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Subject: Comments on Manzana Wind Power Project Draft Environmental Assessment and Conservation Plan

Dear U.S. Fish and Wildlife Service:

Santa Barbara Audubon Society (SBAS) appreciates the opportunity to submit these comments on the Manzana Wind Power Project Draft Environmental Assessment (EA) and California Condor Conservation Plan (Plan) to the U.S. Fish and Wildlife Service (USFWS). We trust that our comments will be useful in helping the USFWS improve the EA and Plan.

SBAS works to connect people with birds and nature through education, science-based projects, and advocacy. SBAS is a chapter of the National Audubon Society (NAS). SBAS has over 1,100 members in Santa Barbara County. NAS is also sending comments on this subject to the USFWS on February 5, 2021. We incorporate the NAS comments into this letter by reference.

SBAS has a keen interest in preserving the California Condor. Santa Barbara is located within the historical range of the condor. Condors nested in Mission Canyon in Santa Barbara as recently as the 1920s, and condors are still occasionally seen soaring over the ridge of the Santa Ynez Mountains above Santa Barbara. Many SBAS members have served as volunteer condor nest watchers for the USFWS at the Hopper Mountain National Wildlife Refuge. The legendary condor researcher, Jan Hamber, is a member of SBAS.

The Manzana Wind Power Project (Project) is an existing wind farm with 126 1.5 MW wind turbines in the western Antelope Valley in California, along the southern foothills of the Tehachapi Mountains. The subject EA calls for issuing an incidental take permit (ITP) to Manzana Wind LLC (Manzana) to allow take of up to four condors (two free-flying birds and two associated eggs or chicks), over a 30-year period of operation of the Project. In return for the issuance of the ITP, Manzana has committed to a conservation plan that will: (a) maintain a program to detect condors approaching the Project and temporarily curtail wind turbine operations when appropriate; (b) implement an adaptive management program to maintain protection of condors as various factors change; and (c) work with an existing captive breeding facility to fund the production of six additional condors for release into the wild.

SBAS has a strong aversion to issuing a take permit for any iconic endangered species, but particularly for the California Condor. Nevertheless, we recognize the realities "on the ground"—wind farms are an important source of renewable energy and already exist. The danger of harm to condors is real and must be mitigated to the extent possible. Thus, we reluctantly support, in general, the approach that the USFWS and Manzana have taken to minimize risk and mitigate the potential take of condors over the 30-year life of the project. However, we do have some comments, questions, and suggestions, stated below, that if implemented will improve the EA and Plan and will provide enhanced protection for the California Condor.

SBAS understands that the EA in question is narrowly focused – the EA is evaluating the proposed action, the issuance of an incidental take permit for the potential take of up to two free-flying condors at Manzana. However, we are concerned that the mortality of other raptors by the Project and other wind energy projects in the Tehachapis could lead to critical reductions in their populations and lead to endangered species status for them. We urge the USFWS, in another action, to evaluate the cumulative risk and outcomes of mortality to condors and other raptor species both at Manzana and regionally.

Comments on the Environmental Assessment (EA)

1. p. 8: Section 2.1.1 (No Action Alternative) is inadequate. This paragraph states, "…if a condor was injured or killed as a result of otherwise lawful activities at the Project, the take would be in violation of section 9 of the Endangered Species Act." This raises the question, "What would happen if the applicant had not received an ITP and a condor was killed?" Would the Service prosecute the applicant? Would it pursue other sanctions? The possible consequences of condor take without an ITP should be stated in Section 2.1.1. We suggest that, as a minimum, there should be a financial penalty in the event of a condor fatality. The financial penalty should be substantial; at least equivalent to the costs per condor expended to maintain the California Condor Recovery Program. In addition, other sanctions should be considered, such as permanent shutdown of wind turbines that are particularly likely to cause condor mortality.

2. p. 11: In Table 1, the wording of the first row, second column entry should be expanded from "Collisions with wind turbine blades" to read "Collisions with wind turbine blades and towers, and with the meteorological tower."

3. p. 11: In Section 2.2.4 (Take Limits under the Proposed Conservation Plan) the USFWS acknowledges, "…we do not have a quantitative model or approach to estimating the anticipated level of take of condors at a wind energy project and instead rely on a qualitative assessment that considers information regarding condor behavior and use of the permit area, the covered activities and associated Project facilities, and the existing and proposed minimization actions for the Project. Based on this information, the Service is considering the issuance of an incidental take permit for the take of up to two free-flying condors and two eggs or chicks at the Project over a 30-year permit term." This is a major weakness of the proposed approach. The rate of condor mortality at the Project is simply speculative. What if condor mortality is much higher than two over the life of the project? What if condor mortality is two per year—or more? The USFWS and Manzana need to address the possibility that mortality will be higher than expected and state what will happen if there are more than two condor fatalities. Will the USFWS require more captive reared condors to be produced? Will it shut down some of the wind turbines? The action

to be taken in the event of more than two condor fatalities should be explicitly addressed as part of the Plan's Adaptive Management Strategy (Section 5.5).

4. p. 21: Section 5.1 states, "The Service is the only regulatory agency with the authority to authorize take of condor." However, take of the endangered California Condor is illegal under California law. The EA should address or at least acknowledge that this is the case and discuss how the USFWS and Manzana would address an instance of take as a violation of California law.

Comments on the California Condor Conservation Plan (Plan)

5. pp. 16 and 35: The statements that "In 2018, the Applicant began using a geofence system to detect GPS/GSM-tagged condors approaching the Project and curtail wind turbines" (p. 16) and that during the period 2013 – 2018, "condor activity in the Permit Area was recorded on a total of 38 days" (p. 35) should make clear how close the condors came to the wind turbines, whether or not the turbines were curtailed, and (regarding curtailment) why or why not.

6. p. 34: It is stated, "In September 2018, Manzana Wind began implementation of a geofence technology that uses GPS/GSM transmitters..." and "If a transmittered condor crosses a defined curtailment zone, a third-party contractor located near Mojave... communicates directly with Avangrid Renewables' NCC to call for the curtailment of a subset of turbines." This section should state whether this has ever happened and, if so, how many times. It also should state how many condors were not detected by the GPS/GSM system but were detected by other means (e.g., visual, VHF, or GPS alone), and whether there have been any near-collisions of condors with wind turbines.

7. p. 42: Section 4.1 (Effects and Anticipated Take) states, "... the potential for condor collisions with stationary structures in the Permit Area is expected to be very low." Nevertheless, the Plan notes in various tables[1] that there is a threat of collisions with stationary equipment such as cranes (to this should be added the wind turbine towers themselves and the meteorological tower.) Even though few, if any, condor collisions with fixed objects have occurred so far, the potential for this remains, especially in situations with limited visibility, like fog or clouds. Thus, the plan should consider removing the meteorological tower to eliminate that threat of collision. This tower could be replaced with a SODAR[2] unit, which performs the same function as the meteorological tower (it measures wind speed from the ground up)—but without creating a collision threat to condors.

8. p. 47: Section 5.2.1 (General Operational Measures), referring to the voluntary measures comprising the proposed Wildlife Protection Program, states "Manzana Wind will commit to implementing these measures for the life of the incidental take permit, upon permit issuance."

[1] e.g., Table 2 on page 42 of the Plan.

[2] SODAR, or sonic detection and ranging, is a meteorological technique, a wind profiler, used to measure the scattering of sound waves by atmospheric turbulence. SODAR systems are used to measure wind speed at various heights above the ground. They operate using the Doppler effect with a multi-beam configuration to determine wind speed. SODAR is now being used as an alternative to traditional wind monitoring (met towers) for modern wind power projects. SODARs used for wind power applications are typically focused on a measurement range from 50m to 200m above ground level, corresponding to the size of modern wind turbines. SODAR units are small, light, use little power, and typically extend just a few feet above the ground. This virtually eliminates any collision risk compared to a met tower, which extends hundreds of feet into the air.

How would the USFWS enforce these measures? Withdraw the ITP? Pursue legal action? Both the Plan and the EA must state what enforcement actions are available to the USFWS and could potentially be used. As another example, what would happen if the operator's management changed or if the project were sold to another owner? The transfer of ownership is addressed in Section 6.5 (p. 63) of the Plan: "...permit may be transferred to the new owner..." (emphasis added). We believe it to be in the public interest that any new owner be required to comply with the terms of the ITP, and this requirement should be stated in both the Plan and the EA.

9. p. 47: The "Carcass Management and Removal" subsection is inadequate because it does not state how often carcass surveys for carrion would be done. Thus, the public cannot evaluate the efficacy of these measures. The second bullet of this subsection states, "The sole landowner within the Permit Area that conducts livestock grazing has agreed to provide prior notification of livestock entering Manzana, require their shepherds to notify the Manzana Plant Manager of any livestock carcasses and their location, and promptly cover or bury livestock carcasses if immediate removal is not feasible." We contend that this approach depends on the chance detection and removal of carcasses, and is therefore inadequate. Since livestock carcasses will be a major attractant for condors, it is critically important that carcasses be removed quickly. The Plan should delineate a specific procedure for carcass removal that incorporates frequent systematic surveys and immediate removal of carcasses. The carcass removal approach should be required by the USFWS and include explicit enforcement mechanisms.

10. p. 48: The "Removal of Microtrash" subsection states, "Operations personnel regularly remove microtrash within the Permit Area." This is inadequate because it is very vague and procedurally non-specific. Again, the Plan should delineate a specific procedure for removal of microtrash that incorporates frequent systematic surveys and removal.

11. p. 48: Regarding the "Overhead Electrical Lines" subsection, we note that Plan section 3.2.4 states, "collision with or electrocution from overhead lines is the second-largest anthropogenic (human-caused) source of condor mortality behind lead poisoning" (p. 32). This highlights the need for strong measures to be taken so as to minimize the risk of collision with or electrocution from overhead lines. However, the Plan is inadequate because it is procedurally vague and doesn't specify enforcement mechanisms. The first bullet of this subsection states, "Overhead lines on Manzana are built to 2006 APLIC suggested practices" but provides no specifics regarding these practices. For example, what is the spacing between conductors? The project's power line spacing must accommodate the condor, yet the 2006 APLIC guidelines do not account for the wingspan of the California Condor.[3] The APLIC guidelines are based on 60 inches of power line separation, which can accommodate the wrist-to-wrist span of a Golden Eagle (approximately 54inches). However, a condor's wingspan averages 109 inches, compared to 79 inches for a Golden Eagle. The separation of the electrical conductors should be increased by the same proportion, to 83 inches (instead of 60 inches)[4]. A minimum of 83 inches of separation between electrical conductors is vital to protect the California Condor from electrocution. The minimum overhead power line spacing should be stated in the Plan. If the power line spacing is less than 83 inches the USFWS should require a retrofit to meet that requirement. More generally, we would note that the reference to, and reliance upon, the 2006 APLIC guidelines is

[3] However, 2006 APLIC does state, "Utilities in areas with condors should consider the large size of this endangered species when designing or retrofitting power lines" (p. 37)

[4] 109 inches ÷ 79 inches x 60 inches = 83 inches

flawed, because they do not address means of reducing collisions in any detail at all.[5] Thus, the Plan is inadequate because it does not discuss or describe any means of reducing collisions with powerlines, which are a major threat to condors. The Plan does not state whether any effort has been taken at Manzana to reduce the risk of powerline collisions. The appropriate standard for reducing avian powerline collisions is APLIC 2012[6]. This manual "provides electric utilities, wildlife agencies, and other stakeholders with guidance for reducing bird collisions with power lines based on the most current information." The document notes that "Many studies of lines with high collision rates indicate that collision risk can be lowered by 50% to 80% when these lines are marked . . ."[7] Marker devices must be used at Manzana to make power lines more visible to condors. Power line markers (see photo below) are an easy, inexpensive, and effective means of making power lines more visible to birds. If markers have not yet been installed at Manzana, they should be required by the USFWS.

Power line marker. Reduces bird collisions dramatically. Inexpensive and easy to install.

12. p. 48: The "Condor Risk Minimization Program" subsection states that this program "will use one or a combination of the following options: biomonitors, GPS/GSM technology, high-resolution video imaging, or available new technology. While effectiveness will be the primary factor in evaluating the preferred option, the decision on which option or options to implement will also be made based on an overall assessment of implementation costs, logistical constraints, condor behavior, and available condor-related technology." The Plan is inadequate because it does not state the process by which decisions will be made. Who will make the decisions? The operator? The USFWS? Would it be a collaborative decision? What happens if the operator and the USFWS disagree? For example, what if the USFWS wanted to use a particular detection technology or wanted to fit more condors with GPS/GSM transmitters, but the operator decided that these approaches were too expensive? How would such a dispute be resolved? This section should also include a discussion of other potential measures to minimize collision risk, such as

[5] 2006 APLIC, p.1, footnote 2, "This book focuses on avian electrocutions, not collisions."
[6] Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012.* Edison Electric Institute and APLIC. Washington, D.C.
[7] See APLIC 2012, page xiii.

integration of automated deterrent systems (e.g., light and sound arrays), inclusion of behavioral aversion systems (e.g., buzzers or vibrators) into the GPS/GSM transmitter, or painting blades different colors[8].

13. pp. 49 – 50: We have multiple concerns with Option 2 (automated GPS/GSM-based detection) of the outlined Condor Risk Minimization Program, as follows:

    - We question whether the geofence system, as described, could provide a warning in sufficient time to enable curtailment of the wind turbines; that is, could it curtail the wind turbine before a condor reaches the turbine? The Hopper Mountain 2016 Field Report[9] illustrates this problem. This condor enters the geofence from the top left and crosses into the blue and then orange (inner) geofence (the condor is travelling at about 42 km/hr = 26 mph). The GPS/GSM unit, operating in 10-minute mode outside of the geofence, enters the orange area before it turns on to take its normal 10-minute fix (counted from after fix before entering geofence). It detects that the condor is inside the geofence, does a GSM transmission, then changes data collection to 15 seconds. The problem is that when the system is transmitting on 10-minute intervals, if the condor's last transmission was just outside the geofence, the condor can go far into the inner geofence (about 6 km in this case) before it transmits again. It could be well inside the wind farm by then, and in danger before an alert to curtail the wind farm could be implemented. Obviously, in this case, if the distance from the inner geofence boundary to the wind turbine had been 6 km or less (which it would be at Manzana), the condor would have reached the wind turbine before the wind turbine could have been curtailed. This is not to say that the geofence system cannot work. To the contrary, this scenario illustrates that the system parameters (geofence locations, distance from geofence edges to wind turbines, data transmission intervals, transmitter energy storage capability and weight, percentage of condors with GPS/GSM transmitters, reliability of the hardware/software system, cost, etc.) need to be optimized to provide maximally feasible protection for the condors. We recommend that a computer simulation of the geofence system be developed. This computer model would have the capability to vary the system parameters, determine the effects on collision risk, and optimize the system parameters to minimize the risk.

    - Another concern with Option 2 is the fact that humans are involved in the decision to curtail the wind turbines, which adds a lag time into the system. The description of Option 2 states, "If a condor crosses into the curtailment zone, the monitor would immediately contact Avangrid's NCC to implement a curtailment of a subset (zone) of turbines or all turbines within the Permit Area." Obviously, this function could be automated so that the appropriate wind turbines were curtailed automatically when the condor's position and trajectory were within certain parameters that indicated the potential for a collision. Automatic curtailment would eliminate the time lag due to the monitor's evaluation of the situation, contacting the operator, and then the operator initiating curtailment. This time lag could conceivably be

[8] See, "Paint it black: Efficacy of increased wind turbine rotor blade visibility to reduce avian fatalities", Ecology and Evolution, Vol. 10, Issue 16, 26 July 2020. This paper documents findings at a wind farm in Norway that showed a 70% reduction in annual fatality rate at wind turbines which had one of the blades painted black.

[9] California Condor Recovery Program, 2016 Annual Report, Appendix II, Example 5, p. 69; U. S. Fish & Wildlife Service, Hopper Mountain National Wildlife Refuge Complex, Ventura, California, 2017.

minutes, during which the condor could have travelled miles closer to the wind turbines and thus been in greater danger. It appears that automatic curtailment is being considered for Option 3 (video-based system, such as IdentiFlight), but it is not stated that automated curtailment is being considered for Option 2. This should be clarified and explained.

- A third concern with Option 2 is that some of the condors will not have GPS/GSM transmitters. Page 15 of the EA states, "…as of the end of October 2020, 57 percent of the birds were wearing VHF transmitters and 53 percent were wearing GPS/GSM transmitters." Therefore, 47% of the condors did not have GPS/GSM transmitters and thus cannot be monitored by the geofence. (This suggests that another project mitigation that should be considered is to have the applicant fund the purchase and installation of more GPS/GSM transmitters on condors.) The Plan needs to explain how and to what extent the condor population would be protected by Options 1, 2, and 3.

14. p. 54: Section 5.3.4 (Increased Condor Production through the Addition of an FTE) states, "Mitigation funding will be provided annually until a total of 6 additional captive-reared releasable condors are produced…." This should be modified to read, "Mitigation funding will be provided annually until a total of 6 additional captive-reared condors have been released and are successfully functioning in the wild."

15. pp. 56 – 59: Section 5.5 (Adaptive Management Strategy) is inadequate because it does not state the process by which decisions will be made. Will decisions be made by the operator? By the USFWS? Via a collaborative decision-making process? What happens if the operator and the USFWS disagree on the evaluations of the triggers and/or the responses? How will disputes be resolved? The Plan must be explicit about addressing such issues.

16. p. 59: This subsection (Fatality Monitoring Adaptive Management) should include a statement as to what percentage of condors to date have been equipped with transmitters and presumably died, but were never found. This is important because if this percentage is high, it increases the uncertainty regarding whether a condor that disappeared was killed at the Manzana site or whether it died elsewhere. Further, the "Response" paragraph calls for monthly scans (carcass surveys for dead condors) of 100% of the turbines if Fatality Monitoring Adaptive Management is triggered. Monthly surveys for condor carcasses is woefully inadequate. Carcasses are often scavenged overnight by coyotes and other scavengers. This is a very important issue. Missing even one dead condor would significantly affect the efficacy of the entire conservation program, since the hope is that the take by the project would be two or less over the 30-year operational period. We recommend surveys for condor carcasses at a much more frequent interval, and no less frequently than weekly. See the USFWS wind energy guidelines[10] and California wind energy guidelines[11] for information on frequency and protocol for carcass searches. In addition, this paragraph should include a provision requiring an immediate search if either visual, VHF, or GPS/GSM monitoring determines that a condor has stopped moving in the Permit Area.

17. p. 60: The reporting requirements outlined in section 5.6 (Plan, Information Management and Reporting) are minimal and appear to be insufficient to trigger reaction to changed circumstances

[10] "U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines", USFWS, 12/31/2014.

[11] "California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development", California Energy Commission, October 2007, p. 74.

in a timely manner. We suggest that this list of required information be expanded to specify: (a) the production of quarterly reports, including an analysis of the effectiveness of the Condor Risk Minimization Program; (b) that reports are released to the public; and (c) that any condor fatality is immediately reported to the USFWS. We further suggest that subparagraph 1.a, referring to the inclusion of report "information regarding condor detection and any curtailment activity such as the number of detections and the number of curtailments (expressed as a range or qualitatively)" be amended to specify that such data should be expressed precisely and quantitatively. More generally, we note that the Plan is weak in not detailing oversight measures that the USFWS will take to monitor Manzana's compliance. Will USFWS have regular meetings with Manzana personnel to discuss compliance, including curtailment activity, results of status of carcass surveys, and so forth? Will the USFWS work with Manzana to analyze and design improvements to the detection and curtailment system and the captive breeding program? Will the USFWS inspect the facility? The Plan needs to address such questions that are critical to condor protection and project success.

18. p. 66: Footnote c of section 7's Table 4 (Cost Estimate and Funding Assurances), refers to "Cost of additional automated high-resolution video-based detection, alert, and curtailment system technology, which is currently the highest cost for adaptive management to implement at Manzana" (emphasis added). This implies that there is already a video-based detection system in operation. The current status of detection systems at Manzana is confusing and should be clarified in the Plan in general. It is unclear whether a video-based system is currently in operation.

19. General comment: The USFWS should convene a Technical Advisory Committee (TAC) to assist in the management of the program. This Committee would be comprised of parties who are independent of the operator, for example, government agencies such as CDFW and USFWS. The TAC could also include NGOs or individuals with expertise in condor conservation. The TAC would review condor usage of the Permit Area, curtailments, carcass survey data, condor mortality, the captive breeding program, and so forth. The TAC would also assist the USFWS and Manzana in devising measures to reduce collision and other risks to condors and measures to mitigate any impacts.

20. General comment: We believe that, in general, the EA and Plan must build in stronger measures for public accountability and transparency, as we have stated in our above comment numbers 1, 3, 4, 8, 9, 10, 11, 12, 15, and 17."

SBAS intends that the above comments will be helpful and will assist the USFWS in crafting a successful strategy for minimizing risk to the California Condor and for mitigating any harm to this iconic species.

Sincerely,

Katherine Emery

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