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**STAFF MEMORANDUM ON REQUEST FOR LIMITED AND TEMPORARY WAIVER OF  
CROWNED RIDGE WIND, LLC**

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**TO:** COMMISSIONERS AND ADVISORS  
**FROM:** KRISTEN EDWARDS, AMANDA REISS, DARREN KEARNEY, ERIC PAULSON, AND JON THURBER  
**RE:** DOCKET EL19-003: REQUEST FOR LIMITED AND TEMPORARY WAIVER OF CROWNED RIDGE WIND, LLC  
**DATE:** DECEMBER 18, 2019

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Pursuant to the Final Decision and Order Granting Permit to Construct Facility (Permit), Crowned Ridge Wind, LLC (Crowned Ridge) is required to construct and operate the facility in accordance with descriptions made in the Application and all commitments made in response to data requests.<sup>1</sup> In its Application and responses to Staff data requests Crowned Ridge committed to using Low Noise Trailing Edge (LNTE) blades on all wind turbines. Therefore, Crowned Ridge is obligated to construct and operate all turbines with LNTE blades under the Permit issued by the Commission.

On December 13, 2019, Crowned Ridge filed a Request for Limited and Temporary Waiver (Temporary Waiver), requesting the Commission to temporarily waive compliance of Condition 2 of the Permit until early summer of 2020. Crowned Ridge also filed sound modeling and affidavits supporting the Temporary Waiver Request.

**STAFF'S ANALYSIS**

**TEMPORARY WAIVER**

The Temporary Waiver would allow Crowned Ridge to operate the Project without meeting Condition 2 of the Permit until early summer of 2020. If the Commission grants the Temporary Waiver, 79 of the 87 wind turbines would be operated without LNTE blades installed until air temperatures allow for the proper installation of the LNTE blade attachments. In order to comply with Condition 26 of the Permit, which established a regulatory noise limit of 45 dBA for non-participating residences and 50 dBA for participating residences, Crowned Ridge identified that it will need to curtail turbines 21, 29, 37, 44, 48, and 95 at wind speeds above 9 meters per second when operating the turbines without LNTE blades. Crowned Ridge identifies that these turbines will be curtailed until LNTE blades are installed on turbines 21, 29, 33, 37, 41, 44, 46, 48, 50, 52<sup>2</sup>, 61, 63, 64, 66, and 95.

Attachment A to this memorandum is a Project map that identifies the 8 turbines that currently have LNTE blades installed and the 6 turbines that will need to be curtailed.

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<sup>1</sup> See Condition 2 of the Permit. "Applicant shall construct, operate, and maintain the Project in a manner consistent with (1) descriptions in the Application, (2) Application supplements and corrections, (3) commitments made by Applicant in response to data requests, (4) the Final Decision and Order Granting Permit to Construct Facility, and attached Permit Conditions, (5) all applicable industry standards, (6) all applicable permits issued by a federal, state, or local agency with jurisdiction over the Project, and (7) evidence presented by Applicant at the evidentiary hearing."

<sup>2</sup> Staff was notified via email that the affidavits filed with the Temporary Waiver Request were missing turbine 52.

## **CURTAILMENT AT WIND SPEEDS ABOVE 9 METERS PER SECOND**

In order to verify that curtailment at wind speeds above 9 meters per second would properly limit noise emissions, Staff received the turbine manufacturer's sound levels as a function of wind speed from Crowned Ridge. The turbines reach their maximum noise levels at wind speeds of 10 meters per second. Therefore, curtailing turbines at wind speeds above 9 meters per second does limit noise emissions to some extent.

Staff's noise expert, Mr. Hessler, reviewed the Temporary Waiver request, along with the information Staff received through data requests, and did not have any concerns with the Temporary Waiver. Mr. Hessler further agreed with Crowned Ridge's rationale for curtailing the 6 turbines when wind speeds are above 9 meters per second.

## **IMPACT ON RESIDENCES**

Staff reviewed the potential impact the Temporary Waiver would have on expected noise levels at all receptors. In response to a data request, Crowned Ridge provided Staff with a side-by-side comparison of the modeled sound levels when all turbines have LNTE blades versus the modeled sound levels when 79 turbines operate without LNTE blades subject to the curtailment of 6 turbines (Attachment B). The comparison demonstrates that there will be an imperceptible impact on expected noise levels at receptors if the Temporary Waiver is granted by the Commission. More specifically, the largest increase of noise on a receptor is expected to be 1.8 dBA. This level of impact is imperceptible since a 3 dBA change in sound level is considered a just-perceptible difference.

## **IMPACT ON INTERVENORS**

If the Commission grants the Temporary Waiver, there is expected to be a small impact on certain intervenors' residences as demonstrated in the table below, as well as in Attachment C.

<b>Receptor ID #</b>	<b>Name</b>	<b>All Turbines with LNTE Blades (dBA)</b>	<b>Temporary Waiver with Curtailment (dBA)</b>	<b>Delta (dBA)</b>	<b>Dist. To Nearest Turbine (feet)</b>
CR1-G70-NP	Allen Robish	27.2	27.5	0.3	12,651
CR1-C29-NP	Amber Christenson	40.6	42.2	1.6	4,675
CR1-G600-NP	Kristi Mogen	21.9	21.6	-0.3	13,166
CR1-C27-NP	Patrick Lynch	37.0	38.1	1.1	6,218

## **COMPLIANCE WITH PERMIT NOISE LIMITS**

The sound modeling provided with the Temporary Waiver request and in response to Staff data requests demonstrate that all receptors are expected to be below the regulatory limit when turbines 21, 29, 37, 44, 48, and 95 are curtailed at wind speeds above 9 meters per second. Further, the modeling demonstrates that the Project will comply with permit limits if the turbines are operated without curtailment if LNTE blades are installed on turbines 21, 29, 33, 37, 41, 44, 46, 48, 50, 52, 61, 63, 64, 66, and 95.

## **CONCLUSION**

Staff was able to complete its review of the Temporary Waiver request within the short timeframe requested by Crowned Ridge. Based on the information Staff has reviewed, the Temporary Waiver will have an imperceptible impact on expected noise level for residences in the project area. Further, the sound modeling demonstrates that the Project should comply with the noise limits set forth in Condition 26 of the Permit if the 6 turbines are curtailed. Therefore, Staff has no objection to the Temporary Waiver request due to the temporary nature of the waiver.