Comments on the Regional Transmission Expansion Plan as presented to the TEAC on May 23, 2006

Submitted by PPL Electric Utilities
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We commend PJM for development of the fifteen year regional transmission expansion plan. This is a significant achievement towards identifying where major system reinforcements will be required to meet long term system needs. In May of 2005, PJM had just released the 2009 RTEP. Since then, PJM has completed the detailed analysis for 2010 and 2011 and preliminary analysis of system needs for the planning period of 2012-2021(6-15 year horizon).

We fully support PJM in its development of a long term transmission expansion plan that will ensure required 230 kV and higher voltage transmission lines will be in service when needed. Timely identification of required facilities will allow for sufficient lead time to complete siting, Right-of-Way acquisition, engineering design and construction. As such, the preliminary fifteen year plan is a major step towards this goal. While much has been accomplished, additional work is required to achieve the goal of a long term regional transmission expansion plan. PPL believes that the work proposed below must begin expeditiously to assure that the long term development plan is both appropriate and achievable:

A. Expedite the voltage analysis

The process to develop the scope of work to expand the horizon from 5 to 15 years was a major challenge for PJM. In a span of several months, through a broad stakeholder process, consensus was developed to expand the horizon and develop the scope of analysis to develop a 15 year plan. Having now completed the thermal analysis portion of the first 15 year plan, it is imperative that the voltage and limited transient analysis for the same time period begin immediately. The current long term results are based on the DC analysis of power flows that shows when flows will exceed the conductor ratings. The preliminary results with thermal analysis indicate that reinforcements are not required until approximately 2016 or later for some 500 kV tie lines. This is based on power flows of approximately 3700 MVA across 500 kV lines. However, the approved DC analysis of power flows could not address voltage limitations on the system. At the very high 500kV power flows observed, it is very likely that AC analysis of the system would show voltage violations would occur well before the thermal limits are reached and that reactive support alone would not mitigate the voltage violation. Indeed, it is very likely that the in-service dates for some of the new lines identified in the RTEP may need to be advanced.

We believe that this analysis is extremely important and that it should be started immediately. The scope of work should include full contingency analysis of a 10 year study case. This work should be completed by July or August of this year. If the AC analysis indicates that identified projects plus additional reactive compensation are not

sufficient as planned or need to be advanced, the RTEP should be revised and again presented to the PJM Board for approval.

B. 500kV is the recommended voltage level for the eastern portion of PJM

The results of the fifteen year analysis clearly indicate the need for a major reinforcement of the backbone transmission system to accommodate large flows from west to east. The lines which are forecasted to be overloaded are mostly 500kV transmission lines in eastern and central PJM. To resolve these overloads, there are a number of solutions, including some 765 kV line options.

For a fully developed 500 kV system, reinforcing with additional 500 kV is the better alternative. Building a 500 kV double circuit line provides all the same system benefits as 765kV but at a lower cost. A new 500kV double circuit line can be built with similar right-of-way requirements as 765kV and will provide comparable transfer capability. New long or short 500 kV transmission lines can be easily integrated with the existing 500kV substations, whereas 765kV integration would require expensive 765/500kV substations (greater than $125million) at every point.

PPL EU does not support the construction of 765kV lines for eastern PJM to resolve the long range bulk power system needs. Double Circuit 500kV construction should be the preferred alternative to the meet the eastern PJM baseline reliability requirements.

See attached comparison of 500kV double circuit versus 765kV single circuit costs and benefits for additional information supporting these comments.

C. Identification of the preferred long term projects

PJM provided a short list of potential solutions to the major overloads for years 6 through 15. We commend PJM for reviewing all viable alternatives and for fully including stakeholder participation in identifying the options to resolve the future overloads. The long term solutions will likely require joint construction by two or more transmission owners. Working together with PJM and transmission owners to identify potential options in the early stages is a key step in ultimately determining the preferred upgrades.

While the initial analysis indicates that most 500kV overloads do not require an upgrade until 2016, we believe that actual required service dates will be earlier than previously stated after PJM completes the voltage analysis discussed in paragraph A above. It is likely that the preferred long term alternatives will be a composite of selected specific line sections from one or more long term projects recently identified for further study. It is essential that PJM and the TOs continue to work closely to assure that the long term transmission projects ultimately identified in the RTEP are the optimal transmission development projects to ensure reliability and market efficiency while minimizing environmental impact. Only close cooperation between the PJM staff and the TOs can ensure this outcome.

PPL EU is committed to working with PJM and the other PJM TOs to complete the long term RTEP by the end of the year. To this end, PPL further commits to support and assist PJM in expeditiously completing the voltage and limited transient analysis of the 10 year time period. We believe that the development of the long term plan is best supported through the expansion of the 500 kV system in lieu of new 765 kV in the eastern PJM area. PPL has provided information regarding this position and we believe it is the best alternative for the eastern PJM bulk power system.

PJM and the TOs have made great progress with the development of the long term RTEP. It is important that we continue the momentum of the long term RTEP development by providing a clear scope of deliverables, allowing refinement of the list of alternatives into the preferred system upgrades. PPL has separately proposed a scope of work for a "Siting Feasibility Study." The route selection and actual right-of-way acquisition can only begin after the final upgrade(s) are determined and included in the RTEP. We urge that PJM develop a timeline and define specific deliverables to ensure the preferred long term upgrades are identified and presented for inclusion into the RTEP by end of the year.

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