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Witness:	Avi Allison
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Sponsoring Party:	Sierra Club
Case No.:	ER-2019-0335
Date Testimony Prepared:	Feb. 14, 2020

BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

FILE NO. ER-2019-0335

REVENUE REQUIREMENT

SURREBUTTAL TESTIMONY

OF

AVI ALLISON

ON BEHALF OF SIERRA CLUB

February 14, 2020

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri's Tariffs to Decrease Its Revenues for Electric Service.	)))))	**File No. ER-2019-0335**

AFFIDAVIT

STATE OF Washington)
) ss.
COUNTY OF King)

Avi Allison, first being sworn on his oath, states:

1. My name is Avi Allison, and I am a Senior Associate with Synapse Energy Economics, Incorporated (Synapse). My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.
2. Attached hereto and made part hereof for all purposes is my Surrebuttal Testimony on behalf of Sierra Club, including exhibits, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.
3. I hereby swear and affirm that based upon my personal knowledge, the facts stated in the surrebuttal testimony are true. In addition, my judgment is based upon my professional experience, and the opinions and conclusions stated in the Surrebuttal Testimony are true, valid, and accurate.

Avi Allison a.k.a Abraham Allison

SUBSCRIBED TO AND SWORN TO before me this 13 day of February, 2020, by Avi Allison.

Deana Rae Zittel

Notary Public

My commission expires: 10-7-2022

DEANA RAE ZITTEL
Notary Public
State of Washington
Commission # 85389
My Comm. Expires Oct 7, 2022

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1. <u>INTRODUCTION AND SUMMARY</u>

Q Please state your name and occupation.

A My name is Avi Allison and I am a Senior Associate with Synapse Energy Economics, Incorporated.

Q Are you the same Avi Allison who filed direct testimony regarding revenue requirement and rate design issues in this proceeding?

A Yes.

Q On whose behalf are you testifying in this case?

A I am testifying on behalf of Sierra Club.

Q What is the purpose of your surrebuttal testimony?

A The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Union Electric Company d/b/a Ameren Missouri (Ameren or the Company) witnesses Andrew Meyer, Tom Byrne, Jim Williams, Matt Michels, and Todd Schatzki. Specifically, I respond to the claims of those witnesses regarding the economic status of Ameren's coal units and the prudence of Ameren's unit commitment and dispatch practices. I also briefly respond to statements relating to these topics made by Office of the Public Counsel (OPC) witnesses Lena Mantle and Geoff Marke and Staff witness Lisa Wildhaber.

Q Please summarize the conclusions of your surrebuttal testimony.

A My primary observations and conclusions include the following:

1. The historical net losses incurred by Ameren's coal units are broadly indicative of their market value. Though these losses do not by themselves dictate a need for near-term coal unit retirements, they further undermine the credibility of Ameren's recent coal unit disposition analyses.

2. Ameren's largest 2018 capital expenditures at its coal units would likely have been unnecessary if those units were to retire by the end of 2023. Both Ameren's 2017 Integrated Resource Plan (IRP) and the rebuttal testimony of Mr. Williams inappropriately fail to account for the ability of Ameren to avoid environmental compliance costs through earlier retirement.

3. Ameren's standard IRP process is likely inadequate for addressing the economic risks facing the Company's existing coal units. Instead, a more rigorous, contested proceeding would be beneficial.

4. Ameren's rebuttal testimony overstates the typical amount of time needed to retire generating units. There are numerous recent examples of utilities developing plans to retire coal units within 3 to 5 years of a retirement decision.

5. Recent substantial differences between Ameren's actual fuel costs and market coal prices are a major cause for concern. It appears that Ameren may not be taking sufficient steps to avoid paying above-market prices for coal.

6. Ameren has not provided any evidence to support the reasonableness of its unit commitment process. The Company's claims that its 2018 unit commitment decisions were informed by rigorous analyses are undermined by the fact that Ameren has deleted all evidence of any such analyses.

7. The Commission cannot reasonably rely on the Midcontinent Independent System Operator (MISO) for oversight of Ameren's unit commitment practices. MISO does not review Ameren's self-commitment decisions and the Company's self-commitment practices mean that the commitment of Ameren's coal units is determined outside of MISO's economic optimization framework.

8. Ameren's own analyses indicate that the Company incurred unnecessary net operational losses on at least three occasions in 2018.

9. Ameren's rebuttal testimony demonstrates the bias in the Company's approach to the commitment of its coal units. The Company applies a higher standard to a decision to take a unit offline than it does to a decision to bring a unit back online following an outage.

10. Ameren's unit commitment and dispatch practices should be a subject of review in each of its fuel adjustment clause (FAC) prudence review proceedings.

Q Please summarize your recommendations.

A My recommendations are similar to those from my Direct Testimony and include the following:

1. The Commission should not allow the recovery of capital costs incurred at the Rush Island, Labadie, or Sioux plants in 2018 or later until Ameren has presented sound analyses that justify those investments in the face of major environmental compliance costs and declining renewable resource costs.

2. The Commission should require Ameren to present rigorous economic assessments of alternative near-term retirement dates for each of the Rush Island, Labadie, and Sioux units by the end of 2020. These forward-looking assessments should be presented in a contested proceeding to enable full Commission oversight and stakeholder review. They should incorporate up-to-date assumptions regarding market prices, resource costs, and environmental compliance costs.

3. The Commission should disallow the recovery of operational costs incurred through the uneconomic commitment and dispatch of Ameren's coal units.

4. The Commission should require Ameren to retain the analyses underlying its unit commitment decisions for a period of at least two years. These analyses should clearly specify the costs and revenues that are accounted for within the analyses.

2. Economic Status of Ameren Coal Units

Q Please summarize this section.

A In this section, I respond to claims made by Ameren witnesses Matt Michels and Jim Williams regarding the overall economic status of the Company's coal units and the need for recent capital expenditures at those units. I show that:

1. The historical net losses incurred by Ameren's coal units are broadly indicative of their market value. Though these losses do not by themselves dictate a need for near-term coal unit retirements, they further undermine the credibility of Ameren's unreasonable recent coal unit disposition analyses.

2. Ameren's largest 2018 capital expenditures at its coal units would likely have been unnecessary if those units were to retire by the end of 2023. Both Ameren's 2017 IRP and the rebuttal testimony of Mr. Williams inappropriately fail to account for the ability of Ameren to avoid environmental compliance costs through earlier retirement.

3. Ameren's standard IRP process is likely inadequate for addressing the economic risks facing the Company's existing coal units. Instead, a more rigorous, contested proceeding would be beneficial.

4. Ameren has overstated the typical amount of time needed to retire generating units. There are numerous recent examples of utilities developing plans to retire coal units within 3 to 5 years of a retirement decision.

i. ***<u>The historical net losses incurred by Ameren's coal units are broadly indicative of their market value.</u>***

Q What did your Direct Testimony demonstrate regarding the recent economic performance of Ameren's coal units?

A My Direct Testimony showed that each of Ameren's Labadie, Rush Island, and Sioux coal units incurred more than $20 million in net losses relative to marginal market replacement over the period from 2016 through 2018.[1]

Q Ameren witness Matt Michels objects to your assessment of Ameren's coal units in part by arguing that a proper resource planning analysis should be conducted on a forward-looking basis.[2] Do you agree?

A I generally agree that IRP resource evaluations should be conducted on a forward-looking basis. However, comparing the recent actual costs and revenues associated with a given generation unit provides a useful picture of the unit's current economic status. Such screening-level cash flow analyses can inform the need for more comprehensive, forward-looking unit disposition analyses. They also can help to calibrate and gauge the results of forward-looking assessments. For example, the recent marginal economic status of Ameren's coal units calls into question the credibility of Ameren's 2017 IRP conclusion that it would be tremendously costly to retire those units. This discrepancy between recent performance and Ameren's view of future performance is likely driven in part by the unreasonable assumptions regarding environmental compliance costs and replacement resource costs employed in Ameren's 2017 IRP.

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[1] Revenue Requirement Direct Testimony of Avi Allison at 10.

[2] Rebuttal Testimony of Matt Michels on Behalf of Ameren at 6.

Q Mr. Michels also argues that your comparison of Ameren coal units' revenues and costs is irrelevant because Ameren is not a merchant generator.[3] How do you respond?

A It is true that, as a vertically integrated utility, Ameren faces obligations that merchant generators do not. However, as discussed by Office of the Public Counsel (OPC) witness Geoff Marke, one of the objectives of utility regulation is to serve as a proxy for competition.[4] That is one reason why the merchant-equivalent cash flow analysis I present in my Direct Testimony serves as a useful screening-level assessment. No competitive entity would indefinitely continue operating a generating unit that incurs more costs than it earns in revenues every year.

Q Mr. Michels suggests that you should have excluded capital costs from your cash flow analysis.[5] How do you respond?

A This is not a reasonable suggestion. Mr. Michels presents Ameren's recent coal unit capital costs as if they were upfront construction costs that will allow Ameren's units to continue operating for decades without incurring additional major capital expenses. This is simply not the case. Ameren incurs hundreds of millions of dollars in capital expenditures at its coal units *every year* in order to keep those units operational.[6] It does not make sense to ignore these major, recurring, annual expenses or to account for only a small fraction of one year's capital expenses in each year assessed.

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[3] Rebuttal Testimony of Matt Michels at 6.

[4] Rebuttal Testimony of Geoff Marke on Behalf of OPC at 23.

[5] Rebuttal Testimony of Matt Michels at 8.

[6] Ameren Response to Data Request No. SC 1.15k (*see* Ex. AA-S-1).

Q Do you have any observations regarding the impact of removing capital costs from your assessment of historical net revenues at Ameren's coal units?

A Yes. Table 1 shows that, even if one were to inappropriately remove capital costs entirely, my assessment would still show Sioux Units 1 and 2 as incurring net losses over the period from 2016 through 2018. This is an especially concerning indication that those units are likely uneconomic.

Table 1. Sioux unit annual net revenues excluding capital costs, 2016-2018 (2018 $Million)

Plant	Unit	2016	2017	2018	Total
Sioux	1	($10)	($1)	$10	($2)
Sioux	2	($10)	($4)	$13	($1)
Sioux	***All***	***($21)***	***($6)***	***$23***	***($3)***

Source: Ameren Response to Data Request Nos. SC 1.15 and SC 1.21; Synapse tabulation.

Q OPC witness Lena Mantle suggests that your coal unit analysis indicates that it would only be economic to retire Ameren's coal units if stranded costs are not included in customer rates.[7] Do you agree with this interpretation?

A No. My review of the historical costs and revenues of Ameren's coal units was not intended to conclusively establish whether or not it would be economic to retire those units. A comprehensive forward-going analysis would be required for that purpose. In such an analysis, ongoing capital costs would be properly viewed as forward-going costs of operation, rather than sunk or stranded costs. If such an analysis were to confirm that Ameren's coal units are likely to incur more costs—including ongoing capital costs—than they provide in value relative to replacement alternatives, then Ameren should pursue near-term retirements, irrespective of any potential for sunk or stranded costs.

[7] Rebuttal Testimony of Lena Mantle on Behalf of OPC at 16.

Q Mr. Michels argues that the results of your historical coal unit analysis arise from current MISO excess capacity conditions that are unlikely to continue.[8] Do you agree?

A No. When asked for evidence of his claim that MISO excess supply conditions are "not likely to be sustained," Mr. Michels cited the results of the 2019 OMS MISO Survey.[9] However, that document generally does not support the point that Mr. Michels seeks to make. Instead the 2019 OMS MISO Survey indicates that the MISO region may have even greater surplus capacity in 2023 and 2024 than it does today.[10] For Ameren's MISO Zone 5 in particular, the 2019 OMS Survey indicates that capacity surplus will be greater in 2024 than in 2020.[11] This suggests that capacity surplus conditions and low capacity prices are likely to continue.

ii. Ameren's largest 2018 capital expenditures at its coal units would likely have been unnecessary if those units were to retire by the end of 2023.

Q What did your Direct Testimony demonstrate regarding Ameren's 2018 capital investments in its coal units?

A My Direct Testimony showed that Ameren spent about $219 million on incremental capital investments at its coal units in 2018.[12] I further observed that Ameren had not evaluated whether this scale of investment made economic sense in light of regulatory and economic pressures facing Ameren's coal units.[13]

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[8] Rebuttal Testimony of Matt Michels at 7, 17.

[9] Attachment "SIERRA_7-SC_0007_32-Att-SC 0007.32 Attach 20190614 OMS MISO 2019 Exec Summ 354508.pdf" to Ameren Response to Data Request No. SC 7.32 (*see* Ex. AA-S-1).

[10] *Id.* at 6.

[11] *Id.* at 7-8.

[12] Revenue Requirement Direct Testimony of Avi Allison at 8.

[13] Revenue Requirement Direct Testimony of Avi Allison at 14-15.

Q How did Ameren respond to this observation?

A In response to my testimony, Ameren states that it went back and reviewed all capital projects in excess of $500,000 placed in service at its coal plants in 2018 and 2019.[14] Based on this review, Ameren witness Jim Williams asserts that each of these major capital investments would have been needed even if Ameren's coal plants were to retire "shortly after 2024." [15]

Q Has Ameren identified the latest retirement date for which its major 2018 and 2019 coal unit investments would not have been needed?

A No.[16] Ameren evidently only evaluated whether the expenditures in question would not be needed if one or more of its coal units were to retire "shortly after 2024." It did not, for example, evaluate whether the expenditures would have been needed if Ameren's coal units were to retire by the end of 2023.

Q Is there reason to believe that many of Ameren's largest 2018 coal unit expenditures would not have been needed if its coal units were to retire by the end of 2023?

A Yes. The largest 2018 capital expenditures at Ameren's coal units were associated with complying with federal coal combustion residuals (CCR) and effluent limitation guidelines (ELG) rules. Ameren data indicates that ELG and CCR expenses accounted for $111 million of its major coal plant capital expenditures in 2018.[17] Both the ELG and CCR regulations were structured such that coal units could avoid the most costly compliance investments by

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[14] Rebuttal Testimony of Jim Williams on Behalf of Ameren at 4.

[15] *Id.*

[16] Ameren Response to Data Request No. SC 7.31(*see* Ex. AA-S-1).

[17] Attachment "SIERRA_1-SC_001_6-Att-DR SC 1.6.xlsx" to Ameren Response to Data Request No. SC 1.6 (*see* Ex. AA-S-1).

retiring by the end of 2023.[18] This explains why Ameren's ELG and CCR compliance investments at Meramec, which is slated to retire in 2022, are limited to ash pond closure expenditures, whereas ELG and CCR compliance costs at Labadie, Rush Island, and Sioux, include costly investments in dry ash conversion projects and wastewater treatment plants.[19] Ameren's investments in these dry ash conversion and wastewater treatment projects at Labadie, Rush Island, and Sioux amounted to $89 million in 2018 (see Table 2).[20] If Ameren were to retire these plants by the end of 2023, such investments likely would not have been needed. In limiting his assessment to the impact of a retirement "shortly after 2024," Williams ignores the implications of potential near-term retirement dates for the reasonableness of Ameren's recent compliance expenditures at its coal units.

Table 2. Ameren coal unit major capital expenses, 2018

Capital Expense Type	Cost ($Million)	% of All Major Capital
All	*$189*	*100%*
ELG/CCR	$111	59%
Avoidable ELG/CCR	$89	47%
Dry Ash Conversion	$48	25%
Wastewater Treatment	$40	21%

Source: Attachment to Ameren Response to Data Request No. SC 1.6 (see see *Ex. AA-S-1); Synapse tabulation.*
Note: Includes only projects identified by Ameren as costing more than $500,000.

[18] The ELG rule requires compliance with fly and bottom ash discharge requirements by the December 31, 2023. 40 C.F.R. §§ 423.13(h)(1)(i), (k)(1)(i). Thus, if a coal unit is no longer operating or discharging fly or bottom ash wastewater on December 31, 2023, capital investments would not be necessary to achieve compliance. Under the CCR rule, various compliance obligations may similarly be unnecessary if a generating unit permanently ceases operation by the end of 2023. 40 C.F.R. § 257.103.

[19] Schedule JLW-R1 to Rebuttal Testimony of Jim Williams on Behalf of Ameren; Ex. AA-D-9 to Direct Testimony of Avi Allison, Ameren 2017 IRP, Ch. 5 at 20-22.

[20] Attachment "SIERRA_1-SC_001_6-Att-DR SC 1.6.xlsx" to Ameren Response to Data Request No. SC 1.6 (*see* Ex. AA-S-1).

Q Was this same flaw present in Ameren's 2017 IRP coal unit retirement assessments?

A Yes. In addition to inappropriately ignoring likely compliance costs associated with reducing emissions of sulfur dioxide (SO_2), Ameren's 2017 IRP retirement assessments were inappropriately structured to ignore the potential for earlier retirements to avoid ELG and CCR compliance costs. The earliest retirement date examined in the Company's IRP assessments of Labadie and Rush Island was December 31, 2024.[21] Such a retirement date assumption made little sense at the time of the analyses, as a 2024 retirement date would be just late enough that the coal units would be required to incur substantial ELG and CCR compliance costs prior to retiring.

Q Are you aware of other utilities in the MISO region that performed economic assessments of whether to retire coal units by the end of 2023 rather than investing in ELG and/or CCR compliance technologies?

A Yes. Northern Indiana Public Service Company (NIPSCO),[22] DTE Electric Company,[23] and Vectren Energy Delivery of Indiana, Inc.[24] each conducted such analyses. Each of these utilities concluded that it would reduce customer costs by retiring multiple existing coal units by the 2023 compliance deadline.

Q What is the implication of the nature of ELG and CCR compliance requirements for Ameren's 2018 coal unit capital investments?

A The implication is that Ameren likely could have avoided at least $89 million in capital expenditures during 2018 alone by deciding to retire its coal units by 2023. As I describe in

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[21] Ex. AA-D-7 to Direct Testimony of Avi Allison, Ameren 2017 IRP, Ch. 9 at 3-4.

[22] Ex. AA-D-26 to Direct Testimony of Avi Allison, NIPSCO, 2018 IRP at 145-155.

[23] Ex. AA-S-2, Opinion and Order, Mich. Pub. Serv. Comm'n Case No. U-18419 at 42 (Apr. 27, 2018).

[24] Ex. AA-S-3, Order of the Commission, Ind. Util. Reg. Comm'n Cause No. 45052 at 3-4 (Apr. 24, 2019).

my Direct Testimony, by 2017 Ameren knew or should have known that its coal fleet likely faced substantial SO_2 compliance costs, in addition to ELG and CCR compliance costs and economic pressure from declining renewable costs. Ameren therefore should have rigorously evaluated the economic case for retiring one or more of its Labadie, Rush Island, and Sioux units by the end of 2023 prior to investing in avoidable ELG and CCR expenditures at those units. Instead, Ameren's 2017 retirement assessments neglected to account for the ability to avoid any SO_2, ELG, or CCR compliance costs at any of the Labadie, Rush Island, or Sioux coal units. In addition, Ameren's IRP analyses incorporated unreasonable renewable cost and capacity price assumptions that further biased its analyses in favor of continuing to operate its coal units.[25]

iii. <u>Ameren's IRP process may not be adequate for addressing the economic risks facing the Company's existing coal units.</u>

Q Ameren argues that its 2020 IRP process is the appropriate forum to address long-term resource planning issues such as continued investment in the Company's coal units. How do you respond?

A I agree that the economics of each of the Company's existing coal units should be a topic of analysis in Ameren's 2020 IRP. And I appreciate that the Company is now committing to evaluate the costs associated with court-ordered environmental compliance obligations at Rush Island and Labadie in its 2020 IRP retirement analyses.[26] However, I am concerned that Ameren's standard IRP process may not allow for sufficiently rigorous vetting of major decisions such as the timing of coal plant retirements. My understanding is that there is no requirement for a hearing in IRP cases, and that the Commission viewed Ameren's previous

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[25] Revenue Requirement Direct Testimony of Avi Allison at 16-25.

[26] Rebuttal Testimony of Matt Michels at 10.

IRP process as a "non-contested case."[27] In my opinion, a fully contested proceeding would be appropriate for addressing the reasonableness of Ameren's ongoing investments in its coal units in the face of substantial economic and regulatory risks. Such a proceeding would include a full discovery process, testimony, and a hearing.

Q Do any other parties share your concern with the adequacy of Ameren's IRP process for addressing coal unit retirement issues?

A Yes. OPC witness Geoff Mark's rebuttal testimony states that Ameren's IRP process is not sufficient to address the feasibility and prudency of an immediate retirement for Labadie, Rush Island, and/or Sioux.[28]

Q Ameren witness Matt Michels argues that because Ameren's 2017 IRP was found to be in compliance with the Commission's IRP rules, it provides a reasonable basis for ongoing investments in the Company's coal units. Do you agree?

A No. As I describe more fully in my Direct Testimony, the Company's IRP retirement analyses suffered from major deficiencies relating to environmental compliance cost assumptions and replacement resource cost assumptions.[29] In fact, the Commission's 2017 IRP order stated that there were "important concerns and deficiencies" associated with Ameren's IRP.[30] The Commission chose to accept Ameren's IRP filing partly on the basis of Ameren's commitment to "take various actions to improve its next IRP filing."[31] Furthermore, the Commission's IRP rules explicitly state that an acknowledgment that an

[27] Order Regarding 2017 Integrated Resource Plan, Mo. Pub. Serv. Comm'n File No. EO-2018-0038 at 2 (June 27, 2018).

[28] Rebuttal Testimony of Geoff Marke at 13.

[29] Revenue Requirement Direct Testimony of Avi Allison at 16-25.

[30] Order Regarding 2017 Integrated Resource Plan, Mo. Pub. Serv. Comm'n File No. EO-2018-0038 at 2 (June 27, 2018).

[31] *Id.*

IRP achieves compliance with IRP requirements does *not* constitute a finding regarding the "prudence, pre-approval, or prior commission authorization of any specific project or group of projects."[32] Finally, as I described in my Direct Testimony, since the filing of the 2017 IRP there have been market and regulatory developments that have put additional economic pressure on Ameren's coal units. Thus, Commission acknowledgment of the Company's 2017 IRP is not determinative of the reasonableness of the Company's ongoing investments in its coal units.

iv. Ameren overstates the amount of time typically needed to retire coal units.

Q Ameren states that it often takes 7-10 years to develop the infrastructure necessary to retire generating units, and that it is therefore "very unlikely that such retirements could be carried out in the next 3-5 years."[33] Do you agree?

A No. It is possible that under certain circumstances it may take seven years or more to implement the necessary infrastructure to allow for a generating unit retirement. However, there are numerous examples of cases where utilities have decided to retire coal units within five years of a retirement decision. Below are just a few such examples:

1. **NIPSCO.** Through its 2018 IRP process, NIPSCO decided to retire four of its five remaining coal units—representing more than 1,600 megawatts (MW) of capacity—by 2023, five years following the publication of the IRP.[34] Notably, the decision to retire these units by 2023 was made in part to avoid ELG and CCR compliance costs. In contrast, Ameren's 2017 IRP, published a year before NIPSCO's IRP, did not even

[32] 20 CSR 4240-22.080(17).

[33] Rebuttal Testimony of Matt Michels at 12.

[34] Ex. AA-D-26 to Direct Testimony of Avi Allison, NIPSCO, 2018 IRP at 7.

assess the possibility of avoiding ELG and CCR compliance costs at Labadie, Rush Island, or Sioux by retiring one or more of those units by the end of 2023.

2. **Hoosier Energy.** In January 2020, Hoosier Energy announced a plan to retire its 1,070 MW Merom coal plant in 2023, just three years following the announcement.[35]

3. **PacifiCorp.** As part of its 2019 IRP, PacifiCorp developed a new plan to retire its Jim Bridger Unit 1 by 2023, within four years of the IRP filing.[36] PacifiCorp's IRP also included plans to retire its two remaining Naughton coal units by 2025.

Q Does Ameren's current system have characteristics that would make near-term coal retirements particularly feasible?

A Yes. As shown in Ameren's 2017 IRP and highlighted in the testimony of OPC witness Geoff Marke, Ameren has far more generating capacity than it needs to meet its planning requirements.[37] This suggests that Ameren could retire multiple coal units without having to build or acquire any replacement capacity resources.

3. AMEREN COAL UNIT COMMITMENT AND DISPATCH PRACTICES

Q Please summarize this section.

A In this section, I respond to claims made by Ameren witnesses Andrew Meyer and Todd Schatzki regarding the Company's coal unit commitment and dispatch processes. I present the following observations:

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[35] Ex. AA-S-4, Hoosier Energy, *News Release: Hoosier Energy Announces New 20-Year Resource Plan* (Jan. 21, 2020), *available at:* https://hoosierenergy.com/press-releases/hoosier-energy-announces-new-20-year-resource-plan/.

[36] Ex. AA-S-5, PacifiCorp 2019 IRP at 13 (Oct. 18, 2019).

[37] Rebuttal Testimony of Geoff Marke at 4.

1. Recent substantial differences between Ameren's actual fuel costs and market coal prices are a major cause for concern. It appears that Ameren may not be taking sufficient steps to avoid paying above-market prices for coal.

2. Ameren has not provided any evidence to support the reasonableness of its unit commitment process. The Company's claims that its unit commitment decision processes are informed by rigorous analyses are undermined by the fact that Ameren has deleted all evidence of any such analyses.

3. The Commission cannot reasonably rely on MISO for oversight of Ameren's unit commitment practices. MISO does not review Ameren's self-commitment decisions and the Company's self-commitment practices mean that the commitment of Ameren's coal units is determined outside of MISO's economic optimization framework.

4. Ameren's own analyses show that the Company incurred unnecessary net operational losses on at least three occasions in 2018.

5. Ameren's rebuttal testimony demonstrates the bias in the Company's approach to the commitment of its coal units. The Company applies a higher standard to a decision to take a unit offline than it does to a decision to bring a unit back online following an outage.

6. Ameren's unit commitment and dispatch practices should be a subject of review in each FAC prudence review proceeding.

i. ***<u>Substantial differences between Ameren coal unit incurred fuel costs and asserted marginal fuel costs are a cause for concern.</u>***

Q How did Ameren respond to your Direct Testimony assessment of the Company's coal unit commitment and dispatch practices?

A Ameren witnesses Andrew Meyer and Todd Schatzki argued that my evaluation of the Company's coal unit commitment and dispatch practices improperly relied on the actual fuel costs incurred by those units rather than the marginal fuel costs associated with the dispatch of those units.[38]

Q Do you agree that Ameren's offer prices and operational decisions should rely on marginal costs rather than fixed costs?

A Yes. Generally, offer prices and dispatch decisions should reflect marginal, variable costs that can be avoided through a decision to not run a unit.

Q Why, then, did your Direct Testimony assessment of Ameren's coal unit dispatch practices incorporate estimates of accounting fuel costs rather than what Ameren describes as marginal fuel costs?

A In discovery, Sierra Club had asked Ameren "if there are any fuel costs at Ameren Missouri's coal units that Ameren considers fixed for the purposes of dispatch." Ameren responded "None."[39] I took Ameren at its word that none of its fuel costs were fixed and that all fuel costs were variable, marginal costs of operation. If all fuel costs are variable for the purposes of dispatch, then accounting fuel costs should be similar to marginal fuel costs. Under such circumstances, generation offers, which should incorporate non-fuel variable operations and

[38] Rebuttal Testimony of Andrew Meyer on Behalf of Ameren at 19-24; Rebuttal Testimony of Todd Schatzki on Behalf of Ameren at 5-8.

[39] Ameren Response to Data Request No. SC 1.22b (*see* Ex. AA-S-1).

maintenance (O&M) costs, should generally be higher than actual fuel costs. Instead, as my Direct Testimony showed, in 2018 Ameren consistently submitted generation offers at prices that were well below its actual fuel costs.[40]

Q What is the basis for the discrepancy that Ameren now alleges exists between actual fuel costs and marginal fuel costs at its coal units?

A The reason for this alleged discrepancy is that the actual price that Ameren has paid for coal has consistently been higher than market prices. Ameren witness Andrew Meyer explains that due to the details of the Company's coal contracts, the market spot price for coal represents the marginal cost of burning more fuel at Ameren's coal units.[41] Since the actual cost of coal burned at Ameren's coal units was consistently higher than market spot prices in 2018, Ameren asserts that its marginal fuel costs were substantially lower than its actual fuel costs.[42] In essence, Ameren is now saying that in 2018 a large portion of its fuel costs were fixed for the purposes of dispatch because they could not be avoided under the terms of its coal supply contracts.

Q Mr. Meyer asserts that as 2018 progressed and deliveries under preexisting, higher priced contracts were replaced by deliveries under new, lower priced contracts, Ameren's "accounting and market prices for coal trended much closer." Do you agree with this characterization?

A Yes, to a point. The data I reviewed and presented in my Direct Testimony does show that the average coal cost actually paid by Ameren declined over the course of 2018.[43] However, this data also indicates that the offer prices submitted by Ameren continued to be lower than

[40] Revenue Requirement Direct Testimony of Avi Allison at 38-41.

[41] Rebuttal Testimony of Andrew Meyer at 24.

[42] *Id.* at 24-25.

[43] Revenue Requirement Direct Testimony of Avi Allison at 38-41.

the actual fuel prices incurred at its coal units through the end of 2018. This suggests that, under the new contracts signed in 2018, Ameren continued to pay coal prices that were higher than market spot prices.

Q Do you have any concerns with the consistent discrepancy between the prices that Ameren pays for coal and market spot prices?

A Yes. This discrepancy raises the concern that Ameren is consistently over-paying for fuel. In addition, it appears that Ameren's generation offer practices allow for the possibility that the Company's coal units will be dispatched above their minimum operating levels even when their fuel costs, which are typically considered to be variable costs of production, are higher than the units' energy value.

Q Ameren indicates that it could not have avoided the incremental fuel costs associated with the difference between the Company's fuel contract prices and prevailing spot market prices.[44] How do you respond?

A It is not clear that this is the case. Ameren suggests that not taking receipt of an above-market fuel contract would ultimately harm customers but does not provide any evidence to support that claim.[45] On the contrary, in discovery Ameren indicated that it has never attempted to refuse delivery of an above-market fuel contract and has never investigated defaulting on a contract on the basis of that contract including a price that is too far above market prices.[46] At a minimum, Ameren should be evaluating the economic case for either re-negotiating or defaulting on its above-market fuel contracts. In addition, Ameren should certainly not be signing *new* contracts that are above prevailing and expected market prices.

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[44] Rebuttal Testimony of Andrew Meyer at 24-25.

[45] *Id.*

[46] Ameren Response to Data Request No. SC 8.9 (*see* Ex. AA-S-1).

ii. Ameren has not provided any evidence to support the reasonableness of its unit commitment process.

Q Ameren repeatedly complains of the use of hindsight in your Direct Testimony analysis of the Company's unit commitment decisions.[47] Why did your analysis rely primarily on actual operational data rather than contemporaneous forecast data from the time of Ameren's commitment decisions?

A My analysis relied primarily on actual historical data because Ameren overwrote all data and analyses from the time of its unit commitment decisions.[48] It is entirely unreasonable for Ameren to delete the data it used to inform its unit commitment decisions and then complain about stakeholders using the most useful information available—actual data—rather than the data that the Company chose to delete. Ameren should not be given the "benefit of the doubt" and rewarded for its inappropriate practice of deleting its data.

Q In instances where Ameren's coal units incurred operational losses, Ameren claims that contemporaneous forecasts of market prices likely did not reveal the negative margins and losses that actually occurred.[49] Has Ameren provided any evidence to support this claim?

A No. Such claims are pure speculation. Ameren has deleted all evidence regarding what its contemporaneous forecasts indicated regarding margins and unit-specific operational losses in 2018.

[47] Rebuttal Testimony of Andrew Meyer at 26; Rebuttal Testimony of Todd Schatzki at 21.

[48] Ameren Response to Data Request No. SC 1.24c (*see* Ex. AA-S-1).

[49] Rebuttal Testimony of Andrew Meyer at 29.

Q Ameren outside witness Todd Schatzki argues that Ameren's coal unit self-commitment decisions are reasonably grounded in the Company's analyses of the profitability of committing its units.[50] Did Mr. Schatzki provide any evidence to support this claim?

A No. In discovery, Ameren admitted that Mr. Schatzki has not reviewed any of Ameren's unit commitment analyses.[51] Thus, Mr. Schatzki's claims about the reasonableness of such analyses appear to be mere repetition of what he has been told by Ameren.

Q Mr. Meyer's rebuttal testimony states that the Company "does not object to retaining the analysis used in making its unit commitment decisions and is already actively working to amend its analysis processes to allow for retention of this data."[52] How do you respond?

A I appreciate that Ameren now intends to correct its problematic practice of overwriting its unit commitment analyses. However, I still believe that a Commission order requiring Ameren to retain the data and analyses used to inform its unit commitment decisions would be useful. Until Ameren has corrected its practice of deleting contemporaneous forecasts, I believe the best data available to evaluate Ameren's unit commitment practice remains actual historical prices and operational data.

iii. <u>The Commission should not rely on MISO for oversight of Ameren's unit commitment practices.</u>

Q Ameren objects to your characterization of the Company's unit commitment decisions as ungoverned by market forces, arguing that the Company's consideration of market risks and costs in its unit commitment decisions amounts to government by market

[50] Rebuttal Testimony of Todd Schatzki at 15-16.

[51] Ameren Response to Data Request No. SC 7.38 (*see* Ex. AA-S-1).

[52] Rebuttal Testimony of Andrew Meyer at 29.

forces.[53] Can you clarify what you meant when you said that the extent to which Ameren's coal units are online is largely "ungoverned by market forces"?

A Yes. I meant that, since Ameren almost exclusively self-commits its coal units, the commitment of these units is neither the result of market competition nor an outcome of MISO market optimization. Ameren independently commits these units outside of MISO's process for economic commitment. Whether Ameren's commitment decisions are informed by sound consideration of market factors is a subject worthy of careful Commission review, not something that should be summarily asserted and accepted without supporting evidence. That is why it is important to be able to review the data and analyses used by Ameren to inform its unit commitment decisions. In this proceeding, Ameren has provided zero evidence to support the claim that its unit commitment process properly accounts for market forces.

Q Ameren suggests that the review of MISO's Independent Market Monitor (IMM) applies market forces to the Company's unit commitment decisions.[54] Do you agree?

A No. There is no basis for this claim. Ameren has acknowledged that it is not aware of any instances in which the MISO IMM has reviewed Ameren's self-commitment process or decisions.[55] I would further note that it would have been very difficult for the MISO IMM to vet Ameren's unit commitment process, given Ameren's practice of deleting the basis for its commitment decisions.

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[53] Rebuttal Testimony of Andrew Meyer at 35.

[54] Rebuttal Testimony of Andrew Meyer at 31; Rebuttal Testimony of Todd Schatzki at 16.

[55] Ameren Response to Data Request No. SC 7.39; Ameren Response to Data Request No. SC 7.28 (*see* Ex. AA-S-1).

Q Ameren witness Todd Schatzki argues that Ameren's use of profitability analyses in its unit commitment process means that the Company's unit commitment decisions reflect market forces in the same way as decisions in other industries.[56] Do you agree?

A No. This strange argument ignores the crucial fact that in most industries competition and customer choice are the market forces that discipline business decisions. Ameren, in contrast, is a monopoly that is able to pass 95 percent of all fuel cost—including any unprofitably incurred fuel costs—through to captive customers in the absence of Commission oversight.[57] Ameren's claim that it conducts internal profitability assessments—analyses that neither Mr. Schatzki nor the Commission have been able to review—is no replacement for the discipline of market competition or Commission scrutiny.

Q Ameren identifies certain flaws with the existing MISO economic commitment process.[58] Do these flaws mean that the Commission should blindly accept Ameren's self-commitment decisions?

A No. I agree with Ameren that the combination of the inflexibility of the Company's coal units and the short timeframe accounted for in MISO's commitment process means that it may make sense for the Company to self-commit its coal units *in some cases.* However, a general role for self-commitment under current market rules does not justify every specific self-commitment decision. The proper Commission response to the Company's commitment practices is to carefully review Ameren's unit commitment decisions and not assume that such decisions are prudent. In addition, the Commission should support efforts to revise MISO's economic commitment process to account for unit lead times and cycling costs.

[56] Rebuttal Testimony of Todd Schatzki at 16.

[57] Under the Company's FAC, 95 percent of incremental fuel costs are borne by customers, whereas 5 percent are borne by Ameren. *See* Direct Testimony of Marc. L. Althoff on Behalf of Ameren at 3.

[58] Rebuttal Testimony of Andrew Meyer at 31.

iv. <u>Ameren's analyses show that the Company incurred unnecessary net operational losses in 2018.</u>

Q How did Ameren respond to your Direct Testimony analyses indicating that Ameren's unit commitment practices led the Company to incur at least $861,000 in net operational losses in 2018?

A Ameren witness Andrew Meyer argued that many of the fuel costs accounted for in my analyses were fixed for the purposes of unit commitment and dispatch decisions.[59] This marked a departure from Ameren's previous claims that none of its fuel costs were fixed for the purposes of dispatch. Mr. Meyer presented an alternative set of analyses in which he revised my analyses to include only those fuel costs he views as marginal costs.

Q Generally, what do Mr. Meyer's revised analyses indicate?

A Unsurprisingly, when Mr. Meyer removes a substantial portion of actually incurred fuel costs from my analysis, he finds that the operational performance of Ameren's fuel units was more profitable and less harmful than indicated by my analysis. Mr. Meyer argues that his revised analysis shows that Ameren committed its coal units prudently in each of the four instances I discussed in my Direct Testimony.[60]

Q Do you agree that Mr. Meyer's analyses establish that the Company operated prudently in the four self-commitment examples he discusses?

A No. Even under the assumption that many of Ameren's 2018 fuel costs were fixed, and that Ameren's generation offer prices reflected the Company's marginal costs of production, Mr. Meyer's analyses indicate that the Company's commitment practices likely resulted in

[59] Rebuttal Testimony of Andrew Meyer at 26.

[60] *Id.* at 27.

avoidable net operational losses in three of the four examples he discusses. These instances include the decision to bring Sioux Unit 1 back online following an outage in February 2018, the choice to keep Sioux Unit 1 online through February and March 2018, and the decision to bring Labadie Unit 2 back online following an outage in March 2018.

Q Please explain what Mr. Meyer's analysis shows with respect to Ameren's decision to bring Sioux Unit 1 back online following an outage in February 2018.

A Mr. Meyer argues that his revised analysis indicates that Sioux Unit 1 actually earned $13,864 in net operational profits during the two weeks following the unit's return from outage on February 20.[61] However, Mr. Meyer's analysis also shows that Sioux Unit 1 incurred net operational losses during the hours and days immediately following its return from its February outage. Mr. Meyer's analysis indicates that Sioux Unit 1 incurred net operational losses of $17,931 during the first 19 hours following its return from an outage and $16,185 during the first full 24 hours after coming back online.[62] In addition, Ameren's analysis indicates that Sioux Unit 1 incurred net operational losses of $6,459 between the hour in which it returned to operation and the morning of March 15, 13 days later. This confirms that, as indicated in my Direct Testimony, Ameren would have saved customers money by extending the Sioux Unit 1 outage.

Q Please explain what Mr. Meyer's analysis shows with respect to Ameren's decision to keep Sioux Unit 2 online throughout February and March 2018.

A Mr. Meyer's analysis indicates that Sioux Unit 2 incurred $50,713 in net operational losses during the period from February 9 through March 14.[63] Mr. Meyer argues that this level of losses was not sufficient to justify taking Sioux Unit 2 offline, because it is less than the

[61] Rebuttal Testimony of Andrew Meyer at 27.

[62] Ameren Workpaper "Meyer Rebuttal Workpapers Confidential.xlsx," tab "Sioux 1 Event."

[63] Rebuttal Testimony of Andrew Meyer at 29.

$87,000 hurdle rate that Ameren applies to decommit decisions.[64] However, Mr. Meyer's analysis indicates that Sioux Unit 2 incurred net operational losses of $93,069 during a period from February 23 through March 4.[65] This is $6,069 greater than Ameren's claimed decommit hurdle rate and $81,069 greater than Sioux Unit 2's cold startup costs. This confirms that, as indicated in my Direct Testimony, Ameren likely would have saved customers money by decommitting Sioux Unit 1 for a period of February and March 2018.

Q Please explain what Mr. Meyer's analysis shows with respect to Ameren's decision to bring Labadie Unit 2 back online following an outage in March 2018.

A Mr. Meyer argues that his revised analysis indicates that Labadie Unit 2 earned $154,030 in net operational profits during the week following the unit's return from outage on March 24.[66] However, Mr. Meyer's analysis also shows that Labadie Unit 2 incurred net operational losses during the hours immediately following its return from its March outage. Mr. Meyer's analysis indicates that Labadie Unit 2 incurred net operational losses of $7,415 during the first 14 hours following its return from an outage and $4,802 during the first full 24 hours after coming back online.[67] This suggests that, as stated in my Direct Testimony, Ameren's customers would have benefited from the Company waiting for higher energy prices to bring Labadie Unit 2 back online in March 2018.

Q Under Mr. Meyer's incremental cost assumptions, what are the total net operational losses associated with these three events?

A Mr. Meyer's analysis indicates that the Company could have avoided a total of $31,414 in net operational losses across these three events.

[64] Rebuttal Testimony of Andrew Meyer at 28-29.

[65] Ameren Workpaper "Meyer Rebuttal Workpapers Confidential.xlsx," tab "Sioux 2 Event."

[66] Rebuttal Testimony of Andrew Meyer at 29-30.

[67] Ameren Workpaper "Meyer Rebuttal Workpapers Confidential.xlsx," tab "Labadie 2 Event."

v. <u>Ameren's rebuttal testimony demonstrates the bias in the Company's approach to the commitment of its coal units.</u>

Q What general concerns did your Direct Testimony express regarding Ameren's unit commitment process?

A My Direct Testimony expressed the concern that Ameren's unit commitment process may be biased in favor of keeping the Company's coal units online. Specifically, I raised the concern that Ameren may not apply the same degree of rigor to a decision to bring a coal unit back online as it does to a decision to decommit a unit.[68]

Q How did Ameren respond to this concern?

A Ameren asserted that it does apply the same degree of rigor to a decision to bring a unit back online as it does to a decision to decommit a unit.[69]

Q Are there any elements of Ameren's rebuttal testimony that reinforce your concerns with bias in Ameren's unit commitment process?

A Yes. The different standards that Mr. Meyer applies to a decision regarding whether to bring Sioux Unit 1 back online following an outage and a decision regarding whether to decommit Sioux Unit 2 exemplify the bias that I described in my Direct Testimony.

Q What hurdle rate does Ameren say it applies to a decision to decommit either of the Sioux units?

A Ameren states that it applies a hurdle rate of $87,000 when considering whether to decommit one of the Sioux units.[70] In other words, the Company requires that its analyses indicate that

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[68] Revenue Requirement Direct Testimony of Avi Allison at 37.

[69] Rebuttal Testimony of Andrew Meyer at 35.

a Sioux unit will incur net operational losses greater than $87,000 over its commitment analysis period in order to consider taking that unit offline for economic reasons.

Q What is the basis for the $87,000 hurdle rate?

A The $87,000 hurdle rate includes both $12,000 in cold startup costs and an additional $75,000 associated with repairing damages that result when the Sioux units are cycled on and offline.[71] According to the Company, the Sioux units are so inflexible and brittle that they incur costly damage to boiler tubes every time they are taken offline.[72]

Q Did Ameren apply this $87,000 hurdle rate in its assessment of the Company's decision to keep Sioux Unit 2 online throughout February and March 2018?

A Yes. Mr. Meyer's testimony indicated that Sioux Unit 2 incurred net operational losses of $82,908.45 from February 4 to March 2, but Ameren concluded that it was reasonable to keep the unit online because this value is less than the $87,000 hurdle rate.[73]

Q Did Ameren apply this $87,000 hurdle rate in its assessment of the Company's decision to bring Sioux Unit 1 back online following an outage in February 2018?

A No. Ameren defended its decision to bring Sioux Unit 1 back online based on its calculation of positive margins of $13,864 during the two weeks following that unit's return from

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[70] Rebuttal Testimony of Andrew Meyer at 28-29.

[71] Rebuttal Testimony of Andrew Meyer at 28-29. I would note that when asked for all analyses supporting its Sioux unit cycling cost assumption, the Company simply asserted that the value was based on "discussions with the energy center," making it very difficult for the Commission or parties to verify or evaluate this assumption. Ameren Response to Data Request No. SC 8.11 (*see* Ex. AA-S-1).

[72] Ameren Response to Data Request No. SC 7.23 (*see* Ex. AA-S-1).

[73] Rebuttal Testimony of Andrew Meyer at 29. As described above, the documentation underlying Mr. Meyer's testimony actually indicates that Sioux Unit 2 incurred more than $93,000 in net operational losses during an uninterrupted stretch between February 23 and March 4.

outage.[74] Ameren explained that this value is greater than Sioux Unit 1's $12,000 startup costs, and thus justified bringing Sioux Unit 1 back online.[75]

Q Was there any period during the two weeks following Sioux Unit 1's return from outage in February 2018 when that unit incurred net operational revenues greater than $87,000?

A No.

Q What is the implication of the difference between the hurdle rate applied by Ameren to its assessments of past decisions to bring a Sioux unit back online and the hurdle rate applied to a decision to take a Sioux unit offline?

A The difference in hurdle rates applied in Ameren's testimony reflects an unreasonable bias in favor of keeping coal units online and against taking them offline. The hurdle rate that Ameren applied to a decision to take a unit offline is more than eight times greater than the hurdle rate applied to a decision to bring the same type of unit online. There is no reasonable basis for this discrepancy.

Q Why does it not make sense to apply a higher hurdle rate to a decision to bring a unit offline compared to a decision to bring a unit back online?

A Every Ameren unit spends at least some time online and some time offline in every year. It is reasonable to expect that whenever a unit is taken offline for economic reasons it will be brought online again at some future date. Similarly, whenever a unit is brought online following an outage it is obvious that the unit will be taken offline again at some future date. The question is then whether that unit will earn sufficient net operational revenues between

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[74] Rebuttal Testimony of Andrew Meyer at 27-28.

[75] *Id.*

the most recent outage and some future outage to recover the costs of cycling the unit on and offline. This is the exact inverse of the question as to whether taking a unit offline will avoid sufficient net operational losses to justify the cost of cycling the unit off and online. The hurdle rate applied to these two types of decisions should be the same. Ameren's application of different hurdle rates to the two types of decisions is a clear marker of bias.

vi. <u>Ameren's unit commitment and dispatch practices should be a subject of review in each FAC prudence review proceeding.</u>

Q In your Direct Testimony, you suggested that Ameren's FAC adjustment filing process should be revised to allow for sufficiently rigorous evaluation of the Company's commitment and dispatch practices. How did Ameren and other parties respond to this recommendation?

A Ameren responded that the Company's FAC prudence review proceedings are a more appropriate venue for evaluating unit commitment and dispatch practices.[76] Staff and OPC similarly recommended that review of the Company's unit commitment and dispatch practices be focused in the prudence review component of Ameren's FAC process.[77]

Q Having reviewed the testimony of Ameren, Staff, and OPC, do you now agree that FAC's adjustment filing process need not be modified to allow for review of the Company's commitment and dispatch practices?

A Yes. Having reviewed the testimony of Ameren, Staff, and OPC, I accept that the Company's FAC prudence review proceedings are the appropriate FAC proceedings for review of Ameren's unit commitment and dispatch practices. I no longer believe it is necessary or

[76] Rebuttal Testimony of Tom Byrne on Behalf of Sierra Club at 57-58.

[77] Rebuttal Testimony of Lisa Wildhaber on behalf of Staff at 9-10; Rebuttal Testimony of Lena Mantle at 18.

advisable to revise the FAC adjustment filing process to allow for the review of such practices.

Q Ameren suggests that any minimum filing requirements related to its unit commitment decisions should be limited to the Company's coal units and should only apply to rate cases. How do you respond?

A Since the Company's self-commitment decisions pertain primarily to its coal units, it may be reasonable to limit such minimum filing requirements to those units. However, I believe that the Commission should require the Company to provide the minimum commitment-related information identified in my Direct Testimony[78] upon the initiation of its FAC prudence review proceedings as well as its rate cases.

Q Does this conclude your surrebuttal revenue-requirement testimony?

A Yes, it does.

[78] Revenue Requirement Direct Testimony of Avi Allison at 43.