

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-174  
WITNESS(S): CROUCH  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
ACCESS AND CONSTRUCTION

QUESTION:

Please reference page 16, line 20, of the Crouch Testimony and state the proposed width of each access road for each existing/proposed tower of the proposed Susquehanna-Roseland project.

ANSWER:

PSE&G is attempting to obtain either a ten (10) foot access road or a sixteen (16) foot access road, depending on the type of access required. However, additional engineering is ongoing and specific widths for access roads will be determined during that process.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-175  
WITNESS(S): CROUCH  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
ACCESS AND CONSTRUCTION

QUESTION:

Please reference page 16, line 20, of the Crouch Testimony and list for each access road, every type of vehicle that would use that access road in the construction and maintenance of the proposed Susquehanna-Roseland project and also specify the width of each listed vehicle, the turning radius of each listed vehicle, and the maximally loaded weight of each listed vehicle.

ANSWER:

Please see response to ENV-18.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-176  
WITNESS(S): CROUCH  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
230KV CIRCUIT

QUESTION:

Please reference page 6, line 8, of the Testimony of William Bailey (“Bailey Testimony”) and clarify whether the existing 230kV circuit when re-installed on the proposed double-circuit structures would be identical in all respects to the existing 230kV circuit.

ANSWER:

No, the 230kV circuit will not be identical in all respects to the existing 230kV circuit.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-177  
WITNESS(S): CROUCH  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
230KV CIRCUIT

QUESTION:

Please reference page 6, line 8, of the Bailey Testimony and state any and all differences between the existing 230kV circuit and the 230kV circuit to be installed on the proposed double-circuit structures.

ANSWER:

The existing 230kV circuit uses one 1590 ACSR conductor per phase in a horizontal configuration. The proposed 230kV will use two 1590 ACSR conductors per phase (to meet NJ Audible noise requirements) in a vertical configuration. Please refer to Exhibit RFC-5.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-178  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 6, line 16, of the Bailey Testimony and state the typical percentage of time per day in which EMFs would be and would not be generated by the proposed Susquehanna-Roseland transmission line.

ANSWER:

The electric field is created whenever voltage is applied to the conductors. The magnetic field is created whenever current is flowing on the conductors. See Exhibit PALS-125 for all of the currents in each of the line segments for the year 2013.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-179  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 6, line 16, of the Bailey Testimony and state the typical percentage of time per day in which EMFs would be and would not be generated by typical household appliances e.g. refrigerators, hairdryers, toasters, microwaves, etc.

ANSWER:

Mr. Bailey has not made a study of the typical percentage of time per day in which EMFs would and would not be generated by household appliances.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-180  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 7, line 8, of the Bailey Testimony and state any and all assumptions of the EMF calculations.

ANSWER:

Please refer to Exhibit KGK-2, pages 3-9, 12-15, and 31-38.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-181  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 7, line 8, of the Bailey Testimony and state whether each assumption of the EMF calculations represents actual conditions, an estimated condition, a simplified condition, or other - and please specify if other.

ANSWER:

Please see response to PALS-180.



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-182  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 7, line 12, of the Bailey Testimony and state whether for each segment of the proposed Susquehanna-Roseland line the magnetic fields on the 500kV side of the right-of-way will be higher or lower than the existing magnetic field on that same side of the right-of-way when compared to the existing transmission line.

ANSWER:

Please refer to Exhibit KGK-2, pages 15-16.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-183  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 7, line 14, of the Bailey Testimony and completely explain why median line loadings are the 'best descriptors of the magnetic field for the purposes of estimating 'typical' potential exposures'.

ANSWER:

The most relevant descriptors for the purposes of describing magnetic field exposures are those that characterize exposures for the majority of the time, i.e., the values associated with the typical, usual or average line loading. For variables such as line loadings where the distribution of values is often not symmetrical, the median provides a better descriptor of a typical value than the mean, which may be skewed by a small number of high or low values.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-184  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

**QUESTION:**

Please reference page 7, line 14, of the Bailey Testimony and state what percentage of time the actual load on the proposed transmission lines will be equal to the values used in the EMF calculations – keeping in mind the assumption of balanced loads in each phase of each circuit.

**ANSWER:**

Please refer to Exhibit KGK-2, pages 12-14. Please also refer to Exhibit PALS-125.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-185  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 7, line 14, of the Bailey Testimony and state if and how the assumption of balanced loads in each phase of each circuit affects the EMF calculations – keeping in mind the use of reverse phase cancellation.

ANSWER:

Yes the assumption of balanced loads does affect EMF calculations. However, Mr. King's analysis assumes balanced phase currents. See KGK-2 pages 5 and 12.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-186  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 7, line 14, of the Bailey Testimony and state what percentage of the time the actual magnetic fields will be higher than those calculated using the current set of assumptions e.g. median line loading, balanced currents in each phase of a given circuit, etc. and please state all current assumptions used.

ANSWER:

Please refer to Exhibit KGK-2, pages 12-14.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-187  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
LINE LOADING

QUESTION:

Please reference page 7, line 14, of the Bailey Testimony and state the average line loads using the same data from which the median line loads were derived and please show all calculations including all inputs to all calculations.

ANSWER:

Please refer to Exhibit PALS-125 for all line segment currents used as inputs.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-188  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 15, line 9, of the Bailey Testimony and state whether WHO made a similar statement with regard to *magnetic* fields and if so, please provide the quote and source.

ANSWER:

The WHO did not make the exact statement with regard to magnetic fields. See response to PALS-189 for further clarification on the conclusions related to magnetic fields.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-189  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 15, line 13, of the Bailey Testimony and clarify whether WHO maintains a classification of ELF EMFs as 'a possible human carcinogen'.

ANSWER:

Only extremely low frequency ("ELF") magnetic fields have been classified as a possible human carcinogen. As referenced on p. 15, line 13 of the Bailey testimony, the WHO 2007 review concludes "New human, animal and in vitro studies, published since the 2002 IARC [International Agency for Research on Cancer] monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen" (p. 11).



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-190  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 15, line 20, of the Bailey Testimony and clarify whether WHO has advised that exposure limits for ELF EMFs are needed.

ANSWER:

As the WHO conclusions referenced on page 15, line 20 of William Bailey's testimony state, exposure limits for ELF EMF are recommended to protect against known health effects that may occur at very high field levels. Specifically, the WHO concludes:

"It is essential that exposure limits be implemented in order to protect against the established adverse effects of exposure to ELF electric and magnetic fields. These exposure limits should be based on a thorough examination of all the relevant scientific evidence."

"Only the acute effects have been established and there are two international exposure limit guidelines (ICNIRP, 1998a; IEEE, 2002) designed to protect against these effects (p. 12)."

With regard to lower exposure limits, the WHO states, "it is unlikely that the implementation of an exposure limit based on the childhood leukemia data and aimed at reducing average exposure to ELF magnetic fields to below 0.4 uT, would be overall benefit to society" (p. 362).

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-191  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF-HEALTH

QUESTION:

Please reference page 16, line 6, of the Bailey Testimony and clarify whether the statement that ‘the evidence for a causal relationship is limited’ means that no evidence for a causal relationship exists or some evidence for a causal relationship exists and if the latter, please provide the evidence or a reference to the evidence.

ANSWER:

The term “limited” is used by both the IARC and WHO in a standardized fashion and generally denotes evidence where there is only a weak indication of a relationship and outstanding questions or methodological issues exist. Specifically, the WHO states, “Evidence is termed ‘limited’ when it is restricted to a single study or when there are unresolved questions concerning the design, conduct or interpretation of a number of studies.” The WHO 2007 report in its entirety summarizes the limited evidence with regard to ELF EMF.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-192  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 16, line 16, of the Bailey Testimony and clearly define a 2B category in this context.

ANSWER:

The category 2B (possible carcinogen) is used in a standardized fashion by both the WHO and IARC to classify exposures into categories based on strength of evidence in support of carcinogenicity. The IARC states the following with regard to 2B carcinogens:

*Group 2B—The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.*

This category is used for agents, mixtures and exposure circumstances for which there is *limited evidence* of carcinogenicity in humans and less than *sufficient evidence* of carcinogenicity in experimental animals. It may also be used when there is *inadequate evidence* of carcinogenicity in humans but there is *sufficient evidence* of carcinogenicity in experimental animals. In some instances, an agent, mixture or exposure circumstances for which there is *inadequate evidence* of carcinogenicity in humans but *limited evidence* of carcinogenicity in experimental animals together with supporting evidence from other relevant data may be placed in this group.

In the case of ELF magnetic fields, the IARC Working Group concluded, and the WHO Task Group concurred, that there was only limited evidence of carcinogenicity in humans (for studies of childhood leukemia only) and inadequate evidence of carcinogenicity in animals.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-193

WITNESS(S): BAILEY

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

EMF;HEALTH

QUESTION:

Please reference page 16, line 16, of the Bailey Testimony and clearly state whether classification of EMF in the 2B category means that EMFs do not cause cancer of any type.

ANSWER:

Because scientific study cannot prove the absence of an effect, there is no IARC category to describe exposures that do not cause cancer. Scientific studies can only confirm, with repeated testing, that exposures are without significant risk. The evidence reviewed by the WHO Task Group (and the IARC Working Group in 2002) was only sufficient to raise the possibility of a causal relationship between ELF magnetic fields and childhood leukemia, but no other type of cancer. Because of inconsistencies in the full body of research and uncertainties in the findings related to childhood leukemia, however, the WHO did not conclude that this possibility was likely or that the evidence was strong. The WHO Task Group recommended that any residual uncertainty with regard to ELF magnetic fields be addressed by additional research (p. 18, WHO 2007), e.g., methodological studies to understand whether underlying biases in case-control studies of childhood leukemia may be causing the observed statistical association.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-194  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 16, line 16, of the Bailey Testimony and state clearly whether there is any proof that ELF EMFs are not harmful to humans of any age.

ANSWER:

As stated in the response to PALS-193, scientific study cannot prove the absence of an effect. Rather, the accumulation of consistent findings of no strong relationship from studies conducted by different researchers in diverse populations suggests no harmful effect. This scientific evidence is summarized in the 2007 WHO report.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-195  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 16, line 17, of the Bailey Testimony and provide all evidence (or references thereto) related to the association between childhood leukemia and exposure to magnetic fields.

ANSWER:

The WHO 2007 report at pp. 263 – 270 summarizes the research studies related to the association between childhood leukemia and magnetic field exposure.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-196  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 16, line 22, of the Bailey Testimony and clarify if your statement that ‘no scientific explanation for the carcinogenicity of these fields has been established’ means that no scientific explanation exists or that no scientific explanation has been found to-date or other – and please specify completely if other.

ANSWER:

The WHO report states:

Various proposed direct and indirect interaction mechanisms for ELF electric and magnetic fields are examined for plausibility, in particular whether a “signal” generated in a biological process by exposure to electric or magnetic fields can be discriminated from inherent random noise and whether the mechanism challenges scientific principles and current scientific knowledge. Many mechanisms become plausible only at fields above a certain strength. Nevertheless, the lack of identified plausible mechanisms does not rule out the possibility of health effects existing even at very low field levels providing the basic scientific principles are adhered to. Of the numerous suggested mechanisms proposed for the direct interaction of fields with the human body, three stand out as potentially operating at lower field levels than the others: induced electric fields in neural networks, radical pairs, and magnetite ... None of the three direct mechanisms considered above seem plausible causes of increased disease incidence at the exposure levels generally encountered by people. (WHO, 2007, pp. 116-117).

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-197  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 17, line 8, of the Bailey Testimony and clearly state the percentage of persons that have (or have had) cancer and have (or have had) drank coffee – and provide references to supporting studies/results.

ANSWER:

Mr. Bailey has made no such study. IARC Monograph 51 can be consulted for a 1991 summary of the research related to cancer and coffee (<http://monographs.iarc.fr/ENG/Monographs/vol51/volume51.pdf>).



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-198  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 17, line 8, of the Bailey Testimony and clearly state the percentage of persons that have (or have had) drunk coffee and have (or have had) cancer – and provide references to supporting studies/results.

ANSWER:

See response to PALS-197.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-199  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 18, line 3, of the Bailey Testimony and completely explain what is meant by a 'pooled analysis' in this context.

ANSWER:

A pooled analysis is a standard epidemiologic technique that combines the original data from the individual studies into one large data set and analyzes the data together to provide an overall estimate of the possible association.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-200  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 18, line 4, of the Bailey Testimony and completely explain what is meant by 'average exposure' in this context.

ANSWER:

Average exposure in this context refers to a person's estimated magnetic field exposure to all sources of magnetic fields over a long-period of time, i.e. months to years.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-201  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 18, line 5, of the Bailey Testimony and completely describe the pooled analysis that lead to the statistical association between average exposure to greater than 3-4 mG and childhood Leukemia.

ANSWER:

See response to PALS-199. In short, the pooled analyses primarily focused on studies that estimated *long-term average* exposure to residential magnetic fields from direct measurements (typically over a 24/48-hr period), or historical calculations based on the characteristics of the power lines and annual average power flow. Ahlbom et al. (2000) combined data from 9 studies, and Greenland et al. (2000) combined data from 12 studies, 8 of which were used by Ahlbom et al. The pooled analyses found no association between leukemia and exposure to estimated long-term average magnetic field at levels less than 3 mG, and an approximate 2-fold, statistical association between leukemia and estimates of *long-term average* magnetic field levels greater than 3-4 mG. See also abstracts from Greenland et al (2000) at [http://www.ncbi.nlm.nih.gov/pubmed/11055621?ordinalpos=6&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/11055621?ordinalpos=6&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)

and Ahlbom et al (2000) at

[http://www.ncbi.nlm.nih.gov/pubmed/10944614?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/10944614?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum).

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-202  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 18, line 5, of the Bailey Testimony and completely describe the statistical association that was found linking average exposure to greater than 3-4 mG and childhood Leukemia.

ANSWER:

See response to PALS-201.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-203

WITNESS(S): BAILEY

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

EMF;HEALTH

QUESTION:

Please reference page 18, line 5, of the Bailey Testimony and state, in your professional opinion, what magnetic field average exposure level would provide acceptable risk of not contracting childhood Leukemia given the statistical association linking average exposure to greater than 3-4 mG and childhood Leukemia – and clearly state your definition of acceptable risk.

ANSWER:

It is the responsibility of public health agencies, like the WHO, to define acceptable risk by conducting a thorough risk assessment and to provide appropriate limits and guidance, while it is the responsibility of scientists like myself to identify and characterize potential health risks. The WHO did not conclude from its risk assessment that there is an established risk of childhood leukemia from magnetic-field exposures above 3-4 mG and, therefore, did not recommend exposure limits for the prevention of childhood leukemia. The WHO report concluded, “given the small estimated effect resulting from such a risk, the rarity of childhood leukaemia, the rarity of average exposures higher than 0.4  $\mu$ T [4 mG] and the uncertainty in determining the relevant exposure metric (see section 12.5.3), it is unlikely that the implementation of an exposure limit based on the childhood leukaemia data and aimed at reducing average exposure to ELF magnetic fields to below 0.4  $\mu$ T, would be of overall benefit to society” (p. 362).

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-204  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

**QUESTION:**

Please reference page 18, line 5, of the Bailey Testimony and state, in your professional opinion, what magnetic field average exposure level would provide no risk of childhood Leukemia given the statistical association linking average exposure to greater than 3-4 mG and childhood Leukemia – and clearly state your definition of no risk.

**ANSWER:**

See response to PALS-203.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-205  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 18, line 6, of the Bailey Testimony and completely state and completely describe all 'limitations of the underlying studies and the pooled analysis' being referred to.

ANSWER:

The WHO report describes the following limitations and sources of bias in the epidemiologic studies of childhood leukemia: control selection bias (p. 270-2), exposure misclassification and timing (p. 12, p. 67 and p. 272-3), choice of appropriate exposure metric (p. 355), participation bias and low response rates (p. 256), chance (p. 270), and confounding (p.256 and p. 273). The same uncertainties apply to the pooled analysis, as well as other uncertainties arising from the aggregation of data from dissimilar studies and loss of information from the pooling of data.



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-206

WITNESS(S): BAILEY

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

EMF;HEALTH

QUESTION:

Please reference page 18, line 8, of the Bailey Testimony and clearly state whether the statement that ‘there is little supportive data from *in vivo* and *in vitro* studies for a causal relationship...’ means that there is no supportive data or some supportive data and if the latter, please provide all such data or a reference to all such data.

ANSWER:

As the WHO states, there is “little supportive data,” which inherently means that there is supportive data from some studies. See relevant sections of the IARC (2002) and WHO (2007) reports for references to *in vitro* and *in vivo* studies providing supportive data.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-207  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 19, line 17, of the Bailey Testimony and clearly state whether any of the review panels have concluded that exposure to magnetic fields is not a cause of any adverse health effects and please identify all such concluding panels.

ANSWER:

As described in response PALS-193, scientific study cannot prove the absence of an effect; therefore, it would be scientifically irresponsible to offer the definitive conclusion that exposure to magnetic fields is not a cause of any adverse health effects. As described in the Bailey testimony, the scientific panels have concluded that the cumulative research does not support any long-term adverse health effects associated with magnetic fields.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-208  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 19, line 17, of the Bailey Testimony and clearly state what mG levels are being referred to as the strengths 'normally encountered in our environment'.

ANSWER:

This descriptor is used to make the distinction between the magnetic field levels encountered during normal human occupational and non-occupational activity and rare activities associated with much higher magnetic fields (e.g., certain occupational environments). This distinction is made because ICNRIP and IEEE exposure guidelines apply to these atypical activities and exposure circumstances, to which the average person is not normally exposed.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-209  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 20, line 8, of the Bailey Testimony and clearly state whether alterations to IARC's testimony could have included a strengthening as well as a weakening of IARC's classification of magnetic fields as a 'possible carcinogen'.

ANSWER:

PSE&G objects to this question as vague and ambiguous. Without waiving this objection, the WHO and other scientific organizations could have recommended that the IARC classification be raised to the categories of probable or known carcinogen or decreased to the category of probably not a carcinogen. The WHO and other scientific organizations did not provide any conclusions about whether recent studies strengthened their certainty in the classification of magnetic fields as a possible carcinogen.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-210  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 20, line 8, of the Bailey Testimony and clearly state why recent studies did not lead IARC to weaken it's classification of magnetic fields as a 'possible carcinogen'.

ANSWER:

See response to PALS-209.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-211  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 20, line 14, of the Bailey Testimony and clearly state whether the unaltered conclusions include IARC's classification of magnetic fields as a 'possible carcinogen'.

ANSWER:

The research published after the 2007 WHO report has not caused scientific review panels to recommend changing the IARC's classification of magnetic fields as a possible carcinogen.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-212

WITNESS(S): BAILEY

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

EMF;HEALTH

QUESTION:

Please reference page 21, line 4, of the Bailey Testimony and clearly state whether the proposed Susquehanna-Roseland transmission line is consistent with the NIEHS report that 'suggests that power companies and utilities 'continue siting power lines to reduce exposures and...explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards' when comparing it to the existing EMFs from the existing 230kV transmission line.

ANSWER:

Yes, PSE&G has proposed a number of measures to reduce magnetic field exposures, including: constructing the proposed line on an existing right-of-way which limits the creation of a new right-of-way; meeting forecast power demands by constructing a 500-kV line, which will require less current (producing lower magnetic fields) and obviate the need for multiple lower voltage lines; and proposing to optimize the phasing of the existing and new lines to minimize magnetic fields, where possible. These activities are consistent with the precautionary approach articulated by the NIEHS and WHO.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-213  
WITNESS(S): KING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF

QUESTION:

Please reference page 21, line 17, of the Bailey Testimony and clearly state to what degree the magnetic fields from the proposed 230kV and 500kV circuits would cancel and whether the resultant EMFs on the 500kV side of the proposed transmission line are higher or lower than the existing EMFs of the existing 230kV transmission line.

ANSWER:

Please refer to Exhibit KGK-2, pages 12-16.



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-214  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 22, line 5, of the Bailey Testimony and clearly state whether IARC's classification of magnetic fields as a 'possible carcinogen' represents 'even a very small risk'

ANSWER:

As explained by IARC and recently affirmed by WHO, ELF magnetic fields are considered a "possible human carcinogen" with respect to childhood leukemia. Hence, the scientific evidence identifies the possibility of a risk related to childhood leukemia, but no risk has been established.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-215  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 22, line 5, of the Bailey Testimony and completely explain why IARC's classification of magnetic fields as a 'possible carcinogen' does not represent 'even a very small risk'.

ANSWER:

See response to PALS-214. As discussed by the WHO, even if the statistical association with childhood leukemia were determined to be causal, "... in a global context, the impact on public health, if any, would be limited and uncertain." (p. 12).

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-216  
WITNESS(S): BAILEY  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
EMF;HEALTH

QUESTION:

Please reference page 2, line 4, of the Bailey Testimony and state clearly and completely explain whether after 25 years of work related 'to the potential biological and health effects of electrical facilities' you can conclude that ELF EMFs at the actual levels that would exist in the proposed Susquehanna-Roseland project are not harmful in any way to humans of any age.

ANSWER:

As discussed in the Bailey testimony, the weight of the scientific research does not indicate that ELF EMF at the levels associated with the proposed Susquehanna-Roseland project are harmful to human health.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-217  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 4, line 14, of the Testimony of Steven Herling (“Herling Testimony”) and list all stakeholders and state whether each stakeholder participated in the analysis and/or the decisions and what their contribution was to the analysis and/or the decisions.

ANSWER:

Stakeholders, in the context of the RTEP process, include all transmission customers, any other entity proposing to provide transmission facilities to be integrated into the PJM region, all PJM members, representatives of state commissions, the agencies and offices of state consumer advocates of states in the PJM region and any other interested parties.

A list of PJM members is available on the PJM web site at:

<http://www.pjm.com/about-pjm/member-services/member-list.aspx>.

The current TEAC Roster is provided in Exhibit PALS-217, Attachment 1 and a listing of attendees to PJM TEAC meetings is provided in Exhibit PALS-217, Attachments 2 through 4.

PJM does not track the degree to which individual stakeholders participate or contribute in the course of the RTEP process.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-218  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RTEP STUDY

QUESTION:

Please reference page 8, line 15, of the Herling Testimony and completely define and specify the 'reserve margin' that was assumed in the RTEP study that led to the proposal for the Susquehanna-Roseland project.

ANSWER:

Page 8, line 15 of the direct testimony of Steven R. Herling does not discuss the 'reserve margin' in the context of the RTEP or the Susquehanna – Roseland line. That being said, the RTEP analysis that led to the proposal for the Susquehanna – Roseland Project did not assume a reserve margin, rather, it modeled all existing PJM generation and generation in the PJM interconnection queue, as described in Mr. Herling's testimony at pages 38-41.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-219  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; TEAC

QUESTION:

Please reference page 12, line 13, of the Herling Testimony and list all participants in TEAC in relation to the RTEP study that led to the proposal for the Susquehanna-Roseland project.

ANSWER:

The RTEP analysis, that led to the development of the Susquehanna - Roseland Project, was performed during 2006 and 2007. Attendance lists for the TEAC meetings during 2006 and 2007 are provided in response to PALS-217.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-220  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RTEP

QUESTION:

Please reference page 12, line 20, of the Herling Testimony and provide the presentation of analysis assumptions and results given to the TEAC in relation to the RTEP study that led to the proposal for the Susquehanna-Roseland project.

ANSWER:

TEAC presentations can be found at:

<http://www.pjm.com/committees-and-groups/committees/teac.aspx>

Select "Past Meeting Materials". The Susquehanna-Roseland Project was discussed at the following meetings: 3/14/07, 3/30/07, 4/5/07, 5/9/07, 11/05/08, 1/21/09 and 3/13/09.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-221  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RTEP; TEAC

**QUESTION:**

Please reference page 12, line 21, of the Herling Testimony and provide any and all comments provided to the PJM Board in response to the presentation of analysis assumptions and results given to the TEAC in relation to the RTEP study that led to the proposal for the Susquehanna-Roseland project.

**ANSWER:**

The comments in Exhibit PALS-221 Attachments 1 through 3 were provided related to either the Susquehanna – Roseland Project or the study assumptions presented to the TEAC with respect to the 2007 RTEP.



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-222  
WITNESS(S): HERLING / MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RTEP

QUESTION:

Please reference page 13, line 15, of the Herling Testimony and list and clearly define all 'reliability criteria' applied in the RTEP study that led to the proposal for the Susquehanna-Roseland project.

ANSWER:

All criteria are applied in the RTEP analysis. The specific criteria violations are listed in PFM-1. The criteria which applied are noted in each Baseline Report (see 2007 Baseline Report at: <http://www.pjm.com/planning/rtep-development/~media/planning/rtep-dev/baseline-reports/2007-rtep-baseline-assessment.ashx>). The criteria are also listed in Schedule 6 of the PJM Operating Agreement at page 182.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-223  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RTEP

QUESTION:

Please reference page 14, line 27, of the Herling Testimony and clearly explain to whom 'Schedule 6' dictates an RTEP must be considered 'reliable, economic, and environmentally acceptable'.

ANSWER:

The Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (Operating Agreement) is an agreement among the members of PJM. Schedule 6 describes the development of the RTEP in the context of PJM's responsibilities to its members. NERC is responsible for ensuring that the processes employed by PJM is compliant with its Reliability Standards. FERC approves the PJM Operating Agreement, including the provisions related to the development of the RTEP. While the State agencies do not determine need as part of the RTEP process, they do play a role in reviewing the RTEP determination as part of the requisite state siting process.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-224  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 15, line 23, of the Herling Testimony and clearly define the use of 'firm' in 'Long-term firm transmission service requests'.

ANSWER:

The nature of firm point-to-point transmission service is described in Section 13 of Part II of the PJM Tariff (starting on page 54), which can be found on the PJM web site at:  
<http://www.pjm.com/documents/agreements/~media/documents/agreements/tariff.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-225  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 11, of the Herling Testimony and clearly list all thirteen 500kV transmission facilities that were found to be overloaded in the 2007 RTEP.

ANSWER:

The 13 overloads referred to can be found in Table 3.4 of the 2007 RTEP Report which can be accessed at: <http://www.pjm.com/documents/reports/rtep-report/2007-rtep.aspx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-226  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 11, of the Herling Testimony and clearly list the amount by which each of the thirteen 500kV transmission facilities was found to be overloaded in the 2007 RTEP.

ANSWER:

The information requested in this question has no relevance to need for the Susquehanna – Roseland line. The thirteen reliability criteria referenced in Mr. Herling’s testimony provided the justification of need for the PATH project, not the Susquehanna – Roseland project. The aforementioned notwithstanding, the requested information can be found in Exhibit PALS-226.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-227  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 11, of the Herling Testimony and clearly state if the previously approved TrAIL project (pg 18 line 11 of Herling Testimony) was assumed on line in the 2007 RTEP.

ANSWER:

Yes.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-228  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

NEED; RTEP

QUESTION:

Please reference page 24, line 11, of the Herling Testimony and clearly which of the thirteen 500kV transmission facilities found to be overloaded in the 2007 RTEP could be remedied by inclusion of the TrAIL project, the PATH project, and the MAPP projects – without inclusion of the Susquehanna-Roseland project.

ANSWER:

Table 3.5 of the 2007 RTEP Report shows how the PATH Project resolves all 13 overloads. These 13 overloads are unrelated to the need for Susquehanna-Roseland Project. However, one of the reliability criteria violations driving the need for the PATH Project, the Hosensack-Elroy 500 kV circuit, is also noted as a violation in the Eastern Pennsylvania/Northern New Jersey region in Section 3.2.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-229

WITNESS(S): HERLING

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

NEED

QUESTION:

Please reference page 24, line 11, of the Herling Testimony and clearly state whether any enhancements of the existing 230kV circuit e.g. in capacity were authorized by PJM as a result of the 2007 RTEP.

ANSWER:

Exhibit PALS-229 lists all approved transmission enhancements – over 280 - in PJM’s Regional Transmission Expansion Plan for transmission owners in New Jersey: PSEG, JCPL and AE.

Yet, even in light of these upgrades, as Mr. Herling states at page 26 of his direct testimony, “The PJM transmission system is rapidly reaching the point where short-term, incremental fixes will no longer be sufficient to mitigate identified reliability criteria violations. New high-voltage transmission must be constructed to maintain reliable operations and to grow robust energy markets for the benefit of all customers. Thus, because of the lead times associated with the strong interstate backbone transmission projects the PJM region now needs, the planning, siting and construction of these facilities must begin now. One of the primary drivers for extending the PJM planning horizon to 15 years was the recognition by PJM and its stakeholders that the need for major new transmission capability must be identified in time for construction to be completed before reliability suffers.”



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-230  
WITNESS(S): HERLING / MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 12, of the Herling Testimony and clearly list all 23 transmission facilities found to be overloaded in the 2007 RTEP.

ANSWER:

These violations are listed in Exhibit PFM-1 attached to the direct testimony of Paul F. McGlynn.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-231  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 12, of the Herling Testimony and clearly which of the 23 transmission facilities found to be overloaded in the 2007 RTEP could be remedied by inclusion of the TrAIL project, the PATH project, and the MAPP projects – without inclusion of the Susquehanna-Roseland project.

ANSWER:

Based on the results of PJM's 2007 RTEP process analyses, none of the 23 reliability criteria violations (i.e., "facilities found to be overloaded") referred to in the direct testimony of Steven R. Herling on page 24 at line 12 would be resolved without the inclusion of the Susquehanna-Roseland Project as well.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-232  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 28, line 8, of the Herling Testimony and clearly state whether the 'new load forecast issued in January of 2008' indicated a higher load or lower load as compared to the previous load forecast used in the 2007 RTEP and also state by how much the load has changed.

ANSWER:

See 2008 Load Forecast Report, Table A-1 at: <http://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process/~media/documents/reports/2008-load-report.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-233  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 28, line 8, of the Herling Testimony and clearly state whether a new load forecast has been generated since the load forecast of January 2008, and whether that new load forecast indicates a load higher or lower than that of the 2008 load and also state by how much the load has changed.

ANSWER:

Yes. See 2009 PJM Load Forecast Report, Table A-1 at:  
<http://www.pjm.com/~media/documents/reports/2009-pjm-load-report.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-234  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
MERCHANT TRANSMISSION; NEED

QUESTION:

Please reference page 28, line 19, of the Herling Testimony and completely explain whether the merchant transmission project delivering capacity and energy from New Jersey to New York City increases in any way the load on the proposed Susquehanna-Roseland transmission line.

ANSWER:

The referenced merchant transmission facility will increase the loading on the Susquehanna – Roseland transmission line when energy is flowing from New Jersey to New York.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-235  
WITNESS(S): HERLING  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; IN SERVICE DATE

QUESTION:

Please reference page 29, line 4, of the Herling Testimony and clearly state the resultant required date for the Susquehanna-Roseland project based on the 2007 RTEP, the 2008 RTEP / re-tool, and the 2009 RTEP / re-tool.

ANSWER:

June 1, 2012.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-236  
WITNESS(S):  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
PROPERTY

QUESTION:

Please reference page 33, line 2, of the Herling Testimony and compare / contrast the square footage of land involved in the entire Susquehanna-Roseland transmission line (including access roads) vs. the square footage of land that would be needed to build ample generation capacity in the Roseland area to overcome the violations to be satisfied by the proposed Susquehanna-Roseland project.

ANSWER:

PSE&G objects to this question as irrelevant and beyond the scope of this proceeding. Without waiving this objection, many variations would be included in the determinations requested above and neither PSE&G nor PJM has performed this analysis.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-237  
WITNESS(S): MCGLYNN / REYNOLDS  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
2007 RTEP

QUESTION:

Please reference page 4, line 21, of the Testimony of Paul McGlynn (“McGlynn Testimony”) and provide a comprehensive list of all assumptions used in the 2007 RTEP study.

ANSWER:

PJM annually develops base case power flow models. The starting point case for the 2007 RTEP was developed by the Multiregional Modeling Working Group (MMWG) pursuant to the NERC modeling, data and analysis standards. The case was then updated to include the most recent modeling information for the PJM RTO such as load, PJM interchange, generation, and transmission topology. The MMWG case was developed during 2006 while the 2006 RTEP was in progress. As a result, the starting point case was updated to include projects that were approved as part of the 2006 RTEP. In addition, information concerning interconnection customers that had recently signed Facility Study Agreements and Interconnection Service Agreements was also incorporated into the base case. The load model was also updated based on the 2007 PJM Load Forecast Report.

The 2007 PJM Load Forecast Report is available at the following link:

<http://www.pjm.com/~media/planning/res-adeq/load-forcast/2007-load-report.ashx>

Additional information regarding the projects that were added as a result of the 2006 RTEP can be found at the following link:

<http://www.pjm.com/documents/reports/rtep-report/2006-rtep.aspx>



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-238  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
2008 RTEP

QUESTION:

Please reference page 4, line 21, of the McGlynn Testimony and provide a comprehensive list of all assumptions used in the 2008 RTEP study.

ANSWER:

Assumptions used in the 2008 RTEP study were provided at the 2/22/08 TEAC meeting which can be accessed on pages 14-21 at: <http://www.pjm.com/committees-and-groups/committees/teac.aspx#16>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-239  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED; RELIABILITY VIOLATIONS

QUESTION:

Please reference page 12, line 19, of the McGlynn Testimony and identify each of the 23 potential electric reliability violations as type A, B, or C (see page 6, line 6 of the McGlynn testimony).

ANSWER:

The 23 electric reliability violations are shown in Exhibit PFM-1 of the direct testimony of Paul F. McGlynn. Mr. McGlynn's testimony on page 19 identifies the reliability standards that will be violated. Electrical occurrence 1 and 7 in Exhibit PFM-1 are NERC TPL Standard category A events. Electrical occurrence 2 through 6 and 8 through 23 in Exhibit PFM-1 are NERC TPL Standard category B events.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-240  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
RTEP

QUESTION:

Please reference page 15, line 8, of the McGlynn Testimony and clearly state whether exhibit PFM-1 corresponds to the 2007 RTEP or the 2008 RTEP or other and please specify if other.

ANSWER:

Exhibit PFM-1 corresponds to the 2008 RTEP analysis.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-241  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
RTEP

QUESTION:

Please reference page 15, line 8, of the McGlynn Testimony and provide a chart similar to PFM-1 listing the electric reliability violations for any RTEP or retool conducted since 2007 (so including the results of any studies corresponding to 2007, 2008, or 2009).

ANSWER:

Exhibit PALS-241 provides the reliability criteria violations found in PJM's RTEP Process 2007 baseline, 2008 Fall Retool and 2009 Spring Retool analyses.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-242  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
RELIABILITY VIOLATIONS

QUESTION:

Please reference page 15, line 10, of the McGlynn Testimony and referencing also PFM-1, more fully explain the extent of each violation e.g. for occurrence 3 in the year 2012, is the violation that the limit was exceeded by .4%?

ANSWER:

Yes. The numeric values in the table list the flow on the line as a percentage of the applicable rating of the line.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-243  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
DEMAND

QUESTION:

Please reference page 15, line 10, of the McGlynn Testimony and clearly state the assumed consumer demand for each year of the study.

ANSWER:

See 2008 PJM Load Forecast Report at: <http://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process/~media/documents/reports/2008-load-report.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-244  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
CONSUMER DEMAND

QUESTION:

Please reference page 15, line 10, of the McGlynn Testimony and clearly state what change to the assumed consumer demand would be required to eliminate each violation through and including year 2014.

ANSWER:

PJM did not calculate these values.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-245  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
CONSUMER DEMAND

QUESTION:

Please reference page 15, line 10, of the McGlynn Testimony and clearly state what change to the assumed consumer demand would be required to eliminate each violation through and including year 2022.

ANSWER:

PJM did not calculate these values.



RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-246  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
ALTERNATIVES

QUESTION:

Please reference page 21, line 17, of the McGlynn Testimony and fully describe all 'alternatives identified to resolve the projected violations'.

ANSWER:

See the direct testimony of Paul F. McGlynn at page 24.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES

REQUEST: PALS-247

WITNESS(S): MCGLYNN

PAGE 1 OF 1

SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

ALTERNATIVES

QUESTION:

Please reference page 24, line 10, of the McGlynn Testimony and clearly state which of the 23 potential electric reliability violations shown in PFM-1 would not be resolved if the Bossards – Roseland line were built rather than the Susquehanna – Roseland line.

ANSWER:

As discussed in Mr. McGlynn's testimony on page 24, the Bossards – Roseland 500 kV line was less effective than the Susquehanna – Roseland line at resolving the criteria violations identified in PJM's 2007 RTEP analysis. While the Bossards – Roseland alternative was comparable to S-R in its effectiveness at delaying reliability criteria violations in PJM's RTEP 15-year analysis, PJM's 2007 RTEP revealed that S-R was a more effective solution for two lines (Atlantic – Larabee and E. Windsor – Smithburg) by resolving criteria violations for one additional year.

See slides 31 and 32 of the April 16, 2007 PJM TEAC meeting presentation materials, available from PJM's web site via the following URL link: <http://www.pjm.com/committees-and-groups/committees/~media/committees-groups/committees/teac/20070416-item-10-2007-rtep-reliability-analysis-update.ashx>

In addition, the Susquehanna-Roseland line resolves voltage criteria violations in the Lackawanna area that were not identified in Exhibit PFM-1 and are not resolved by the Bossards-Roseland line.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-248  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
ALTERNATIVES

QUESTION:

Please reference page 24, line 10, of the McGlynn Testimony and provide a chart similar to PFM-1 assuming the Bossards – Roseland line were built.

ANSWER:

PJM did not develop such a chart.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-249  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
ALTERNATIVES

QUESTION:

Please reference page 24, line 10, of the McGlynn Testimony and provide a chart similar to PFM-1 assuming the Susquehanna – Roseland line were built.

ANSWER:

PJM did not develop such a chart.

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-250  
WITNESS(S): MCGLYNN  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
NEED

QUESTION:

Please reference page 24, line 14, of the McGlynn Testimony and fully explain how and by how much the Susquehanna – Roseland line reduces the loading on the ‘existing 230kV system’.

ANSWER:

The Susquehanna – Roseland line reduces the loading on the underlying 230 kV system by providing an additional parallel path for power to flow across. Information concerning the extent to which the overloaded facilities are relieved by the Susquehanna – Roseland line was reviewed with the TEAC on January 21, 2009 and can be accessed at the following link:

<http://www.pjm.com/committees-and-groups/committees/~media/committees-groups/committees/teac/20090121/20090121-reliability-analysis-update.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-251  
WITNESS(S): REYNOLDS  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
LOAD FORECAST

QUESTION:

Please reference page 9, line 21, of the Testimony of John Reynolds (“Reynolds Testimony”) and provide the latest version of the 2009 PJM Load Forecast Report – whether final or draft.

ANSWER:

The 2009 PJM Load Forecast Report is available at:

<http://www.pjm.com/~media/documents/reports/2009-pjm-load-report.ashx>

RESPONSE TO FREDON PARENTS AGAINST  
THE LINES  
REQUEST: PALS-252  
WITNESS(S): REYNOLDS  
PAGE 1 OF 1  
SUSQUEHANNA-ROSELAND

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
2009 RETOOL

QUESTION:

Please reference page 9, line 21, of the Reynolds Testimony and perform a 'retool' based on the latest available data and provide all results generated from that 'retool'.

ANSWER:

See TEAC presentations for 1/21/09 and 3/13/09 which can be accessed at:

<http://www.pjm.com/Media/committees-groups/committees/teac/20090121/20090121-reliability-analysis-update.pdf>

<http://www.pjm.com/Media/committees-groups/committees/teac/20090313/20090313-reliability-analysis-update.pdf>