

ILLINOIS POLLUTION CONTROL BOARD  
November 17, 2016

CALPINE CORPORATION	)	
(ZION ENERGY CENTER)	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 16-112
	)	(Variance – Air)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	)	
Respondent.	)	

OPINION AND ORDER OF THE BOARD (by G.M. Keenan):

Calpine Corporation owns three simple-cycle natural-gas-fired turbines in Zion, Lake County (known as “Zion Energy Center” or the “Facility”). The Facility also maintains a supply of distillate oil to burn when it cannot access natural gas. The existing supply of distillate oil has sulfur content that exceeds the requirements of the Board’s recently adopted Sulfur Content Rule, which becomes effective on January 1, 2017. Calpine filed a petition for a variance from this rule alleging that the Facility’s distillate oil cannot practicably be used or disposed of before the effective date of the Sulfur Content Rule. Finding that immediate compliance would impose an arbitrary or unreasonable hardship, the Board grants Calpine a variance with conditions.

This opinion first summarizes this proceeding’s procedural history, relevant legal background, the nature of the Facility, and Calpine’s requested relief. The opinion then sets out the Board’s analysis, finding that the substantial hardship on Calpine from immediately complying with the rule outweighs any harm to the public or environment from granting the variance. The Board also finds that the variance with conditions is consistent with federal law and furthers the policies of the Environmental Protection Act. The Board then grants Calpine the variance with conditions.

**PROCEDURAL HISTORY**

On August 8, 2016, Calpine filed an amended petition (Pet.) for a variance from the Board’s Sulfur Content Rule with an affidavit from a Calpine employee verifying the petition’s alleged facts.<sup>1</sup> The Sulfur Content Rule is located in Part 214 of the Board’s air pollution regulations.<sup>2</sup> Calpine timely published newspaper notice describing its petition; the Board did not receive any objections.<sup>3</sup>

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<sup>1</sup> Pet. at Exh. C.

<sup>2</sup> See 35 Ill. Adm. Code 214.161(b)(2).

<sup>3</sup> See 415 ILCS 5/37(a) (2014); 35 Ill. Adm. Code 104.214.

The Board accepted the petition on August 25, 2016. The Board then posed questions concerning Calpine's petition; Calpine and the Illinois Environmental Protection Agency both responded on September 22, 2016 (Calpine Resp., IEPA Resp.). Illinois EPA then filed its recommendation concerning the petition on October 5, 2016 (IEPA Rec.).<sup>4</sup> Calpine did not respond to Illinois EPA's recommendation.

Calpine waived its right to hold a hearing. Illinois EPA did not request a hearing, nor did any member of the public. The Board finds that a hearing is not necessary.<sup>5</sup>

## **LEGAL BACKGROUND**

### **Variations**

A variance provides a temporary exemption from a Board regulation.<sup>6</sup> The Illinois Environmental Protection Act (Act) empowers the Board to grant variances when it finds that compliance with a Board regulation "would impose an arbitrary or unreasonable hardship."<sup>7</sup> Any variance that the Board grants must comply with federal law (*e.g.*, the Clean Air Act) and may not last longer than five years.<sup>8</sup> The Board may impose conditions in a variance that promote the policies of the Act.<sup>9</sup>

When requesting a variance, the petitioner holds the burden of proof to show that immediate compliance with a Board rule would cause arbitrary or unreasonable hardship that outweighs the public interest.<sup>10</sup>

### **Sulfur Content Rule**

To reduce sulfur dioxide (SO<sub>2</sub>) emissions, the Board's Sulfur Content Rule requires that distillate oil may not contain over 15 parts per million (ppm) sulfur, effective January 1, 2017.<sup>11</sup> The rule applies to owners and operators of fuel combustion emission sources with actual heat input greater than 73.2 megawatts, burning liquid fuel exclusively.

Illinois EPA proposed the Sulfur Content Rule as a means to comply with the 2010 one-hour SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS). The Board adopted the Sulfur Content Rule on November 19, 2015 and it became effective on December 7, 2015.<sup>12</sup> USEPA

<sup>4</sup> See 415 ILCS 5/37(a) (2014); 35 Ill. Adm. Code 104.216.

<sup>5</sup> See 415 ILCS 5/37(a) (2014); 35 Ill. Adm. Code 104.234.

<sup>6</sup> See 35 Ill. Adm. Code 104.200(a)(1).

<sup>7</sup> 415 ILCS 5/35(a) (2014); *see also* 35 Ill. Adm. Code 104.200, 104.208, 104.238.

<sup>8</sup> See 415 ILCS 5/35, 35(b) (2014).

<sup>9</sup> See 415 ILCS 5/36(b) (2014).

<sup>10</sup> See 415 ILCS 5/37(a) (2014); 35 Ill. Adm. Code 104.200(a)(1), 104.238(a); Willowbrook Motel v. IPCB, 135 Ill. App. 3d 343, 349-50 (1st Dist. 1985).

<sup>11</sup> See 35 Ill. Adm. Code 214.161(b)(2).

<sup>12</sup> See Amendments to 35 Ill. Adm. Code Part 214, Sulfur Limitations, Part 217, Nitrogen Oxides Emissions, and Part 225, Control of Emissions from Large Combustion Sources, R15-21 (Nov. 19, 2015); 39 Ill. Reg. 16174 (Dec. 18, 2015).

designated four areas in Illinois as non-attainment for this SO<sub>2</sub> NAAQS: (1) the Lemont nonattainment area; (2) the Pekin nonattainment area; (3) the Alton Township nonattainment area; and (4) the Williamson County nonattainment area.<sup>13</sup> The Facility is not located in any of these areas. However, the Sulfur Content Rule applies state-wide, not just in nonattainment areas.

### **CALPINE'S FACILITY AND REQUESTED RELIEF**

Calpine's three simple-cycle combustion turbines (CTs) constituting Zion Energy Center usually burn natural gas to generate electricity, but occasionally burn distillate oil. The Facility is a "peaker" plant that only operates when electricity demand is high. Because it operates irregularly, the Facility does not require a constant supply of natural gas. When electricity grid managers call on the Facility to operate, if natural gas is not available, the Facility burns its backup supply of distillate oil.<sup>14</sup>

The Facility currently has 960,000 gallons of distillate oil with a sulfur content of 113 ppm. The distillate oil supply is a mixture of ultra-low sulfur fuel (at or below 15 ppm) and fuel with higher sulfur content.<sup>15</sup>

Calpine requested a variance allowing the Facility to combust distillate oil with sulfur content above 15 ppm for five years. During the term of the requested variance, Calpine would only purchase ultra-low sulfur content fuel (at or below 15 ppm). At the end of the requested variance's term, Calpine would combust distillate oil at or below 15 ppm, complying with the Sulfur Content Rule.<sup>16</sup>

Illinois EPA does not object to the variance, and believes the variance will not cause any injury to the public or the environment.<sup>17</sup>

### **BOARD ANALYSIS**

The Board must determine whether Calpine has shown that it would suffer an arbitrary or unreasonable hardship if its facility is required to timely comply with the Sulfur Content Rule.<sup>18</sup> This hardship must be then weighed against any public or environmental harm that would be caused by granting the variance. The Board must also ensure that the variance is consistent with federal law. Lastly, the Board may consider conditions to the variance that further the policies of the Act. Each of these issues is discussed in turn.

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<sup>13</sup> See 78 Fed. Reg. 47191–92 (Aug. 5, 2013) (Lemont and Pekin designations); 81 Fed. Reg. 45039 (July 21, 2015) (Alton Township and Williamson County designations) *see also* 40 C.F.R. § 81.314.

<sup>14</sup> Pet. at 4–8.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at 11–12.

<sup>17</sup> Rec. at 8, 10–11.

<sup>18</sup> See 415 ILCS 5/35(a) (2014); 35 Ill. Adm. Code 214.161(b)(2).

For the reasons discussed below, the Board finds that (1) requiring Calpine to immediately comply with the Sulfur Content Rule would impose an arbitrary or unreasonable hardship and (2) granting the variance would not compromise the State's obligations under the Clean Air Act. Therefore, the Board grants a variance to Calpine, subject to conditions.

### **Immediate Compliance Would Impose a Substantial Hardship on Calpine**

The Board finds that Calpine would suffer a substantial hardship if required to immediately comply with the Sulfur Content Rule. Calpine considered two options for immediate compliance: (1) combusting all of its distillate oil before January 1, 2017; and (2) draining the fuel from the storage tanks.<sup>19</sup> Calpine argued that neither alternative is practicable.

Calpine alleges that it cannot combust all of its distillate oil without violating its Clean Air Act Permit Program (CAAPP) permit.<sup>20</sup> Under its permit, the Facility may only combust distillate oil for limited purposes: when natural gas is unavailable or for shakedown, evaluation, and testing of the turbines. Calpine alleges that natural gas availability is unpredictable.<sup>21</sup> Additionally, because the Facility's turbines are expensive to operate, electricity grid operators only direct Zion to generate electricity when demand is high, such as during extreme weather conditions. Therefore, the Facility's permit and economic conditions prevent burning the entire supply of the distillate oil supply before January 1, 2017.

Calpine also argues that draining the storage tanks would impose a substantial hardship. Draining the tanks would entail purchasing and installing new equipment and revising Facility plans that safeguard against fuel spills at the cost of \$260,000.<sup>22</sup> Furthermore, Calpine alleges that it is contractually obligated to maintain 12 hours of backup fuel in case of emergency, so draining the tanks would violate this obligation and risk public safety.<sup>23</sup>

Illinois EPA concurs with Calpine that immediate compliance would impose a substantial hardship.<sup>24</sup>

The Board agrees that these compliance alternatives, the only ones available, are not practicable. Requiring immediate compliance would impose a substantial hardship on Calpine.

### **Granting the Variance Will Not Harm the Public or the Environment**

The Board finds that granting the variance would only minimally increase SO<sub>2</sub> emissions, causing no harm to the public or the environment. In making this determination, the impact of immediate compliance is compared to the impact under a variance.

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<sup>19</sup> Pet. at 9–11.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at 7.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 11.

<sup>24</sup> Rec. at 6–8.

Calpine alleges that with its existing supply of distillate oil, its turbines can operate for approximately 68.6 hours (or approximately 22.8 hours of operation for each of the three turbines). With the proposed maximum sulfur content of 115 ppm for distillate oil, this operation would emit a total of 0.77 tons of SO<sub>2</sub> over the five-year term of the variance, or 0.15 tons per year (tpy).<sup>25</sup> Under compliance with the Sulfur Content Rule (using only 15 ppm distillate oil), 68.6 hours of operation would yield a total of 0.10 tons of SO<sub>2</sub> emissions, or 0.02 tpy. The difference between the variance and compliance scenarios, then, is a total of 0.67 tons, or 0.13 tpy for five years.<sup>26</sup>

Illinois EPA does not believe that granting the variance will cause any injury to the public or the environment.<sup>27</sup>

The Board finds that the emissions under a variance, including the conditions described below, would not harm the public or the environment.

### **Calpine's Hardship Outweighs the Variance's Impact**

The Board now must weigh the hardship to the variance petitioner against the adverse impact to the public or the environment from granting the variance. Calpine must establish that its hardship "outweighs any injury to the public or the environment" from granting the variance.<sup>28</sup> If the hardship outweighs the injury, then it is considered an arbitrary or unreasonable hardship and the variance may be granted.

As examined above, immediate compliance with the Sulfur Content Rule is not practicable and the minimal additional emissions under a variance compared to compliance would not harm the public or the environment. Therefore, the weight is evident—the Board finds that the Calpine's hardship from compliance outweighs the public or environmental impact from granting the variance.

### **The Variance Is Consistent with Federal Law**

The Clean Air Act requires that states submit a State Implementation Plan (SIP) to USEPA to attain the SO<sub>2</sub> NAAQS.<sup>29</sup> Illinois EPA submitted the Sulfur Content Rule to USEPA as part of its SIP, and anticipates approval. If this variance is granted, Illinois EPA will submit the variance as a SIP revision. USEPA indicated to Illinois EPA that the variance would not threaten approval of the SIP.<sup>30</sup>

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<sup>25</sup> Pet. at 13.

<sup>26</sup> See Calpine Resp. at 5–6.

<sup>27</sup> Rec. at 8.

<sup>28</sup> See *Marathon Oil v. IEPA*, 242 Ill. App. 3d 200, 206 (5th Dist. 1993).

<sup>29</sup> See 42 U.S.C. § 7502, 7514, 7514a.

<sup>30</sup> Rec. at 8–9.

The Facility is also subject to 40 C.F.R. Part 60 Subpart GG for stationary combustion turbines, which limits fuel sulfur content to 8,000 ppm. The variance, which limits sulfur content to 115 ppm, is clearly consistent with this federal limitation.

Therefore, the Board finds that granting the variance, with conditions, would be consistent with applicable federal law.

### **The Variance's Conditions Will Promote the Act's Policies**

The Board finds that the compliance plan and conditions of the variance will further the Act's policies of protecting the environment.<sup>31</sup> Under Calpine's compliance plan, the Facility would comply with the Sulfur Content Rule by January 1, 2022 by continuing to purchase only fuel with sulfur content below 15 ppm.<sup>32</sup> This ensures that the sulfur content of the fuel used at the Facility will continue to decrease. The Board also requires Calpine to report the sulfur content of its fuel.<sup>33</sup> Additionally, Calpine proposes to maintain records demonstrating compliance with the variance conditions and notify Illinois EPA of any deviation from the variance conditions.

To further ensure that the variance will promote the Act's policies, the Board will also require that Calpine purchase and retire 25 tons of SO<sub>2</sub> allowances during the term of the variance. The Board recently required a similar condition when granting a different variance from the Sulfur Content Rule.<sup>34</sup> In that variance, the Board required the purchase of allowances at a 38-to-1 ratio. The Board here, likewise, requires a purchase of credits at a 38-to-1 ratio.

Board staff asked Calpine to propose a variance condition limiting simultaneous use of all three turbines. In response, Calpine proposed a condition that prohibits operation of more than one turbine at a time during testing.<sup>35</sup> The Board finds that this condition furthers the Act's policies and includes the condition in the variance.

Illinois EPA, in its recommendation, noted that Calpine submitted an application to clarify permit language to allow the Facility to use distillate oil during operational flow order periods—times when the Facility has physical access to natural gas but would incur a penalty from the natural gas provider if it consumed any natural gas.<sup>36</sup> Calpine and Illinois EPA proposed a variance condition obligating Calpine to take steps necessary to obtain this revised permit. The Board finds that this condition furthers the Act's policies and includes the condition in the variance.

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<sup>31</sup> See 415 ILCS 5/2(b), 36(a) (2014).

<sup>32</sup> See Pet. at 9.

<sup>33</sup> See Pet. at 9.

<sup>34</sup> Exelon Generation LLC v. IEPA, PCB 16-106 (Sept. 8, 2016).

<sup>35</sup> Calpine Resp. at 9.

<sup>36</sup> IEPA Rec. at 4.

## **CONCLUSION**

The Board finds that requiring Calpine to immediately comply with the Sulfur Content Rule at its Facility would impose an arbitrary or unreasonable hardship. The Board also finds that the requested variance relief is consistent with the Clean Air Act and its regulations. The Board therefore grants Calpine a variance from the Sulfur Content Rule, subject to conditions. The variance delays the date from which the Facility must comply with the rule: instead of January 1, 2017, the Facility must comply by January 1, 2022.

This opinion constitutes the Board's findings of fact and conclusions of law.

## **ORDER**

The Board grants Calpine Corporation (Calpine) a variance from the Sulfur Content Rule (35 Ill. Adm. Code 214.161(b)(2)) as that provision applies to the distillate oil used by the combustion turbines at Calpine's Zion Energy Center, subject to the following conditions:

1. Calpine must not purchase distillate oil for combustion in the combustion turbines (CTs) exceeding 15 ppm sulfur content.
2. During the variance period, the sulfur content of all distillate oil combusted by the CTs must not exceed 115 ppm sulfur content.
3. On and after January 1, 2022, the sulfur content of all distillate oil combusted by the CTs must not exceed 15 ppm sulfur content.
4. Calpine must take all steps necessary to obtain the requisite revised construction permit to allow for distillate oil use during operational flow order periods.
5. During the variance period, Calpine must not start up or operate more than one CT at a time during readiness testing.
6. During the variance period, the Petitioner must purchase and retire 25 tons of Illinois-based sulfur dioxide Group 1 allowances under the Cross-State Air Pollution Rule.
7. Calpine must maintain records demonstrating compliance with the requirements in conditions 1 through 6, including records from the fuel supplier indicating the sulfur content of the distillate oil.
8. By May 1, 2021, Calpine must submit copies of the records to the Illinois Environmental Protection Agency in condition 7, along with the results of tests conducted on the sulfur content of the distillate oil stored at the Zion Energy Center.

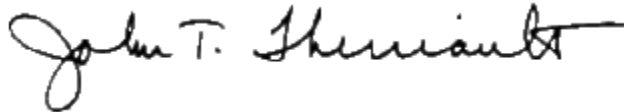
9. Calpine must retain all required records for at least 5 years, and provide copies of the records to Illinois EPA within 30 days after receiving a request by Illinois EPA.
10. Calpine must notify the Agency within 30 days after discovering deviations from any of the requirements in conditions 1 through 9. At a minimum, and in addition to any permitting obligations, the notification must include a description of the deviations, a discussion of the possible cause of the deviations, any corrective actions taken, and any preventative measures taken.

IT IS SO ORDERED.

If the petitioner chooses to accept this variance, the petitioner must, on or before December 22, 2016, file with the Board, and serve upon Illinois EPA, an executed certificate of acceptance, signifying the petitioner's agreement to be bound by all terms and conditions of the variance. Under the Board's rules, a "variance and its conditions are not binding upon the petitioner until the executed certificate is filed with the Board and served on [Illinois EPA]. Failure to timely file the executed certificate with the Board and serve [Illinois EPA] renders the variance void."<sup>37</sup> The certificate form follows this Board order as an appendix.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order.<sup>38</sup> Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders.<sup>39</sup> The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received.<sup>40</sup>

I, John T. Therriault, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on November 17, 2016, by a vote of 5-0.




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John T. Therriault, Clerk  
Illinois Pollution Control Board

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<sup>37</sup> 35 Ill. Adm. Code 104.240.

<sup>38</sup> 415 ILCS 5/41(a) (2014); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706.

<sup>39</sup> 172 Ill. 2d R. 335.

<sup>40</sup> 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, 102.702.



**CERTIFICATE APPENDIX**

**CERTIFICATE OF ACCEPTANCE**

I, \_\_\_\_\_, having read the opinion and order of the Illinois Pollution Control Board in docket PCB 16-112, dated November 17, 2016, understand and accept the opinion and order, realizing that this acceptance renders all terms and conditions of the variance set forth in that order binding and enforceable.

Petitioner: Calpine Corporation

By: \_\_\_\_\_  
Authorized Agent

Title: \_\_\_\_\_

Date: \_\_\_\_\_