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October 5, 2009

Via First Class Mail

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

**Re: Application of PPL Electric Utilities Corporation Filed Pursuant to 52 Pa. Code Chapter 57, Subchapter G, for Approval of the Siting and construction of the Pennsylvania Portion of the Proposed Susquehanna-Roseland 500 kV Transmission Line in Portions of Lackawanna, Luzerne, Monroe, Pike and Wayne Counties, Pennsylvania**

**Docket Nos. A-2009-2082652  
A-2009-2082382**

**Our File No. 24068**

Dear Secretary McNulty:

On behalf of the Saw Creek Estates Community Association, Inc. ("SCECA"), on this date SCECA is electronically filing its Initial Brief in the above-referenced matter. This brief and cover letter are contemporaneously being served on all parties per the attached certificate of service, and the brief is being posted on the website for this matter, per Judge Colwell's September 14, 2009, Briefing Order.

Respectfully,



Paul M. Schmidt

Enclosure

cc: Certificate of Service list (as per Certificate)

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

In Re: Application of PPL Electric Utilities Corporation for  
Approval of the Siting and Construction of the Pennsylvania  
Portion of the Proposed Susquehanna-Roseland 500 kV  
Transmission Line

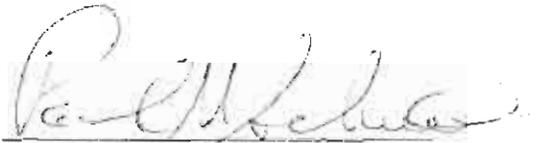
Docket Nos.  
A-2009-2082652  
A-2009-2082832

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CERTIFICATE OF SERVICE

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I hereby certify that on this day I have caused to be served true copies of the foregoing cover letter transmitting the Saw Creek Estates Community Association, Inc. ("SCECA") Initial Brief upon the parties of record in this proceeding in accordance with the requirements of 52 Pa. Code Section 1.54 (relating to service by a participant) and the September 14, 2009, Briefing Order in this matter, in the manner and upon the persons listed on the attached Service List.



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Dated: October 5, 2009

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**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Application of PPL Electric Utilities Corporation	:	
Filed Pursuant to 52 Pa. Code Chapter 57,	:	A-2009-2082652
Subchapter G, for Approval of the Siting and	:	
Construction of the Pennsylvania Portion of	:	
The Proposed Susquehanna-Roseland 500 kV	:	
Transmission Line in Portions of Lackawanna,	:	
Luzerne, Monroe, Pike and Wayne Counties,	:	
Pennsylvania	:	
	:	
Petition of PPL Electric Utilities Corporation	:	
For A Finding That a Building To Shelter	:	A-2009-2082832
Equipment at the 500-230 kV Substation To :	:	
Be Constructed In The Borough of Blakely,	:	
Lackawanna County, Pennsylvania is	:	
Reasonably Necessary For the Convenience	:	
Or Welfare of the Public	:	
	:	
Application of PPL Electric Utilities Corporation	:	
Under 15 Pa. C.S. §§1511(c) for a Finding and	:	
Determination That The Service To Be Furnished	:	
By The Applicant Through Its Proposed Exercise	:	
of The Power of Eminent Domain To Acquire	:	
A Right-of-Way and Easement Over And Across	:	
The Lands of Chaudari Family Limited Partner-	:	A-2009-2088297
Ship, David Murphy, and Marguerite T. Kranick	:	
In South Canaan Township, Wayne County For	:	
The Proposed Susquehanna-Roseland 500 kV	:	
Transmission Line in Portions of Lackawanna,	:	
Luzerne, Monroe, Pike and Wayne Counties,	:	
Pennsylvania Is Necessary or Proper For The	:	
Service, Accommodation, Convenience Or	:	
Safety of The Public	:	
	:	
Application of PPL Electric Utilities Corporation	:	
Under 15 Pa. C.S. §§1511(c) for a Finding and	:	
Determination That The Service To Be Furnished	:	
By The Applicant Through Its Proposed Exercise	:	
Of The Power Of Eminent Domain To Acquire	:	
A Right-Of-Way And Easement Over And Across	:	
The Lands Of The Property Owners Listed Below	:	
For The Proposed Susquehanna-Roseland 500 kV	:	
Transmission Line in Portions of Lackawanna,	:	

Luzerne, Monroe, Pike and Wayne Counties,	:	
Pennsylvania Is Necessary or Proper For The	:	
Service, Accommodation, Convenience Or	:	
Safety Of The Public:	:	
	:	
HaRa Corporation in Middle	:	A-2009-2088337
	:	
Richard Coccodrilli, Jr., Jeffrey J.	:	A-2009-2088327
Coccodrilli, Ryan T. Coccodrilli, and Joseph	:	
Williams	:	
	:	
D&L Realty Company	:	A-2009-2088340
	:	
Rudolph Saporito and Maria Saporito	:	A-2009-2088312
	:	
David Murphy	:	A-2009-2088360

**THE SAW CREEK ESTATES COMMUNITY ASSOCIATION, INC'S  
INITIAL BRIEF**

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Dated: October 5, 2009

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## **I. INTRODUCTION**

This matter consists, *inter alia*, of Application A-2009-2082652, the Application of PPL Electric Utilities Corporation (“PPL”) Filed Pursuant to 52 Pa. Code Chapter 57, Subchapter G, for Approval of the Siting and Construction of the Pennsylvania Portion of the Proposed Susquehanna-Roseland 500 kV Transmission Line (the “S-R Line”) in Portions of Lackawanna, Luzerne, Monroe, Pike and Wayne Counties, Pennsylvania (the “Application”). The instant brief is submitted on behalf of the Saw Creek Estates Community Association, Inc. (“SCECA”). The Saw Creek Estates community is a densely populated community of over 5000 residents, containing approximately 3,000 lots and 2,700 residences located on both sides of Saw Creek, just north of Bushkill, PA. The community includes both stream-front sites as well as dramatic ridge-top sites featuring extraordinary views. *Id.* at p.2.

Approximately 31 of the Saw Creek homes are within 100 feet of the existing PPL right-of-way, more than one hundred of the homes are within 250 feet, and countless more will have a clear view of the proposed towers. Additionally, a large number of homes will lie within the fall distance of the proposed towers.

## **II. STATEMENT OF THE CASE**

Due to their proximity to the proposed S-R Line, the residents of Saw Creek have many concerns with it, including increased risks of cancer, childhood leukemia, and other health affects resulting from exposure to magnetic fields, the dangers of tower collapse, potential injury and death caused by construction activities, noise and shock during blasting and drilling, reduced property values, offensive marring of the attractive viewscapes in the area, and the tremendous stress of experiencing and worrying about these impacts. Many of the impacts which the S-R Line would cause are not presented by the existing lines, or were not known risks until long after

the existing lines and homes were built. Unfortunately, PPL's Application, written statements, exhibits, and testimony at the hearing in this matter failed to sufficiently present and evaluate these topics. In fact, PPL has given more consideration to bats and turtles than to the residents of Saw Creek Estates.

### **III. SUMMARY OF ARGUMENT**

PPL bears the burden of proving by a preponderance of the evidence that it is entitled to have its Application approved. Its supporting evidence must be substantial, i.e., not merely a mere trace or suspicion of each material fact, but solid proof. PPL must therefore present and analyze all impacts of the proposed S-R Line or solidly prove that an alleged impact will not occur, and must demonstrate that every reasonable effort has been made impacts to a minimum, including by evaluating reasonable alternative locations for the S-R Line. PPL must also demonstrate that the remaining harms are clearly outweighed by the benefits to be derived from the S-R Line.

Specific issues which PPL must address in its application include 1) the safety of the proposed HV line, 2) the impact and the efforts which have been and will be made to minimize the impact, if any, of the proposed HV line upon land use, terrain, and scenic areas, and 3) the availability of reasonable alternative routes. In order to grant the Application, the Commission must then determine that the proposed S-R Line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives.

With respect to the safety of the proposed S-R Line, there is a legitimate possibility that residents may be harmed, and in fact killed, by the collapse of a tower if the S-R Line is

completed. In the face of this possibility, PPL had a duty to fully analyze and discuss the dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2). Instead, however, PPL's exhibits and testimony barely mention this possibility, and completely fail to weigh it in the course of selecting locations for the line. This failure renders PPL's application deficient, and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied because of the danger of tower collapse onto Saw Creek residents.

Another legitimate concern is human diseases caused by the proposed S-R Line. PPL's calculated magnetic field levels exceed levels shown to cause human diseases, including cancer, leukemia, Alzheimer's Disease and amyotrophic lateral sclerosis ("ALS"). In the face of these real dangers, PPL had a duty to evaluate every reasonable alternative to minimize them. PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

The possibilities of harm to Saw Creek residents from tower collapse, human diseases, and construction mishaps and inconveniences has caused, and will continue to cause, tremendous stress to Saw Creek residents. This legitimate fear, in itself, is an impact which PPL should have

evaluated on the record pursuant to 52 Pa. Code § 57.75(e)(3)(i) and (4). Instead, failed to adequately mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks under 52 Pa. Code § 57.75(e)(4), but failed to do so. PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

In the current proceeding, PPL has an intensified burden to show on the record that the environment has been considered in its planning and that every reasonable effort has been made to reduce the environmental impacts to a minimum. PPL must do this, in part, by sufficiently evaluating the availability of reasonable alternative routes. 52 Pa. Code § 57.75(e)(2), (3) and (4). However, PPL's lack of true field work prevented PPL from identifying additional alternative links, and from seeing where it could modify a proposed link to circumvent the impacts identified above. Instead, PPL identified links based on PPL's predetermined insistence on using existing right-of-ways.

PPL also failed to evaluate specific areas which could be reasonable alternatives to siting the proposed S-R Line through the Saw Creek community. One is the nearby former Tamiment Resort property. Other potential areas lie near Alternative Link A and Alternative Link B, presented by SCECA in its written testimony. PPL had a duty to fully evaluate these reasonable alternatives in order to minimize the dangers of the S-R Line to Saw Creek residents, and a duty

to fully document that evaluation on the record pursuant to 52 Pa. Code § 57.75(e)(2), (3) and (4). PPL's failure precludes the Commission from making the necessary determination that the proposed line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added). Accordingly, PPL's application should be denied.

An additional real impact to SCECA and Saw Creek community residents is the impact of the S-R Line on their property values. The proposed S-R Line will have a definite negative impact on property values as great or greater than up to 10%, depending on the particular orientation of the individual residence. The impacts include the following: 1) the now relatively uncongested panoramic view of wooded ridges and valleys will be marred by semi-industrial infrastructure; 2) potential buyers will be concerned with the increased risk of disease caused by increased magnetic fields from the lines; 2) construction dangers and inconveniences will deter potential buyers; 3) homes located within the fall distance of the proposed towers will be unable to obtain FHA (and perhaps traditional) financing. *Id.* at pp.15-17. Given these sources of impacts to property values of Saw Creek residents, and SCECA itself, PPL should have made a reasonable effort to evaluate alternative locations for the S-R Line in order to minimize these land use impacts, and weighed these impacts during its comparison of various alternatives. 52 Pa. Code § 57.75(e)(3)(i) and (4). PPL's failure to do so precludes the Commission from making the necessary determination that the proposed line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(4) (emphasis added). Accordingly, PPL's application should be denied.

Concerns with construction safety also are prominent among Saw Creek residents. Several individuals testified that PPL had admitted it has no prior experience constructing a project of this size in such a densely populated area. PPL admitted that all construction projects have risks, and that construction poses risks such as dropping a conductor to the ground, or the malfunctioning of heavy equipment. Tr. 920-21. Other construction risks are excessive noise, construction traffic, blasting, and drilling. Tr.922-23. PPL also admits that another risk is that a helicopter used during construction will have to make an emergency landing. Unfortunately, PPL admitted that PJM's RTEP evaluation does not involve environmental factors, inconvenience to the public during construction, or other factors. Tr.794. In fact, PPL candidly admitted that PPL has not evaluated impacts of construction on residents of Saw Creek at all. Tr.918. Yet, PPL admitted that "any reasonable siting process" must consider inconvenience and safety risks to the public posed by construction. PPL St. 1R, p.3.

In the face of these real dangers, PPL had a duty to fully analyze and discuss these dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2). Instead, however, PPL's exhibits and testimony pertaining to PPL's siting analysis barely mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient, and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the

public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

#### IV. ARGUMENT

##### C. LEGAL STANDARDS

###### 1. PPL Bears the Burden of Proof in this Matter

As the proponent of a rule or order, PPL bears the burden of proof pursuant to Section 332(a) of the Public Utility Code (Code), 66 Pa. C.S. § 332(a). As a fundamental rule, “[a] litigant’s burden of proof before administrative tribunals as well as before most civil proceedings is satisfied by establishing a preponderance of evidence which is substantial and legally credible.” *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600, 602 (Pa. Cmwlth. 1990). A preponderance of the evidence means that PPL must present evidence that is more convincing, by even the smallest amount, than that presented by the other parties to the case. *See Se-Ling Hosier v. Marquies*, 364 Pa. 45, 70 A.2d 854 (1950). Finally, the Commission’s decision on an application must be supported by substantial evidence in the record. A mere trace of evidence or a suspicion of the existence of a fact sought to be established will not suffice. *Norfolk & Western Ry. Co. v. Pa. PUC*, 489 Pa. 109, 413 A.2d 1037 (1980).

###### 2. PPL Must Satisfy the “Intensified Burden” Arising Out of Article 1, Section 27 of the Pennsylvania Constitution

Although the degree of PPL’s showing is only a preponderance of the evidence, the required substantive scope and depth of its demonstration is severe. “[U]nder Pennsylvania law every applicant for a siting certificate has an intensified burden to show on the record that the environment has been considered in its planning and that every reasonable effort has been made

to reduce the environmental incursion to a minimum.” *See Re Overhead Electric Transmission Lines*, 1978 Pa. PUC LEXIS 203, 51 Pa. PUC 682 (March 1, 1978) at \*14 (citing *Payne v. Kassab*, 11 Pa. Commw. Ct. 14, 312 A2d 86 (1973), *aff’d* 468 Pa. 226, 361 A.2d 263 (1976) and *Pa. DER v. Pa. PUC*, 18 Pa Commw Ct. 558, 335 A2d 860 (1975), *aff’d per curiam* 473 Pa. 378, 374 A.2d 693 (1977)) (emphasis added).

This “intensified burden” arises out of Article 1, Section 27 of the Pennsylvania Constitution. Article 1, Section 27 states:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

Pa. Const. art.I, § 27. To satisfy this constitutional requirement, the Pennsylvania Courts have established a three-part test, first enunciated in *Payne v. Kassab, supra*, which requires as the following:

(1) Was there compliance with all applicable statutes and regulations relevant to the protection of the Commonwealth’s public natural resources? (2) Does the record demonstrate a reasonable effort to reduce the environmental incursion to a minimum? (3) Does the environmental harm which will result from the challenged decision or action so clearly outweigh the benefits to be derived therefrom that to proceed further would be an abuse of discretion?

*Pa. DER, supra*, 18 Pa Commw Ct. at 567, 335 A2d at 865.

### 3. PPL Must Satisfy the Electric Transmission Siting Requirements

The Commission crafted siting regulations intended to encompass the elements of the three part test of *Payne v. Kassab*. Those regulations are codified at 52 Pa. Code Part I, Subpart C, Chapter 57, Subchapter G, entitled “Commission Review of Siting and Construction of Electric Transmission Lines.” Relevant sections require the following of the applicant:

§ 57.75. Hearing and notice.

...

(e) At hearings held under this section, the Commission will accept evidence upon, and in its determination of the application it will consider, inter alia, the following matters:

...

(2) The safety of the proposed HV line.

(3) The impact and the efforts which have been and will be made to minimize the impact, if any, of the proposed HV line upon the following:

(i) Land use

(iv) Terrain

....

(x) Scenic areas

(4) The availability of reasonable alternative routes.

52 Pa. Code § 57.75 (emphasis added). The relevant provisions require the following of the Commission:

§ 57.76. Determination and order.

(a) The Commission will not grant the application, either as proposed or as modified, unless it finds and determines as to the proposed HV line:

...

(2) That it will not create an unreasonable risk of danger to the health and safety of the public.

...

(4) That it will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives.

52 Pa. Code § 57.76 (emphasis added). When it adopted the regulations, the Commission stated:

It is essential in the siting, construction, and maintenance of overhead electric transmission facilities to minimize any adverse effect upon the environment and upon the quality of human life in the area in which new facilities will be located, and to minimize any potential hazards to public health and safety.

*Re Proposed Electric Regulation*, 49 Pa. P.U.C. 709, 710 (1976) (emphasis added). Consistent with the intensified burden placed on applications, the Commission stated that applications cannot be approved unless the applicant demonstrates that “the environmental harm is clearly

outweighed by the benefits to be derived from the facilities to be constructed.” *Id.* at 712.  
(emphasis added).

To put the issue of adverse affects in perspective, the Commission’s discussions on suggested additions to the regulations are instructive. The Commission considered a request to exempt short segments of line from the regulations. The Commission declined, reasoning that even short line segments “give rise to significant questions of public interest.” *See Re Overhead Electric Transmission Lines*, 1978 Pa. PUC LEXIS 203; 51 Pa. PUC 682 (March1, 1978) at \*4 (emphasis added). Thus, an applicant cannot shirk its responsibility to satisfy the siting regulations merely by claiming impacts are occurring only over a short segment of line.

4. PPL’s Evidence Must Be Sufficiently Detailed That the Commission Can Understand all Potential Impacts and Determine Whether PPL has Minimized Them

An applicant’s responsibility to minimize impacts on the environment encompasses the human environment, including persons who may directly contact the proposed line. “The Public Utility Law ... is concerned with the convenience, accommodation, safety, and protection of persons who may come into contact with the utility’s facilities, not only with persons served by a utility.” *West Penn Power Company, v. Pennsylvania Public Utility Commission*, 199 Pa.Super. 25, 32, 184 A.2d 143, 146 (Pa. Super. 1962). In *West Penn*, the Superior Court considered the applicant’s request to site an electrical transmission line through several properties, including the Simmons, property. *West Penn*, 199 Pa. Super. at 29, 194 A.2d at 145.

The Court in *West Penn* accepted the Commission’s finding that an irrigation system used on the Simmons property periodically resulted in water shooting high enough into the air to contact the proposed lines, which would present a risk of serious injury and death by electrocution to people in contact with the irrigation system. *Id.* at 29-30, 184 A.2d 143, 145.

The Court accepted the Commission's finding that persons using property adjacent to the applicant's right of way would constantly be exposed to hazards from the applicant's proposed transmission lines. *Id.* The Court therefore affirmed the Commission's denial of the application, recognizing that, despite the necessity of a line, there are situations where "the route selected for the line should so offend the fundamental purposes of the [Public Utility Law] as to warrant the withholding of approval by the Commission. Such is the situation in the case at bar." *Id.*, 199 Pa. Super. at 30, 184 A2d at 146.

The *West Penn* decision, and others, demonstrate that to properly present its application, the applicant must present sufficiently detailed evidence to enable the court to examine "the factual problems of whether the rights of property owners have been unreasonably disregarded and whether a hazard exists." *See Dunk v. Pa. PUC*, 210 Pa. Super. 183, 187, 232 A.2d 231 (Pa. Super. 1967). In *Dunk*, the Superior Court considered facts somewhat similar to those in *West Penn* in an application by the Philadelphia Electric Company. In *Dunk*, as in *West Penn*, the Court examined detailed evidence of potential hazards caused by the proposed lines running above an irrigation system consisting of sprinkler heads which dispersed water in droplets. *Id.* at 187-88. Although those facts led the Court to reach a different decision than in *West Penn*, the Court nonetheless required, and considered, the same in-depth, detailed factual evidence of whether the proposed line would present a safety hazard. *Id.* The Court did not let the applicant simply promise to do its best to minimize any impacts.

### C. SITING

#### The Presence of the Saw Creek Community Presents Unique Circumstances Not Ordinarily Encountered in Transmission Line Siting Applications

The Saw Creek Estates community is unique in many respects. The Saw Creek community is located just north of Bushkill, PA, near the Delaware River Water Gap, and is a gated community. It is densely populated, containing approximately 3,000 lots and 2,700 residences, generally situated on both the valley floor and on the slopes to the east and west of Saw Creek, from which it derives its name. Saw Creek Estates has over 5000 residents. Tr.444-47; 454. The Saw Creek community in total covers about 4,000 acres of densely wooded land, much of which is on steep slopes. The community includes both stream-front sites as well as dramatic ridge-top sites featuring extraordinary views. SCECA St.3 at p.2.

Saw Creek is the largest and most established self-contained community of its kind in the immediate region, and the community is almost fully built-out. *Id.* The community features its own internal system of asphalt-paved roads, guarded entry gates, significant amenities, and a full-time maintenance and administrative staff. *Id.* The Saw Creek community is governed by a Board of Directors elected from residents, has its own guard force, and provides road and utility maintenance services (including water and sewer), central trash removal, and supports many active clubs and special interest groups. *Id.* Currently, the community is supported by an annual levy of \$1355 per lot, and has an annual operating budget of \$3.4 million. *Id.*

Setting Saw Creek apart from other communities are its resident amenities, which include multiple swimming pools (including one indoor pool), a full-service (“Top of the World”) restaurant which offers stunning views from its deck, a fitness center, and a downhill ski run with a chair lift. *Id.* at p.6. About 40% of homeowners are “weekenders” or seasonal residents, but

many live in Saw Creek as their primary residence, and commute to work in locations as far distant as New York City. *Id.*

The Saw Creek residents have a myriad of significant concerns with the proposed S-R Line. This is because as discussed *infra*, approximately 31 of their homes are within 100 feet of the existing PPL right-of-way, more than one hundred of their homes are within 250 feet, and countless more will have a clear view of the proposed towers. Additionally, a large number of homes will lie within the fall distance of the proposed towers. In fact, Greg Smith, PPL's project manager, admitted in his "Line Route Selection" presentation to the PPL board that Route B will pass within 250 feet of 217 residences. *See* ECC Cross Ex. 6, June 23, 2008, presentation, at pp. 24 and 25. Therefore, it is not surprisingly that PPL's Greg Smith admitted that the majority of the comments PPL received regarding the section of Route B proposed to go through Saw Creek were opposed to having it go through Saw Creek. Tr.919.

As discussed in detail *infra*, the concerns of Saw Creek residents include increased risks of cancer, childhood leukemia, and other health affects resulting from exposure to magnetic fields, the dangers of tower collapse, potential injury and death caused by construction activities, noise and shock during blasting and drilling, reduced property values, offensive marring of the attractive viewscapes in the area, and the tremendous stress of experiencing and worrying about these impacts. It is important to realize that many of the impacts which the S-R Line would cause are not presented by the existing lines, or were not known risks until long after the existing lines and homes were built. As the President of SCECA's Board of Directors, Peter Derrenbach stated in the public input hearing, "[c]learly, the existing lines have been there long before the community was. But having said that, the reality is that there is now a city built on and around the lines. ... The proposed S-R Line "will devastate this community and its residents forever."

Tr.108. From the overwhelming testimony objecting to the S-R Line, cited *supra* and *infra*, clearly others agreed with this point. *See also* Tr.212-13, 323-26.

PPL gives short shrift to these concerns by parroting its mantra that the lines were there first. In fact, its application and initial written statements and exhibits, completely failed to discuss many of these topics. This did not go unnoticed by those residents. The consensus of individuals was aptly stated by Rocco Pannozzo, a member of SCECA's Board of Directors, who stated that PPL is giving more consideration to bats and turtles than to the residents of Saw Creek Estates. Tr.199. Dave Martin, SCECA's General Manager, correctly pointed out that, in fact, by the time of the public input hearing on this application, PPL had not performed any analysis of the impacts of the proposed S-R Line on people living in the area. Tr.215. Others who testified agreed. Tr.304-307. Given the numerous, significant and widespread concerns expressed by Saw Creek residents, it is surprising to find that PPL has done so little in the way of describing potential impacts to Saw Creek residents and conducting a meaningful analysis of how to avoid Saw Creek and those impacts.

#### 1. Route Selection

SCECA's objections to PPL's Route B generally pertain specifically to its insistence on running the proposed S-R Line through Saw Creek, rather than viewing the S-R Line as an opportunity to move the existing lines out of Saw Creek. Accordingly, PPL's objections are discussed *infra*. at Section 4, Reroutes to Avoid Saw Creek Estates.

2. Safety – Many Homes in the Saw Creek Community (And Perhaps Elsewhere) Will Be Within the Tower Fall Distance

Saw Creek community residents are extremely concerned with the safety of the proposed S-R Line. In particular, residents expressed their fear of a tower collapse if the line is completed. Tr.108, 130-32, 140, 185-87, 224-25, 286-89, 289-93, 463, 466, 467, 497-98, and 500. This concern is for good reason. The towers of the existing 230 kV line through the Saw Creek community are approximately 83 feet tall and are set within a 200 foot right-of-way; however, the proposed S-R towers would be as high as 195 feet tall. OCA St. 1, p.14. Many homes in the Saw Creek community are situated immediately adjacent to the edge of the existing 200 foot right-of-way (one hundred feet from the centerline), and many have yards and decks which extend into the right-of-way. OCA St. 1, pp.13-14. In fact, one home was determined to be 4  $\frac{3}{4}$  inches from the edge of the right-of-way, or 104  $\frac{3}{4}$  inches from the centerline of the right-of-way. Tr.482-483. Within the Saw Creek community alone, at least 31 homes will be within the fall distance of PPL's towers, if the towers are constructed. SCECA Surreb. St., p.13-14.

During Judge Colwell's May, 2009, Site Visit to Saw Creek, participants noted on the record that homes were clearly within the fall distance of the proposed towers. *See* Tr.459, 463, 468, 482-83, 497-98, 500, 516. The proximity of the homes to the right-of-way is most apparent in photographs taken during the Site Visit. *See, e.g.*, Site Visit Photograph Nos. 3340, 3343, 3345, 3351, 3369, 3472, 3377, 3396, 3397, 3402, 3410, 3414, 3416, 3423, 3428, 3439, 3441, 3458, 3448, 3455, 3457, and 3462. Greg Smith, PPL's project manager, admitted in his "Line Route Selection" presentation to the PPL board that Route B will pass within 250 feet of 217 residences. *See* ECC Cross Ex. 6, June 23, 2008, presentation, at pp. 24 and 25. Incredibly, PPL did not determine how many homes were situated within the fall distance (195 feet) of the

proposed towers, and therefore completely failed to take this into consideration when selecting the proposed route for the S-R line. OCA St.1, p.14.

The record developed in this application makes clear that the Saw Creek residents' concerns about being crushed by a falling tower are legitimate. Transmission towers are routinely subject to failure. According to documents moved into evidence by OCA, 130 transmission towers were destroyed as a result of an ice storm in 1998. OCA Cross Ex. 9; Tr.1048-49. In another storm event, 30 towers failed. OCA Cross Ex. 10; Tr.1051. PPL attempted to distinguish its proposed towers from those cited as having failed in the past, but on cross-examination its witness admitted that "I'm not really aware of what the – has been proposed in the Saw Creek Estates area." J.Hogan, Tr.1059. Another PPL witness admitted that, on two prior occasions as recent as 2006 and 2007, PPL's tubular steel towers failed. J. Keeler, Tr.1074.

Given the fact that electrical transmission towers do sometimes fail, and given the fact that 31 Saw Creek residents' homes would lie within the fall distance of the proposed towers (as would those of an unknown number of residents outside the Saw Creek community), residents of Saw Creek have valid reason to fear the proposed 190 foot tall monstrosities. In the face of these real dangers, PPL had a duty to fully analyze and discuss these dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2). Instead, however, PPL's exhibits and testimony pertaining to PPL's siting analysis barely mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient under *West Penn* and *Dunk, supra*. This failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to

minimize these risks, but failed to do so. *See Re Overhead Electric Transmission Lines, supra.*; 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

3. Health – Electric and Magnetic Fields Present Increased Risks of Diseases to Residents of the Saw Creek Community
  - i. Under Continuous Operations, the S-R Line Could Produce Magnetic Fields Near 204 mG in the Right-of-Way, and 74.5 mG at the Edge of the Right-of-Way

In testimony and at hearing, PPL introduced evidence regarding its calculations of magnetic fields which may be produced by the proposed S-R Line. All other things being equal, these fields are directly related to the load placed on a line. PPL estimated EMF levels caused by the S-R line through Saw Creek, but only for 2013, the year the line is expected to be put into operation. Tr.1071. PPL calculated magnetic field levels using a load value which PPL anticipates the lines will not exceed 90 percent of the time during the year 2013 (the "PPL Design Calc" or "L-90"). Tr. 1145.

The resultant calculated magnetic field levels at 1 meter above the ground are shown in SCECA Att. DWF-2. Based on PPL's 2013 L-90, this attachment shows PPL's calculated magnetic fields at the edge of the right-of-way (100 feet from the centerline) to be 11.7 mG (milliGauss) on the 230 kV side, and 31.7 mG on the 500 kV side. SCECA Att. DWF-2. The highest magnetic field level PPL calculated is 84.9 mG, occurring at 15 ft from the centerline on the 500 kV side. *Id.* PPL estimates that the magnetic field levels 250 feet from the centerline

will be nearly 3 mG on the 230 kV side, and 6 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

After 2013, “the L-90 for subsequent years, and the resultant EMF levels, can be expected to increase in subsequent years.” SCECA Surreb. St. R-1, pp.3-4; Tr.1074, 1148-49. This is because PPL projected increasing loads in the years following 2013. *See* PPL Ex. PFM-2 and PFM-3; PPL Reb. St. 8R, pp.3-5. As Dr. Fugate testified, “[t]here is nothing magical about the year 2013 – Mr. McGlynn’s testimony demonstrates that PPL generally estimates that loading will continue to increase beyond the year 2013. SCECA Surreb. St. R-1, pp.3-4; Tr.1148-49. Importantly, PPL has not provided any documents or testimony indicating that it intends to limit loading on the proposed S-R Line to year 2013 levels. Tr.1164. Additionally, PPL’s witness, Mr. Keeler, is not aware of any such restrictions. Tr.1074. As a result, the proposed lines could be operated at a higher load than PPL used to calculate EMF levels, and this would result in higher EMF levels than PPL calculated. Tr.1074; Tr.1144. Finally, PPL’s Greg Smith conceded that the S-R line’s 230 kV line is actually designed to be capable to handling 500 kV, in the event PPL determines the need to upgrade other elements of the circuit and do so. Tr.936-38.

PPL has declined to identify how high of an L-90 load it might place on the S-R Line, and this would be difficult for other parties to determine exactly. However, we do know that the proposed S-R lines could be operated continuously at the summer normal rating. Tr. 1144. In this case, the resultant calculated magnetic fields at the edge of the right-of-way (100 feet from the centerline) are 27.0 mG on the 230 kV side, and 74.5 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2. The highest magnetic field level calculated is nearly 204 mG, occurring at 15 ft from the centerline on the 500 kV side. Tr.1138; SCECA Att. DWF-2. The calculated

magnetic field levels 250 feet from the centerline will be more than 6 mG on the 230 kV side, and nearly 14 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

The proposed lines could also be run continuously at loads even higher than the summer normal rating, such as during the winter, and still higher during emergencies for short periods of time. Tr.1144. There are a number of situations which might arise that would cause the EMF levels to increase on the ground, including when one line is out of tolerance, is not operating, or is not operating at normal load. Tr.1080-81. Under certain emergency situations, the highest magnetic field level is calculated to reach over 275 mG, at 20 feet from the centerline on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

A comparison of calculated magnetic field levels from the proposed line with measured levels from the existing line confirms that levels will increase. Mr. Silva recorded magnetic field levels on both edges of the existing right-of-way. The results were that levels on each edge were approximately 15 mG. PPL Reb. St. 14R, p.16, Table JMS-5. If the proposed line is built, the level is estimated to go down to 11.7 mG during 2013 operations on one edge, but up to approximately double to 31.7 mG on the 500 kV edge. Furthermore, as explained *supra*, under higher loads anticipated during later years and/or during winter or emergency conditions, the levels will increase further.

PPL has gone to extreme, but misguided, efforts to downplay the magnetic fields which would be produced by the proposed S-R Line. PPL retained Mr. Silva to fly all the way from California to Pennsylvania in order to measure magnetic field levels. M. Silva, Tr.1187. He measured magnetic field levels at thousands of locations in public buildings of various communities in Pennsylvania, yet he only took measurements at one point on the existing transmission line in the vicinity of Saw Creek Estates. M. Silva, Tr.1189, 1209. His and PPL's

apparent goal was not to obtain a conclusive body of data which could either confirm magnetic fields coming from the existing lines and validate, or invalidate, PPL's EMF field models.

Although that would have been a responsible endeavor, their interest instead was to attempt to legitimize the magnetic fields estimated to result from the S-R Line by comparing them to fields from other sources, such as appliances and lights.

PPL's comparison of power line magnetic fields to fields from appliances is like comparing apples to oranges. Magnetic fields from appliances and lighting, and other sources in a home, typically fall off rapidly within several feet of the source. SCECA Surreb. St. R-1, p.2. In contrast, magnetic fields from a power line adjacent to a home typically extend much farther and fall off only gradually, with the resultant levels in various locations within the home being very similar. *Id.*; Tr.1156. PPL's calculations show that a five foot change in distance from a power line makes very little difference in terms of magnetic field exposure. *See* SCECA Att. DWF-2. Additionally, magnetic fields from power lines are relatively constant over time; in contrast, fields from appliances may only exist during operation of the appliance, and exposure may only occur when an individual is very close to the appliance. SCECA Surreb. St. R-1, p.2; Tr.1156.

ii. Magnetic Fields Within and Beyond the Right-of-Way Will Greatly Exceed Levels Shown to Cause Disease in Humans

SCECA's expert, Dr. David O. Carpenter, M.D., testified concerning the health risks of magnetic fields from the proposed S-R Line. Dr. Carpenter is employed by the University at Albany, SUNY, as a Professor of Environmental Health Sciences as well as Biomedical Sciences, and as Director, Institute for Health and the Environment. SCECA St. 2, p.1; SCECA App. DOC-1. Dr. Carpenter was the director of a research program which became known as the

“New York Power Lines Project.” Tr.1087; SCECA App. DOC-1. Research is a major part of his duties in the past and at present. He has over 315 publications in peer-reviewed journals and has edited five books. SCECA St. 2, p.2. He has administered research on the human health risks of exposure to magnetic fields, and lecture, testified, and written on the topic extensively. *Id.* at pp.2-4.

Dr. Carpenter reviewed the data in the Exhibits DOC – 1, DOC – 2, and DOC – 3, taken from Att. DWF-2. SCECA St. 2, p.4. Depending on the load scenario, these exhibits show PPL’s calculated magnetic fields at one meter above the ground would be in the range of 3.9 to 42.5 mG at a distance of 200 ft from the center line, and from 11.7 to 123.9 mG at the edge of the right of way. *Id.*; SCECA Ex. DOC-1, DOC-2, and DOC-3; SCECA Att. DWF-2.

PPL’s calculated magnetic field levels exceed levels shown to cause human diseases. Dr. Carpenter testified that the human exposure to magnetic fields in the calculated intensity range of 2-4 mG results in an increase in risk of cancer, particularly leukemia. SCECA St. 2., p.5. He concluded that, while the specific elevated risk for Saw Creek residents cannot be calculated, the magnetic field to which children and adults will be exposed from the proposed PPL line is in excess of the 2-4mG clearly demonstrated to increase the risk of leukemia. *Id.* He also concluded that the calculated magnetic field levels in the Saw Creek area from the S-R Line present a risk of increased Alzheimer’s Disease and amyotrophic lateral sclerosis (“ALS”). *Id.* The increased risk above normal is about 2-fold in the occupational studies, but because the levels in the studies varied, the specific increase in risk to Saw Creek residents cannot be calculated. *Id.* Finally, Dr. Carpenter noted that, at levels in the range of 2-4mG, there are other diseases for which there is some evidence for risk being elevated in exposed individuals (brain cancer, immune system effects, neurobehavioral effects), although the evidence at present is still

less certain. *Id.* at p.6. Based on available evidence of health impacts and PPL's projected field levels from the S-R Line, Dr. Carpenter concluded that the proposed power-line will expose individuals who live near to the line to magnetic fields in excess of 2 mG, which is the intensity known to cause an increased risk of cancer and neurodegenerative diseases. *Id.*

To arrive at his conclusions with regard to the resultant increased risk of cancer and leukemia, Dr. Carpenter reviewed the extensive scientific peer-reviewed literature, with particular attention to meta-analyses that rate individual publications on the basis of their strength. *Id.* at p.6. With regard to the resultant increased risk of Alzheimer's Disease and ALS, Dr. Carpenter reviewed the more than ten scientific papers that have investigated this relationship, as well as a recent meta-analysis by Garcia et al. *Id.* at p.6. With regard to the resultant increased risk of other diseases, Dr. Carpenter reviewed the detailed scientific literature reporting elevated rates of brain cancer, immune system effects, effects on bone, neurobehavioral effects and effects on genes. *Id.* at p.7.

The association between magnetic fields and childhood leukemia is well-documented. Dr. Carpenter testified that an epidemiological study in which he was involved, referred to at the "Savitz study," confirmed the findings of earlier studies showing that children living in homes with elevated magnetic fields coming from magnetic fields produced by power lines were at elevated risk of leukemia. SCECA St. 2 and 2R; Tr.1088. Significantly, the Savitz study also found an association between "low power" conditions – with household electrical devices off, and remaining EMF fields coming from power lines – and childhood leukemia. Tr.1094-95. One of the earlier studies, "the Wertheimer and Leeper study," also found an association between childhood leukemia and the thickness of transmission lines near the homes, which was assumed to correlate with average EMF levels, meaning that the thicker the line, the greater the average

current and resultant EMF levels. Tr.1092-94. The Wertheimer and Leeper study was published in the American Journal of Epidemiology. Tr.1100.

Many other studies cited by Dr. Carpenter in his direct and surrebuttal testimony found an association between magnetic fields and childhood leukemia, including three meta-analysis which looked at the aggregate of evidence from various studies through the year 2002 and found a statistically significant association between exposure to magnetic fields and childhood leukemia. Tr.1127. The National Research Council concluded “that the link between wire code grading and childhood leukemia is statistically significant, (unlikely to have arisen from chance) is robust in the sense that eliminating any single study from the group does not alter the conclusions that associations exist.” Tr.1137-38.

Overall, the various studies Dr. Carpenter presented showed elevated risks of childhood leukemia associated with power lines to be in the range of 1.5 to 4. Tr.1096. Elevated risks were seen in homes with magnetic field levels of 2 to 4 mG (milliGauss). Tr.1107. Based on the various studies on power line EMFs and childhood leukemia, Dr. Carpenter concluded that power frequency magnetic fields are a probable cause of childhood leukemia, with elevated risks resulting from magnetic field levels of 2 to 4 mG. Tr.1118. Based on this opinion, Dr. Carpenter advocates for minimizing magnetic field exposures to below 2 mG when possible. Tr.1122. At Saw Creek, PPL estimates that the magnetic field levels which will occur under normal, initial loads in 2013 (the PPL Design Calculation using L-90) will exceed 2 mG as far as 250 feet from the center line of the right-of-way. Tr.1138; SCECA Att. DWF-2.

Dr. Carpenter explained the mechanisms of magnetic field effects as follows. Power-line EMFs result in the generation of reactive oxygen species (ROS), commonly called free radicals, and these indirectly cause damage to DNA. SCECA Surreb. St. 2R, p.2. Dr. Carpenter

explained that the majority of the studies on DNA effects show positive effects. *Id.* The weight of evidence therefore indicates that EMF results in indirect DNA damage, most likely as a consequence of ROS generation, and that a great number of genes are altered in their expression. *Id.* at pp.3-4. The fact that not every study shows positive effects in no way diminishes the fact that most studies do find DNA damage, because variation can result from different cells, different exposures and different methods. *Id.* Many studies also demonstrate that 50 or 60 Hz magnetic fields results in gene induction (activity), such that some genes become more active, while others become less active. *Id.* at p.3. Because most genes control the synthesis of proteins, their induction will result in either more or less of a particular protein being made. *Id.*

PPL introduced the testimony of Dr. Israel regarding the human health risks of exposure to EMFs. However, Dr. Israel admitted on the stand that he selectively identified studies helpful to his opinions. “I tried to list those studies that represented examples of the studies that helped me to form my opinion. It wasn’t meant to be a comprehensive bibliography.” Tr.1168.

Dr. Lee also testified on behalf of PPL, and expressed her opinions regarding the risks of EMF exposure. She did not deny that some epidemiological studies show an association with childhood leukemia. However, one of her concerns is that laboratory tests of animals and cells “have not shown consistent effects.... Even when exposed to very high doses by these low frequency electromagnetic fields, they’ve not been able to duplicate the health conditions and concerns that we see in the epidemiological studies.” Tr.1179 (emphasis added). (Here, she concedes that epidemiological studies, however, do show an association.) Dr. Lee ignores that not all causes of health effects in humans are also causes of health effects in animals. As Dr. Carpenter explained, “[i]n the case of EMFs in particular, the difference in both size and body shape between humans and small rodents is so great that whatever is the triggering factor

(probably induced currents) are very different between rodents and humans.” SCECA St. R-2, p.4. Moreover, Dr. Carpenter testified that a “convincing animal demonstration of cancer is the report of Reif et al (1995) who showed that dogs who live in homes with elevated magnetic fields (very high current) showed a 6.8-fold, statistically significant elevation in the risk of canine lymphoma. This is a particularly important study since it was done in Colorado in the same communities where human leukemia risk was found to be elevated in these homes.” *Id.* at p.5.

As indicated above, Dr. Lee also rejects the results of epidemiological studies on childhood leukemia because she deems them “inconsistent.” Tr.1179. However, as Dr. Carpenter explains, while the results are not unanimous, they are, in fact, consistent. SCECA Surreb. St. R-2, p.5-6. Many reputable organizations agree. For instance, the 2007 WHO report states that epidemiological studies do “show an association between ELF magnetic field exposure and an increased risk of childhood leukemia.” *Id.* at p.6. Similarly, Dr. Carpenter testified that “[t]he evidence for an association between ELF-EMF exposure and the neurodegenerative diseases, Alzheimer’s and amyotrophic lateral sclerosis (ALS), is strong.” *Id.* at p.7. In fact, studies reveal odd ratios (ORs, that being the ratio of neurodegenerative disease in the exposed population as compared to the unexposed population) ranging from 1.6 to 9.4 for ALS. *Id.*

Dr. Carpenter pointed out other deficiencies in the testimony of PPL’s Drs. Lee and Israel. Those witnesses rejected all studies showing impacts caused by magnetic fields, because the witnesses claimed the studies were not reproducible. *Id.* at p.3. However, as Dr. Carpenter explained, there are many reasons studies may not be reproducible (and in studies rarely are reproducible), and those reasons may have nothing to do with the validity of the study. *Id.*

Therefore, the appropriate approach to any scientific question is to evaluate the weight of evidence.

PPL introduced various standards related to EMF exposure; however, these also compare apples to oranges. None of those standards pertained to protection against long-term human health impacts. Instead, for example, the IEEE standard is intended only to protect against sudden physiological reactions, or sensory effects, such as a “startle shock,” pain, or cardiac excitation. PPL Cross-examination Ex. 7; Tr.1194. Mr. Silva’s testimony also cited guidelines issued by ICNIRP, but admitted that he has no idea what human health effects those guidelines are intended to protect against. Tr.1196.

On cross-examination, Dr. Carpenter was asked about the existence of magnetic field exposure limits established in New York State; however, those limits were not based on risk of diseases either, but rather on a desire not to allow future lines to emit higher magnetic fields than existing lines. Tr.1127-28. Not surprisingly, Dr. Carpenter recognizes that, absent meaningful, health-based limits, “there is little motivation for the [electric power] industry to try to find the ways to deliver electricity without elevating the exposure.” Tr.1122.

As explained *supra*, the calculated magnetic field levels from the proposed S-R Line will exceed levels demonstrated to be associated with, and likely cause, human diseases, including childhood leukemia, cancer, Alzheimer’s disease, and ALS. In the face of these real dangers, PPL had a duty to evaluate every reasonable alternative to minimize them. *See Re Overhead Electric Transmission Lines, supra*. PPL’s failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the

state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

iii. The Increased Risk of Diseases and Danger Causes Tremendous Fear and Stress to Residents of Saw Creek

Not surprisingly perhaps the strongest concern of Saw Creek community residents is increased risks of disease caused by the proposed S-R Line. Individuals testified that they fear tower failures and construction accidents, and cancer, childhood leukemia and other negative health impacts from the increased magnetic field levels, which will be caused by the proposed S-R Line. Tr.107, 120, 124, 125, 129, 140, 142-45, 203, 205, 224-25, 253, 262, 265-67, 268, 271, 282-83, 284-85, 286-88, 289-23, 294-97, 309-13, 314-16, 317-19, 327-32, 484, 488, 500. Even putting aside whether actual incidents of cancer, childhood leukemia, and other health impacts would arise, for the multitude of Saw Creek residents living under this cloud of uncertainty, "just the stress alone is tremendous." Tr.271. And while it may be tempting to blame the residents of Saw Creek for moving to the existing line, this view ignores reality. PPL proffered the testimony of Dr. Israel, who admitted that he is not aware of any studies being conducted on EMF fields prior to about 1960. Tr.1169. Quite simply, neither the residents of Saw Creek nor, for that matter, most residents throughout the United States and other developed countries, had any reason to fear high voltage transmission lines until sometime after about 1960.

PPL's own behavior suggests it is not entirely to be trusted to be candid about the magnetic fields anticipated from the proposed S-R Line. PPL's initial letters to Saw Creek residents misrepresented that the electromagnetic fields along the Saw Creek right-of-way would be reduced by construction of the S-R Line, and made no mention of the fact that this was based on an averaging of an increase on one side of the right-of-way and a decrease on the other side.

SCECA Cross-examination Ex. 1; Tr. 932. PPL distributed this letter, containing false information, even though it had been reviewed by Joseph Keeler, PPL's Supervisor of Transmission Design and Distribution Design and the individual who offered testimony that the EMF levels would actually increase on one side of the right-of-way. Tr.1061, 1076.

More recently, to allay people's concerns, PPL has been saying that after constructing the proposed lines, "on average, electromagnetic fields decrease significantly." *See, e.g.*, Tr.930. However, Mr. Greg Smith, who testified on behalf of PPL, conceded that he realizes electromagnetic fields will actually increase on one side of the right-of-way, and decrease on the other side if the S-R Line is built. Tr.930-31. He also conceded that a home owner living on the side where the fields will increase, would never see any averaging – only the increase. Tr. 931.

PPL is not advocating that medical science has proved that power lines do not cause human diseases. Therefore, even if PPL were to convince the Commission that medical science has not proved that power line magnetic fields do cause human diseases, PPL, and the Commission, must acknowledge that the lingering uncertainty is causing residents legitimate fear. This legitimate fear, in itself, is an impact which PPL should have evaluated on the record. PPL had a duty to fully analyze and discuss the fear and stress caused by the S-R Line on the record pursuant to 52 Pa. Code § 57.75(e)(3)(i) and (4).

Instead, however, PPL's exhibits and testimony pertaining to PPL's siting analysis do not mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient under *West Penn* and *Dunk, supra*. This failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. *See Re*

*Overhead Electric Transmission Lines, supra.*; 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

#### 4. Environmental Impacts

The proposed S-R Line will cause significant impacts on both the natural and human environment. These concerns are addressed *supra* and *infra* in the context of the Saw Creek community.

#### 6. Reroutes to Avoid Saw Creek Estates

In the current proceeding, PPL has an intensified burden to show on the record that the environment has been considered in its planning and that every reasonable effort has been made to reduce the environmental impacts to a minimum. *Re Overhead Electric Transmission Lines, supra*, at \*14 (emphasis added). PPL must demonstrate 1) the safety of the proposed HV line, 2) the impact and efforts which have been and will be made to minimize the impact, and 4) the availability of reasonable alternative routes. 52 Pa. Code § 57.75(e)(2), (3) and (4) (emphasis added). After a hearing, the Commission can only grant the application if it determines that the proposed line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added).

PPL cannot simply provide conclusory statements about its purported analyses. The Commission recently admonished a transmission siting applicant for its scant examination of alternative routes, and instructed it to “provide better alternative route descriptions and discussion of comparative merits of alternative routes.” *See In Re: Application of Trans-Allegheny Interstate Line Company (TrAILCo)*, 2008 Pa. PUC LEXIS 3, \*63-64. In other words, PPL must necessarily have performed a sufficiently detailed analysis of impacts, made every reasonable effort to reduce those impacts to a minimum, and discussed these analyses and efforts in the record it produces to support its application.

i. PPL’s Link Selection Process Was Deficient

PPL’s analysis of potential routes for the S-R Line purportedly consisted of three main steps. First, PPL claims to have elected PPL’s “project area.” Second, it claims to have identified “large area constraints” within that area by reviewing maps and aerial photographs. This “paper” review led to PPL identifying three potential main routes, identified as Routes A, B, and C, which circumvented those large area constraints. Tr.973-74. PPL claims it then identified alternative potential “links” along these three routes. Saw Creek Estates lies along just north of the south end of “link 35,” which is part of Route B. Tr.976-77.

After identifying potential “links,” PPL then claims it conducted “field” evaluations of the links. Tr.974, 978. However, an examination of PPL’s field work reveals its inadequacy. Mr. Sparhawk admitted that PPL’s “field” evaluation of potential links and routes consisted only of driving a car along either public roads or PPL’s existing right-of-ways. It did not include traversing any areas not accessible by either public road or PPL’s existing right-of-ways. Tr.974, 978. As discussed *infra*, this lack of true field work prevented PPL from identifying additional

alternative links, and from seeing where it could modify a proposed link to circumvent a “small area constraint” rather than simply discard the proposed link. In short, no link could be considered if it was not along a public road or PPL right-of-way. Admittedly, there could be some exceptions where PPL used public property to view a location, but the record does disclose any such property used to evaluate specific alternative to passing the S-R Line through Saw Creek.

On behalf of SCECA, Dr. Daniel Moscovici evaluated PPL’s analysis of “links” and its purported effort to circumvent Saw Creek Estates. He also testified on behalf of SCECA regarding alternatives to running the S-R Line through Saw Creek Estates. Dr. Moscovici has significant expertise with large-scale electric facility siting projects. For the past three years, he has been working on a research project in Costa Rica regarding the siting of a major hydrologic dam – specifically a 631 MW project which would power approximately 1/3 of the nation’s electricity needs. His research has resulted in a peer reviewed journal article and a book chapter. SCECA St. R-5, p.2; SCECA App. DAM-1. Additionally, he has been working with GIS technology for over six years as a power-user, and was trained by the foremost expert in GIS cartography, Dr. C. Dana Tomlin, one of the originators of many of the algorithms of the associated technology. Dr. Moscovici has since taught courses on GIS and its application in cartography and environmental planning for two years. SCECA St. R-5, p.3. SCECA App. DAM-1.

With respect to PPL’s analysis of the Saw Creek area, its analysis was severely flawed not only due the limitations of PPL’s “field” evaluations, but also due to PPL’s predetermined insistence on using existing right-of-ways. After reviewing all relevant documents in PPL’s Application, including PPL’s initial written testimony, Dr. Moscovici concluded that “what I saw

in all of this data demonstrates that there was no meaningful consideration of an actual alternative to running the proposed Susquehanna-Roseland line through Saw Creek Estates. There was only a discussion that a right of way and line already existed through the Saw Creek Estates community.” SCECA St. R-5, p.4. Although PPL later attempted to bolster its predetermination, this effort fell far short of a meaningful analysis, as discussed *infra*.

ii. PPL Never Meaningfully Considered the Former Tamiment Resort Property

PPL’s first failure to avoid impacts to Saw Creek has to do with the nearby Tamiment property, which has been slated for development for several years. David Martin, SCECA’s General Manager, testified that PPL failed to examine the possibility of routing the S-R Line through the undeveloped land in the subdivision to the east of Saw Creek and land which formerly was part of Tamiment Resort. Tr.219, 517. This conclusion is based on his conversation with Susan Menno, the project manager for planning and development of those lands, who advised him that her inquiries could not find anyone in her organization who had any knowledge or record of having been contacted by any PPL representative to discuss locating the line within that area. Tr.219, 517. Others also testified that the former Tamiment subdivision property, owned by the Worthington Group, seemed like a viable option PPL should have thoroughly examined. Tr.485, 487. Yet, PPL’s application is devoid of any meaningful analysis of this property.

PPL never seriously looked into using any part of the former Tamiment Resort property. PPL has no idea of the details of what are now at least three-year-old plans to redevelop part of the former Tamiment Resort, and has no idea of how much of the area might be cleared of trees, impact streams, impact wildlife, or include buildings. Tr.982-83. Mr. Sparhawk does

acknowledge that the development, if it occurs, would include commercial development. Tr.983. PPL also never mentions that if it were to eliminate the existing lines through Saw Creek and place the S-R Line through the former Tamiment Resort, the current right-of-way could be allowed to develop into forest land. Especially given the magnitude and intensity of the concerns expressed by Saw Creek residents, PPL should have done better.

PPL should have made a reasonable effort to evaluate this available alternative in order to conclude whether the dangers the S-R Line presents to Saw Creek residents can reasonably be minimized or eliminated. *See* 52 Pa. Code § 57.76(a)(2) and (4); *Pa. DER v. Pa. PUC, supra*. Only then would PPL have satisfied its duty to evaluate every reasonable alternative to minimize them. *See Re Overhead Electric Transmission Lines, supra*; 52 Pa. Code § 57.75(e)(2), (3) and (4). And, only then would the Commission be able to make the necessary determination that the proposed line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added). Accordingly, PPL's application should be denied.

iii. PPL's "After-the-Fact" Analysis of Alternative Links Fails to Support Its Rejection of Other Areas East of Saw Creek

In the face of Dr. Moscovici's initial written testimony and public opposition to running the S-R Line through Saw Creek, as expressed in the public input hearings, PPL claims it subsequently prepared an analysis of the former Tamiment property and one other area. *See* PPL St. 3R, pp.1-6.

PPL's analysis of the former Tamiment property suffered from other deficiencies, as well. In his rebuttal testimony, Dr. Moscovici identified additional alternative routes which

would eliminate the need to cross the Saw Creek Community, utilizing minimal impact on the DE Water Gap national Recreation Area, protected regions, wetlands and riparian buffers and homes. SCECA R-5, p.5. He explained that he roughly marked these on Appendices DAM-2 as Alternative Route A and Alternative Route B. The map Appendix DAM – 3 also includes his rough recommended alternative routes, superimposed on Map #19 of Exhibit C –

Constraint/Topographic Maps submitted by PPL as part of the PUC filing in respect to the Susquehanna-Roseland Project. SCECA St. R-5, p.5. Dr. Moscovici explained that:

It is important to understand that this is a difficult task without actually being on-the-ground and taking pictures and surveying the landscape. This is merely a cartographic analysis using the resources available. However, had PPL actually conducted a meaningful consideration of alternatives to running the lines through the Saw Creek Estates community, I would have expected that PPL would have done this on-the-ground work for Alternative A and Alternative B, and documented it.

SCECA St. R-5, pp.5-6.

Unfortunately, PPL never meaningfully evaluated the areas suggested by Dr. Moscovici as Alternative Link A and Alternative Link B. Mr Sparhawk’s testimony reveals that, even after seeing them in Dr. Moscovici’s rebuttal testimony, PPL made no attempt to fine-tune Dr. Moscovici’s suggested Alternative Link A or Alternative Link B to see if PPL could avoid any existing features, whether natural or manmade. Tr.987. Instead, with respect to Alternative Link A, PPL’s witness, Peter Sparhawk, testified that it was “similar in concept” to an “eastern” route PPL had examined. PPL St. RJ3, p.3. Mr. Sparhawk candidly conceded that this “eastern” route was “never seriously considered.” *Id.* Why? Because he speculated that such a route “likely would interfere with any redevelopment plans for the Tamiment property....” *Id.* at p.4 (emphasis added). He also testified that he believed the re-entry to the planned Route B would be “difficult,” and that it would involve an area where PPL has no property, easements or facilities. *Id.*

PPL's rejection of Alternative Link A is not supported by the record. Would the "eastern" route actually interfere with development plans? If so, to what extent? And, why would the property owner care if it is being compensated by PPL? If the development is stalled due to economic conditions, this compensation may be welcomed by the property owner. The record fails to answer these questions, and PPL has no idea. In that case, the developer would achieve its goal of benefiting financially, and a right-of-way would exist on a portion of the development, rather than residential or commercial buildings. Furthermore, wouldn't it make more sense to acquire rights to portions of a lingering three-year old development plan, most likely stalled if not forever terminated by current economic conditions, than to force the residents of Saw Creek to endure the many impacts identified *supra* and *infra*? Shouldn't PPL at least make some modicum of effort to value the costs of acquiring rights, and overcoming the unexplained "difficulty" of re-entry? Shouldn't PPL take a close look at these issues, weigh them, and arrive at a legitimate, thoughtful decision? Yet, nowhere does PPL do this.

PPL had a duty to fully evaluate this reasonable alternative in order to minimize the dangers of the S-R Line to Saw Creek residents, and to fully document that evaluation on the record. *See Re Overhead Electric Transmission Lines, supra*; 52 Pa. Code § 57.75(e)(2), (3) and (4). PPL's failure precludes the Commission from making the necessary determination that the proposed line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added). Accordingly, PPL's application should be denied.

In his rejoinder testimony, Mr. Sparhawk goes on to reject Alternative Link A and Alternative Link B based on PPL's consultant's visual examination of Dr. Moscovici's "rough"

suggestion of these alternatives. This examination is surprising for several reasons. First, it does not appear that, at least with respect to Alternative Link B, PPL or its consultant had ever considered it before. Second, Mr. Sparhawk points to certain features he claims preclude the use of these alternatives (See PPL Ex. PS-2), but fails to acknowledge the vast open areas nearby or explain why the alternatives cannot be adjusted slightly to use those open areas. See PPL Ex. PS-2. Third, Mr. Sparhawk attempts to portray Dr. Moscovici's alternatives as having been carefully delineated when, in fact, Dr. Moscovici expressly stated that they were "rough" depictions, and explained the reasons he could not provide more detailed depictions.

Mr. Sparhawk suggested other reasons to reject the "eastern route," but provides no indication of why those reasons apply to Alternative Links A and B. See PPL St. 3R. Moreover, his "reasons" are presented merely in conclusory fashion, without any support, and he fails to weigh them against the Saw Creek residents' concerns. See *id.* For instance he claims a number of acres of forested land would be cleared. *Id.* at pp.3-4, but fails to support this estimate, and ignores both the fact that some of it would evidently be cleared to develop the Tamiment property, and that some would effectively be replaced by allowing the current Saw Creek right-of-way to reforest if the existing lines and towers are removed. He also submits that the S-R Line should not pass "within a few hundred feet" of the remaining Tamiment golf course. This reverence for a golf course callously disregards the far more severe impacts the S-R Line will have on the health and welfare of residents at Saw Creek.

Even PPL's limited analyses failed to mention or weigh the concerns raised by witnesses who testified at the public input hearings. As indicated *supra*, those concerns include increased risks of cancer, childhood leukemia, and other health affects resulting from exposure to magnetic fields, the dangers of tower collapse, potential injury and death caused by construction activities,

noise and shock during blasting and drilling, reduced property values, offensive marring of the attractive viewscapes in the area, and the tremendous stress of experiencing and worrying about these impacts. Because PPL failed to weigh these impacts, PPL cannot credibly suggest that the impacts of circumventing Saw Creek are more severe than the impacts of using the existing right-of-way in Saw Creek. PPL instead chose to avoid this analysis by arguing that the impacts of circumventing Saw Creek are “unnecessary because PPL Electric already owns sufficient rights-of-way through the Saw Creek Estates development for the Susquehanna-Roseland Transmission Line.” *Id.* at p.4.

PPL’s predetermined analysis flies in the face of the Commission’s siting regulations and the balancing required under Article 1, Section 27. It also demonstrates PPL’s failure to satisfy its duties to fully analyze and discuss the various impacts on the record, and to evaluate every reasonable alternative to minimize them. *See Re Overhead Electric Transmission Lines, supra.* Accordingly, before the Commission approves the S-R Line, PPL should be forced to prepare a new application consisting of a meaningful analysis of the impacts identified herein and the suggested alternatives. In doing so, PPL should provide a more thorough analysis of the alternatives, encompassing a discussion of how the positive and negative aspects of them compare to those of the Saw Creek area. In doing so, perhaps PPL would likely realize that there exists an area far more reasonable to use than Saw Creek.

PPL has stated repeatedly that it estimates the S-R Line will cost \$1.2 billion to build. *See, e.g.,* Tr.791. Yet, PPL apparently is not willing spend even a fraction of these costs to properly evaluate an alternative to passing the line through what is obviously the most contentious, densely-populated, and perhaps topographically difficult, portion of not only the proposed S-R Line but also of any other transmission line PPL has ever constructed. According

to Mr. Keeler, PPL purportedly decided to increase tower height and reverse phasing in order to reduce ground-level EMFs, which increased the S-R project costs by 5%. Tr.1072. If true, this would be an increased cost of \$ 60 million. Why hasn't PPL instead meaningfully considered spending a fraction of this amount to circumvent the Saw Creek community?

Rather than continue to claim it will save money by upgrading the existing line through Saw Creek as part of the S-R project, PPL should acknowledge that the S-R project is an opportunity to leverage the costs of placing the line in a much more desirable location. Exhibit A.04, "PPL System Map," shows that there are no connections to the existing line anywhere near Saw Creek; therefore, a substantial part of the line could be relocated, rather than having to be rebuilt. *See* Application, Ex. A.04, PPL System Map. (Although PPL claims it must retain the existing line even if the S-R Line is located elsewhere, the record is completely devoid of any support for this position. Therefore, PPL has failed to satisfy its duty to properly analyze this issue.) Unfortunately, PPL's analyses are limited by PPL's internal policies and its self-imposed blinders. One such limitation is PPL's policy on magnetic field management, which is limited to only considering design and operating factors, and only those that can be implemented at little or no cost. Tr.1069-70. PPL apparently takes the position that this policy obviates the need to also look at alternative locations for the S-R Line. Another limitation is PPL's narrow focus on utilizing existing rights-of-way to the detriment of virtually any other consideration. Taken together, these two limitations crippled PPL's analyses from the start.

7. Real Estate Values

i. The Proposed Line Will Have Direct, Negative Impacts on Properties in the Saw Creek Community

An additional area of strong concern among Saw Creek community residents is the impact of the S-R Line on property values. Numerous individuals testified at the public input hearing that they believe the proposed S-R Line will decrease property values. Tr.97, 105-06, 119, 125, 185-87, 200, 203, 205, 207-08, 253, 284-85, 294-97, 317-19, 323-26, 503. Among the Saw Creek residents who testified at the public input hearing was Mr. William Nagy. Mr. Nagy testified that as a real estate agent, he has experience with realty clients who do not even want to look at Saw Creek homes, due to the pending application. Tr.119. Louis Brience, another Saw Creek resident who is a real estate agent, anticipates that the S-R project will decrease the price of Saw Creek homes with a view of the line by as much as 50%, and the price of Saw Creek homes without a view by as much as 25-30%. Tr.129-30. Paula Schwartzman testified to her prior experience trying to sell a New Jersey home located along a power line right of way, and to the fact that real estate agents would not even bring their clients to view her home because of the lines. Tr.309.

SCECA's expert appraiser provided testimony which confirmed and validated the views expressed by Saw Creek residents. Mr. Andrew R. Haakenson, MAI, testified on behalf of SCECA. Mr. Haakenson is a Pennsylvania Certified General Appraiser, as well as being certified in Delaware and New Jersey. SCECA St. 3, p.1; SCECA Ex. ARH-1. Mr. Haakenson holds the MAI designation from the Appraisal Institute, and is past President of the Philadelphia Metro Chapter of that organization. He has been an appraiser since 1986, and has performed hundreds of assignments of all types, including valuation of residential subdivisions, gas pipeline right of ways, rail corridors, cellular telephone towers, landfills, and other matters where

potential diminution in value has been an issue. He is also a licensed Associate Broker in Pennsylvania. His analysis of the impacts of the S-R Line on property values is discussed *infra*.

ii. The Proposed Towers Will Significantly Detract From the Quality of the Views in the Saw Creek Community

Mr. Haakenson visited Saw Creek twice, and noted the same concerns others have noted, with the exception of PPL. The proposed towers will constitute a significant change to the existing landscape and viewshed. “The existing towers, at an average height of 83 feet, are from many points within Saw Creek completely hidden by the existing treeline. ... the [proposed] towers/lines will be at least twice as tall as the highest surrounding trees, and those towers and lines will become visible from locations which now have no view of the existing towers and lines. The visual effect will be like an elevated rail fence (or, alternatively, a music staff), running north/south across the easterly slope of the Saw Creek valley, with highly-visible conductors between towers, unlike the present lines, where conductors are barely visible from a distance. *Id.* at p.12-13. This is particularly true of the appeal of the Top of the World restaurant/pool/ski complex, which counts its mountain top view as one of its chief attractions, and which will have a direct view of the top  $\frac{1}{2}\pm$  of the proposed towers and lines. *Id.* at pp.16-17. This will be a marked change from the existing view, in which the tops of only two or three of the towers are visible in the nine months when full tree cover is present. *Id.* Furthermore, while Saw Creek’s amenities are common elements, they contribute significantly to the value of the individual residences. *Id.*<sup>1</sup>

To evaluate the conditions with respect to Saw Creek, Mr. Haakenson interviewed 15 people concerning recent sales or attempted sales – 14 buyers and 1 seller. Tr.1928. Two buyers

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<sup>1</sup> A more detailed discussion of viewshed impacts are set forth *infra* at Section 6, Viewsheds.

were not sure whether knowledge of the proposed line would have affected their decision to buy the property, two buyers said it would have affected their decision, and the one seller said that the proposed line was the reason his buyer backed out of the deal. Tr.1929-30. Three impacted sales out of 15 equates to 20% of the sales (for which interviews could be conducted) which would have been impacted by the proposed lines. And this is before they are even built. Additionally, very few of these interviewees were aware of the proposed line. Tr.1936, 1938-39.

Mr. Haakenson's research revealed that purchasers of Saw Creek homes specifically cited "natural surroundings" as a factor in their purchase decision. Tr.1933. Mr. Haakenson interviewed 5 real estate professionals. One was not aware of impacts sales, but admitted that he would not be aware of those prospective buyers who decided against even entering his office to discuss Saw Creek homes. Tr.1932. A local real estate appraiser and Saw Creek resident, Mr. Thomas Buneo, with whom Mr. Haakenson had spoken (Tr.1933), testified at the public input hearing to the "almost universal perception that EMFs are dangerous to one's health." Tr.323. Mr. Buneo also cited a publication which concluded that the impacts to property values from HVTLs may be substantial. Tr.320-22.

iii. The Proposed Towers Will Preclude Some Home Financing

The proposed towers also present direct financial difficulties with respect to nearby homes. Mr. Haakenson testified to the inability of prospective buyers to obtain U.S. Department of Housing and Urban Development's ("HUD") financing for properties within the fall distance of the towers, based on language in the HUD Handbook 4150.2 (CHG-1) Valuation Analysis for Single-Family One- to Four-Unit Dwellings (July, 1999) ("Appraisers Handbook"). SCECA Surreb. St., p.12. "FHA, VA, or any type of HUD-related mortgage financing is not available for

homes within the ‘fall distance’ of any type of transmission tower. ... increasing the tower heights to 190-195±’ will put a considerable number (estimated by Saw Creek management at 31 houses) of existing homes within the “fall” radius. Especially when conventional mortgage financing is difficult, as it is at present, the availability of more favorable FHA/VA financing becomes increasingly important (See Site Analysis section of Chap. 1 of the HUD Handbook 4150.2), and will not be available to these 31 properties.” *Id.* at pp.13-14.

The HUD Handbook states:

#### J. OVERHEAD HIGH-VOLTAGE TRANSMISSION LINES

No dwelling or related property improvement may be located within the engineering (designed) fall distance of any pole, tower or support structure of a high-voltage transmission line, radio/TV transmission tower, microwave relay dish or tower or satellite dish (radio, TV cable, etc.). For field analysis, the appraiser may use tower height as the fall distance.

*Id.* Rather than simply rely on the language of the HUD Handbook, Mr. Haakenson testified that he also called the HUD Appraisal Office in Philadelphia. He was expressly advised that there is no question that being in the fall zone of an HVTL tower makes a property ineligible for FHA insurance, regardless of whether or not it is within the easement. *Id.* At the public input hearings at Saw Creek, Mr. Buneo also testified to the inability of prospective buyers to obtain HUD financing for properties within the fall distance of the towers, based on language in the Appraisers Handbook. Tr.326.

In rejoinder testimony, Mr. Farley made a weak effort to claim that the HUD Appraisers Handbook is controlled by the HUD-FHA Single Family Housing, Homeownership Center Reference Guide (“Reference Guide”). *See* PPL Rejoinder St. 10-RJ. However, the Reference Guide’s Introduction section states that it “supplements” the Appraisers Handbook, and the Guide’s language cited by Mr. Farley appears to rest on the condition that fall zones do not

extend beyond the right-of-way. SCECA Surreb. St., p.12. This, of course, is not the case with the proposed lines through Saw Creek.

iv. Construction of the Proposed S-R Line Create Serious Danger to the Residents of the Saw Creek Community

As discussed in more detail *infra*, the proposed S-R Line also presents serious temporary impacts which, in addition to constituting dangerous conditions for residents, undoubtedly will also impact property values.

Actual construction time has been estimated by PPL at one year. This will involve a serious increase in road traffic, movement of construction material and equipment, and the necessity to stage and store materials and equipment on parts of the existing right of way which now are essentially vacant land. Movement of heavy equipment and materials over Saw Creek's roads will also create a continuing hazard for residents, visitors, and for Saw Creeks maintenance and security personnel during construction. The existing road network is entirely two-lane, asphalt, built to a light-duty residential standard not regulated by PennDOT. The roads have minimal clear sight distances at many corners, few vehicle-width shoulders, and are accessed by at least one driveway per residence, many of which are at steep grades where they meet the roads. Construction activity will also result in the daily entry and exit of construction workers, presumably in their private vehicles. As there is little or no street parking available, parking will have to be provided, presumably on the right of way. A map indicating the roads proposed for movement of equipment and materials through Saw Creek is provided as Exhibit ARH - 3.

*Id.* at p.14. The map of roads proposed for movement reveal that incursion of trucks and heavy equipment into the Saw Creek community will be extensive, to say the least. See SCECA Ex. ARH-3.

v. The Many Direct and Indirect Impacts of the S-R Line on Properties in the Saw Creek Community will Negatively Impact the Value of Those Properties

Mr. Haakenson testified that a review of appraisal literature revealed no study which directly addresses the situation at Saw Creek; that is, the replacement of long-standing familiar

infrastructure with markedly larger and more substantial infrastructure. *Id.* at p.4. Studies do exist on the effects of existing high-voltage transmission lines (HVTL). An increasing number of such studies show “a small diminution in value attributable to the close proximity of these lines.” *Id.* at p.5 (citing *Power Lines and Property Values Revisited*, J.M. Pitts and T.O. Jackson, *The Appraisal Journal*, Fall, 2007). The studies that the effects of HVTL on residential properties are determined by five interplaying factors:

1. proximity to towers and lines;
2. the view of towers and lines;
3. the type and size of HVTL structures;
4. the appearance of easement landscaping; and
5. surrounding topography.

*Id.* In studies where negative impacts are evident, they show an “average discount of between 1% and 10% of property value...” for properties abutting an HVTL right of way, and that this negative impact is likely to be more pronounced in a slow market. *Id.*

After visiting Saw Creek, reviewing PPL’s application, interrogatories, and testimony, conducting his own review of available literature, and interviewing involved individuals, Mr. Haakenson confirmed what is obvious and common sense to everyone except PPL – that the proposed S-R Line will have a definite negative impact on property values. Mr. Haakenson concludes that:

- It is highly likely that residences either abutting or very near the PPL right of way will become more difficult to market than at present.
- Residences located above the grade of the right of way, but with views of the lines from higher ground, will also be more difficult to market, as the now relatively uncongested panoramic view of wooded ridges and valleys will be marred by semi-industrial infrastructure.
- For the effected residences, marketing time and achievable sales prices will be negatively effected.

- The proposed HVTL infrastructure would have a negative effect on value as great or greater than up to 10%, depending on the particular orientation of the individual residence.
- The marked change in the viewshed from distances further from the right-of-way will also have an adverse impact on Saw Creek's amenities.
- Any negative effects of the proposed infrastructure on the pools, restaurant, ski run, etc., bear directly on the residential values in Saw Creek.
- The proposed infrastructure change will also have "temporary" negative effects on the value of individual residences throughout the community, due to immediate and languishing construction impacts.

*Id.* at pp.15-17. Given these sources of impacts to property values of Saw Creek residents, and SCECA itself, PPL should have made a reasonable effort to evaluate alternative locations for the S-R Line in order to minimize these land use impacts, and weighed these impacts during its comparison of various alternatives. *See* 52 Pa. Code § 57.76(a)(2) and (4); *Pa. DER v. Pa. PUC*, *supra*. Only then would PPL have satisfied its duty to evaluate every reasonable alternative to minimize them. *See Re Overhead Electric Transmission Lines*, *supra*; 52 Pa. Code § 57.75(e)(3)(i) and (4). Only then could the Commission make the necessary determination that the proposed line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(4) (emphasis added). Accordingly, PPL's application should be denied.

vi. The Testimony of PPL's Real Estate Witnesses is Not Credible or Relevant

PPL offered the testimony of Mr. Bates to support its position regarding real estate values. On cross examination, however, Mr. Bates agreed that about half of the studies concerning electrical transmission lines and property values have found that transmission lines have a negative effect on property values. Tr.1861. He also admits that the studies which found

a negative effect found an effect somewhere below 10%, usually in the range of 3% to 6%.

Tr.1858. Finally, he concedes that he has not done enough study on the topic himself to disagree with these findings. *Id.*

Nevertheless, Mr. Bates, dismissed Mr. Haakenson's numerous conclusions out of hand. Mr. Bates testified that he would not rely on interviews of individuals accept, but might use them to supplement market data. Mr. Bates admits to using interviews of brokers and his appraisal colleagues to assist in assessing real estate market conditions. Tr.1855. But, Mr. Bates claims never to have used interviews without also using other information. Tr.1855. However, he did not explain how he might analyze a situation like Saw Creek, where there does not exist any relevant market data. Mr. Bates' assumption that interviews are inferior to market data, and cannot be used alone, contrasts sharply from Mr. Haakenson's findings. Mr. Haakenson's findings could not have been obtained solely from the market data upon which Mr. Dominy relied. *See* Tr.1939. This is especially so because the event being tested – whether the construction of the significantly more prominent and significantly greater magnetic-field-producing S-R Line will impact property values – has not yet occurred.

Despite his expressed strong preference for using market data, Mr. Bates admits that in the few instances where he has compared his appraised value to a subsequent sale price, the two values have been as much as 5% apart. Tr.1858. Mr. Dominy recalled that Saw Creek homes sold for up to \$295,000 between 2006 and 2009. Tr.1895. For a \$300,000 home, this would equate to a difference of plus or minus \$15,000 – not an insubstantial chunk of many homeowner's equity, particularly incurrent market conditions.

In his written testimony, Mr. Bates presented the results of a study by Chalmers and Vorvaart. However, as Mr. Haakenson noted, that study is of uncertain relevance because,

unlike the importance of topography and visibility at Saw Creek “there is no indication of the general topography of the areas studied, to suggest the degree to which the visibility of the towers actually altered the viewshed. SCECA Surreb. St., p.7. The authors of that study also agree with Mr. Haakenson that their study may not be relevant to a situation where an upgrade will occur. The authors stated: “Therefore, a useful complement to this study might look at the history of a corridor over a period that includes a pre-upgrade period, an announcement and construction period, and then a post-upgrade period.” *Id.* at p.9.

Additionally, Mr. Bates admitted that the Chalmers and Vorgart disregarded a number of sales because they did not “fit” the pattern desired by the authors. Tr.1863-64. Mr. Bates could not determine whether the disregarded sales were actually anomalies which should have been disregarded. Tr.1864. In fact, he has not verified at all whether the reported results are anywhere near accurate from a statistical standpoint. Tr.1865. Mr. Bates also did not do any evaluation of whether the author’s decision to exclude properties lacking a deck or porch. Tr.1866.

The Chalmers and Vorvaart study is deficient in a number of additional respects. It did not include factors which would be expected to be related to impacts of power lines, such as the presence of a deck or porch, the topography of the area, or the quality of the views in the area. Tr.1867. Chalmers and Vorvaart also did not include an evaluation of vacation or resort communities. Tr.1868-69. Regardless of whether the Chalmers and Vorvaart study presents a valid analysis of the specific neighborhoods which the authors evaluated, Chalmers and Vorvaart expressly concede that “an opinion supporting HVTL’s effects would have to be based on market data particular to the situation in question.” PPL Ex. MFB-1, p.24 (emphasis added). Chalmers and Vorvaart ignored one of the five factors which Pitts and Jackson stated were critical to an

evaluation of whether power lines impact property values – the surrounding topography of the area. PPL Ex. MFB-2, p.1. As Mr. Bates quickly surmised, this factor is relevant to the visibility of the lines in question. Tr.1870-71. Of course, Mr. Bates likely could not appreciate the significance of this factor with regard to the Saw Creek community. Mr. Bates admitted that he has never been to Saw Creek community. Tr.1855.

PPL also presented the testimony of Mr. Dominy, who has made a career of serving utility companies. Tr.1876-77. It bears noting that Mr. Dominy is not licensed in Pennsylvania. Tr.1879. Despite his contrary testimony, Mr. Dominy did concede several important points which indicate the heightened impact the proposed S-R Line would have in Saw Creek versus other areas. He agrees that certain factors of a property might have a great influence on price in one neighborhood, but less influence on price in another neighborhood. Tr.1904. He conceded that the quality of the view at a property could have a greater influence on price than it would in another neighborhood. Tr.1905. Given that so many residents testified that the view was an important reason for them to move to Saw Creek, and given the undeniable beauty of the area as revealed during the site visit, it is apparent that the greatly increased tower height of 190 feet will undoubtedly have a significant negative impact on Saw Creek property values.

To prepare his testimony, Mr. Dominy claims to have studied sales in several areas where transmission lines existed. Tr.1880. He and his associates recorded visibility data, but these data consisted only of recorded whether, at the time they visited the property, the transmission line was visible from their vehicle at a single point at the street in front of the home. Tr.1882.

Mr. Dominy's methodology for reaching his conclusions lacks any semblance of accuracy or precision, and is instead so highly subjective and self-serving that it should be rejected out of hand. Mr. Dominy testified that for each of his case studies, he plotted the value

of the home versus the property's distance to power lines, and the results were scattered – “they were spread throughout.” Tr.1889. He conceded that, instead of performing a mathematical calculation to determine the average of the many dots, he simply “eyeballed” the scatter plot of dots to determine whether there was an overall difference between the values of homes near transmission lines versus homes away from transmission lines. Tr.1889. Miraculously, he claims that after “eyeballing” as many as several hundred dots on a scatter plot, he was able to emphatically conclude that the data in his case studies did not demonstrate that the upgrade of the transmission line had any measureable impact on property value. PPL Reuttal St. 21-R, p.5. There is simply no way that Mr. Dominy can render an accurate opinion as to the impacts of rights-of-way using this gross and arbitrary method of evaluation the spread of dots. For this reason, his testimony should be given no weight.

Mr. Dominy's study also lacks demonstrated relevance to the situation at Saw Creek. They did not consider topography, or visibility at any time of the year other than summer. Tr.1884. Nor did they conduct any interviews of home owners. Tr.1885. They have also failed to demonstrate the relevance of their study areas, because they do not indicate that the study areas compare to Saw Creek's natural environment, community amenities, large number of second-home/resort residences, dramatic undisturbed viewsheds, and because none of the study areas involved a review of property sales before and after an upgrade (or even an initial facility construction). SCECA Surreb. St. 3, pp.9-10.

With respect to Mr. Dominy's study of the Saw Creek area, it ignores in important aspect of Saw Creek. Mr. Haakenson explained that “all properties share common amenities that are directly adjacent to the existing HVTL and that there are few areas of Saw Creek that are accessible without crossing or being in direct sight of the existing HVTL. The effect of the

existing HVTL, then, is much more likely to be consistent within Saw Creek than in other areas which lack Saw Creek's "self contained" character. SCECA Surreb. St. 3, at p.3. In other words, in such a comparison there may not be an easily detectible difference between the values of Saw Creek homes near the lines versus away from the lines, because the impacts of the lines (and the impacts of the increased tower heights) likely affect all properties within the Community. Thus, a lack of perceivable difference between the values of homes near the lines versus far does not mean that the lines have no impact on property values.

Interestingly, in his firm's study, his firm actually concluded that "the data indicates (sic) no conclusive evidence that the upgraded power lines have a measurable impact on value." PPL Ex. DRD-1, p.5. This suggests that the authors of the study had actually determined that there was some evidence of an impact. Mr. Dominy could not explain the modification. Tr.1891. This unexplained modification of the study results occurred again with respect to Mr. Dominy's second case study. PPL Reb. St. 21-R, p.6; Ex. DRD-1, p.5. Nor could Mr. Dominy explain the discrepancy between his testimony that case study 2 consisted of transactions in 2008, and his firm's study which stated that case study 2 consisted of transactions between 2006 and 2008. Tr.1892; PPL Reb. St. 21-R, p. 6; PPL Ex. DRD-1, p.5.

Mr. Dominy's study of the Saw Creek area is also of no probative value because it rests on a profoundly misplaced assumption. It rests on the pure assumption that if PPL's S-R Line proposal has any impact on property values, the impacts should have begun as soon as PPL announced the S-R Line proposal. Tr.1893-94. However, he admits that buyers who were not already located within the market place would not likely have been aware of the proposal. Tr.1894. Additionally, he concedes that perhaps as many as one-third of the Saw Creek Estates residents own the home as their primary residence. Tr.1893. Surprisingly, although he did not

express a belief that the buyers of homes in his Orange, CT case study were not from that area, he apparently took the opposite view and completely dismissed the possibility that those sales were all “post-upgrade” sales, even though each one of them occurred subsequent to project approval and most of them occurred subsequent to the commencement of construction. Tr.1905-06.

Mr. Dominy’s testimony lacks credibility for another reason. He described, in very unclear terms, peculiar “adjustments” he made to the data he gathered. He testified that he considered a number of factors which might have impacted sale prices, including a renovated kitchen, condition of the property, size of the property, lot size, and other unidentified factors, and made some vague “adjustments” while he “looked at the data in gross.” Tr.1901-02. Not surprisingly, he had absolutely no documentation to explain these “adjustments.” Tr.1902. Accordingly, his testimony is unsound and of no probative value.

Finally, Mr. Dominy’s study is flawed in that it ignores relevant data. As Mr. Haakenson explained:

Mr. Dominy does not comment on testimony in May of 2009, in front of the Honorable Susan Colwell during a visit to the site, in which owners expressed a radically opposite opinion of the upgrade’s potential effects. Residents specifically expressed concerns about negative impacts to property values (e.g., A. Spinelli, p.503, W. Hopkins, pp.509-10) and about other issues which affect property values (e.g., visibility of the towers and lines (P. Derrenbacher, pp.444-48, and 476, D. Martin, pp.450 and 478, W. Hopkins, pp.509-10 and 513-14), tower collapse (C. Irwin, p.459, D. Martin, p.463, R. Long, p.494), construction accidents and inconveniences (C. Irwin, p.459, P. Derrenbacher, pp.460-62 and 517, R. Pannozzo, pp.462 and 469, R. Long, pp.494-95, B. Harter, p.497, Spinelli, pp.501 and 504-505, D. Martin, p.506), and health effects (R. Long, p.484, B. Harter, p.497, A. Spinelli, pp.500 and 505). References to case studies alone imply that the opinions of buyers, sellers, and brokers are of little or no use in predicting the effect of the infrastructure upgrade in Saw Creek. However, common sense, and standard appraisal practice, which does consider those opinions, suggests that opinions held by those close to the transactions should be considered relevant.

SCECA Surreb. St., p.11-12.

PPL introduced the testimony of Mr. Robert Farley. Mr. Farley is not a non-party witness, but rather a 31-year employee of PPL. Tr.1951. Mr. Farley's purpose was apparently to refute Mr. Haakenson's testimony that the proposed S-R Line would preclude FHA financing for homes which will exist within the fall distance of the 190 foot towers, thus reducing the value of those properties. For the reasons discussed below, Mr. Farley's testimony is purely speculative, largely irrelevant, and somewhat disingenuous, and should therefore be ignored.

Mr. Farley implied that he would receive calls from the public concerning financing of homes in rights-of-way and within tower fall zones. Tr.1916-17. However, on cross-examination he admitted to a number of important points which demonstrate that it is very unlikely that potential buyers would call him concerning problems obtaining FHA financing. First, PPL's call center has a list of contacts, but the list says nothing about individuals or departments within PPL who are responsible for FHA answering financing questions, and receptionists receive no training in how to transfer callers with such questions. Tr.1916-17. Second, PPL does not prepare or distribute any publication or literature advising prospective buyers to contact PPL with if they have a problem with FHA financing. Tr.1921. Not surprisingly, then, it has been at least 10 years since Mr. Farley received a call on the topic. Tr.1918.

Although Mr. Farley initially claimed he had receive three calls on the subject of FHA financing, he later admitted that two of the calls pertained to a distribution line, not a transmission line; therefore, the FHA restriction on financing did not apply. Tr.1919. In the only instance he recalls where he was asked about a transmission line, he provided information on the tower height and condition, and never heard anything further. Tr.1920. He has no proof whatsoever as to whether, in the one relevant instance he recalls, the prospective buyer was able

to obtain FHA financing. Tr.1920. Mr. Farley also admitted that he directed the callers to the FHA HUD Reference Guide he provided as Ex. RJF-3, but he declined to mention to them the existence of the contrary HUD Handbook, which precludes financing of homes in the fall zone of a tower. Tr.1920. His admitted lack of candor with callers calls into question the veracity of his testimony in the present matter.

Mr. Farley admits he read the written testimony of Mr. Haakenson. Yet, he concedes he made no effort to contact FHA, HUD, or the person identified in Mr. Haakenson's written testimony as having told Mr. Haakenson that FHA would not provide financing to any home located within the fall zone of an electrical transmission tower. Tr.1922. This belies Mr. Farley and PPL's obvious lack of true interest in confirming the impacts of the S-R Line on the availability of FHA financing, and suggests that their motives may have influenced their objectivity and veracity. Accordingly, Mr. Farley's testimony should be rejected.

#### 10. Viewshed – The Proposed Line Will Decimate the Local Viewshed

Spoilation of the viewshed is another concern of Saw Creek residents. Individuals testified that to them the increased tower height will spoil the visual landscape and natural environment. Tr.105, 120, 121-24, 130-32, 185-87, 200, 203, 214, 220, 224-25, 253, 272, 282-83, 298-301, 302-03, 317-19, 342-46, 350, 352, 462, 466, 491, 503, 509-514. As Mr. William Hopkins, a Saw Creek resident explained, in the Saw Creek community, “the house is the view and the view is the house.” Tr.509-10.

The site tour revealed that in many locations the existing towers rise to approximately the same height as the surrounding treetops. *See, e.g.*, Site Visit Photograph Nos. 3162, 3163, 3166, 3206, 3211, 3214, 3260, 3279, 3306, and 3355. The proposed towers would extend well above the existing towers, and will rise above the landscape visible throughout the community,

including from Saw Creek's VIP area, Top of the World facility, Stafford Drive, Kirkham Road and other points in the Saw Creek community. See Tr.447-48, 450-51, 459, 476-79, 503, 509-14. The proposed towers would, in some cases, be visible from tens of miles away. Yet nowhere has PPL made a reasonable effort to evaluate this impact on the terrain and land use. The record lacks the required explanation or presentation of what viewsheds will look like if the S-R Line is built in or near Saw Creek, and the required weighing of this issue as compared to other locations. See 52 Pa. Code § 57.75(e)(3)(x) and (4); *Pa. DER v. Pa. PUC, supra*. This failure precludes the Commission from making the necessary determination that the proposed line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added). Accordingly, PPL's application should be denied.

12. Construction Issues – Construction of the Proposed Lines Will Cause Severe Dangers and Impacts Which PPL Has Failed to Evaluate

Concerns with construction safety also are prominent among Saw Creek residents. Several individuals testified that PPL had admitted it has no prior experience constructing a project of this size in such a densely populated area. Tr.140-41, 205, 282-83, 501. Individuals expressed concern with the impacts of construction of the proposed S-R Line, including blasting, truck traffic on the Saw Creek community's narrow roads in which children walk, noise, dust, and falling towers during construction. Tr.106, 117, 121-24, 129, 130-32, 208, 282-83, 308, 309-13, 314-15, 459-60, 469-70, 494-95, 500, 504-05, 517. About 625 of Saw Creek Estates' residents are children. Tr.454. The extensive degree to which PPL's truck and heavy equipment will permeate the community is made amply clear in SCECA Ex. ARH-3. As Mr. William Hopkins foretells, "it's a disaster in the making." Tr.515.

Jim Ashton, who retired from a career in construction, testified that the S-R Line would require extensive stone and dirt removal, with resultant heavy truck traffic. Tr.117. The site tour also revealed the steep topography of the area, which makes residents concerned that construction will be extremely dangerous. *See* Tr.494-95, 508; *see also, e.g.*, Site Tour Photograph Nos. 3257, 3303, 3310, 3314, 3435, and 3465. Finally, David Martin, General Manager of Saw Creeks Estates, noted that the "Saw Creek portion also includes wetlands and the creek itself is designated as a high-quality, cold water fishery by the Pennsylvania Department of Environmental Protection". Tr.221.

On behalf of PPL, Greg Smith outlined the construction process PPL intends to use in the Saw Creek community. After creating access roads, PPL will have to remove conductors, towers and foundations, drill out and blast out solid rock, and install new foundations, towers and conductors. Tr.929-30. PPL commonly uses helicopters to construct and maintain transmission lines. Tr. 799. PPL plans to use helicopters in the Saw Creek area, as well. Tr.926; PPL St. R1, pp.8, 9, 12.

Unfortunately, Greg Smith admitted that PJM's RTEP evaluation does not involve environmental factors, inconvenience to the public during construction, or other factors. Tr.794. This is the case despite Mr. Smith's admission that all construction projects have risks. Tr.794. He admitted that construction poses risks such as dropping a conductor to the ground, or the malfunctioning of heavy equipment. Tr. 920-21. Other construction risks are excessive noise, construction traffic, blasting, and drilling. Tr.922-23. PPL also admits that another risk is that a helicopter used during construction will have to make an emergency landing. For this reason, PPL introduced testimony in other proceedings to the effect that it will not use helicopters in

areas where they could not land safely and quickly in the event of an unexpected emergency.  
Tr.802-05; OCA Cross Ex. 1.

Mr. Smith incorrectly claimed in his testimony that PPL gave substantial weight to safety during construction, analyzing it after the route was selected. Tr. 794; PPL St. 1R, at, pp. 3, 7. In truth, later, on cross-examination, Mr. Smith candidly admitted that PPL has not evaluated impacts of construction on residents of Saw Creek at all. Tr.918. PPL still has not determined how many access roads it will have to clear or build. Tr.929. PPL has not determined the extent of blasting which will take place in the Saw Creek area, or the degree of resultant vibrations in people's homes. Tr.923. PPL has not evaluated the impacts of blasting out rock, removing rubble, and transporting it through the Saw Creek community. Tr. 924. In fact, PPL has not done anything to evaluate the amount of truck traffic which would occur through Saw Creek in order to build the S-R Line. Tr.924. PPL does not yet know the extent to which it may need helicopters to bring into Saw Creek conductors, heavy equipment, or towers for the proposed line. Tr.926-27.

PPL claims to be minimizing inconvenience and safety risks, but it actually has no idea what level of inconvenience and safety risks will occur, either with or without its purported minimization efforts. Tr.924; PPL St. 1R, p.16. Yet, Mr. Smith himself admitted in his rebuttal testimony that "any reasonable siting process" must consider inconvenience and safety risks to the public posed by construction. PPL St. 1R, p.3. In the face of these real dangers, PPL had a duty to fully analyze and discuss these dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2). Instead, however, PPL's exhibits and testimony pertaining to PPL's siting analysis barely mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient under *West Penn* and *Dunk, supra*. This failure precludes the

Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. *See Re Overhead Electric Transmission Lines, supra.*; 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

In contrast to its complete failure to evaluate construction risks to Saw Creek residents, Mr. Smith testified that PPL evaluated safety risks to the public at public parks and recreation areas, and developed plans to reduce that risk. Tr. 795; PPL St. R1, p.10. Specifically, at the Delaware Water Gap, PPL plans to conduct certain construction activities in the winter, when less people use the area. *Id.* Less people equates with less safety risk. Tr. 796. In that area, PPL also plans to keep people at a safe distance from the construction site, although PPL does not know what that distance must be, yet. Tr.941-42. PPL's failure to identify and quantify risks to the public at Saw Creek is disturbing and should not be condoned by the Commission. Therefore, the Commission should deny PPL's application.

## **V. CONCLUSION**

PPL has not met its burden of proving by a preponderance of the evidence that it is entitled to have its Application approved. PPL's exhibits and testimony barely mention the possibility of tower collapse, and completely fail to weigh it in the course of selecting locations for the line. This failure renders PPL's application deficient, and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R

Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied because of the danger of tower collapse onto Saw Creek residents.

PPL's calculated magnetic field levels exceed levels shown to cause human diseases, including cancer, leukemia, Alzheimer's Disease and amyotrophic lateral sclerosis ("ALS"). In the face of these real dangers, PPL had a duty to evaluate every reasonable alternative to minimize them. PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

The possibilities of harm to Saw Creek residents from tower collapse, human diseases, and construction mishaps and inconveniences has caused, and will continue to cause, tremendous stress to Saw Creek residents. This legitimate fear, in itself, is an impact which PPL should have evaluated on the record pursuant to 52 Pa. Code § 57.75(e)(3)(i) and (4). Instead, PPL failed to adequately mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's application deficient and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health of the public. PPL also had a duty to evaluate every

reasonable alternative to minimize these risks under 52 Pa. Code § 57.75(e)(4), but failed to do so. PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

However, PPL's lack of true field work prevented PPL from identifying additional alternative links, and from seeing where it could modify a proposed link to circumvent the impacts identified above. Instead, PPL identified links based on PPL's predetermined insistence on using existing right-of-ways. PPL also failed to evaluate specific areas which could be reasonable alternatives to siting the proposed S-R Line through the Saw Creek community. One is the nearby former Tamiment Resort property. Other potential areas lie near Alternative Link A and Alternative Link B, presented by SCECA in its written testimony. PPL had a duty to fully evaluate these reasonable alternatives in order to minimize the dangers of the S-R Line to Saw Creek residents, and a duty to fully document that evaluation on the record pursuant to 52 Pa. Code § 57.75(e)(2), (3) and (4). PPL's failure precludes the Commission from making the necessary determination that the proposed line 1) will not create an unreasonable risk of danger to the health and safety of the public, and 2) will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(2) and (4) (emphasis added). Accordingly, PPL's application should be denied.

An additional real impact to SCECA and Saw Creek community residents is the impact of the S-R Line on their property values. The proposed S-R Line will have a definite negative impact on property values as great or greater than up to 10%, depending on the particular

orientation of the individual residence. The impacts include the following: 1) the now relatively uncongested panoramic view of wooded ridges and valleys will be marred by semi-industrial infrastructure; 2) potential buyers will be concerned with the increased risk of disease caused by increased magnetic fields from the lines; 2) construction dangers and inconveniences will deter potential buyers; 3) homes located within the fall distance of the proposed towers will be unable to obtain FHA (and perhaps traditional) financing. *Id.* at pp.15-17. Given these sources of impacts to property values of Saw Creek residents, and SCECA itself, PPL should have made a reasonable effort to evaluate alternative locations for the S-R Line in order to minimize these land use impacts, and weighed these impacts during its comparison of various alternatives. 52 Pa. Code § 57.75(e)(3)(i) and (4). PPL's failure to do so precludes the Commission from making the necessary determination that the proposed line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. 52 Pa. Code § 57.76(a)(4) (emphasis added). Accordingly, PPL's application should be denied.

PPL admitted that all construction projects have risks, and that construction poses risks such as dropping a conductor to the ground, or the malfunctioning of heavy equipment. Tr. 920-21. Other construction risks are excessive noise, construction traffic, blasting, and drilling. Tr.922-23. PPL also admits that another risk is that a helicopter used during construction will have to make an emergency landing. Unfortunately, PPL candidly admitted that PPL has not evaluated impacts of construction on residents of Saw Creek at all. Tr.918. PPL had a duty to fully analyze and discuss these dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2). Instead, however, PPL's exhibits and testimony pertaining to PPL's siting analysis barely mention, analyze, weigh, or otherwise consider this condition at all. This failure renders PPL's

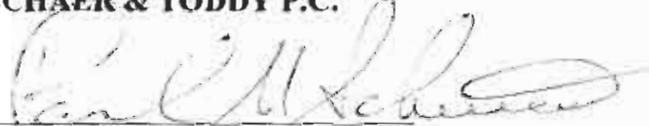
application deficient, and precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76(a)(2) that the proposed S-R Line does not present an unreasonable risk of danger to health and safety of the public. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4). PPL's failure precludes the Commission from making the necessary determination under 52 Pa. Code § 57.76 (a)(4) that the proposed S-R Line will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. Accordingly, PPL's application should be denied.

Respectfully submitted,

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Dated: October 5, 2009

**APPENDIX A - SCECA'S PROPOSED FINDINGS OF FACT AND  
CONCLUSIONS OF LAW**

**PROPOSED FINDINGS OF FACT**

1. The Saw Creek community is located just north of Bushkill, PA, near the Delaware River Water Gap, and is a gated community, densely populated, containing approximately 3,000 lots and 2,700 residences, generally situated on both the valley floor and on the slopes to the east and west of Saw Creek, from which it derives its name. Tr.444-47; 454.

2. Saw Creek Estates has over 5000 residents. Tr.444-47; 454.

3. The Saw Creek community in total covers about 4,000 acres of densely wooded land, much of which is on steep slopes; the community includes both stream-front sites as well as dramatic ridge-top sites featuring extraordinary views. SCECA St.3 at p.2.

4. Saw Creek is the largest and most established self-contained community of its kind in the immediate region, and the community is almost fully built-out. SCECA St.3 at p.2.

5. The Saw Creek community features its own internal system of asphalt-paved roads, guarded entry gates, significant amenities, and a full-time maintenance and administrative staff. SCECA St.3 at p.2.

6. The Saw Creek community is governed by a Board of Directors elected from residents, has its own guard force, and provides road and utility maintenance services (including water and sewer), central trash removal, and supports many active clubs and special interest groups. SCECA St.3 at p.2.

7. Currently, the community is supported by an annual levy of \$1355 per lot, and has an annual operating budget of \$3.4 million. SCECA St.3 at p.2.

8. Setting Saw Creek apart from other communities are its resident amenities, which include multiple swimming pools (including one indoor pool), a full-service ("Top of the World") restaurant which offers stunning views from its deck, a fitness center, and a downhill ski run with a chair lift. SCECA St.3 at p.6.

9. About 40% of homeowners are "weekenders" or seasonal residents, but many live in Saw Creek as their primary residence, and commute to work in locations as far distant as New York City. SCECA St.3 at p.2.

10. Route B will pass within 250 feet of 217 residences. ECC Cross Ex. 6, June 23, 2008, presentation, at pp. 24 and 25.

11. The majority of the comments PPL received regarding the section of Route B proposed to go through Saw Creek were opposed to having it go through Saw Creek. Tr.919.
12. Saw Creek community residents are extremely concerned with the safety of the proposed S-R Line. In particular, residents expressed their fear of a tower collapse if the line is completed. Tr.108, 130-32, 140, 185-87, 224-25, 286-89, 289-93, 463, 466, 467, 497-98, and 500.
13. The towers of the existing 230 kV line through the Saw Creek community are approximately 83 feet tall and are set within a 200 foot right-of-way; however, the proposed S-R towers would be as high as 195 feet tall. OCA St. 1, p.14.
14. Many homes in the Saw Creek community are situated immediately adjacent to the edge of the existing 200 foot right-of-way (one hundred feet from the centerline), and many have yards and decks which extend into the right-of-way. OCA St. 1, pp.13-14.
15. One home was determined to be 4  $\frac{3}{4}$  inches from the edge of the right-of-way, or 104  $\frac{3}{4}$  inches from the centerline of the right-of-way. Tr.482-483.
16. Within the Saw Creek community alone, at least 31 homes will be within the fall distance of PPL's towers, if the towers are constructed. SCECA Surreb. St., p.13-14.
17. During Judge Colwell's May, 2009, Site Visit to Saw Creek, participants noted on the record that homes were clearly within the fall distance of the proposed towers. Tr.459, 463, 468, 482-83, 497-98, 500, 516.
18. The proximity of the homes to the right-of-way is most apparent in photographs taken during the Site Visit. Site Visit Photograph Nos. 3340, 3343, 3345, 3351, 3369, 3472, 3377, 3396, 3397, 3402, 3410, 3414, 3416, 3423, 3428, 3439, 3441, 3458, 3448, 3455, 3457, and 3462.
19. Greg Smith, PPL's project manager, admitted in his "Line Route Selection" presentation to the PPL board that Route B will pass within 250 feet of 217 residences. ECC Cross Ex. 6, June 23, 2008, presentation, at pp. 24 and 25.
20. PPL did not determine how many homes were situated within the fall distance (195 feet) of the proposed towers, and therefore completely failed to take this into consideration when selecting the proposed route for the S-R line. OCA St.1, p.14.
21. According to documents moved into evidence by OCA, 130 transmission towers were destroyed as a result of an ice storm in 1998. OCA Cross Ex. 9; Tr.1048-49.
22. In one storm event, 30 towers failed. OCA Cross Ex. 10; Tr.1051.

23. PPL admitted that, on two prior occasions as recent as 2006 and 2007, PPL's tubular steel towers similar to those proposed for the Saw Creek community failed. J. Keeler, Tr.1074.

24. All other things being equal, these fields are directly related to the load placed on a line.

25. PPL estimated EMF levels caused by the S-R line through Saw Creek, but only for 2013, the year the line is expected to be put into operation. Tr.1071.

26. PPL calculated magnetic field levels using a load value which PPL anticipates the lines will not exceed 90 percent of the time during the year 2013 (the "PPL Design Calc" or "L-90"). Tr. 1145.

27. Based on PPL's 2013 L-90, PPL's calculated magnetic fields at the edge of the right-of-way (100 feet from the centerline) will be 11.7 mG (milliGauss) on the 230 kV side, and 31.7 mG on the 500 kV side. SCECA Att. DWF-2.

28. The highest magnetic field level PPL calculated is 84.9 mG, occurring at 15 ft from the centerline on the 500 kV side. SCECA Att. DWF-2.

29. PPL estimates that the magnetic field levels 250 feet from the centerline will be nearly 3 mG on the 230 kV side, and 6 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

30. After 2013, "the L-90 for subsequent years, and the resultant EMF levels, can be expected to increase in subsequent years." SCECA Surreb. St. R-1, pp.3-4; Tr.1074, 1148-49.

31. PPL projected increasing loads in the years following 2013. *See* PPL Ex. PFM-2 and PFM-3; PPL Reb. St. 8R, pp.3-5.

32. There is nothing magical about the year 2013 – Mr. McGlynn's testimony demonstrates that PPL generally estimates that loading will continue to increase beyond the year 2013. SCECA Surreb. St. R-1, pp.3-4; Tr.1148-49.

33. PPL has not provided any documents or testimony indicating that it intends to limit loading on the proposed S-R Line to year 2013 levels. Tr.1164.

34. PPL's witness, Mr. Keeler, is not aware of any restrictions which will limit loading on the S-R Line to levels PPL anticipates for the year 2013. Tr.1074.

35. The proposed lines could be operated at a higher load than PPL used to calculate EMF levels, and this would result in higher EMF levels than PPL calculated. Tr.1074; Tr.1144.

36. The S-R line's 230 kV line is actually designed to be capable to handling 500 kV, in the event PPL determines the need to upgrade other elements of the circuit and do so. Tr.936-38.

37. The proposed S-R lines could be operated continuously at the summer normal rating. Tr. 1144.

38. At summer normal rating, the resultant calculated magnetic fields at the edge of the right-of-way (100 feet from the centerline) are 27.0 mG on the 230 kV side, and 74.5 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

39. At summer normal rating, the highest magnetic field level calculated is nearly 204 mG, occurring at 15 ft from the centerline on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

40. At summer normal rating, the calculated magnetic field levels 250 feet from the centerline will be more than 6 mG on the 230 kV side, and nearly 14 mG on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

41. The proposed lines could also be run continuously at loads even higher than the summer normal rating, such as during the winter, and still higher during emergencies for short periods of time. Tr.1144.

42. There are a number of situations which might arise that would cause the EMF levels to increase on the ground, including when one line is out of tolerance, is not operating, or is not operating at normal load. Tr.1080-81.

43. Under certain emergency situations, the highest magnetic field level is calculated to reach over 275 mG, at 20 feet from the centerline on the 500 kV side. Tr.1138; SCECA Att. DWF-2.

44. Mr. Silva recorded magnetic field levels on both edges of the existing right-of-way. The results were that levels on each edge were approximately 15 mG. PPL Reb. St. 14R, p.16, Table JMS-5.

45. If the proposed line is built, the magnetic field level is estimated to go down to 11.7 mG during 2013 operations on one edge, but up to approximately double to 31.7 mG on the 500 kV edge. Tr.1138; SCECA Att. DWF-2.

46. Under higher loads anticipated during later years and/or during winter or emergency conditions, the magnetic field levels will increase further than PPL estimated for the year 2013. Tr.1138; SCECA Att. DWF-2.

47. PPL retained Mr. Silva to fly all the way from California to Pennsylvania in order to measure magnetic field levels. M. Silva, Tr.1187.

48. Mr. Silva measured magnetic field levels at thousands of locations in public buildings of various communities in Pennsylvania, yet he only took measurements at one point on the existing transmission line in the vicinity of Saw Creek Estates. M. Silva, Tr.1189, 1209.

49. Magnetic fields from appliances and lighting, and other sources in a home, typically fall off rapidly within several feet of the source. SCECA Surreb. St. R-1, p.2.

50. Magnetic fields from a power line adjacent to a home typically extend much farther and fall off only gradually, with the resultant levels in various locations within the home being very similar. SCECA Surreb. St. R-1, p.2.; Tr.1156.

51. PPL's calculations show that a five foot change in distance from a power line makes very little difference in terms of magnetic field exposure. See SCECA Att. DWF-2.

52. Magnetic fields from power lines are relatively constant over time; in contrast, fields from appliances may only exist during operation of the appliance, and exposure may only occur when an individual is very close to the appliance. SCECA Surreb. St. R-1, p.2; Tr.1156.

53. SCECA's expert, Dr. David O. Carpenter, M.D., testified concerning the health risks of magnetic fields from the proposed S-R Line. Dr. Carpenter is employed by the University at Albany, SUNY, as a Professor of Environmental Health Sciences as well as Biomedical Sciences, and as Director, Institute for Health and the Environment. SCECA St. 2, p.1; SCECA App. DOC-1.

54. Dr. Carpenter was the director of a research program which became known as the "New York Power Lines Project." Tr.1087; SCECA App. DOC-1.

55. Research is a major part of Dr. Carpenter's duties in the past and at present. He has over 315 publications in peer-reviewed journals and has edited five books. SCECA St. 2, p.2.

56. Dr. Carpenter has administered research on the human health risks of exposure to magnetic fields, and lecture, testified, and written on the topic extensively. SCECA St. 2, pp.2-4.

57. Dr. Carpenter reviewed the data in the Exhibits DOC – 1, DOC – 2, and DOC – 3, taken from Att. DWF-2. SCECA St. 2, p.4.

58. Depending on the load scenario, PPL's calculated magnetic fields at one meter above the ground would be in the range of 3.9 to 42.5 mG at a distance of 200 ft from the center line, and from 11.7 to 123.9 mG at the edge of the right of way. SCECA Ex. DOC-1, DOC-2, and DOC-3; SCECA Att. DWF-2.

59. PPL's calculated magnetic field levels exceed levels shown to cause human diseases. Dr. Carpenter testified that the human exposure to magnetic fields in the calculated intensity range of 2-4 mG results in an increase in risk of cancer, particularly leukemia. SCECA St. 2., p.5.

60. While the specific elevated risk for Saw Creek residents cannot be calculated, the magnetic field to which children and adults will be exposed from the proposed PPL line is in excess of the 2-4mG clearly demonstrated to increase the risk of leukemia. SCECA St. 2., p.5.

61. The calculated magnetic field levels in the Saw Creek area from the S-R Line present a risk of increased Alzheimer's Disease and amyotrophic lateral sclerosis ("ALS"). SCECA St. 2., p.5.

62. The increased risk of Alzheimer's Disease and ASL above normal posed by the S-R Line is about 2-fold in the occupational studies, but because the levels in the studies varied, the specific increase in risk to Saw Creek residents cannot be calculated. SCECA St. 2., p.5

63. At levels in the range of 2-4mG, there are other diseases for which there is some evidence for risk being elevated in exposed individuals (brain cancer, immune system effects, neurobehavioral effects), although the evidence at present is still less certain. SCECA St. 2 at p.6.

64. Based on available evidence of health impacts and PPL's projected field levels from the S-R Line, the proposed power-line will expose individuals who live near to the line to magnetic fields in excess of 2 mG, which is the intensity known to cause an increased risk of cancer and neurodegenerative diseases. SCECA St. 2., p.6.

65. The association between magnetic fields and childhood leukemia is well-documented: An epidemiological study referred to at the "Savitz study" confirmed the findings of earlier studies showing that children living in homes with elevated magnetic fields coming from magnetic fields produced by power lines were at elevated risk of leukemia. SCECA St. 2 and 2R; Tr.1088.

66. The Savitz study also found an association between "low power" conditions – with household electrical devices off, and remaining EMF fields coming from power lines – and childhood leukemia. Tr.1094-95.

67. One of the earlier studies, "the Wertheimer and Leeper study," also found an association between childhood leukemia and the thickness of transmission lines near the homes, which was assumed to correlate with average EMF levels, meaning that the thicker the line, the greater the average current and resultant EMF levels. Tr.1092-94.

68. The Wertheimer and Leeper study was published in the American Journal of Epidemiology. Tr.1100.

69. Many other studies found an association between magnetic fields and childhood leukemia, including three meta-analysis which looked at the aggregate of evidence from various studies through the year 2002 and found a statistically significant association between exposure to magnetic fields and childhood leukemia. Tr.1127.

70. The National Research Council concluded “that the link between wire code grading and childhood leukemia is statistically significant, (unlikely to have arisen from chance) is robust in the sense that eliminating any single study from the group does not alter the conclusions that associations exist.” Tr.1137-38.

71. Overall, the various studies show elevated risks of childhood leukemia associated with power lines to be in the range of 1.5 to 4. Tr.1096.

72. Elevated risks of childhood leukemia have been seen in homes with magnetic field levels of 2 to 4 mG (milliGauss). Tr.1107.

73. Based on the various studies on power line EMFs and childhood leukemia, power frequency magnetic fields are a probable cause of childhood leukemia, with elevated risks resulting from magnetic field levels of 2 to 4 mG. Tr.1118.

74. At Saw Creek, PPL estimates that the magnetic field levels which will occur under normal, initial loads in 2013 (the PPL Design Calculation using L-90) will exceed 2 mG as far as 250 feet from the center line of the right-of-way. Tr.1138; SCECA Att. DWF-2.

75. Power-line EMFs result in the generation of reactive oxygen species (ROS), commonly called free radicals, and these indirectly cause damage to DNA. SCECA Surreb. St. 2R, p.2.

76. The majority of the studies on DNA effects show positive effects. SCECA Surreb. St. 2R, p.2.

77. The weight of evidence indicates that EMF results in indirect DNA damage, most likely as a consequence of ROS generation, and that a great number of genes are altered in their expression. SCECA Surreb. St. 2R, pp.3-4.

78. The fact that not every study shows positive effects in no way diminishes the fact that most studies do find DNA damage, because variation can result from different cells, different exposures and different methods. SCECA Surreb. St. 2R, pp.3-4.

79. Many studies also demonstrate that 50 or 60 Hz magnetic fields results in gene induction (activity), such that some genes become more active, while others become less active. SCECA Surreb. St. 2R, p.3.

80. Because most genes control the synthesis of proteins, their induction will result in either more or less of a particular protein being made. SCECA Surreb. St. 2R, p.3.

81. Not all causes of health effects in humans are also causes of health effects in animals: “In the case of EMFs in particular, the difference in both size and body shape between humans and small rodents is so great that whatever is the triggering factor (probably induced currents) are very different between rodents and humans.” SCECA St. R-2, p.4.

82. A convincing animal demonstration of cancer is the report of Reif et al (1995) who showed that dogs who live in homes with elevated magnetic fields (very high current) showed a 6.8-fold, statistically significant elevation in the risk of canine lymphoma. This is a particularly important study since it was done in Colorado in the same communities where human leukemia risk was found to be elevated in these homes. SCECA St. R-2, p.5.

83. While the results of epidemiological studies showing increased risk of childhood leukemia are not unanimous, they are, in fact, consistent. SCECA Surreb. St. R-2, p.5-6.

84. The 2007 WHO report states that epidemiological studies do “show an association between ELF magnetic field exposure and an increased risk of childhood leukemia.” SCECA Surreb. St. R-2, p.6.

85. The evidence for an association between ELF-EMF exposure and the neurodegenerative diseases, Alzheimer’s and amyotrophic lateral sclerosis (ALS), is strong. SCECA Surreb. St. R-2, p.7.

86. Studies reveal odd ratios (ORs, that being the ratio of neurodegenerative disease in the exposed population as compared to the unexposed population) ranging from 1.6 to 9.4 for ALS. SCECA Surreb. St. R-2, p.7.

87. There are many reasons studies may not be reproducible (and in studies rarely are reproducible), and those reason may have nothing to do with the validity of the study. Therefore, the appropriate approach to any scientific question is to evaluate the weight of evidence. SCECA Surreb. St. R-2, p.7.

88. PPL introduced various standards related to EMF exposure; however, these also compare apples to oranges. None of those standards pertained to protection against long-term human health impacts. Instead, for example, the IEEE standard is intended only to protect against sudden physiological reactions, or sensory effects, such as a “startle shock,” pain, or cardiac excitation. PPL Cross-examination Ex. 7; Tr.1194.

89. Mr. Silva's testimony cited guidelines issued by ICNIRP, but he admitted that he has no idea what human health effects those guidelines are intended to protect against. Tr.1196.

90. Magnetic field exposure limits established in New York State were not based on risk of diseases either, but rather on a desire not to allow future lines to emit higher magnetic fields than existing lines. Tr.1127-28.

91. Absent meaningful, health-based limits, "there is little motivation for the [electric power] industry to try to find the ways to deliver electricity without elevating the exposure." Tr.1122.

92. Individuals residing in the Saw Creek community testified that they fear cancer, childhood leukemia and other negative health impacts from the increased magnetic field levels which will be caused by the proposed S-R Line. Tr.107, 120, 124, 125, 129, 140, 142-45, 203, 205, 224-25, 253, 262, 265-67, 268, 271, 282-83, 284-85, 286-88, 289-23, 294-97, 309-13, 314-16, 317-19, 327-32, 484, 488, 500.

93. Just the stress alone caused by Saw Creek residents' fears of disease and other dangers from the S-R Line is tremendous. Tr.271.

94. PPL's Dr. Israel admitted that he is not aware of any studies being conducted on EMF fields prior to about 1960. Tr.1169.

95. PPL's initial letters to Saw Creek residents misrepresented that the electromagnetic fields along the Saw Creek right-of-way would be reduced by construction of the S-R Line, and made no mention of the fact that this was based on an averaging of an increase on one side of the right-of-way and a decrease on the other side. SCECA Cross-examination Ex. 1; Tr. 932.

96. PPL distributed its initial letter to Saw Creek residents, containing false information, even though it had been reviewed by Joseph Keeler, PPL's Supervisor of Transmission Design and Distribution Design and the individual who offered testimony that the EMF levels would actually increase on one side of the right-of-way. Tr.1061, 1076.

97. More recently, to allay people's concerns, PPL has been saying that after constructing the proposed lines, "on average, electromagnetic fields decrease significantly." *See, e.g.*, Tr.930.

98. Greg Smith, PPL's project manager, conceded that he realizes electromagnetic fields will actually increase on one side of the right-of-way, and decrease on the other side if the S-R Line is built. Tr.930-31.

99. Greg Smith also conceded that a home owner living on the side where the fields will increase, would never see any averaging – only the increase. Tr. 931.

100. PPL's analysis of potential routes for the S-R Line purportedly consisted of three main steps. First, PPL claims to have elected PPL's "project area." Second, it claims to have identified "large area constraints" within that area by reviewing maps and aerial photographs. Tr.973-74.

101. PPL's "paper" review led to PPL identifying three potential main routes, identified as Routes A, B, and C, which circumvented those large area constraints. Tr.973-74.

102. PPL claims that after circumventing large area constraints, it then identified alternative potential "links" along these three routes. Tr.973-74.

103. Saw Creek Estates lies along just north of the south end of "link 35," which is part of Route B. Tr.976-77.

104. After identifying potential "links," PPL then claims it conducted "field" evaluations of the links. Tr.974, 978.

105. PL's "field" evaluation of potential links and routes consisted only of driving a car along either public roads or PPL's existing right-of-ways. It did not include traversing any areas not accessible by either public road or PPL's existing right-of-ways. Tr.974, 978.

106. Dr. Daniel Moscovici has significant expertise with large-scale electric facility siting projects. For the past three years, he has been working on a research project in Costa Rica regarding the sighting of a major hydrologic dam – specifically a 631 MW project which would power approximately 1/3 of the nation's electricity needs. His research has resulted in a peer reviewed journal article and a book chapter. SCECA St. R-5, p.2; SCECA App. DAM-1.

107. Dr. Moscovici has been working with GIS technology for over six years as a power-user, and was trained by the foremost expert in GIS cartography, Dr. C. Dana Tomlin, one of the originators of many of the algorithms of the associated technology. Dr. Moscovici has since taught courses on GIS and its application in cartography and environmental planning for two years. SCECA St. R-5, p.3. SCECA App. DAM-1.

108. PPL failed to sufficiently examine the possibility of routing the S-R Line through the undeveloped land in the subdivision to the east of Saw Creek and land which formerly was part of Tamiment Resort. Tr.219, 517.

109. Susan Menno, the project manager for planning and development of the former Tamiment Resort property, advised David Martin, SCECA's General Manager, that her inquiries could not find anyone in her organization who had any knowledge or record of having been contacted by any PPL representative to discuss locating the line within that area. Tr.219, 517.

110. Many Saw Creek residents also testified that the former Tamiment subdivision property, owned by the Worthington Group, seemed like a viable option PPL should have thoroughly examined. Tr.485, 487.

111. PPL never seriously looked into using any part of the former Tamiment Resort property. PPL has no idea of the details of what are now at least three-year-old plans to redevelop part of the former Tamiment Resort, and has no idea of how much of the area might be cleared of trees, impact streams, impact wildlife, or include buildings. Tr.982-83.

112. The planned development for the former Tamiment Resort property, if it occurs, would include commercial development. Tr.983.

113. If PPL were to eliminate the existing lines though Saw Creek and place the S-R Line through the former Tamiment Resort, the current right-of-way through Saw Creek could be allowed to develop into forest land.

114. In the face of Dr. Moscovici's initial written testimony and public opposition to running the S-R Line through Saw Creek, as expressed in the public input hearings, PPL claims it subsequently prepared an analysis of the former Tamiment property and one other area. See PPL St. 3R, pp.1-6.

115. In his rebuttal testimony, Dr. Moscovici identified additional alternative routes which would eliminate the need to cross the Saw Creek Community, utilizing minimal impact on the Delaware Water Gap national Recreation Area, protected regions, wetlands and riparian buffers and homes. SCECA R-5, p.5.

116. Dr. Moscovici explained that he roughly marked additional alternative routes on Appendices DAM-2 as Alternative Route A and Alternative Route B. The map Appendix DAM – 3 also includes his rough recommended alternative routes, superimposed on Map #19 of Exhibit C – Constraint/Topographic Maps submitted by PPL as part of the PUC filing in respect to the Susquehanna-Roseland Project. SCECA St. R-5, p.5.

117. Dr. Moscovici explained that:

It is important to understand that this is a difficult task without actually being on-the-ground and taking pictures and surveying the landscape. This is merely a cartographic analysis using the resources available. However, had PPL actually conducted a meaningful consideration of alternatives to running the lines through the Saw Creek Estates community, I would have expected that PPL would have done this on-the-ground work for Alternative A and Alternative B, and documented it.

SCECA St. R-5, pp.5-6.

118. PPL never meaningfully evaluated the areas suggested by Dr. Moscovici as Alternative Link A and Alternative Link B. Mr Sparhawk’s testimony reveals that, even after seeing them in Dr. Moscovici’s rebuttal testimony, PPL made no attempt to fine-tune Dr. Moscovici’s suggested Alternative Link A or Alternative Link B to see if PPL could avoid any existing features, whether natural or manmade. Tr.987.

119. With respect to Alternative Link A, PPL’s witness, Peter Sparhawk, testified that it was “similar in concept” to an “eastern” route PPL had examined. PPL St. RJ3, p.3.

120. PPL’s “eastern” route was never seriously considered, because Mr. Sparhawk speculated that such a route “likely would interfere with any redevelopment plans for the Tamiment property....” PPL St. RJ3, p.3.

121. Mr. Sparhawk pointed to certain features he claims preclude the use of Alternatives A and B (PPL Ex. PS-2), but failed to acknowledge the vast open areas nearby or explain why the alternatives cannot be adjusted slightly to use those open areas. See PPL Ex. PS-2.

122. Mr. Sparhawk suggested reasons to reject the “eastern route,” but provided no indication of why those reason apply to Alternative Links A and B. PPL St. 3R.

123. Mr. Sparhawk’s reasons for rejecting PPL’s “eastern route” were presented merely in conclusory fashion, without any support, and he fails to weigh them against the impacts of the S-R Line to the Saw Creek community. PPL St. 3R.

124. PPL chose to avoid weighing the impacts of the S-R Line to the Saw Creek community versus other routes, decided in stead that the impacts of circumventing Saw Creek are “unnecessary because PPL Electric already owns sufficient rights-of-way through the Saw Creek Estates development for the Susquehanna-Roseland Transmission Line.” PPL St. 3R, p.4.

125. PPL estimates the S-R Line will cost \$1.2 billion to build. *See, e.g.*, Tr.791.

126. PPL purportedly decided to increase tower height and reverse phasing in order to reduce ground-level EMFs, which increased the S-R project costs by 5%. Tr.1072. If true, this would be an increased cost of \$ 60 million.

127. There are no connections to the existing line anywhere near Saw Creek; therefore, a substantial part of the line could be relocated, rather than having to be rebuilt. Application, Ex. A.04, PPL System Map.

128. PPL's magnetic field management program is limited to only considering design and operating factors, and only those that can be implemented at little or no cost. Tr.1069-70.

129. An additional area of strong concern among Saw Creek community residents is the impact of the S-R Line on property values. Numerous individuals testified at the public input hearing that they believe the proposed S-R Line will decrease property values. Tr.97, 105-06, 119, 125, 185-87, 200, 203, 205, 207-08, 253, 284-85, 294-97, 317-19, 323-26, 503.

130. Saw Creek resident Mr. William Nagy testified that as a real estate agent, he has experience with realty clients who do not even want to look at Saw Creek homes, due to the pending application. Tr.119.

131. Louis Brience, another Saw Creek resident who is a real estate agent, anticipates that the S-R project will decrease the price of Saw Creek homes with a view of the line by as much as 50%, and the price of Saw Creek homes without a view by as much as 25-30%. Tr.129-30.

132. Paula Schwartzman testified to her prior experience trying to sell a New Jersey home located along a power line right of way, and to the fact that real estate agents would not even bring their clients to view her home because of the lines. Tr.309.

133. Mr. Andrew R. Haakenson, MAI, testified on behalf of SCECA. Mr. Haakenson is a Pennsylvania Certified General Appraiser, as well as being certified in Delaware and New Jersey. SCECA St. 3, p.1; SCECA Ex. ARH-1.

134. Mr. Haakenson holds the MAI designation from the Appraisal Institute, and is past President of the Philadelphia Metro Chapter of that organization. SCECA Ex. ARH-1.

135. Mr. Haakenson has been an appraiser since 1986, and has performed hundreds of assignments of all types, including valuation of residential subdivisions, gas pipeline right of ways, rail corridors, cellular telephone towers, landfills, and other matters where potential diminution in value has been an issue. He is also a licensed Associate Broker in Pennsylvania. SCECA St. 3, p.1; SCECA Ex. ARH-1.

136. The proposed towers will constitute a significant change to the existing landscape and viewshed. The existing towers, at an average height of 83 feet, are from many points within Saw Creek completely hidden by the existing treeline. ... the [proposed] towers/lines will be at least twice as tall as the highest surrounding trees, and those towers and lines will become visible from locations which now have no view of the existing towers and lines. The visual effect will be like an elevated rail fence (or, alternatively, a music staff), running north/south across the easterly slope of the Saw Creek valley, with highly-visible conductors between towers, unlike the present lines, where conductors are barely visible from a distance. SCECA St. 3, pp.12-13.

137. The impact to the landscape and viewshed at the Saw Creek community is particularly true of the appeal of the Top of the World restaurant/pool/ski complex, which counts its mountain top view as one of its chief attractions, and which will have a direct view of the top ½± of the proposed towers and lines. SCECA St. 3, pp.16-17.

138. The S-R towers and line will be a marked change from the existing view at the Top of the World complex, in which the tops of only two or three of the towers are visible in the nine months when full tree cover is present. SCECA St. 3, pp.16-17.

139. While Saw Creek's amenities are common elements, they contribute significantly to the value of the individual residences. SCECA St. 3, pp.16-17;

140. To evaluate the conditions with respect to Saw Creek, Mr. Haakenson interviewed 15 people concerning recent sales or attempted sales – 14 buyers and 1 seller. Tr.1928.

141. Two buyers Mr. Haakenson interviewed were not sure whether knowledge of the proposed line would have affected their decision to buy the property, two buyers said it would have affected their decision, and the one seller said that the proposed line was the reason his buyer backed out of the deal, and this is before they are even built. Tr.1929-30. Three impacted sales out of 15 equates to 20% of the sales (for which interviews could be conducted) which would have been impacted by the proposed lines.

142. Very few of these interviewees Mr. Haakenson spoke with were aware of the proposed line. Tr.1936, 1938-39.

143. Purchasers of Saw Creek homes specifically cited “natural surroundings” as a factor in their purchase decision. Tr.1933.

144. Mr. Haakenson interviewed 5 real estate professionals. One was not aware of impacts sales, but admitted that he would not be aware of those prospective buyers who decided against even entering his office to discuss Saw Creek homes. Tr.1932.

145. A local real estate appraiser and Saw Creek resident, Mr. Thomas Buneo, with whom Mr. Haakenson had spoken (Tr.1933), testified at the public input hearing to the “almost universal perception that EMFs are dangerous to one's health.” Tr.323.

146. Mr. Buneo also cited a publication which concluded that the impacts to property values from HVTLs may be substantial. Tr.320-22.

147. The proposed towers present direct financial difficulties with respect to nearby homes, due to the inability of prospective buyers to obtain U.S. Department of Housing and Urban Development's (“HUD”) financing for properties within the fall distance of the towers, based on language in the HUD Handbook 4150.2 (CHG-1)

Valuation Analysis for Single-Family One- to Four-Unit Dwellings (July, 1999) (“Appraisers Handbook”). SCECA Surreb. St., p.12.

148. The HUD Handbook states that “FHA, VA, or any type of HUD-related mortgage financing is not available for homes within the ‘fall distance’ of any type of transmission tower.” SCECA Surreb. St., p.12.

149. Increasing the tower heights to 190-195±’ will put a considerable number (estimated by Saw Creek management at 31 houses) of existing homes within the “fall” radius. SCECA Surreb. St., p.12.

150. Especially when conventional mortgage financing is difficult, as it is at present, the availability of more favorable FHA/VA financing becomes increasingly important (See Site Analysis section of Chap. 1 of the HUD Handbook 4150.2), and will not be available to the 31 properties within the fall distance of the proposed towers. SCECA Surreb. St., pp.13-14.

151. The HUD Handbook states:

#### OVERHEAD HIGH-VOLTAGE TRANSMISSION LINES

No dwelling or related property improvement may be located within the engineering (designed) fall distance of any pole, tower or support structure of a high-voltage transmission line, radio/TV transmission tower, microwave relay dish or tower or satellite dish (radio, TV cable, etc.). For field analysis, the appraiser may use tower height as the fall distance.

SCECA Surreb. St., pp.13-14.

152. Mr. Haakenson he also called the HUD Appraisal Office in Philadelphia, and was expressly advised that there is no question that being in the fall zone of an HVTL tower makes a property ineligible for FHA insurance, regardless of whether or not it is within the easement. SCECA Surreb. St., pp.13-14.

153. At the public input hearings at Saw Creek, Mr. Buneo also testified to the inability of prospective buyers to obtain HUD financing for properties within the fall distance of the towers, based on language in the Appraisers Handbook. Tr.326.

154. HUD-FHA Single Family Housing, Homeownership Center Reference Guide (“Reference Guide”) “supplements” the Appraisers Handbook, and the Guide rests on the condition that fall zones do not extend beyond the right-of-way. SCECA Surreb. St., p.12.

155. The proposed S-R Line also presents serious temporary impacts which, in addition to constituting dangerous conditions for residents, undoubtedly will also impact property values.

Actual construction time has been estimated by PPL at one year. This will involve a serious increase in road traffic, movement of construction material and equipment, and the necessity to stage and store materials and equipment on parts of the existing right of way which now are essentially vacant land. Movement of heavy equipment and materials over Saw Creek's roads will also create a continuing hazard for residents, visitors, and for Saw Creeks maintenance and security personnel during construction. The existing road network is entirely two-lane, asphalt, built to a light-duty residential standard not regulated by PennDOT. The roads have minimal clear sight distances at many corners, few vehicle-width shoulders, and are accessed by at least one driveway per residence, many of which are at steep grades where they meet the roads. Construction activity will also result in the daily entry and exit of construction workers, presumably in their private vehicles. As there is little or no street parking available, parking will have to be provided, presumably on the right of way. A map indicating the roads proposed for movement of equipment and materials through Saw Creek is provided as Exhibit ARH - 3.

SCECA Surreb. St., p.14.

156. The map of roads proposed for movement reveal that incursion of trucks and heavy equipment into the Saw Creek community will be extensive. SCECA Ex. ARH-3.

157. Mr. Haakenson testified that a review of appraisal literature revealed no study which directly addresses the situation at Saw Creek; that is, the replacement of long-standing familiar infrastructure with markedly larger and more substantial infrastructure. SCECA Surreb. St., p.4.

158. An increasing number of such studies show "a small diminution in value attributable to the close proximity of these lines." SCECA Surreb. St., p.5 (citing *Power Lines and Property Values Revisited*, J.M. Pitts and T.O. Jackson, *The Appraisal Journal*, Fall, 2007).

159. The studies that the effects of HVTL on residential properties are determined by five interplaying factors:

- a. proximity to towers and lines;
- b. the view of towers and lines;
- c. the type and size of HVTL structures;
- d. the appearance of easement landscaping; and
- e. surrounding topography.

SCECA Surreb. St., p.5.

160. In studies where negative impacts are evident, they show an “average discount of between 1% and 10% of property value...” for properties abutting an HVTL right of way, and that this negative impact is likely to be more pronounced in a slow market. SCECA Surreb. St., p.5.

161. It is highly likely that residences either abutting or very near the PPL right of way will become more difficult to market than at present. SCECA Surreb. St., pp.15-17.

162. Residences located above the grade of the right of way, but with views of the lines from higher ground, will also be more difficult to market, as the now relatively uncongested panoramic view of wooded ridges and valleys will be marred by semi-industrial infrastructure. SCECA Surreb. St., pp.15-17.

163. For the effected residences, marketing time and achievable sales prices will be negatively effected. SCECA Surreb. St., pp.15-17.

164. The proposed HVTL infrastructure would have a negative effect on value as great or greater that up to 10%, depending on the particular orientation of the individual residence. SCECA Surreb. St., pp.15-17.

165. The marked change in the viewshed from distances further from the right-of-way will also have an adverse impact on Saw Creek’s amenities. SCECA Surreb. St., pp.15-17.

166. Any negative effects of the proposed infrastructure on the pools, restaurant, ski run, etc., bear directly on the residential values in Saw Creek. SCECA Surreb. St., pp.15-17.

167. The proposed infrastructure change will also have “temporary” negative effects on the value of individual residences throughout the community, due to immediate and languishing construction impacts. SCECA Surreb. St., pp.15-17.

168. PPL’s real estate witness, Mr. Bates, admits to using interviews of brokers and his appraisal colleagues to assist in assessing real estate market conditions. Tr.1855.

169. Mr. Bates did not explain how he might analyze a situation like Saw Creek, where there does not exist any relevant market data.

170. Mr. Haakenson’s findings could not have been obtained solely from market data. Tr.1939. This is especially so because the event being tested – whether the construction of the significantly more prominent and significantly greater magnetic-field-producing S-R Line will impact property values – has not yet occurred.

171. Mr. Bates admits that in the few instances where he has compared his appraised value to a subsequent sale price, the two values have been as much as 5% apart. Tr.1858.

172. Mr. Dominy recalled that Saw Creek homes sold for up to \$295,000 between 2006 and 2009. Tr.1895. For a \$300,000 home, this would equate to a difference of plus or minus \$15,000 – not an insubstantial chunk of many homeowner’s equity, particularly in current market conditions.

173. The study by Chalmers and Vorvaart is of uncertain relevance because, unlike the importance of topography and visibility at Saw Creek “there is no indication of the general topography of the areas studied, to suggest the degree to which the visibility of the towers actually altered the viewshed. SCECA Surreb. St., p.7.

174. The authors of the Chalmers and Vorvaart study agree with Mr. Haakenson that their study may not be relevant to a situation where an upgrade will occur. The authors stated: “Therefore, a useful complement to this study might look at the history of a corridor over a period that includes a pre-upgrade period, an announcement and construction period, and then a post-upgrade period.” SCECA Surreb. St., p.9.

175. Mr. Bates admitted that the Chalmers and Vorgart disregarded a number of sales because they did not “fit” the pattern desired by the authors. Tr.1863-64. Mr. Bates could not determine whether the disregarded sales were actually anomalies which should have been disregarded. Tr.1864.

176. Mr. Bates has not verified at all whether the reported results in the Chalmers and Vorvaart study are anywhere near accurate from a statistical standpoint. Tr.1865.

177. Mr. Bates did not do any evaluation of whether the author’s decision to exclude properties lacking a deck or porch. Tr.1866.

178. The Chalmers and Vorvaart study is deficient in a number of additional respects. It did not include factors which would be expected to be related to impacts of power lines, such as the presence of a deck or porch, the topography of the area, or the quality of the views in the area. Tr.1867.

179. Chalmers and Vorvaart did not include an evaluation of vacation or resort communities. Tr.1868-69.

180. Chalmers and Vorvaart expressly concede that “an opinion supporting HVTL’s effects would have to be based on market data particular to the situation in question.” PPL Ex. MFB-1, p.24 (emphasis added).

181. Chalmers and Vorvaart ignored one of the five factors which Pitts and Jackson stated were critical to an evaluation of whether power lines impact property values – the surrounding topography of the area. PPL Ex. MFB-2, p.1.

182. Surrounding topography is relevant to the visibility of the lines in question. Tr.1870-71.

183. Mr. Dominy, PPL's other real estate witness, agrees that certain factors of a property might have a great influence on price in one neighborhood, but less influence on price in another neighborhood. Tr.1904.

184. Mr. Dominy conceded that the quality of the view at a property could have a greater influence on price than it would in another neighborhood. Tr.1905.

185. Given that so many residents testified that the view was an important reason for them to move to Saw Creek, and given the undeniable beauty of the area as revealed during the site visit, it is apparent that the greatly increased tower height of 190 feet will undoubtedly have a significant negative impact on Saw Creek property values.

186. Mr. Dominy and his associates recorded visibility data, but these data consisted only of recorded whether, at the time they visited the property, the transmission line was visible from their vehicle at a single point at the street in front of the home. Tr.1882.

187. Mr. Dominy testified that for each of his case studies, he plotted the value of the home versus the property's distance to power lines, and the results were scattered – "they were spread throughout." Tr.1889.

188. Mr. Dominy conceded that, instead of performing a mathematical calculation to determine the average of the many dots, he simply "eyeballed" the scatter plot of dots to determine whether there was an overall difference between the values of homes near transmission lines versus homes away from transmission lines. Tr.1889.

189. Mr. Dominy claims that after "eyeballing" as many as several hundred dots on a scatter plot, he was able to emphatically conclude that the data in his case studies did not demonstrate that the upgrade of the transmission line had any measureable impact on property value. PPL Reuttal St. 21-R, p.5.

190. It is without credibility that Mr. Dominy can render an accurate opinion as to the impacts of rights-of-way using this gross and arbitrary method of evaluation the spread of dots. For this reason, his testimony will be given no weight.

191. Mr. Dominy's study lacks demonstrated relevance to the situation at Saw Creek.

192. In their study, Mr. Dominy's firm did not consider topography, or visibility at any time of the year other than summer. Tr.1884.

193. Mr. Dominy's firm did they conduct any interviews of home owners. Tr.1885.

194. Mr. Dominy's firm failed to demonstrate the relevance of their study areas, because they do not indicate that the study areas compare to Saw Creek's natural environment, community amenities, large number of second-home/resort residences, dramatic undisturbed viewsheds, and because none of the study areas involved a review of property sales before and after an upgrade (or even an initial facility construction). SCECA Surreb. St. 3, pp.9-10.

195. With respect to Mr. Dominy's study of the Saw Creek area, it ignores that all properties share common amenities that are directly adjacent to the existing HVTL and that there are few areas of Saw Creek that are accessible without crossing or being in direct sight of the existing HVTL. The effect of the existing HVTL, then, is much more likely to be consistent within Saw Creek than in other areas which lack Saw Creek's "self contained" character. SCECA Surreb. St. 3, at p.3.

196. A lack of perceivable difference between the values of homes near the lines versus far does not mean that the lines have no impact on property values.

197. Mr. Dominy's study of the Saw Creek area is of no probative value because it rests on a profoundly misplaced assumption – that if PPL's S-R Line proposal has any impact on property values, the impacts should have begun as soon as PPL announced the S-R Line proposal. Tr.1893-94.

198. Mr. Dominy admitted that buyers who were not already located within the market place would not likely have been aware of the proposal. Tr.1894.

199. Mr. Dominy conceded that perhaps as many as one-third of the Saw Creek Estates residents own the home as their primary residence. Tr.1893.

200. Although he did not express a belief that the buyers of homes in his Orange, CT case study were not from that area, Mr. Dominy apparently dismissed the possibility that those sales were all "post-upgrade" sales, even though each one of them occurred subsequent to project approval and most of them occurred subsequent to the commencement of construction. Tr.1905-06.

201. Mr. Dominy's testimony lacks credibility.

202. Mr. Dominy described, in very unclear terms, peculiar "adjustments" he made to the data he gathered. He testified that he considered a number of factors which might have impacted sale prices, including a renovated kitchen, condition of the property,

size of the property, lot size, and other unidentified factors, and made some vague “adjustments” while he “looked at the data in gross.” Tr.1901-02.

203. Mr. Dominy had absolutely no documentation to explain these “adjustments.” Tr.1902. Accordingly, his testimony is unsound and of no probative value.

204. Mr. Dominy’s study is flawed in that it ignores relevant data.

205. Mr. Dominy does not comment on testimony in May of 2009, in front of the Honorable Susan Colwell during a visit to the site, in which owners expressed a radically opposite opinion of the upgrade’s potential effects. Residents specifically expressed concerns about negative impacts to property values (e.g., A. Spinelli, p.503, W. Hopkins, pp.509-10) and about other issues which affect property values (e.g., visibility of the towers and lines (P. Derrenbacher, pp.444-48, and 476, D. Martin, pp.450 and 478, W. Hopkins, pp.509-10 and 513-14), tower collapse (C. Irwin, p.459, D. Martin, p.463, R. Long, p.494), construction accidents and inconveniences (C. Irwin, p.459, P. Derrenbacher, pp.460-62 and 517, R. Pannozzo, pp.462 and 469, R. Long, pp.494-95, B. Harter, p.497, Spinelli, pp.501 and 504-505, D. Martin, p.506), and health effects (R. Long, p.484, B. Harter, p.497, A. Spinelli, pp.500 and 505).

206. Common sense, and standard appraisal practice, which does consider the opinions of individuals knowledgeable about a transaction area, suggests that opinions held by those close to the transactions should be considered relevant. SCECA Surreb. St., p.11-12.

207. The testimony of Mr. Farley, PPL’s additional real estate witness, is purely speculative, largely irrelevant, and somewhat disingenuous, and should therefore be ignored.

208. Mr. Farley implied that he would receive calls from the public concerning financing of homes in rights-of-way and within tower fall zones. Tr.1916-17.

209. Mr. Farley admitted to a number of important points which demonstrate that it is very unlikely that potential buyers would call him concerning problems obtaining FHA financing.

210. PPL’s call center has a list of contacts, but the list says nothing about individuals or departments within PPL who are responsible for FHA answering financing questions, and receptionists receive no training in how to transfer callers with such questions. Tr.1916-17.

211. PPL does not prepare or distribute any publication or literature advising prospective buyers to contact PPL with if they have a problem with FHA financing. Tr.1921.

212. It has been at least 10 years since Mr. Farley received a call concerning FHA financing. Tr.1918.

213. Although Mr. Farley initially claimed he had receive three calls on the subject of FHA financing, he later admitted that two of the calls pertained to a distribution line, not a transmission line; therefore, the FHA restriction on financing did not apply. Tr.1919.

214. In the only instance Mr. Farley recalls where he was asked about a transmission line, he provided information on the tower height and condition, and never heard anything further. Tr.1920.

215. Mr. Farley has no proof whatsoever as to whether, in the one relevant instance he recalls, the prospective buyer was able to obtain FHA financing. Tr.1920.

216. Mr. Farley admitted that he directed the callers to the FHA HUD resource guide he provided as Ex. RJF-3, but he declined to mention to them the existence of the contrary HUD Handbook, which precludes financing of homes in the fall zone of a tower. Tr.1920.

217. Mr. Farley admits he read the written testimony of Mr. Haakenson, yet, he concedes he made no effort to contact FHA, HUD, or the person identified in Mr. Haakenson's written testimony as having told Mr. Haakenson that FHA would not provide financing to any home located within the fall zone of an electrical transmission tower. Tr.1922.

218. Spoliation of the viewshed is another concern of Saw Creek residents. Individuals testified that to them the increased tower height will spoil the visual landscape and natural environment. Tr.105, 120, 121-24, 130-32, 185-87, 200, 203, 214, 220, 224-25, 253, 272, 282-83, 298-301, 302-03, 317-19, 342-46, 350, 352, 462, 466, 491, 503, 509-514.

219. As Mr. William Hopkins, a Saw Creek resident explained, in the Saw Creek community, "the house is the view and the view is the house." Tr.509-10.

220. The site tour revealed that in many locations the existing towers rise to approximately the same height as the surrounding treetops. *See, e.g.*, Site Visit Photograph Nos. 3162, 3163, 3166, 3206, 3211, 3214, 3260, 3279, 3306, and 3355.

221. The proposed towers would extend well above the existing towers, and will rise above the landscape visible throughout the community, including from Saw Creek's VIP area, Top of the World facility, Stafford Drive, Kirkham Road and other points in the Saw Creek community. See Tr.447-48, 450-51, 459, 476-79, 503, 509-14.

222. The proposed towers would, in some cases, be visible from tens of miles away, yet nowhere has PPL made a reasonable effort to evaluate this impact on the terrain and land use.

223. Concerns with construction safety also are prominent among Saw Creek residents. Several individuals testified that PPL had admitted it has no prior experience constructing a project of this size in such a densely populated area. Tr.140-41, 205, 282-83, 501.

224. Individuals expressed concern with the impacts of construction of the proposed S-R Line, including blasting, truck traffic on the Saw Creek community's narrow roads in which children walk, noise, dust, and falling towers during construction. Tr.106, 117, 121-24, 129, 130-32, 208, 282-83, 308, 309-13, 314-15, 459-60, 469-70, 494-95, 500, 504-05, 517.

225. About 625 of Saw Creek Estates' residents are children. Tr.454.

226. The extensive degree to which PPL's truck and heavy equipment will permeate the community is made amply clear in SCECA Ex. ARH-3.

227. PPL's construction of the proposed S-R Line in the Saw Creek community is a disaster in the making.

228. The S-R Line would require extensive stone and dirt removal, with resultant heavy truck traffic. Tr.117.

229. The site tour revealed the steep topography of the area, which makes residents concerned that construction will be extremely dangerous. *See* Tr.494-95, 508; *see also, e.g.*, Site Tour Photograph Nos. 3257, 3303, 3310, 3314, 3435, and 3465.

230. The Saw Creek portion of the proposed S-R Line includes wetlands and the creek itself is designated as a high-quality, cold water fishery by the Pennsylvania Department of Environmental Protection. Tr.221.

231. To construct the proposed S-R Line in the Saw Creek community, after creating access roads, PPL will have to remove conductors, towers and foundations, drill out and blast out solid rock, and install new foundations, towers and conductors. Tr.929-30.

232. PPL commonly uses helicopters to construct and maintain transmission lines. Tr. 799. PPL plans to use helicopters in the Saw Creek area, as well. Tr.926; PPL St. R1, pp.8, 9, 12.

233. PJM's RTEP evaluation does not involve environmental factors, inconvenience to the public during construction, or other factors. Tr.794.

234. Mr. Smith admitted that all construction projects have risks. Tr.794.
235. Mr. Smith admitted that construction poses risks such as dropping a conductor to the ground, or the malfunctioning of heavy equipment. Tr. 920-21.
236. Construction risks include excessive noise, construction traffic, blasting, and drilling. Tr.922-23.
237. One risk is that a helicopter used during construction will have to make an emergency landing. Tr.802-05; OCA Cross Ex. 1.
238. PPL has barely evaluated impacts of construction on residents of Saw Creek at all. Tr.918.
239. PPL still has not determined how many access roads it will have to clear or build. Tr.929.
240. PPL has not determined the extent of blasting which will take place in the Saw Creek area, or the degree of resultant vibrations in people's homes. Tr.923.
241. PPL has not evaluated the impacts of blasting out rock, removing rubble, and transporting it through the Saw Creek community. Tr. 924.
242. PPL has not done anything to evaluate the amount of truck traffic which would occur through Saw Creek in order to build the S-R Line. Tr.924.
243. PPL does not yet know the extent to which it may need helicopters to bring into Saw Creek conductors, heavy equipment, or towers for the proposed line. Tr.926-27.
244. PPL has no idea what level of inconvenience and safety risks will occur, either with or without its purported minimization efforts. Tr.924; PPL St. 1R, p.16.
245. Mr. Smith himself admitted in his rebuttal testimony that "any reasonable siting process" must consider inconvenience and safety risks to the public posed by construction. PPL St. 1R, p.3.
246. In contrast to its complete failure to evaluate construction risks to Saw Creek residents, Mr. Smith testified that PPL evaluated safety risks to the public at public parks and recreation areas, and developed plans to reduce that risk. Tr. 795; PPL St. R1, p.10.
247. At the Delaware Water Gap, PPL plans to conduct certain construction activities in the winter, when less people use the area. Tr. 795; PPL St. R1, p.10.

248. Less people near construction of the S-R Line equates with less safety risk. Tr. 796.

249. At the Delaware Water Gap, PPL plans to keep people at a safe distance from the construction site, although PPL does not know what that distance must be, yet. Tr.941-42.

### **PROPOSED CONCLUSIONS OF LAW**

1. PPL has not met its burden of proving that the Commission should approve the Susquehanna-Roseland (“S-R”) Line.
2. The concerns of Saw Creek residents include increased risks of cancer, childhood leukemia, and other health affects resulting from exposure to magnetic fields, the dangers of tower collapse, potential injury and death caused by construction activities, noise and shock during blasting and drilling, reduced property values, offensive marring of the attractive viewscapes in the area, and the tremendous stress of experiencing and worrying about these impacts.
3. Given the fact that electrical transmission towers do sometimes fail, and given the fact that 31 Saw Creek residents’ homes would lie within the fall distance of the proposed towers (as would those of an unknown number of residents outside the Saw Creek community), residents of Saw Creek have valid reason to fear the proposed 190 foot tall towers.
4. PPL had a duty to fully analyze and discuss the dangers of tower failure on the record pursuant to 52 Pa. Code § 57.75(e)(2).
5. PPL’s exhibits and testimony pertaining to PPL’s siting analysis do not sufficiently mention, analyze, weigh, or otherwise consider the dangers of tower failure in the Saw Creek community.
6. PPL also had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4).
7. PPL failed to adequately evaluate reasonable alternatives to minimize the risk of tower failure in the Saw Creek community.
8. PPL failed to satisfy its duty to evaluate every reasonable alternative to minimize human diseases caused by the S-R Line, including childhood leukemia, cancer, Alzheimer’s disease, and ALS. *See* Re Overhead Electric Transmission Lines.

9. Neither the residents of Saw Creek nor, for that matter, most residents throughout the United States and other developed countries, had any reason to fear high voltage transmission lines until sometime after about 1960.

10. PPL is not advocating that medical science has proved that power lines do not cause human diseases.

11. Even if PPL were to convince the Commission that medical science has not proved that power line magnetic fields do cause human diseases, PPL must acknowledge that the lingering uncertainty is causing residents legitimate fear. This legitimate fear, in itself, is an impact which PPL should have evaluated on the record pursuant to 52 Pa. Code § 57.75(e)(3)(i) and (4).

12. PPL's exhibits and testimony pertaining to PPL's siting analysis do not mention, analyze, weigh, or otherwise consider the legitimate fear and stress which the S-R Line is causing, and will continue to cause, to Saw Creek residents. This failure renders PPL's application deficient under *West Penn* and *Dunk*.

13. PPL had a duty to evaluate every reasonable alternative to minimize the fear and stress on Saw Creek residents, but failed to do so. 52 Pa. Code § 57.75(e)(4).

14. PPL's insufficient field work toward evaluating alternative links prevented PPL from identifying additional alternative links, and from seeing where it could modify a proposed link to circumvent a "small area constraint" rather than simply discard the proposed link. In short, no link could be considered if it was not along a public road or PPL right-of-way.

15. With respect to PPL's analysis of the Saw Creek area, its analysis was severely flawed not only due the limitations of PPL's "field" evaluations, but also due to PPL's predetermined insistence on using existing right-of-ways.

16. PPL failed to sufficiently examine the possibility of routing the S-R Line through the undeveloped land in the subdivision to the east of Saw Creek and land which formerly was part of Tamiment Resort. Tr.219, 517.

17. PPL never seriously looked into using any part of the former Tamiment Resort property. PPL has no idea of the details of what are now at least three-year-old plans to redevelop part of the former Tamiment Resort, and has no idea of how much of the area might be cleared of trees, impact streams, impact wildlife, or include buildings. Tr.982-83.

18. Especially given the magnitude and intensity of the concerns expressed by Saw Creek residents, PPL should have done a better job of evaluating the use of the former Tamiment Resort property to circumvent Saw Creek. PPL should have made a reasonable effort to evaluate this available alternative in order to conclude whether the

dangers the S-R Line presents to Saw Creek residents can reasonably be minimized or eliminated. 52 Pa. Code § 57.76(a)(2) and (4)

19. PPL has failed to satisfy its duty to evaluate every reasonable alternative to minimize them. 52 Pa. Code § 57.75(e)(2), (3) and (4).

20. PPL's analysis of the former Tamiment property suffered from other deficiencies, as well.

21. PPL never meaningfully evaluated the areas suggested by Dr. Moscovici as Alternative Link A and Alternative Link B. Mr Sparhawk's testimony reveals that, even after seeing them in Dr. Moscovici's rebuttal testimony, PPL made no attempt to fine-tune Dr. Moscovici's suggested Alternative Link A or Alternative Link B to see if PPL could avoid any existing features, whether natural or manmade. Tr.987.

22. PPL's rejection of Alternative Link A is not supported by the record.

23. PPL failed to meet its duty to fully evaluate Alternative Links A and B proposed by Dr. Moscovici in order to minimize the dangers of the S-R Line to Saw Creek residents, and to fully document that evaluation on the record. 52 Pa. Code § 57.75(e)(2), (3) and (4).

24. Mr. Sparhawk's reasons for rejecting PPL's "eastern route" were presented merely in conclusory fashion, without any support, and he fails to weigh them against the impacts of the S-R Line to the Saw Creek community. PPL St. 3R.

25. PPL's predetermined conclusion to use the existing right-of-way at the Saw Creek community violates the Commission's siting regulations and the balancing required under Article 1, Section 27

26. Although PPL claims it must retain the existing line even if the S-R Line is located elsewhere, the record is completely devoid of any support for this position.

27. PPL has failed to satisfy its duty to properly analyze and discuss its purported inability to remove the existing transmission line through the Saw Creek community if the S-R Line were placed elsewhere.

28. The proposed towers will constitute a significant change to the existing landscape and viewshed.

29. The proposed towers present direct financial difficulties with respect to nearby homes, due to the inability of prospective buyers to obtain U.S. Department of Housing and Urban Development's ("HUD") financing for properties within the fall distance of the towers, based on language in the HUD Handbook 4150.2 (CHG-1) Valuation Analysis for Single-Family One- to Four-Unit Dwellings (July, 1999) ("Appraisers Handbook"). SCECA Surreb. St., p.12.

30. The HUD Handbook states that “FHA, VA, or any type of HUD-related mortgage financing is not available for homes within the ‘fall distance’ of any type of transmission tower.” SCECA Surreb. St., p.12.

31. Especially when conventional mortgage financing is difficult, as it is at present, the availability of more favorable FHA/VA financing becomes increasingly important (See Site Analysis section of Chap. 1 of the HUD Handbook 4150.2), and will not be available to the 31 properties within the fall distance of the proposed towers. SCECA Surreb. St., pp.13-14.

32. HUD-FHA Single Family Housing, Homeownership Center Reference Guide (“Reference Guide”) “supplements” the Appraisers Handbook, and the Guide rests on the condition that fall zones do not extend beyond the right-of-way. SCECA Surreb. St., p.12.

33. The proposed S-R Line also presents serious temporary impacts which, in addition to constituting dangerous conditions for residents, undoubtedly will also impact property values.

34. The proposed HVTL infrastructure would have a negative effect on value as great or greater than up to 10%, depending on the particular orientation of the individual residence. SCECA Surreb. St., pp.15-17.

35. Given the sources of impacts to property values of Saw Creek residents, and SCECA itself, PPL should have made, but failed to make, a reasonable effort to evaluate alternative locations for the S-R Line in order to minimize these land use impacts, and weighed these impacts during its comparison of various alternatives. 52 Pa. Code § 57.76(a)(2) and (4).

36. Given that so many residents testified that the view was an important reason for them to move to Saw Creek, and given the undeniable beauty of the area as revealed during the site visit, it is apparent that the greatly increased tower height of 190 feet will undoubtedly have a significant negative impact on Saw Creek property values.

37. It is without credibility that Mr. Dominy can render an accurate opinion as to the impacts of rights-of-way using this gross and arbitrary method of evaluation the spread of dots. For this reason, his testimony will be given no weight.

38. Mr. Dominy’s study lacks demonstrated relevance to the situation at Saw Creek.

39. Mr. Dominy’s methodology for reaching his conclusions lacks any semblance of accuracy or precision, and is instead so highly subjective and self-serving that it is rejected.

40. Mr. Dominy's study of the Saw Creek area is of no probative value because it rests on a profoundly misplaced assumption – that if PPL's S-R Line proposal has any impact on property values, the impacts should have begun as soon as PPL announced the S-R Line proposal. Tr.1893-94.

41. Mr. Dominy's testimony lacks credibility.

42. Mr. Dominy's study is flawed in that it ignores relevant data.

43. His admitted lack of candor with callers calls into question the veracity of his testimony in the present matter.

44. Mr. Farley's refusal to contact HUD belies Mr. Farley and PPL's obvious lack of true interest in confirming the impacts of the S-R Line on the availability of FHA financing, and suggests that their motives may have influenced their objectivity and veracity.

45. Mr. Farley's testimony will be ignored.

46. The proposed towers would, in some cases, be visible from tens of miles away, yet nowhere has PPL made a reasonable effort to evaluate this impact on the terrain and land use.

47. The record lacks the required explanation or presentation of what viewsheds will look like if the S-R Line is built in or near Saw Creek, and the required weighing of this issue as compared to other locations. 52 Pa. Code § 57.75(e)(3)(x) and (4)

48. The record lacks the required explanation or presentation of what viewsheds will look like if the S-R Line is built in or near Saw Creek, and the required weighing of this issue as compared to other locations. 52 Pa. Code § 57.75(e)(3)(x) and (4)

49. PPL has barely evaluated impacts of construction on residents of Saw Creek at all. Tr.918.

50. In the face of the real dangers posed by construction, PPL had a duty to fully analyze and discuss these dangers on the record pursuant to 52 Pa. Code § 57.75(e)(2).

51. PPL's exhibits and testimony pertaining to PPL's siting analysis barely mention, analyze, weigh, or otherwise consider construction dangers in the Saw Creek area, in violation of the Commission's siting regulations.

52. PPL had a duty to evaluate every reasonable alternative to minimize these risks, but failed to do so. 52 Pa. Code § 57.75(e)(4).

53. PPL's failure to identify and quantify risks to the public at Saw Creek is disturbing and should not be condoned by the Commission. Therefore, Commission should deny PPL's application.