**BEFORE THE**
**PUBLIC SERVICE COMMISSION OF WISCONSIN**

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| Application of Wisconsin Power and Light Company for Authority to Adjust Rates in Accordance with its 2012 Fuel Cost Plan | ) ) ) | Docket No. 6680-FR-104 |

# DIRECT TESTIMONY OF JONATHAN WALLACH ON BEHALF OF THE CITIZENS UTILITY BOARD OF WISCONSIN

October 31, 2011

## I. Introduction and Summary

**Q: Please state your name, occupation, and business address.**

A: My name is Jonathan F. Wallach. I am Vice President of Resource Insight, Inc., 5 Water Street, Arlington, Massachusetts.

**Q: Please summarize your professional experience.**

A: I have worked as a consultant to the electric-power industry since 1981. From 1981 to 1986, I was a research associate at Energy Systems Research Group. In 1987 and 1988, I was an independent consultant. From 1989 to 1990, I was a senior analyst at Komanoff Energy Associates. I have been in my current position at Resource Insight since September of 1990.

Over the past thirty years, I have advised clients on a wide range of economic, planning, and policy issues including: electric-utility restructuring; wholesale-power market design and operations; transmission pricing and policy; market valuation of generating assets and purchase contracts; power-procurement strategies; risk assessment and management; integrated resource planning; cost allocation and rate design; and energy-efficiency program design and planning.

My resume is attached as CUB-Exhibit-Wallach-1

**Q: Have you testified previously in utility regulatory proceedings?**

A: Yes. I have sponsored expert testimony in more than 45 federal, provincial, or state proceedings in the U.S. and Canada. CUB-Exhibit-Wallach-1 includes a detailed list of my previous testimony.

**Q: On whose behalf are you testifying?**

A: I am testifying on behalf of the Citizens Utility Board (CUB).

**Q: What is the purpose of your testimony?**

A: On May 18, 2011, Wisconsin Power and Light Company (WPL or "the Company") filed an application with the Public Service Commission of Wisconsin (Commission) to increase electric rates effective January 1, 2012 by 1.34% in order to recover an expected increase in fuel costs of about $13.5 million. On August 17, 2011, the Company revised its filing to account for the Environmental Protection Agency's (EPA) release of the final Cross-State Air Pollution Rule (CSAPR). In its supplemental filing, the Company requests a rate increase of 2.0% in order to recover an expected increase in fuel costs of about $20.1 million.[1]

This testimony addresses two aspects of the Company's filing: (1) the proposed increase in monitored fuel costs associated with compliance with CSAPR requirements in 2012; and (2) the proposal to allocate the requested increase in fuel costs to rate classes based on each class's contribution to total

[1] The expected increase is relative to monitored fuel cost levels approved in the Docket No. 6680-UR-117 reopener.

retail energy sales. The impact of CSAPR on the Company's fuel cost is discussed in the pre-filed direct and supplemental testimony by Company witnesses Eric J. Guelker, Neil E. Michek, and Scott A. Blankman. The Company's proposal for allocating the requested increase is described in testimony by Company witness Brian E. Penington.

**Q: Please summarize your findings and conclusions with regard to CSAPR compliance costs.**

A: Absent implementation of compliance measures, the Company anticipates that $SO_2$ emissions from its generating plants will exceed CSAPR limits in 2012. However, because of uncertainties regarding compliance requirements and costs, the Company has not yet formulated a comprehensive strategy for meeting 2012 CSAPR requirements. Instead, WPL proposes to partially comply by switching to low-sulfur coal at its Nelson Dewey generating units. In lieu of a definitive plan for eliminating the remaining excess emissions, the Company assumes purchases of $SO_2$ allowances to cover the remaining excess for the purposes of forecasting monitored fuel costs. The Company asserts that the market price for $SO_2$ allowances is a reasonable proxy for the compliance measures that the Company will eventually employ in 2012.

The Company has not demonstrated that the compliance costs included in monitored fuel costs reflect a least-cost strategy for complying with 2012 CSAPR requirements. To the contrary, alternative fuel runs conducted at Commission staff's request indicate that [redacted] covering the remaining excess with allowance purchases. Moreover, WPL may be able to further reduce compliance costs through a coordinated compliance strategy with other Wisconsin utilities.

**Q: What do you recommend with regard to the proposed increase for CSAPR compliance costs?**

A: The Commission should reject the Company's proposed increase to monitored fuel costs for 2012.

Given uncertainties associated with CSAPR requirements and compliance costs for 2012, there are two reasonable options for the treatment of monitored fuel costs. First, the Commission could find that deferral of CSAPR-related costs is appropriate. I understand that such a deferral has been proposed by Madison Gas and Electric Company in its rate case reopener for the 2012 test year, and has been discussed in Wisconsin Public Service Corporation's rate case reopener for the 2012 test year.

Alternatively, if the Commission chooses to allow recovery of CSAPR compliance costs in 2012 monitored fuel costs for WPL, I recommend that certain assumptions in the calculation of fuel costs be modified. In particular, the Company should update its assumptions for the cost of allowance purchases and for plant dispatch costs to reflect current market prices for $SO_2$ and NOx allowances. In addition, the Company should update its forecast of Midwest Independent Transmission System Operator (MISO) prices with current market prices.

Whether the Commission chooses to defer or allow recovery of CSAPR compliance costs, I also recommend that the Commission suspend the 2% bandwidth on monitored fuel costs for 2012. Given the variety of compliance strategies that the Company may actually employ in 2012, and given the wide range of fuel costs associated with such strategies, it would not be reasonable for the Company to either retain 2% of any savings from monitored fuel costs or to bear 2% of any losses. Nonetheless, the Company will continue to bear the burden of demonstrating that all such CSAPR compliance costs have been prudently incurred.

Finally, WPL should be directed to provide to the Commission on a regular basis comprehensive reports detailing the Company's progress in devising and implementing a least-cost CSAPR compliance strategy for 2012 and beyond. At a minimum, these filings should report: (1) the status of CSAPR implementation for 2012; (2) the results of ongoing economic evaluations of compliance options and plans; (3) the status and outcome of statewide coordination efforts; and (4) actual CSAPR costs incurred to-date and forecasted spending for the remainder of 2012 for compliance purposes.

**Q: What do you conclude with regard to the Company's proposal for allocating the requested fuel-cost increase?**

A: The Company's proposal to allocate any approved fuel cost increase on energy is reasonable and should be adopted.

## II. CSAPR Compliance Costs

**Q: How does the Company plan to comply with the CSAPR requirements for 2012?**

A: According to Mr. Guelker, WPL currently anticipates that $SO_2$ emissions from its generating plants will exceed CSAPR limits by about 15,800 tons, but that NOx emissions will fall below CSAPR limits. The Company intends to eliminate 8,000 tons of excess $SO_2$ emissions by burning low-sulfur coal rather than petroleum coke at the Nelson Dewey generating units. For the purposes of forecasting monitored fuel costs for 2012, the Company assumes that it will cover the remaining 7,800 tons of excess $SO_2$ emissions with purchases of $SO_2$ allowances at a market price of $3,000/ton.[2]

**Q: What does the Company forecast for the cost of complying with CSAPR in 2012?**

A: The Company has not provided an explicit estimate of the cost to fuel-switch at Nelson Dewey. However, according to Mr. Guelker, "WPL estimates the cost of reducing emissions as a result of this fuel switch is less than [redacted] per ton of $SO_2$ reduced."[3] At a cost of [redacted]/ton of $SO_2$ reduction, the cost to eliminate 8,000 tons through fuel-switching would be about [redacted].

According to Mr. Michek, the Company estimates a cost of approximately $23.5 million for the purchase of allowances to cover the remaining 7,800 tons of excess $SO_2$ emissions.

**Q: How did the Company forecast plant emissions for 2012?**

A: According to Mr. Michek, the Company forecasts emissions by plant and by month using the Company's Enterprise Planning and Risk (EP&R) economic dispatch model. The Company uses the EP&R model to simulate hourly generation from each of its generating plants based on economic merit-order dispatch against a forecast of hourly locational marginal prices (LMP).[4] The

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[2] As discussed below, WPL is not sure which compliance measures it will use in 2012, other than fuel-switching at Nelson Dewey. Instead, the Company simulates compliance through allowance purchases, reasoning that the cost of allowance purchases is a reasonable proxy for other compliance options.

[3] *Pre-Filed Direct Testimony of Eric J. Guelker*, PSCW Docket No. 6680-FR-104, May 18, 2011, p. D1.18c (PSC REF #: 148251).

[4] Under merit-order dispatch, and ignoring operating constraints such as minimum run times, generating plants are dispatched in each hour in order of increasing marginal cost until either sufficient generation has been dispatched to serve hourly load or the marginal cost for the next unit to be dispatched exceeds LMP for that hour. In the latter case, the EP&R model will serve remaining load with purchases priced at the hourly LMP.

EP&R model then determines hourly plant emissions based on forecasted hourly generation and input assumptions regarding plant emission rates.

Plant emissions in excess of CSAPR limits are derived by netting allocated allowances against total plant emissions as simulated with the EP&R model.

**Q: How does the Company forecast locational marginal prices?**

A: According to Mr. Blankman, LMP represents the market price for purchases from MISO to serve the Company's load. The Company estimates LMP based on forward market prices at the Cinergy Hub, as adjusted for the cost of congestion and losses between the Cinergy Hub and the Company's load zone.

**Q: Do allowance costs affect the dispatch of generating plants in the EP&R model?**

A: Yes. The Company includes a market price for allowances as part of a plant's variable operating cost for dispatch purposes. This is appropriate, since the dispatch of a generating plant will increase plant emissions and thus allowance purchases.[5] All else equal, increasing the dispatch price by the allowance market price will reduce plant output and thus plant emissions.

[5] Even if the additional emissions do not exceed emission limits and thus do not require additional allowance purchases, they reduce the amount of unused allocated allowances. Such unused allowances have an opportunity value, in that they can be banked for future use or sold into the market.

**Q: Did WPL assume the same $SO_2$ allowance market price for dispatch purposes as it used to estimate the cost to comply with CSAPR?**

A: No. For dispatch purposes, the Company assumed an allowance price for $SO_2$ of $8/ton, based on prevailing market prices under the Clean Air Interstate Rule and the Acid Rain Program.

The Company used this "pre-CSAPR" market price for dispatch purposes in order to ensure that "dispatch costs would include the same impacts and assumptions that WPL believes were included in the then current electric market prices."[6] The Company apparently believes that the market was not pricing expected cost impacts from CSAPR compliance in the forward market prices prevailing at the time it forecast LMPs based on those forward prices.[7] If so, using expected CSAPR allowance prices in dispatch costs would have artificially raised dispatch prices for the Company's coal plants relative to LMP, and would have likely forecasted significantly less generation from those plants than would be expected for 2012 when actual LMPs reflected CSAPR impacts.

**Q: Is there any indication that current forward prices reflect CSAPR impacts?**

A: Yes. In response to MAR-25, the Company re-ran the EP&R model using 2012 Cinergy Hub forward prices as of September 15, 2011. The September 15 off-peak prices for 2012 were [redacted]% higher than the 2012 off-peak forward prices as of March 31, 2011 that were used in the original EP&R runs.[8] In contrast, on-peak forward prices for 2012 increased by only [redacted]% between the March 31 and

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[6] Company response to MAR-12.1 (PSC REF #: 152183).

[7] See the Company's response to 4-CUB/INT-2a.

[8] The September 15 forward prices were provided in the Company's response to MAR-25.8 (PSC REF #: 154792 and 154787). The March 31 forward prices were provided in the Company's response to MAR-1.28 (PSC REF #: 148271).

September 15 trading dates. This is the type of price trend – [redacted] – one would expect as the market priced CSAPR impacts into forward pricing.[9]

**Q: Should WPL revise its dispatch-cost assumptions to reflect expected CSAPR allowance prices?**

A: The Company should increase dispatch prices to reflect CSAPR allowance prices in any fuel run that relies on prevailing forward market prices to forecast LMPs, since current forward prices appear to reflect market expectations regarding CSAPR impacts.

**Q: Is the Company's forecast of CSAPR compliance costs for 2012 reasonably reliable?**

A: At this time, there is simply too much uncertainty regarding the implementation of, and the costs to comply with, the 2012 CSAPR requirements to reliably forecast the Company's compliance costs for 2012. Specifically, it is uncertain at this time as to whether CSAPR will be in force in 2012, what compliance requirements will apply to WPL in 2012, or which compliance strategy WPL will actually employ in 2012 and at what cost. With this much uncertainty, the Company's forecast of the cost to comply with CSAPR should be considered to be speculative.

**Q: Why is there uncertainty at this time as to whether CSAPR will apply in 2012?**

A: My understanding is that several states have sued the EPA in federal court in order to block implementation of CSAPR in 2012. In addition, a number of

[9] I would expect CSAPR-related increases in coal operating costs to have a larger impact on market prices during off-peak hours, since coal generation is more likely to be the marginal resource and to set market price during off-peak hours rather than on-peak hours.

utilities (including WPL) have petitioned the EPA to reconsider the 2012 requirements. Finally, there has been pressure on the EPA from Congress to delay implementation, including hearings regarding CSAPR and adoption of an amendment to a House bill that would delay implementation until, at the earliest, 2013.

**Q: Why is there uncertainty at this time regarding the Company's CSAPR requirements for 2012?**

A: Even if implementation is not delayed, ongoing challenges from the states and Congress might lead to changes in compliance requirements for 2012. In fact, on October 6, 2011, the EPA proposed changes to CSAPR that would increase the 2012 NOx allowance budgets for a number of states (including Wisconsin) and suspend certain penalty provisions for non-compliance in 2012.

As noted above, the Company filed a petition for reconsideration with the EPA on October 6, 2011 that disputes the reasonableness of the allowance allocation to Wisconsin and identifies errors in the simulation modeling used to set the Wisconsin budgets. Favorable action on this and other petitions would likely lead to additional changes in 2012 compliance requirements.

**Q: Barring any changes to 2012 compliance requirements, is there still uncertainty as to the viability or cost-effectiveness of the Company's strategy for complying with the 2012 requirements?**

A: According to Mr. Guelker, there is considerable uncertainty, since other than to fuel-switch at Nelson Dewey:

> WPL does not know which combination of compliance alternatives it will use, and in what proportion it will use them, to comply. As a result, it is especially difficult to forecast with certainty how these alternatives will impact WPL generating unit operations including changes to the cost of operations.[10]

In other words, the Company does not currently have a definitive plan for complying with the 2012 requirements (other than to fuel-switch at Nelson Dewey) and therefore is unable to forecast with any certainty the cost of complying with those requirements. Instead, the Company simulates compliance using allowance purchases at a cost of $3,000/ton as a proxy for whatever plan the Company eventually adopts.

**Q: Why does WPL believe that the market price for allowances is a reasonable proxy for the cost of compliance?**

A: The Company argues that the market price for allowances should equate to the marginal cost of compliance alternatives for all market participants. Furthermore, the Company asserts that its compliance costs are likely to be comparable to those for other market participants and, consequently, "it is reasonable to expect that the cost of purchasing an $SO_2$ emission allowance will, on average and over time, generally equate to the cost of WPL reducing its $SO_2$ emissions directly."[11]

**Q: Is this argument valid?**

A: The premise is reasonable, but the conclusion is not. It is reasonable to assume that allowance market prices would reflect market participants' marginal cost of compliance, i.e., the cost of the most-expensive compliance measure, at least in a liquid and transparent market. It is also true, by definition, that the Company's

[10] *Pre-Filed Supplemental Direct Testimony of Eric J. Guelker*, PSCW Docket No. 6680-FR-104, August 17, 2011, p. D1.66 (PSC REF #: 151940).

[11] *Id.*, p. D1.67.

marginal cost of compliance would be equal to the allowance market price, since the Company generally would not undertake a compliance measure that is more expensive than allowance purchases. However, it is not valid to conclude from these assumptions that the allowance market price is a reasonable proxy for the Company's compliance cost, since that would imply unrealistically that the Company's *marginal* cost of compliance is equal to its *average* cost of compliance. In other words, the Company's conclusion would imply that none of the compliance measures it might employ are less expensive than the marginal measure of allowance purchases.

This is clearly not the case for WPL. According to Mr. Guelker, the Company proposes to fuel-switch at the Nelson Dewey units because the cost per ton of $SO_2$ reduction is substantially less than the assumed market price for $SO_2$ allowances:

> WPL estimates the cost of reducing emissions as a result of this fuel switch is less than [redacted] per ton of $SO_2$ reduced. This is considerably less than the assumed CATR SO2 allowance price of [redacted] per ton. Fuel switching at the Nelson Dewey generating units, in lieu of purchasing additional CATR $SO_2$ allowances, will result in reduced compliance costs, by approximately $16 million.[12]

In addition, information provided by WPL in response to MAR 1-25 indicates that the Company has compliance options in addition to fuel-switching at Nelson Dewey that are less expensive than allowance purchases. Specifically, a comparison of the fuel runs for MAR-25.11 and MAR-25.12 shows that the Company could comply with 2012 CSAPR requirements with a combination of fuel-switching at Nelson Dewey and additional compliance measures ([redacted]

[12] Guelker Direct, p. D1.18c.

[redacted]) [redacted] with a combination of Nelson Dewey fuel-switching and allowance purchases at market price. This result indicates that the average cost of the Company's compliance measures other than fuel-switching at Nelson Dewey [redacted] the Company's estimate of the market price for $SO_2$ allowances.[13]

**Q: Should the Company set 2012 fuel costs based on the results of the fuel run for MAR-25.12?**

A: No. Market prices for $SO_2$ allowances have dropped sharply over the last few months and have been trading at less than one-third the market price used in the Company's fuel runs.[14] As a result, none of the compliance measures assumed for MAR-25.12, except perhaps for the Nelson Dewey fuel-switch, may be cost-effective compared to allowance purchases.

More critically, the Company has not shown that the compliance measures incorporated in the MAR-25.12 fuel run represent the least-cost compliance strategy, either for 2012 or over the long run. According to Mr. Guelker and materials provided in response to CUB's discovery requests, the Company is evaluating a wide range of compliance options for 2012 and beyond and has discussed the feasibility of some of these measures with MISO staff. However, there is no indication from this material that the compliance measures assumed

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[13] Even though the average cost of these measures [redacted] the allowance market price, some of these measures individually may be [redacted] allowance purchases at market price. If so, the Company might be able to further reduce costs with a combination of Nelson Dewey fuel-switching, additional compliance measures, and allowance purchases.

[14] Prices in the Intercontinental Exchange (ICE) over-the-counter market settled at $835/ton for 2012 $SO_2$ allowances and $1,800/ton for NOx allowances on October 21, 2011. BGC Environmental Brokerage Services has also recently reported bid-ask spreads consistent with ICE settlement prices.

for the purposes of MAR-25.12 represent the least-cost mix of the options that the Company is considering for 2012.[15]

Moreover, as far as I am aware, the Company has not considered whether compliance costs could be lowered through a coordinated compliance strategy with other Wisconsin utilities. Coordination may present opportunities for economic gains from trade between utilities, for example with over-compliance by one utility funded through the sale to another utility of allowances freed up by over-compliance.

**Q: How might such a statewide effort be implemented?**

A: Such an investigation could be conducted under Commission auspices and by an independent consultant retained by the Commission.

**Q: What do you recommend with regard to the treatment of fuel costs for 2012?**

A: In general, monitored fuel costs should reflect compliance costs based on a comprehensive, least-cost strategy for meeting 2012 CSAPR requirements. However, given uncertainties associated with CSAPR requirements and compliance costs for 2012, there are two reasonable options for the treatment of monitored fuel costs. One option would be for the Commission to find that deferral of CSAPR-related costs is appropriate. Alternatively, if the Commission chooses to allow recovery of CSAPR compliance costs in 2012 monitored fuel costs for WPL, I recommend that certain assumptions in the calculation of fuel costs be modified. In particular, I recommend that WPL: (1) calculate the cost of allowance purchases based on the current market price for $SO_2$ allowances; (2)

[15] In addition, the Company's response to 3-CUB/RFP-8 (PSC REF #: 154291) indicates that certain compliance measures may 
If so, such impacts should be reflected in economic evaluations of compliance strategies.

include the current market prices for $SO_2$ and NOx allowances in plant dispatch costs; and (3) update its LMP forecast to incorporate current forward market prices at the Cinergy Hub.

Whether the Commission chooses to defer or allow recovery of 2012 CSAPR compliance costs, I also recommend that the Commission suspend the 2% bandwidth on monitored fuel costs for 2012. As discussed above, the MAR-25 fuel runs show that there is considerable uncertainty in the costs of compliance and thus in monitored fuel costs. Given the variety of compliance strategies that the Company may actually employ, and given the wide range of fuel costs associated with such strategies, it would not be reasonable for the Company to either retain 2% of any savings from monitored fuel costs or to bear 2% of any losses.

Finally, WPL should be directed to provide to the Commission on a regular basis comprehensive reports regarding all aspects of the Company's compliance planning, including: (1) the status of CSAPR implementation for 2012; (2) the results of ongoing economic evaluations of compliance options (including the Nelson Dewey fuel-switch) and plans; (3) the status and outcome of statewide coordination efforts; and (4) actual CSAPR costs incurred to-date and forecasted spending for the remainder of 2012 for compliance purposes.

## III. Class Allocation of Requested Fuel-Cost Increase

**Q: How does WPL propose to allocate the requested fuel-cost increase to customer classes?**

A: According to Mr. Penington, the Company proposes to allocate the requested increase on the basis of each class's contribution to retail energy sales.[16]

**Q: Is the Company's proposal reasonable?**

A: Yes. All three cost factors that contribute to the requested increase – emissions allowances, fuel, and chemicals –vary with energy production. It is therefore reasonable and appropriate to allocate the requested increase on energy.

**Q: Does this complete your direct testimony?**

A: Yes.

[16] See Exhibit 1.04 (BEP), Schedule 1, p. 2 (PSC REF #: 148248).