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COMMONWEALTH OF PENNSYLVANIA

PUBLIC UTILITY COMMISSION

Pennsylvania Power & Light Company Application for approval of a Restructuring Plan. Further Hearing.	:	Docket No. R-00973954

Pages 1381 through 1535

Hearing Room 1
North Office Building
Harrisburg, Pennsylvania

Monday, August 25, 1997

Met, pursuant to adjournment, at 9:40 a.m.

BEFORE:

GEORGE M. KASHI, Administrative Law Judge

APPEARANCES:

JOHNNIE E. SIMMS, Esquire
SCOTT H. DeBROFF, Esquire
P. O. Box 3265
Harrisburg, Pennsylvania 17105
(For Office of Trial Staff)

PAUL E. RUSSELL, Esquire
Two North Ninth Street
Allentown, Pennsylvania 18101
(For Pennsylvania Power & Light Company)

DONALD A. KAPLAN, Esquire
LISA M. HELPERT, Esquire
1735 New York Avenue, Suite 500
Washington, D.C. 20006
(For Pennsylvania Power & Light Company)

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APPEARANCES (Continued):

CRAIG R. BURGRAFF, Esquire
JAMES MULLINS, Esquire
1425 Strawberry Square
Harrisburg, Pennsylvania 17120
(For Office of Consumer Advocate)

KAREN OILL MOURY, Esquire
Assistant Small Business Advocate
Suite 1102, Commerce Building
300 North Second Street
Harrisburg, Pennsylvania 17101
(For Office of Small Business Advocate)

DAVID A. McCORMICK, Esquire
901 North Stuart Street, Room 713
Arlington, Virginia 22203-1837
(For U.S. Department of Defense)

PATRICIA ARMSTRONG, Esquire
JOHN J. ALZAMORA, Esquire
REGINA MATZ, Esquire
Thomas, Thomas, Armstrong & Niesen
P. O. Box 9500
Harrisburg, Pennsylvania 17108
(For Allegheny Electric Cooperative, Inc.)

RICHARD L. CAPLAN, Esquire
STEPHEN M. HLADIK, Esquire
Caplan & Luker
40 Darby Road
Paoli, Pennsylvania 19301
(For Schuylkill Energy Resources, Inc. and Gilberton Power Company)

FRED ZALCMAN, Esquire
1417 Blue Mountain Parkway
Harrisburg, Pennsylvania 17112
(For Environmentalists)

APPEARANCES (Continued):

WILLIAM HAWKE, Esquire
TODD S. STEWART, Esquire
Malatesta, Hawke & McKeon
100 North Tenth Street
P. O. Box 1778
Harrisburg, Pennsylvania 17105
(For Mid-Atlantic Power Supply Association)

DAVID M. KLEPPINGER, Esquire
PAMELA C. POLACEK, Esquire
McNees, Wallace & Nurick
P.O. Box 1166
Harrisburg, Pennsylvania 17108-1166
(For PP&L Industrial Customer Alliance)

ALAN KOHLER, Esquire
ROBERT LONGWELL, Esquire
Wolf, Block, Schorr & Solis-Cohen
305 North Front Street, Suite 401
Harrisburg, Pennsylvania 17102
(For Enron Capital & Trade Resources, Inc.)

CRAIG A. DOLL, Esquire
214 State Street
Harrisburg, Pennsylvania 17101
(For Delmarva Power & Light Company
D/B/A Connectiv Energy)

PAUL E. NORDSTROM, Esquire
901 15th Street, N.W.
Washington, D.C. 20005
(For Allegheny Power Company)

C O N T E N T S

E X H I B I T S

E X H I B I T S (Continued)

NUMBER	FOR IDENTIFICATION	IN EVIDENCE
PP&L Exhibit No.		
STJ-1 through STJ-30 (Jones)	1384	1478
STJ-31 (Jones)	1385	1478
STJ-28R (Jones)	1385	1478
STJ-32 through STJ-35 (Jones)	1385	1478
STJ-12 (Updated)(Jones)	1423	1478
RJF-1 (Farley)	1533	1533
PPLICA Statement No.		
3 (Kollen)	1479	1498
3-S (Kollen)	1479	1498
PPLICA Exhibit No.		
LK-1 through LK-4 (Kollen)	1479	1498
PPLICA Surrebuttal Exhibit No.		
LK-1 through LK-4 (Kollen)	1479	1498
OCA Statement No.		
2 (D. Smith)	1499	1532
2-S (D. Smith)	1499	1532
OCA Exhibit No.		
DCS-1 through DCS-15	1499	1532

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P R O C E E D I N G S

ADMINISTRATIVE LAW JUDGE GEORGE M. KASHI: I call this proceeding back to order. Were there any further matters from any counsel?

(No response.)

JUDGE KASHI: Hearing none, do you wish to call your first witness, Mr. Kaplan?

MR. KAPLAN: Thank you, Your Honor. Pennsylvania Power & Light Company calls Dr. Scott T. Jones.

JUDGE KASHI: Dr. Jones, would you raise your right hand and be sworn, sir?

Whereupon,

SCOTT T. JONES

having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KAPLAN:

Q. Good morning, Dr. Jones.

A. Good morning.

MR. KAPLAN: In line with our existing procedures, I would like to first identify for the record Pennsylvania Power & Light Company Statement No. 7, the direct testimony of Scott T. Jones consisting of 52 pages and the rebuttal testimony of Scott T. Jones, a statement consisting of 118 pages, and Exhibits Nos. STJ-1 through STJ-30.

JUDGE KASHI: So marked for purposes of

identification.

(Whereupon, the documents were marked as PP&L Statements Nos. 7 and 7-R and PP&L Exhibits Nos. STJ-1 through 30 for identification.)

BY MR. KAPLAN:

Q. Dr. Jones, do you have before you a document marked Exhibit No. STJ-31?

A. I do.

Q. Could you tell us what this is?

A. This is both a listing of corrections to my rebuttal testimony and the sample of the corrected exhibits as changed by those corrections to my rebuttal testimony.

Q. Do any of these corrections make any substantive difference in your testimony?

A. No, they don't.

Q. Do these constitute all of your corrections?

A. No. Actually, I have one more.

MR. KAPLAN: Before we get to that, Your Honor, we are passing out now a packet of material to all counsel and to the Judge and the reporter.

This includes STJ-31, which is the list of corrections, and attached thereto are the corrected pages, mostly table -- I guess they're all tables -- from Dr.

Jones' testimony.

We are also passing out an additional exhibit which will be marked shortly Exhibit STJ-28R, which is an additional correction exhibit that we are about to discuss.

And finally, there is a packet of additional rejoinder exhibits we propose to mark and move into evidence in the course of our proposed rejoinder for Dr. Jones.

So everybody should have a complete set of these documents at this time.

JUDGE KASHI: They will be so marked for purposes of identification.

(Whereupon, the documents were marked as PP&L Exhibits Nos. STJ-31, STJ-28R and STJ-32 through 35 for identification.)

MR. KAPLAN: Thank you, Your Honor.

May I proceed, Your Honor?

JUDGE KASHI: Please.

BY MR. KAPLAN:

Q. Dr. Jones, will you please discuss the additional errata that you mentioned earlier?

A. Yes. I erred in using Mr. Knecht's Exhibit RDK-2 along with his Schedule 5 and 6 for the basis of my Exhibit STJ-28 and the Attachments 28-A and 28-B.

Mr. Knecht failed to account for the fact that at the capacity factors he used in his exhibit, the units would earn mainly peak and intermediate prices for energy, not the average annual weighted prices which include many base load prices for energy.

The effect of his error is to underestimate the revenue earned by new capacity from energy sales. In addition, I erred by not accounting for the high heat rate values in my Exhibit 28.

I corrected both of these errors in my revised STJ-28R. The corrected results do not change my original conclusion that the capacity prices in my Exhibit STJ-8 are sufficient to generate a positive net present value, which means that investors should earn an adequate internal rate of return on new capacity.

Q. Dr. Jones, have you also recalculated Exhibit 28-A and 28-B?

A. Yes. When I referred to 28-R, I meant the exhibit itself plus the two attachments, A and B.

Q. Thank you, Dr. Jones.

Your Honor, with that, we would like to offer into evidence Exhibit STJ-28R, Exhibit STJ-28AR and 28BR.

JUDGE KASHI: Subject to any timely motions -- those are corrections, correct?

MR. KAPLAN: They are corrected, yes, Your Honor.

JUDGE KASHI: They will be received into the evidentiary record.

MR. KLEPPINGER: Your Honor, there would not be an objection with the caveat that these would have been included in Mr. Jones's rebuttal testimony and would have given us an opportunity to review them prior to surrebuttal.

I would request that we be provided the opportunity to review these documents and, if necessary, have our witness respond to them orally when he takes the witness stand.

JUDGE KASHI: Okay.

MR. KAPLAN: Your Honor, I would propose instead that because we are constantly going back and forth here, that we would instead propose that if, after having had an opportunity to review these we are willing to recall Dr. Jones for purposes of cross-examination on the specific additional documents and any of the other exhibits we propose to introduce during the rejoinder. We think that is a fair procedure.

JUDGE KASHI: You would rather take the time now to have the parties review the documents and then call] Dr. Jones back?

MR. KAPLAN: No, Your Honor. What we would propose to do is, if the parties have any specific questions related to this exhibit or any of the exhibits we propose to introduce during Dr. Jones' rejoinder, we will call him back.

We will proceed with the cross-examination on his rebuttal testimony and his direct testimony at this time, and any cross-examination that any of the parties want to make on his rejoinder testimony at this time.

My concern is that I believe the rule is that we have the last word, and I believe we want to maintain that last word. We are willing to recall Dr. Jones for cross. We are unwilling to agree to rejoinder testimony by intervenors.

MR. KLEPPINGER: Your Honor, if I may, there are two different types of exhibits that are being presented to us today, as I understand it.

STJ-31 are updates and corrections, and STJ-28 is also a correction to an exhibit appended to Dr. Jones' rebuttal testimony.

We have addressed that exhibit extensively in our surrebuttal testimony. Therefore, it's appropriate to provide us with a surrebuttal opportunity to a rebuttal exhibit.

That is different than the exhibits that I believe were just handed out as STJ-32 through 35, which I understand are being offered in the form of rejoinder exhibits. There are two different types.

MR. KAPLAN: Your Honor, we are willing to make Exhibit 28-R a rejoinder exhibit and renumber it, if that is the issue for Mr. Kleppinger.

JUDGE KASHI: Well, it doesn't seem to be the issue. The issue seems to be that Mr. Kleppinger responded in surrebuttal to a rebuttal exhibit which is now being changed.

And in the ordinary course of things, he would have had an opportunity to examine that document and respond in surrebuttal. And if in fact we're going to change it in mid-stream, I think he's entitled to surrebuttal on that particular piece.

MR. KAPLAN: Would we then be entitled to rejoinder on his surrebuttal? That is my concern, Your Honor. We are getting into an endless stream.

JUDGE KASHI: You're the one who started the stream.

MR. KAPLAN: Well, Your Honor, a number of witnesses in this proceeding have corrected what they have done on either rebuttal or surrebuttal. And that is normally what you do. We have made a correction here on rejoinder.

JUDGE KASHI: An extensive correction.

MR. KAPLAN: No, not an extensive correction. There were two points. There were two narrow points, number one, the error made by Mr. Knecht that we incorporated by accident into our calculations which we discovered, and secondly, an error that we concede that we made in not using the higher heat rate value.

Those are two very specific and narrow errors. None of the calculation is changed in this document other than those changes, and other than that, the document is precisely as it was.

We are willing to explain that change and we are willing to give the parties a chance to consider the document and come back and examine Dr. Jones thoroughly on those changes if they cannot do so this morning.

But we think it's about time for the rounds of testimony to end here. We are very reluctant to agree to a procedure that permits more testimony, direct testimony by intervenors. In my understanding, that is not the way the procedure was designed.

The procedure was designed that we would have the last direct testimony in the proceeding.

JUDGE KASHI: And for the whole week, we haven't run into this problem, so your comments about the endless testimony, to my way of thinking, have no place here. That hasn't happened.

And I'm not about to cut off, if in fact Mr. Kleppinger feels that there is a need for surrebuttal testimony to this document, I'm not about to cut off his right to that.

If in fact it's as narrow as you say it is, when it's presented, I'm quite sure Mr. Kleppinger isn't going to bother with it.

MR. KAPLAN: So that I understand your ruling, Your Honor, it's limited to Exhibit 28-R?

JUDGE KASHI: That's the only one that's been brought to my attention.

MR. KAPLAN: Thank you, Your Honor.

(Pause.)

JUDGE KASHI: Do you wish to proceed, sir?

MR. KAPLAN: Thank you, Your Honor. We have some rejoinder for Dr. Jones.

BY MR. KAPLAN:

Q. Dr. Jones, Mr. Falkenberg dedicates 20 pages of his surrebuttal testimony attempting to prove that PP&L's projected market capacity prices are insufficient to support additions to new capacity.

Messrs. Schmitt and Knecht also contend in their surrebuttal testimony that the market prices you project are insufficient to support additions of new capacity.

Does this have anything to do with the forecasted energy prices you derive from the EGEAS model?

A. The heat rates and cost for new capacity in EGEAS have not been disputed and are conservative. Had I replaced those values with those sponsored by Mr. Smith, the model would have produced lower market clearing energy prices.

Q. Then what is this all about?

A. This is about the money over and above energy prices earned by new capacity that investors would require for capacity from the capacity market.

Intervenors argue that at a cost of $595 per kilowatt, the added revenue from my capacity prices as shown in Exhibit STJ-8 would be insufficient to provide an adequate return.

But that price, $595 per kilowatt, is not representative of the cost of a unit that will be installed in the year 2002. Those units will cost much less, the prices shown in the revised Exhibit STJ-28R, and likely will have lower heat rates than the 7,000 Btu per kilowatt-hour used in EGEAS.

Q. Why then did you use $595 per kilowatt in EGEAS?

A. I wanted to be sure that the energy price produced by the model reflected hardware costs and performance that everyone could agree was realistic based on what is in the market today.

Apparently they do agree, as the $595, 7,000 heat rate combination is not in dispute here.

Q. How does EGEAS incorporate capital cost and heat rate?

A. For the purpose of selecting which type of capacity to add to the system, EGEAS relies on the relative cost of the combined cycle and combustion turbine units against the amount of additional load to be served. All that matters to EGEAS is the heat rate for purposes of dispatching the model.

Q. If intervenors' criticisms of the $595 and 7,000 heat rate combination are not valid when it comes to the energy price forecast by EGEAS, what is the point of a lower combination of capital cost and heat rate data like that shown in your revised Exhibit 28-R?

A. Those prices reflect what a competitive capacity market will yield with retail and wholesale competition. Those prices are a reflection of what investors will see for offering their capacity to the system.

Q. Are those prices used in any way in EGEAS?

A. No. The only capital cost/heat rate combinations used to generate the energy price in EGEAS are the undisputed capital cost and heat rate pairs for combined cycles and combustion turbines that have always been used.

Q. If you conduct a present value analysis to determine whether or not capacity prices in exhibit STJ-8 are sufficient to provide an attractive internal rate of return to investors beginning in 2002, what do you find?

A. Well, those are the results shown in revised Exhibit STJ-28. As shown in that revision, all of the units that investors may select in the future produce a positive net present value and subsequently a sufficient internal rate of return.

Q. How do these results compare to the analysis prepared by Mr. Knecht in his Exhibit RDK-2, Schedules 5 and 6?

A. Well, Mr. Knecht makes two mistakes in his Exhibit RDK-2 and his attendant schedules. The first I dealt with in my correction of Exhibit STJ-28, now STJ-28R.

The second error stems from his assumption that a unit operating only part of the year would be burdened with firm gas transportation rates.

My knowledge of the natural gas pipeline markets and an examination of the actual fuel costs in EGEAS confirm that firm transportation costs should not be added to a forecast fuel charge.

Q. What happens when you corrected these errors?

A. The present value of the expected net revenues from investment in a new combined cycle unit beginning in 2002 is positive, indicating that investors will expect to receive a sufficient rate of return.

Q. Have you prepared an exhibit evaluating the adequacy of capacity prices similar to Mr. Smith's surrebuttal, Exhibit DCS-14?

A. Yes. However, I had to correct for the same error found in Mr. Knecht's Exhibit RDK-2 regarding the use of average annual energy prices in place of peak and intermediate prices.

But having corrected the energy prices, I then reproduced Mr. Smith's Exhibit DCS-14 using the more conservative 7,000 Btu heat rate found in EGEAS.

I set about to prepare Exhibit STJ-32 which you received this morning to illustrate those findings. You'll note in that exhibit, the first column under the heading "Smith," that a 13.41 percent internal rate of return is shown.

Thus, my capacity prices are sufficiently high to induce investment, even though there are still errors in Mr. Smith's spread sheet.

For example, under the column, "Smith Corrected," he increases the all-in costs -- excuse me, under the "Smith" column, you'll note that he increases the all-in costs to achieve a summer rating.

But in the process of that correction for the summer rating, he increased items that shouldn't be escalated like gas pipeline costs, land costs and infrastructure. So accounting for that error increases the internal rate of return to 13.87 percent.

Q. Now, when you revised your analysis to look at plants added in 2000, why have you revised your analysis to look at plants added in 2002?

A. Well, originally, I used a 2005 start date in my unrevised Exhibit STJ-28 in order to be consistent with Mr. Knecht's Exhibit RDK-2.

I didn't choose the 2005 start date in Exhibit STJ-28 in order to avoid the early years when capacity prices are discounted as alleged by Mr. Falkenberg on page 24 of his surrebuttal testimony.

In the schedule I have prepared today and has already passed out to the Court, the base year has been repositioned to 2002 and the capacity prices shown in STJ-8 are sufficient to stimulate investor interest.

Hence, my use of a start date of 2005 in Exhibit STJ-28 was simply a conservative effort to match the analyses provided by the intervenors.

Q. Has Mr. Smith corrected his conclusion at page 8 of his surrebuttal that he used the 1996 fuel prices that are substantially lower than the actual 1996 prices?

A. No. I checked Mr. Smith's claim that his numbers and mine differed going through his numbers line item by line item and discovered that the difference by 1999, for example, the first year that's relevant to the stranded cost exercise, is very small, perhaps as little as 3 percent or even less, even though Mr. Smith variously uses FERC Form 1 followed by EIA Form 423 data.

Q. Now, if fuel prices are the same as of 1999, what is generating the difference in market prices produced by EGEAS on one hand and Mr. Smith's application of ENPRO on the other?

A. I acquired a copy of ENPRO along with Mr. Smith's input assumptions. I then duplicated his surrebuttal results, comparing his assumptions and their impact using ENPRO.

The difference between the results Mr. Smith obtained using ENPRO and those I obtained with EGEAS appear to relate to two types of differences.

There are first differences due to errors or inconsistencies in Mr. Smith's applications of assumptions to ENPRO, and secondly differences in keeping assumptions like the real rate of inflation and changes in -- excuse me, the rate of inflation and the real change in fuel prices that exist between Mr. Smith and myself.

Q. Please explain the inconsistencies or errors in Mr. Smith's assumptions.

A. Well, Mr. Smith assumes that when a unit is fueled both by oil and gas, it will burn approximately a 50/50 blend of those fuels year round.

Since the price of oil rises much more quickly than gas in his fuel forecast -- and that's an issue I have taken up elsewhere -- these units are assigned a very high incremental energy price, biasing his market clearing prices upward.

Secondly, ENPRO as a structural matter is just limited to 200 units, much less than the 350 that are used in EGEAS.

So Mr. Smith has had to aggregate those units, affecting the dispatch cost of separate units by combining them with others.

And finally, Mr. Smith mysteriously reduces down imports into PJM starting at 2005 with a large portion of that reduction coming the very next year in 2006.

Q. What is the result of correcting ENPRO for these inconsistencies?

A. I prepared Exhibit STJ-33, which has been handed out. It illustrates the impact of the differences between Mr. Smith's assumptions and his inconsistencies or errors as used in ENPRO and my assumptions in EGEAS.

And as you can see, looking at the bottom two lines, that once corrected for errors, inconsistencies and differences in assumptions, the results using ENPRO are essentially the same as the results using EGEAS.

Q. What are your conclusions from running ENPRO?

A. It's not the model, but the application of the model and the inputs and assumptions that are important here.

Q. Now, does Mr. Falkenberg criticize any of the remaining important assumptions used to estimate market clearing energy prices?

A. The most important inputs in this proceeding where we have to derive a market clearing price are the real fuel prices and inflation.

And on page 8 of his surrebuttal, Mr. Falkenberg criticizes my use of a 2.5 percent inflation rate to convert my real energy prices to nominal energy prices as used in EGEAS.

Q. Should fuel prices and inflation be examined separately or together?

A. The proper forecast ought to explain any movement in real fuel prices independent from changes in the rate of inflation.

Q. What do you mean by any movement in fuel prices independent of inflation?

A. Forecast of fuel prices, done correctly, should begin with the year to year change in the price of the fuel. Absent any additional change that might be caused by inflation, only then can the Commission understand what assumptions truly underlie the fuel forecast.

Q. How do you get from an explanation of real fuel prices to an explanation of the expected inflation rate?

A. In the short term -- that's maybe a few weeks or maybe even a few months -- inflation might be affected by the movement in fuel prices as well as by the movement in a lot of other things.

But for inflation to be sustained at an increasing rate over time, which is the assumption embedded in the intervenors' forecasts, it has to be the federal government with the cooperation of the Federal Reserve Board that has embarked on an expansionary policy supported by increases in the money supply.

This is absolutely opposite from the policies and the Fed activity that has been going on since the Reagan years. My estimate for inflation reflects a continuation of that current policy. Hence, I set inflation at its long-term trend of 2.5 percent and held it there. I have no evidence that anything to the contrary will prevail.

Q. Have other forecasters made similar projections?

A. The Federal Reserve Bank of Philadelphia released its survey of professional forecasters just earlier this month, showing that the expected change in the GNP deflator, which is a measure of overall inflation in the economy that was adopted by Mr. Falkenberg and Mr. Smith for this proceeding, would grow at 2.3 to 2.5 percent over the next two years.

This same group of forecasters expects the Consumer Price Index, which as I'm sure you're familiar with is a measure of inflation based on consumer goods, they expect the CPI to grow 2.7 percent over the next ten years.

Now, I'd like to point out that historically the difference between the CPI and the GNP deflator has been about minus 4/10ths percent, suggesting that the forecasters would set a ten year outlook for the GNP deflator below my 2.5 percent inflation rate.

On top of that, I would add that what is important is what people think or expect inflation to do over the long term.

As you can see from Exhibit STJ-34 which I passed out earlier this morning, and that I actually have had blown up for purposes of this proceeding today, that the inflation fears of Americans have been fading rapidly since the start of this decade and are now well below 3 percent.

And Alan Blinder, who used to vice chairman of the Fed during the period when a lot of this activity to reduce inflation was going on, has been quoted as saying, "When I was on the Fed, we said our goal was to cap inflation at 3 percent and then bring it down. Now, that view is being taken as much too pessimistic."

Q. Why do Mr. Smith and Mr. Falkenberg have embedded inflation rates of 3.2 and 3.1 percent respectively as part of their market price forecast?

A. Because those are the rates projected over time by DRI and the EIA, sources they chose for their fuel forecasts.

Q. What is wrong with that?

A. Three things. First, neither Mr. Smith nor Mr. Falkenberg explain how or why the predicted rate of inflation and the predicted change in real fuel --

MR. KLEPPINGER: Your Honor, I'll object at this point. That inflation number has been part of the direct case of PPLICA and was appropriate to address in the rebuttal testimony of Mr. Jones. In fact, he already has addressed it.

This is becoming repetitious at this point. That's not a new assumption at all presented in the surrebuttal testimony.

JUDGE KASHI: Mr. Kaplan, I think I've read his argument.

MR. KAPLAN: Excuse me?

JUDGE KASHI: I think I've read the argument.

MR. KAPLAN: There has been argument, but they reiterated it and once again re-emphasized their argument in their surrebuttal testimony.

Mr. Falkenberg specifically criticized once again Dr. Jones for having no support for his 2.5 percent rate of inflation.

JUDGE KASHI: We'll overrule the objection.

Go ahead, sir.

THE WITNESS: Both Mr. Smith and Mr. Falkenberg appear to just accept those forecasts blindly, despite the fact that I showed in my rebuttal testimony how perilous that can be.

Secondly, despite Mr. Falkenberg's criticism on page 38 of his surrebuttal testimony, neither witness has offered an explanation in support of the fact that while both of their inflation forecasts start at reasonable rates, their forecasts begin to escalate, eventually growing at an annual rate of 4 percent.

I note that DRI's past use of inflation escalation has led to forecasts that have consistently overestimated actual inflation in their forecasts produced since the 1980s.

To simplify matters, I compiled the chart, Exhibit STJ-35, showing how DRI has done in forecasting inflation very recently when the inflator, as you can see from this chart behind me, has been declining.

Their forecasts from 1993 and 1994 have overpredicted the last three years of inflation, that is '95, '96 and thus far '97 by as much as 7/10ths percent, or about equal to the difference between my forecast and theirs.

Please remember that this error is drawn from just the short-term inflation outlook and does not include the effects that acceleration of inflation will have over the future.

My third point is that Mr. Falkenberg and Mr. Smith both use rates of inflation that accelerate over time and show real fuel price forecasts that have oil and gas prices rising while coal doesn't. I have discussed this severe problem with the gap elsewhere in my rebuttal and don't intend to do so here.

Q. Now, Mr. Knecht contends that fuel oil prices have risen at an average of .8 percent in his surrebuttal testimony and he presents an exhibit showing the increase in oil prices over the period 1939 to 1996. Do you have a response to that?

A. Yes. That's his Exhibit RDK-S2. In that exhibit, he shows oil prices over the period 1939 to '96, connecting the first and last years with the upward sloping line.

Obviously he could have chosen another base year and produces another result, connecting one point to another. Frankly, that might have been interesting since for 24 years since the turn of this century, if you had done that, you would have had a negative sloping line.

The result would have been falling real prices, and then 60 percent of the time the slope would have been flat, or as much as maybe a half a percent.

However, even if he were right that the real oil price had grown over time by 8/10ths percent, one should be able to take that growth rate from any starting point and be confident that the result would be consistent with what oil prices turned out to be.

So the first experiment is easy. I just went back to 1900 -- that was the date that appears elsewhere in one of my exhibits, STJ-18 -- when the price of oil was about $26 a barrel in today's prices, and grew it at 8/10ths percent. The result would be an oil price today of about $56, and of course the real price of oil is nowhere near that.

The fact that prices are not that high proves two things: First, that Mr. Knecht's contention regarding real oil price trends and the fact that they are not flat in his view but increasing at 8/10ths percent is simply wrong.

Secondly, it suggests that oil prices may rise, they may fall, but over time they tend to return to a long-run average price as shown in Exhibit STJ-16 and again in Exhibit STJ-18. This is what I call this tendency toward mean reversion, which again I'm not going to discuss here.

Q. Are Mr. Knecht's conclusions then in error in concluding that real fuel prices will increase?

A. Real fuel prices, there's absolutely no evidence that real fuel prices will increase over the long term. In fact, it's the very progress that energy companies have made with regard to technology innovation when it comes to locating and producing energy that suggests that technical progress will continue to overcome the apparent assumption that seems to drive forecasts like those used by Mr. Smith and Mr. Falkenberg.

Their forecasts rely on the assumption that technology is losing ground to the idea that energy is a finite resource and there is only so much oil and gas and uranium in the ground, so prices must rise.

Professor Morris Adelman, MIT's best known natural resource economist, addressed that issue head on in his book, "The Economics of Petroleum Supply."

Professor Adelman states in Chapter 13 under a heading called, "Prices Should Rise and Do Not," he says, "The assumption of an initial fixed mineral stock is not only wrong but superfluous. All else being equal, the replacement cost of any mineral should constantly increase over time and the price with it, yet prices of minerals have not risen.

"Practically all have been flat or actually declining in the long run. The argument now among econometricians is whether we must reject or accept a long-term downward trend for minerals prices. Long-term increases is not even in question. All else has not been equal.

"Mineral depletion is in fact an endless tug of war, diminishing returns versus increasing knowledge, and so far the human race has won big."

Q. Finally, Dr. Jones, could you please respond to Mr. LaCapra's contention at page 10 of his surrebuttal that the recent sale of 4,000 megawatts of generating assets demonstrates that PP&L has understated the value of its generating assets in this proceeding?

A. The NEES asset sale of its generation assets at above book value in no way suggests that the method for valuing stranded costs as specified in the Act is inappropriate.

Use of comparables for the purpose of predicting what the value of an unmarketed asset might be has to be carefully constructed and applied to the relevant set of assets.

Two things are particularly important. As is the case for residential real estate, location plays a central role in the determination of asset value.

The NEES assets are in New England, not in PJM. Hence, they are not even in the same relevant geographic market.

Further, the New England market is currently affected by the ordered reduction in nuclear generation capacity, increasing the value of increasing capacity.

Secondly, the use of comparables is best applied to homogeneous assets like proved reserves of natural gas, not to assets with diverse characteristics like a group of different electric generation facilities.

So absent homogeneity of assets and assets in the same geographic market, the comparable assets method will not yield satisfactory results, leaving the determination of asset value to an expected cash flow method such as the present value approach cited by the Act.

MR. KAPLAN: Thank you, Dr. Jones.

Your Honor, Dr. Jones is now available for cross-examination.

JUDGE KASHI: Given the length of Dr. Jones's rejoinder, I'm going to have our 15 minute recess for the morning at this time to give counsel some time to digest that before they begin cross-examination.

So we will take our morning recess now until 10:35, and then we will go from 10:35 to 12:30. We stand in recess.

(Recess.)

JUDGE KASHI: Going back on the record.

Cross-examine, Mr. Kleppinger.

MR. KAPLAN: Your Honor, before we begin, counsel has an errata to give. Our word processing did not keep up with the rejoinder testimony, and if people would refer to Exhibit STJ-32. The numbers that people heard Dr. Jones state are not the numbers on that exhibit.

The correct numbers should be -- change the exhibit -- at the bottom of the column labeled, "Smith," the number should be 13.14 percent. At the bottom of the column labeled, "Smith Corrected," the number should be 13.87 percent. As I indicated, this is an errata of counsel, not the witness.

Thank you, Your Honor.

MR. ZALCMAN: I believe the witness may have used different numbers for the "All-in Costs @ Summer Rating" as well. I thought I heard him state numbers that were different from those that appear in the exhibit.

MR. KAPLAN: Maybe we can just inquire on cross-examination and clear that up.

JUDGE KASHI: Mr. Kleppinger.

MR. KLEPPINGER: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. KLEPPINGER:

Q. Good morning, Dr. Jones. My name is

David Kleppinger, and I represent the PP&L Industrial Customer Alliance.

I'd like to start with getting a little better understanding of what has been modified in your Exhibit STJ-28aR. If I understood your rejoinder testimony correctly, you have corrected for the use in the original exhibit of the low heating value or LHV to the high heating value or HHV; is that correct?

A. Correct.

Q. And I believe the other modification was that you now use different capacity factors than what were in the original STJ-28.

A. When you back the analysis up to 2002, you have different capacity factors. You go to the unit that is in the model that is first run in the year 2000, and those are just the capacity factors right out of EGEAS for that unit.

Q. My confusion arises from your rejoinder where I think you mention that Mr. Knecht's capacity factors in his exhibit were not correct.

A. No. It wasn't the capacity factors, per se. It was the fact that when you operate a unit with capacity factors of, say, 29 percent and a fraction -- I can't remember what his fraction was -- that unit is going to earn mainly peak prices and some intermediate prices, so you end up with a much higher average for that slice of the price spectrum than you would over the entire year, which is what is in my Exhibit STJ-7.

Q. So is it the movement of the year in which the capacity would be added, namely that in the original Exhibit STJ-28 the unit was coming on line in 2005; correct?

A. Correct.

Q. And in the revised exhibit, it is coming on line in 2002; right?

A. Yes, largely to account for Mr. Falkenberg's criticism.

Q. Okay. And because of the change in the date that the unit is coming on line, there was a subsequent effect on the capacity factors of the units themselves?

A. Yes. You would use the unit that came on in 2002 as opposed to the one that came on in 2005.

Q. Which will be operating at peak capacity factor?

A. That's correct.

Q. So an effect of moving the installation date of the unit up from 2005 to 2002 was a different capacity factor for the unit itself?

A. Yes. We're talking about two different units, but yes, you have different capacity factors.

Q. Other than those two changes, the heating values and the change in the date the unit comes on line, were there any other modifications between the original STJ-28 and STJ-28aR?

A. Well, the prices that we discussed earlier, the fact that the prices the units are going to receive in each year are now higher as a result.

Q. But that is a result of your study, not an input into the revision; is that correct?

A. No; it's an input to that spread sheet. You'll see prices are different, the energy prices that the units are earning as part of the revenue stream that they receive each year.

Q. But the cost of the unit itself, you are still using, I believe, the $595 per kW.

(Witness perusing document.)

A. The cost of the unit itself is the same $489 cost that appeared in the original STJ-28.

Q. So then the change in the date that the unit comes on line did not change the anticipated capital cost of the unit?

A. No. Those units are being vended today by the various companies that manufacture them. If they are there today, they'll be there in 2002; they'll be there in 2005. Well, maybe. Chances are technology will long since run past them by 2005.

Q. Did you employ a summer capacity rating for purposes of the Exhibit 28 analysis?

A. The capacity factors that appear in the line called "Capacity Factor" are taken from EGEAS, and EGEAS uses a summer rate.

Q. Now, you understand, I imagine, PJM is a summer peaking system; correct, to the best of your knowledge?

A. Yes.

Q. And as a result of that, are capacity values on the PJM typically higher in the summer than in the winter?

A. The capacity values?

Q. Yes.

A. The efficiency of the units, any individual unit, is lowered in the summer by the heat, the fact that it is higher than the usual 59 or 60 degree rating.

Q. But would the price for the capacity typically be higher in the summer because of the larger demand on the PJM system than in the winter?

A. Well, it depends upon -- I mean, weather is weather, but in general, you would tend to see, just examining the LAMBDA data from PJM, you usually do see significant peaks in the summer, yes.

Q. And therefore, a higher capacity price in the summer?

A. Well, the capacity prices, the equilibrium capacity prices that are shown in my Exhibit STJ-8 are the average capacity price that a unit is going to see during the year.

Q. But there will be seasonal variations, will there not, in that capacity price?

A. Well, yes, but for purposes of this model -- I mean, for purposes of this modeling exercise, we used an average annual capacity price for the year.

Q. Is PP&L itself a summer or winter peaking utility?

A. PP&L is a winter peaking utility.

Q. On Exhibit 28, does the analysis assume a flow-through or a normalization of the tax benefits associated with the unit?

A. You'll have to explain what you mean. We have a 41.5 percent tax rate for income taxes.

Q. Well, are you familiar with the difference between flow-through versus a normalization of the tax implications for the unit?

A. I'm not an accountant.

Q. Now, we've been talking this morning in your rejoinder quite a bit about what is called the EGEAS model. It is my understanding, Dr. Jones, that that is a model that has been created and generated by the Electric Power Research Institute, otherwise known as EPRI; correct?

A. And vended by Stone & Webster and modified by Stone & Webster.

Q. I'm sorry?

A. Modified and vended by Stone & Webster.

Q. And it is now the property of EPRI or the property of Stone & Webster?

A. The property of Stone & Webster, to the best of my knowledge. They're the ones that issue the licenses for the model.

Q. And the model is available commercially through EPRI or through Stone & Webster?

A. Again, to the best of my knowledge, only through Stone & Webster.

Q. Now, the model that PP&L relied upon, was it obtained through EPRI or through Stone & Webster?

A. From my understanding, through Stone & Webster.

Q. And do you know if EPRI contracted with Stone & Webster to prepare the model?

A. I have no idea.

Q. Now, I'd like to try to identify what specifically you yourself used from the model and what outputs of the model you may have then applied some of your judgment to, if any.

First, I'd like to begin with the estimate of the market energy price. In your analyses, did you take the market energy prices produced by the EGEAS and use them directly or did you modify or apply judgment to them in any way?

A. The output from EGEAS was used directly.

Q. Now, with respect to the estimated market capacity price, did you utilize the market capacity prices produced by EGEAS directly or did you modify or apply your judgment to those in any way?

A. EGEAS does not produce market clearing capacity prices.

Q. So those were not -- okay. Well, then let's focus on the market capacity prices. You developed those market capacity prices yourself?

A. I did.

Q. And I believe in doing that, you looked at contracts that PP&L had entered for capacity.

A. I didn't look at the contracts as documents. I was given a list verbally of contract prices that PP&L had received as a net seller of capacity as representative of existing prices in the marketplace that people were willing to pay for capacity, and those prices were applicable both to short-term capacity purchases as well as what is called a forward purchase for two years.

Q. And were those the precise market capacity prices you then proceeded to use in your analysis?

A. I used an average of them.

Q. An average of them.

A. I mean, I had more than one observation for each year.

Q. And how many of those contract prices did you actually use in creating that average?

A. I had about a dozen observations, as I recall.

Q. Now, your analysis also prepared an estimate of annual revenues for each PP&L plant; correct?

A. That's correct.

Q. And again, here I would like to explore what was used out of the EGEAS and what may not be used out of the EGEAS. Did you take the annual revenue produced for energy sales directly from the output of the EGEAS model?

A. Yes.

Q. Without any modification?

A. Can you give me an example of what a modification would be?

Q. Well, the model produces, does it not, annual revenues for each of PP&L's plants?

A. What it produces is the amount of energy that each plant sells.

Q. To which you apply the market energy price?

A. Yes. The revenue is derived from that.

Q. Now, with respect to revenues from capacity sales, am I correct that the EGEAS model would produce the estimate of what capacity would be sold by PP&L?

A. The amount of capacity, yes.

Q. And to that you would apply the market capacity price that you developed in your own study?

A. Yes. It appears in my Exhibit No. 8.

Q. And it is those capacity prices that were developed outside of the EGEAS model that you developed yourself?

A. Yes, just like capacity prices are developed outside of ENPRO and a lot of other models.

Q. Now, in running the EGEAS model, did you personally run that model or was PP&L running that model with you providing certain inputs to the model?

A. The model was run under my direction.

Q. Under your direction with PP&L employees or with additional employees from your firm?

A. Both.

Q. Prior to the running of the model, had you reviewed the model inputs to test their sufficiency or accuracy?

A. Yes.

Q. And did you yourself provide some of the inputs into the model?

A. Yes.

Q. And which of those inputs did you provide?

A. Well, it's the same assumptions that are found in my direct testimony, Exhibit 3, Exhibit STJ-4, Exhibit STJ-5. That is the listing of input assumptions.

Q. And STJ-3 is in fact the fuel price escalation forecast that you prepared?

A. Yes. That's what the model wants. It wants an escalation rate for each of the fuels.

Q. And if I understand the sources that you utilized to develop the fuel price forecast, you list those in your testimony I believe at page 35, and if I understand, the conclusion you reached is you applied your judgment to those sources to produce the actual forecast that now appears as Exhibit STJ-3; is that correct?

A. Well, I can't confirm that the sources are on page 35 of my direct testimony, because I don't see them there.

Q. Thirty-nine was the page I was referencing.

A. Yes. That's a listing of the sources, and based on what is found in that collection of forecasts plus my 20 years experience in the energy industry, including a stint as one of the senior managers of one of the world's largest forecasting firms, yes, I used my judgment; that and the fact that it is my opinion that this Commission needs simple numbers.

Q. I just asked a simple question.

A. And that's why I provided simple numbers.

Q. You can give your opinion on redirect.

And if I read the chart correctly on Exhibit STJ-3, this would produce a real price decline for coal throughout the study period of 1997 through 2016; correct?

A. That's correct.

Q. And also a real price decline for oil and gas through 1999 and then roughly tracking inflation through 2016?

A. Yes.

Q. Dr. Jones, have you had an opportunity to review the action taken by the Pennsylvania Public Utility Commission in the pending pilot programs regarding direct access?

A. I'm sorry; I have not.

Q. So you wouldn't be familiar with what the prices are that the Commission is utilizing for purposes of implementing the pilots?

A. I don't know. I wasn't asked to be involved in that.

Q. That's fine. This is just one place in your testimony, page 34 of your direct, lines 1 and 2, where you use the terminology, "My estimates of market prices were derived from the incremental cost, as estimated by EGEAS."

When you say "derived," do you use that term because you used your market capacity prices and the EGEAS market energy prices to create a total market price for capacity and energy?

A. This is a reference strictly to the output of EGEAS in the sense that the term, "my estimates of market prices" is market clearing energy prices in that particular instance.

Q. Okay. What confuses me is the use of the term then "derived from the incremental cost, as estimated by EGEAS." It in fact is the EGEAS output unadjusted?

A. Yes. I probably could have used another word as well.

Q. That's fine. Now, the fuel price forecast utilized by Mr. Falkenberg, as you understand it, Dr. Jones, was in fact the EIA 1997 annual energy outlook?

A. That's my understanding, yes.

Q. And that was published in December of 1996?

A. Yes, but it was put together back in the spring or early summer of 1996.

Q. And by it's name, it is an annual publication?

A. Yes, it is an annual publication, that's correct, although it is revised monthly at least in the short term.

Q. Right; and those monthly revisions are characterized as short-term energy outlook; correct?

A. Only because their forecast horizon is two years.

Q. It's a two-year projection?

A. Yes.

Q. Now, could you turn to your Exhibit STJ-12? Here you plot the price forecast for oil. PP&L is the one you label intervenors, and then the EIA AEO '97, and EIA revised; correct?

A. That's correct.

Q. And the EIA AEO '97 would be the forecast used by Mr. Falkenberg; is that correct?

A. Well, if it had been applied to the proper starting point, yes.

Q. And the proper starting point that Mr. Falkenberg utilized -- well, I won't label it that. What was the starting point utilized by Mr. Falkenberg?

A. Well, it appears, having read his surrebuttal testimony, that he is stuck in 1995 for some reason unbeknown to me.

Q. And that's where your Exhibit STJ-12 begins the EIA AEO '97 line, in 1995?

A. That's correct, yes.

Q. And at least with respect to oil prices, it is not the EIA revised line which is based on the short-term outlook showing higher prices for oil than the '97 annual energy outlook?

A. Yes. In fact, we have a color chart of this, which probably is a little easier to deal with. This exhibit actually has -- the one in STJ-12 for the revised when it was put together, July was all that was available. This is now out, and the EIA has further lowered its forecast so that --

JUDGE KASHI: Dr. Jones, would you identify that for the record?

THE WITNESS: Yes. I'm sorry. This is an exhibit called "The Starting Point Problem, Intervenors Use Old Fuel Escalation Rates to Increase Their Estimated Fuel Costs," and it is Exhibit STJ-12 Updated. It is precisely the same as the original STJ-12 except I have added the latest numbers that are available from EIA in terms of their revision.

BY MR. KLEPPINGER:

Q. Is that Revised STJ-12 anywhere in the record in this case yet?

MR. KAPLAN: Not yet, Your Honor. We ask that it be identified.

JUDGE KASHI: So marked for purposes of identification.

(Whereupon, the document was marked as PP&L Exhibit No. STJ-12 Updated for identification.)

BY MR. KLEPPINGER:

Q. Now, if I understand that, that is a monthly update to the EIA short-term energy outlook that was originally reflected in Exhibit STJ-12.

A. Yes.

Q. Now, in the original STJ-12, what was the monthly update? It is not reflected on my STJ-12. I'm sorry. The June -- no, it's not. I notice on your Revised STJ-12, you have the parenthetical, "Updated August, 1997." The original STJ-12 does not have a month.

A. That EIA forecast update on the original STJ-12 is from July, 1997.

Q. Now, by starting at 1995 under either STJ-12 or STJ-12 Updated, we are starting, are we not, at a lower oil market price than the starting point reflected on that exhibit for intervenors' forecast?

A. The question is: is that point lower than that point?

Q. Yes.

A. Yes.

Q. Do you agree that PJM market prices are essentially driven by gas and oil prices at the margin?

A. I would agree that more often than not, they are driven by gas and, on occasion, oil prices, yes.

Q. And would you agree that PP&L's generation mix is predominantly coal and nuclear?

A. Yes, which is why I pointed out the problem with the gap in my testimony.

Q. And I just want to explore that gap issue briefly.

A. Okay.

Q. At least conceptually, would you agree that if the spread in price between coal versus gas and oil is larger, that PP&L's potential in the marketplace to do well is enhanced?

A. Could I ask you to repeat that? I'm sorry. I must have lost a word or two.

Q. I'll try it again. Would you agree conceptually that the larger the spread between coal prices versus gas and oil prices, the higher the likelihood of PP&L being successful in the marketplace in terms of generating better profit?

A. Is this a hypothetical?

Q. Yes.

A. In the pure hypothetical sense, what it would suggest, setting aside -- I don't know about success in the marketplace, but setting aside all those other things, it would mean that the incremental revenue earned by PP&L's facilities would be higher than if they were a utility that was mainly fired by oil and gas.

Q. Because their cost of coal would be tracking below the cost of gas and oil that is clearing the market?

A. If that was possible over the long term, which it's not.

Q. Dr. Jones, this, I take it, is your first appearance before the Pennsylvania Public Utility Commission based on my review of STJ-1; is that correct?

A. That's true, yes.

Q. And prior to this appearance, had you testified in an electric utility base rate case proceeding?

A. Yes.

Q. And which case would that be?

A. The Hawaiian Electric case.

Q. And that was a 1989 appearance?

A. I don't recall. It's whatever is in my CV.

Q. At least your description of that at page 5 indicates that it was a request for an approval of an AES power purchase contract.

(Witness perusing document.)

A. Yes, along with all the rate design issues associated with that particular dispute.

Q. I guess I'm curious. Was the dispute over the approval of the contract or was the initial dispute Hawaiian Electric requesting a base rate increase or both?

A. Well, first of all, understand, that has been a long time ago, but my recollection of that particular proceeding was that it was -- I testified in a later phase of the proceeding. It had been going on a long time. So by the time I got there, all sorts of rate design issues were on the table.

Q. Other than that appearance, are there any other appearances listed in STJ-1 where you specifically addressed the justness and the reasonableness of a regulated electric utility's rate levels?

A. Under the testimony listing?

Q. Yes.

A. Or under projects where I worked with other companies?

Q. Under the testimony listing.

A. Not for electric companies, but for a lot of other regulated utilities.

Q. In your list of selected industry projects and publications on page 5 of Exhibit STJ-1, the first item listed there sounds to me to be descriptive of your current assignment with PP&L. Is that the one that you intend to describe there?

A. No.

Q. No. So your PP&L responsibility is not listed here other than what I thought may have been that one?

A. That's correct, it's not.

Q. And who was the major investor-owned utility for whom you did that project?

A. Northeast Utilities.

Q. Was that related to Northeast Utilities' total operations or their operations in one or more of the states that they operate in?

A. Both.

Q. And for the record, could you identify the states in which Northeast Utilities operates?

A. Vermont, New Hampshire, Massachusetts, Connecticut.

Q. And have any of those states engaged in restructuring proceedings comparable to those that we are experiencing here today?

A. Yes. In fact, my colleague, Professor Kalt, when he provided testimony in this proceeding, outlined all of those.

Q. Now, Connecticut is one of the states in which Northeast Utilities operates; correct?

A. Yes. It is headquartered in Connecticut.

Q. To your knowledge, has Connecticut passed electric industry restructuring legislation as of this date?

A. I don't know the answer to that.

Q. Now, in the context of the Hawaiian Electric proceeding, did you address the justness and reasonableness of the electric utility's fuel price forecast in the context of that case?

A. No, I don't believe so, although again, I haven't reviewed that record in years and years.

MR. KLEPPINGER: Thank you, Dr. Jones. That's all I have, Your Honor.

JUDGE KASHI: Thank you very much, sir.

Mr. Stewart.

MR. STEWART: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. STEWART:

Q. Good morning, Dr. Jones. My name is Todd Stewart, and I represent the Mid-Atlantic Power Supply Association.

In your rebuttal testimony, you stated that the Federal Energy Regulatory Commission had made a finding that PP&L did not have market power in the wholesale market for electric generation. Is that true?

A. That's correct.

Q. Is it also true, however, that in making that finding, FERC never considered whether or not PP&L had market power in the retail market for sales of electric energy?

A. That's correct.

Q. In your direct testimony, you state that generators of electric energy in a competitive market are price takers. Is that also correct?

A. That's correct.

Q. And that means that a generator is likely only to sell the energy produced by a particular plant at a price that will cover the cost of producing that energy; is that correct?

A. It means a number of things. It means that the --

Q. Specifically, does it mean what I just said? Is that true, that a generator is likely to sell at a price -- as a price taker, as a generator, I wouldn't sell at a price in which I wouldn't recover my costs?

A. Your variable costs, your incremental costs.

Q. Such things as incremental fuel costs, incremental O&M, that sort of thing?

A. Yes, the variable costs of generating electricity.

Q. And PP&L as a generation supplier would be expected to sell its generation into the spot market at a price that would recover its costs; would you expect that to be true?

A. In a general sense, yes, sir.

Q. Is it true then that the basis of PP&L's stranded cost claim is that if PP&L would sell all of its generation into the spot market, that it wouldn't recover a price that would be sufficient to cover the cost of that generation?

A. I'm sorry. You lost me entirely on that one.

Q. If PP&L were to sell all of its generation into the spot market -- I'm asking you to assume that that is the basis of PP&L's stranded cost claim, that they would sell all their generation at the spot market price that you're predicting that is going to exist in the future -- that they would not be able to recover all of those costs, and the difference between what they could actually sell the generation at and the actual cost is basically what is stranded. Is that generally true in a simplistic sense?

MR. KAPLAN: Your Honor, the Act defined what stranded costs are, and what we have is a very convoluted attempt to restate what the Act is. I don't think we're adding anything for the record.

JUDGE KASHI: I'm going to overrule the objection. Yes, in fact, the Act states what stranded costs are, but how that definition is being applied I think is being widely interpreted.

Can you answer the question?

THE WITNESS: Can I assume it's a hypothetical?

BY MR. STEWART:

Q. Yes.

A. Because I'm struggling with when you apply it to PP&L's specific assets. In the hypothetical, any utility's units, whether it's PP&L or PECO or anyone else, will be dispatched in accordance with the needs of the system and the ISO, which is going to determine what gets dispatched when; and each unit that is dispatched will be dispatched on the basis of incremental cost and receive an energy price and a capacity price, and that energy price will vary from moment to moment during the day, depending upon conditions in the marketplace.

Q. So that energy price is relatively volatile on an hour-to-hour basis?

A. Well, I mean, I don't know what volatile is. It is not expected in the future to be more volatile than it has been in the past. In fact, if anything, with the advent of trading and marketing, it may be less volatile.

Q. That's not what I asked you. I said on an hour-to-hour basis in any day, does the market clearing price vary around the average line? I mean, how much volatility is there in that price?

A. Well, the volatility would differ from day to day by your definition and mine, but yes, the prices at 2:00 in the morning are substantially lower than they are at 10:00 in the morning, something like that.

Q. I believe in your direct testimony at page 24, you state that you had not -- and it's at line 13. I'll give you a chance to get it.

A. Line 13 you say?

Q. Line 13, page 24.

A. Yes.

Q. You state that you have not separately modeled the bilateral capacity market; is that correct?

A. That's correct.

Q. Is PP&L currently engaged in the bilateral market for capacity?

A. Well, they're a net seller of capacity.

Q. They do have contracts for the sale of capacity according to what you just said then?

A. Yes.

MR. STEWART: I believe that's all I have. Thank you.

JUDGE KASHI: Thank you very much, Mr. Stewart.

Mr. Zalcman.

CROSS-EXAMINATION

BY MR. ZALCMAN:

Q. Good morning. My name is Fred Zalcman, and I represent the Environmentalists in this case.

Dr. Jones, would you agree that forecasters should use the best available information in forecasting future energy prices?

A. Yes.

Q. In your view, should forecasts be regularly updated as new information becomes available?

A. I'm sorry. I didn't hear the first part of the question.

Q. Should forecasts be regularly updated as new information becomes available?

A. Yes.

Q. Would you agree, for example, that demand forecasts are subject to change as underlying determinants such as demographics or facts that contribute to consumption change?

A. Variables like demographics affect long-term movements in demand, yes.

Q. Would you expect as well that the cost and performance of resource options change over time?

A. I'm sorry, can you help me; define "resource options," then I'll answer the question.

Q. Different types of supply side options; for example, a CT or combustion turbine.

A. That their costs change over time? Was that your question?

Q. Yes.

A. Yes, they fall. They've been falling over time.

Q. And would you agree that the further one goes out in the forecast horizon, the more uncertain the projections, as a general matter?

A. As a general matter, that's why I tended to use flat, or, you know, simple assumptions about the future.

Q. Then would you agree that uncertainty is especially pronounced in markets that are undergoing structural changes?

A. Let me deal with it as a hypothetical so as not to get in your way or mine. In a hypothetical organization that is part of a restructuring effort, everyone will agree, it seems to me, that uncertainty for the members of that industry will be higher than when it was regulated. However, that doesn't mean it's necessarily more uncertain than another industry in a competitive market.

Q. But as to the electric industry itself, would you expect that as you move into the retail competitive era, that injects more uncertainty into the forecasts for energy and as to prices; uncertainty that wasn't there before?

A. I don't think it increases uncertainty for the consumer. It certainly creates opportunities in the market for companies like Enron, for example, who's part of this proceeding.

Because the generators, the utilities themselves, are moved away from some guarantees that cost of service type regulation offers them into a market where they will have to fend for themselves, I expect that most of the senior management of those firms probably perceive themselves to be in a more uncertain situation.

Q. Now, would you agree that historical data is less useful in the context where it is in transition than if it were a stable industry?

A. I would absolutely agree with you that you should look to industries that have been deregulated, particularly when you're looking to the amount of change and things like the costs and prices that are changed for the products and services that are produced.

Q. And as to the electric industry, would historical data be particularly useful in predicting what the future market will bear for energy and capacity?

A. I mean, let's face it. The units, the generation units themselves that we can go out and touch today are going to be there tomorrow, and they're probably going to be there in 1999, except for the handful that PECO's going to retire.

They're going to hopefully by 1999 be operated at a lower cost, more efficient, perhaps. They'll be beginning to face competition. But they're there today. The turbines are the turbines, the steam units are the steam units.

So that aspect of it won't change. And that's why it's perfectly valid to rely on their incremental cost as an indicator of what the competitive price will be, because we know that competition tends to lower prices to incremental cost. So in that regard, history is perfectly valid.

Q. But you would agree, though, that industry restructuring does inject more uncertainty into the marked; would you not?

A. Well, I think you and I are going back and forth in the term. You're using the term "the market." I don't agree with you at all with respect to the consumer. Not at all. If I am an industrial customer or a commercial customer that periodically discovers my electricity cost goes up because a company goes in and goes through a rate case, come competition I know which direction that price is going to go, and it's not up, it's going to be down.

Because the evidence from the natural gas industry, the airlines industry -- you heard Dr. Kahn. He gave a set of numbers; the numbers vary between 25 and 50 percent as t the cost savings, and subsequently a price change.

So, like I said before, the senior management of the firms involved may perceive themselves to be in an uncertain situation, but as a consumer, I look forward to it.

Q. So you would make a distinction between consumer and producer?

A. You bet. And hopefully the Commission will as well.

Q. All other things equal, as an expert econometrician , would you have more confidence in a 20-year forecast of energy prices, or would you have more confidence in a series of annual forecasts over that same 20-year period?

A. You can't. Those are entirely different beasts, entirely different beasts. The idea of a long-term forecast comes to life based on its needs. There's no reason this Commission and the act requires that a long-term forecast be used in a stranded cost proceeding to say, "No, no, let's use a series of short-term forecasts instead."

As I sit here today, since the Commission has to make this decision in 1997, they need a long-term forecast, not an independent view of 20 short-term forecasts.

Q. Well, that seems to me an interpretation of what the act requires. Assume hypothetical that the act does not require a 20-year forecast of market price, and instead had the latitude to go by a series of annual forecasts. What would give you more confidence?

A. Well, I think I would be concerned about the outcome based on the forecasts. Here's my problem; in fact, you've laid the groundwork for it.

Let's suppose that we play true-up in this process, and we use one-year forecasts. And let's suppose I'm right, and let's suppose the cost of generating electricity drops like a stone in the future, and prices with it. The Commission, it seems to me, if they were to rely on one-year forecasts, would be faced with the unpleasant prospect of telling the customers that, "Well, you know, if we'd bought off on that long-term forecast in '97, you wouldn't see the change in stranded costs" -- presuming you're truing up stranded costs on an ongoing basis -- "that we're now forced to pass through to you."

Q. Well, I didn't ask you whether that's politically palatable, I'm asking you for your opinion as an economist, as a statistician.

A. Let me be straightforward then. Other things equal, the more information you know, the more accurate your forecast is going to be.

Q. Presumably over time you know more, and you're in a better position to make -- an economist, in making a forecast, would be in a better position sometime down the road than he would be standing here today; correct?

A. It's rare that a forecaster, an economic forecaster, would be given a choice between make a long-term forecast today or make a series of one-year forecasts on January 1st of each of the successive years.

Like I said when you asked me this question the first time, they are entirely different tools used for entirely different things.

But there's no doubt that if you're -- if you're asking me about an economic outcome in the year 2000, I will certainly probably know more by the year 1999 than I know today.

Q. Well, would you agree that some inputs are more sensitive to change than others?

A. Certainly.

Q. And apart from your rebuttal to the intervenor testimony in this case, have you conducted any formal sensitivity analysis to know what impact alternative assumptions might have on the dependent variables in market energy and capacity prices?

A. Yes.

Q. And what variables have you tested?

A. Well, I know with certainty that the real rate of change in fuel prices and the rate of change in inflation have a much greater impact than any of the other inputs. Unless you're making a huge change in some of the other inputs, that is.

Q. Have you actually tested alternative fuel prices to see what result?

A. I testified that we now have the ENPRO model in-house; and in the course of looking at Mr. Smith's various fuel prices, yes, we have all sorts of outcomes.

Q. Have you conducted any scenario analysis to test how putting together different projections of what the future may hold, how that would impact the dependent variables?

A. My understanding of the act and the need for market clearing prices, is, scenarios aren't asked for. They're not called for.

Q. So, the answer is, no, you --

A. The answer's no, because I wasn't asked to do that.

MR. ZALCMAN: Thank you, Your Honor. I have no further questions.

JUDGE KASHI: Thank you very much.

MR. CAPLAN: Thank you, Your Honor.

CROSS EXAMINATION

BY MR. CAPLAN:

Q. Dr. Jones, my name is Richard Caplan, I represent a number of independent power producers that hold PURPA contracts with PP&L as bulk energy suppliers, and I have not many questions for you.

Could you tell us what, if anything, gives you confidence that your ability to forecast the energy prices and capacity prices long term is better than the ability of the utilities in the 1980's for forecast their energy only avoided cost for the purpose of determining the price to be placed into PURPA contracts. I assume you're familiar with requirements of the act, of PURPA, that is, that the ceiling on these prices was going to be energy only avoided costs that the utility would incur; to essentially generate the power itself would require power in the open market itself, and generally speaking, depending on the jurisdiction, the state, and/or the state regulatory agency participated in proceedings to determine what that amount would be. Can you tell us what is the magnitude of errors that were made in those forecasts in the 1980's, in particular PP&L made one which established those prices in the range of 6 to 6.6 cents; why did that forecasting technology that we have today should give the Commission any higher level of confidence than the forecasting of those energy only avoided costs in the 1980s

MR. KAPLAN: Your Honor, I stopped counting at four questions. Can we have one at a time, sir?

JUDGE KASHI: Do you want to split it up, Mr. Caplan?

MR. CAPLAN: Yes, let see if I can simplify it.

BY MR. CAPLAN:

Q. In light of the substantial errors in forecasting of energy only avoided costs in the 1980's by PP&L and other utilities, what gives you the belief that your ability to forecast over the long term, energy and capacity prices is better?

A. Well, hopefully we've learned a lot since the 1980's. I lived through that era in the role as a forecaster, among other things.

There was a tremendous of market confusion during the 1980's that are likely not to be repeated until you and I are long since retired, and hopefully never.

There was little or no competitive analysis applied to the forecast with respect to utilities, because they were regulated entities.

The issue before us today is one of what will happen to the world of the regulated utility when it ceases to be regulated and becomes subject to the forces of competition.

And the issue for forecasters in that context is literally to divorce themselves from the methods and procedures that we might have had in place in the 1980's, and even later, and to look at what happened to other industries that have been subjected to competitive pressures themselves.

Now, as to the magnitude of the order of the errors in the 1980's, my testimony is filled with examples of the magnitude of those errors, and some reasons why they occurred.

Q. Now, does your testimony presuppose that the mechanism for dispatching units, generating units within PJM will remain static for the period of the forecast?

A. The method of dispatching meaning the dispatching on the basis of lowest incremental cost?

Q. Correct.

A. That's correct.

Q. And are you aware that there are presently pending before the FERC alternative strategies for implementing the PJM structure?

A. Not only that, but strategies filed in other approvals as well.

Q. And would the approval of any of those alternatives affect the validity of your assumptions? Or is it your belief that all of them involve the same approach unit dispatch?

A. At the heart of all the assumptions that I've read and studied is this notion that incremental cost will be the overall governing issue.

Q. Well, I assume you're familiar with the application that was made a month or so ago by the PJM supporting company, so-called, I believe it's like nine out of the ten, or eight out of the nine, for authority to sell it to the spot market at market rates rather than at cost.

A. At market rates other than at cost; I don't understand that phrase.

Q. Well, they'd ask for the same authority that PP&L, that you described, that individual utilities asked for to sell to the spot market.

A. Yes, but the price will be the cost, the incremental cost. That's what market-based means.

Q. How do you know that? See, that is the problem with all of your testimony that I have. How do you know that when I have the -- if I'm a utility, hypothetically, and I'm the chief executive officer, how do you know that when I have the authority to sell at the market price, at the price that I bid is, in fact, that marginal cost?

A. Because that's what competition will demand of you. In fact, I mean, we have clients like your clients as part of my firm's stable of folks that we advise. And people in your industry talk constantly about techniques and methods for getting their costs down so they can put in a lower price still against the competition. That's what competitive markets do. The incentive is to bid your incremental cost into the market, because that is the price at which you can supply that energy.

Q. Well, certainly you can supply it. But the question is, if you are, like my clients, having to amortize their capital, their loans, essentially, to pay back the cost of their plants. And the only resource, the only income stream they have to do that is the amount that they're paid for their energy and/or their capacity, how would that strategy in the long term allow those companies to survive, other than just bidding on the cost of fuel or the incremental cost of personnel, and O & M, and so forth? Where is the added cushion necessary to pay back the lenders?

A. Well, I think the problem with the implication of your question is that it's a static question. What it says is that these are companies that, oh, well, I'm stuck with what I have, and I'll sit back and take the afternoon off and play golf, and just bid in at my current cost.

That's not true. In fact, I'm reminded of testimony by senior VP of U.S. Gen recently, which is building the millennium plant; and that's strictly, you know, building it on their own. They don't have no contracts under that, to my knowledge. And yet they're not worried at all. They're confident that they can engage a variety of financial tools, and whatever else, to help them lower their costs and ensure a return of and on investment for their equity holders.

Q. Well, but that still doesn't answer my question. Assuming that I have a particular variable cost to produce a kilowatt hour of electricity, and assume for argument's sake that that is the market clearing price, and that cost doesn't include that service, or A & G, as you described it, and so forth.

A. Okay.

Q. If the clearing price is always that, and I don't do something by capital investment or some other strategy to lower my cost, how do I survive economically over the transition period, let alone a single year?

A. At any load that a system is dispatched, companies like PP&L or your hypothetical company will have an array of generation units. Some will be generating energy at a cost below the price of the last unit dispatched. And those people would be earning a health profit. And this unit will be just covering its variable costs.

Q. Well, what if he only owned one unit?

A. And you owned this one?

Q. Yes.

A. 365 days of the year?

Q. Right.

A. Well, I don't know what the probability of that would be, but it'd have to be tiny, because seasonal changes alone would raise you above that price at some point.

But as a hypothetical, if a firm earned just its strict variable cost, you would fail to earn a return of investment over the long pull.

Q. I just have one or two questions about the non-utility generator contract contribution to stranded cost. Why were you asked to comment on that in the context of your mission, which seemed to be mostly forecasting --

A. I'm not necessarily certain that I was. Could you point it out in my testimony, please?

Q. Yes. On page 105 of your rebuttal testimony you're asked a question, at the top of the page, starting on line 1.

A. Fair enough.

Q. "Intervenors' witnesses criticize PP&L for using NUG capacity factors near 90 percent. How do you respond?" And then you responded about Mr. Krall's basis for using that high capacity factor.

Did you do any analysis of what period of the useful life of the plants in question was represented by the period that Mr. Krall relied upon for his average capacity factors?

A. Mr. Krall and I had several discussions about this, and I asked him to provide me with the average capacity utilization factor that he observed in the marketplace. Now, how he settled out the details of how he set about to subdivide that as you've described it, I'm unaware.

Q. Let me ask you. Do you have any experience about what the useful life of a power plant is generally in industry? Is there such a thing as a standard useful life, or does it vary by the type of plant?

A. Well, it would obviously vary by the type of plant and how it's used or abused. But 30 years, 25-30 years.

Q. All right. So if a party built a plant in anticipation of a contract for 20 years, let's say, which is, I assume, less than that useful life, and the contract was at a price substantially above market rates -- and I'm thinking now of my clients who are enjoying prices at the five and a half to six and a half cents per kilowatt hour range -- and they know that those contracts will be expiring in the next ten or twelve years, generally, for that.

Would they have any incentive, unless they could get their costs of production down to prevailing market price, any incentive to make substantial capital investments that extent the useful life of those plants beyond the expiration of their contract?

A. Well, first of all, I expect their incremental costs are already below the price, well below the price, they're receiving under contract.

Second of all, if they'd want to continue to be a participant in this market, I strongly recommend they do whatever is necessary to get the costs down.

Q. All right. But would they, in fact, have an economic incentive to make those investments in light of the fact that they have no reason to believe that they would be competitive in terms of manufacturing costs after those contracts expire?

In other words, what would their incentive be to make substantial capital investments to try to re-tool their plants to be cheaper?

A. The economic incentive of the profit motive.

Q. And that would require a balancing test of whether they could, in fact, achieve those kinds of costs of production in line with your forecast of energy prices; is that correct?

A. Yes. And I have no idea of the details of your client's ability to meet market or not. My experience with clients like yours is they're more than able to meet these prices.

Q. Now, one other area, and I will depart the field. If you were asked to make some comment in your rebuttal testimony about market power, in particular, PP&L's market power, and you in effect said -- and there's a heading on page 107 in your rebuttal testimony in bold letters that says: "Under retail competition, PP&L will lack market power." And then you go through a series of questions and answers.

A. That's correct.

Q. Now, does that blanket statement, which presumably is supported by the answers to the specific questions underneath it, does that presuppose that things like metering and billing and so on, before you get the new entrants, in other words, that there will be no restructurings built in or restructuring which would allow PP&L to maintain a monopoly position with regard to issues like putting in meters, sending the bills; that kind of thing?

A. Well, I think you've asked me two different questions. With regard to the issues involving metering and billing and what not, there have been a number of witnesses that have addressed that head on.

My analysis of market power, both as I've already conducted for the wholesale market and the FERC has already approved, as well as the retail market, relies more on the number of competitors. And there are dozens of competitors that are now members of PJM's Interconnect Association that are ready to go the minute the gates open up.

That sort of competitive discipline will keep any entity from exercising market power.

Q. Regardless of the vestiges of a legal monopoly that are retained by the monopoly that are retained by the monopoly provider of transmission and distribution services? Are you making that as a generic statement?

In other words, if I have 500 potential competitors, regardless of the level of continued control with regard to transmission and distribution, I'd have no worry about market power?

A. You have open access for transmission. There's no problem.

Q. Well, what about distribution? Do I have open access about distribution? For example, if I'm not allowed to submit a bill and be the billing interface with a customer, and that is retained by PP&L, are you suggesting that that -- if I am foreclosed from that, that that would not represent some opportunity to exercise market power by PP&L?

A. I wouldn't think so.

Q. Why wouldn't you think so?

A. Well it's commonplace for the seller, I guess is the word, to send out the bill.

Q. Well, who would the seller be in this hypothetical, assuming that I want to sell my power, I'm an independent producer, I want to sell my power, and I want to send the bill; and PP&L says, no, you can't, only I'm going to bill?

A. Well, first of all, you're not foreclosed from selling your power, because you'll be selling your power to PJM. And all you need to do that is access to the wires.

Now, that determines the level of relevant competition in the marketplace for generation. And as to the nuances of the billing discussion, I've not been asked to investigate that.

MR. CAPLAN: I have no further questions of the witness, Your Honor.

JUDGE KASHI: Thank you very much, Mr. Caplan.

Ms. Moury?

MS. MOURY: I have no questions, Your Honor.

JUDGE KASHI: Mr. Burgraff?

MR. BURGRAFF: Thank you, Your Honor.

CROSS EXAMINATION

BY MR. BURGRAFF:

Q. Dr. Jones, good morning.

A. How are you, sir.

A. My name is Craig Burgraff, I represent the Office of Consumer Advocate.

Dr. Jones, your new exhibits that we discussed this morning. On Exhibit STJ-32, in doing your present value calculation, did you present value the data at a pre-tax or post-tax period?

A. The spreadsheet -- this analysis is done on the basis of a post-tax rate, a 41.5 percent tax rate.

Q. You don't know what the results would be if you did a present-day or pre-tax rate?

A. No, sir.

Q. Now, in looking at STJ-33.

A. I have that.

Q. When did you purchase the ENPRO model?

A. It would have been in early August. I don't remember the exact day, I'm sorry.

Q. And when did you request the ENPRO binary files in order to reproduce Mr. Smith's results, from the Office of Consumer Advocate?

A. From based on his surrebuttal testimony?

Q. No. When was that request made; do you recall?

A. No, I don't.

Q. And when did you make the ENPRO run that we're talking about here?

A. Well, we began shortly after we acquired the model by attempting to estimate what Mr. Smith had done, based on his testimony, and based on what we knew about the variables to begin with.

Eventually Mr. Smith turned over all his -- well, I don't want to use the term "all" -- turned over his import files from his surrebuttal testimony. And I think came late last week, the middle of last week.

Q. In response to Pennsylvania Power & Light Company's Set IV interrogatories, the Office of Consumer Advocate?

A. I don't have those interrogatories, so I can't answer that question.

Q. Just staying with some of your comments this morning, Dr. Jones, concerning inflation. Am I correct that a paraphrase of your position is that the economic policy of the United States with regard to inflation will dictate fuel price assumptions of oil, gas and coal going into the future?

A. It will affect their nominal price. It won't affect their real price. Well it could, but it's unlikely to.

Q. It's unlikely to affect the real prices going forward?

(Pause.)

A. I'm sorry; was that a question? Did I miss something?

Q. Yes, that was a question.

A. I'm sorry. Ask the question.

Q. I'm sorry. I thought you just said that it's unlikely to affect the real prices going forward. Is that true?

A. The monetary policy of the United States is unlikely to affect the real prices of oil, gas, coal and uranium on a going-forward basis. They're driven by supply/demand fundamentals in those fuels markets. That's why it's important to separate. It's like talking about the price of blue jeans and not looking at the cotton industry.

Q. But as far as the potential for inflation for oil, gas and coal prices on a going-forward basis, there will be other parameters that will enter into the actual inflation; isn't that correct? Besides American monetary or economic policy?

A. I hate to be professorial, but let me give you what the definition of inflation is. The definition of inflation is --

Q. Dr. Jones, could we just try and answer the question first, and then you can explain it?

A. Well, there isn't an answer to your question.

MR. KAPLAN: Your Honor, he's trying to answer the question, and I think we ought to let him continue with his answer.

JUDGE KASHI: Well, I don't know that he was trying to answer the question.

Could you restate the question?

I understand that you want to explain to us as best you can what you think the answer is. But if you can get us an answer to Mr. Burgraff, and then go on and explain yourself, I think we would all be better served.

Mr. Burgraff, do you want to repeat that?

MR. BURGRAFF: If I can remember it, I certainly will try, Your Honor.

BY MR. BURGRAFF:

Q. Dr. Jones, would you agree that there will be other parameters besides the monetary or economic policy of the United States that will enter into the ultimate level of inflation applicable to oil, gas and coal prices in the future?

A. No.

JUDGE KASHI: Can I restate that in my question? Does that mean, in your mind, that those prices, the inflation regarding those prices, are strictly going to be driven by the monetary and economic policy of this country?

THE WITNESS: Your Honor, inflation is a function of the monetary policy of the United States. That's the only way you can sustain a general increase in the price level.

The real prices for oil and gas go up and down based on the fundamentals of their markets. There is no such thing as the inflation of oil or gas. There is inflation, and then there is changes in the prices of oil and gas in real terms.

BY MR. BURGRAFF:

Q. Dr. Jones, have you in this proceeding provided any information testing the viability of your approach concerning the new combustion turbines; the viability of your assumptions concerning the new combustion turbines. You have for combined cycle plants; correct?

A. Yes; I guess I'm a little stuck on the term "viability." What did you have in mind?

Q. Well, under your assumption is that it indeed would be economical for an entity in the future to build a combustion turbine.

A. Yes.

Q. You have done that?

A. Yes.

Q. Where is that?

A. We have provided an import cost to a EGEAS for combustion turbines. I guess maybe we're talking about two different things.

Q. Have you done an analysis similar to Exhibit STJ-28, or whatever latest iteration is, Exhibit STJ-28R, on project economics for combustion turbines?

A. I didn't supply a 28R for combustion turbines, no, I did not.

Q. Now, on your oral rejoinder this morning, I believe you had a brief discussion of Mr. Smith's handling of imports in the beginning of 2005; is that correct?

A. To the extent I could understand what he did, yes.

Q. Now, my assumption is, in your corrections, that you kept the imports constant?

A. At 2005 levels, yes.

Q. Now, did you also reduce the base load of power, that is, replacement power from reduced import assumptions in Mr. Smith's analysis?

A. I don't understand the question.

Q. Well, obviously, if the imports are not there, then base load power has to be assumed.

A. Other power would be displaced, yes, in the process of dispatching the system.

Q. And so you did that; is that correct? By changing his import assumptions, you then had to change the base load power assumptions in your correction; is that correct?

A. By changing the import assumptions, what we'd reflected was the fact that imports are lower cost than some of the extant generation capacity. So imports would displace existing capacity.

MR. KAPLAN: Mr. Burgraff, could you try to keep your voice up?

MR. BURGRAFF: Sure.

BY MR. BURGRAFF:

Q. But in making your corrections, you did balance those two; is that correct?

A. You mean, did I double-count generation somehow or another? No, I'm not.

Q. I'm just asking what you did.

A. Imports offset additional generation elsewhere in the system.

Q. Now, I was slightly confused, once again, on your oral rejoinder in reference to your response to the question of the 1996 fuel prices.

A. Okay.

Q. Now, am I correct that indeed the 1996 fuel prices that you employed were not the actual 1996 fuel prices at the PJM stations?

A. They were the fuel prices that were experienced by each of those units, yes, in 1996.

Q. Well, not I'm confused, because you were responding to Mr. Smith's surrebuttal that essentially reviewed actual fuel prices and the fuel prices that you employed. His opinion was that you did not use the actual numbers of the '96 fuel prices.

A. Right. And what I said is, we went through an excruciatingly detailed examination of our prices against his, and we found tiny errors. I don't know where he came -- I think he cited a number like 20 percent. We found nothing like that.

Q. Now, the question's not the difference between your prices and Mr. Smith's prices. What I'm trying to get at, Dr. Jones, is, you received the actual 1996 fuel prices, or a group of 1996 fuel prices from PP&L; is that correct?

A. That's correct.

Q. And to the best of your knowledge, those were the actual fuel prices at the generating use; is that correct?

(Pause.)

A. Yes, I -- yes, I guess. I don't know how else to answer that.

Q. Can I refer you to Statement No. 7? Now, in the first full question and answer, Dr. Jones, at the top of page 28, that's the explanation for what was provided to you by PP&L personnel?

A. Yes. That statement is correct.

Q. This section to me is confusing. It sounds like it's information that was constantly being updated, so what I'm trying to figure out is, is the information that PP&L gave to you an ongoing spectrum of price changes during the year 1996, or was it the actual 1996 fuel prices at the end of the year -- I'm sorry, for the full year?

A. It was the prices as best the company could provide them based on the actual burn at the plants through November of 1996. For December, that was an estimate for that one month.

Q. That is for their own facility?

A. No, for all facilities.

Q. For all PJM facilities. Now, did not the actual fuel prices for 1996 differ from those assumptions?

A. I have no reason to believe that the numbers through November would have differed. December would have been different because December was a forecast.

Q. December was a forecast. Now, did you go back and review any data to determine the actual full year, 1996 fuel prices?

A. We did not change December.

Q. And I believe that the actual full year 1996 fuel prices for the PJM units principally for gas and oil were higher than the numbers that you were provided; is that correct?

A. Well, that's what I meant when I said we went through and looked at it unit by unit. Sometimes they were higher, sometimes they were lower, depending on whether you would use Mr. Smith's estimate or you used ours.

I can answer one question factually which you haven't asked indirectly, and that is if you're asking me are the real -- did the gas price in December of '96 actually exceed most people's forecasts if they were sitting at the end of November, '96, the answer would have been yes.

Q. But on an overall basis, the gas and oil fired units for a full year average for PJM, did not they exceed in price the values that you employed that were given to you by PP&L?

A. I gave you the estimate. I said it would be as little as 3 percent. We looked at both Form 1 and EIA Form 426 and compared them with our actual data, and the difference was small. But the 3 percent favors the EIA and Form 1 data, yes. So in that regard, they would be slightly higher.

Q. Earlier this morning, Mr. Kleppinger asked you *certain questions regarding the development of the capacity* prices in your forecast; is that correct?

A. Yes.

Q. Am I also correct that you did not provide the workpapers behind those capacity price assumptions based upon attorney-client privilege; is that correct?

A. I turned over a spreadsheet with the assumptions on it. What are you referring to, the contracts themselves or the capacity purchases?

A. No, I'm talking about the capacity prices. I'm referencing Question 24 of the Office of Small Business Advocate, Set I, if you have it there available.

A. I can get it. It's down here on the floor.

MR. KAPLAN: I'm sorry, what set?

MR. BURGRAFF: Set I, Mr. Kaplan, OSBA Question 24.

MR. KAPLAN: Set I?

MR. BURGRAFF: Yes.

MR. KAPLAN: OSBA, I'm sorry, one second.
Question No. 4?

MR. BURGRAFF: That's correct -- 24.

MR. KAPLAN: Twenty-four.

THE WITNESS: I have that. I don't know whether that was subsequently revised or updated or what, but I've got that one, anyway.

BY MR. BURGRAFF:

Q. I'm just referring to the answer to subpart (c). Now, is it your testimony that those workpapers were eventually provided?

A. I provided a spreadsheet and a revised exhibit which number escapes me, which was the spreadsheet behind my capacity prices in STJ-8. I'm sorry, I don't remember the number, but it seems to me it was an OCA interrogatory.

MR. KAPLAN: Your Honor, it's counsel's responsibility to respond to data requests, not witnesses. As I note, the interrogatory answer states, "To the extent such workpapers exist, they were prepared at the request and under the direction of counsel and as such constitute confidential and privileged attorney work product" -- to the extent that they exist.

We did provide, Dr. Jones correctly recalls, the list, a spreadsheet with various prices that he received from PP&L that were used to calculate, as a basis for his calculation of capacity prices.

MR. BURGRAFF: The list of the prices?

MR. KAPLAN: Excuse me?

MR. BURGRAFF: A list of the prices?

MR. KAPLAN: I believe it was a list. Dr. Jones can be more specific, because he had the data.

BY MR. BURGRAFF:

Q. Dr. Jones, in your methodology, I believe you started with the 1996 fuel cost by plant, and --

A. Fuel cost by what? I'm sorry, I can't hear you.

Q. By plant.

A. By plant.

Q. And I believe as you testified earlier this morning, you assumed that those prices would stay constant through 1999; is that correct?

A. I'm sorry, are we referring now to capacity prices or something else? Have we switched gears?

Q. No, fuel costs by plant.

A. Can you repeat the question, then?

Q. Sure. I think in your methodology, you began with the fuel prices by unit based upon 1996 information and on a going-forward basis then, especially for natural gas and fuel oil, you assumed that they would stay constant through 1999; is that correct?

A. The assumption for oil products and natural gas was flat nominal prices through 1999, that's correct.

Q. And then you increased those prices at 2.5 percent per year thereafter; is that correct?

A. That's correct.

Q. Now, Dr. Jones, you assumed that over the next decade, several thousand megawatts of new generating capacity will be built within PJM; is that correct?

A. I don't remember the amount. I can't confirm several thousand megawatts, but there is going to be new capacity, yes.

Q. Would you agree with the proposition that over the term of your forecast, the market prices that you project should be sufficient to support -- in fact, I believe you were attempting to testify to that this morning -- to support the new capacity resources that you assume will be built?

A. Yes.

Q. Now, in your market price analysis, I believe you assume the capital cost to construct a new combined cycle unit would be $595 a kilowatt in 1996; is that correct?

A. That's the input to EGEAS, which is not the unit that we anticipate will be built for use in 2002, as I explained in my rejoinder this morning.

Q. And for EGEAS purposes, for combustion turbine capacity, you assume $338 per kilowatt in 1996; is that correct?

A. That's correct.

Q. If we could simply look at, if I could find it, Exhibit STJ-28-AR for a second?

A. Okay.

Q. Now, when you say that you, for combined cycle units, would use $595 a kw for EGEAS purposes only, is that the reason that when you do your exhibits projecting the economics for combined cycle units, you use a capital cost of $489?

A. I explained this morning that the reason $595 and $338 is in EGEAS is because I wanted to be sure that when it came to dispatching that model, that we had prices in there that everybody could agree to.

Those prices are high by year 2002 standards. By the same token, because they're high, our market clearing energy prices are higher than they would have been if I had put this number in there, or Mr. Smith's number.

Q. Well, I'm just trying to understand why, when you deal with the economics under the combined cycle assumptions, that the $595 figure is never used, the $489 figure is.

A. I'll be happy to.

Q. And I'm not an expert in this, obviously.

A. Right. Well, I'm not going to get technical on you. The numbers in STJ-28R is a listing of the types of units that folks are trying to sell today.

Now, I can't predict what folks will try to sell tomorrow, but my evaluation of the rate of change in technology with respect to combustion cycle units shows that a 10 percent decrease by 2002 wouldn't be unwarranted, but that's not in here, either.

In other words, the analysis in Exhibit 28 is what we no about today with no attempt to lower the prices any further, improve the heat rates anymore for the year 2002.

But it certainly is an exercise that is okay for the purposes of forecasting capacity prices in the future. Truth be known, I expect them to be even more efficient than they are in this exhibit.

The $595 and $338 was my attempt to be as conservative as possible so we wouldn't get in a gigantic debate over, you used too low a heat rate and low a capacity cost in EGEAS which determines the critical element in this case, which are the energy prices.

So I put in high prices. I put in the price of a unit and an efficiency level that is here today, that PP&L engineers were confident everybody would agree to. So that's why they're there.

Q. Are you aware of any merchant power projects, that is power plants built strictly on expectations of market revenues?

A. I just gave you the name of one this morning, Millennium.

Q. With no long-term power contracts?

A. Yes, sir.

Q. And it has been built?

A. It's being built.

Q. And are there any in PJM, or is that in PJM?

A. It's not in PJM.

Q. Now, Dr. Jones, I think under prior cross-examination, you agreed that the supporting companies in PJM have now recommended to the FERC that market based bidding replace cost based bidding?

A. I don't know that I would characterize it like that. They certainly have applied for market based rates.

Q. Let me refer you to page 62 of your rebuttal statement.

A. Sixty-two of my what? I'm sorry.

Q. Rebuttal statement.

(Witness perusing document.)

Q. Are you are reading it, or --

A. No, I am reading it. I have it now.

Q. There beginning on line 12, you state, in a competitive market, generation owners will bid the maximum of their incremental costs and their average variable costs for each block of their generation unit; is that correct?

A. Yes, that's what I said.

Q. And I believe you illustrated the point using a hypothetical heat rate curve on Exhibit STJ-22?

A. Yes.

Q. Let me try and paraphrase how EGEAS represents dispatch generating units. The fuel price and the heat rate curve for each generating unit is represented in EGEAS; is that correct?

A. That's correct.

Q. And then EGEAS commits and dispatches the various units based on those variable cost curves; is that right?

A. It dispatches blocks of energy, yes.

Q. Blocks of energy. Now, does the dispatch price for each unit include the unit's variable O&M?

A. Yes.

Q. Now, once the dispatch is performed, what does EGEAS call the market energy price in each hour?

A. Whatever the incremental, the highest incremental cost of the last unit dispatched.

Q. So does that price include the variable O&M costs of the marginal unit or units?

A. Yes.

Q. So EGEAS then does or does not represent the bidding behavior you described on page 62 one moment ago, with generation owners bidding the maximum of their average and incremental costs? Or does EGEAS represent each unit's incremental cost?

A. It's dispatched on the basis of the curve labeled incremental costs in these exhibits. When you say "variable costs" to me, variable costs are incremental costs.

MR. BURGRAFF: If I could have a minute, Your Honor, I may be close to being done.

JUDGE KASHI: All right.

(Pause.)

BY MR. BURGRAFF:

Q. Dr. Jones, one final question going back to the discussion we had earlier concerning the changes you made to Mr. Smith's imports beginning in the year 2005.

A. Yes.

Q. Did you change the capacity plan assumed by Mr. Smith in making that change?

A. You mean the expansion plan?

Q. Yes.

A. You're asking me, did I change the expansion plan embedded in this model because I held imports constant at the year 2005?

A. That's right.

Q. No.

MR. BURGRAFF: Thank you, Dr. Jones. That's all we have.

JUDGE KASHI: Thank you very much. Mr. DeBroff?

MR. DeBROFF: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. DeBROFF:

Q. Good morning, Dr. Jones. My name is Scott DeBroff. I'm one of the attorneys representing Trial Staff in this matter. I just have one question for you, sir.

A. All right.

Q. Would you agree that if individual PJM member companies derive their stranded costs using different market rates, those utilities using lower projected market rates would have greater stranded costs and may have an economic advantage in the market over the other PJM member companies who use higher market rates?

A. For the purpose of the transition period, there's a cap in place. Rates are fixed and so the consumer is protected with regard to rates for the transition period. Other than that, I don't quite know how to respond to your question.

Q. If you look at page 33 to page 35 in your direct testimony, starting on page 33 around line 16 and ending on page 35, line 10, the question and answer involving your comparison with market prices that are generated in the PECO securitization -- that's where I refer my question to --

A. Let me see if I can take a shot at it again based on those two pages. PJM is populated by utilities who have individual generation units that are capable of achieving lower costs than others. To the extent that retail competition as I fully expect drives prices down to the incremental cost of the last unit dispatched, there will certainly be some utilities who enjoy higher incremental profits in a competitive world than others.

There are certainly some utilities that will have generation assets that will variously compete and not compete during the course of a year.

That's what competition does. It weeds out the weaklings and rewards the strong. But as a result, the consumer benefits because what that does is guarantee the lowest possible prices, once the transition period is over, to all Pennsylvania residents.

Q. So I assume you agree with the question in principle?

A. I agree in principle that there will be some companies who will have units who generate higher incremental profits than other companies.

MR. DeBROFF: Thank you. I have nothing further.

JUDGE KASHI: Thank you very much. We're going to break for lunch at this time. We will return and have the redirect. We stand in recess until 1:30.

(Witness temporarily excused.)

(Whereupon, at 12:28 p.m., the hearing was adjourned, to be reconvened at 1:30 p.m., this same day.)

AFTERNOON SESSION

(1:38 p.m.)

JUDGE KASHI: Back on the record.

Redirect, Mr. Kaplan?

MR. KAPLAN: Thank you, Your Honor.

Whereupon,

SCOTT T. JONES

having previously been duly sworn, testified further as follows:

REDIRECT EXAMINATION

BY MR. KAPLAN:

Q. Dr. Jones, during the cross-examination of Mr. Kleppinger for PPLICA, we brought out this chart, which is denoted Exhibit STJ-12 Updated, and that was identified for the record, and that differs from STJ-12 in your testimony.

Could you just clarify for the record how it differs?

A. This chart as opposed to STJ-12 in my testimony has the EIA revised line that is different and lower, and according to the EIA, what they're doing is accounting for the fact that prices were very high at the end of 1996 and they and DRI and me and everyone else expects them to go lower, which is what they've been doing all year.

MR. KAPLAN: Your Honor, we have made copies of this chart for all parties; and based upon the fact that this chart represents the latest data in response to

Mr. Zalcman's, for example, question, we would move that this chart be admitted into the record at this time.

JUDGE KASHI: It has already been marked and identified at the request -- Mr. Kleppinger brought it up, and then you moved it. It is being moved into the evidentiary record. I'll receive it without objection.

(No response.)

JUDGE KASHI: Without objection.

BY MR. KAPLAN:

Q. Dr. Jones, you were asked by Mr. Burgraff about the imports into the PJM. Do you recall that?

A. Yes.

Q. And do you recall that you -- in order to refresh everybody's recollection, do you recall what the nature of that inquiry was?

A. If I'm not mistaken, Mr. Burgraff asked me did we re-optimize Mr. Smith's capacity expansion plan when we held the import levels constant at the year 2005. I believe that was the question or words to that effect.

Q. Have you considered what would happen if you had done that?

A. Yes, recognizing I haven't done it, so I don't know exactly, but my suspicion is that it would have lowered market energy prices. I'll presume that Mr. Smith's initial expansion plan was optimal; and if you take an optimal situation and you add imports to it, by definition, it is no longer optimal. So that if you optimize at that point, you're going to end up with a preferred solution, which is going to be lower energy prices.

MR. KAPLAN: Thank you, Dr. Jones. We have no further questions, Your Honor.

JUDGE KASHI: Thank you very much.

Mr. Kleppinger, you look like you have some questions.

MR. KLEPPINGER: Just briefly, Your Honor.

RECROSS-EXAMINATION

BY MR. KLEPPINGER:

Q. Dr. Jones, on the updated STJ-12, am I correct that the EIA revised short-term outlook still concludes on, as an end date of that outlook, December 31 -- is it 1997 or 1998?

A. '98. Yes, it goes through the full year 1998.

Q. The full year of 1998?

A. Yes.

Q. And we won't have a complete EIA annual energy outlook for the long-term forecast until December of 1997; correct?

A. I believe it is December, yes.

MR. KLEPPINGER: Thank you. That's all I have, Your Honor.

JUDGE KASHI: You're excused, sir.

(Witness excused.)

JUDGE KASHI: That which has been marked and identified as PP&L Statements Nos. 7 and 7-R, together with attendant Exhibits STJ-1 through 30, 31, 32, 28R, a and b, and STJ-12 Revised are received into the evidentiary record without objection. I believe I missed a couple exhibits there. The last ones are -- is it 31 through 34?

MR. KAPLAN: I believe it is 31 through 35, Your Honor, for the rejoinder.

JUDGE KASHI: Will be received into the evidentiary record without objection.

(No response.)

JUDGE KASHI: Without objection.

(Whereupon, the documents marked as PP&L Statements Nos. 7 and 7-R and PP&L Exhibits Nos. STJ-1 through STJ-35 and STJ-12 Updated were received in evidence.)

JUDGE KASHI: Now, we're now going with Mr. Kollen; is that it?

MR. KAPLAN: If we could go off the record for just a moment?

JUDGE KASHI: Off the record.

(Discussion off the record.)

JUDGE KASHI: Let's go back on the record.
So we will next take Mr. Kollen.

MR. KLEPPINGER: I believe so, Your Honor.

JUDGE KASHI: Would you raise your right hand and be sworn, sir?

Whereupon,

LANE KOLLEN

having been duly sworn, testified as follows:

MR. KLEPPINGER: Your Honor, in accordance with the procedures we've adopted in this proceeding, I would like to have marked for identification as PPLICA Statement No. 3 the direct testimony and exhibits of Lane Kollen. The exhibits are labeled as LK-1 through LK-4, as well PPLICA Statement No. 3-S, the surrebuttal testimony and exhibits of Lane Kollen. The exhibits there are labeled Surrebuttal Exhibits LK-1 through LK-4.

JUDGE KASHI: So marked for purposes of identification.

(Whereupon, the documents were marked as PPLICA Statements Nos. 3 and 3-S and PPLICA Exhibits Nos. LK-1 through LK-4 and PPLICA Surrebuttal Exhibits Nos. LK-1 through LK-4 for identification.)

DIRECT EXAMINATION

BY MR. KLEPPINGER:

Q. Mr. Kollen, are there any additions or corrections to these statements you'd like to make at this time?

A. Yes. With respect to my direct testimony, page 32, line 8, the words "to greenfield condition" should be removed, stricken.

MR. CAPLAN: Pardon me. Could you repeat that once again, please?

THE WITNESS: Yes. Page 32 of my direct testimony, line 8, the words, "to greenfield condition" should be stricken. That line should now read, "dismantle the generating facilities and to restore the sites."

BY MR. KLEPPINGER:

Q. Are there any corrections you'd like to make to your surrebuttal testimony, Statement No. 3-S?

A. Yes; page 10, line 4 -- this is my surrebuttal testimony, page 10, line 4, the word "illusion" should be "illustration." Page 15, line 20, "PECO" should read "PP&L."

That concludes the modifications to my testimony.

MR. KLEPPINGER: Your Honor, with those corrections, I'd like to move for the admission of PPLICA Statement No. 3 and PPLICA Statement No. 3-S and the accompanying exhibits at this time.

JUDGE KASHI: Subject to any timely motions and/or objections made pending cross-examination, that which has been marked and identified as PPLICA Statement No. 3, 3-S and the attendant exhibits will be received into the evidentiary record.

MR. KLEPPINGER: Thank you, Your Honor. Mr. Kollen is available for cross-examination.

JUDGE KASHI: Thank you very much, sir.

Mr. Burgraff?

MR. BURGRAFF: Your Honor, that is a misprint there. We have no cross of this witness.

JUDGE KASHI: Mr. Kaplan.

MR. KAPLAN: It is Mr. Russell, Your Honor.

JUDGE KASHI: Mr. Russell.

MR. RUSSELL: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. RUSSELL:

Q. Good afternoon, Mr. Kollen.

A. Good afternoon.

Q. My name is Paul Russell. I'm representing PP&L in this proceeding.

If you turn to your direct testimony, page 6, on lines 8 to 9, you talk about costs recoverable as a cost of service under traditional regulation. My question there is:

are you generally familiar with cost of service ratemaking under traditional regulation?

A. Yes.

Q. Would you agree as a general matter that income taxes are recoverable in rates?

A. Yes, they are; as a general matter, that is correct.

Q. And would you further agree as a general matter that pension expenses are recoverable in rates?

A. Yes, that's true.

Q. On page 14 of your direct, referencing specifically lines 13 and 14, you're talking there about service and pay as of the calculation date. In your opinion, does that phrase mean that the amounts would not reflect pension expense for future service?

A. That's true. Presumably, the company would recognize additional pension expense in the future, and that then would provide for the pension expense of future participants.

Q. In this proceeding, you've referred to, quote, "over-funding of pension expenses." Could you explain what you mean by that phrase?

A. Yes. At this time, the company's pension fund, the fair market value of the fund assets is substantially in excess of the two different measures of the accumulated benefit obligation, the APBO and the ABO.

Q. And that's what you referred to as, quote, "over-funding"?

A. Yes, because those are the obligations of the company as it stands today based upon current pay and the current service vesting of the employees, and you contrast that to the fair value of the assets within the pension fund, and the difference is an indication of the funding level compared to the obligation, and the fair value is substantially in excess of the funding obligation, as is clear from a review of the actuarial report.

Q. Are you generally familiar with PP&L's last base rate proceeding at Docket No. R-00943271?

A. Yes.

Q. And did you appear as a witness on behalf of PPLICA in that proceeding?

A. Yes, I did.

Q. Was the company's pension fund, quote, "over-funded" at the time of that case?

A. I believe that it was, but I'm not 100 percent certain.

Q. Do you recall whether the PUC calculated the company's pension expense in that case using SFAS-87 guidelines?

A. Yes, it did.

Q. Do you recall if there was an adjustment proposed in that case to reduce the company's pension expense for alleged over-funding?

A. I don't believe that PPLICA did. I believe another of the parties in the proceeding did.

Q. And would you agree the Commission did not order any reduction in the company's rates for over-funding of pension expense in that case?

A. Well, I don't think I would characterize it quite that way. I think that I would agree with you that the company did not accept the OCA, I believe was the party, did not accept the OCA's adjustment on pension expense.

Q. In your answer, you said the company. Did you mean the Commission?

A. Yes, I did.

Q. In preparing your testimony in this case on pension funding, did you examine any other item of expense to determine if PP&L was over-collecting or under-collecting that expense as established in the last rate case?

A. I did look at Statement 106 expenses and the funding levels associated with that and the treatment that the company had provided to those dollars in terms of whether or not there was a regulatory liability or a regulatory asset associated with that issue.

Q. Anything else other than 106?

A. Well, I think the question was fairly broad, and I think that that would cover as well the unrecovered energy costs from 1996, '97 to '98.

Q. Was there anything else then or just those two items -- three items counting the pension costs?

A. I think there were a number of things that I reviewed. I did not address some of them, however. For example, the 1994 early retirement program, the recoverable Susquehanna operating costs, the SSES deferred refueling costs, which I did address; common plant adjustment, the retired miners' health care costs I did not address, and the 1994 rate case expense, which I did not address. So I did review a significant number of these types of issues.

Q. Those issues that you've identified are the issues where you're suggesting -- well, some of them you've suggested an adjustment to the company's stranded cost claim; is that correct?

A. Yes, that is correct.

Q. When you looked at these issues, did you look at them in the context of whether the company was incurring an expense greater or less than allowed in its last rate case?

A. On some of them I did. In particular, with respect to the unrecovered energy costs, that was a central issues in my inquiry, and that is explained in my testimony.

Q. But unrecovered energy costs weren't in the last rate case, were they?

A. Well, that's true to the extent that they were not rolled into base rates until the end of 1996 or the beginning of 1997, but the issue of the level of recovery was appropriate to review for 1996, '97 and 1998, and I would consider that a rate case, if you will; but if you're referring back to the base rate case, that's correct.

Q. But you didn't examine to look back to the rate case to see if the levels were above or below those allowed in that case?

A. That's generally true, yes.

Q. Could you look at page 30 of your direct testimony? Really, it's generally in this pages 30 to 33, you discuss fossil decommissioning studies and criticize them as being inherently speculative and uncertain.

Would you agree that the Commission has relied on very similar studies to establish an allowable level of nuclear decommissioning expense?

A. Yes, I would agree with that. The Commission has explicitly made an exception for nuclear decommissioning expenses because of the magnitude and also because of health and safety issues.

Q. Are you generally familiar with the study that PP&L submitted in its last base case to support its claim for nuclear decommissioning expense?

A. Yes.

Q. Do you know was it prepared by TLG, the same consultant that prepared the company's fossil decommissioning study in this case?

A. The answer is yes.

Q. I have I guess three questions that are focused on the company's nuclear decommissioning study in the last case, just to make that preamble clear.

Would you agree that that study, the nuclear decommissioning study from the last rate case, assumed that the Susquehanna plant would be retired permanently, dismantled, and the site restored while under the ownership and control of PP&L?

A. I believe that was an underlying assumption, yes.

Q. And would you further agree that that nuclear decommissioning study assumed that the Susquehanna units actually will be retired on the dates indicated in that study?

A. Yes; and the reason for that is the nuclear units have operating licenses issued by the NRC, and those have a date after which the units simply are not allowed to operate absent a special extension by the NRC. So I think that is appropriate to use the end of the operating license as the termination date. You don't have that same situation with fossil units, however.

Q. And finally, would you agree that the nuclear decommissioning study contained projections of the costs necessary to fully dismantle Susquehanna and restore the site?

A. Yes, that's true, but once again, that was an exception as clearly stated by the Commission in its orders allowing nuclear decommissioning before the costs are actually incurred as distinguished from fossil dismantling.

Q. I'm going to shift now back to fossil decommissioning. Would you agree that the Commission historically has allowed recovery of fossil decommissioning costs as they are incurred?

A. I think I would phrase it a little bit differently. I would say that historically it has allowed fossil dismantling costs in arrears based upon a five-year average.

Q. On page 34 of your direct testimony where you discuss the Penn-Sheraton case, is it your reading of the Penn-Sheraton case that the Commission may be precluded from allowing recovery of projected fossil decommissioning costs?

A. Yes.

Q. And is that because such recovery would constitute current recovery of future costs?

A. Yes.

Q. In your opinion, could the same challenge be brought against the CTC in this case?

A. I'm not sure I understand the question. The Penn-Sheraton decision was really directed specifically to the issue of decommissioning.

Q. And you think it is limited to that factual circumstance?

A. That is the only circumstance in which I've evaluated it.

Q. If you would turn to your surrebuttal testimony on page 8, beginning on line 1. You note here that the PP&L methodology includes income taxes for more than 40 years due to equity returns under traditional cost of service regulation. Do you see where I am?

A. Yes.

Q. Under your analysis, over what period of time do you expect the company's generating units to operate?

A. I have no quarrel with the years as indicated in the Schadt Exhibit 1 with respect to each of the years that the generating units are detailed with the exception of Keystone and Conemaugh, because the company did not reflect the lives that PECO is using for those two units.

Q. But with the exception of those two units, you have no quarrel with the lives?

A. I don't.

Q. Do you reflect the capital and operating costs associated with the operation of the PP&L generating units in your analysis?

A. The capital and operating costs -- well, income taxes arise only because of capital costs, and I do reflect the capital costs as of the January 1, 1999 date or December 31, 1998. As far as future capital additions, those are included or addressed on behalf of PPLICA by Mr. Falkenberg.

Q. Still in your surrebuttal and still on page 8, on lines 5 and 6, you observe that the PP&L methodology and the PECO methodology provide equivalent results only if there are no income taxes, which you observe is not the case.

Could you explain how income taxes are reflected in your methodology?

A. Meaning the PPLICA methodology?

Q. Yes.

A. Income taxes for purposes of the stranded generation cost are reflected in the revenue requirements of the CTC. The net book value of the asset is compared to the after-tax contribution margins, which are projected out for future years and then discounted back at an after-tax rate. That difference then is considered to be the stranded generation cost to which is applied a grossed-up rate of return, and that then is recovered under the proposal that

PPLICA has included in Mr. Baron's testimony.

Then with respect to the regulatory assets, the treatment is a little bit different, because you don't have a net book value in the same sense that you do with a generation asset; and under that methodology, essentially, the stream of amortizations out into the future years is projected and then discounted back at an after-tax rate. Then that amount also carries a grossed-up rate of return, and then it is recovered under the PPLICA recommended methodology as detailed in Mr. Baron's testimony.

Q. Now, assume for a minute that the company sold its generating assets for your calculated market value. Do you believe that the sum of the after-tax proceeds and the CTC would be sufficient for the company to redeem its outstanding generation-related debt and equity?

A. I'm not sure I follow the question.

Q. Okay. Let me try to pull it apart a little bit. The starting assumption is that the company sells its generating assets for calculated market value. Then my question is simply: do you believe that the sum of the proceeds from that sale, the after-tax proceeds and the proceeds from the CTC will be sufficient for the company to redeem the outstanding debt and equity associated with those generation assets that have been sold?

MR. KLEPPINGER: Mr. Russell, a clarification, if I could. The market value at which they are being sold is which market value? Any particular party in this case?

MR. RUSSELL: The PPLICA-calculated market value.

MR. KLEPPINGER: Okay.

MR. RUSSELL: Thank you. That is a good clarification.

THE WITNESS: I would say the answer would be yes.

BY MR. RUSSELL:

Q. Still in surrebuttal on page 9, at lines 16 to 17, you state, and I quote, "The company is entitled today only to a net present value equivalent to its net book value," closed quote.

Could you define net book value as you use it in this part of your testimony?

A. Yes. Essentially, following through the hypothetical that I've outlined at the top of page 9, essentially, the net book value would be the original investment minus accumulated depreciation.

Q. On page 13 of your surrebuttal at line 10, you refer to the company's plan to write down its generation investment to market value. Could you provide a reference in PP&L's filing where we make this proposal?

A. I don't know if I can offhand. I think that is inherent, though, in any of these plans with respect to the CTC recovery, because inherently, the company will have to write down its net book value to the market value, as well as its regulatory assets will have to be written off during the CTC recovery period, and also the NUG costs will have to be written off during the CTC recovery period.

I think you can't just pick and choose which ones you would like to write off. Everything has to be written down to essentially what is the allowed market value.

Q. So if I could restate, you're not at this part of your testimony suggesting that this is a specific PP&L proposal, but that it is, in your opinion, a result of recovering dollars through the CTC?

A. Yes.

Q. In your opinion, would generally accepted accounting principles permit a utility to write down its generation investment to market value?

A. Yes.

Q. I guess as a follow-up, the utility has the discretion for accounting purposes to make a write-down of that sort?

A. Yes, it does; and in fact, may very well be required. It may go beyond a discretion to do so. I think it is just simple common sense if the company receives recovery for a portion of its net book value, in other words, diminishes the net book value of that asset because it receives accelerated recovery through the CTC, it only then follows that the net book value should be written down to the residual amount.

Q. Would that write-down be the result in any way of an impairment test?

A. I don't think there would be any impairment, depending upon the assessment of the market value determination. But under the PPLICA proposal, it is not our expectation that a write-off would be required. What we're simply saying is that the portion of the CTC that provides recovery of the existing net book value of the generation assets will effectively result in a write-down of that asset to its market value.

Q. But effectively result -- I think we've been over this, but I just want to be sure the record is clear. It's more than just effectively result. The company would actually take that write-down, in your opinion?

A. Well, it wouldn't be a write-off in the conventional sense where there is a lack of recovery allowed by a regulatory commission for an asset. It wouldn't be a write-off in that sense. It would be a write-down, because there would be an accelerated recovery of the net book value of the asset. So I'm glad we had this opportunity to clarify that. It's not a write-off in the sense of there being a disallowance. It is a write-down to the market value of the asset due to the fact that the CTC provides accelerated recovery.

Q. And that write-down will be reflected on the company's books?

A. Yes, over the CTC recovery period.

Q. Under your proposal, wouldn't most of the revenue that company receives during the transition period come from the market rather than from the CTC?

A. I don't recall what the relative proportions are. Really, Mr. Baron addressed that.

Q. I can direct that to Mr. Baron?

A. Yes.

Q. And my final question: In your opinion, should revenues associated with recovery of stranded costs be subject to income tax?

A. Some are and some are not. To the extent that some of the revenues are essentially a repayment or a buy-down of the net book value of the company's assets, those dollars essentially would not be subject to income tax. It would be very similar to the situation where I've described in my testimony on page 13, lines 12 through 14, if the company sold $150 at net book value of generation investment to a third party for $150, the company would use that amount to write off its generation investment. It would not recognize that as taxable income.

Q. But with that exception, the other revenues for recovery of stranded costs would be subject to income tax?

A. Some would and some would not.

Q. You've given one example of revenues that would not be, which is a write-down of an investment in generating facilities. Are there other examples?

A. Essentially, anything that's stated on a revenue requirement basis would effectively have income taxes associated with it. So that would include most of the regulatory assets. That's why they are stated on a revenue requirement basis as opposed to an after-tax basis.

Q. What about stranded cost associated with NUG contracts?

A. I haven't really looked at that extensively, but I would think that a revenue requirement basis, which would be inclusive of income taxes, would be appropriate.

Q. Thank you. That's all I have, sir.

A. You're welcome.

JUDGE KASHI: Thank you very much.

Redirect, Mr. Kleppinger?

MR. KLEPPINGER: Just briefly, Your Honor.

REDIRECT EXAMINATION

BY MR. KLEPPINGER:

Q. Mr. Kollen, for the benefit of the court reporter, I think you spewed out some initials in regard to a question on the pension over-funding obligation, APBO and ABO.

A. Right.

Q. Can you do that slower so it's clear in the record, please?

A. APBO is accumulated pension benefit obligation and ABO is accumulate benefit obligation.

Q. Now, Mr. Russell asked you a few questions about the last rate case about the pension over-funding issue. Do you recall that?

A. Yes.

Q. And in that case, were pension expenses stated on a test year basis?

A. Yes, that's correct.

Q. And under traditional regulation, if we had not passed the statute that brought us to the table here today, would there be opportunities in subsequent rate cases to revisit the over-funding of the pension issue?

A. Yes, and I think that's an important distinction. Essentially, on an ongoing basis the revenue requirement could always be revisited to the extent that the pension fund remained over-funded, or was even perhaps more over-funded in the future, the Commission could revisit the issue. We're at a point right now where we have one shot, one last opportunity to look at that and to deal with it.

Q. Thank you, Mr. Kollen.

MR. KLEPPINGER: That's all I have, Your Honor.

JUDGE KASHI: Thank you very much, sir. You're excused.

(Witness excused.)

JUDGE KASHI: That which has been identified as PPLICA Statement No. 3 and 3-S, together with the attendant Exhibits LK-1-4 associated with the direct, and LK-1 through 4 associated with the surrebuttal, are received into the evidentiary record.

Without objection?

(No response.)

JUDGE KASHI: Without objection.

(Whereupon, the documents marked as PPLICA Statement Nos. 3 and 3-S, including Exhibits LK-1 through 4 (Direct) and LK-1 through 4 (Surrebuttal) were received in evidence.)

JUDGE KASHI: Mr. Burgraff?

MR. BURGRAFF: Thank you, Your Honor. We have Douglas Smith here.

JUDGE KASHI: Would you raise your right hand and be sworn, sir?

Whereupon,

DOUGLAS C. SMITH

having been duly sworn, testified as follows:

JUDGE KASHI: Your Honor, I've handed the court reporter two copies of what has been marked as OCA Statement No. 2, consisting of 24 pages of narrative testimony, and Exhibits DCS-1 through DCS-9, and two copies of a document marked OCA Statement No. 2-S, consisting of 21 pages of narrative testimony and Exhibits DCS-10 through DCS-15.

JUDGE KASHI: So marked for purposes of identification.

MR. BURGRAFF: Thank you.

(Whereupon, the documents were marked as OCA Statement No. 2, including Exhibits DCS-1 through DCS-9, and OCA Statement No. 2-S, including Exhibit DCS-10 through DCS-15 for identification.)

DIRECT EXAMINATION

BY MR. BURGRAFF:

Q. Mr. Smith, do you have those two documents in front of you?

A. Yes, I do.

Q. Do you have any corrections to be made to those documents at this time?

A. Only a couple of very minor ones. Referring to OCA Statement 2-S, my surrebuttal testimony, on page 8. At line 17, the conclusion of line 17 should read, "for PJM steam units fired by oil and gas." And the words "and coal" should be stricken. So it should read, "fired by oil and gas as provided in confidential data response OCA 3-64."

On page 9, line 1, the word "lower" should be stricken. So it should read, "aware how much the PJM fuel costs," and so forth.

That's the extent of the corrections I have.

Q. Thank you.

MR. BURGRAFF: Your Honor, I would ask that these statements be admitted into the record at this time, subject to our usual caveats.

JUDGE KASHI: Subject to any timely motions and/or objections during cross examination, that which has been marked as OCA Statement No. 2 and 2-S, with the attendant Exhibits DCS-1 through 15, are received into the evidentiary record.

MR. BURGRAFF: Your Honor, I would also ask for the opportunity to allow Mr. Smith to respond very briefly to the new data that was submitted this morning by Dr. Jones in the Exhibits STJ-32 and STJ-33.

MR. KAPLAN: Your Honor, based on your ruling and your statement to Mr. Kleppinger, those would be rejoinder exhibits. And I believe that that is outside the realm of rejoinder.

MR. BURGRAFF: Well, Your Honor, we didn't have this or see this information until oral rejoinder. And so I think that Mr. Smith should have a chance to very briefly respond to the changes to the ENPRO methodology that --

JUDGE KASHI: As I believe I said this morning, as to that which was placed in as rejoinder, that he would not have had an opportunity to respond, so I'll give you an opportunity to respond to that, but not beyond that. So we're only talking about a few limited changes that were there. We're not talking about going off on the whole methodology.

MR. BURGRAFF: Oh, no, no. I'm simply referring to the two or three points that Dr. Jones referenced this morning.

JUDGE KASHI: All right, go ahead.

MR. BURGRAFF: Thank you.

THE WITNESS: Thank you.

The exhibit that I'd like to refer to first is Exhibit STJ-33. And it presents --

MR. KAPLAN: Excuse me. If you could give us an opportunity to get that out. Thank you.

(Pause.)

MR. KAPLAN: Thank you.

THE WITNESS: Exhibit STJ-33 presents several analyses performed by Dr. Jones of future energy prices in PJM, and it includes also the top line labeled DCS-12. I believe those are values that I submitted in association with my testimony.

My comments are limited to the green line, on my copy, identified as DCS-12, which is purported to be my analysis corrected for several specific concerns raised by Dr. Jones.

The first two issues raised by Dr. Jones are relatively minor, with respect to the number of generating units in the ENPRO production model, and the representation of multi-fuel generating units.

I do not believe those are a major source of difference between our market prices or the market lines shown on Dr. Jones's exhibit.

The more significant ones are issues raised by Dr. Jones, are related to imports into the PJM interconnection.

The point here is that Dr. Jones raised some concern with the fact that around the period 2005, my market price analysis assumes a decline in the imports into PJM that would be occurring from ECAR.

Dr. Jones stated that he essentially reversed that assumed decline in line, in the green line Exhibit DCS-12 Corrected; he simply assumed that imports into the pool would remain constant over time.

Dr. Jones also recognized that he did not do what I would consider to be taking the next logical step, which is also to reevaluate the expansion plan; that is the assumed generating units, new generating units that both he and I assume will come into the PJM interconnection on the PJM market over time.

My concern is simply that I don't believe that, as Dr. Jones suggested, there would be a major divergence in market price line over time as suggested by his Exhibit STJ-33, but rather that over a relatively short period of time any difference of the magnitude that I've assumed in imports between my analysis and Dr. Jones's would essentially be balanced, if you will, by the assumed additions to generating capacity in PJM.

I've assumed significant new base load, or at least intermediate generating units, combined cycles in PJM. And had I conducted essentially the analysis that Dr. Jones describes, I would have come up with a higher market price line than the DCS-12 Corrected.

The other issue relates to Dr. Jones's description of my capital cost assumptions for new generating units. He described a concern with the characterization of certain costs there and how they feed into the market price analysis in terms of a winter or summer kilowatts of a new combined cycle unit.

The point here is that what I have done is estimated the costs of interconnection, electrical and gas interconnection, land; costs other than equipment. And I've estimated those in dollars. Millions of dollars for a generating unit. I've simply expressed them on my -- I don't recall the exhibit number, but in my surrebuttal exhibits I've expressed those dollars in terms of the summer kilowatts of the generating units.

Had I expressed them or calculated them in terms of the winter ratings, which tend to be a bit higher for both combustion turbine and combined cycle units, I would have come up with the same dollars and effectively the same market price track. It's simply a matter of convention whether to express those in terms of the summer or winter ratings. I don't believe that either is a significant issue between myself and Dr. Jones.

MR. BURGRAFF: Thank you.

The witness is now available for cross examination, Your Honor.

JUDGE KASHI: Mr. Nordstrom?

MR. NORDSTROM: Yes, Your Honor.

JUDGE KASHI: Cross.

CROSS EXAMINATION

BY MR. NORDSTROM:

Q. Good afternoon, Mr. Smith. My name is Paul Nordstrom, and I represent Allegheny Power.

A. Good afternoon.

Q. Mr. Smith, the principal purpose of your testimony in this proceeding is to critique Dr. Jones's projections to the future market prices of electricity; is that correct?

A. That is one, yes.

Q. And you also provide your own market price projection in your direct testimony, which you then revived in your rebuttal testimony; is that correct?

A. Yes.

Q. And in addition, you provide an additional market price scenario based on an alternative fuel crunch forecast in your rebuttal testimony; is that right?

A. That's true.

Q. Would you agree that the actual future market electricity prices will invariably differ from each of these forecasts?

A. Yes, it's virtually certain.

Q. It's impossible, in other words, to predict future market electricity prices with certainty?

A. With certainty being the key. It's certainly possible to predict them, but we'll be off to some extent, yes.

Q. Of the major variables that may cause actual future prices to depart from projections in this case would include fuel costs, environmental compliance costs, generating unit performance, and carrying costs; is that correct?

A. Yes, that's fair.

Q. And is there also some uncertainty as to exactly how the competitive generation market will function as it develops over time?

A. Yes, there are a couple of respects in which that is uncertain, among them being that there is not essentially an established history of power plants of the type that I and Dr. Jones, and I believe other witnesses in the case, have assumed. There's not a history, a long track record of the costs that they will incur financing structure, things like that. That's another example, as you say, of an uncertainty which we are estimating now, but which could turn out differently.

Q. In view of these various uncertainties inherent in the future market price projections, in your opinion, would it be an appropriate regulatory policy for the Commission to allow a utility to determine a CTC based upon an actual rather than project market prices?

A. I was not asked to address that question specifically. I'm familiar with the act to some degree, but I'm reluctant to answer that, since that was explicitly not my charge in this case.

I would prefer, if it's all right, to direct that question to OCA Witness LaCapra. There may be others, but my sense would be that from the OCA's perspective, I wouldn't be the appropriate person to opine on that.

Q. I'd be happy to ask Mr. LaCapra the same question. But is this a case where you simply don't have an opinion?

A. That is the case, yes.

MR. NORDSTROM: Your Honor, I have no further questions.

JUDGE KASHI: Thank you very much.

Mr. Kaplan?

MR. KAPLAN: Thank you, Your Honor.

CROSS EXAMINATION

BY MR. KAPLAN:

Q. Good afternoon, Mr. Smith. My name is Donald Kaplan, I'll be examining you this afternoon on behalf of Pennsylvania Power & Light Company.

A. Good afternoon.

Q. Let's focus on your rejoinder testimony first, and the exhibit which was STJ-33. Your quarrel with the placement of the line, the green line, which is DCS-12 Corrected, is its distance from the top line, the blue line, which is DCS-12; is that correct?

A. Yes, basically.

Q. But as you heard this morning, Dr. Jones said that they did not re-optimize the system when you made that adjustment; is that correct?

A. Yes.

Q. You have no basis for stating that if the system were re-optimized with the adjustment, that the prices would be lower than making the adjustment without re-optimizing the system?

A. No, that's not correct. I have a solid basis for it. What I am saying is that the top line, Exhibit DCS-12, was developed with, as you say, not a bad term, and optimized, if you will, expansion plan, that weighed the relative economics of a combined cycle addition versus a combustion turbine addition through the years of the analysis.

What I am saying is that if one were to, as Dr. Jones has done on the second line, significantly change the import assumptions to PJM, and reexamined based on that assumption, one would, in fact, find that during those years when the assumed change in imports takes place, when Dr. Jones assumes greater imports will come in, one would, in fact, find, I believe, a higher market price driven essentially by fewer assumed additions than of combined cycle units than I have assumed in my expansion plan.

So, what I'm saying is, if I did it out, or presumably if Dr. Jones did it out in his EGEAS analysis, with those two changes together the impact on the market line would be nothing nearly as substantial as reflected on STJ-33.

Q. All right. Now, will you agree, first of all, that the green line would still be lower, that's the DCS-12 Corrected line, would still be lower than the DCS-12?

A. I don't know that for sure, because I don't know what other specific changes Dr. Jones made in the analysis. I haven't reviewed that analysis identified as DCS-12 Corrected.

I am assuming, as I mentioned in my initial statement, I'm assuming that Dr. Jones adjusted, for example, the capital costs a bit from those assumed in my analysis.

So, if that is, in fact, true, an adjusted line based on Dr. Jones's adjustment for capital costs might be a bit lower than the blue line. I don't know for sure every change that he made. Those were the two key ones that I believe I heard.

Q. But it's your testimony that if imports from the East-Central Area Reliability Council known as ECAR were coming into the market consistently over the period, as distinct from being phased out as you did, that those imports would increase the price, not decrease the price?

A. No. No, that's not what I'm saying. What I'm saying is that Dr. Jones's representation of a change to the import assumption relative to my analysis is not complete. And if one were to complete the logic, if you asked me to make the same change in input assumptions and see what happens in my analysis, I would come out with a line that would be higher than the green one, than Dr. Jones's cut at it.

I am not saying, however, that, all else being equal, an increase in imports from ECAR would increase the price in isolation. That's definitely not what I'm saying.

Q. Okay. Would you agree with the converse of that, that, all else being equal, an increase in imports from ECAR would decrease the price; all else being equal?

A. Yes. I guess I should say presuming they're at an economic or reasonably economic price, which both Dr. Jones and I have assumed. Given that caveat, yes, I would.

Q. Now, we've sort of been playing this game of inside modeling here a bit, and I just wanted to just get a couple of things out on the table.

ENPRO models a maximum of 200 days; is that correct?

A. I believe that's the case, yes.

Q. And in order to allow for expansion, you can only actually model less than 200 existing units; is that correct?

A. That's true.

Q. So, you need to be able to add units and not exceed the 200 limit?

A. That's right.

Q. And as a result of doing so, you had to aggregate certain units in order to respect the 200-unit limit; is that also true?

A. That's true. The nature of that aggregation was overwhelmingly to aggregate the smallest and most expensive units on the system. Basically, there are a lot of 20-megawatt combustion turbines located remotely that are not very efficient. We grouped a lot of those so that their impact of aggregation versus not, if you will, for those units is minimal.

Q. And just to be clear, aggregation is not necessary in a EGEAS because it can accommodate a larger number of units; is that correct?

A. I don't know that for a fact. I assume it to be true, I don't know that for a fact.

Q. And the expansion plan that was an input into ENPRO is based upon your work; is that correct?

A. Yes, it is.

Q. And it is an exercise of your judgment in optimizing the expansion plan?

A. That's true. It basically follows the balancing, as I mentioned, of economics between different types of available capacity options, and essentially a testing of those and seeing which one would essentially earn more revenues from the market. So it's an iterative process which I performed; that's correct.

Q. Now, would you agree that putting modeling issues aside, that it is the selection of inputs that will drive the differences in projected electric energy prices?

A. I'm not sure if I'd state it quite that absolutely. But I think the primary differences in this case between Dr. Jones and myself, I think the primary ones are related to input assumptions as opposed to modeling tools. Although I have not gone to an extensive debugging, if you will, of all of Dr. Jones's tools. I'd say that the inputs are the primary thing.

Q. And that would be consistent with your testimony that you thought that the green line, so to speak, the DCS-12 Corrected, would more likely be closer to the blue line, DCS-12, on Exhibit STJ-33?

(Pause.)

A. I'm not sure I follow that question.

Q. Okay.

A. Could you try me again on that?

Q. Yes. Will you accept that the differences between the blue line on Exhibit STJ-33, which is Exhibit

DCS-12, and the line denoted DCS-12 Corrected, are differences due to modeling application issues and consistency of certain input choices? Consistency of input choices, not a judgment regarding them?

A. Based on what I heard this morning I would say it's a combination of input assumptions such as capital cost, perhaps, identified by Dr. Jones, would be one difference. And the other difference would be, I would call it more of a -- as well as an assumption difference; also a methodological difference, or an incompletion with respect to the import. So it's kind of a combination.

Q. But would you also agree that the major difference between the blue and green lines on STJ-33, that's the line denoted DCS-12 and DCS-12 Corrected, on one hand, and the red and the black line, which are denoted ENPRO with Jones assumptions, and Exhibit STJ-8 on the other hand, are largely driven by inputs?

A. Yes, I would. I think that's the primary difference.

Q. And I apologize for the formality that I'm thinking paper and not as it sounds here in the hearing room.

Now, would you agree that among the inputs, by far the most important are the projected real price of fuels over the forecast period, and plus the impact of inflation on those real prices?

A. I think those are major, and probably the major ones. I don't know if I'd say far and away, or the exact phrase you used. I haven't tried to break it out into pieces. But those two are important.

Q. Are they clearly the most important, in your mind?

A. I'm not sure if I can say that. They're very important, and I would say they're the leading factors of the difference. Beyond that, it gets probably a little too precise for me.

Q. Would you agree, if PP&L utilized the ENPRO model to model its energy prices, then the dispute would narrow to the choice of inputs plus the methodological differences which we have referred to earlier?

A. I'd expect that to be true. And the reason I say expect is it's difficult to sum up all the aspects of analysis in one or two pieces. But I would expect that input assumptions and methodology, that covers a lot of ground, but those would be the main differences. And -- yes, I can leave it at that.

Q. Now, you are a mechanical engineer by training; is that correct?

A. Yes.

Q. Would it be correct to say that you have not personally published any forecasts of fuel prices?

A. I have not.

Q. Would it also be correct to say that you have not personally published any forecasts of inflation?

A. That's true, also.

Q. Indeed, in this proceeding the inflation and fuel prices that you've used were those of DRI; is that correct?

A. That's correct. We wanted to go with a professional forecasting firm, and it happened to be one that PECO Energy used for its analysis. That's right.

Q. Would you agree -- and I'm going to refer back to now the imports and ECAR issue just briefly. Would you agree that the only reason to cut off imports from ECAR or the phase-in amount would be that the price of power in ECAR relative to the price of power in PJM would be higher?

A. I would say the amount and price of available power in ECAR relative to PJM would be the primary driver of such a change; that's right.

Q. And just to be perfectly clear, as delivered to PJM to account for any transmission and losses?

A. Yes.

Q. Now, are you familiar with any long-term projections of the price of power in ECAR?

A. The only one that comes to mind was conducted by William Hieronymus, witness for PECO Energy, and I believe we utilized a price stream, if you will, for imports associated with his analysis of ECAR.

MR. KAPLAN: Bear with me a second, Your Honor.

(Pause.)

BY MR. KAPLAN:

Q. You didn't cite anything else in your testimony regarding the long-term projection of prices in ECAR, did you?

A. No, I don't think so.

Q. And prices in ECAR currently are substantially lower than they are in PJM; is that also true?

A. Yes, I think so.

Q. Now, let's turn to the DRI forecasts. I just want to see that I have the chronology correct. You started out with DRI's fall 1996/winter '97 forecast for fuel prices in the mid-atlantic region; is that correct?

A. Yes.

Q. And you got that forecast from PECO in PECO's restructuring proceeding; is that correct?

A. Yes, it is.

Q. As a data request?

A. I think so. Yes; that's right.

Q. Sounds right?

A. Yes.

Q. Now, at some later time when PECO revised its testimony in its restructuring case, you learned for the first time that there was a spring DRI forecast; is that also correct?

A. Yes. I learned that during, yes, during the rebuttal phase of PECO's proceeding, I believe.

Q. When you read their testimony?

A. That's correct.

Q. And it was based on that forecast or that forecast as reflected in your revised projections in DCS-12 and DCS-13; is that also correct?

A. Yes, it is.

Q. Now, as I understand it, you never actually obtained a DRI forecast yourself for this proceeding, you only used the material and information you obtained from PECO; is that true?

A. That's basically correct. We obtained information from PECO, which was not the entire DRI forecast. There was some information more than just the numbers, but we definitely did not acquire the entire document itself.

Q. In fact, you state that you actually haven't studied the forecast document itself; is that also true?

A. Could you ask me that again?

Q. You stated that you haven't actually studied the forecast document itself; is that true?

A. Not the whole document, no. And the reason for that was that PECO was reluctant to put all of the information available, at least in the time frame of their rebuttal testimony, and its -- that was the basic reason, that's right; the whole document was not made available.

Q. Now, it was available from DRI, however, if you had sought to obtain it? I'm not saying through discovery, but commercially available.

A. I believe that's true. I believe one might have been able to purchase either that forecast or essentially one of the same vintage; that's true.

Q. Now, would it be correct to say that you haven't studied the reasons why DRI revised its forecast downward? Is that true?

A. I don't recall to what level of depth OCA reviewed that document. I certainly can't recite for you all of their reasons, and my review was somewhat limited.

Q. Please turn to page 7 of your surrebuttal testimony, line 18. Now, here you state the reason why you believe that gas prices may increase in the future relative to that of other fuels such as coal and uranium, and you state the reason why you believe that would be the case; is that correct?

A. I state several factors here on page 7 related to the consumption of natural gas. The purpose of this was to address what I believe was a misleading or incomplete, at least, representation by Dr. Jones about trends in gas consumption. That's what I was addressing here.

Q. The point of this is to show that gas prices on one hand and coal prices on the other can, in fact, diverge; is that true?

A. Yes. I think, more specifically, it was to address several of Dr. Jones' reasons as to why they wouldn't, so it's similar to what you said, but not quite the same. This is primarily -- the quote here that we're discussing is primarily a response to Dr. Jones as opposed to an independent assertion on my part of, as you say, why gas prices will increase. There's a little difference.

Q. So all you're doing is responding to Dr. Jones' statements regarding gas prices, but not directly asserting the positive statement that gas prices will diverge from coal prices?

A. Yes. My source for the relative price trends is the DRI forecast as opposed to my independent derivation of those rates; that's right.

Q. And you haven't done any independent study of the elasticity of supply for natural gas; is that true?

A. That's true.

Q. And you also haven't modeled the increase in efficiency in gas use to produce energy, have you?

A. No, I haven't.

Q. Now, let's go back to your discussion of Dr. Jones' historical analysis, and I believe that's at the top of the page, the bottom of page 6 and the top of page 7. Dr. Jones concluded that the odds that a gap between oil and coal prices predicted by DRI could materialize would be roughly 33,000 to 1; do you recall that?

A. I do.

Q. Would it be fair to state that you criticize Dr. Jones' conclusion because it assumes that historical fuel price behavior will be an accurate prediction of future prices?

A. I wouldn't call it a criticism, but I would call it a statement of what -- a clarification of what it's limited to. I'm not saying his analysis is wrong, I'm only providing a perspective on what it is; that's all.

Q. Now, assuming one were doing a probability analysis that fuel prices will vary, as you predict, or as DRI, let's say, predicts that they will, in order to get the data points to do that probability analysis, one would look at historical data; is that also correct?

A. I would expect that would be one of the factors that one would want to develop for such a forecast; yes.

Q. Let's turn to, back on page 8, line 10. Here we're discussing Dr. Jones' starting point, which you claim is lower than 1996 actual prices for oil and gas; is that correct?

A. Yes, it is. That is what it says and what I believe; yes.

Q. Now, would you agree that the prices for these fuels in the first half of 1996, let's say the first three quarters of 1996, were lower than the prices in the last quarter of 1996?

A. My recollection is that that is generally true, although the strength of that relationship, how much different they were, I would have to look at the data; and I did do that, but I'm a little rusty.

Q. I'm not asking you to look at the specifics.

A. Okay.

Q. But your recollection is substantively, without the specific numbers, that the prices in the last quarter were higher than the prices in the first quarter?

A. I think so, but I don't recall how much; yes.

Q. That's fine. And the prices in 1997 have also been lower than the prices in the fourth quarter of 1996?

A. I think that they have. Again, just to clarify, I have in mind natural gas and oil units, primarily, as opposed to coal, which exhibited less strong relationships, so I'm answering primarily with respect to those fuels.

Q. Would you agree that in investing in capital-intensive projects, investors do not necessarily expect immediate profits?

A. I think the situation would be a project-specific one, so immediate profits is not an ironclad requirement for one making a capital investment. I would agree to that.

Q. I was referring to capital-intensive projects, but let me modify the question to hopefully make it a little bit more specific.

Do you believe that with respect to capital-intensive projects, investors do not expect to recover all of their investment plus a reasonable return thereon immediately, but rather expect that that recovery will come over the life of the project?

A. Yes, I would agree with that. It's a matter of degrees, and I think with respect to merchant projects, as I mentioned, essentially projects coming into a generation market without long-term contracts, I think what those expectations are as far as developers and the financial community are still being formed, but your statement is correct, they don't necessarily expect to make large profits in the first year or in the first several.

Q. And with respect to merchant plants without an existing base of customers, they're going to have to do a little bit more to break into the market in terms of getting customers, particularly on the retail level; is that correct?

A. What do you mean by "do a little more"?

Q. Well, I mean that they may have to be willing to sustain losses for several more years than a plant with existing customers and existing contracts in order to wait until they attract enough business.

A. I'm not sure they will be willing to accept losses for a significant period of time. In order to get financed, lenders are going to be looking for particular coverages and protection for the funds that they've lended, so there's a limit to how much pain, how much reduction in desired return, if you will, a project will accept and lenders will participate in. So it's still a new field and there's going to be a limit to it.

JUDGE KASHI: Mr. Kaplan, are you moving on to another area?

MR. KAPLAN: Yes.

JUDGE KASHI: Let's take a 15-minute recess at this point and come back and finish.

(Recess.)

JUDGE KASHI: Going back on the record.

Cross-examine, Mr. Kaplan.

MR. KAPLAN: Thank you. Under the urging of my group coordinator, Mr. Russell, I cut a few lines of cross, and we'll see if we can --

MR. KAPLAN: Way to go, Mr. Russell.

(Laughter.)

MR. RUSSELL: Thank you, Your Honor.

BY MR. KAPLAN:

Q. Do you have with you Exhibit STJ-28R that was introduced this morning?

A. I do.

Q. Now, in the third column of that page Dr. Jones adjusted the heat rates to be the HHV heat rates; is that correct, the high heating value heat rates, third column?

A. That appears to be the case, yes.

Q. Do you have any reason to believe that the units listed on this document with heat rates of under 6,700 Btu's per kilowatt-hour are not currently available?

A. No. I would expect that most or all of these units would be available. By that I mean a project developing in the near future, in the next couple of years, would be able to utilize -- I'm familiar with a number but not of all, so I haven't gone through the whole list to rule them out, but I'm not aware of any that would be clearly unavailable.

Q. So it's conceivable that projects will be built currently -- by currently I mean now or in the process of being built plant -- based upon a combined cycle unit that has an HHV of 6,700 or less?

A. Yes. The values here, just to be clear, as I understand them, are full load heat rates as opposed to as-operated heat rates over a range of output levels as I used, and I believe they are clean, basically initial equipment, and there may be some erosion from these of a few percent, but subject to those caveats, that's true.

Q. Will you agree that under the crucible of competition among electricity generators, that manufacturers of equipment that those generators use, for example, combined cycle generation equipment, will be under pressure either to increase their efficiency or reduce their prices, or both?

A. I'd say in a general manner that's true. I think my testimony addresses a number of issues that essentially call into question how much savings are achievable and how representative these current prices are, but a competitive industry will continue to maintain that pressure, I think, on suppliers; yes.

Q. Will you please turn to page 17, line 5, of your surrebuttal testimony?

A. Yes.

Q. Now, here you say that you are not certain if the trend in decreasing combustion turbine prices will continue; is that correct?

A. Yes, it is.

Q. And the reason you say that is because some of the price declines are due to discounting, and you cite the "Gas Turbine World 1996 Handbook"; is that correct?

A. That's exactly right. That along with the fact that I assumed a relatively low end from the industry benchmarks in the "Gas Turbine World" to start with. I mean it's the combination of those two.

Q. Let's take a look at the "Gas Turbine World Handbook" quote, and you do quote that beginning on page 16, line 16, through page 17, line 3. Would you agree that the reason why those prices have declined, according to the article, is because older machines are less efficient?

A. Well, there are a number of reasons that the handbook quotes there. One of them is that the less efficient units may be discounted for those reasons; yes. Clear the shelves, or that type of logic that the handbook mentions.

Q. And they are discounted because new, more efficient equipment is coming on stream to replace that older equipment?

A. I think so, yes.

Q. Now let's turn to page 18 of your rebuttal testimony, and we are now talking about your repowering discussion. I would like to ask you if you would agree that the cost of repowering a facility would generally be less than the cost of building a new combined cycle unit?

A. For sites and applications where repowering is a desirable option, that would be true. That would be the motivation for pursuing it. There are sites where, due to some of the factors I've mentioned, it may not be practicable, so that your statement may not be true, but in general one would look for opportunities where a lower capital cost is possible for a repowering project; that's right.

Q. Would you agree that to the extent that there are savings by repowering a unit, those savings will be realized in the incremental price of energy?

A. To the extent that there are large scale savings of that type available, that would be the tendency. I'm not convinced that there's a large scale, but, yes, there's a potential savings there.

Q. Might it also have a similar depressing effect on the price of capacity?

A. The capacity and energy prices in an analysis like mine are interrelated, and my expectation would be that the effect would be more directly observed and primarily observed on the energy side, actually, rather than capacity.

Q. Can you please turn to Exhibit DCS-14? You discussed this exhibit, I believe, on your rejoinder.

A. Okay.

Q. Is that correct, this is the exhibit you were discussing in your rejoinder?

A. Yes. This is one of them. I was particularly responding to Dr. Jones, but this is one of the analyses on my part that I was referring to; yes.

Q. I just want to be clear on this debate about winter and summer. There are certain elements of this calculation where the costs of those items would not vary depending upon which season that you would acquire those items, the actual total cost of the item itself, not its per kilowatt-hour cost but it's total cost?

A. That's correct.

Q. And they would include such things like land, infrastructure and switch gear costs and maybe even gas pipeline costs?

A. Yes, I think so. I estimated particular values, dollars, if you will, for those, and those are fixed whether you express and divide them by the winter output of the unit or the summer; that's right.

Q. Now, would you also agree with respect to interest during construction that another way of reflecting this cost would be to conduct your discounting analysis by showing revenues realized in a later year than the cost of constructing the project?

A. That's possible. I'd have to see the details, but I think that is a possible alternative way of reflecting the same type of costs, that one pays for equipment at a data that may be before or noticeably before the date that the plant actually produces power. I think you could do it in a different way; that's right.

Q. And to do it both ways would be double-counting?

A. Presumably, yes. Yes.

Q. Now, can we turn back to your rebuttal testimony at page 21, your surrebuttal testimony?

Bear with me a second. I'm sorry.

(Pause.)

Q. Page 2.

MR. BURGRAFF: Of the surrebuttal?

MR. KAPLAN: Of the surrebuttal.

THE WITNESS: Okay. I'm there.

BY MR. KAPLAN:

Q. Now, I'm talking here about the discussion of your switch from FERC Form 1 data to FERC Form 423 data. Isn't it true that FERC Form 1 data records fuel costs as those fuels are actually used while FERC Form 423 data records fuel costs as those fuels are purchased?

A. I believe that's true.

Q. By recording the costs of fuel as they are purchased, you could also have involved in that storage costs of the fuel as well?

A. Potentially. I'd have to see the definition of that as to how the companies submit that information.

Q. Is it also true that Form 423 only records data for steam units and does not record data for combustion turbines?

A. Yes, that's my recollection.

Q. Can we turn to page 8 of your direct testimony? At this page you deal with revenue from ancillary services; is that correct?

A. Would you tell me that page again?

Q. Page 8 of your -- I believe it's your direct. I'm sorry; if you're having difficulty, it would be at line 19, the question beginning on line 19.

A. Okay. I'm there.

Q. Now, would you agree that in determining whether a proposed combined cycle plant or combustion turbine would earn its required rate of return, that in addition to the revenue from energy sales and capacity sales, you would also have to count energy sales from ancillary services?

A. That would be a potential source of revenue for each of those. I think it would be more primary for a combined cycle rather than a combustion turbine, which I've used to guide my capacity price analysis, but it would be a potential for each of them.

MR. KAPLAN: Thank you, Mr. Smith.

That's all we have, Your Honor.

JUDGE KASHI: Thank you very much.

Mr. Burgraff.

MR. BURGRAFF: May I have one or two minutes, please, Your Honor?

JUDGE KASHI: Sure.

(Discussion off the record.)

JUDGE KASHI: Back on the record.

Mr. Burgraff.

MR. BURGRAFF: We have no redirect, Your Honor.

JUDGE KASHI: Thank you very much.

You're excused, sir.

(Witness excused.)

JUDGE KASHI: That which has been marked and identified as OCA Statement No. 2 and 2-S, together with the appended exhibits, are received into the evidentiary record, without objection?

(No response.)

JUDGE KASHI: Without objection.

(Whereupon, the documents marked as OCA Statements Nos. 2 and 2-S and OCA Exhibits Nos. DCS-1 through DCS-15 were received in evidence.)

JUDGE KASHI: Mr. Russell or Mr. Kaplan, do you wish to move in the testimony of Mr. Berish and Mr. Hoch?

MR. RUSSELL: I would like to do that, Your Honor. There are actually three company witnesses who the intervenor parties have indicated they have no cross-examination for, and what I would propose to do at this time is identify their testimony and exhibits and then move those into the record.

The first is Michael J. Berish. I would identify his direct testimony as PP&L Statement No. 4.

JUDGE KASHI: So marked for purpose of identification.

(Whereupon, the document was marked as PP&L Statement No. 4 for identification.)

MR. RUSSELL: The second witness is Mr. Donald S. Hoch. I would identify his direct testimony as PP&L Statement No. 5.

JUDGE KASHI: So marked for purpose of identification.

(Whereupon, the document was marked as PP&L Statement No. 5 for identification.)

MR. RUSSELL: And the third witness is Robert J. Farley. I would identify his rebuttal testimony as PP&L Statement 22-R, and it is accompanied by Exhibit RJF-1.

JUDGE KASHI: So marked for purpose of identification.

(Whereupon, the document was marked as PP&L Statement No. 22-R and PP&L Exhibit No. RJF-1 for identification.)

MR. RUSSELL: Your Honor, the intervenor parties have indicated they have no cross-examination for these witnesses. Accordingly, I would move these statements and exhibits into the record.

JUDGE KASHI: They will be received into the evidentiary record by stipulation.

(Whereupon, the documents marked as PP&L Statements Nos. 4, 5 and 22-R and PP&L Exhibit No. RJF-1 were received in evidence.)

JUDGE KASHI: Thank you, sir.

MR. RUSSELL: Thank you.

JUDGE KASHI: Anything further from counsel today?

(No response.)

JUDGE KASHI: Hearing nothing, we will recess until 9:30 tomorrow morning. I want you to know that when you come in tomorrow morning, there will be spotlights set up here. Don't worry about them. We will have to vacate between 10:00 and 10:30, so we'll just barely get it started and get out of here. I don't know, maybe the Commissioners will want to take their pictures with you guys.

(Laughter.)

JUDGE KASHI: We'll recess until 9:30 in the morning. Thank you very much.

(Whereupon, at 3:39 p.m., the hearing was adjourned, to be reconvened at 9:30 a.m. on Tuesday, August 26, 1997 in Harrisburg, Pennsylvania.)

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FORM 2

C E R T I F I C A T E

I hereby certify, as the stenographic reporter, that the foregoing proceedings were taken stenographically by me, and thereafter reduced to typewriting by me or under my direction; and that this transcript is a true and accurate record to the best of my ability.

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By: Judith A. Valencik

Judith A. Valencik

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