## **Executive Summary**

## I. Rebuttal to Mr. David Berry

The following table compares Dr. Proctor's estimated levelized cost to Mr. Berry's estimates absent a production tax credit for wind generation.

Alternatives	Levelized Costs \$/MWh-yr		
	Proctor	Berry	Difference
Kansas Wind	\$92.26	\$41.86	\$50.40
Missouri Wind	\$98.73	\$56.94	\$41.79
Combined Cycle	\$85.97	\$111.18	(\$25.21)

## COMPARATIVE RESULTS FOR LEVELIZED COSTS

While Mr. Berry's analysis shows Kansas Wind to be competitive with both Missouri Wind and natural gas fired Combined Cycle generation; Dr. Proctor's analysis shows that Kansas Wind is not competitive with Combined Cycle generation absent a production tax credit for wind. Thus, the Clean Line DC Transmission (DC Transmission) project does not pass the economic viability requirement of the Missouri Public Service Commission (Missouri Commission).

In terms of need, Dr. Proctor argues that to meet Missouri's renewable energy requirement, Mr. Berry should have compared the Kansas Wind + DC Transmission with wind alternatives not located in Missouri using AC transmission service provided through the Midwest ISO. This comparison can be performed either treating Midwest ISO wind as an energy-only resource or as an energy and capacity resource with firm transmission service. In either case, Midwest ISO wind is competitive with Kansas Wind + DC Transmission. Energy-Only Resource: The following chart compares Midwest ISO wind with the addition of combustion turbine capacity to Kansas Wind + DC Transmission, where in both cases the capacity is added to make both alternatives have the same Unforced Capacity (UCAP) as a combined cycle alternative, and production tax credits and losses are not included.



Analysis of the Midwest ISO's 2013 markets for Financial Transmission Rights (FTRs) shows that over 97% of the prices paid for FTRs are less than the cost savings from Midwest ISO wind compared to Kansas Wind + DC Transmission. This means that cost savings to Ameren Missouri from Midwest ISO wind is almost certain to cover any congestion costs.

Energy and Capacity Resource: The following chart compares wind alternatives (with and without a federal production tax credit) to the Missouri statute requiring wind to be no more than \$5/MWh above the cost of non-renewable resource alternatives. This chart shows that wind located in the Midwest ISO footprint at a lower capacity factor (45% in chart) than Kansas Wind

(50% in chart) can meet the Missouri renewable energy requirements without the production tax credit and are more cost-effective than Kansas Wind + DC Transmission.



This same result holds for Midwest ISO wind with capacity factors as low as 41%. Therefore, neither the uncertain future production tax credit nor the DC Transmission project is needed to meet the Missouri renewable energy requirements.

## II. Rebuttal to Mr. Gary Moland

Dr. Proctor shows why Mr. Moland's testimony is not relevant to the economic viability for approving the DC Transmission project. It is well known that wind generation lowers the wholesale prices for electricity and decreases environmental emissions, but because of the high investment costs associated with the DC transmission line, that fact does not make wind generation a viable economic alternative.

Had Mr. Moland performed a similar study with wind energy from the Midwest ISO region, he would have made similar findings. Thus, Mr. Moland's testimony does not address the need for the Kansas Wind + DC Transmission.