

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF WISCONSIN**

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Application of Wisconsin Power and Light Company  
for Approval to Extend 2020 Electric and Natural  
Gas Rates Into 2021 and for Approval of Its 2021  
Fuel Cost Plan

Docket No. 6680-UR-122

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DIRECT TESTIMONY OF DEVI GLICK ON BEHALF OF SIERRA CLUB

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1 **1. INTRODUCTION AND PURPOSE OF TESTIMONY**

2 **Q Please state your name and occupation.**

3 **A** My name is Devi Glick. I am a Senior Associate at Synapse Energy Economics,  
4 Inc. My business address is 485 Massachusetts Avenue, Suite 3, Cambridge,  
5 Massachusetts 02139.

6 **Q Please describe Synapse Energy Economics.**

7 **A** Synapse is a research and consulting firm specializing in energy and  
8 environmental issues, including electric generation, transmission and distribution  
9 system reliability, ratemaking and rate design, electric industry restructuring and  
10 market power, electricity market prices, stranded costs, efficiency, renewable  
11 energy, environmental quality, and nuclear power.

12 Synapse's clients include state consumer advocates, public utilities commission  
13 staff, attorneys general, environmental organizations, federal government  
14 agencies, and utilities.

1 **Q Please summarize your work experience and educational background.**

2 **A** At Synapse, I conduct economic analysis and write testimony and publications  
3 that focus on a variety of issues related to electric utilities. These issues include  
4 power plant economics, utility resource planning practices, valuation of  
5 distributed energy resources, and utility handling of coal combustion residuals  
6 waste. I have submitted expert testimony on plant economics, utility resource  
7 needs, and solar valuation before state utility regulators in Indiana, Texas,  
8 Arizona, New Mexico, Connecticut, Virginia, North Carolina, South Carolina,  
9 and Florida. In the course of my work, I develop in-house electricity system  
10 models and perform analysis using industry-standard electricity system models.

11 Before joining Synapse, I worked at Rocky Mountain Institute, focusing on a  
12 wide range of energy and electricity issues. I have a master's degree in public  
13 policy and a master's degree in environmental science from the University of  
14 Michigan, as well as a bachelor's degree in environmental studies from  
15 Middlebury College. I have more than eight years of professional experience as a  
16 consultant, researcher, and analyst. A copy of my current resume is attached as  
17 Exhibit DG-1.

18 **Q On whose behalf are you testifying in this case?**

19 **A** I am testifying on behalf of Sierra Club.

20 **Q Have you testified previously before the Public Service Commission of**  
21 **Wisconsin ("Commission")?**

22 **A** No, I have not.

1    **Q     What is the purpose of your testimony in this proceeding?**

2    **A**The purpose of my testimony is to review the Wisconsin Power and Light  
3            (“WPL” or the “Company”) Fuel Cost Plan for 2021 and to discuss the risks to  
4            ratepayers of WPL’s uneconomic unit commitment practices at its coal plants.

5    **Q     How is your testimony structured?**

6    **A**In Section 2 of my testimony, I summarize my findings and recommendations for  
7            the Commission.

8            In Section 3, I describe utility commitment practices generally, describe scenarios  
9            in which imprudent unit commitment occurs, outline the reasons why uneconomic  
10           self-commitment occurs frequently at coal plants, and summarize the  
11           consequences of this imprudent self-commitment on ratepayers.

12           In Section 4, I explain how utilities can address uneconomic self-commitment  
13           through market commitment or the implementation of price-based commitment  
14           and dispatch decision-making processes. I then summarize current actions by  
15           commissions and market monitors around the country to evaluate current utility  
16           self-commitment practices.

17           In Section 5, I demonstrate that WPL has not used price-based commitment and  
18           dispatch in practice or in developing its annual fuel cost plans and has instead  
19           historically self-committed Columbia 1 and 2 and Edgewater 5 whenever the units  
20           were available. I evaluate the recent economic performance of Columbia 1 and 2  
21           to demonstrate how this uneconomic practice has likely resulted in net losses for  
22           ratepayers relative to the market.

1 Finally, in Section 6, I outline my recommendations. I describe how the  
2 Commission should review the prudence of utility commitment projections in  
3 Fuel Cost Plans. I recommend that WPL eliminate must-run provisions in its  
4 actual dispatch of its coal-fired units and in its modeling of those units. I also  
5 recommend that WPL refresh its current fuel plan forecast to reflect its actual  
6 operational practices in light of the COVID-19 pandemic and corresponding drop  
7 in LMPs.

8 **Q What documents do you rely upon for your analysis, findings, and**  
9 **observations?**

10 **A** My testimony and analysis rely primarily on the workpapers, exhibits, and  
11 discovery responses of WPL’s witnesses associated with this proceeding. In  
12 addition, I rely to a limited extent on certain external, publicly available data from  
13 the U.S. Energy Information Administration (“EIA”), the U.S. Environmental  
14 Protection Agency (“EPA”), and the Midcontinent Independent System Operator  
15 (“MISO”).

16 **2. FINDINGS AND RECOMMENDATIONS**

17 **Q Please summarize your findings.**

18 **A** My primary findings are:

- 19 1. Uneconomic unit self-commitment results from imprudent utility decision-  
20 making processes and practices and has cost MISO ratepayers hundreds of  
21 millions of dollars over a period of just a few years.
- 22 2. Uneconomic self-commitment can be addressed through market commitment  
23 or through implementation of price-based commitment and dispatch decision-  
24 making processes and tools.

- 1 3. WPL does not utilize a price-based commitment and dispatch tool and has  
2 historically self-committed Columbia Units 1 and 2 and Edgewater 5  
3 whenever the units are available.
- 4 4. WPL's current fuel cost planning process anticipates and enables uneconomic  
5 unit commitment by WPL.

6 **Please summarize your recommendations.**

7 **A** Based on my findings, I offer the following recommendations:

- 8 1. The Commission should require that WPL model its unit commitment and  
9 dispatch for fuel cost plans consistent with the Company's actual unit  
10 commitment and dispatch policies.
- 11 2. The Commission should prohibit WPL from continuing to commit its coal-  
12 fired units [REDACTED] and require that WPL  
13 either (1) commit its coal units into MISO with an economic commitment  
14 status, or (2) demonstrate that each must-run decision is prudent based on the  
15 results of a robust price-based analysis process.
- 16 3. In the event of any deviations between WPL's unit commitment decisions and  
17 the result of WPL's price-based analysis, the Company should document the  
18 circumstances that prompted the commitment decision. WPL will need to  
19 always demonstrate that unit commitment was demonstrably prudent based on  
20 the totality of known and knowable information at the time of the decision,  
21 and that WPL continually reassessed this decision.
- 22 4. The Commission should make clear in its final order that actual utility  
23 commitment practices will be subject to a prudence review as part of the fuel  
24 cost reconciliation process and that the Commission will not allow WPL to  
25 recover net operational losses incurred at the Company's coal-fired units as a  
26 result of avoidable, uneconomic operations and planning of its coal plants.

1           5. The Commission should require WPL to refresh its fuel plan to reflect its  
2           actual operational practices at all plants and update its LMP forecast to reflect  
3           potential continuing downward pressure on LMPs from the COVID-19  
4           pandemic.

5   **3. UNECONOMIC SELF-COMMITMENT OF COAL-FIRED POWER PLANTS RESULTING**  
6   **FROM IMPRUDENT UTILITY DECISION-MAKING PROCESSES HAS COST RATEPAYERS**  
7   **IN MISO HUNDREDS OF MILLIONS OF DOLLARS.**

8   **Q     Please describe how dispatchable power plants are generally committed in**  
9           **the MISO wholesale market.**

10   **A**     Generators operating within the MISO market commit their units with one of five  
11           statuses: outage, emergency, economic, must-run, and not participating. In MISO,  
12           utilities often commit dispatchable generating units with a status of “economic.”  
13           For those units, MISO then has the responsibility for unit commitment and  
14           operational decisions. Those decisions prioritize reliability, but then are based on  
15           short-term economics to ensure customers are served by the lowest-cost  
16           resources.

17   **Q     In practice, are all power plants actually committed in this way?**

18   **A**     Not necessarily. For units with long startup and shutdown times, such as coal-  
19           fired plants, utilities often elect to maintain control of unit commitment decisions  
20           and design independent processes outside of the MISO market to determine when  
21           to commit a unit at its minimum operating level. Unlike the market operator,  
22           generation owners may choose not to incorporate costs into their decision-making  
23           process and may elect to commit units as “must-run,” regardless of economics.

24           In making the self-commitment decision, the generation owner independently  
25           decides to operate a unit regardless of MISO’s determination of economic unit

1 commitment or dispatch. This is in contrast to economic commitment, where  
2 MISO algorithms compare the variable cost of operating (and starting) a unit to  
3 the relevant variable costs of all other units available to the market to determine  
4 whether the unit will be online the next day. A plant will only operate if it is the  
5 least-cost option available to the market.

6 **Q Does WPL commit its coal-fired units as must-run?**

7 **A** Yes, WPL stated that it [REDACTED] commits Columbia 1 and 2 and Edgewater 5 in  
8 must-run status. But, the Company has also recently indicated that, [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]<sup>1</sup> I will review specific details of WPL's commitment practices in  
12 Section 5.

13 **Q What happens when a unit is committed with a must-run status?**

14 **A** A unit designated as must-run will operate with a power output no less than its  
15 minimum operating level. The market operator may then ramp the unit up from  
16 that minimum operating level, but a must-run designation ensures that the unit  
17 remains online. During that time period, the unit receives market revenue (and  
18 incurs incumbent operational costs) but does not set the market price of energy.  
19 Similarly, if the market price of energy falls below a plant's operational cost, it  
20 will not turn off and therefore the plant will incur losses that will be passed onto  
21 ratepayers.

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<sup>1</sup> Ex-PSC-Data Request Response FCP-DM-14.

1 To properly anticipate the net benefit that will likely result from the decision to  
2 commit a unit into the market with a must-run designation, and therefore ensure  
3 that a commitment decision has a net positive outcome, an operator has to create  
4 market price projections extending several days into the future. But there is no  
5 actual requirement that utilities create these projections. Operators are free to self-  
6 commit slow-ramping coal-fired units without any understanding of the net  
7 benefit that will result and pass the costs onto their ratepayers if and when their  
8 units operate at a net loss.

9 **Q What does the phrase uneconomic self-commitment mean?**

10 **A** The term uneconomic self-commitment refers to a utility's decision to commit a  
11 unit into the MISO market with a "must-run" status even when the unit is  
12 projected to lose net revenues relative to the purchase of energy from the MISO  
13 market. In other words, it costs more money on a variable basis to operate the  
14 plant than the plant earns in market revenue.

15 **Q What drives the practice of uneconomic self-commitment?**

16 **A** There are five main factors that drive uneconomic self-commitment practices with  
17 utility coal plants: (1) Coal plants have operational costs and constraints that are  
18 not always well aligned with the MISO day-ahead market structure; (2) utility  
19 unit-commitment processes are not always designed to ensure prudent decision-  
20 making; (3) long-term coal contracts lock utilities into running their coal plants;  
21 (4) utilities need their plants to appear useful in order to continue collecting  
22 undepreciated plant balances; and (5) there has historically been minimal review  
23 of unit commitment practices by commissions.



1 **Q Please explain how operational constraints at coal plants drive uneconomic**  
2 **self-commitment practices.**

3 **A** Coal-fired plants tend to be slow to ramp up and down, sometimes require cool-  
4 off periods, and have high start-up and shutdown costs relative to other generation  
5 resources. These properties need to be incorporated into unit commitment  
6 decision-making, but they are not always properly accounted for by MISO's day-  
7 ahead market structures. Many utilities claim that they are better suited to  
8 consider these costs and temporal constraints and can achieve better results than  
9 MISO if they have control of their unit commitment decisions. These utilities  
10 develop their own unit-commitment decision-making "processes" to determine  
11 when to commit a unit into the market. But these unit-commitment decision-  
12 making processes are not required to ensure prudent commitment decision-  
13 making.

14 **Q Please explain how and when utilities' self-commitment decision-making**  
15 **processes drive uneconomic commitment decisions.**

16 **A** In my experience, there are two common utility approaches or "processes" that  
17 result in subpar self-commitment decisions.

18 In the first approach, the utility performs no independent analysis, and instead  
19 commits a unit as must-run whenever the unit is available. Utilities committing at  
20 this level will reevaluate commitment practices only in response to  
21 macroeconomic or larger market trends, such as a pandemic. There is typically no  
22 record of the information the company had available at the time that it made each  
23 commitment decision, making it very challenging for a commission to evaluate  
24 the prudence of the company's commitment practices (although it is not hard to

1 evaluate the actual results of the imprudent commitment practices, which is net  
2 revenue losses).

3 In the second approach, a utility develops price-based commitment decision-  
4 making tools and processes to inform unit commitment decisions, but then  
5 undermines those processes by only selectively or systematically using the results  
6 in committing its units. MISO is provided no transparency or control over the  
7 independent processes used by generation owners to make unit commitment  
8 decisions. The utility may or may not retain a record of this information that can  
9 be used to assess the prudence of the utility's commitment decisions.

10 In either case, whether the utility fails to develop robust analysis processes and  
11 tools, or just fails to follow the results of their own analysis, the result is  
12 uneconomic commitment decisions that incur unnecessary costs, which are often  
13 quite considerable, for ratepayers.

14 There is a third option for unit commitment, however, where the utility develops  
15 price-based commitment decision-making tools and actually follows the results of  
16 those processes to develop unit commitment decisions. As we will discuss below,  
17 when following a price-based process, the utility should be able to make prudent  
18 and economic commitment decisions that better serve ratepayers.

19 **Q Please explain how long-term coal contracts drive uneconomic unit**  
20 **commitment.**

21 **A** Most utilities rely on long-term coal contracts—many with take-or pay  
22 provisions—for at least some of their coal supply. These contracts can be  
23 enormous and are not always subject to a separate prudential review by the  
24 commission. This means that a utility like WPL can lock its ratepayers into a  
25 contract on the same order of magnitude in cost as a new generation asset, without

1 any commission review. Long-term contracts can allow utilities to negotiate better  
2 terms (lower costs) than they could get from a spot-market purchase based on the  
3 utilities' commitment to purchase a large quantity of coal over multiple years.<sup>2</sup>  
4 But the utility is contractually required to accept a certain quantity of coal each  
5 month<sup>3</sup> and therefore must burn, store, or resell the coal for which it has  
6 contracted. Each of these options comes with a cost, and often burning the coal,  
7 even if it incurs a net loss, may be the least-cost option once the utility is locked  
8 into an imprudent contract. This motivates the continued use of a must-run status.

9 If the utility made particularly bad coal contracting decisions and has accumulated  
10 a large oversupply of coal, it can run out of low-cost storage and resale options. In  
11 this event, the utility can either run its plants uneconomically to use up the coal or  
12 else pay a higher cost for an alternative storage option.<sup>4</sup> A tool called a decrement  
13 can be used to reflect the cost to the utility of not burning the coal oversupply (i.e.  
14 the cost the utility would incur but for the decision to run the plant) and allow the  
15 utility to justify operating the plant over a larger number of hours than it would  
16 normally to burn off its oversupply. But either option incurs significant costs that  
17 are passed onto ratepayers, often with no review process for either the coal  
18 contracting or unit commitment decisions.

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<sup>2</sup> Long-term contracts can lock the utility and its ratepayers into reliance on coal for the duration of the contract, regardless of changes in the market. We see this with Arizona Public Service, for example, which is planning the retirement of Four Corners based on the end of a long-term coal contract, or Southwestern Public Service, which has stated that it is modeling its retirement of the Tolk Generating Station based on the time required to use up the coal it has contracted for in its long-term contracts.

<sup>3</sup> Some contracts allow the utility to defer or delay receipt of a certain quantity of coal.

<sup>4</sup> We see this currently in Indiana where Duke has implemented a coal price decrement. Testimony of John D. Swez, IURC Cause No. 38707-FAC 125.

1 **Q Please explain how undepreciated plant balances drive uneconomic unit**  
2 **commitment.**

3 **A** Most coal assets are not fully depreciated and have substantial remaining plant  
4 balances that utilities collect from customers through the rate base. The easiest  
5 way for a utility to demonstrate that a plant is used and useful, and therefore that  
6 it should be allowed to continue collecting the plant balance from ratepayers, is to  
7 operate a plant. Further, reasonable use of a plant can be used to justify continued  
8 capital investment in plants, which can be added to rate base. If a plant is retired  
9 prior to the end of its depreciable life, the utility may not be allowed to continue  
10 collecting the full plant balance from ratepayers.

11 **Q Please explain your earlier point, about the impact of limited official review**  
12 **of utility unit commitment practices.**

13 **A** As the energy market has shifted, coal has become more expensive relative to  
14 alternatives, and the need for prudential review as part of fuel dockets has  
15 increased. Historically, the implicit guarantee of compensation for all fuel burn  
16 has meant utilities have little incentive to ensure their commitment decisions are  
17 tied to market or price signals. But self-commitment has become increasingly  
18 costly as coal has become more uneconomic, thus increasing unnecessary  
19 ratepayer expenditures. A recent report found that just between 2015 and 2017,  
20 uneconomic unit commitment practices cost U.S. ratepayers \$3.8 billion.<sup>5</sup>

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<sup>5</sup> Fisher, Jeremy, Al Armendariz, Matthew Miller, Brendan Pierpont, Casey Roberts, Josh Smith & Greg Wannier. Playing With Other People's Money: How Non-Economic Coal Operations Distort Energy Markets Sierra Club (2019). Available at <https://www.sierraclub.org/sites/www.sierraclub.org/files/Other%20Peoples%20Money%20Non-Economic%20Dispatch%20Paper%20Oct%202019.pdf>.

1 Numerous state regulatory bodies have begun closing this regulatory loophole,  
2 and have decided that long-standing fuel docket procedures are the appropriate  
3 venue for evaluating these shorter-term choices by utilities for prudence. Others  
4 have opened specific dedicated dockets to consider and evaluate the issue of  
5 uneconomic unit commitment, as I will discuss in the next section. But until these  
6 loopholes are closed, uneconomic commitment will continue to cost ratepayers  
7 billions of dollars per year.

8 **4. UNECONOMIC SELF-COMMITMENT CAN BE ADDRESSED THROUGH THE**  
9 **IMPLEMENTATION OF PRICE-BASED COMMITMENT DECISION-MAKING PROCESSES**  
10 **AND COMMISSION OVERSIGHT**

11 **Q How should a utility be making unit commitment decisions?**

12 **A** A utility should be either (1) committing its unit as economic and letting the  
13 market decide when to operate the units, or (2) making unit commitment  
14 decisions based on the results of a price-based analysis, and documenting any  
15 deviations from its quantitative analysis. Specifically, a utility should be electing  
16 to self-commit a unit on a forward-looking basis only if it expects to make  
17 positive energy margins over a reasonable near-term time period (incorporating  
18 consideration of start-up and shutdown costs), and the company should keep a  
19 unit offline if it is projected to operate at a net loss.

20 **Q Can you explain specifically what information the utility should include and**  
21 **consider in a price-based analysis?**

22 **A** The utility should include the same general information that it uses to develop its  
23 MISO offers. Specifically, the utility should be comparing projected production  
24 costs, based on fuel and variable operations and maintenance costs, to potential  
25 market revenue, based on projected locational marginal prices (“LMPs”) (and

1 even ancillary revenues). This analysis should cover the near term, generally at  
2 least a week, and should also incorporate start-up and shutdown costs and timing.  
3 Although market factors change regularly, and analysis may be updated  
4 throughout the day, it is still reasonable to expect a utility to document the  
5 information it had at the time it made a unit commitment decision.

6 Unit commitment must always be demonstrably prudent based on the totality of  
7 known and knowable information at the time of the decision, and the appropriate  
8 commitment status should be reassessed on an ongoing basis.

9 **Q How can a commission evaluate prudence based on the utility's price-based**  
10 **analysis?**

11 **A** A commission can critically review the fuel and variable costs being passed onto  
12 customers and evaluate if they are prudently incurred by assessing the information  
13 the utility has available at the time that it makes each unit commitment decision.  
14 If, for example, a period of losses can be attributed to the utility's commitment of  
15 a unit with a must-runs status despite the utility's own analysis projecting that it  
16 would accumulate net losses over the following week period, the commission can  
17 decide whether those losses were avoidable and should be disallowed from being  
18 passed onto customers.

19 Additionally, if the utility documents deviations from its price-based analysis, a  
20 commission can evaluate the reasonableness of the justifications when  
21 considering disallowances. This entire process will discourage the utility from  
22 unnecessarily operating its units uneconomically without adequate explanation  
23 (that is, when it projects negative energy margins) and will save ratepayers from  
24 covering the considerable net losses that result from unnecessary uneconomic unit  
25 commitment.

1    **Q     Where is this issue being reviewed and considered around the country?**

2    **A     Numerous commissions around the country have begun to recognize the**  
3           importance of this issue, with some considering unit commitment as part of  
4           existing dockets and others initiating dockets dedicated to evaluating unit  
5           commitment practices. These include the following:

- 6           •    The Minnesota Public Utility Commission opened a docket titled  
7                *Investigation into Self-Commitment and Self-Scheduling of Large*  
8                *Baseload Generation Facilities* to review the unit commitment practices  
9                for Minnesota Power, Ottertail Power, and Xcel Energy. This docket is  
10              ongoing.<sup>6</sup>
  
- 11          •    The Indiana Commission opened a subdocket earlier this year to evaluate  
12                the prudence of Duke Energy Indiana unit commitment practices after  
13                receiving evidence of uneconomic unit commitment practices in a Fuel  
14                Adjustment Clause proceeding.<sup>7</sup>
  
- 15          •    The Michigan Public Service Commission has an Annual Power Supply  
16                Cost Recovery Plan proceeding. This is a reconciliation docket that allows  
17                for review of the prudence of the Company’s commitment practices.

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<sup>6</sup> Minnesota Public Utility Commission Docket No. E99/CI-19-704.

<sup>7</sup> Indiana Utility Regulatory Commission Cause No. 38707-FAC125.

- 1           • The Missouri Public Service Commission has a fuel prudence review  
2           docket that occurs every 18 months. In Missouri, this prudence review  
3           supplements quarterly FAC adjustment filings.<sup>8</sup>
- 4           • The Southwest Power Pool market monitor published a report in  
5           December 2019 which found that nearly half of all megawatts (MW)  
6           generated between March 2014 and August 2019 were self-committed,  
7           and that this was impacting market prices and the efficiency of market  
8           operations.<sup>9</sup>
- 9           • MISO published a brief analysis earlier this year which found that 12  
10          percent of generation came from uneconomically committed units.<sup>10</sup>

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<sup>8</sup> Missouri Public Service Commission, Docket No. EW-2019-0370.

<sup>9</sup> Southwest Power Pool Market Monitoring Unit, Self-committing in SPP markets: Overview, impacts, and recommendations (Dec. 2019). Available at <https://spp.org/documents/61118/spp%20mmu%20self-commit%20whitepaper.pdf>.

<sup>10</sup> Morehouse, Catherine. MISO: Majority of coal is self-committed, 12% was uneconomic over 3-year period. Utility Dive (May 2020) Available at <https://www.utilitydive.com/news/miso-majority-of-coal-is-self-committed-12-was-uneconomic-over-3-year-pe/577508/>.



1 **5. WPL DOES NOT USE PRICE-BASED UNIT COMMITMENT AND DISPATCH PRACTICES, IN**  
2 **PRACTICE OR IN PLANNING, AND THIS UNECONOMIC BEHAVIOR WASTES**  
3 **RATEPAYER’S MONEY**

4 **Q How do the Company’s unit commitment practices relate to the fuel cost plan**  
5 **at issue in this docket?**

6 **A** The assumptions that WPL uses in creating its fuel cost plan should approximate  
7 its units’ actual operational and performance decisions. If WPL is modeling a unit  
8 with a must-run status for the purposes of its fuel cost plan, for example, it is  
9 presumed that assumption reflects how WPL actually plans to operate the unit. If  
10 there is a significant discrepancy between how WPL models its system for its fuel  
11 cost plan and how it actually operates its system, the Commission should reject  
12 the plan. Further, if WPL is modeling its system for the fuel cost plan in a manner  
13 that assumes imprudent self-commitment behavior, the Commission should reject  
14 the fuel plan, or at the very least make the Company justify its operational  
15 assumptions.

16 **Q How does WPL model its coal plants when preparing its fuel cost plan?**

17 **A** WPL models Columbia 1 and 2 and Edgewater 5 as must-run [REDACTED] of the  
18 time the units are available<sup>11</sup> as part of its production-cost modeling that  
19 anticipates fuel burns for the Company’s current fuel cost plan. Enforcing a must-  
20 run constraint in a production-cost model, thereby forcing a unit to commit  
21 regardless of market prices, will produce a fuel burn estimate that assumes  
22 periods of imprudent commitment behavior. In other words: WPL is planning its

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<sup>11</sup> Ex-PSC-Data Request Response FCP-DM-14.

1 future fuel costs around the assumption that it will operate its units [REDACTED]  
2 [REDACTED] likely uneconomically and pass the net losses (and  
3 increased total fuel costs) onto ratepayers. If WPL adheres to the assumption used  
4 in developing its fuel cost plan over the next year in making its actual unit  
5 commitment decisions, it will likely engage in imprudent behavior in  
6 uneconomically committing its units that will unnecessarily increase fuel costs for  
7 ratepayers.

8 **Q How does WPL actually commit its coal units?**

9 **A** As mentioned in Section 3 above, WPL has historically self-committed its coal  
10 units with a must-run status [REDACTED]

11 [REDACTED]

12 [REDACTED] <sup>12</sup>

13 **Q Has WPL demonstrated that its unit commitment process delivers better**  
14 **results for customers than an economic commitment into MISO?**

15 **A** No. WPL has not demonstrated that its internal decision-making process produces  
16 greater net-revenues and a more economic output than relying solely on the MISO  
17 market. When asked about its unit-commitment decision-making process, WPL  
18 replied that “A formal analytic framework is not currently utilized by WPL to  
19 determine commitment status.”<sup>13</sup> In other words, there is no evidence that the  
20 Company is using a process that minimizes costs by operating its units only when

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<sup>12</sup> Ex-PSC-Data Request Response FCP-DM-14.

<sup>13</sup> WPL Response to Sierra Club No. 2.8.

1 they are lower cost than market energy. This places WPL's unit commitment  
2 policies and procedures squarely in the bottom tier of utilities across the country.

3 **Q How have WPL's coal plants actually performed in recent years?**

4 **A** I used publicly available data to compare the Company's reported monthly fuel  
5 receipts (fuel costs) to MISO's reported hourly LMPs (market revenue) for 2019  
6 and 2020 based on hourly generation as reported to the EPA.<sup>14</sup> Based on this data,  
7 I find that Columbia 1 and 2 are very likely operating at a net loss relative to the  
8 market.

9 I find that Columbia 1 and 2 together likely accrued around \$9.1 million in net  
10 losses between 2019 and the first five months of 2020 (this jumps to around \$29  
11 million with a variable cost adder<sup>15</sup>). Specifically, the Company's fuel spending  
12 exceeded its net revenue by around \$8.7 million in 2019 and \$0.4 million in the  
13 first five months of 2020.

14 I find that on an hourly basis, the average actual monthly fuel costs exceeded  
15 Columbia's hourly LMP for 62 percent of the hours in 2019 and 66 percent of the

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<sup>14</sup> EIA Form 923, MISO LMPs. EPA Air Markets data accessed through the FACT tool.

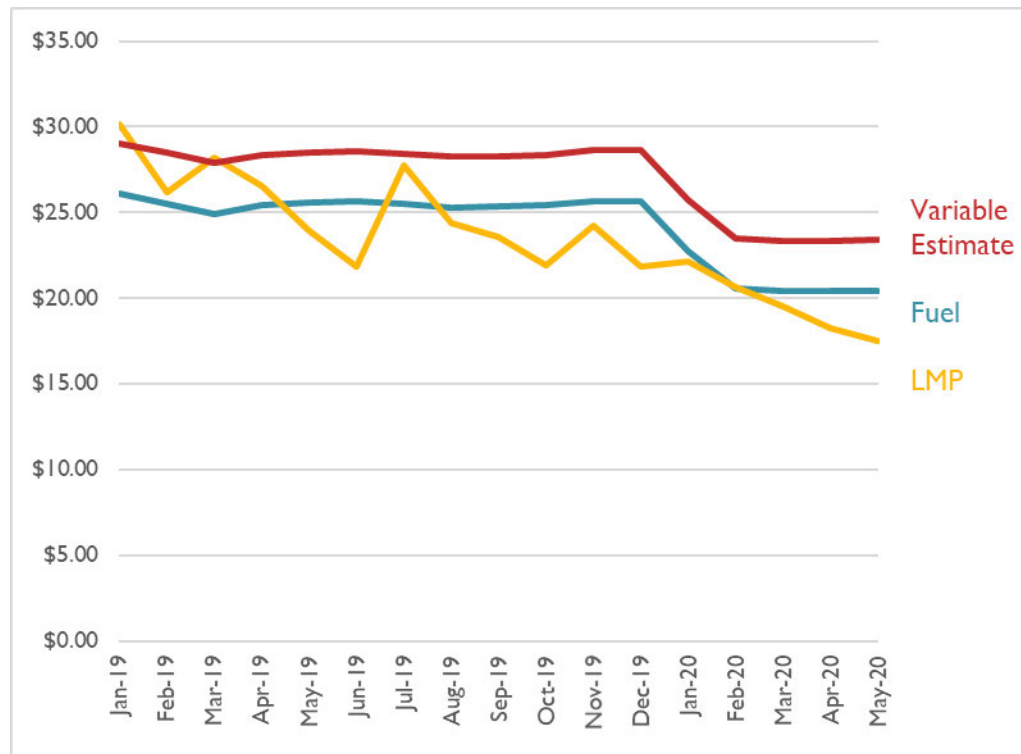
<sup>15</sup> WPL's reported variable O&M costs are extremely low relative to industry standard variable O&M costs, and likely leave out a significant portion of actual variable O&M costs. Horizon's Energy, which prepares a National Database that is used in the EnCompass model, estimates variable O&M costs for coal-fired power plants at between \$5.56 – \$6.37/MWh. EIA also estimates variable O&M costs in the same order of magnitude. WPL reported variable O&M costs for Columbia 1 and 2, and Edgewater 5 at between \$ [REDACTED] /MWh in WPL Response to FCP-DM-11, CONFIDENTIAL Attachment A. Therefore, I estimated variable O&M at \$2.94, the midpoint between the Company's reported value and Horizon Energy's value. This value falls in the range I have observed elsewhere in my work with coal plant economics and therefore is a reasonable proxy.

1 hours in the first five months of 2020. Further, average total variable costs  
2 exceeded Columbia's hourly LMPs for 77 percent of the hours in 2019 and 88  
3 percent of the hours in the first five months of 2020. Figure 1 depicts the results  
4 aggregated over a monthly basis. The figure shows that average monthly fuel  
5 costs were higher than average monthly LMPs for seven months of the year in  
6 2019, and for four out of the first five months in 2020. It also shows that total  
7 variable costs exceeded LMPs for 10 months in 2019 and for each of the first five  
8 months in 2020).

9 WPL admitted that it historically operated its coal units as must-run, meaning its  
10 units were online [REDACTED] of the time they are available; as a result, we know  
11 that in 2019, for approximately [REDACTED] of the hours where Columbia was  
12 operating at least at its minimum load, its variable costs exceeded market prices  
13 and it was losing net revenue.

1

**Figure 1: Average coal and variable cost vs Columbia LMP (\$/MWh)**



2

3 **Q How did you calculate the values discussed above?**

4 **A** I calculated total monthly fuel spending (\$) based on monthly fuel receipts and  
5 generation data reported to the EIA. I calculated total monthly revenues (\$) based  
6 on hourly generation as reported to the EPA and plant day ahead LMPs as  
7 reported by MISO. I then compared monthly fuel spending (\$) to monthly  
8 revenue (\$) to find net revenues. I also compared Columbia's fuel spending  
9 (\$/MWh) to the Plant's hourly day ahead LMPs (\$/MWh) to evaluate the  
10 frequency with which the plant has positive and negative energy margins. I added  
11 an estimated variable operations and maintenance costs to the average fuel cost to  
12 get an estimated total variable cost.

1 **Q Has the Company published its own data or analysis on the performance of**  
2 **its coal plants as part of this Fuel Cost Plan docket?**

3 **A** No, the Company does not file actual data on its plants' recent economic  
4 performance as part of the rate case and fuel plan docket. I rely on public data for  
5 the calculations presented above; therefore, my results may differ slightly from  
6 the results published by the Company.

7 First, the quantity of fuel purchased in a month does not necessarily equal the  
8 quantity burned in that same period, given a utility's ability to store coal. But if  
9 fuel purchases are prudently planned with a robust fuel cost plan, the total amount  
10 of fuel purchased should approximate the total quantity of fuel burned over a  
11 several months, or year, period of time.

12 Second, WPL's reported variable costs were incredibly low<sup>16</sup> relative to industry  
13 standards (as mentioned above). Therefore, it is very likely that WPL has omitted  
14 a significant portion of its variable O&M costs from its unit commitment  
15 decision-making process and fuel plan production-cost modeling. Specifically,  
16 WPL is likely classifying as fixed costs a significant portion of its operations and  
17 maintenance costs that in reality scale directly (and predictably) with the  
18 frequency of operation.

19 Additionally, fuel costs data was only available at a monthly granularity. In  
20 reality, fuel costs vary on a more granular basis.

21 So while my estimates may differ slightly from results based on more granular  
22 fuel cost data, I must stress that, based on the amount of money WPL actually

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<sup>16</sup> Ex-PSC-Data Request Response FCP-DM-11, CONFIDENTIAL Attachment A.

1 spent on fuel purchases in 2019 and 2020 and the plants' reported hourly  
2 generation and LMPs, it is very unlikely that a more detailed accounting with  
3 Company data would actually flip the direction of the plants' actual economic  
4 performance. Any major reported differences would likely be due to (faulty) fixed  
5 and variable costs accounting decisions or a misalignment between the quantity of  
6 fuel purchased and the quantity needed.

7 **Q Given the historical data available, is it likely that the utility made imprudent**  
8 **daily commitment decisions?**

9 **A** Yes. Without actual data on the information that the utility had at the time that it  
10 made each unit commitment decision, I cannot *prove* that each individual daily  
11 commitment decision in 2019 or 2020 was imprudent. But, given the body of  
12 evidence that: (1) WPL develops its fuel plan around anticipated uneconomic unit  
13 commitment and plant operation; (2) [REDACTED]  
14 [REDACTED] and (3) market  
15 LMPs were below Columbia's average variable costs for the vast majority of  
16 2019 and the first five months of 2020; I can say that WPL is very likely regularly  
17 making uneconomic self-commitment decisions at Columbia Units 1 and 2 and  
18 passing those costs onto ratepayers. I can further state that overall WPL very  
19 likely lost money for its ratepayers at Columbia over the last year and a half.

20 **Q Why should the Commission care about the past performance of WPL's**  
21 **plants in a fuel plan docket?**

22 **A** As discussed above, WPL is building losses into its fuel cost plan by assuming  
23 [REDACTED] unit commitment in must-run status regardless of economics. By  
24 understanding that WPL very likely lost money following these same practices in  
25 the past, we can better understand the potential financial impact of the Company's

1 projected fuel plan. Specifically, we know that if WPL is allowed to operate its  
2 plants and make unit commitment decisions as it has proposed, it will lose  
3 ratepayers money. We also know that absent a structure to check WPL's reliance  
4 on uneconomic self-commitment, the Company will continue to plan its fuel  
5 burns and operate in this manner and pass the losses onto ratepayers. Therefore,  
6 the Commission must incorporate a prudency review into its fuel cost plan or fuel  
7 reconciliation process or else the Company will continue to plan its fuel burns and  
8 operate its coal plants uneconomically.

9 **Q Are there any other issues that the Commission should be concerned about**  
10 **regarding WPL's fuel cost plan?**

11 **A** Yes, I am concerned that the LMPs and the commitment statuses that WPL used  
12 to create the fuel cost plan do not reflect actual market and operational conditions.  
13 Specifically, WPL has admitted that market conditions have caused the Company  
14 to [REDACTED],<sup>17</sup>  
15 meaning the plant is not operating as modeled in the fuel plan. Additionally, the  
16 LMP's WPL used in making its fuel cost plan are too high.

17 WPL's LMP forecast was created during a time with expected higher load (prior  
18 to the COVID-19 pandemic); therefore, the market forecasts used in the fuel plan  
19 do not reflect the recent and sustained drop in energy market prices that is likely  
20 to continue for the foreseeable future. Higher LMPs make it more economic to  
21 keep a unit online, and therefore could help WPL justify the decision to model its  
22 plants with a must-run status.

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<sup>17</sup> Ex-PSC-Data Request Response FCP-DM-14.



1 Based on these two factors alone, the Commission should be concerned that the  
2 fuel plan is significantly over-projecting fuel burns and net revenues for 2021.  
3 Customers would be best served if the Commission required WPL to refresh its  
4 fuel plan to reflect its actual operational practices and an updated LMP forecast.

5 **Q What unit commitment assumptions should the Commission require WPL to**  
6 **use in creating its fuel cost plans?**

7 **A** I would normally recommend that WPL model its coal units with an economic  
8 commitment status; however, the Company did conduct a model run that used this  
9 parameter at the request of Commission Staff and found that [REDACTED]  
10 [REDACTED]  
11 [REDACTED].<sup>18</sup> Importantly, this result does not indicate that operating a unit in must-run  
12 status is the most economic option; rather, it indicates that the model design and  
13 assumptions that WPL uses to develop its fuel plan model likely do not properly  
14 reflect the operational and economic realities of operating a coal plant in today's  
15 rapidly evolving energy market. There are more options for WPL than just  
16 [REDACTED] in the  
17 EnerPrise Planning and Risk ("EP&R") dispatch model.<sup>19</sup> There is a third option:  
18 develop a new methodology, within the existing model or an entirely new one,  
19 and a set of assumptions that actually reflect prudent commitment decisions.  
20 Specifically, the Commission should require WPL to develop a modeling  
21 structure and assumptions that reflect a price-based unit commitment process that  
22 makes the best decision with the information knowable at the time. The

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<sup>18</sup> Ex-PSC-Data Request Response MAR-2.1.

<sup>19</sup> WPL Response to SC-2.1(b).

1 Company's strategy of [REDACTED] is likely not  
2 producing actual optimal results for ratepayers. But modeling it coal units in  
3 economic mode is also not producing optimal projected results.<sup>20</sup> Therefore, the  
4 Commission should require WPL to create a process that both presumes prudent  
5 commitment behavior and produces an optimal economic outcome for ratepayers.

6 **6. RECOMMENDATIONS**

7 **Q Please summarize your recommendations for the Commission.**

8 **A** My recommendations are as follows:

- 9 1. The Commission should require that WPL model its unit commitment and  
10 dispatch for fuel cost plans consistent with the Company's actual unit  
11 commitment and dispatch policies.
- 12 2. The Commission should prohibit WPL from continuing to commit its  
13 coal-fired units [REDACTED] and require that  
14 WPL either (1) commit its coal units into MISO with an economic  
15 commitment status, or (2) demonstrate that each must-run decision is  
16 prudent based on the results of a robust price-based analysis process.
- 17 3. In the event of any deviations between WPL's unit commitment decisions  
18 and the result of WPL's price-based analysis, the Company should  
19 document the circumstances that prompted the commitment decision.  
20 WPL will need to always demonstrate that unit commitment was

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<sup>20</sup> The economic mode is by definition supposed to create a more economic outcome. If it does not do so, then the Company should reevaluate the assumptions it is using in the tool.

1                   demonstrably prudent based on the totality of known and knowable  
2                   information at the time of the decision, and that WPL continually  
3                   reassessed this decision.

4                   4. The Commission should make clear in its final order that actual utility  
5                   commitment practices will be subject to a prudence review as part of the  
6                   fuel cost reconciliation process and that the Commission will not allow  
7                   WPL to recover net operational losses incurred at the Company's coal-  
8                   fired units as a result of avoidable, uneconomic operations and planning of  
9                   its coal plants.

10                  5. The Commission should require WPL to refresh its fuel plan to reflect its  
11                  actual operational practices at all plants and update its LMP forecast to  
12                  reflect potential continuing downward pressure on LMPs from the  
13                  COVID-19 pandemic.

14    **Q**        **Does this conclude your testimony?**

15    **A**        Yes.