STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

FPL Energy Cape, LLC	)	**Departmental**
Cumberland County	)	**Findings of Fact and Order**
South Portland, Maine	)	**Air Emission License**
A-612-71-G-R (SM)		

After review of the air emissions license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. FPL Energy Cape, LLC (FPL) of South Portland, Maine has applied to renew their Air Emission License permitting the operation of emission sources associated with their power generation facility.

2. The physical address of the FPL facility is 2 Ocean Street South Portland, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (gal/hr)	Fuel Type,	Stack #
Turbine #4	327.6	2,340	#2 fuel oil	4
Turbine #5	327.6	2,340	#2 fuel oil	5
Diesel #4	4.23	30.9	#2 fuel oil	4
Diesel #5	4.23	30.9	#2 fuel oil	5

C. Application Classification

The application for FPL does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of current licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended). As FPL has fuel limits that maintain the facility licensed below the major source thresholds, FPL is considered a synthetic minor.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Turbines

FPL operates two turbines at Cape Station in South Portland, designated Turbines #4 and #5. These turbines are used as peaking units for the New England Power Pool and as reserve capacity for FPL Energy. The units are both General Electric model MS5000M turbines (Frame 5) rated at 22 MW each firing #2 fuel oil. These turbines were placed into service in 1970 and are therefore not subject to the New Source Performance Standards (NSPS) Subpart GG for stationary gas turbines.

A summary of the BPT analysis for Turbines #4 and #5 (327.6 MMBtu/hr each) is the following:

1. The total fuel use for the FPL #2 fuel oil burning equipment combined shall not exceed 2,138,000 gal/year based on a twelve-month rolling total.

2. The turbines shall each be limited to 500 hr/yr of operation based on a twelve-month rolling total. Compliance shall be demonstrated by a written log of all turbine operating hours.

3. *Fuel Burning Equipment Particulate Emission Standard*, 06-096 CMR 103 (as amended) regulates PM emission limits however in this case BPT for PM was determined to be a more stringent limit of 0.06 lb/MMBtu and shall be used. The PM_{10} limits are derived from the PM limits.

4. SO_2, NOx, CO and VOC emission limits are based on a previous BPT analysis.

5. *Visible Emissions Regulation*, 06-096 CMR 101 (as amended) regulates visible emission limits. Visible emissions from each turbine stack shall not exceed 20% opacity on a 6-minute block average, except for no more than one 6-minute block average in a continuous 3-hour period.

C. Diesel Engines

Each turbine is equipped with a 4.23 MMBtu/hr (600 hp) diesel internal combustion engine that is used to start the turbine, designated Diesel #4 and #5. These engines run for three minutes to start the turbine and then require a ten minute cool-down period.

Each engine at the FPL facility has a HP rating of approximately 600HP. As existing stationary RICE engines located at an area source of HAPS, constructed prior to December 19, 2002, the diesel engines at the FPL facility are subject to 40 CFR Part 63 subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*. The engines at the FPL facility are categorized in Subpart ZZZZ as black-start engines (as per 40 CFR Part 63.6675, a *black-start engine* means an engine whose only purpose is to start up a combustion turbine.) Subpart ZZZZ further categorizes black-start engines with emergency engines for the purposes of determining compliance obligations. Therefore, FPL must meet the requirements established in 40 CFR Part 63 Subpart ZZZZ for the facility's diesel engines which includes the following:

	Compliance Dates	**Operating Limitations* (40 CFR §63.6603(a) and Table 2(d)(4))**
Diesel Engines #4 and #5	No later than May 3, 2013	- Change oil and filter every 500 hours of operation or annually, whichever comes first; - Inspect the air cleaner every 1000 hours of operation or annually, whichever comes first; - Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary

* Note: Due to the 200 hour operation limit on each diesel, the inspections and oil/filter changes shall be performed annually to meet the requirements of 40 CFR Part 63, Subpart ZZZZ.

As per 40 CFR §63.6625(e)(3), the diesel engines shall be operated and maintained according to the manufacturer's emission-related written instructions or FPL shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

As per 40 CFR §63.6655(e)(3), FPL shall keep records that include maintenance conducted on the diesel engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for operation, including the classification of the operation (i.e. turbine start-up, maintenance etc...).

The Department has determined that FPL shall install non-resettable hour meters for Diesels #4 and #5 and that this determination shall be considered BPT/BACT.

The Department determined that FPL shall be limited to no greater than100 hrs/yr for maintenance and testing, the diesels shall be limited to no greater than 200 hrs/yr of total operation and that this determination shall be considered BPT/BACT.

A summary of the BPT analysis for Diesel Engines #4 and #5 (4.23 MMBtu/hr each) is the following:

1. The diesel engines shall each be limited no greater than 100 hr/yr of operation each for maintenance and testing purposes, based on a calendar year total basis and no greater than 200 hrs/yr of total operation, based on a calendar year total basis. Compliance shall be demonstrated by a written log of all diesel engine operating hours.

2. Chapter 106 regulates fuel sulfur content, however in this case BPT for SO_2 was determined to be a more stringent limit of 0.3% and shall be used.

3. Chapter 103 regulates PM emission limits. The PM_{10} limits are derived from the PM limits.

4. NOx, CO, and VOC emission limits are based upon AP-42 data dated 10/96.

5. Visible emissions from the generators shall not exceed 30% opacity on a 6-minute block average, except for no more than two 6-minute block averages in a continuous 3 hour period.

D. #2 Fuel Oil Use Restrictions

The previous Air Emission License (A-612-71-F-R) established a fuel use restriction for the FPL facility of no greater than 2,183,000 gal/year of #2 fuel oil, based on a twelve-month rolling total. This limit took into account fuel use for both turbines as well as both diesel engines. Although this fuel restriction falls below the total fuel use necessary to meet the maximum fuel use required to fire all units for the total allowed operating hours, FPL has not requested a change in this fuel use restriction so FPL shall continue to be restricted to 2,183,000 gal/year of #2 fuel oil, based on a twelve-month rolling total combined for all #2 fuel oil burning equipment.

FPL was previously restricted to the use of #2 fuel oil with a sulfur content no greater than 0.3% sulfur by weight, however, since the issuance of this facility's previous Air Emission License, the Department has revised the BPT determination concerning sulfur content of #2 fuel oil fired in licensed fuel burning equipment. Until December 31, 2015, the #2 fuel oil fired in the FPL boilers shall be ASTM D396 compliant #2 fuel oil (maximum sulfur content of 0.5% by weight). Per 38 MRSA §603-A(2)(A)(3), beginning January 1, 2016, FPL shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm), and beginning January 1, 2018, FPL shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm).

E. Annual Emissions

FPL shall be restricted to the following annual emissions, based on a twelve-month rolling total. Annual emissions were calculated based on the following:

Total Licensed Annual Emission for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM_{10}	SO_2	NOx	CO	VOC
Turbines	9.15	9.15	46.1	96.1	7.7	2.59
Engines	0.1	0.1	0.3	2.7	0.8	0.3
Total TPY	**9.25**	**9.25**	**46.4**	**98.8**	**8.5**	**2.9**

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a minor source shall be determined on a case-by case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source. Based on the total facility emissions, FPL is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-612-71-G-R subject to the following conditions:

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (Title 38 MRSA §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]

(3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]

(4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353.

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]

(7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]

(8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]

(9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]

(10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

(i) perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:

a. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
b. pursuant to any other requirement of this license to perform stack testing.

(ii) install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

(iii)submit a written report to the Department within thirty (30) days from date of test completion. [06-096 CMR 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

(i) within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

(ii) the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

(iii)the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions. [06-096 CMR 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]

(14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]

(15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) Turbines #4 and #5

A. The turbines shall each be limited to 500 hr/yr of operation based on a twelve-month rolling total. Compliance shall be demonstrated by a written log of all turbine operating hours.

B. Emissions shall not exceed the following:

Equipment		PM	PM_{10}	SO_2	NOx	CO	VOC
Turbine #4	lb/MMBtu	0.06	-	-	-	-	-
	lb/hr	19.66	19.66	98.28	206.39	16.38	5.57
Turbine #5	lb/MMBtu	0.06	-	-	-	-	-
	lb/hr	19.66	19.66	98.28	206.39	16.38	5.57

C. Visible emissions from each turbine shall not exceed 20% opacity on a 6-minute block average, except for no more than two 6-minute block averages in a continuous 3 hour period.

(17) Diesel Engines #4 and #5

A. FPL shall limit the diesel engines to no greater than 100 hr/yr of operation each for maintenance and testing purposes, based on a calendar year total basis and no greater than 200 hrs/yr of total operation, based on a calendar year total basis. A log documenting the dates and times of operation for the diesel engines shall be kept. [06-096 CMR 115, BPT]

B. Emissions shall not exceed the following:

Equipment		PM	PM_{10}	SO_2	NOx	CO	VOC
Diesel #4	lb/MMBtu	0.12	-	-	-	-	-
	lb/hr	0.51	0.51	1.27	13.5	4.02	1.48
Diesel #5	lb/MMBtu	0.12	-	-	-	-	-
	lb/hr	0.51	0.51	1.27	13.5	4.02	1.48

C. Visible emissions from each diesel engine shall not exceed 30% opacity on a 6-minute block average, except for no more than two 6-minute block averages in a continuous 3 hour period.

D. Diesel Engines #4 and #5 shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following:

1. No later than May 3, 2013, FPL shall meet the following operational limitations for each diesel engine:

   a. Change the oil and filter annually,
   b. Inspect the air cleaner annually, and
   c. Inspect the houses and belts annually and replace as necessary.

   [40 CFR §63.6603(a) and Table 2(d)(4), 06-096 CMR 115, BPT]

2. The diesel engines shall be operated and maintained according to the manufacturer's emission-related written instructions or FPL shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
   [40 CFR §63.6625(e)(3), 06-096 CMR 115, BPT]

3. FPL shall keep records that include maintenance conducted on the diesel engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for operation, including the classification of the operation (i.e. turbine start-up, maintenance etc...).
   [40 CFR §63.6655(e)(3), 06-096 CMR 115, BPT]

E. FPL shall install, operate and maintain non-resettable hour meters for Diesels #4 and #5. [06-096 CMR 115, BPT]

F. FPL shall be limited to 100 hours/year for maintenance and testing. [06-096 CMR 115, BPT]

(18) #2 Fuel Oil Use Restrictions

A. Fuel use shall not exceed 2,183,000 gallons/year of #2 fuel oil based on a twelve-month rolling total. [06-096 CMR 115, BPT]

B. Until December 31, 2015, the #2 fuel oil fired in the FPL turbines shall be ASTM D396 compliant #2 fuel oil (maximum sulfur content of 0.5% by weight). Per 38 MRSA §603-A(2)(A)(3), beginning January 1, 2016, FPL shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm), and beginning January 1, 2018, FPL shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). [06-096 CMR 115, BPT]

C. Compliance with the above fuel use and sulfur restrictions shall be demonstrated by means of a fuel use record which shall include entries indicating the gallons of fuel used and the sulfur content of the fuel and which shall be maintained on a monthly and twelve-month rolling total basis. [06-096 CMR 115, BPT]

(19) General Process Sources

Visible emissions from any general process source shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(20) *Emissions Statements*, 06-096 CMR 137 Reporting

Annual Emission Statement

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:

1) A computer program and accompanying instructions supplied by the Department; or

2) A written emission statement containing the information required in 06-096 CMR 137.

The emission statement must be submitted as specified by the date in 06-096 CMR 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017

Phone: (207) 287-2437

(21) FPL shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 MRSA §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 28th DAY OF February 2012.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie Loyzim for
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

The term of this Order shall be for five (5) years from the above signature date.

Date of initial receipt of application: **September 16, 2010**
Date of application acceptance: **September 20, 2010**

Date filed with the Board of Environmental Protection: _____

This Order prepared by Peter G. Carleton, Bureau of Air Quality

Filed
FEB 28 2012
State of Maine
Board of Environmental Protection