BEFORE THE OHIO POWER SITING BOARD

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In the Matter of the Application of The Ohio State University for a Certificate of Environmental) Compatibility and Public Need for a Combined Heat and Power Generating Facility in Franklin County, Ohio

Case No. 19-1641-EL-BGN

MEMORANDUM CONTRA TO SIERRA CLUB'S APPLICATION FOR REHEARING BY THE OHIO STATE UNIVERSITY

I. **INTRODUCTION**

The Ohio State University ("Ohio State") opposes Sierra Club's Application for Rehearing of the Ohio Power Siting Board's (the "Board") September 17, 2020 Opinion, Order and Certificate. Sierra Club's arguments regarding environmental impact lack support in the evidentiary record and were already considered, addressed, and properly rejected.

Sierra Club again relies on a hypothetical solution it wishes were available to Ohio State, while ignoring the actual testimony in this case from experts and the people intimately familiar with Ohio State's system. Those witnesses testified that Sierra Club's hypothetical solution would not solve Ohio State's steam, electrical generation, and reliability needs. Their expertise in evaluating suitability of the very technologies urged by Sierra Club here should be dispositive because Ohio State has already installed those technologies (geothermal, heat recovery chillers, etc.), and Ohio State is in the process of expanding those systems where it is feasible and costeffective to do so. However, there are practical limits on these technologies, imposed by real estate constraints, physics, and budgets which make Sierra Club's preferred option infeasible. The Board's decision was supported by this record evidence, was completely appropriate, and should be affirmed on rehearing.

Sierra Club also makes the unsupported contention that Chairman Randazzo's Concurring Opinion is somehow improper and displays bias. It is not bias for any adjudicatory body to comment on the issue before it after all relevant evidence has been submitted. While Sierra Club may not agree with the Board or Chairman Randazzo's decisions in this matter, Sierra Club has not offered any legal justification or precedent suggesting that the Board can or should strike an opinion from a member of the Board. As Sierra Club has failed to provide any legal justification for this request, the request to strike Chairman Randazzo's Concurring Opinion should be denied.

Ohio State must address the campus need for: (1) thermal load for its dorms, critical research facilities, hospitals, and other campus buildings; (2) electrical generation; and (3) system reliability and islanding capacity when power may not be available from the grid. The CHP facility meets all of those needs, and Sierra Club has failed to offer any justification for altering the Board's decision on rehearing. Sierra Club's Application for Rehearing must be denied.

II. ARGUMENT

A. Sierra Club faults Ohio State and the Board for rejecting a hypothetical system that is not supported by any record evidence.

Sierra Club claims that there is no "credible" evidence in the record to support the Board's finding that a heated hot water system utilizing geothermal wells and heat exchangers is not a viable alternative to the CHP facility.¹ Sierra Club's contention adds nothing new and fails to present any new argument that the Board has not already considered, addressed, and properly rejected. By making this argument, what Sierra Club really takes issue with is the Board's exercise of its discretion to weigh evidence. The Board heard and weighed the testimony of the CEO of Ohio State Energy Partners ("OSEP"), Mr. Serdar Tufekci, and the Senior Director of

¹ Sierra Club Application for Rehearing at 7.

Comprehensive Energy Management for Ohio State, Mr. Scott Potter. They had considered the technologies proposed by Sierra Club and in fact were currently using those technologies at Ohio State, but determined that those technologies simply could not meet Ohio State's current needs. The Board properly rejected or gave less weight to the testimony of Sierra Club's expert witness, Dr. Ranajit Sahu—who had not analyzed whether his proposals were even feasible given Ohio State's geographic location and other physical constraints and never provided any cost estimates for his proposals whatsoever.² While Sierra Club's brief may attack Ohio State's conclusions, Sierra Club has offered no conflicting record evidence.

The decision to credit, weigh, and reject testimony is well within the Board's discretion. R.C. 4906.03 puts the responsibility to approve or reject applications exclusively in the jurisdiction of the Board. The Ohio Supreme Court has made clear that the scope of a hearing, and the Board's weighing of conflicting evidence, will only be overturned when the decision is "unreasonable or unlawful."³ Here, Ohio State offered testimony from two qualified witnesses with personal knowledge of the system who provided detailed testimony explaining why Sierra Club's proposal was invalid. In contrast, Sierra Club offered the testimony of a witness who had no personal knowledge of Ohio State's system and whose testimony was based upon articles about what other universities have done. The Board's decision is well within its discretion under R.C. 4906.03.

In any event, Sierra Club largely repeats its previous claims that Ohio State should have considered geothermal and did not study load for the system as a whole. Once again, Sierra Club never offers any evidence that its preferred system would work. Instead, Sierra Club simply points to other universities to claim that Ohio State should have done what the other universities did.

² Tr. 221; Ohio State Post-Hearing Reply Brief at 26.

³ In re Application of Buckeye Wind, L.L.C., 131 Ohio St.3d 449, 2012-Ohio-878, 966 N.E.2d 869, ¶ 26.

This position is without merit, as Sierra Club ignores the differences in those university systems as compared to Ohio State's system, as well as Ohio State's physical limitations in an urban environment.

1. The record evidence supports the Board's finding that Ohio State considered all commercially available technology.

Sierra Club claims that the Board's finding that the record evidence establishes that Ohio State reasonably considered and properly rejected various alternatives to the CHP facility is incorrect because "[n]otably absent from this list is the alternative that OSU's Feasibility Study identified as superior: a heated hot water system utilizing geothermal wells and heat exchangers."⁴ This assertion is incorrect because, as the Board explained, Sierra Club itself "acknowledge[d] that the evidence does not definitely establish that Ohio State's needs can be met through conversion to a heated hot water system, with thermal generation provided through heat exchangers and supplemented by geothermal wells."⁵

Further, this issue has already been thoroughly addressed at great length in both parties' post-hearing briefs and thus fails to raise any new arguments that the Board has not already addressed, considered, and properly rejected.⁶ As the Board properly found, Ohio State reasonably considered and rejected various alternatives to the CHP facility proposed in the application,⁷ including heating hot water, geothermal, and renewable generation. Accordingly, Sierra Club's contention is without merit.

⁴ Sierra Club Application for Rehearing at 11.

⁵ Order ¶ 71.

⁶ Sierra Club Post-Hearing Brief at 8–12; Ohio State Post-Hearing Reply Brief at 17–22.

⁷ Order ¶ 70.

2. The record evidence supports the Board's finding of a lack of available land on campus and the scale of heating required.

Sierra Club claims that the record does not support the Board's finding that geothermal heating is not a viable alternative to the CHP facility due to the lack of available land on campus and the scale of heating required.⁸ Sierra Club then posits that because no analysis at a system-wide level was conducted, Mr. Tufekci's testimony concerning the lack of available land is somehow deemed "not credible."⁹

Not only has this already been considered, addressed, and properly rejected by the Board, but this is also baseless. It simply does not take a formal study to determine what common sense makes clear: due to the lack of available land, the scale of heating required on campus, and the non-heating related steam required on campus, geothermal is not a viable option for Ohio State.¹⁰ Furthermore, Sierra Club's argument fails to recognize that Mr. Tufekci's testimony is not the sole evidence addressing this—both Mr. Potter and Staff testified that geothermal was not a viable option for Ohio State,¹¹ with Staff even noting the previous issues Ohio State encountered when installing a prior geothermal project on campus.¹²

⁸ Sierra Club Application for Rehearing at 7.

⁹ Sierra Club Application for Rehearing at 7–8.

¹⁰ Tr. 70; Ohio State Post-Hearing Reply Brief at 19, 28.

¹¹ Tr. 190–91; Ohio State Post-Hearing Reply Brief at 28.

¹² Tr. 388–89 ("I did research geothermal to an extent. I found that the University did install geothermal a few years ago and it seemed to be overbudget. And then also on page 17 of the application from – page 16, 'These cavernous zones' – at the bottom line 'These cavernous zones created many problems during well development for this geothermal project including guisers spouting out previously drilled holes while drilling new wells.' So there were some issues with the geothermal project that was – that was begun or initiated a few years ago at the University. The proposal in front of us is a combined heat and power project, so we looked at that project and we looked at the technology that they would install and we – we did not look at – we didn't propose another alternative for the Applicant. We – they proposed a CHP project. We looked at it. We looked at what was proposed in front of us."); Ohio State Post-Hearing Reply Brief at 19.

Sierra Club is also incorrect that Ohio State did not consider load on a system-wide basis.¹³ Despite Sierra Club's claims to the contrary, Ohio State does have hourly (and in some cases minute by minute) data on the heating and cooling needs of its system, as "an hourly analysis of thermal load on campus" was conducted.¹⁴ This was repeatedly addressed at the hearing.¹⁵ While the detail of that analysis (which is quite extensive) was not included in the Feasibility Study, it exists and was considered.

Moreover, Sierra Club's reliance on other university systems that are not comparable to Ohio State is irrelevant.¹⁶ As the record evidence makes clear, Dr. Sahu has no personal knowledge regarding the specifics of the thermal needs required at each university,¹⁷ nor does he know this critical information about Ohio State's campus—including whether there is suitable land on Ohio State's campus where a geothermal system with equivalent thermal output to the CHP could be located.¹⁸ The loads at each institution are different due to their size, the need for steam, the presence of hospitals (and accompanying need for reliability), weather patterns, and urban/rural locations. There is therefore no "one size fits all" solution as urged by Sierra Club's incomplete analysis. Sierra Club simply cannot make any sound comparison between other university systems and Ohio State's system and, as such, Sierra Club's contention is without merit.

3. The record evidence supports the Board's finding that heat recovery chillers are not a feasible or cost-effective option for every building.

Sierra Club claims that "the Board's reliance on Mr. Tufekci's testimony that 'chillers are not a feasible or cost-effective option for every building" is "misplaced" because the Stanford and

¹³ Sierra Club Application for Rehearing at 7–8.

¹⁴ Tr. 83; Ohio State Post-Hearing Reply Brief at 17–18.

¹⁵ Tr. 83, 166; Ohio State Post-Hearing Reply Brief at 18.

¹⁶ Sierra Club Application for Rehearing at 8.

¹⁷ Tr. 302–05; Ohio State Post-Hearing Reply Brief at 30–31.

¹⁸ Tr. 236, 238; Ohio State Post-Hearing Reply Brief at 28.

Ball State projects apparently show that chillers need not be located on every building.¹⁹ Again, Sierra Club's reliance on other universities' projects is irrelevant with respect to Ohio State because of the notable differences in the facilities.²⁰ Likewise, this contention does nothing to refute the record evidence that establishes chillers are not a feasible or cost-effective option for every building on Ohio State's campus.²¹ The Board properly weighed the evidence and credited the testimony of the witness who was personally familiar with all aspects of Ohio State's system over the hypothetical system proposed by a witness with no personal knowledge regarding how the system operates. As this weighing of the evidence is completely within the discretion of the Board, Sierra Club's claim is without merit.

4. The Board's finding that a steam to hot water conversion is essentially dependent upon the construction and operation of the CHP facility was proper.

Sierra Club claims that the Board was incorrect in finding that it appears that a steam to hot water conversion is essentially dependent upon the construction and operation of the CHP facility.²² Sierra Club's only argument against the Board's finding is that "[t]he energy used to heat this water need not come from steam" because the Stanford conversion project "entailed the *replacement* of its CHP facility with other forms of energy exchange and storage to heat the hot water system."²³ Again, Sierra Club's reliance on another university project is irrelevant here due to Ohio State's different needs, differences in weather between locations, differences in load

¹⁹ Sierra Club Application for Rehearing at 8.

²⁰ See Ohio State Post-Hearing Reply Brief at 30–31.

²¹ See Ohio State Post-Hearing Reply Brief at 17–18, 29.

 $^{^{22}}$ Order ¶ 71; Sierra Club Application for Rehearing at 8–9.

²³ Sierra Club Application for Rehearing at 9.

requirements, and geographic restrictions that must be taken into account.²⁴ Accordingly, Sierra Club's argument is unsupported by record evidence that its proposal is actually feasible.

5. The record evidence supports the Board's finding that cost considerations preclude the use of heated hot water as a viable alternative.

Sierra Club claims that "the Board's finding that cost considerations preclude the use of heated hot water as a viable alternative is not supported in the record" because that finding is based on Mr. Tufekci's testimony of the estimated cost of conversion and, according to Sierra Club, is not based on any formal study.²⁵ Contrary to Sierra Club's claim, no formal study is required. Likewise, Sierra Club's attempt to discredit Mr. Tufekci's testimony because it does not align with the estimate for converting steam to hot water piping included in the Feasibility Study is unavailing.²⁶ As Sierra Club itself acknowledges, Mr. Tufekci explained that the Feasibility Study estimate was based on general assumptions concerning steam network use in the future.²⁷ Whereas, his testimony at the hearing that a complete steam to hot water conversion at present would cost a few hundred million dollars was his professional estimate considering the scale of Ohio State's campus and other logistics.²⁸

It is also important to note that Sierra Club has not offered any testimony regarding the costs of implementing its proposed technology. It is inappropriate for Sierra Club to offer nothing in support of its hypothetical solution but then fault the Board for relying on the only record evidence on this point.

²⁴ See Ohio State Post-Hearing Reply Brief at 30–31.

²⁵ Sierra Club Application for Rehearing at 9.

²⁶ Sierra Club Application for Rehearing at 9–10.

²⁷ Sierra Club Application for Rehearing at 10.

²⁸ Tr. 76.

Sierra Club also claims that the Board's finding that heated hot water conversion is outside of Ohio State's current budget constraints is an unreasonable finding because the CHP facility will cost "well in excess of [Ohio State's] annual energy budget" of \$197 million.²⁹ This is also unavailing, especially considering that Sierra Club failed to consider Ohio State's budget constraints in any of its proposals.³⁰ Ohio State and the Board are both well aware of the realities of project finance. Regardless of whether Ohio State pays the funds up front or chooses to finance the facility, Ohio State is ultimately responsible for paying for its construction. Ohio State therefore must take estimated cost into account. Indeed, despite Sierra Club's acknowledgement that costs—including costs that would be part of the construction and operation of a facility should be taken into account by the Board, Sierra Club failed to take cost into account at all or conduct any calculations.³¹ Sierra Club simply cannot criticize the Board for taking into consideration Ohio State's budget constraints, when Sierra Club itself failed to do so.

Sierra Club's argument that there was "conflicting evidence" regarding whether the proposed facility or a geothermal alternative would entail greater annualized costs over their respective lifespans is a mischaracterization of the record evidence.³² Importantly, Sierra Club never provided any projected costs for any of its proposed options.³³ Sierra Club also could not testify as to whether the CHP was the lowest-cost option, despite Dr. Sahu's initial claim that "the lowest-cost, least-environmental impact option" for meeting heating and cooling loads "might not be, and in fact likely will not be, the traditional CHP design."³⁴ When directly questioned what

²⁹ Sierra Club Application for Rehearing at 10.

³⁰ Ohio State Post-Hearing Reply Brief at 25–26.

³¹ Tr. 221, 225–26; Ohio State Post-Hearing Reply Brief at 23, 25–26.

³² Sierra Club Application for Rehearing at 10–11.

³³ Tr. 221; Ohio State Post-Hearing Reply Brief at 22–24.

³⁴ Ohio State Post-Hearing Reply Brief at 26.

the lowest-cost option is in his opinion, Dr. Sahu failed to provide a definitive answer and could only generally claim that the lowest cost option "would appear to be a combination of technologies to meet its heating and power generation needs," as discussed in his report—the report he admits does not include any projected costs for those options.³⁵

Finally, relying on Stanford's published account that claimed its analysis concluded that conversion from CHP heat was anticipated to save Stanford hundreds of millions of dollars over the next three decades³⁶ does nothing to establish heated hot water is a viable alternative for Ohio State and its campus, given the vast differences between the universities and their respective campuses.³⁷ Thus, Sierra Club's arguments are unavailing.

6. The record evidence supports the Board's finding that renewable energy cannot fulfill the electrical needs of Ohio State.

Although Sierra Club attacks the Board's finding that renewable energy cannot fulfill the electrical needs of Ohio State, Sierra Club never makes any real argument that the Board's finding lacks evidentiary support.³⁸ Nonetheless, Sierra Club's argument fails, as the record evidence establishes several reasons why renewable generation is not feasible to meet the electrical needs of Ohio State.

As Mr. Tufekci testified, because "it is physically unfeasible to get to the scale needed on campus with on-site renewable generation resources," renewables simply cannot provide reliable generation in the volumes needed by Ohio State.³⁹ For example, a solar farm with the same capacity as the average campus load would require a footprint of 700 acres of land and is thus not

³⁵ Tr. 221; Ohio State Post-Hearing Reply Brief at 26.

³⁶ Sierra Club Application for Rehearing at 10–11.

³⁷ See Ohio State Post-Hearing Reply Brief at 30–31.

³⁸ See Sierra Club Application for Rehearing at 11.

³⁹ Tr. 88.

physically possible.⁴⁰ Additionally, because renewable sources like solar and wind are intermittent, the reliability of such renewables is inconsistent with the reliability requirements necessary to meet Ohio State's demand needs.⁴¹ And, most notably, renewables simply do not have the islanding capacity that the CHP facility has. In the event that the regional or AEP grid fails and the proposed CHP is operating at that time, the CHP will continue to operate because it will go into an "island mode."⁴² Thus, because the record evidence supports the Board's finding that renewable energy cannot fulfill the electrical needs of Ohio State, Sierra Club's claim is without merit.

It is also important to note that Sierra Club has once again failed to acknowledge the price differences between the electricity produced by the CHP and that purchased by off-site renewable resources. As is expressly addressed in the Feasibility Study, off-site renewable generation is expected to cost roughly \$64/MWh to have delivered to Ohio State's campus, even assuming a \$35/MWh PPA price, which is a price below that proposed by Sierra Club.⁴³ This is more costly than the CHP, would still be intermittent, and would not address Ohio State's thermal needs. Off-campus renewable generation would also not address Ohio State's reliability needs.

Sierra Club's renewable energy proposals do not address Ohio State's reliability needs. They are also not feasible on-campus and would be more costly than the proposed facility. As such, the Board's finding is supported by extensive record evidence.

⁴⁰ Tr. 104–05, 108.

⁴¹ Tr. 101.

⁴² Tr. 168.

⁴³ Tr. 241–43; Ohio State Post-Hearing Reply Brief at 20, 23–24.

B. The Board properly considered the full extent of the adverse environmental impacts associated with the proposed facility.

Sierra Club argues that the Board must consider environmental impacts associated with the fuel source, and then argues that under R.C. 4906.10(A)(3), the Board must adopt the technology that would have the least environmental impact.⁴⁴ As natural gas, uranium, coal, fuel oil, and other fuels all would have at least some environmental impact, in making this argument, Sierra Club is really saying that Ohio law prohibits the construction of any generation source that is not renewable. This has never been the law in Ohio, and Sierra Club cites nothing in support of this position. Because this type of policy choice is for the General Assembly—not the Board—this argument must be rejected. Sierra Club also raises two additional arguments, both of which must also be rejected.

1. The Board's determination that impact from emissions will be negligible was proper.

First, Sierra Club claims that the Board erred when it determined that the impact from emissions will be negligible because, according to Sierra Club, the Board made this determination "[w]ithout so much as mentioning carbon dioxide or methane emissions."⁴⁵ This is incorrect. As explicitly stated by the Board, the Board did indeed consider the "carbon and other emissions that would be associated with the facility" and found them to be negligible.⁴⁶ Notably, the Board acknowledged the independent analysis conducted by TRC and explained that the "CHP project will have negligible impact on the existing air quality in Franklin County and will not affect its attainment status for any pollutant."⁴⁷ Even using conservative assumptions, the Board found that

⁴⁴ Sierra Club Application for Rehearing at 12–14.

⁴⁵ Sierra Club Application for Rehearing at 13.

⁴⁶ Order ¶ 72.

⁴⁷ Order ¶ 72.

"the highest concentration for any pollutant at the nearest sensitive location is less than two percent of the relevant air quality standard."⁴⁸ Further, following its consideration of the environmental impact associated with the CHP facility's air emissions, the Ohio EPA granted the necessary permit, without any limit on the capacity factor at which the facility must operate.⁴⁹ The Board also acknowledged that the "record also reflects that Ohio State will take appropriate steps to mitigate the negligible environmental impact through pollution control equipment and will employ best available technology to control air emissions."⁵⁰ Given this robust support, the Board's determination that the impact from emissions will be negligible was proper.

2. The Board's determination that nothing in R.C. 4906.10(A)(3) or the Board's rules requires an analysis of the environmental impact associated with the production of the fuel was proper and consistent with Ohio law.

Sierra Club also claims—incorrectly—that the Board's determination that "nothing in R.C. 4906.10(A)(3) or the Board's rules requires an analysis of the environmental impact associated with the production of the fuel" is contrary to the Board's "past precedent and law of this case."⁵¹ This is flat-out wrong.

The "past precedent" Sierra Club relies on concerns entries by the administrative law judge ("ALJ")—not the Board—regarding the relevancy of evidence that could potentially be considered by the Board when making its determination under R.C. 4906.10(A)(3).⁵² Neither the ALJ entry in this case compelling production of documents⁵³ nor the ALJ entry denying a motion in limine in *AMP-Ohio*⁵⁴ mandate that the Board consider fuel sources when determining whether the

⁴⁸ Order ¶ 72.

⁴⁹ Order ¶ 72.

⁵⁰ Order ¶ 72.

⁵¹ Sierra Club Application for Rehearing at 14.

⁵² Sierra Club Application for Rehearing at 14.

⁵³ Entry (July 7, 2020).

⁵⁴ In re American Municipal Power-Ohio, Inc., Case No. 06-1358-EL-BGN ("AMP-Ohio"), Entry (Dec. 4, 2007).

proposed facility represents the minimum adverse environmental impacts. Indeed, Sierra Club conflates two entirely separate and distinct standards when making this argument. The standard applied to determine relevancy when considering a motion to compel production of discovery (in both this case and any other case before the Board) is not the standard applied when determining whether a proposed facility represents the minimum adverse environmental impact under R.C. 4906.10(A)(3).

Likewise, Sierra Club's "law of this case" argument is unavailing, as Sierra Club points to no portion of the record where the Board stated that gas extraction impacts must be considered in the Board process.⁵⁵ Ohio law simply does not require the environmental impacts of fuel sources to be addressed by applicants. This is further evidenced by the fact that Staff also does not include any environmental impacts of gas extraction as part of its analysis—in this case or any other previous case. Indeed, Sierra Club did not provide any authority suggesting that the Board must take fuel extraction impacts into account, and to implement or create such a standard now would unduly prejudice Ohio State.⁵⁶

C. The Concurring Opinion from Chairman Randazzo is proper.

Despite devoting almost three pages to its argument against Chairman Randazzo's Concurring Opinion, Sierra Club cites nothing to support its contention that Chairman Randazzo's Concurring Opinion is "improper" and purportedly "suggests inappropriate bias" toward Sierra Club.⁵⁷ Not only is Sierra Club's claim groundless, but Sierra Club's request to strike Chairman Randazzo's Concurring Opinion simply does not change the outcome of this case: that the Board's

⁵⁵ See Sierra Club Application for Rehearing at 14–15.

⁵⁶ Ohio State Post-Hearing Reply Brief at 13–14.

⁵⁷ Sierra Club Application for Rehearing at 15–17.

September 17, 2020 Opinion, Order, and Certificate was proper. While Sierra Club may not agree with Chairman Randazzo's conclusion, Ohio's Sunshine Laws encourage this type of complete and open deliberative process. Simply put, there is nothing that prevents the Concurring Opinion from being included in the record, regardless of Sierra Club's claimed dismay with its contents. Accordingly, Sierra Club's request to strike Chairman Randazzo's Concurring Opinion should be rejected.

III. CONCLUSION

For the foregoing reasons, Ohio State respectfully requests that Sierra Club's Application for Rehearing be denied.

Respectfully submitted,

/s/ N. Trevor Alexander

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CERTIFICATE OF SERVICE

I certify that the foregoing was filed electronically through the Docketing Information System of the Public Utilities Commission of Ohio on this 26th day of October 2020. The PUCO's e-filing system will electronically serve notice of the filing of this document on counsel for all parties.

/s/ N. Trevor Alexander

One of the Attorneys for The Ohio State University

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Case No(s). 19-1641-EL-BGN

Summary: Memorandum Memorandum Contra to Sierra Club's Application for Rehearing electronically filed by Ms. Kari D Hehmeyer on behalf of THE OHIO STATE UNIVERSITY