you. You're right on the money. Ms. Christensen?

MS. CHRISTENSEN: I tender the witness for cross.

CHAIRMAN CARTER: Commissioner Skop, you're recognized, sir.

(Please go to Volume 12.)

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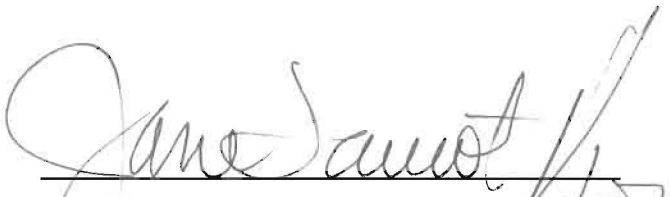
CERTIFICATE OF REPORTER

STATE OF FLORIDA)
COUNTY OF LEON)

I, LORI DEZELL, RPR, CCR, certify that I was authorized to and did stenographically report the proceedings herein, and that the transcript is a true and complete record of my stenographic notes.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

WITNESS my hand and official seal this 29th day of January, 2009.



LORI DEZELL, RPR, CCR
2894-A Remington Green Lane
Tallahassee, Florida 32308
850-878-2221