

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C.

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Docket No. ER14-2940-000

**AFFIDAVIT OF ROBERT H. UNISZKIEWICZ
ON BEHALF OF THE PJM POWER PROVIDERS**

1. My name is Robert H. Uniszkievicz and I am a Construction Cost Estimating Manager and have been employed by PSEG Services Corporation and its predecessors for the last thirty-three (33) years. My curriculum vitae is attached as Exhibit 1 hereto.
2. In my current position at PSEG Service Corporation, I manage a group of professional estimating personnel who prepare capital cost estimates and I provide guidance on proposed construction methods to estimators and project managers to determine the most economical construction costs for projects. Activities include:
 - Establishing and maintaining estimating and related procedures, including earned value & benchmarking.
 - Reviewing the adequacy and quality of the estimates and conducting periodic audits of required estimate approval documents.
 - Managing the range estimating Risk Analysis using Monte Carlo method and employ refined estimating methods to ensure the maximum utilization.
3. Prior to my current position I have held several positions at PSEG Services Corporation or affiliated entities: as a Financial Resources Manager-Service Company from December 1994 to July 2002, a Principal Estimating Engineer from November 1984 to December 1994 and a Cost and Scheduling Coordinator from November 1981 to November 1984.
4. My educational background includes several degrees from the City University of New York: a degree in Manufacturing Technology in 1977, an Associate's Degree of Applied Science in 1980 and a Bachelor of Science in 1986.

A. Background

5. I am submitting this affidavit in support of the limited protest being filed by the PJM Power Providers ("P3")¹ in the above-referenced matter with respect to the

¹ P3 is a non-profit organization dedicated to advancing federal, state and regional policies that promote properly designed and well-functioning electricity markets in the PJM region. P3 membership is comprised of energy providers that are members of PJM, conduct business in the PJM balancing authority area, and

labor costs associated with the Cost of New Entry (“gross CONE”) values proposed by PJM Interconnection, L.L.C. (“PJM”) in its September 25, 2014 filing for use under the PJM tariff in administering the Reliability Pricing Model (“RPM”). The September 25, 2014 filing proposed new gross CONE values for a simple cycle combustion turbine (“CT”) unit and a combined cycle (“CC”) unit based upon a report entitled “Cost Of New Entry Estimates for Combustion Turbine and Combined Cycle Plants in PJM With June 1, 2018 Online Date” (“CONE Report”) prepared by The Brattle Group and Sargent & Lundy. These values are employed in connection with setting the VRR Curve and for setting the screens under the Minimum Offer Price Rule. My affidavit addresses the construction labor costs estimate for the CT cost calculation.

6. Mr. Christopher D. Ungate, employed by Sargent & Lundy, is the sponsoring expert for the CT gross CONE calculation. I consider Mr. Ungate’s overall calculation of gross CONE for the reference unit CT in CONE Area 1 as set forth in the CONE Report to be generally reasonable although at the low end of the range of reasonable values. However, PJM’s chief economist, Dr. Paul Sotkiewicz, has proposed an adjustment to Mr. Ungate’s estimate in which he reduces the level of CT labor costs. He uses his estimates to support another construction labor costs valuation performed by Stantec Consulting Services, Inc. (“Stantec”) in a report that is not part of PJM’s filing. As explained below, I do not believe that the adjustment contained in the Stantec report is reasonable or supportable nor do I consider the resultant overall costs for the CT reference unit to be reasonable with this adjustment.
7. Mr. Ungate calculated the following construction labor cost estimates for the CT in the 5 “CONE Areas:”

Table 1: Sargent & Lundy “Construction Labor” Values for CT (\$ millions)²

CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4	CONE Area 5
\$71.7	\$55.4	\$55.3	\$54.5	\$48.2

The construction labor costs as calculated by Stantec are reported in Dr. Sotkiewicz’s affidavit as follows:

are signatories to various PJM agreements. Combined, P3 members own over 87,000 megawatts of generation assets and over 51,000 miles of transmission lines in the PJM region, serve nearly 12.2 million customers and employ over 55,000 people in the PJM region, representing 13 states and the District of Columbia. These comments do not necessarily reflect the specific views of any particular member of P3 with respect to any issue.

² See September 25, 2014 Filing, Attachment D, Affidavit of Dr. Samuel A. Newell and Mr. Christopher Ungate, CONE Report, p. 26, Table 19.

Table 2: Stantec “Construction Labor” Values for CT (\$ millions)³

CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4	CONE Area 5
\$38.3	\$22.9	\$21.4	\$30.5	\$21.1

As can be seen by comparing the values in these two tables, the Sargent & Lundy and Stantec estimates vary considerably and therefore have a material impact on the overall CT construction costs.

8. Dr. Sotkiewicz purports to “validate the reasonableness” of the Stantec values but his analysis contains a number of flaws.⁴ Dr. Sotkiewicz’s basic method is to calculate high and low range values for wages in each of the CONE Areas (including fringes), multiplied by a regional “productivity factor” benchmarked to the Gulf Coast, multiplied by 360,000 hours which is the number of “required man-hours” determined by Stantec. This calculation yields values that he characterizes as being “quite close” to the Stantec values. In fact, his calculated values vary in the range of about 1% lower to about 45% lower than the Stantec values depending on the CONE Area and whether the upper or lower bound as determined by the range in labor wages is considered.⁵
9. I have focused most of my analysis on CONE Area 1 with which I am most familiar through my work. However, some of my observations are also pertinent to labor cost estimates for the other CONE Areas as well. I will address these in a separate section of my affidavit below.

B. CONE Area 1 Labor Costs

10. The first flaw in Dr. Sotkiewicz’s analysis concerns the wage rates. Although I am in general agreement with Dr. Sotkiewicz’s calculation of wage rates for CONE Area 1 based upon prevailing wages in New Jersey for a 40 hour work week, I disagree with Dr. Sotkiewicz’s apparent assumption that the work on the reference unit will be performed within a 40 hour work week. Typical work weeks for this type of construction project are in the 50 to 60 hour range, especially for the skilled craft workers. Accordingly, the rates calculated by Dr. Sotkiewicz need to be adjusted for expected overtime. The most qualified craft labor will not take on work of this type unless there is an expectation of overtime. As result, the values calculated by Dr. Sotkiewicz need to be increased by 8% to 10% to reflect an average 50 hour work week.

³ See September 25, 2014 Filing, Attachment C, Affidavit of Dr. Paul M Sotkiewicz, P 40, Table 2 (“Sotkiewicz Affidavit”). Dr. Sotkiewicz states that he added \$1 M in additional labor costs to the original Stantec to reflect dual fuel labor costs.

⁴ Sotkiewicz Affidavit, P 41.

⁵ For example, the “Upper Bound” for CONE Area 3 labor costs calculated by Dr. Sotkiewicz is \$31.2 million compared with \$21.4 million as stated by Stantec. See Sotkiewicz Affidavit, P 42, Table 3. This is a difference of \$9.8 million, such that the “Upper Bound” value calculated by Dr. Sotkiewicz is 45.8% higher than the Stantec value.

11. The second flaw in Dr. Sotkiewicz's analysis is that his labor productivity values are too low, *i.e.*, he understates the costs associated with local practices. He uses a productivity factor of 1.16. Again, focusing on CONE Area 1, this might be an acceptable productivity assumption assuming a 40 hour work week. However, as explained above, 40 hour work weeks are not typical for this type of project and are not realistic in order to attract the best workers. And, as the work week becomes more prolonged, the productivity of the workers diminishes. Specifically, working a 50 hour week in New Jersey typically decreases productivity to a factor of 1.21, working a 60 hour week in New Jersey typically decreases productivity to a factor of 1.29 and working a 70 hour week in New Jersey typically decreases productivity to a factor of 1.42. A conservative assumption for construction of the reference CT would be a 50 hour work week. Accordingly, I would recommend a productivity factor of 1.21 which is about 4% higher than Mr. Sotkiewicz's recommended productivity factor of 1.16. In fact, reporting agencies often recognize even higher productivity adjustments for New Jersey. Thus, RS Means, widely recognized source for productivity data, indicates that New Jersey's Installation Cost Indices Average is 124.5, which would make it 24.5% higher than the National Average Cost (made up of 30 major US cities).

12. The third flaw in Dr. Sotkiewicz's analysis is that his assumption for the "required labor hours" used in his calculations is unrealistically low.⁶ He uses a value of 360,000 hours (prior to the productivity adjustment) for the GE 7FA.05 machine. Mr. Sotkiewicz supplies no independent support for the 360,000 unadjusted labor hour estimate. Rather, he refers to the Stantec report as the source for the figure.⁷ He also refers to an estimate made by CH2M Hill in connection with a 2011 CONE Study that used similar values.⁸ I am advised by counsel that neither of the referenced studies has been sponsored by any witness in this proceeding. Moreover, based on my experience, this value is significantly understated. Below is a chart showing three recent combustion turbine projects completed by an affiliate of PSEG Power:

⁶ Although not expressly stated in Mr. Sotkiewicz's affidavit, I assume that the "required labor hours" refers to Stantec's estimate of the labor hours for an area in which the productivity factor was 1.0, *i.e.* the Gulf Coast. Otherwise, it would not make sense to multiply this value by the regional productivity factor.

⁷ Sotkiewicz Affidavit, P 38.

⁸ I filed an affidavit in opposition to the CH2M Hill estimate at the time of the earlier CONE reference unit filing on various elements of the CONE construction costs estimates including labor costs. In connection with that filing, the Commission suspended the CONE values for the maximum statutory period due to various elements of CH2M Hills presentation not having been shown to be just and reasonable, including labor costs. *See PJM Interconnection, L.L.C.*, 138 FERC, ¶ 61,062, P 41 (2012) ("Here, we find that intervenors have raised a number of material issues of disputed fact as to the proper calculation of the Gross CONE values, as summarized above. Intervenors argue, for example, that PJM has failed to include accurate electrical and gas interconnection costs, property tax estimates, location-specific adjustments, and costs for material, labor and equipment.").

<u>Station</u>	<u>State</u>	<u>CO Date</u>	<u>MW Rating</u>	<u>Craft (Direct) MH⁹</u>	<u>Supv (Indirect)</u>	<u>Contractor Other MH</u>	<u>MH Total</u>	<u>MH / MW</u>
New Haven (2,3,4 Peakers)	CT	2012	133	329,700	75,457	N/A	405,157	3,046
Kearny 13 (Peakers)	NJ	2012	178	328,626	62,075	N/A	390,701	2,195
Kearny 14 (Peakers)	NJ	2012	89	176,500	47,218	42,518	223,718	2,514

The average value for these recent peaker projects is 2588 MH/MW.¹⁰ Applying this value to the CT reference unit which I assume to be 396 MWs (the value for CONE Area 1), would indicate total required labor hours of 847,000 hours (before making any adjustment for my recommended 1.21 productivity factor). This value is 135% higher than the Stantec value of 360,000 MWs.

13. I also note that the Stantec value regarding the unadjusted “required labor hours” to construct the CT reference unit can be seen to be significantly misaligned with the estimates contained in the Sargent & Lundy report sponsored by Mr. Ungate. Thus, in CONE Area 1, Mr. Ungate estimated total “construction labor” costs of \$70.7 M. If I take this value and divide by Dr. Sotkiewicz’s estimated wage rate (averaged) and his recommended productivity value (both of which Dr. Sotkiewicz indicates that he conferred about with Sargent & Lundy), it yields a basic (unadjusted) required labor hour value for the reference unit CT of 635,000 hours. While this is lower than my calculation of unadjusted required labor hours based upon my company’s experience of building peaker power plants in New Jersey and Connecticut, this value is 76% higher than the Santec estimate.
14. In sum, because of the flaws I identified above, I have concluded that the Sotkiewicz/Stantec calculation of labor hours for construction of the reference unit CT in CONE Area 1 is grossly understated. Mr. Ungate’s original estimate as set forth in the CONE Report, while not as high as I would use in an analysis for construction of the CT reference unit in New Jersey,¹¹ is certainly more reasonable. Therefore, the adjustment recommended by Dr. Sotkiewicz has not been justified.

C. Other CONE Areas

15. As I noted above, I have focused my analysis on CONE Area 1 with which I am most familiar. However, I do have some observations regarding the labor cost calculations for the other CONE Areas.
16. First, my observation about the need to assume a 50 hour work week for construction of the CT reference unit should hold true for most if not all of the PJM region. The best workers will tend to gravitate towards jobs in which they

⁹ The abbreviation “MH” refers to “man-hours” which is another term for “labor hours.”

¹⁰ I acknowledge that one of these projects – the New Haven Peakers – is located outside of PJM. However, I still consider this data to be relevant regarding labor hours because conditions and requirements regarding labor productivity in Connecticut are similar to New Jersey.

¹¹ I would estimate the labor costs associated with the construction of the CT reference unit in central New Jersey to be approximately \$105 million.

can realize overtime hours. Accordingly, while I do not render any opinion regarding the particular wage rates or productivity factors for a given CONE Area (other than Area 1), Dr. Sotkiewicz erred by apparently not taking this factor into account in calculating those components.

17. Second, below are my results for the calculation of “required labor hours” for all the CONE Areas as derived from the Sargent & Lundy estimates in the CONE Report. These calculations were performed in the same manner as described in the previous paragraph, *i.e.*, Mr. Ungate’s construction labor cost estimates, divided by Dr. Sotkiewicz’s estimated wage rates for each region (averaged) and divided by the productivity rate (both of which Dr. Sotkiewicz indicates he conferred about with Sargent & Lundy):

Table 3: “Unadjusted” Labor Hours for Reference Unit CT As Derived from Sargent & Lundy Study

	CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4	CONE Area 5
Unadjusted Labor Hours	635,000	788,000	658,000	572,000	740,000
Percentage above Stantec Unadjusted Labor Hours	76%	119%	83%	58%	106%

As can be seen in the chart, the unadjusted required labor hours derived from the Brattle/Sargent & Lundy CONE Report, are appreciably higher *for each CONE Area* than the required labor hour values taken from the Stantec report and used by Dr. Sotkiewicz in his calculation.

18. Thus, while I have not attempted to calculate particular labor cost levels for CONE Areas 2 to 5, because the flaws in Dr. Sotkiewicz’s calculation can be expected to significantly understate those costs, Mr. Ungate’s original labor cost estimates from the CONE Report appear to be more reasonable. Accordingly, the adjustment in labor construction costs proposed by Dr. Sotkiewicz for those CONE Areas has not been justified.
19. This concludes my affidavit.

Exhibit 1

ROBERT H. UNISZKIEWICZ

Work Address

80 Park Plaza MC -20E
Newark, NJ 07102
Work #: (973) 430-6276
Employee #: 009106
Position Title: Mgr. Construction Estimating
Date in Position: 07/02
Department: Service Finance
Manager's Name: Tim Pellegrin

Home Address

932 Case Drive
Hillsborough, NJ 08844
Home #: (908) 874-4306

PROFESSIONAL OBJECTIVE

To secure a manager's position which will utilize my diverse cost estimating and construction background, and to be given an opportunity to make positive contributions to the Company.

EMPLOYMENT

PSEG Services Corporation

July 2002 to Present – Mgr. Construction Estimating. – PSEG Service Finance

- Manage a group of professional estimating personnel preparing capital cost estimates and provide guidance on proposed construction methods to estimators and project team to determine the most economical construction costs for projects.
- Establish and maintain estimating and related procedures, including earned value & benchmarking.
- Review the adequacy and quality of the estimates and conduct periodic audits of required estimate approval documents.
- Manage the range estimating Risk Analysis using Monte Carlo method and employ refined estimating methods to ensure the maximum utilization.
- Extensive negotiating experience with contractors and vendors resulting in considerable cost savings and /or cost avoidance.

December 1994 to July 2002 – Financial Resources Manager-Service Company

- Implemented the SAP IM/PS modules for the Utilities capital process & developed written procedures for daily users on how to navigate within SAP to release resources for projects.
- Facilitated SAP training sessions for Distribution and various departments within PSE&G on the Project Systems and Investment Management modules.
- Manage the development, implementation of cost estimates for projects assigned to Nuclear, Transmission, Distribution, IT and Fossil (include CMS, SMD and station O&M projects as well as Environmental and Decommissioning studies.)
- Present and justify cost assessments in defending company position when negotiating with outside agencies.
- Develop partnership agreements with architects/engineers and contractors; review contractor bid proposals, and negotiate with contractors/vendors.
- Develop five-year capital plan and assure that capital expenditures are in alignment with corporate strategies; facilitation of Capital Allocation and Project Prioritization Process.
- Project Economic Evaluation Model (PEEM) manages a team of consultants to update the model to reflect the changing business environment; support model users.
- Project Review Board (PRB) facilitator, critique project sponsors presentations prior to presenting to the board.
- Project Closeout implementation; Link capture of project benefits to the O&M process.
- Facility Plans-Facilitate development of financial plan for generation and T&D facilities which detail future O&M and capital requirements in order to determine the facility's future profitability.

ROBERT H. UNISZKIEWICZ

- Drive budgets within cash flow, evaluate plans and assure that funds are properly expended within prescribed limits.
- Responsible for managing a staff of twenty-five.

Nov. 1984 to December 1994 – Principal Estimating Engineer

- Provide direction to and management of Estimating Group in developing, implementing, and maintaining data for projects assigned to Fossil, Nuclear, Distribution and Transmission Departments.

Nov. 1981 to Nov. 1984 – Cost and Scheduling Coordinator

- Prepare cost, schedule and administrative support for all Engineering and Construction department projects, which includes collections, validation, and analysis of cost and schedule data and the preparation of reports for all levels of management.

Consolidated Edison of New York, Inc. – New York

May 1973 to Nov 1981- Design Engineer

- Designing of various electrical systems: including vaults, manholes, overhead cable and ducts for residential and commercial customers, including the cost estimates for each project.

EDUCATION

Bachelor of Science – 1986 –City University of New York

Associate of Applied Science – 1980 –City University of New York

Manufacturing Technology – 1977 –City University of New York

ORGANIZATIONS

1985 – Present

- Hillsborough Volunteer Fire Company # 2
 - Fire Chief 1998-2000
 - Company Treasurer 2001-Present
- Hillsborough Township Board of Fire Commissioner - 2000-2012 (Elected Position)
- American Association of Cost Engineers
- American Society of Professional Estimators

REFERENCES

Furnished upon request