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EXHIBIT NO. _____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to §4928.143, Ohio Rev. Code, In the form of an Electric Security Plan.	))))))	Case No. 11-346-EL-SSO Case No. 11-348-EL-SSO
In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company for Approval of Certain Accounting Authority.	))))	Case No. 11-349-EL-AAM Case No. 11-350-EL-AAM

DIRECT TESTIMONY OF
DR. ANIL MAKHIJA
ON BEHALF OF
COLUMBUS SOUTHERN POWER COMPANY AND
OHIO POWER COMPANY

Filed: July 6, 2011

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO
DIRECT TESTIMONY OF
DR. ANIL MAKHIJA
ON BEHALF OF
COLUMBUS SOUTHERN POWER COMPANY AND
OHIO POWER COMPANY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Anil Kumar Makhija. My business address is 842 E. Fisher Hall, Fisher College of Business, The Ohio State University, Columbus, Ohio 43210.

Q. PLEASE INDICATE BY WHOM YOU ARE EMPLOYED AND IN WHAT CAPACITY

A. I am a Professor of Finance. I am a tenured full Professor, and I hold the Dean's Distinguished Professorship at the Fisher College of Business, The Ohio State University. Previously, I have served as the Chairman of the Finance Department at the Fisher College of Business, and as an Associate Dean for the Fisher College. I have a Bachelors Degree (B.Tech.) in Chemical Engineering from the Indian Institute of Technology, New Delhi, a Masters of Business Administration (MBA) with a Management Science major from Tulane University in New Orleans, and a Doctorate (PhD) in Finance from the University of Wisconsin – Madison.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THIS COMMISSION

A. Yes. I testified on behalf of Columbus Southern Power Company and Ohio Power Company (collectively, "AEP Ohio" or "the Company") in Case Nos. 08-917-EL-SSO and 08-918-EL-SSO, both in the initial hearing phase and on remand from the Ohio Supreme Court, and in Case No. 10-1261-EL-UNC.

Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL DIRECT TESTIMONY?

A. The purpose of my testimony, consistent with the purpose of the testimony that I provided in the remand phase of Case Nos. 08-917-EL-SSO and 08-918-EL-SSO, is to provide support for the propositions that the obligations of the Company to be the provider of last resort (POLR) to customers imposes substantial risks on the Company, and those risks in turn create real and significant costs for the Company. My testimony further supports the proposition that, unless those costs are compensated, the POLR liability causes a corresponding reduction to the Company's equity.

Q. WHY DOES SERVING AS A PROVIDER OF LAST RESORT CONSTITUTE A COST TO A UTILITY?

A. Let us compare two Utilities, A and B, such that A carries a POLR obligation while B does not. In particular, let us define this POLR obligation, as in Ohio, as giving customers the options (1) to shop and depart from Utility A and its regulated SSO to a CRES provider, and (2) to subsequently return to Utility A for service. Clearly, these options are valuable to customers of Utility A. After all, it is reasonable to assume that customers are likely to depart from Utility A's SSO and gain by it when market prices are less than the regulated SSO price. It is also reasonable to assume that customers will return to Utility A (and its regulated SSO) and gain by it when Utility A's SSO price is below the market price. In other words, Utility A has provided its customers potential benefits that Utility B has not given to its customers. These very benefits to customers of Utility A constitute a potential liability to Utility A, a liability that does not exist for Utility B. The liability is certain and created the moment the POLR obligation is adopted, and the potential refers to the volatility in prices that may create the incentives to migrate away from the SSO and subsequently return to it. Simply put, benefits of the optionality provided to its customers come at a cost to Utility A.

Q. HOW CAN WE ASSESS THE COSTS TO A UTILITY FROM SERVING AS THE PROVIDER OF LAST RESORT?

A. Since the benefits of a POLR obligation to the customers of a utility represent costs that the utility bears, the value of the options given to the customers equals the POLR costs to the utility. In other words, the benefits provided to the customers cannot appear out of thin air. Someone has to provide these benefits, and for that party it constitutes a cost. The cost to the utility that provides the POLR optionality is no more or less than the value of the options received by the customers. Indeed, this is the approach taken by Company witness Thomas, who estimates the value of the optionality given to customers to determine the cost imposed on the Companies from their POLR obligation.

Q. BUT, WHAT IF THE UTILITY DID NOT INCUR ANY OUT-OF-POCKET COSTS TO SUPPORT ITS POLR OBLIGATION? DOES THAT MEAN THAT ITS POLR OBLIGATION HAS NO COST?

A. No. The utility with the POLR obligation still bears the added liability of that obligation. In our example of Utilities A and B, if cost recovery is not provided for the POLR obligation, Utility A's shareholders will see a diminution in their equity value. Another way to see this is to note that Utilities A and B have the same assets but Utility A has a greater liability and, hence, lower equity value.

Q. YOU HAVE TESTIFIED THAT THE COST TO THE UTILITY PROVIDING THE POLR OPTIONS TO ITS CUSTOMERS IS EQUIVALENT TO THE BENEFITS (OR VALUE) OF THESE OPTIONS TO THE CUSTOMERS. IS IT

POSSIBLE THAT THE UTILITY WHICH IS PROVIDING THE BENEFITS (VALUE) OF POLR OPTIONALITY DOES SO WITHOUT INCURRING EQUIVALENT COSTS?

A. No. While some might argue that the POLR obligation does not constitute an equivalent cost to the Company, that view would contradict a fundamental tenet of finance, The Law of Conservation of Value (e.g., see perhaps the most widely used textbook, *Principles of Corporate Finance*, by Richard Brealey, Stewart C. Myers, and Franklin Allen, 10th Edition, 2010, McGraw-Hill). The sum of the claims (liabilities and equity) must equal the value of the assets of the firm. If the liabilities are increased (through the provision of POLR benefits to customers, for example), then the equity value must decline by the same amount (cost to the firm), unless there is some other mechanism for the recovery of the costs of the POLR obligations.

Q. BUT, WHAT IF IN PRACTICE THE UTILITY'S CUSTOMERS DO NOT EXHIBIT SIGNIFICANT RATES OF SWITCHING AWAY FROM, OR RETURNING TO, THE UTILITY? CAN WE AUTOMATICALLY ASSUME, IN THAT CIRCUMSTANCE, THAT THE VALUE OF THE OPTIONS AND CORRESPONDING COSTS TO THE UTILITY ARE NEGLIGIBLE?

A. No. The value of an option depends on the potential for future outcomes. Standard option pricing models, such as the Black model, derive values taking this potential into account. For example, inputs in these models include variability in the market prices and the time to expiration. If the market price is highly variable, there is a greater likelihood that market prices will fall below the SSO price and trigger more migration of customers to CRES providers. The option pricing models automatically address this. In other words, the potential for future shopping is what is important to valuing the cost to the utility of providing the optionality, and this is not the same as the past shopping behavior.

Q. HOW DO YOU THINK THE POLR OBLIGATION HAS AFFECTED AEP OHIO?

A. AEP Ohio clearly absorbed an added liability as we have explained above. If it could have made a cash outlay to third parties at an out-of-pocket observable cost and bought hedges, the provider of the hedge would similarly value the optionality provided to customers. But that would not have reduced or in any other way altered the liability itself. It would simply have transferred the liability to the third party. The provider of the hedge would assume equivalent risk and would require compensation for it. Instead, AEP Ohio retained the liability for future costs arising out of customers exercising their options.

Q. YOU HAVE ALSO EXPLAINED THAT THERE IS A DIMINUTION OF UTILITY A'S EQUITY VALUE UNLESS THAT UTILITY IS PROVIDED A RECOVERY FOR ITS POLR OBLIGATION. HOW DOES THIS HAPPEN?

A. The earnings of Utility A will have greater variability because its customers are likely to depart when the market price falls below its SSO price, and to return when the market price goes above the SSO price. This makes Utility A riskier and its equity requires a higher rate of return compared to Utility B as a result. That is, shareholders for Utility A have a higher risk premium (and, hence, a higher cost of equity capital) as a result of the optionality it is required to provide to its customers. Cash flows for Utility A should be discounted at the higher cost of capital, which amounts to a diminution of shareholders equity for Utility A.

Q. ISN'T THE COMPANY'S POLR MIGRATION RISK JUST THE RISK OF DOING BUSINESS, AN ARTIFACT OF COMPETITION BETWEEN THE COMPANY AND CRES PROVIDERS?

A. No. It is not simply the risk of customers leaving for cheaper sources. In the presence of a POLR obligation, the Company's customers have the unique opportunity to leave and to return *at the regulated SSO price*. We know that customers recognize the value of being able to return at the regulated SSO price. As Company witness Thomas testifies, customers overwhelmingly choose to pay the POLR charges when they move to a CRES provider. The migration risk that results from the POLR obligation (which actually imposes both the risk that customers will migrate away from the Company's regulated SSO and the risk that they will return to it when that becomes advantageous to them) is above and beyond the risks that the utility otherwise faces. As explained above, the POLR provision creates benefits for customers when favorable price differentials emerge, thereby encouraging shopping (and competition) and consequent additional risks for the Company. Thus, from the Company's' perspective, the POLR obligation creates additional risks (of migration away from and return to the Company's regulated SSO) that are significant and costly.

Q. SUPPOSE CONDITIONS TURN OUT TO BE FAVORABLE FOR CUSTOMERS TO MIGRATE AWAY FROM THE COMPANY BECAUSE MARKET PRICE IS BELOW SSO PRICE. DOES THAT MEAN THAT CUSTOMERS WILL NECESSARILY MIGRATE? SPECIFICALLY, WHAT DO YOU THINK OF REASONS THAT MIGRATION MIGHT NOT OCCUR, SUCH AS CUSTOMER CONFUSION OR CUSTOMER INERTIA.

A. To understand the nature of migration and return risks, it is useful to distinguish between ex ante (expected) and ex post (realized) risks. When the market price falls below the SSO price, the rational economic incentive to migrate is present ex ante. Thus, the likelihood of market prices falling below their respective SSO prices creates liabilities for the Company. It must stand prepared to absorb losses from migration by rational customers, instead of counting on the whims of non-rational customers to not pursue self-interest (lethargy, unwillingness to learn, etc.). In fact, if customers were to display such behaviors, rational actors (e.g., CRES providers) would step in to encourage ex post migration. That is, we should give greater credit to customers and formulate policy that respects their abilities to act in their self-interest.

Q. BUT, WHAT ABOUT RATIONAL NON-PRICE CONSIDERATIONS, SUCH AS CUSTOMER LOYALTY, THAT MAY PREVENT CUSTOMERS FROM MIGRATING IN THE FACE OF MARKET PRICES BELOW THE SSO PRICE? DOES THAT NOT MITIGATE MIGRATION RISK?

A. First of all, price differentials (between market and SSO) ex ante still create a liability. The question is how is this liability mitigated by rational considerations such as customer loyalty, for example.

Given that electricity is largely a commodity, such non-price considerations have limited practical influence in the face of price differentials. Even so, it does not mean that investors should have migrated and returned, en masse, for every favorable price differential. They may, for example, consider some differentials temporary. Nor, does it mean that we can rule out that they will not migrate and return en masse in the future, thus leaving the Company with POLR liability.

In short, none of the considerations, discussed above, diminish the risk or reduce the cost that the POLR obligation imposes on the Company.

Q. HOW DO YOU RESPOND TO ARGUMENTS THAT, FOR CUSTOMERS WHO HAVE NO INTENTION TO SWITCH ELECTRIC SUPPLIERS, THE VALUE OF THE POLR OPTION IS NEGLIGIBLE?

A. The nature of the POLR provision is that it is an option, which means that the customer has the right but not the obligation to act. Thus, it is important not to make the presumption that customers cannot change their minds. In other words, the Company cannot assume away the risks. Of course, if it can be demonstrated that the customers will never ever act on their POLR options, which is like saying that the POLR provision is not in place, then there would be no corresponding liability (cost) to the Company.

The Black Model offers us an estimate of the cost to the utility of providing the optionality, based on the value of that optionality to customers, as would be estimated in the market place. Accordingly, it represents an estimate of the market cost to the Companies. Unlike a traditional calculus of consumer and producer surplus, we do not have individual consumers and producers voluntarily contracting till a last (marginal) transaction, and the rest not participating. Instead, by regulation, nearly all customers are covered.

Q. HOW DO YOU RESPOND TO ARGUMENTS THAT NEITHER YOU NOR AEP OHIO HAVE QUANTIFIED OR DEMONSTRATED A DEFINITE AND SIGNIFICANT ACTUAL COST TO AEP OHIO FOR PROVIDING POLR SERVICE?

A. Though I have not been involved in implementing it myself, I understand that Company witness Thomas has applied the Black model to estimate the cost to the Company from its POLR obligations. Her application provides empirical evidence of the value of the POLR provision to customers, and in turn the POLR liabilities to the Company. Such arguments to the contrary appear to be looking for evidence of out-of-pocket costs that match the value of POLR optionality to customers, but that is not an appropriate comparison. The mismatch arises from not recognizing that the out-of-pocket costs are ex post expenditures, and that they do not necessarily equate to the ex ante liability created by the POLR optionality given to customers. Furthermore, the added liability from POLR, if not compensated through some recovery mechanism, would clearly constitute a diminution of the Company's equity value.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing Columbus Southern Power Company's and Ohio Power Company's Supplemental Direct Testimony of Dr. Anil Makhija has been served upon the below-named counsel via First Class mail, postage prepaid, this 6th day of July, 2011.

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