

NextEra Energy, Inc.'s Petition for Exemption  
Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012

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## I. SUMMARY OF PETITION

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (“Section 333”), NextEra Energy, Inc. (“NextEra”) hereby respectfully requests expedited approval to use Small Unmanned Aircraft System (“sUAS”) under the terms and conditions described in this Petition for Exemption (“Petition”) to conduct inspections of energy infrastructure. NextEra also requests the exemptions that are necessary to such approval pursuant to 49 U.S.C. § 44701(f), and 14 C.F.R. § 11.81.<sup>1</sup>

NextEra, whose principal subsidiaries are Florida Power & Light Company and NextEra Energy Resources, LLC, seeks to use sUAS to perform visual inspections of vital energy infrastructure, such as transmission and distribution lines, power plants, and substations, in order to further the public interest in the safe and reliable delivery of electricity to customers. Small UAS are ideally suited for inspection of energy infrastructure—they can inexpensively, safely, and quickly deliver high-quality photo and video, which eliminates the need for physical inspection and thus speeds the process of trouble-shooting, and ultimately increases the reliability of the electric grid. In particular, sUAS allow utility workers to conduct inspections without being in close proximity to high-voltage equipment or subject to the hazards of working at height. They can also facilitate the safe inspection of hard-to-access or environmentally sensitive areas without the use of bucket trucks, helicopters, and other utility vehicles that may have more impact than sUAS. In addition, because of the small size of the craft, in many cases sUAS can be more efficient and cost effective than traditional methods, which can help to reduce operations and maintenance costs and, perhaps most importantly, provide a means for faster

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<sup>1</sup> As described in Appendix A to this Petition, NextEra requests an exemption from the following regulations: 14 C.F.R. Part 21; 14 C.F.R. Part 27; 14 C.F.R. §§ 45.23(b); 61.113 (a) and (b); 61.133(a); 91.7(b); 91.9(b)(2); 91.103; 91.109; 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.319(a)(1); 91.405(a); 91.407(a)(1); 91.409 (a)(2); 91.417 (a) and (b); 91.1501.

resolution of any problems on the electric system. In short, approval of this request and the provision of the necessary exemptions will increase electric system reliability, decrease customer costs, and enhance worker safety.

Moreover, approving the requested use would represent a significant step forward in the Federal Aviation Administration's ("Administration") efforts to integrate sUAS into the national airspace system. NextEra's request provides the Administration with an opportunity to partner with a leading electric energy provider as it works to develop its rulemaking pursuant to the FAA Reauthorization Act of 2012—while doing so for a compelling public purpose and under strict operational and safety guidelines. Given the uniqueness of NextEra—the company has a diverse geographical and environmental footprint and a distinctive resource mix—it is ideally suited to help the Administration understand the potential utility applications for sUAS.

NextEra proposes to use sUAS that are rotocraft, weigh 15 or fewer pounds, operate at a speed of no more than 50 knots, and contain built-in safety features. In addition, NextEra proposes to use the aircraft at low altitudes, not in proximity to airports or densely populated areas, on property that is owned or controlled by NextEra or is utility right of way, within the visual line of sight of the operator, and under controlled conditions. Accordingly, the requested exemptions satisfy the applicable statutory criteria and policies, will serve the public interest, will not adversely affect safety, and will provide a level of safety at least equal to the existing airworthiness and related regulations. Approval of this Petition is therefore consistent with Section 333's directive to "establish requirements for the safe operation of [unmanned aircraft systems] in the national airspace system" if the Secretary of Transportation determines that certain unmanned aircraft systems may operate safely in the national airspace system.<sup>2</sup>

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<sup>2</sup> Section 333(c) of the FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat 11.

## II. APPLICANT BACKGROUND

NextEra is one of the largest electric power companies in North America, with approximately 42,500 MW of generating capacity in 26 states in the U.S. and four provinces in Canada, and employing approximately 13,900 people as of December 31, 2013. NextEra provides retail and wholesale electric services to nearly five million customers and owns generation, transmission, and distribution facilities to support its services. NextEra conducts its operations principally through two wholly-owned subsidiaries—Florida Power & Light Company (“FPL”) and NextEra Energy Resources, LLC (“NEER”).

FPL is a rate-regulated electric utility engaged primarily in the generation, transmission, distribution, and sale of electric energy in Florida. FPL is the largest electric utility in the state of Florida and one of the largest electric utilities in the U.S. based on retail megawatt hour sales. As of December 31, 2013, FPL had approximately 24,300 MW of generating capacity, 70,000 miles of power lines, and over 600 power substations. FPL obtains 70 percent of its electricity from clean-burning, American-made natural gas and nearly a quarter of its power from emissions-free nuclear energy.

NEER, with approximately 18,300 MW of generating capacity at December 31, 2013, is one of the largest wholesale generators of electric power in the U.S., with nearly 17,800 MW of generating capacity across 24 states, and with approximately 400 MW in four Canadian provinces. NEER produces the majority of its electricity from clean and renewable sources, including wind and solar. NEER also provides full energy and capacity requirements services, engages in power and gas marketing and trading activities, participates in natural gas, natural gas liquids and oil production and pipeline infrastructure development, owns and operates an electricity transmission business, and owns a retail electricity provider.

NextEra is committed to providing safe and reliable generation, transmission, and distribution of electricity, and statistics demonstrate this commitment. In 2013, NextEra's fossil, solar, and nuclear operations teams had their best-ever years for safety, and NextEra's U.S. Occupational Safety and Health Administration recordable rate was 72% lower in 2012 than it was in 2005. FPL has also achieved exceptional overall reliability performance. In 2013, FPL achieved its best-ever overall reliability performance for the second consecutive year, and for the seven years ended in 2013, the average time a customer is without power was the best among Florida investor-owned utilities. In addition, FPL is accelerating its existing storm hardening and reliability program through 2016 to continue strengthening its infrastructure against tropical storms and hurricanes. Consistent with its effort towards providing safe and reliable electric service, NextEra seeks to use sUAS to more efficiently and safely perform inspections of its energy infrastructure.

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### **III. RELEVANT STATUTORY AUTHORITY**

#### **A. Section 333**

Section 333(a) states that the Administration "shall determine if certain unmanned aircraft system before completion of the plan and rulemaking [to broadly integrate UAS into the

national airspace] required by Section 332 of this Act.” Section 333 is also described as a pathway for “expedited operational authorization.”<sup>3</sup>

Section 333(b)(1) outlines the factors that the Administration shall use to determine whether UAS may be operated safely in the national airspace system: size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight. In addition, and importantly for this Petition, Section 333(b)(2) provides the Administration with the discretion to determine that a certificate of waiver, certificate of authorization, or airworthiness certification is not required to operate UAS that are found to be appropriate under Section 333(b)(1). Finally, Section 333(c) allows the Administration to establish requirements for safe operation of the UAS determined to be able to be operated safely in the national airspace system.

**B. Section 44701(f)**

In addition to its specific authority related to authorizing UAS operation under Section 333, the Administration has general authority to grant exemptions from its safety requirements and minimum standards if the Administration finds that the exemption is in the public interest.<sup>4</sup> Administration regulations set forth the information that must be included in the petition for exemption: (1) the applicant’s name and mailing address; (2) the regulations from which the applicant seeks exemption; (3) the extent of relief sought and why; (4) the reasons why granting the request would be in the public interest and how it would benefit the public as a whole; and (5) the reasons why granting the exemption would not adversely affect safety, or how the

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<sup>3</sup> Section 332(b)(1).

<sup>4</sup> 49 U.S.C. § 44701(f).

exemption would provide a level of safety at least equal to the rule from which the applicant seeks exemption.<sup>5</sup>

#### IV. DISCUSSION

##### A. NextEra's Proposal Satisfies the Section 333 Criteria for Approval.

As described above, Section 333(b)(1) outlines the factors that the Administration shall use to determine whether UAS may be operated safely in the national airspace system: size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight. Applying the criteria outlined in Section 333(b)(1) and other relevant criteria to this case demonstrates that NextEra's proposed terms and conditions of operation will result in the sUAS being operated safely in the national airspace system, consistent with Section 333. Based on the small size of the sUASs involved, the low altitude and restricted environment in which they will operate, and the fact that they will be operated within the visual line of sight of the operator, there is more than sufficient basis to find that the sUAS can be operated safely under NextEra's proposal.

##### 1. Size, Weight, Speed, and Operational Capability

NextEra proposes to use small, multi-rotor craft with a maximum take-off weight of 15 pounds or less that are powered by electric batteries and carry no flammable fuel or cargo. NextEra anticipates the majority of flights will use much smaller craft—quadcopters with a maximum takeoff weight of three pounds. Heavier craft (up to 15 pounds) will only be used in situations requiring specialized equipment, such as infrared cameras for thermal inspection of power equipment.

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<sup>5</sup> 14 C.F.R. § 11.81.

The sUAS used by NextEra will have integrated GPS autopilot systems. The integrated GPS autopilots provide stable, precise flight, and stable hovering—enabling field workers to focus on situational awareness (*e.g.*, proximity to high voltage equipment) and safety of themselves and the public. In addition, the GPS autopilot system provides an automatic return to home capability in the unlikely case of signal loss with the operator.

These small, multi-rotor craft are ideally suited for inspection of power lines, generating plants and other power-related infrastructure because they often deliver high-quality photo and video more efficiently and cost effectively than traditional methods. Using sUAS can also be safer for utility workers because it will avoid putting utility workers in close proximity to high-voltage equipment and work conditions with high elevations, eliminating the risk of injuries from falls. They also allow the safe inspection of hard-to-access or environmentally sensitive areas without the use of bucket trucks and other utility vehicles. Overall, sUAS can provide significant benefits over traditional energy infrastructure inspection methods to utility workers and customers.

## **2. Proximity to Airports/Populated Areas**

NextEra will avoid operating the sUAS over densely populated areas and will operate at least three nautical miles away from the nearest airport. The sUAS will be operated at low altitudes of 400 feet or less—much lower than the airspace in which manned vehicles operate and lower than the altitude at which hobby aircraft fly. Finally, operations will occur over utility property or utility right of way.

In addition, NextEra’s flights will likely occur in airspace that is subject to a Notice to Airmen (“NOTAM”). The Administration has issued a standing notice to pilots to avoid loitering in the “airspace above, or in proximity to, sites such as nuclear power plants, power plants, dams, refineries, industrial complexes, military facilities, and other similar facilities.”



This NOTAM should further limit the potential interaction to for any flights near NextEra power generation facilities.

**3. Visual Line of Sight**

A trained operator will fly the sUAS during daylight hours, in good weather, and within the operator's line of sight. In addition, the operator will be accompanied by a trained spotter, who also will be positioned in line of sight of the aircraft and will be in constant communication with the operator to identify and alert the operator to any potential obstacles. This eliminates the need for other "sense and avoid" capabilities during operation, as well as the need for any method of air traffic control communications.<sup>6</sup>

**B. NextEra's Proposal Also Satisfies the Standard for Exemption under Section 44701 and 14 C.F.R. § 11.81.**

**1. Granting NextEra's Request Would Not Adversely Affect Safety and Would Provide a Level of Safety at Least Equal to Existing Rules.**

Granting NextEra's Petition will not adversely affect safety, and NextEra's proposed terms and conditions of operation would provide a level of safety at least equal to existing rules. As discussed above with respect to Section 333(b)(1) criteria, the size, weight, speed, and operational capability of the sUAS that will be used in the proposed operations indicate that the aircraft can be operated safely in the national airspace system. Moreover, the aircraft will be operated at low altitudes, not in proximity to airports or densely populated areas, and within the visual line of sight of the operator and spotter. In addition, NextEra proposes the following conditions to ensure that the requested exemption would result in a level of safety at least equal to the rules from which NextEra is seeking an exemption.

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<sup>6</sup> See *Interim Operational Approval Guidance 08-01, Unmanned Aircraft Systems Operations in the U.S. National Airspace System* at 4 (Mar. 13, 2008).

**a. Safety Systems**

NextEra will use sUAS that have a semi-autonomous navigation and control system comprised of a Ground Control Station and auto-pilot system. Automated safety functions and safety enhancing features of the sUAS that NextEra will use include the following:

- **Precision Flight and Stable Hovering:** Integrated GPS autopilot system provides position holding, altitude lock, and stable hovering to all field personnel to focus on situational awareness and safely getting the job done.
- **Auto Return-To-Home:** Fail-safe feature will automatically activate in case of signal loss with ground station, using GPS-Enabled autopilot to automatically return and landing the craft at the original take-off point.
- **Clearly Visible Battery and GPS Status:** Battery and GPS Status will be available through airframe status lights clearly visible to the operator and available through the ground station display.
- **Controlled Airspace No-Fly Zone:** GPS controlled autopilot will automatically enforce corporate policy and training prohibiting flights in proximity to airports and densely populated areas.

**b. Mandatory Operating Conditions**

In addition to the safety features described above, NextEra proposes that its exemption be subject to the following mandatory conditions to ensure safe operation:

- Operations will avoid densely populated areas.
- Operations will be conducted over property that is owned or controlled by NextEra or is utility right of way.
- Maximum total flight time for each flight will be 30 minutes. Flights will be terminated at 25% battery power reserve, should that occur before this time limit.
- Operations will occur during Visual Flight Rules Meteorological Conditions.
- Aircraft to remain within Visual Line of Sight (“VLOS”). VLOS will be guaranteed with a cylinder of operation around operator of ½ nautical miles.
- Operations will occur during daylight hours.
- Flights will be operated at an altitude of no more than 400 feet Above Ground Level (“AGL”).

- All operations to remain more than three nautical miles from centerline azimuth of runway centerline measured from runway thresholds.
- Operators and spotters will meet the operator training and certification requirements proposed below.
- Operators and spotters will be in communication at all times.
- Operator will perform required maintenance per the manufacturer's recommendations and keep a log of any maintenance performed.
- Operator will perform any safety checks specified in the manufacturer's user guide prior to each flight.

**c. Operator Training and Certification**

As discussed above, the sUAS NextEra will use are characterized by a high degree of control and built-in technical capabilities that limit the potential for operation outside the operating conditions set forth in this Petition. Moreover, the mandatory operating conditions (maximum altitude, proximity to airfields, visual line of sight) minimize any potential weather impact and interactions with other aircraft.

Situational awareness around high-voltage equipment, a thorough working knowledge of the sUAS, and strict adherence to corporate sUAS flight policy are key to safe sUAS operations. Given the significant differences between sUAS and piloted aircraft, the safety features inherent in the sUAS, and the strict operating conditions that will apply, NextEra proposes that operators of the sUAS will not be required to hold a commercial or private pilot license. Instead, NextEra will train and internally certify operators and observers based on:

- Proven knowledge of NextEra sUAS flight policy (including Mandatory Operating Conditions specified in this Petition);
- Proven working knowledge of safe sUAS operations, flight characteristics, safety features, GPS/Battery Status indicators, and emergency procedures;

- Utility knowledge regarding safe operations around high voltage power lines, substation equipment, and power plants; and
- A valid driver's license (in lieu of health certification).

NextEra is receptive to future regulations and industry guidance on licensing sUAS pilots using training and testing that is relevant to operating sUAS in a limited flight area.

**d. Privacy Considerations**

NextEra will not operate sUAS in any way that may invade personal privacy and will comply with any federal, state, or local privacy laws that may apply in areas where NextEra operates sUAS. In addition, as a practical matter, flights will occur over utility property or utility right of way, so privacy is unlikely to be a concern in relation to NextEra's proposed use.

**2. Granting NextEra's Request Would Be in the Public Interest and Would Benefit the Public as a Whole.**

Allowing the requested use will provide significant benefits to the public, NextEra customers, and NextEra employees. Using sUAS to inspect energy infrastructure can be safer and more efficient than traditional methods of infrastructure inspection, such as the use of helicopters and bucket trucks. The increased safety and efficiency of using sUAS to inspect infrastructure following significant weather events is especially important to NextEra, which serves millions of retail customers in Florida, where hurricanes and tropical storms occur with frequency. An infrastructure inspection process that is safer and more efficient can help to lower operations and maintenance costs and more quickly resolve problems in the delivery of electricity, both of which will benefit customers.

Moreover, the requested use presents a compelling case for the Administration moving forward with efforts to integrate sUAS into the national airspace system as required by Section 333. The public has a significant interest in efficient and safe inspection of energy

infrastructure to ensure reliable delivery of power, and NextEra has proposed using sUAS to further this public interest in a way that is at least as safe as operation of aircraft under existing regulations. NextEra's request therefore provides the Administration an appropriate vehicle to further Congress' mandate to expedite integration of UAS. In addition, NextEra's operational experience resulting from the use of sUAS in utility operations may be valuable to the Administration in developing comprehensive rules governing sUAS for the electric industry.

**C. Description of Relief Sought and Regulations from Which Exemption is Requested**

Based on the foregoing, NextEra's proposal satisfies the criteria for approval under Section 333. In addition, NextEra's proposal meets the requirements and policies for exemptions from Administration regulations. NextEra therefore respectfully requests that the Administration grant exemptions from the regulations set forth in Appendix A to this Petition.<sup>7</sup>

**V. CONCLUSION**

For the reasons discussed above, NextEra satisfies the relevant criteria for approval under Section 333 and exemptions from referenced regulations pursuant to Section 44701(f). Accordingly, NextEra respectfully requests that the Administration grant the relief requested in this Petition to allow the use of sUAS for the purposes and under the conditions set forth herein. Granting this Petition will not only further Congress' instruction to expedite the safe integration of UAS into the national airspace system, but will also further the significant public interest in the safe and reliable delivery of electricity to customers.

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<sup>7</sup> NextEra has attempted to identify the applicable regulations for which an exemption is required for the proposed use. To the extent that the Administration determines that any other safety regulations might apply to NextEra's proposed use, NextEra further requests that this Petition be deemed to seek an exemption from those requirements.

August 21, 2014

Respectfully submitted,

Handwritten signature in cursive script, appearing to read "Charles Lande" and "Amie Jamieson".

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## **Appendix A: Regulations from Which Exemption is Requested**

NextEra has attempted to identify the applicable regulations for which an exemption is required for the proposed use. To the extent that the Administration determines that any other safety regulations might apply to NextEra's proposed use, NextEra further requests that this Petition be deemed to seek an exemption from those requirements.

### **1. 14 C.F.R. Part 21: Airworthiness Certification**

Part 21 establishes procedural requirements for certifications under Section 44704, including airworthiness certificates. Both Sections 333 and 44701(b) authorize the Administration to exempt aircraft from airworthiness certification under this Part based upon consideration of its size, weight, speed, operational capability, and proximity to airports and populated areas. *See* Section 333.

An analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate, in the restricted environment, and under the conditions proposed will be at least as safe, or safer, than a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions proposed.

The sUASs NextEra will use are 15 pounds or less, carry no pilot or passengers, and carry no explosive materials or flammable liquid fuels. Operations under this exemption will be tightly controlled and monitored by the operator and spotter. These safety enhancements provide at least the same degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates.

### **2. 14 C.F.R. Part 27: Airworthiness Standards for Normal Category Rotocraft**

Part 27 sets forth the procedural requirements for airworthiness certification of normal category rotocraft. To the extent the sUAS would otherwise require certification under Part 27,

as a rotocraft, NextEra requests an exemption from Part 27's airworthiness standards for the same reasons identified above with respect to Part 21 requirements.

**3. 14 C.F.R. § 45.23(b): Marking Requirements**

Section 45.23(b) requires that on limited, restricted, or light-sport category aircraft, or experimental or provisionally certificated aircraft, markings indicating the aircraft category must be displayed in letters not less than two inches nor more than six inches high "near each entrance to the cabin, cockpit, or pilot station." Exemption from 14 C.F.R. § 45.23(b) is warranted because the aircraft has no entrance to the cabin, cockpit, or pilot station on which the required marking can be displayed. NextEra requests an exemption to 14 C.F.R. § 45.23(b)'s marking requirements and proposes instead to display markings to the fullest extent possible in compliance with the location requirements of 14 C.F.R. § 45.27(a) and the size requirements of 14 C.F.R. § 45.29(f).

**4. 14 C.F.R. §§ 61.113(a) and (b); 61.133(a): Private Pilot Privileges and Limitations; Pilot in Command; Commercial Pilot Privileges and Limitations**

Sections 61.113(a) and (b) limit private pilots to non-commercial operations. Section 61.133(a) requires an individual with a commercial pilot's license to be pilot in command of an aircraft for compensation or hire. Unlike a conventional aircraft that carries a pilot, passengers, and cargo, the sUAS proposed for use by NextEra are remotely controlled with no passengers or cargo on board.

NextEra respectfully requests exemptions from these requirements based on the particular characteristics of the sUAS that will be used. The risks associated with the operation of the sUAS described above (given the size, speed, operational capabilities, and lack of combustible fuel) are much lower than the risks associated with private pilot operations or commercial operations contemplated by Part 61 with conventional aircraft. In addition, NextEra will use



sUAS with a high degree of control and various built-in technical capabilities that strictly limit the potential for operation outside of the operating conditions set forth in this Petition.

Given the inherently lower-risk nature of the sUAS and these safety features, NextEra proposes that operators be required to successfully complete the training described above. This training and the conditions and restrictions on operation proposed in this Petition will provide an equivalent level of safety as requiring operators to have a private pilot's certificate or a commercial pilot's certificate.

**5. 14 C.F.R. § 91.7(b): Civil Aircraft Worthiness**

Section 91.7(b) requires that no person may operate a civil aircraft unless it is in airworthy condition. If the Administration grants NextEra's request for exemption from the requirement to obtain an airworthiness certificate, no Administration regulatory standard will exist for determining airworthiness. NextEra will, however, maintain the sUASs as directed by the manufacturers and conduct any recommended safety checks prior to each flight.

**6. 14 C.F.R. § 91.9(b)(2): Civil Aircraft Flight Manual in the Aircraft**

Section 91.9(b)(2) prohibits a person from operating a civil aircraft "[f]or 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."

Given the size and configuration of the sUASs NextEra will use, it is not possible to carry such a flight manual on the aircraft. The equivalent level of safety will be achieved by keeping the flight manual (specifically, the manufacturer's user guide) at the ground control point where the operator will have immediate access to it.

**7. 14 C.F.R. § 91.103: Preflight Action**

Section 91.103 requires a pilot in command to become familiar with specific information before each flight, including information contained in the Administration-approved Flight Manual on board the aircraft. As no Administration-approved Flight Manual will be provided, NextEra requests an exemption from this requirement. The operator would, however, become familiar with the manufacturer's user guide.

**8. 14 C.F.R. §§ 91.109, 91.319(a)(1): Flight Instruction**

These regulations provide that no 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. The sUASs NextEra will use are remotely-piloted aircraft and designed without fully functioning dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The equivalent level of safety provided by the fact that neither a pilot nor passengers will be carried in the aircraft, by the size and speed of the aircraft, and the safety features of the aircraft that limit the potential for operation outside the operating conditions set forth in this Petition.

**9. 14 C.F.R. § 91.119: Minimum Safe Altitudes**

Section 91.119(c) prescribes the minimum safe altitudes under which aircraft may not operate, including 500 feet above the surface and away from any person, vessel, vehicle, or structure in non-congested areas. Section 91.119(d)(1) allows for a helicopter to operate at less than those minimum altitudes under certain conditions.

As described above, NextEra will operate the sUAS at altitudes up to 400 feet AGL, and therefore requests an exemption from the 500-foot minimum altitude. Given the size, weight, and speed of the sUAS and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented with conventional aircraft operating at or below 500

AGL. In addition, the low-altitude operations of the sUAS will ensure separation between these sUAS operations and the operations of conventional aircraft that must generally operate above 500 feet.

**10. 14 C.F.R. § 91.121: Altimeter Settings**

Section 121 requires 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.” As the sUAS may not have a barometric altimeter, but instead use GPS technology, NextEra requests an exemption from this requirement to the extent it operates sUAS without a barometric altimeter. An equivalent level of safety will be achieved by the operator confirming the acquisition of GPS signals and an initial ground level altitude of zero prior to take off.

**11. 14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions**

Section 91.151(a) prohibits an individual from beginning “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.”

NextEra requests an exemption from the 30 minutes of reserve fuel requirement. Given the limitations on flight locations and operations set forth in this Petition, a longer time frame for flight is reasonable. Operating the sUAS in a tightly controlled area with less than 30 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the sUAS.

NextEra proposes that an equivalent level of safety can be achieved by limiting flights to 30 minutes or 25% of battery power, whichever happens first. This restriction would be more

than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

**12. 14 C.F.R. § 91.203(a) and (b): Carrying Civil Aircraft Certification and Registration**

Section 91.203 requires a civil aircraft to have “within it . . . [a]n appropriate and current airworthiness certificate” that must be “displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.” As discussed above with respect to Section 91.9(b)(2) requiring the aircraft to carry a flight manual, the physical characteristics of sUAS are such that there is no ability or place to carry registration documents or to display them on the sUAS. An equivalent level of safety will be achieved by keeping registration documents at the ground control point where the operator will have immediate access to them. Moreover, the requirement to carry airworthiness certificate will not apply to NextEra if the Administration grants NextEra’s request for an exemption from this requirement, as requested above.

**13. 14 C.F.R. §§ 91.405(a); 91.407(a)(1); 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections**

These regulations specify maintenance and inspection standards in reference to 14 C.F.R. Part 43. Specifically, 14 C.F.R. § 91.405(a) states that the owner or operator of an aircraft shall have the aircraft inspected as prescribed in the rules and have discrepancies repaired as prescribed in part 43; 14 C.F.R. §§ 407(a)(1) and 409(a)(2) requires that an aircraft be approved for return to service by a person authorized under 14 C.F.R. Section 43.7 after it has undergone maintenance or receives an annual inspection; and 14 C.F.R. § 417 requires an owner or operator of an aircraft to maintain specific types of maintenance records, including signatures of the person authorized to approve the aircraft’s return to service.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to NextEra’s operation of sUAS. Maintenance will be

accomplished by the operator pursuant to the manufacturer specifications. An equivalent level of safety to existing regulations will be achieved because these sUASs are very limited in size, operate only in restricted areas for limited periods of time, and carry no flammable fuel. If mechanical issues arise, the sUAS can land immediately and will be operating from no higher than 400 feet AGL. As described above, the operator will ensure that the sUAS is in working order prior to initiating flight, perform a preflight safety checklist, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

**14. 14 C.F.R. § 91.1501: Continued Airworthiness**

Section 91.1501(a) “requires operators to support the continued airworthiness of each airplane.” NextEra requests an exemption from this regulation because the sUAS will not be subject to an airworthiness certificate.

## **Appendix B: Summary Suitable for Publication in the Federal Register**

NextEra Energy, Inc. petitions the Federal Aviation Administration for relief from compliance with 14 C.F.R. Part 21; 14 C.F.R. Part 27; 14 C.F.R. §§ 45.23(b); 61.113 (a) and (b); 61.133(a); 91.7(b); 91.9(b)(2); 91.103; 91.109; 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.319(a)(1); 91.405(a); 91.407(a)(1); 91.409 (a)(2); 91.417 (a) and (b); 91.1501 for purposes of operating small unmanned aircraft 15 pounds or less on property that is owned or controlled by NextEra or in utility right of way to inspect energy infrastructure and identify problems in the delivery of electricity to customers. NextEra proposes that its operation be subject to the operating conditions and safety standards set forth in the petition in lieu of the above-referenced regulations in order to provide a level of safety equivalent to those regulations.