

In the Matter of: Entergy Nuclear Operations, Inc.  
(Indian Point Nuclear Generating Units 2 and 3)



ASLBP #: 07-858-03-LR-BD01  
Docket #: 05000247 | 05000286  
Exhibit #: NYS000467-00-BD01  
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Submitted: December 3, 2012

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UNITED STATES

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In re: Docket Nos. 50-247-LR; 50-286-LR  
License Renewal Application Submitted by ASLBP No. 07-858-03-LR-BD01  
Entergy Nuclear Indian Point 2, LLC, DPR-26, DPR-64  
Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations, Inc. December 3, 2012  
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WRITTEN SUPPLEMENTAL REBUTTAL TESTIMONY OF

STEPHEN C. SHEPPARD

REGARDING CONTENTION NYS-17B

On behalf of the State of New York ("NYS" or "the State"),  
the Office of the Attorney General hereby submits the following  
supplemental rebuttal testimony by Stephen C. Sheppard, Ph.D.  
regarding Contention NYS-17B.

Q. Please state your full name.

A. Stephen Charles Sheppard.

Q. Dr. Sheppard, are you familiar with documents that  
were filed by Entergy on November 21, 2012, and that have been  
designated ENT00591 (Gruntz Declaration), ENT000592  
(Supplemental Testimony of Entergy Witness George S. Tolley),

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1 ENT000593 (*Measuring Environmental Effects on Property Values*  
2 *Without Hedonic Regressions*, Palmquist, Raymond B. (1981)), and  
3 ENT000594 (RCF, Examples of Errors Remaining in Dr. Sheppard's  
4 Assessor Data Set)?

5 A. Yes. I undertook a new statistical analysis in  
6 October 2012, following Entergy's disclosure of a new hedonic  
7 regression by Dr. Tolley. My statistical analysis was  
8 designated as NYS000446. I understand that Entergy claims that  
9 three of the exhibits filed on November 21, 2012 respond to  
10 NYS000446. I understand that ENT000591, the Gruntz Declaration,  
11 purports to respond to a question posed by the Board at the  
12 October 22 hearing on NYS-17B.

13 Q. I show you what has been marked as ENT000591. Do you  
14 recognize that document?

15 A. Yes. It is a declaration from Cory Gruntz, Entergy's  
16 Director of State and Local Taxes for Entergy. ENT000591  
17 discusses the PILOT payments paid by Entergy to the Town of  
18 Cortlandt, including a breakdown of those payments and when they  
19 expire.

20 Q. Judge McDade inquired whether Entergy paid taxes in  
21 addition to Payments In Lieu of Taxes, and also the tax rate on

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1 the facility. Can you explain how PILOT payments may relate to  
2 housing prices near Indian Point?

3 A. Well, Dr. Tolley claims that the PILOT payments must  
4 certainly result in an increase in property values, despite the  
5 fact that Dr. Tolley's own analysis does not support this belief  
6 and relegates it to little more than wishful thinking.

7 Q. What evidence has Dr. Tolley produced to support the  
8 claim that PILOT payments increase property values?

9 A. Dr. Tolley's only evidence supporting his claim that  
10 PILOT payments increase property value is based on a hedonic  
11 model estimated from a hand-picked subset of the data collected  
12 for my repeat-sales analysis. My repeat sales analysis,  
13 however, suggests that the PILOT payments, if they do have a  
14 positive impact on property values considered in isolation, do  
15 not have a positive impact on property values when evaluated (as  
16 they must be) in combination with the presence of IPEC.

17 Q. I next show you ENT000592, which is new testimony from  
18 Dr. Tolley. Is Dr. Tolley's supplemental testimony responsive  
19 to NYS000446, your October 20, 2012 analyses using different  
20 functional forms to estimate the relationship between proximity  
21 to Indian Point and property values?

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1           A.    ENT000592 responds to my October 20, 2012 work, and  
2 then some.

3           Q.    Please explain.

4           A.    In addition to responding to my criticism of his work,  
5 as first set forth in my June 2012 rebuttal testimony and  
6 reiterated in response to his surprise October 12 new analysis,  
7 Dr. Tolley has presented new analytic work yet again.  On page  
8 28 of his testimony, at Table 1, Dr. Tolley, adds a new variable  
9 to my repeat sales analysis.

10          Q.    What is the new variable?

11          A.    Dr. Tolley has used my methodology - the repeat sales  
12 analysis - but has added duration-of-ownership to the variables  
13 that I employed.

14          Q.    When you say "my methodology," are you contrasting it  
15 to some other methodology?

16          A.    Yes, I mean to say that Dr. Tolley has added a new  
17 variable to the repeat-sales analysis that I used, as opposed to  
18 the hedonic analysis that he chose with the MLS data that he  
19 collected.  I want to be clear that Dr. Tolley and I are both  
20 attempting to measure the same thing but we have chosen  
21 different measurement tools.

22          Q.    What is it that you are attempting to measure?

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1           A.    My repeat-sales analysis measures the impact of the  
2 commencement of Indian Point's commercial operation on  
3 residential property values within 5 kms of the facility.

4           Q.    And does this duration-of-ownership variable that Dr.  
5 Tolley has added to your analysis cause you to change your  
6 opinion about the impact of Indian Point on property values?

7           A.    No.

8           Q.    Why not?

9           A.    First, because my original repeat sales analysis  
10 produces estimates of the impact of Indian Point on property  
11 values that are largely consistent with the impacts that can be  
12 obtained from other analysis, such as analysis of Dr. Tolley's  
13 data using a hedonic model. Second, because inclusion of  
14 duration of ownership is not required in a repeat-sales analysis  
15 such as I undertake, which focuses on the changes in the annual  
16 rate of return rather than the total return to a period of  
17 ownership.

18          Q.    Does your analysis, without Dr. Tolley's new variable,  
19 account for the length of home ownership?

20          A.    My analysis accounts for the length of ownership by  
21 using the annual rate of return as the dependent variable in the  
22 analysis.

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1 Q. Please elaborate.

2 A. In seeking to isolate and measure the impact of the  
3 commencement of commercial operations at Indian Point, it is  
4 important to use an approach that uses variables that are as  
5 independent as possible from an indicator of the "treatment  
6 effect" that identifies properties that were bought prior to  
7 Indian Point's operations and sold after those operations began.  
8 Inclusion of the duration-of-ownership variable suggested by Dr.  
9 Tolley fails this test. A property that has a longer duration  
10 of ownership is more likely to span the time when commencement  
11 of commercial operations begins at Indian Point. Use of the  
12 duration of ownership variable introduces a problem that  
13 econometricians call "collinearity" into the model. The  
14 practical consequence of this is to mix up and make it difficult  
15 to separate the impacts of the collinear variables. This  
16 appears to have happened in Dr. Tolley's estimates, with this  
17 newly introduced variable capturing much of property value  
18 impact of operation of Indian Point. There are occasions when  
19 this is unavoidable because there are good reasons for including  
20 both (or several) collinear variables. This is not such a case.  
21 My analysis focuses on the impact on annual rate of return,  
22 which already makes an adjustment for length of ownership by

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1 calculating the percentage increase in value standardized for a  
2 one-year period. There is no reason to introduce the new  
3 variable that Dr. Tolley suggests.

4 Q. Is this new variable one that Dr. Tolley has ever  
5 mentioned before, in his testimony at the hearing or in any  
6 previously written response to your work?

7 A. No. It was not included in his original report  
8 criticizing my work, in his rebuttal, or in his oral testimony.

9 Q. As a result of this new variable, Dr. Tolley testified  
10 that his "new regression results show that [your] repeat-sales  
11 study does not support [your] claim that Indian Point lowered  
12 nearby property values" (ENT000592 at 29). Do you agree with  
13 Dr. Tolley?

14 A. I do not. Dr. Tolley's testimony perpetuates several  
15 mistakes Dr. Tolley has made throughout his analysis.

16 Q. What mistakes?

17 A. Dr. Tolley has testified that proximity to Indian  
18 Point has no impact whatsoever on property values. He draws  
19 this conclusion because of the analysis that he describes as  
20 "quadratic" by which he means using the linear distance and the  
21 square of distance together in the hedonic analysis. This  
22 "quadratic" approach is how Dr. Tolley has chosen to

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1 characterize proximity to IPEC, but it is not the only way nor  
2 even the most frequently used way of measuring proximity. If  
3 Dr. Tolley were to use linear distance alone, or the square of  
4 distance alone, or the square root of distance (as I have  
5 suggested) alone, he would have to conclude, as I do (and as  
6 common sense suggests), that Indian Point's commercial  
7 operations have a statistically significant impact on nearby  
8 residential property values. Dr. Tolley tells us in his report  
9 and in testimony that he considered other approaches to  
10 proximity. He appears to have very carefully selected the one  
11 approach that provides partially ambiguous estimates of the  
12 impact of IPEC on property values, and even his quadratic  
13 estimates show that property values rise proportional to the  
14 square of distance, and that this increase is statistically  
15 significant.

16 Q. So *each* of those other methods of examining the impact  
17 of proximity to the facility on residential property values  
18 confirms that there is, in fact, such impact?

19 A. Yes.

20 Q. What is the impact?

21 A. Indian Point has a statistically significant adverse  
22 impact on nearby residential property values, which is

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1 consistent with decades of research on the impact of industrial  
2 facilities, including electric generating plants.

3 Q. Why does Dr. Tolley conclude otherwise?

4 A. Well, I can only speculate that he was looking for a  
5 functional form that would confirm a particular preferred  
6 outcome. In essence, he cobbled one together.

7 Q. Does Dr. Tolley's new analysis perpetuate other  
8 mistakes?

9 A. Yes. In his new testimony, Dr. Tolley repeats his  
10 opinion that analysis of his specially-chosen subset of my data  
11 supports his contention that PILOT payments have a positive  
12 impact on property values. He concedes that, using the special  
13 subset of my data, Indian Point does have an adverse impact on  
14 property values but concludes that this adverse impact is not  
15 estimated with sufficient precision to be statistically  
16 significant.

17 Q. What's wrong with that?

18 A. I disagree with Dr. Tolley's "adjustments" to my data.  
19 He obtains his preferred result by diminishing the size of my  
20 sample so much that he can claim that any unpalatable result is  
21 simply not statistically significant.

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1 Q. When he purported to use your data to challenge your  
2 conclusions, Dr. Tolley excluded many observations. Do you  
3 agree that those exclusions improved the quality of your sample?

4 A. No. Relying on ENT000594, Dr. Tolley claims that my  
5 October 2012 regressions are based on a data set that is  
6 unreliable because "approximately 10 percent of the total  
7 observations" should have been excluded. ENT000592 at 24.

8 Q. Dr. Tolley's staff identified some transactions that  
9 they claim were not at arms length. Do you agree?

10 A. As is clear from ENT000594, neither Dr. Tolley's staff  
11 nor I can know for certain, so I would err on the side of  
12 excluding those eight transactions that might not have been at  
13 arms length.

14 Q. Dr. Tolley's staff also excluded five transactions on  
15 the ground that the properties were located in commercial zones.  
16 Do you agree that those transactions should be excluded?

17 A. No. The zoning classification should not disqualify a  
18 property from inclusion in the sample if the property is being  
19 used for residential purposes.

20 Q. Even if you were to exclude these transactions, does  
21 it affect your conclusions?

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1           A.    I have not continued to do new original work, since  
2 the hearing, but I am confident that excluding these 8 (or even  
3 13) transactions would not materially affect my conclusions.

4           Q.    By way of comparison, would you remind us what sample  
5 Dr. Tolley used?

6           A.    Dr. Tolley used a group of 296 houses that were  
7 offered for sale on July 13, 2011.

8           Q.    Is his sample better or larger than yours?

9           A.    No, neither.

10          Q.    Did Dr. Tolley's sample use asking price, or sale  
11 price?

12          A.    It used asking price.

13          Q.    Is asking price the same as sale price?

14          A.    No.  It tells us nothing about what a property is  
15 actually worth to a willing seller, or even whether the property  
16 sold at all.

17          Q.    Would you please summarize your response to Dr.  
18 Tolley's supplemental testimony and the newly-designated  
19 exhibits?

20          A.    Yes.  Dr. Tolley has, again, responded to my testimony  
21 with new analytic work that, again, does not change my  
22 conclusion.  My conclusion is that Indian Point has a

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1 statistically-significant adverse impact on residential property  
2 values within 5 km. I also conclude that if relicensing were  
3 denied, property values within the area would increase by  
4 slightly more than \$1 billion within approximately 10 years. My  
5 conclusions do not change as a result of the Payments in Lieu of  
6 Taxes (PILOT) that Entergy makes. My analysis shows that those  
7 payments do not equal or compensate for the facility's impact on  
8 property values. My conclusions are the same even though  
9 Entergy's PILOT payments will diminish or be replaced by tax  
10 payments when the facility ceases commercial operations. Dr.  
11 Tolley's continued attacks on my work do not change my  
12 conclusions. And Dr. Tolley's work itself is not inconsistent  
13 with my results. Indeed, his results are remarkably close to my  
14 own, which should give a finder-of-fact confidence in the  
15 result.

16

17 Attested to under penalty of perjury on December 3, 2012



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