

**PRECONSTRUCTION ANALYSIS  
NEXTERA ENERGY PIPELINE HOLDINGS (LOWMAN), INC.  
LOWMAN COMPRESSOR STATION  
BUTLER, CHOCTAW COUNTY, ALABAMA  
FACILITY NO. 101-0024  
AIR PERMIT NOS. X001-X003**

On May 22, 2020, the Air Division received a complete Air Permit application from NextEra Energy Pipeline Holdings (Lowman), Inc. (NextEra) for the proposed Greenfield site construction of a natural gas compressor station facility to be located in Choctaw County, Alabama. Revisions to the application were received on June 25, 2020, and July 29, 2020. Based on the applications submitted, the facility would be a minor source under both Title V and PSD regulations. Air Permit Nos. X001, X002, and X003 would be issued for the proposed units.

**Proposed Construction**

NextEra has proposed the construction and operation of a natural gas compressor station to include two (2) 1,875 hp Caterpillar Model G3606, 4-stroke, lean-burn (4SLB), natural gas-fired reciprocating internal combustion engines (RICE), each equipped with an oxidation catalyst [Compressor 1 and 2 (C-1 and C-2)] and a 335 hp Caterpillar Model DG250 GC, 4-stroke, rich-burn (4SRB), natural gas-fired emergency RICE (ENG-1). Natural gas would be the only fuel fired in these engines. Proposed insignificant activities would include a 925 gallon fixed roof condensate storage tank, two (2) 500 gallon fixed roof lube oil storage tanks, two (2) 55 gallon fixed roof lube oil storage tanks, a 500 gallon fixed roof ethylene glycol storage tank, truck loading of condensates, truck unloading of lube oil and ethylene glycol, a 0.036 MMBtu/hr fuel gas heater, and miscellaneous gas venting emissions.

**Emissions**

The pollutants of concern that would be emitted from the proposed engines would be nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and formaldehyde (CH<sub>2</sub>O). Emissions of other criteria and hazardous air pollutants (HAP) were reviewed but determined to be insignificant. Emission calculations for the proposed engines are included as Appendix A.

**State Regulations**

Although the engines would be fuel combustion sources, they would not be subject to any particulate matter (as TSP) emission limitation of ADEM Admin. Code chap. 335-3-4 or any sulfur dioxide (SO<sub>2</sub>) emission limitation of ADEM Admin. Code chap. 335-3-5 because they would not meet the definition of fuel burning equipment nor would they be considered one of the process industries, general or specific. The engines would, however, be subject to the state visible emission standard of ADEM Admin. Code r. 335-3-4-.01, which states that no air emission source may emit particulates of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60-minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six –minute average). The engines would be fired exclusively by natural gas; therefore, they would be expected to be able to comply with this standard.

## **Federal Regulations**

### ***PSD***

The facility operations are not one of the 28 listed major source categories, and the facility is located in an attainment area for all criteria pollutants; therefore, the major source threshold of concern is 250 tons per year (TPY) for criteria pollutants. After construction of the proposed engines, the facility-wide potential emissions would be less than 250 TPY for all criteria pollutants; therefore, NextEra would be considered a minor source under PSD regulations.

### ***Title V***

After the proposed installation of the RICE, facility-wide potential controlled emissions would be 42.72 TPY for NO<sub>x</sub>, 85.35 TPY for CO, 39.57 TPY for VOC, and 8.84 TPY for CH<sub>2</sub>O. NextEra would be considered a minor source under Title V regulations because the potential emissions of each individual criteria pollutant would not exceed 100 TPY, the potential emissions of each individual HAP would not exceed 10 TPY, and the potential emissions of combined HAP would not exceed 25 TPY.

### ***National Emission Standards for Hazardous Air Pollutants (NESHAP) –Subpart ZZZZ*** ***National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)***

Any reciprocating internal combustion engine is considered an affected source under 40 CFR Part 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT). The proposed engines would be considered new affected sources since they would be constructed<sup>1</sup> after June 12, 2006. According to 40 CFR §63.6590(c), any new spark ignition stationary RICE located at an area source of HAP emissions must meet the requirements of the RICE MACT by meeting the requirements of 40 CFR Part 60, Subpart JJJJ. No further requirements would apply to the proposed engines under Subpart ZZZZ.

### ***New Source Performance Standards (NSPS) –Subpart JJJJ*** ***Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE)***

The EPA promulgated 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE) on January 18, 2008. 40 CFR §60.4230(a)(4)(i) states that stationary SI ICE are subject to this Subpart if construction commences<sup>2</sup> after June 12, 2006, and the SI ICE is manufactured on or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 hp. Since the proposed C-1 and C-2 were ordered on May 5, 2020, and are expected to be a new manufacture, they would be subject to this Subpart. 40 CFR §60.4230(a)(4)(iv) states that stationary SI ICE are subject to this

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<sup>1</sup> According to the EPA and for the purpose of Subpart ZZZZ, construction means the on-site fabrication, erection, or installation of an affected source. In this case, NextEra has not yet ordered the new RICE.

<sup>2</sup> According to the EPA and for the purpose of Subpart JJJJ, construction is considered to commence on the date the unit is ordered from the manufacturer.

Subpart if construction commences after June 12, 2006, and the SI ICE is manufactured on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 hp). Since the proposed emergency generator ENG-1 has not yet been ordered and is expected to be a new manufacture, it would be subject to this Subpart.

## C-1 and C-2

### Emission Limitations

In accordance with 40 CFR §60.4233(e) and Table 1 of the rule, the proposed C-1 and C-2 must each meet a NO<sub>x</sub> emission standard of 1.0 g/hp-hr or 82 ppmvd at 15% O<sub>2</sub>, a CO emission standard of 2.0 g/hp-hr or 270 ppmvd at 15% O<sub>2</sub>, and a VOC emission standard of 0.7 g/hp-hr or 60 ppmvd at 15% O<sub>2</sub>. According to 40 CFR §60.4234, NextEra must operate and maintain the proposed C-1 and C-2 in a manner that meets these emission standards over the entire life of the engine.

C-1 and C-2 are not certified by the manufacturer to meet the NSPS standards and require the use of an add-on control device (oxidation catalyst) to meet the applicable standard. NextEra has acknowledged in the application that these engines will each be equipped with an oxidation catalyst.

### Compliance Requirements

40 CFR §60.4243(b)(2)(ii) states that an owner or operator of a stationary SI ICE greater than 500 hp must keep a maintenance plan, records of maintenance conducted, and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practices for minimizing emissions.

### Testing Requirements

Performance test requirements are outlined in 40 CFR §60.4244. In accordance with 40 CFR §60.4243(b)(2)(ii), since the proposed C-1 and C-2 are non-certified, NextEra would be required to perform an initial performance test for NO<sub>x</sub>, CO, and VOC within 180 days of startup while operating within 10% of 100% peak load for the proposed RICE. Also, NextEra would be required to perform subsequent performance tests every 8,760 hours of operation or every three years, whichever comes first, for the proposed engines.

### Notification, Reports, and Records

40 CFR §60.4245(a) requires that owners and operators of all stationary SI ICE that are subject to this Subpart keep records of all notifications submitted and all documentation supporting any notification. Records of all maintenance conducted on the engine must also be maintained. Also, 40 CFR §60.4245(c) requires that owners and operators of stationary SI ICE greater than 500 hp must submit an initial notification as required in 40 CFR §60.7(a)(1). NextEra's application for the proposed C-1 and C-2 would serve as their initial notification. In addition, 40 CFR §60.4245(d) requires that a copy of all performance tests be submitted within 60 days after the test has been completed. All records required under this Subpart must be retained for at least two years from the date of generation and made available for inspection upon request.

## ENG-1

### Emission Limitations

In accordance with 40 CFR §60.4233(e), the proposed emergency generator ENG-1 must meet a NO<sub>x</sub> emission standard of 2.0 g/hp-hr or 160 ppmvd at 15% O<sub>2</sub>, a CO emission standard of 4.0 g/hp-hr or 540 ppmvd at 15% O<sub>2</sub>, and a VOC emission standard of 1.0 g/hp-hr or 86 ppmvd at 15% O<sub>2</sub>. According to 40 CFR §60.4234, NextEra must operate and maintain the proposed emergency generator in a manner that meets these emission standards over the entire life of the engine.

### Compliance Requirements

40 CFR §60.4243(b)(1) states that an owner or operator of a stationary SI ICE complying with the emission standards specified in §60.4233(e) may demonstrate compliance by purchasing an engine certified to the emission standards. NextEra has purchased a certified engine to comply with the Subpart.

Also, for the proposed emergency generator ENG-1, 40 CFR §60.4243(d) limits the operation of the unit for the purpose of maintenance checks and readiness testing to no longer than 100 hours per year. NextEra may operate the proposed emergency generator up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving, to generate income for a facility, or to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year is prohibited.

### Testing Requirements

No testing would be required because the proposed engine is certified.

### Notification, Reports, and Records

40 CFR §60.4245(a) requires that owners and operators of all stationary SI ICE that are subject to this Subpart keep records of all notifications submitted and all documentation supporting any notification. Records of all maintenance conducted on the engines must also be maintained. In addition, 40 CFR §60.4245(d) requires that a copy of all performance tests be submitted within 60 days after the test has been completed. All records required under this Subpart must be retained for at least two years from the date of generation and made available for inspection upon request.

### ***NSPS –Subpart OOOO***

*Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015*

This facility would not be subject to Subpart OOOO, because the compressors associated with these engines would be installed after the September 18, 2015, applicability date.

***NSPS –Subpart OOOOa***

***Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015***

Since the proposed compressors of C-1 and C-2 would be installed after the applicability date, the facility would be subject to the requirements for reciprocating compressors and the requirements of the fugitive equipment components of this Subpart. 40 CFR §60.5370a states NextEra must be in compliance with the standards of this Subpart upon startup of the proposed units and must, at all times, maintain and operate the affected facility in a manner consistent with good air pollution control practices for minimizing emissions.

**Reciprocating Compressor Requirements**

NextEra would be required to either replace the reciprocating compressor rod packing every 26,000 hours or 36 months in accordance with 40 CFR §60.5385a(a)(1) or (2); or collect the emissions from the rod packing using a rod packing emissions collection system which operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of 40 CFR §60.5411a(a).

If NextEra elects to change the reciprocating rod packing in accordance with 40 CFR §60.5385a(a)(1) or (2), NextEra would be required to continuously monitor the hours of operation beginning upon startup and maintain these records on file. In addition, records of the date and time of each reciprocating compressor rod packing replacement, or date of installation of a rod packing emissions collection system and closed vent system as specified in §60.5385a(a)(3) must be kept on file. NextEra would also be required to submit an initial annual report no later than 90 days after the end of the initial compliance period in accordance with 40 CFR §60.5420a and subsequent annual reports no later than on the same date each year as the initial annual report, in accordance with 40 CFR §60.5420a.

**Fugitive Equipment Component Requirements**

Initial and continuous compliance with the fugitive equipment components requirements are outlined in 40 CFR §60.5410a(j) and 40 CFR §60.5415a(h), respectively. NextEra must develop a fugitive emissions monitoring plan as required by 40 CFR §60.5397a(b)(c), and (d), must conduct an initial monitoring survey as required by 40 CFR §60.5397a(f)(2) and must conduct periodic monitoring surveys as required by 40 CFR §60.5397a(g), must maintain records as specified by 40 CFR §60.5420a(c)(15), must repair each identified source of fugitive emissions for each affected facility as required by 40 CFR §60.5397a(h), and must submit an annual report for each collection of fugitive emissions components as required by §60.5420a(b)(1) and (7).

The initial annual report required by this Subpart is due no later than 90 days after the end of the initial compliance period as determined by 40 CFR §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. NextEra may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (8) of section 40 CFR §60.5420a(b), except as provided in paragraph (b)(13) of this section.

Records required by this Subpart are outlined in 40 CFR §60.5420a(c)(3) and (15). Records must be maintained either onsite or at the nearest local field office for at least 5 years.

**Air Quality Impact**

This facility would be located in Choctaw County, an attainment area for all criteria pollutants. It would not be located within 100 km of any PSD Class I Area. The emissions from the proposed engines would not be expected to have a significant impact on this area.

**Public Comment Period**

In accordance with ADEM Admin. Code r. 335-3-15-.05, the Air Division will initiate a 15-day public comment period in order to solicit public input regarding the Department's preliminary determination to issue Air Permits to NextEra.

**Recommendations**

Pending receipt of permitting fees and the resolution of any comments received during the public comment period, I recommend that Air Permit Nos. X001 through X003 be issued to NextEra Energy Pipeline Holdings (Lowman), Inc. for the two (2) 1,875 hp Caterpillar Model G3606, 4SLB, natural gas-fired RICE, each equipped with an oxidation catalyst (C-1 and C-2)] and the 335 hp Caterpillar Model DG250 GC, 4SRB, natural gas-fired emergency RICE (ENG-1), respectively.

*Andrea Sellers*

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July 30, 2020  
Date

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**APPENDIX A**  
**EMISSION CALCULATIONS**  
**NEXTERA ENERGY PIPELINE HOLDINGS (LOWMAN), INC.**  
**LOWMAN COMPRESSOR STATION**  
**BUTLER, CHOCTAW COUNTY, ALABAMA**  
**FACILITY NO. 101-0024**  
**AIR PERMIT NOS. X001-X003**

**Proposed X001 and X002 - Two (2) 1,875 hp Caterpillar Model G3606, 4-stroke, lean-burn, natural gas-fired reciprocating engines, each equipped with an oxidation catalyst [Compressors 1 and 2 (C-1 and C-2)]**

**OPERATING PARAMETERS:**

Operating Capacity: 1,875 hp (Optimal hp)  
 Schedule: 8760 hr/yr  
 Control Device: Oxidation Catalyst

40 CFR Part 60, Subpart JJJJ, Emission Limitations:

NO<sub>x</sub>: 1.0 g/hp-hr (4.13 lb/hr)  
 CO: 2.0 g/hp-hr (8.27 lb/hr)  
 VOC: 0.7 g/hp-hr (2.89 lb/hr)

**Potential/Expected Emissions**

Control Device: Oxidation Catalyst  
 Removal Efficiency (%): CO: 20.0%  
 (Designed Rate)

**NO<sub>x</sub>** (based on NSPS, Subpart JJJJ emission limitation)

4.13 lb	8760 hr	T	= 18.11 TPY x 2 = 36.22 TPY
hr	yr	2000 lb	

**CO** (based on NSPS, Subpart JJJJ emission limitation)

8.27 lb	8760 hr	T	= 36.21 TPY x 2 = 72.42 TPY
hr	yr	2000 lb	

**VOC** (based on NSPS, Subpart JJJJ emission limitation)

2.89 lb	8760 hr	T	= 12.67 TPY x 2 = 25.34 TPY
hr	yr	2000 lb	

**Particulate** - Includes PM<sub>10</sub> & PM<sub>2.5</sub> (based on AP-42 emission factors Table 3.2-2)

0.13 lb	8760 hr	T	= 0.57 TPY x 2 = 1.14 TPY
hr	yr	2000 lb	

**SO<sub>2</sub>** (based on AP-42 emission factors Table 3.2-2)

0.02 lb	8760 hr	T	= 0.09 TPY x 2 = 0.18 TPY
hr	yr	2000 lb	

**Formaldehyde** (based on manufacturer's guarantee)

0.98 lb	8760 hr	T	= 4.29 TPY x 2 = 8.58 TPY
hr	yr	2000 lb	

**Proposed X003 - 335 hp Caterpillar Model DG250 GC, 4-stroke, rich-burn, natural gas-fired emergency RICE (ENG-1)**

**OPERATING PARAMETERS:**

Operating Capacity: 335 hp (Optimal hp)  
 Schedule: 8760 hr/yr  
 Control Device: Oxidation Catalyst

40 CFR Part 60, Subpart JJJJ, Emission Limitations:

NO<sub>x</sub>: 2.0 g/HP-hr (1.48 lb/hr)  
 CO: 4.0 g/HP-hr (2.95 lb/hr)  
 VOC: 1.0 g/HP-hr (0.74 lb/hr)

**Potential/Expected Emissions**

Control Device: Oxidation Catalyst  
 Removal Efficiency (%): CO: 20.0%  
 (Designed Rate)

**NO<sub>x</sub>** (based on NSPS, Subpart JJJJ emission limitation)

$$\frac{1.48 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{6.48 \text{ TPY}}$$

**CO** (based on NSPS, Subpart JJJJ emission limitation)

$$\frac{2.95 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{12.92 \text{ TPY}}$$

**VOC** (based on NSPS, Subpart JJJJ emission limitation)

$$\frac{0.74 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{3.24 \text{ TPY}}$$

**Particulate** - Includes PM<sub>10</sub> & PM<sub>2.5</sub> (based on AP-42 emission factors Table 3.2-2)

$$\frac{0.06 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{0.26 \text{ TPY}}$$

**SO<sub>2</sub>** (based on AP-42 emission factors Table 3.2-2, adjusted for 1.0 g-S/100 scf of natural gas from the 0.2 gr-S/100 scf of natural gas in AP-42)

$$\frac{0.004 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{0.02 \text{ TPY}}$$

**Formaldehyde** (based on AP-42 emission factors Table 3.2-2)

$$\frac{0.06 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{\text{T}}{2000 \text{ lb}} = \mathbf{0.26 \text{ TPY}}$$



**FACILITY-WIDE POTENTIAL EMISSIONS (TPY)**  
**NEXTERA ENERGY PIPELINE HOLDINGS (LOWMAN), INC.**  
**LOWMAN COMPRESSOR STATION**  
**BUTLER, CHOCTAW COUNTY, ALABAMA**  
**FACILITY NO. 101-0024**  
**AIR PERMIT NOS. X001-X003**

Process	NO <sub>x</sub>	CO	VOC	PM <sup>1</sup>	SO <sub>2</sub>	Formaldehyde
1,875 hp Caterpillar 4SLB NG RICE-C-1 (X001)	18.11	36.21	12.67	0.57	0.09	4.29
1,875 hp Caterpillar 4SLB NG RICE-C-2 (X002)	18.11	36.21	12.67	0.57	0.09	4.29
335 hp Caterpillar 4SRB NG Emery. Gen.-ENG-1 (X003) <sup>2</sup>	6.48	12.92	3.24	0.26	0.02	0.26
925 gallon Condensate Storage Tank-T-5001	--	--	0.03	--	--	--
500 gallon Lube Oil Storage Tank-T-5002A	--	--	0.00	--	--	--
500 gallon Lube Oil Storage Tank-T-5002B	--	--	0.00	--	--	--
500 gallon Ethylene Glycol Storage Tank-T-5003	--	--	0.00	--	--	--
55 gallon Lube Oil Storage Tank-T-5004D	--	--	0.00	--	--	--
55 gallon Lube Oil Storage Tank-T-5005D	--	--	0.00	--	--	--
0.036 MMBtu/hr Fuel Gas Heater-HTR-1	0.02	0.01	0.00	0.00	0.00	0.00
Truck Loading Emissions-LL-1	--	--	0.01	--	--	--
Compressor Blowdown-BLWDWN	--	--	10.98	--	--	--
<b>Total</b>	<b>42.72</b>	<b>85.35</b>	<b>39.57</b>	<b>1.40</b>	<b>0.20</b>	<b>8.84</b>

<sup>1</sup> For purposes of these calculations, PM = PM<sub>10</sub> = PM<sub>2.5</sub>

<sup>2</sup> For purposes of Prevention of Significant Deterioration (PSD), emergency generator emissions calculated at 8,760 hr/yr