U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

May 11, 2015

Exemption No. 11545
Regulatory Docket No. FAA–2015–0399

Mr. Raymond P. Fitzpatrick, Jr.
Counsel for Clean Energy Renewables, LLC
1200 Corporate Drive, Suite 105
Birmingham, AL 35242

Dear Mr. Fitzpatrick:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

The Basis for Our Decision

By letter dated February 11, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Clean Energy Renewables, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial inspection of renewable wind power turbines.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner is an Aibot X6 V2.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Clean Energy Renewables, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Clean Energy Renewables, LLC is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the Aibot X6 V2 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents,

the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC

Regulatory Docket No. _____

IN THE MATTER OF THE PETITION FOR EXEMPTION OF:
CLEAN ENERGY RENEWABLES, LLC
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF CERTAIN PROVISIONS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS IN PARTS 21, 61 AND 91 AND FOR THE OPERATION OF UNMANNED AERIAL SYSTEMS OVER PREVIOUSLY PERMITTED WIND ENERGY TURBINES WITHIN THE UNITED STATES PURSUANT TO SECTION 333 OF THE FAA MODERNIZATION AND REFORM ACT OF 2012

Submitted on February 11, 2015

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GLOSSARY OF ABBREVIATIONS

AGL	Above Ground Level
AC	Air Traffic Control
CER	Clean Energy Renewables, LLC (the applicant)
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
NAS	National Airspace System
PIC	Pilot In Command
Section 333	FAA Modernization and Reform Act of 2012, Section 333
SMS	Safety Management System
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

SUMMARY

Clean Energy Renewables, LLC, an Illinois limited liability company ("CER"), seeks authority to commercially operate a small six-rotor unmanned aircraft system with a fully equipped gross weight of under 15 lbs. pursuant to Section 333 of the FAA Modernization and Reform Act of 2012. CER also seeks exemption from the requirements of certain provisions of 14 C.F.R. Parts 21, 61 and 91. This exemption will permit CER to operate an Unmanned Aircraft System ("UAS") over certain well-defined limited rural areas within the United States which have previously been permitted and approved by the FAA for the construction and operation of wind turbine facilities pursuant to 14 C.F.R. Part 77. Such wind turbines have a height (including the top of the upright extended blade) of less than 499 feet AGL and have been subject to prior review and authorization by FAA as authorized obstructions with completed Forms 7460-2 on file with FAA. CER intends to operate a high quality UAS product in the limited airspace within a few meters of such turbines for the purpose of conducting safe and efficient inspection of the turbine blades and structure. At no time will the UAS operate more than 100 feet from the previously approved obstruction or above 499 feet AGL. All such operations will be in relatively rural areas and in direct visual line of sight of the operator that will clearly not create a hazard to users of the NAS or the public or pose a threat to national security.

Consistent with recently released FAA exemptions, CER intends to operate the UAS while keeping the documents required by the regulations at the ground control station and immediately accessible to the pilot in command. The requested exemption will relieve CER from the airworthiness certificate standards and the requirement to have a certificate of airworthiness issued for its UAS. This exemption will also permit any required markings

concerning the operational status of the UAS to be displayed on the fuselage of the unmanned aircraft. The requested exemption will relieve CER from the requirement that the PIC hold a commercial pilot certificate and will permit a private pilot to serve as PIC with a class III medical certificate.

INTRODUCTION AND INTERESTS OF THE PETITIONER

CER is a one year-old renewable energy support services firm. Its management, through predecessor entities[1], has a long and well-recognized history with over 14 years of experience in providing services to recognized leaders in the renewable energy industry. CER plans to operate an Aibot X6 V2 Unmanned Aircraft System (hereinafter referred to as the "Aibot UAS") manufactured by Aibotix GMbH, 34131 of Kassel, Germany, a division of Leica Geosystems AG, Heerburgg, Switzerland. As set forth in this Petition, CER seeks to operate the Aibot UAS for the special purpose of aerial inspection of renewable wind power turbines in accord with the highest standards of operations and safety.

BACKGROUND

CER seeks an exemption to operate an Aibot UAS for compensation or hire within the limited and defined areas of the national airspace system ("NAS") for the purpose of wind turbine inspections.

Operational History of the Aibot UAS in the NAS

Aibotix has manufactured and sold hundreds of units of the Aibot UAS for end users on a global basis. Petitioner understands that the Aibot UAS is the subject of two pending applications for Section 333 exemptions. See, application of Solusia Air, LLC and application of

[1] CER's business previously operated under the name Multiband Renewables, a division of Multiband EWS, Inc. After Multiband Corporation went private in early 2014, the Multiband Renewables business was purchased by its managers and was renamed Clean Energy Renewables, LLC. It has no current affiliation with Multiband.

Boyd Instrument. Petitioner is not aware of any current Section 333 exemptions to other operators of an Aibot UAS by FAA.

BASIS FOR PETITION

Petitioner CER, pursuant to the provisions of the Federal Aviation Regulations (14 C.F.R. § 1.61) and the FAA Modernization and Reform Act of 2012, Section 333, *Special Rules for Certain Unmanned Aircraft Systems*, petitions the Administrator for an exemption from the requirements of 14. C.F.R. sections 21.155, 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b), 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.407(a) and (b), and the airworthiness certification standards specified in 14 C.F.R. Part 21, including the requirements to have a certificate of airworthiness as contemplated by 14 C.F.R. Part 21.

In accordance with Federal Aviation Regulations ("FAR") Section 21.16, entitled *Special Conditions* (14 C.F.R. § 21.16), CER respectfully requests that the Administrator prescribe special conditions for the intended operation of the Aibot UAS that contain such safety standards as the Administrator finds necessary to establish a level of safety equivalent to that established by the restricted category airworthiness certification standards specified in 14 C.F.R. Part 21.

Submitted with this application are:

Aibot X6 User Manual

Clean Energy Renewables, LLC, UAS Inspections of Wind Turbines Safety Checklist and Operating Procedures

These documents are collectively referred to as the "CER Manuals." They are submitted on a confidential basis and are proprietary in nature. CER will fully comply with the requirements and procedures of the CER Manuals in its proposed operations.

In accordance with 14 C.F.R. § 11.81, CER provides the additional following information in support of its petition for exemption:

A. Name and Address of the Petitioner.

The name and address of the Petitioner is:

Clean Energy Renewables, LLC
4709 15th Street A
Moline, IL 61265

The point of contact for this Petition and specific contact information is as follows:

Raymond P. Fitzpatrick, Jr.
1200 Corporate Drive, Suite 105
Birmingham, AL 35242
Tel: (205) 437-8846
Fax: (855) 898-3647
rpf@rfitzpatricklaw.com

B. The Provisions of 14 C.F.R. From Which CER Seeks Exemption.

1. CER Requests Relief To Exempt Aibot UAS From Airworthiness Certification Standards Specified In 14 C.F.R. Part 21.

In accordance with the FAA Modernization and Reform Act of 2012, Section 333, and 14 C.F.R. § 21.16 entitled *Special Conditions*, CER seeks to exempt the Aibot UAS from the airworthiness certification provisions of 14 C.F.R. Part 21, or the requirement to have a certificate of airworthiness, as contemplated by 14 C.F.R. § 21.185, or the requirement to have a certificate of airworthiness issued, as contemplated by 14 C.F.R. Part 21. Section 21.185 entitled *Issue of airworthiness certificates for restricted category aircraft*, states the following in part:

> (a) Aircraft manufactured under a production certificate or type certificate. An applicant for the original issue of a restricted category airworthiness certificate for an aircraft type certified in the restricted category, that was not previously type certificated in any other category, must comply with the appropriate provisions of § 21.183.

2. CER Seeks Exemption From The Requirements Of 14 C.F.R. 45.23(b).

CER seeks an exemption from 14 C.F.R. § 45.23(b). Section 45.23 entitled *Display of marks; general*, subsection (b), states the following:

(b) When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

3. CER Requests Relief From The Requirements Of 14 C.F.R 61.113(a)&(b).

CER seeks an exemption from the requirements of 14 C.F.R. § 61.113 (a) & (b) providing that:

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

4. CER Seeks Exemption From The Requirements Of Section 91.7(a).

Section 91.7(a) prescribes, in pertinent part, that no person may operate a civil aircraft unless it is in an airworthy condition.

5. CER Seeks Exemption From The Requirement Of Section 91.9(b).

CER seeks an exemption from 14 C.F.R. § 91.9(b). Section 91.9 entitled *Civil aircraft flight manual, marking, and placard requirements*, subsection (b) states the following:

(b) No person may operate a U.S.-registered civil aircraft--

(1) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.141.(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft

Flight Manual, approved manual material, markings, and placards, or any combination thereof.

6. CER Seeks Exemption From The Requirements Of Section 91.119.

Section 91.119 prescribes that, except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested areas of a city, town, or settlement, or over any open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) Helicopters, powered parachutes, and weight-shift-control aircraft. If the operation is conducted without hazard to persons or property on the surface --

(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.

7. CER Seeks Exemption From The Requirements Of Section 91.121 And 91.151(a).

Section 91.121 requires, in pertinent part, each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "to the elevation of the departure airport or an appropriate altimeter setting available before departure."

Section 91.151(a) prescribes that no person may begin a light in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly

to the first point of intended landing and, assuming normal cruising speed, (1) during the day, to fly after that for at least 30 minutes; or (2) at night, to fly after that for at least 45 minutes.

8. CER Seeks Exemption From The Requirements Of Sections 91.203(a) and 91.203(b).

CER seeks an exemption from 14 C.F.R. § 91.203(a) and (b). Section 91.203 entitled *Civil aircraft: Certifications required*, subsections (a) and (b) state the following:

> (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:
>
> (1) An appropriate and current airworthiness certificate. Each U.S. Airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under § 21.197(c) of this chapter, appropriate sections of the air carrier manual required by parts 121 and 135 of this chapter containing that portion of the operations specifications issued under § 21.197(c), or an authorization under § 91.611) must have on it the registration number assigned to the aircraft under part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to an FAA Flight Standards district office.
>
> (2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c), or a registration certification issued under the laws of a foreign country.
>
> (b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

9. CER Seeks Exemption From The Requirements Of Sections 91.405(a), 91.407(a)(1), 91.409(a)(2) and 91.417(a) & (b).

Section 91.405(a) requires, in pertinent part, that an aircraft operator or owner shall have that aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in part 43 of the chapter.

Section 91.407(a)(1) prohibits, in pertinent part, any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of the same chapter.

Section 91.409(a)(2) prescribes, in pertinent part, that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

Section 91.417(a) and (b) provide:

> (a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
>
> > (1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft The records must include --
> >
> > > (i) A description (or reference to data acceptable to the Administrator) of the work performed and
> > >
> > > (ii) The date of completion of the work performed; and
> > >
> > > (iii) The signature, and certificate number of the person approving the aircraft for return to service.
> >
> > (2) Records containing the following information:
> >
> > > (i) The total time in service of the airframe, each engine, each propeller, and each rotor.
> > >
> > > (ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
> > >
> > > (iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
> > >
> > > (iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

C. The Extent Of Relief CER Seeks And The Reason CER Seeks The Relief.

1. The Extent Of Relief CER Seeks And The Reason CER Seeks Relief From 14 C.F.R. Part 21.

CER seeks relief from the airworthiness certificate requirements of the Federal Aviation Regulations and proposes to commercially operate the Aibot UAS without an airworthiness certificate, for the special purpose of conducting wind turbine inspection services over existing land-based wind turbines in the United States that have been permitted by FAA, pursuant to specific operating limitations and the safety management systems outlined in the CER Manuals. CER seeks relief from the airworthiness certificate requirements of 14 C.F.R. § 21.185 to the extent that the Aibot UAS may be operated for a single, defined, special purpose operation (*i.e.*, aerial inspection of wind turbines).

Pursuant to FAA Modernization and Reform Act of 2012, Section 333 ("Section 333"), CER seeks relief from the airworthiness certificate requirements of the FAR because operation of the Aibot UAS will not create a hazard to users of the NAS, or the public, or otherwise pose a threat to national security.

Section 333 sets forth the requirements for considering whether a UAS will create a hazard to users of the NAS or the public or pose a threat to national security. Further, Section 333 provides the authority for such AUS to operate without airworthiness certification. Section 333 states the following in relevant part:

> *(b) Assessment of Unmanned Aircraft Systems.-- In making the determination under subsection (a), the Secretary shall determine, at a minimum --*
>
> *(1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and*
>
> *(2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, Unite States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).*

As set forth below, numerous factors, including the safe operational history of the Aibot UAS in the NAS and the specific parameters of CER's intended operation pursuant to this exemption, demonstrate that Aibot UAS has in the past and will continue in the future to operate safely in the NAS without creating a hazard to other aircraft or people on the ground. Accordingly, the FAA may approve operation of the Aibot UAS without an airworthiness certificate by setting forth specific operating limitations to ensure a level of safety equivalent to what would be provided by airworthiness certification.

Filed with the application as a confidential attachment is the manufacturer's Operating Manual for the Aibot UAS. As stated in the manual, the Aibot UAS has a dimension of 96 cm x

105 cm, is powered by 6 electric powered blades, and is controlled by an RC transmitter. It has a maximum true airspeed of 16 meters per second. When fully equipped for its intended use, the Aibot UAS will weigh well under 15 pounds. CER's Aibot UAS will be painted FAA orange. CER will always operate the Aibot UAS within the visual line of sight of the PIC and never more than 100 feet from the permitted obstruction as depicted in the Form 7260-2 on file with FAA. CER's unit will be programmed to hover at least 3 meters from the wind turbine while video taping or thermal imaging turbine components and blades.

2. The Extent Of Relief CER Seeks And The Reason CER Seeks Relief From 14 C.F.R. § 45.23(b).

CER requests relief from the requirement of Section 45.23(b), if applicable, that he word "Restricted" or other limitations be displayed on the Aibot UAS near each entrance to the cabin, cockpit, or pilot station. In Exemption No. 11150, at p. 11, FAA stated that such words only apply to certain limited certificates. Accordingly, since no certificate will be issued for petitioner's UAS, petitioner requests confirmation that an exemption from section 45.23(b) is not required.

3. The Extent Of Relief CER Seeks And The Reason CER Seeks Relief From 14 C.F.R. Section 61.113 (a) and (b).

CER seeks exemption from 14 C.F.R. § 61.113, which restricts private pilots from flying aircraft for compensation or hire and would also require a second class medical certificate. The purpose of Part 61 is to ensure that the skill and competency of any PIC matches the airspace in which the PIC will be operating, as well as requiring certification if the pilot is carrying passengers or cargo for hire.

While the Aibot UAS will be operated as part of a commercial operation, it carries neither passengers nor cargo. In the Grant of Exemption in FAA Docket No. FAA-2014-0352,

the FAA determined that the unique characteristics of UAS operation outside of controlled airspace did not warrant the additional cost and restrictions attendant with requiring the PIC to have a commercial pilot certificate and a class II medical certificate. See also, Grant of Exemption, FAA Docket No. FAA-2014-400 (Exemption No. 11150). The FAA has also determined that the required knowledge for a commercial pilot covers the same fundamental principles as a private pilot.

The PIC will possess at least a private pilot certificate, a third class medical certificate, and will have completed the Basic Operator Course for the Aibot, which is provided by the manufacturer's United States representative, CCLD Technologies, Inc. of Buford, Georgia. This is a 2-day program that includes ground school and flight training.

The FAA stated in its grant of an exemption to Astraeus Aerial that "FAA considers the overriding safety factor for the limited operations proposed by the petitioner to be the airmanship skills acquired through UAS-specific flight cycles, flight time, and specific make and model experience, culminating in verification through testing." See Exemption No. 11062, Docket No. FAA 2014-0352, at p.18. The proposed operations can achieve an equivalent level of safety by requiring the knowledge and experience in Aibot UAS operations described above.

The security screening conducted by the Transportation Security Administration of certified airmen satisfies the statutory requirement of Section 333 for operations to not pose a threat to national security.

The restrictions CER has placed on its Aibot UAS operations meet or exceed the restrictions similarly imposed on Astraeus Aerial in FAA Docket No. FAA-2014-0352. CER will operate in a restricted area away from persons or property not involved in the operation. The

aircraft will be flown based on VLOS at or below 499 feet AGL, so as to accommodate the safe inspections of wind turbines.

4. Extent Of Relief CER Seeks And The Reason CER Seeks Relief From Section 91.9(b).

Relief is requested because the fully equipped Aibot UAS weighs well under 15 pounds at its maximum gross weight and cannot carry the approved Airplane Flight Manual onboard. Since the Aibot UAS is unmanned, the aircrew member is located at a ground control station. As such, CER proposes the following conditions and limitations to its request for exemption from Section 91.9(b):

> The approved Airplane Flight Manual must be kept at the ground control station, where it is immediately available for reference by the aircrew member (pilot in command) of the Aibot UAS any time the unmanned aircraft is operating.

These limitations are consistent with Exemption Nos. 11062 and 11150.

5. The Extent Of Relief CER Seeks And The Reason CER Seeks Relief From Section 91.203(a) and (b).

CER requests relief from the requirements of Section 91.203(a) (*i.e.*, that an appropriate and current airworthiness certificate and an effective U.S. registration certificate be carried within the aircraft), and further, requests relief from the requirement of Section 91.203(b) (*i.e.* that the airworthiness certificate be displayed at the cabin or cockpit entrance so that it is legible to passengers or crew). As the Aibot UAS is unmanned, it has no cabin, cockpit, pilot station, or entrances thereto. Therefore, the aircrew member is located at a ground control station and no passengers are carried at any time. As such, CER proposes the following conditions and limitations to its request for exemption from Sections 91.203(a) and (b):

> The documents required by Sections 91.203(a) and (b) must be kept at the ground control station, where it is immediately available to the aircrew member (pilot in command) of the Aibot UAS any time the unmanned aircraft is operating.

6. 14 C.F.R. § 91.7(a): Civil Aircraft Airworthiness

CER seeks an exemption from 14 C.F.R. § 91.7(a), which requires that a civil aircraft be in airworthy condition to be operated. The FAA has stated that no exemption is required to the extent that the requirements of Part 21 are waived or found inapplicable. Accordingly, CER requests that the requirements of Section 91.7 be treated in accordance with FAR Part 21 Subpart H. *See* Grant of Exemption No. 11062, p.19.

7. The Relief CER Seeks From 14 C.F.R. § 91.103: Preflight Action.

CER seeks an exemption from 14 C.F.R. § 91.103, which requires a PIC to become familiar with specific information before each flight, including information contained in the FAA-approved Flight Manual on board the aircraft. The aircraft will not have a Flight Manual on board. The PIC will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight. Under these circumstances, the FAA has stated that no exemption is required. See Grant of Exemption No. 11062, p. 20. An exemption is requested to the extent that an FAA-approved Flight Manual on board the aircraft is required.

An equivalent level of safety will be provided by following the CER Manuals. The PIC will take all required preflight actions - including performing all required checklists and reviewing weather, flight requirements, battery charge, landing and takeoff distance, aircraft performance data, and contingency landing areas - before initiation of flight. The CER Manuals will be kept at the ground station with the operator at all times.

8. The Relief CER Seeks From 14 C.F.R. § 91.109(a): Flight Instruction.

CER seeks an exemption from 14 C.F.R. § 91.109(a), which provides that "[n]o person may operate a civil aircraft (except a manned free balloon) that is being used for flight

instruction unless that aircraft has fully functioning dual controls." UASs and remotely piloted aircraft, by their design, do not have functional dual controls. Instead, flight control is accomplished through the use of a Ground Control Station (GCS) that communicates with the aircraft via radio communications.

When flight instruction is performed, no pilots will be on the aircraft and the GCS will be a safe distance from the aircraft and the public, causing no safety hazard. Given the size and speed of the Aibot UAS, an equivalent level of safe training can still be performed without dual controls because no pilot or passengers are aboard the aircraft and all persons will be a safe distance away in the event that the aircraft experiences any difficulties during flight instruction. In addition, CER will conduct flight training at a remote facility away from population centers. These training flights will be conducted in a sterile area and will otherwise comply with the provisions in the CER Manuals. Accordingly, CER's proposed method of operation provides superior levels of safety.

9. The Relief CER Seeks From 14 C.F.R. § 91.119(c): Minimum Safe Altitudes In Uncongested Areas.

CER request an exemption from the minimum safe altitude requirements of 14 C.F.R. § 91.119(c). Section 91.119(c) prescribes that an aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. CER's Manuals provide for operation on wind farms away from congested populations areas, but in close proximity to wind turbines and towers. The FAA has already determined that relief from Section 91.119(c) is warranted for UAS operations in uncongested areas with similar flight restrictions as those imposed by CER. See Grant of Exemption No. 11062, p. 20-21.

Compared to flight operations with rotorcraft weighing more than the maximum weight proposed herein, and given the lack of flammable fuel, any risk associated with these operations

is far less than those that presently exist with conventional aircraft. An equivalent level of safety will be achieved given the size, weight, and speed of the Aibot UAS as well as the location where it is operated. In order to avoid any risk to aircraft, flight operations will be restricted to 499 feet AGL or below. Other aircraft are already prohibited from operating closer than 500 feet from the wind turbine structures where CER proposes to operate. This is airspace where other aircraft do not normally operate. The Aibot UAS will be operated in remote areas, away from persons or structures not involved in the operation. It will hover at least 3 meters from the wind turbine while video taping or thermal imaging the turbine's components and blades. All persons who are not involved with CER operations will be required to be at least 500 feet from flight operations. See FAA Order 8900.1, V3, C8.81. This will also pose no risk to the public because other aircraft are not operating in these areas.

10. The Relief CER Seeks From 14 C.F.R. § 91.121: Altimeter Settings.

This petition seeks an exemption from 14 C.F.R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport. The Aibot UAS uses both barometric pressure sensors and GPS to determine altitude but does not have the ability to set in a current altimeter setting. An exemption is required to the extent that the Aibot UAS does not have a barometric altimeter setting. The altitude of the aircraft is monitored by the PIC on the ground control station and by the visual observer.

The FAA has stated that an equivalent level of safety can be achieved if the aircraft will be operated at or below 400 feet AGL and within visual line-of-sight in addition to GPS based altitude information relayed in real time to the operator. See Grant of Exemption No. 11062, p. 20-21. The petitioner's Aibot UAS will be operated at or below 499 feet AGL. While most

flight operations will be under 400 feet AGL, the blades of a few wind turbines, when pointed in full upward position, may be between 400 and 499 feet AGL in height. Under such circumstances, authorization to operate at up to the top of the wind turbine obstruction, but in no event more than 499 feet AGL is requested.

11. The Relief CER Seeks From 14 C.F.R. §91.151(a): Fuel Requirements for Flight in VFR Conditions.

CER requests an exemption from 14 C.F.R. § 91.151(a)'s fuel requirements for flight in VFR conditions. Section 91.151 states:

> (a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed -
>
> (1) During the day, to fly after that for at least 30 minutes; or
>
> (2) At night, to fly after that for at least 45 minutes.

Here, the technological limitations on Aibot UAS battery power means that no meaningful flight operations can be conducted while still maintaining a 30 minute reserve. The aircraft is battery powered with a maximum flight time of 20 to 30 minutes. CER proposes that the maximum flight time for each operations flight will be 30 minutes. The aircraft will be safely landed with no less than the greater of (a) 25% battery life remaining or (b) five minutes of flight time remaining.

The FAA has stated that an equivalent level of safety is provided if the UAS flight is conducted under daytime VFR flight conditions using VLOS, and terminated with at least 25% reserve battery power still available. See Grant of Exemption No. 11062, p. 21-22 and No. 11150, p. 15. The petitioner will provide an equivalent level of safety by safely landing with no

less than the greater of (a) 25% battery life remaining or (b) five minutes of flight time remaining and otherwise complying with the flight restrictions above.

12. The Relief CER Seeks From 14 C.F.R. §§ 91.405(a), 91.407(a(1), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections.

CER seeks an exemption from the maintenance inspection requirements contained in 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b). These regulations specify maintenance and inspection standards in reference to 14 C.F.R. Part 43. See, e.g. 14 C.F.R. § 91.405(a) (stating that each owner or operator of an aircraft "[s]hall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections . . . have discrepancies repaired as prescribed in part 43 of this chapter"). An exemption from these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the Aibot UAS will not have.

An equivalent level of safety will be achieved because maintenance and inspections, including preflight and post flight checks will be performed in accordance with the CER Manuals. This includes maintenance, overhaul, replacement, and inspection requirements for the aircraft and procedures to document and maintain maintenance records for the aircraft. This also includes preflight inspection procedures. See Exemption No. 11062, at p. 14-15; No. 11150, at p. 11.

As provided in the CER Manuals, flights will not be conducted unless a flight operations checklist is performed that includes all of the aircraft's components. The CER Manuals also set requirements for maintenance log books and record keeping as well as routine and post-flight maintenance. The CER Manuals set requirements for both periodic maintenance and preventive maintenance.

D. The Reasons Why Granting CER's Request Would Be In The Public Interest.

Granting CER's Petition will further the public interest by allowing CER to safely, efficiently, and economically perform aerial inspections over locations in the United States which have previously been permitted by FAA for the construction of renewable wind energy turbines in accord with national and state policy objectives furthering the development of economical renewable energy. Additionally, the use of Aibot UAS will decrease congestion of the NAS and provide significant benefits to the economy. The benefits of the proposed operation of the Aibot UAS will be realized without implicating any privacy issues and will provide a far safer and more effective means of periodically inspecting the components of wind turbines.

1. The Public Will Benefit From The Performance Of Aerial Inspections Of Wind Turbines By UAS.

CER submits this Petition to perform inspections of previously permitted renewable wind energy turbines in the United States. All such turbines are obstructions previously permitted under 14 C.F.R. Part 77. There are over 50,000 commercial wind energy turbines in operation in the United States. All inspection work performed by CER will be at an altitude under 499 feet AGL and within 100 feet of locations and obstructions previously permitted by FAA under 14 C.F.R. Part 77 with completed Forms 7460-2 on file. The Aibot UAS will provide safe, efficient and economical inspections of such permitted obstructions to further the economical provision of renewable energy which is consistent with national policy objectives[2] and that of many states and in furtherance of the public interest.

[2] In December 2014, Congress adopted legislation extending the renewable energy production tax credit to incentivize the development of wind energy facilities. In the most recent State of the Union speech, the President referenced the positive attributes of the development of renewable wind energy in the United States. See, State of the Union Address, published January 24, 2015, *The New York Times*.

2. The Public Will Benefit From Decreased Congestion Of The NAS.

The Aibot UAS is a very high quality battery powered UAS that serves as a safe, efficient, and economical alternative to the current practice of manually inspecting wind turbines by an individual climbing and rappelling on the existing turbine structure. The use of a Aibot UAS would greatly enhance the safety of life and property in the air and on the ground.

3. The Public Will Benefit From The Safety And Efficiency Of The Aibot UAS.

Conducting inspections of wind turbines with the Aibot UAS instead of manned climbers will benefit the public by keeping air and noise pollution to a minimum. By using battery power and an electric motor, the Aibot UAS produces no air pollution, and is the most viable environmentally conscious means, than any other mechanized means, of inspection. The Aibot UAS eliminates noise pollution as it battery powered electric motor is barely audible during the take-off phase, and cannot be heard when operating more than 100 feet above ground level.

By using the Aibot UAS to perform aerial inspections, the substantial risk to life and property in the air and on the ground which is usually associated with traditional manned inspections where an individual climbs the tower and rappels down each blade is almost totally eliminated. The physical risk to an individual to a life endangering fall while climbing hundreds of feet in the air on a tower is substantially eliminated.

4. Performing Aerial Inspections Operations With The Aibot UAS Will Benefit The Economy.

In addition to being safe and efficient, the Aibot UAS is also an economical alternative to using manned climbers to conduct wind turbine inspections. As such, operation of the Aibot UAS will allow United States based companies, like CER, to remain competitive and contribute to growth of the U.S. economy. The cost to inspect wind turbines manually with a climber is

very high. The process is slow and dangerous. Use of a UAS will permit inspection in a fraction of the time in an environment that is substantially safer for the employee. Insurance costs will also be lower. Such savings will contribute to lower costs for safe renewable energy sources.

By operating the Aibot UAS, CER can remain competitive and profitable and therefore provide greater job stability to employees and contractors and benefits to the owners and operations of wind turbines, which will ultimately contribute to growth of the U.S economy. Improved financial performance of U.S. companies through commercial use of the Aibot UAS provides a stable workforce that increases consumer spending and improves local, state, and federal tax revenues.

5. There Are No Privacy Issues.

The proposed operation of the Aibot UAS will not implicate any privacy issues. Specifically, the Aibot UAS will be operated only in rural areas. The Aibot UAS will only operate within 100 feet of an FAA approved wind turbine located on lands that have been previously permitted by the land owner and applicable governmental agencies for the construction and operation of the turbine.

E. The Reasons Why Granting The Exemption Would Not Adversely Affect Safety, Or How The Exemption Would Provide A Level Of Safety At Least Equal To That Provided By The Rule From Which CER Seeks Exemption.

1. Reasons Why An Exemption From The Requirements Of 14 C.F.R. Part 21, Including The Requirements To Have A Certificate Of Airworthiness, Would Not Adversely Affect Safety.

CER contends that the Aibot UAS can operate safely in the NAS without creating a hazard to other aircraft or people on the ground. Accordingly, the FAA may approve its use without an airworthiness certificate as demonstrated by: (i) the safe operational history and current use of the Aibot UAS in the NAS; (ii) the characteristics of the Aibot UAS; (iii) the

limited and sterile area of CER's intended operation; (iv) the operating procedures system CER has developed for Aibot UAS operations and maintenance; (v) the private pilot and Class III medical certificate requirement; (vi) the specific operating limitations proposed in this application; and (vii) any other conditions that the Administrator may prescribe.

2. Reasons Why An Exemption From The Requirements Of 14 C.F.R. § 45.23(b) Would Not Adversely Affect Safety.

This exemption would maintain the level of safety established by Section 45.23(b) because if required, displaying the word "Restricted" with two (2) inch high letters, horizontally on both sides of the UAS will inform all parties of the unmanned aircraft's overall operating status.

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8737, 10167, 10167A, 10700, 10810).

3. Reasons Why An Exemption From The Requirements Of 14 C.F.R. Section 61.113 (a) and (b), Including The Requirement That The Pilot Hold A Commercial Pilot's License, Would Not Adversely Affect Safety Or The Public Interest.

CER contends that since the UAS will not carry a pilot or passengers on board, the proposed operations will achieve an equivalent level of safety when conducted by the petitioner's personnel that will hold a private pilot's license with a Class III medical certificate and will meet the requirements of its own vetting system, which will ensure that only pilots of sufficient skill will operate the UAS.

The aircraft will only be operated in quarantined areas that are strictly controlled and are away from airports and populated areas. CER will conduct extensive safety briefings prior to flight. It will obtain all necessary permissions and permits prior to operation. CER has procedures in place to abort flights in the event of safety breaches or potential danger. The

potential loss of life is diminished because the Aibot UAS carries no people on board and the petitioner will only operate it in specific areas away from mass populations. There is also no fuel on board the UAS and thus the potential for fire or explosions is greatly diminished.

4. Reasons Why The CER Operating Parameters Support The Requests For Other Exemptions.

Each flight will be staffed with a pilot and a technician spotter; all flights will be operated within visual line of sight (VLOS) of the pilot and UA flights will be limited to a maximum altitude of 499 feet above ground level (AGL). CER will operate the UAS during turbine inspections within tightly controlled and limited areas that will be marked with controls in place to allow for safe operations in accordance with the operating documents.

FAR 14 C.F.R. § 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. CER contends no such certificate will be applicable in the form contemplated by the FARs and this regulation is therefore inapplicable.

FAR 14 C.F.R. § 91.9(b)(2) requires an aircraft flight manual in the aircraft. Because there are no pilots or passengers, and given the size of the UAS, this regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a manual at the flight operations center.

With respect to preflight actions, CER believes it may need an exemption from 14 C.F.R. § 91.103, because it will not have approved rotorcraft flight manuals. The petitioner asserts that an equivalent level of safety will be achieved by the PIC taking all preflight actions as set forth in its operating documents filed with this application. Additionally, a briefing will be conducted prior to each day's work.

With respect to minimum safe altitudes, CER requests relief from 14 C.F.R. § 91.119, because the petitioner's UAS will never operate above 499 feet AGL, in areas that are cordoned

off with security parameters and in accordance with the close range aerial procedures contained in the operating documents.

With respect to 14 C.F.R. § 91.121 CER states that its UAS utilizes electronic global positioning systems and six internal gyroscopes to provide spatial coordination.

With respect to the fuel requirements in 14 C.F.R. § 91.151, CER contends that given the limitations on the UA's proposed flight area and the controlled nature of the area in which operations will occur, an equivalent level of safety can be achieved by stating its intention to land with 25% battery power remaining.

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8607, 8737, 8738, 9299, 9430, 9554, 9564, 9565, 10167, 10673, 10835, 10869, 10968).

5. Reasons Why An Exemption From The Requirements Of Section 91.203(a) And (b) Would Not Adversely Affect Safety.

This exemption would maintain the level of safety established by Sections 91.203(a) and (b) because CER will keep the required documents at the ground control station where the pilot in command flying the Aibot UAS will have immediate access.

Previous exemptions granted by the FAA concerning Sections 91.203(a) and (b) establish that safety is not adversely affected when the airworthiness certificate and U.S. registration certificate are kept at the ground control station of the UAS where it can be immediately accessed by the pilot in command. Specifically, the FAA has held that the intent of Sections 91.203(a) and (b) are better served by having the required documents in the control of the UAS operator (pilot in command).

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8607, 8737, 8738, 9299, 9564, 9565, 10167, 10602, 10673, 01835, 10869, 10968).

F. Any Additional Information Available To Support CER's Request.

CER is ready, willing and able to fully implement the Conditions and Limitations that FAA may require to operate the Aibot UAS in a manner that ensures the safe and frequent inspection of wind power turbines. CER's proposed operation is consistent with national policy objectives to further the development of renewable energy sources as well as the principles recognized by Congress in its adoption of Section 333. All of CER's operations will be conducted within the sterile envelopes of permitted obstructions under 14 C.F.R. Part 77. No flight will be at an altitude higher than the currently authorized obstruction. Indeed, CER's petition is consistent with two significant portions of FAA's mission: the safe operation of UAS aircraft and the careful regulation of obstructions in the UAS.

G. Federal Register Summary.

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

Clean Energy Renewables, LLC seeks an exemption from the following rules:

14 C.F.R. Part 21, Subpart H; 14 C.F.R. § 91.203(a) & (b); 14 C.F.R. §§ 91.9(c), 45.23(b) and 45.27(a); 14 C.F.R. § 61.113 (a) & (b); 14 C.F.R. § 91.7(a); 91.9(b)(2); 91.103; 91.109(a); 91.119; 91.151(a); 91.203 (a) & (b); 91.405(a); 91.407(a)(1); 91.409(a)(2); 91.417 (a) & (b).

Approval of exemptions allowing commercial operations of small and lightweight unmanned aircraft ("sUAS") in for the inspection of renewable energy wind turbines will enhance safety by reducing risk to human life. Conventional operations in this industry using

personnel to climb wind turbine structures present the risks associated with unknown hazards that often lead to accidents, incidents and fatalities.

In contrast, the fully equipped Aibot X6 sUAS weighing fewer than 15 lbs. and powered by batteries eliminates virtually all of that risk, given the reduced mass and lack of combustible fuel carried on board. The Aibot X6 sUAS is transported, not flown, to the designated survey area and set up. The Aibot X6 sUAS carries no passengers or crew and provides the inspection services eliminating the requirement for personnel to climb the structure and therefore does not expose personnel to the risks associated with unknown hazards.

The operation of sUASs like the Aibot X6, weighing less than 15 lbs., provides an equivalent level of safety and thus supports the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. The lightweight sUASs operate at slow speeds, close to the ground, and in a sterile environment adjacent to obstructions. As a result, they are far safer than conventional aerial survey and inspection operations conducted with fixed-wing aircraft or helicopters or manned tower climbs.

Conclusion

For the foregoing reasons, CER respectfully requests that the Secretary grant the foregoing petition and provide such other relief as may be appropriate.

Respectfully,

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