

#3862

40 Washington Street
Westborough, MA 01581
Tel 508.836.9500
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www.csgrp.com



Conservation Services Group

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PUBLIC UTILITIES COMMISSION

August 14, 2007

Rhode Island Public Utilities Commission
89 Jefferson Blvd
Warwick, RI 02888
Attn: Renewable Energy Resources Eligibility

Re: The Standard Application Form Required of all Applicants for Certification of Eligibility of Renewable Energy Resource for Swans Falls Waste Vegetable Oil (WVO) Generating Station

To Whom It May Concern:

Please accept The Standard Application for Certification of Eligibility of Renewable Energy Resources for a new .5MW Swans Falls WVO Generating Station submitted by Conservation Services Group, on the behalf of Swans Falls WVO Generating Co. LLC. Swans Falls WVO Generating Co. LLC plans to install a Caterpillar diesel engine to generate electricity using waste vegetable oil as the fuel source. In addition to the application, please find the following: 1) the manufactures specs of the Caterpillar diesel engine to be used, 2) a letter from the State of Maine Department of Environmental Protection, 3) Certification of Authorization.

Sincerely,

Stephanie Lovejoy Hamilton
Conservation Services Group

Enclosures

RIPUC Use Only

Date Application Received: ___/___/___
Date Review Completed: ___/___/___
Date Commission Action: ___/___/___
Date Commission Approved: ___/___/___

GIS Certification #:

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM

**The Standard Application Form
Required of all Applicants for Certification of Eligibility of Renewable Energy Resource
(Version 3 – September 12, 2006)**

**STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION
Pursuant to the Renewable Energy Act
Section 39-26-1 et. seq. of the General Laws of Rhode Island**

NOTICE:

When completing this Renewable Energy Resources Eligibility Form and any applicable Appendices, please refer to the State of Rhode Island and Providence Plantations Public Utilities Commission Rules and Regulations Governing the Implementation of a Renewable Energy Standard (RES Regulations, Effective Date: January 1, 2006), and the associated RES Certification Filing Methodology Guide. All applicable regulations, procedures and guidelines are available on the Commission's web site: www.ripuc.org/utilityinfo/res.html. Also, all filings must be in conformance with the Commission's Rules of Practice and Procedure, in particular, Rule 1.5, or its successor regulation, entitled "Formal Requirements as to Filings."

- Please complete the Renewable Energy Resources Eligibility Form and Appendices using a typewriter or black ink.
- Please submit one original and three copies of the completed Application Form, applicable Appendices and all supporting documentation to the Commission at the following address:
Rhode Island Public Utilities Commission
89 Jefferson Blvd
Warwick, RI 02888
Attn: Renewable Energy Resources Eligibility

In addition to the paper copies, electronic/email submittals are required under Commission regulations. Such electronic submittals should be sent to: Lufy E. Massaro, Commission Clerk at lmassaro@puc.state.ri.us

- In addition to filing with the Commission, Applicants are required to send, electronically or electronically and in paper format, a copy of the completed Application including all attachments and supporting documentation, to the Division of Public Utilities and Carriers and to all interested parties. A list of interested parties can be obtained from the Commission's website at www.ripuc.org/utilityinfo/res.html.
- Keep a copy of the completed Application for your records.
- The Commission will notify the Authorized Representative if the Application is incomplete.
- Pursuant to Section 6.0 of the RES Regulations, the Commission shall provide a thirty (30) day period for public comment following posting of any administratively complete Application.
- Please note that all information submitted on or attached to the Application is considered to be a public record unless the Commission agrees to deem some portion of the application confidential after consideration under section 1.2(g) of the Commission's Rules of Practice and Procedure.
- In accordance with Section 6.2 of the RES Regulations, the Commission will provide prospective reviews for Applicants seeking a preliminary determination as to whether a facility would be eligible prior to the formal certification process described in Section 6.1 of the RES Regulations. Please note that space is provided on the Form for applicant to designate the type of review being requested.
- Questions related to this Renewable Energy Resources Eligibility Form should be submitted in writing, preferably via email and directed to: Lufy E. Massaro, Commission Clerk at lmassaro@puc.state.ri.us

SECTION I: Identification Information

1.1 Name of Generation Unit (sufficient for full and unique identification):

Swans Falls WVO Generating Unit

1.2 Type of Certification being requested (check one):

X Standard Certification Prospective Certification (Declaratory Judgment)

1.3 This Application includes: (Check all that apply)¹

APPENDIX A: Authorized Representative Certification for Individual Owner or Operator

APPENDIX B: Authorized Representative Certification for Non-Corporate Entities Other Than Individuals

APPENDIX C: Existing Renewable Energy Resources

APPENDIX D: Special Provisions for Aggregators of Customer-sited or Off-grid Generation Facilities

APPENDIX E: Special Provisions for a Generation Unit Located in a Control Area Adjacent to NEPOOL

X APPENDIX F: Fuel Source Plan for Eligible Biomass Fuels

1.4 Primary Contact Person name and title: Stephanie Hamilton
Legal Affairs and Policy Analyst

1.5 Primary Contact Person address and contact information:

Address: Conservation Services Group
40 Washington St.
Westborough, MA 01581

Phone: 508-836-9500 x13285 Fax: 508-836-3181

Email: Stephanie.Hamilton@csggrp.com

1.6 Backup Contact Person name and title: Deborah Razza, Operations Coordinator

1.7 Backup Contact Person address and contact information:

Address: Conservation Services Group
40 Washington St
Westborough, MA 01581

Phone: 508-836-9500 x13386 Fax: 508-836-3181

Email: Deboroah.Razza@csggrp.com

¹ Please note that all Applicants are required to complete the Renewable Energy Resources Eligibility Standard Application Form and all of the Appendices that apply to the Generation Unit or Owner or Operator that is the subject of this Form. Please omit Appendices that do not apply.

SECTION II: Generation Unit Information, Fuels, Energy Resources and Technologies

2.1 ISO-NE Generation Unit Asset Identification Number or NEPOOL GIS Identification Number (either or both as applicable): N/A

2.2 Generation Unit Nameplate Capacity: 0.5 MW

2.3 Maximum Demonstrated Capacity: MW

2.4 Please indicate which of the following Eligible Renewable Energy Resources are used by the Generation Unit: (Check ALL that apply) – *per RES Regulations Section 5.0*

- Direct solar radiation
- The wind
- Movement of or the latent heat of the ocean
- The heat of the earth
- Small hydro facilities
- X Biomass facilities using Eligible Biomass Fuels and maintaining compliance with all aspects of current air permits; Eligible Biomass Fuels may be co-fired with fossil fuels, provided that only the renewable energy fraction of production from multi-fuel facilities shall be considered eligible.
- Biomass facilities using unlisted biomass fuel
- Biomass facilities, multi-fueled or using fossil fuel co-firing
- Fuel cells using a renewable resource referenced in this section

2.5 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility’s aggregate capacity does not exceed 30 MW. – *per RES Regulations Section 3.31*

- ← check this box to certify that the above statement is true
- N/A or other (please explain) _____

2.6 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility does not involve any new impoundment or diversion of water with an average salinity of twenty (20) parts per thousand or less. – *per RES Regulations Section 3.31*

- ← check this box to certify that the above statement is true
- N/A or other (please explain) _____

2.7 If you checked one of the Biomass facilities boxes in Section 2.1 above, please respond to the following:

A. Please specify the fuel or fuels used or to be used in the Unit: _____
waste vegetable oil _____

B. Please complete and attach Appendix F, Eligible Biomass Fuel Source Plan.

Appendix F completed and attached? Yes No N/A

2.6 Has the Generation Unit been certified as a Renewable Energy Resource for eligibility in another state's renewable portfolio standard?

Yes No If yes, please attach a copy of that state's certifying order.

Copy of State's certifying order attached? Yes No N/A

SECTION III: Commercial Operation Date

Please provide documentation to support all claims and responses to the following questions:

3.1 Date Generation Unit first entered Commercial Operation: Not commercially operational as of yet at the site.

3.2 Is there an Existing Renewable Energy Resource located at the site of Generation Unit?

Yes

No

3.3 If the date entered in response to question 3.1 is earlier than December 31, 1997 or if you checked "Yes" in response to question 3.2 above, please complete Appendix C.

Appendix C completed and attached? Yes No N/A

3.4 Was all or any part of the Generation Unit used on or before December 31, 1997 to generate electricity at any other site?

Yes

No

3.5 If you checked "Yes" to question 3.4 above, please specify the power production equipment used and the address where such power production equipment produced electricity (attach more detail if the space provided is not sufficient):

SECTION IV: Metering

4.1 Please indicate how the Generation Unit's electrical energy output is verified (check all that apply):

ISO-NE Market Settlement System

Self-reported to the NEPOOL GIS Administrator

Other (please specify below and see Appendix D: Eligibility for Aggregations):

Appendix D completed and attached?

Yes No N/A

SECTION V: Location

5.1 Please check one of the following that apply to the Generation Unit:

- Grid Connected Generation
- Off-Grid Generation (not connected to a utility transmission or distribution system)
- Customer Sited Generation (interconnected on the end-use customer side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer)

5.2 Generation Unit address: _____

_____ Swans Falls rd. _____
_____ Fryeburg, ME 04037 _____
_____ Saco River _____

5.3 Please provide the Generation Unit's geographic location information:

A. Universal Transverse Mercator Coordinates: _____

B. Longitude/Latitude: W 70.972 / N 44.033

5.4 The Generation Unit located: (please check the appropriate box)

- In the NEPOOL control area
- In a control area adjacent to the NEPOOL control area
- In a control area other than NEPOOL which is not adjacent to the NEPOOL control area ← *If you checked this box, then the generator does not qualify for the RI RES – therefore, please do not complete/submit this form.*

5.5 If you checked "In a control area adjacent to the NEPOOL control area" in Section 5.4 above, please complete Appendix E.

Appendix E completed and attached?

Yes No N/A

SECTION VI: Certification

6.1 Please attach documentation, using one of the applicable forms below, demonstrating the authority of the Authorized Representative indicated in Section 1.8 to certify and submit this Application.

Corporations

If the Owner or Operator is a corporation, the Authorized Representative shall provide **either**:

- (a) Evidence of a board of directors vote granting authority to the Authorized Representative to execute the Renewable Energy Resources Eligibility Form, **or**
- (b) A certification from the Corporate Clerk or Secretary of the Corporation that the Authorized Representative is authorized to execute the Renewable Energy Resources Eligibility Form or is otherwise authorized to legally bind the corporation in like matters.

Evidence of Board Vote provided? Yes No N/A

Corporate Certification provided? Yes No N/A

Individuals

If the Owner or Operator is an individual, that individual shall complete and attach APPENDIX A, or a similar form of certification from the Owner or Operator, duly notarized, that certifies that the Authorized Representative has authority to execute the Renewable Energy Resources Eligibility Form.

Appendix A completed and attached? Yes No N/A

Non-Corporate Entities

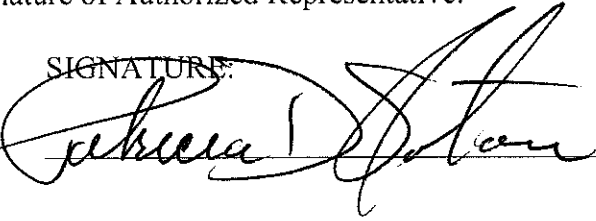
(Proprietorships, Partnerships, Cooperatives, etc.) If the Owner or Operator is not an individual or a corporation, it shall complete and attach APPENDIX B or execute a resolution indicating that the Authorized Representative named in Section 1.8 has authority to execute the Renewable Energy Resources Eligibility Form or to otherwise legally bind the non-corporate entity in like matters.

Appendix B completed and attached? Yes No N/A

6.2 Authorized Representative Certification and Signature:

I hereby certify, under pains and penalties of perjury, that I have personally examined and am familiar with the information submitted herein and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties, both civil and criminal, for submitting false information, including possible fines and punishment. My signature below certifies all information submitted on this Renewable Energy Resources Eligibility Form. The Renewable Energy Resources Eligibility Form includes the Standard Application Form and all required Appendices and attachments. I acknowledge that the Generation Unit is obligated to and will notify the Commission promptly in the event of a change in a generator's eligibility status (including, without limitation, the status of the air permits) and that when and if, in the Commission's opinion, after due consideration, there is a material change in the characteristics of a Generation Unit or its fuel stream that could alter its eligibility, such Generation Unit must be re-certified in accordance with Section 9.0 of the RES Regulations. I further acknowledge that the Generation Unit is obligated to and will file such quarterly or other reports as required by the Regulations and the Commission in its certification order. I understand that the Generation Unit will be immediately de-certified if it fails to file such reports.

Signature of Authorized Representative:

SIGNATURE:  DATE: 8/14/07

Vice President of Clean Energy Markets

APPENDIX F
Eligible Biomass Fuel Source Plan
(Required of all Applicants Proposing to Use An Eligible Biomass Fuel)

STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION
Part of Application for Certificate of Eligibility
RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM
Pursuant to the Renewable Energy Act
Section 39-26-1 et. sq. of the General Laws of Rhode Island

Note to Applicants: Please refer to the RES Certification Filing Methodology Guide posted on the Commission's web site (www.ripuc.org/utilityinfo/res.html) for information, templates and suggestions regarding the types and levels of detail appropriate for responses to specific application items requested below. Also, please see Section 6.9 of the RES Regulations for additional details on specific

The phrase "Eligible Biomass Fuel" (per RES Regulations Section 3.6) means fuel sources including brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips, shavings, slash, yard trimmings, site clearing waste, wood packaging, and other clean wood that is not mixed with other unsorted solid wastes²; agricultural waste, food and vegetative material; energy crops; landfill methane³ or biogas⁴, provided that such gas is collected and conveyed directly to the Generation Unit without use of facilities used as common carriers of natural gas; or neat bio-diesel and other neat liquid fuels that are derived from such fuel sources.

In determining if an Eligible Biomass Generation Unit shall be certified, the Commission will consider if the fuel source plan can reasonably be expected to ensure that only Eligible Biomass Fuels will be used, and in the case of co-firing ensure that only that proportion of generation attributable to an Eligible Biomass Fuel be eligible. Certification will not be granted to those Generation Units with fuel source plans the Commission deems inadequate for these purposes.

This Appendix must be attached to the front of Applicant's Fuel Source Plan required for Generating Units proposing to use an Eligible Biomass Fuel (per Section 6.9 of RES Regulations).

² Generation Units using wood sources other than those listed above may make application, as part of the required fuel source plan described in Section 6.9 of the RES Regulations, for the Commission to approve a particular wood source as "clean wood." The burden will be on the applicant to demonstrate that the wood source is at least as clean as those listed in the legislation. Wood sources containing resins, glues, laminates, paints, preservatives, or other treatments that would combust or off-gas, or mixed with any other material that would burn, melt, or create other residue aside from wood ash, will not be approved as clean wood.

³ Landfill gas, which is an Eligible Biomass Fuel, means only that gas recovered from inside a landfill and resulting from the natural decomposition of waste, and that would otherwise be vented or flared as part of the landfill's normal operation if not used as a fuel source.

⁴ Gas resulting from the anaerobic digestion of sewage or manure is considered to be a type of biogas, and therefore an Eligible Biomass Fuel that has been fully separated from the waste stream.

F.1 The attached Fuel Source Plan includes a detailed description of the type of Eligible Biomass Fuel to be used at the Generation Unit.

Detailed description attached? Yes No N/A

Comments: _____

F.2 If the proposed fuel is "other clean wood," the Fuel Source Plan should include any further substantiation to demonstrate why the fuel source should be considered as clean as those clean wood sources listed in the legislation.

Further substantiation attached? Yes No N/A

Comments: _____

F.3 In the case of co-firing with ineligible fuels, the Fuel Source Plan must include a description of (a) how such co-firing will occur; (b) how the relative amounts of Eligible Biomass Fuel and ineligible fuel will be measured; and (c) how the eligible portion of generation output will be calculated. Such calculations shall be based on the energy content of all of the proposed fuels used.

Description attached? Yes No N/A

Comments: _____

F.4 The Fuel Source Plan must provide a description of what measures will be taken to ensure that only the Eligible Biomass Fuel are used, examples of which may include: standard operating protocols or procedures that will be implemented at the Generation Unit, contracts with fuel suppliers, testing or sampling regimes.

Description provided? Yes No N/A

Comments: _____

F.5 Please include in the Fuel Source Plan an acknowledgement that the fuels stored at or brought to the Generation Unit will only be either Eligible Biomass Fuels or fossils used for co-firing and that Biomass Fuels not deemed eligible will not be allowed at the premises of the certified Generation Unit. And please check the following box to certify that this statement is true.

← check this box to certify that the above statement is true

N/A or other (please explain) _____

F.6 If the proposed fuel includes recycled wood waste, please submit documentation that such fuel meets the definition of Eligible Biomass Fuel and also meets material separation, storage, or handling standards acceptable to the Commission and furthermore consistent with the RES Regulations.

Documentation attached? Yes No N/A

Comments: _____

F.7 Please certify that you will file all reports and other information necessary to enable the Commission to verify the on-going eligibility of the renewable energy generators pursuant to Section 6.3 of the RES Regulations.

← check this box to certify that the above statement is true

N/A or other (please explain) _____

F.8 Please attach a copy of the Generation Unit's Valid Air Permit or equivalent authorization.

Valid Air Permit or equivalent attached? Yes No N/A

Comments: _____

F.9 Effective date of Valid Air Permit or equivalent authorization:

 0 5 / 0 1 / 2006

F.10 State or jurisdiction issuing Valid Air Permit or equivalent authorization:

 Maine

Swans Falls WVO Generating Station

The Swan Falls WVO Generating Station (WVOGen) will be located at the Swans Falls Hydroelectric Station, in Fryeburg, Maine. The WVOGen will be located on the current site of an out of service diesel generating station owned by John Webster. The WVOGen will use an existing transmission line that extends to New Hampshire, and all electricity generated will be sold to Public Service Company of New Hampshire (PSNH).

The existing Swans Falls Diesel Generating Station houses three old diesel engines. These units will be removed to allow for the WVOGen. A new electrical substation/interconnection facility will be constructed. There currently is a 10,000 gallon oil storage tank onsite, with concrete supports for a second 10,000 gallon tank. An additional storage tank, maybe larger than 10,000 gallons, will need to be constructed.

The WVOGen will use cooking oil for fuel, which will be burned in a new diesel engine/generator set. Biodiesel emissions from combustion, especially 100 % biodiesel which will be used in this unit, are far less than the emissions from regular diesel, with the exception of Nitrous Oxides. Given the small size of the generating unit and its fuel source, the Swans Falls Diesel Generating Unit could easily be classified as low emissions.

Restaurants in southern Maine and New Hampshire will be the source for the fuel. These restaurants are currently paying between \$40 and \$50 per month to for waste vegetable oil (WVO) disposal. These restaurants are very interested in doing business with another company that will charge less per month for WVO disposal and will use their disposed WVO for power generation. Baker Industries currently provides small grease containers to the restaurant previously mentioned for the storage of the WVO. The WVOGen, as proposed, will burn approximately 290,000 gallons of WVO annually and require disposed WVO from 200 restaurants.

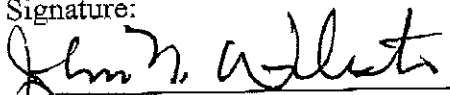
Certification of Authorized Representative

July 30, 2007

Conservation Services Group
40 Washington Street
Westborough, MA 01581

I, John Webster, as President of Swans Falls WVO Generating Co. LLC certify that Patricia Stanton, as Vice President of the Clean Energy Markets of Conservation Services, is the Authorized Representative named in Section 1.9 of The Standard Application Form Required of all Applicants for Certification of Eligibility of Renewable Energy Resource and is authorized to execute the Application for Rhode Island Renewable Energy Resource Certification, or is otherwise authorized to legally bind the corporation in like matters.

Signature:


John Webster
Swans Falls WVO Generating Co. LLC
P.O Box 178
S. Berwick, ME 03908

Date:

8/11/07

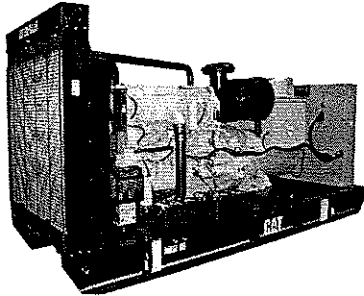


Image shown may not reflect actual package.

PRIME

**545 ekW 681 kVA
60 Hz 1800 rpm 480 Volts**

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- EPA Certified Tier 2

UL 2200

- UL 2200 listed packages are available. Certain restrictions may apply. Consult with your Caterpillar dealer network

ENCLOSURES (optional)

- Sound attenuated
- Weather Protective

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available
- Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities

WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers fill 99.7% of parts orders within 24 hours
- Caterpillar dealers have over 1,798 dealer branch stores operating in 200 countries
- The Cat® S•O•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT C18 Tier 2 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT® GENERATOR

- Matched to the performance and output characteristics of Caterpillar engines
- 2/3 pitch minimizes harmonic distortion and facilitates parallel operation
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H Insulation

CAT EMCP 3 SERIES CONTROLS

- Three levels of controls to meet individual customer needs:
 - EMCP 3.1 offers basic engine/generator monitoring, metering and protection.
 - EMCP 3.2 provides comprehensive monitoring, metering, and protection including: power metering, protective relaying, and MODBUS communication.
 - EMCP 3.3 provides all of the EMCP 3.2 features and adds the ability to expand the system for advanced engine and generator monitoring.
- Segregated low voltage (AC/DC) accessory box provides single point access to accessory connections

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> • Light Duty Air Cleaner • Service indicator 	<ul style="list-style-type: none"> • Single element canister type air cleaner • Dual element air cleaner • Heavy-duty air cleaner with precleaner • Air inlet shutoff
Cooling	<ul style="list-style-type: none"> • Radiator with guard sized for 50° C • Coolant level sight window • Coolant drain line with valve • Fan and belt guards • Caterpillar® Extended Life Coolant 	<ul style="list-style-type: none"> • Radiator duct flange • Low Coolant Level Sensor • Radiator removal
Exhaust	<ul style="list-style-type: none"> • Stainless steel exhaust flex and ANSI weld flange • Turbo outlet elbow 	<ul style="list-style-type: none"> • Industrial, residential and critical mufflers • 35 dBA muffler • Engine mounted muffler • Mounting and through-wall installation kits • Manifold and turbocharger guards
Fuel	<ul style="list-style-type: none"> • Primary fuel filter with integral water separator • Secondary fuel filters • Fuel cooler • Fuel priming pump • Fuel pressure gauge • Flexible fuel lines 	<ul style="list-style-type: none"> • Dual Wall Integral Fuel Tanks • Dual Wall Sub-base Fuel Tanks • Manual Fuel Fill Pump • Automatic Fuel Fill Options
Generator	<ul style="list-style-type: none"> • Self excited or AREP excitation • Class H insulation • Class H Temperature Rise • Random wound • R448 Voltage Regulator • Power terminal strip connections • IP23 Protection • Power Center 	<ul style="list-style-type: none"> • Permanent magnet conversion for self-excited and AREP generators • Oversize and premium generators • Three phase sensing • Quadrature droop kit • Digital voltage Regulator • Space heaters • RFI filter • 80% & 100% UL Breakers • IEC compliant 3 or 4-pole • Floor standing circuit breakers with auxiliary contacts & cabling kits
Governor	<ul style="list-style-type: none"> • Electronic ADEM A4 	<ul style="list-style-type: none"> • Load Share Module
Control Panels	<ul style="list-style-type: none"> • EMCP 3.1 (package mounted) 	<ul style="list-style-type: none"> • EMCP 3.2 • EMCP 3.3 • Local alarm and remote annunciator modules • Protective devices
Lube	<ul style="list-style-type: none"> • Lubricating oil and filter • Oil drain line with valves • Fumes disposal • Lube oil level indicator 	<ul style="list-style-type: none"> • Oil temperature sensor • Manual sump pump
Mounting	<ul style="list-style-type: none"> • Formed steel narrow base frame • Linear vibration isolators between base and engine generator 	<ul style="list-style-type: none"> • Formed steel wide base frame • Oil field skid base
Starting/Charging	<ul style="list-style-type: none"> • 45 amp charging alternator • 24 volt starting motor(s) • Batteries with rack and cables 	<ul style="list-style-type: none"> • Jacket water heater • Block heater • Ether starting aid • Battery disconnect switch • Battery charger(5A, 10A) • Oversized batteries • Battery removal

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

CAT GENERATOR

Frame size.....LC7024F
Excitation.....AR
Pitch.....0.6667
Number of poles.....4
Number of leads.....12
Insulation.....UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP rating.....Drip Proof IP22
Alignment.....Pilot Shaft
Overspeed capability.....125% of rated
Wave form deviation (Line to Line).....2%
Paralleling kit droop transformer.....Standard
Voltage Regulation.....Less than +/- 1/2% (steady state)
Less than +/- 1/2% (w/ 3% speed change)
Telephone Influence Factor.....Less than 50
Harmonic distortion.....Less than 5%

CAT ENGINE

C18 Tier 2 ATAAC, I-6, 4-stroke watercooled diesel
Bore - mm.....145.00 mm (5.71 in)
Stroke - mm.....183.00 mm (7.2 in)
Displacement - L.....18.13 L (1106.36 in³)
Compression ratio.....14.5:1
Aspiration.....Air-to-Air Aftercooled
Fuel system.....MEUI
Governor type.....Caterpillar ADEM control system

CAT CONTROL PANEL

EMCP 3 Series Controls
24 Volt DC Control
EMCP 3.1 (Standard)
• UL/CSA/CE
NEMA 1, IP22 enclosure
• Run/Auto/Stop control
Lockable hinged door (option)
• True RMS metering, 3-phase
• Speed Adjust
Voltage adjust (optional)
• Digital Indication for:
- RPM
- Operating hours
- Oil Pressure
- Coolant temperature
- System DC volts
- L-L volts, L-N volts, phase amps, Hz
- kW, kVA, kVAR, kW-hr, %kW, PF (*)
• Shutdowns
- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
• Programmable protective relaying functions: (*)
- Under and over voltage
- Under and over frequency
- Reverse power
- Overcurrent
• MODUS isolated data link (RS-485 half-duplex) supports serial communication at data rate up to 115.2 kbaud (*)
(*) Available on EMCP 3.2 & EMCP 3.3
Single location customer connector point
Consult your Caterpillar dealer for available voltages.

PRIME 545 eKW 681 kVA

60 Hz 1800 rpm 480 Volts



TECHNICAL DATA

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8522	
EPA Certified Tier 2		
Package Performance Genset Power rating with fan Genset Power rating @ 0.8 pf	545 eKW 681.25 kVA	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	151.1 L/hr 123.5 L/hr 89.2 L/hr	39.9 Gal/hr 32.6 Gal/hr 23.6 Gal/hr
Cooling System¹ Ambient air temperature Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	48 ° C 0.12 kPa 804 m ³ /min 26.9 L 20.8 L 6.1 L	118 ° F 0.48 in. water 28393 cfm 7.1 gal 5.5 gal 1.6 gal
Exhaust System Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	46.3 m ³ /min 518.2 ° C 129.6 m ³ /min 203 mm 10.0 kPa	1635.1 cfm 964.8 ° F 4576.8 cfm 8 in 40.2 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	175 kW 573 kW 114 kW 36.0 kW	9952 Btu/min 32586 Btu/min 6483 Btu/min 2047.3 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	1633 skVA LC7024F 125 ° C	257 ° F
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	5.16 g/hp-hr .41 g/hp-hr .01 g/hp-hr .033 g/hp-hr	

¹ Ambient capability at 300m (984 ft) above sea level. For ambient capability at other altitudes, consult your Caterpillar dealer. Air flow restriction (system) is added to existing restriction from factory. Generator temperature rise is based on a 40 C (104 F) ambient per NEMA MG1-32

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ Emissions data measurements are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations.

PRIME 545 eKW 681 kVA

60 Hz 1800 rpm 480 Volts



RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: AS1359, AS2789, CSA, EGSA101P, IEC60034, ISO3046, ISO8528, NEMA MG1-32, UL508, 72/23/EEC, 89/336/EEC, 98/37/EEC
Prime - Output available with varying load for an unlimited time. Prime power in accordance with ISO8528. 10% overload power in accordance with ISO3046, AS2789, and BS5514 available on request. Prime power ambients shown indicate ambient at 100 percent load which results in a coolant top tank temperature just below the alarm temperature.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.
Fuel rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for details.

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	4237.4 mm	166.83 in
Width	1536.0 mm	60.47 in
Height	2165.8 mm	85.27 in
Weight	4001 kg	8,821 lb

Note: Do not use for installation design.
See general dimension drawings for
detail (Drawing #2859356).

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Performance No.: DM8522

Feature Code:: C18DE97

Source:: U.S. Sourced

22 March 2006

6286143

Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

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Caterpillar and may not be used without permission.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI

DAVID P. LITTELL

GOVERNOR

COMMISSIONER

5/1/2006

File # 006-MER

Mr. John Webster
Southern New Hampshire Hydroelectric
PO Box 178
South Berwick, ME 03908

Dear Mr. Webster,

Thank you for your letter which I received April 27, 2006. MEDEP Chapter 115, §1(C)(2)(b) details which engines are exempt from requiring an air emission license:

“Stationary internal combustion engine (or combinations thereof) whose total maximum design heat input is less than 5.0 million British Thermal Units per hour.... Units less than 0.5 MMBtu/hr shall not be included in this threshold assessment;”

Based on your letter, your plans are for an internal combustion engine less than 5.0 MMBtu/hr which, based on the above reference, does not require to be licensed under MEDEP Chapter 115.

MEDEP Chapter 148, Emissions from Smaller-Scale Electric Generating Resources, is applicable in this instance. This regulation applies to generators having a capacity equal to or greater than 50 kilowatts installed on or after January 1, 2005. Exemptions from this regulation are as follows:

- A generator with an engine subject to 40 CFR 89, 90, 91 or 92; or
- A generator licensed under MEDEP Chapter 115.

I have enclosed a copy of Chapter 148 for your review. The short version is the engine must meet certified emissions criteria and you must register the generator. Please review the chapter for more details.

If you have any further questions, feel free to call me at (207)287-7501 or e-mail me at: mark.roberts@maine.gov

Sincerely,

Mark E. Roberts, P.E.
Environmental Engineer
Maine DEP, Bureau of Air Quality

Enc.: MEDEP Chapter 148

AUGUSTA
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AUGUSTA, MAINE 04333-0017
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PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
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PRESQUE ISLE
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Chapter 148: EMISSIONS FROM SMALLER-SCALE ELECTRIC GENERATING RESOURCES

SUMMARY: This regulation limits emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), and carbon monoxide (CO) from smaller-scale electric generating units.

1. **Applicability.** This regulation applies to all non-mobile generators having a capacity equal to or greater than 50 kilowatts installed on or after January 1, 2005.
2. **Definitions.**
 - A. **Combined heat and power.** "Combined heat and power" or "CHP" means a generator that sequentially produces both electric power and thermal energy from a single source.
 - B. **Emergency.** "Emergency" means for the purpose of this Chapter only, an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, natural disaster. Emergency shall also mean when the imminent threat of a power outage is likely due to failure of the electrical supply or capacity deficiencies result in a deviation of voltage from the electrical supplier to the premises of three percent (3%) above or five percent (5%) below standard voltage.
 - C. **Emergency Generators.** "Emergency generators" means generators used only during emergencies or for maintenance purposes, provided that the maximum annual operating hours, including maintenance, shall not exceed 500 hours per calendar year. Emergency generators shall not be operated in conjunction with any voluntary demand-reduction program or any other interruptible supply arrangement with a utility, other market participant, or system operator. Any engine that is certified under EPA non-road standards is automatically certified under this rule to operate as an emergency generator.
 - D. **Generator.** "Generator" or "electric generating unit" means any equipment that converts primary fuel (including fossil fuels and renewable fuels) into electricity or electricity and thermal energy.
 - E. **Installed.** "Installed" means that time forward from which a generator has been physically placed on a site and is capable of producing electricity.
 - F. **ISO.** "ISO" means the International Organization for Standardization
 - G. **Non-Emergency Generator.** "Non-emergency generator" means any generator that is not defined herein as an emergency generator.
 - H. **Supplier.** "Supplier" means a person or firm that manufactures, assembles, or otherwise supplies generators subject to the requirements of this Chapter.

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3. Exemptions.

- A. A generator with an engine subject to 40 CFR 89, 90, 91 or 92.
- B. A generator subject to new source review requirements pursuant to Title I, Part C or Part D of the CAA and the Maine State Implementation Plan.

4. Low Sulfur Fuel Requirements.

- A. Effective immediately, no person shall cause, allow or permit the operation of any diesel-powered generator subject to this Chapter firing fuel with a sulfur content greater than 500 parts per million.
- B. Beginning on June 1, 2010, no person shall cause, allow or permit the operation of any diesel-powered generator subject to this Chapter firing fuel with a sulfur content greater than 15 parts per million.

5. Emission Standards. A generator's emissions of nitrogen oxides (NOx), particulate matter (PM) and carbon monoxide (CO) under full load design conditions or at the load conditions specified by the applicable testing methods shall not exceed the following standards. Standards are expressed in pounds per megawatt-hour (lbs/MWh) of electricity output.

- A. Emergency generators. A generator may run up to a maximum of 500 hours per year for maintenance, testing and emergencies. Within that limit of 500 hours per year, a generator may run up to a maximum of 50 hours per year for maintenance and testing. Emergency generators must meet the emission standards set by the EPA for non-road engines (40 CFR Part 89 Control of Emissions of Air Pollution from Nonroad Diesel Engines as published in the Federal Register, Vol. 69, No. 124, pages 38957-39273 on June 29, 2004 or 40 CFR Part 90 Control of Emissions from Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based) as published in the Federal Register, Vol. 67, No. 217, pages 68241-68447 on November 8, 2002) at the time of installation. Any engine that is certified pursuant to 40 CFR Parts 89 or 90 shall be automatically certified to operate as an emergency generator.
- B. Emission standards for non-emergency generators are as follows:

Emission Standards for Non-Emergency Generators

	Nitrogen Oxides	Particulate Matter	Carbon Monoxide
Installed on or after January 1, 2005	4.0 lbs/MWh	0.7 lbs/MWh	10.0 lbs/MWh
Installed on or after January 1, 2009	1.5 lbs/MWh	0.07 lbs/MWh	2.0 lbs/MWh
Installed on or after January 1, 2013	reserved	reserved	reserved

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C. Generators that use combined heat and power (CHP) may take credit for the heat recovered from the exhaust of the combustion unit to meet the emission standards in Subsection 5B of this Chapter. Credit shall be at the rate of one MWh for each 3.4 million BTUs of heat recovered. To take credit for CHP, the owner or operator of units not sold and certified as an integrated package by the manufacturer:

- 1). Must provide as part of the application documentation of the heat recovered, electric output, efficiency of the generator alone, efficiency of the generator including CHP, and the use for the non-electric output; and
- 2) The heat recovered must equal at least 20 percent of the total energy output of the CHP unit and at least 13 percent of the total energy output must be electric. The design efficiency must be at least 55 percent.

D. Alternative emission limitation. Generators subject to this Section may apply for an alternative emission limitation on a case-by-case basis upon approval from the Department and EPA.

E. The particulate matter standards of this Section shall apply only to a generator with a reciprocating engine using liquid fuel.

6. Generator Certification.

A. Any generator subject to Subsection 5B, 5C, or 5D of this Chapter shall be certified by one of the following certifications:

- (1) Certification by the California Air Resources Board pursuant to Title 17, sections 94200 through 94214 of the California Code of Regulations as amended on September 4, 2002 and incorporated by reference herein;
- (2) Certification from the generator supplier that satisfies the requirements of Subsection 6B and 6C; or
- (3) Certification by the owner or operator that the generator satisfies the requirements of Subsection 6B and 6C.

B. A certification under this Section shall apply to a specific make and model of generator and shall include the certifying entity's statement that such make and model of generator has the ability to operate in compliance with the emission standards of Subsection 5B of this Chapter for the lesser of the first 15,000 hours of operation or three years, when such generator is installed, operated and maintained according to the manufacturer's instructions.

C. A generator's compliance with the emission standards of Subsection 5B, 5C, or 5D of this Chapter when installed and operated for the lesser of the first 15,000 hours or three years of operation shall be verified by emission tests performed as follows:

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- (1) Unless specified otherwise in this Chapter, using EPA reference Methods, California Air Resources Board methods EPA has approved, or equivalent test methods approved by the Department and EPA;
 - (2) At ISO full load design conditions unless alternative load conditions are specified by the applicable testing methods;
 - (3) For a generator with a reciprocating engine using liquid-fuel, particulate matter emissions shall be tested using ISO Method 8178 D2; and
 - (4) If the owner or operator of a certified generator modifies such generator from the original design in a manner that will increase emissions, within 180 days of the modification, the owner or operator shall either:
 - (a) Perform a test of the generator's emissions to demonstrate compliance with the emission standards of Subsection 5B this Chapter using a test method approved by the Department and EPA, or
 - (b) For a generator certified by the supplier, obtain from the supplier an amendment of the existing certification or a new certification of compliance for the modified generator.
- D. Documentation sufficient to demonstrate certification shall include:
- (1) A valid supplier's certificate stating that the subject make and model of generator is capable of compliance as provided in Subsection 6B of this Chapter;
 - (2) A valid and effective Executive Order issued by the California Air Resources Board certifying compliance as required by Subsection 6B of this Chapter; or
 - (3) Written documentation of the owner or operator sufficient to demonstrate compliance with the requirements of this Chapter that may include, but is not limited to:
 - (a) Emissions test data of the subject generator from testing that occurred within the previous twelve months that demonstrates compliance with the applicable emission standards of this Chapter;
 - (b) Emissions test data or other data obtained during the first 15,000 hours of operation or first three years of operation sufficient to demonstrate operation in compliance with the requirements of this Chapter; or
 - (c) Other documentation as approved by the Department and EPA.
- E. The owner or operator of a generator that is operating in compliance with the emission standards of this Chapter pursuant to a certification shall maintain such a generator as prescribed by the manufacturer.

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- F. The owner or operator of any generator that is certified to operate in compliance with the emissions standards of this Chapter shall display the following statement on the nameplate of the unit or in a conspicuous location attached to the unit with the following text:

"This generator is certified as meeting the emission standards of Chapter 148 of the Maine Department of Environmental Protection regulations when maintained and operated in accordance with the manufacturer's instructions."

- G. The owner or operator of a generator that is operating in compliance with the emission standards of this Chapter pursuant to a certification shall comply with all other applicable requirements of this Chapter including, but not limited to, fuel requirements, record keeping and reporting.

7. Registration Requirements.

- A. Prior to operation, the owner or operator of a generator subject to this Chapter shall submit to the Department a registration form, as provided by the Department, which provides at a minimum the following:

- (1) The legal name, address and telephone number of the registrant. If the registrant is a corporation or legal partnership transacting business in Maine, provide the exact name as registered with the Maine Secretary of State;
- (2) Legal name, address and telephone number of the owner of the premises on which the subject activity is to take place;
- (3) Location and address of the premises where the registered activity will be conducted;
- (4) The intended dates of construction and installation;
- (5) Make and model of the generator;
- (6) Fuel type(s) which will be used;
- (7) Maximum rated fuel-firing rate of the generator;
- (8) Maximum design gross power output of the subject generator; and
- (9) Certification test results.

NOTE: Registration of a generator subject to this Chapter does not satisfy the requirements for amending a facility air emission license under Chapter 115 or Chapter 140 of the Department's regulations.

8. Record Keeping and Reporting.

A. Record Keeping and Reporting. At the premises where the generator is installed, or at such other place as the Department approves in writing, the owner shall maintain the records as described in this Subsection. Emergency generators shall be exempt from Subsections 8A(1) and 8A(2):

- (1) Monthly and annual amounts of fuel(s) consumed. For the purposes of this subparagraph, annual fuel consumption shall be calculated each calendar month by adding (for each fuel) the current calendar month's fuel consumption to those of the previous eleven months;
- (2) Monthly and annual operating hours. For the purpose of this subparagraph, annual operating hours shall be calculated each calendar month by adding the current calendar month's operating hours to those of the previous eleven months;
- (3) With respect to each shipment of liquid fuel (other than liquified petroleum gas), to be used with each engine authorized hereunder, a shipping receipt and certification from the fuel supplier of the type of fuel delivered, the percentage of sulfur in such fuel (by weight), and the method used by the fuel supplier to determine the sulfur content of such fuel; and
- (4) Date, duration and type of emergency during which an emergency generator is operated. Owner shall record the date and type of emergency, the hours of operation of the emergency generator, and the amount and type of fuel consumed by the generator. Owner must certify that non-maintenance run hours occurred only during emergencies. Maintenance hours must be separately accounted for. Owner shall record operations when they occur.

B. Availability of records. Unless the Department provides otherwise in writing, the owner shall maintain each record required by this Section for a minimum of five years after the date such record is made. An owner shall promptly provide any such record, or copy thereof, to the Department upon request.

AUTHORITY: 38 M.R.S.A., Section 585, 585-A

EFFECTIVE DATE: August 9, 2004

BASIS STATEMENT

Chapter 148 establishes emission limits on new stationary generators of 50kW capacity and larger. Diesel generators, the most common type of distributed generation emit relatively high levels of nitrogen oxides, carbon monoxide, particulate matter and sulfur. Nitrogen oxides are a family of compounds that contributes to both air and water pollution. One of the principal precursors of tropospheric ozone, or smog, nitrogen oxides are also responsible for other

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environmental impacts such as acid rain, fine particulate pollution, eutrophication and regional haze. Carbon monoxide and particulate matter are criteria pollutants of environmental and health effects, and sulfur emissions are the principal cause of regional haze in the eastern United States.

This rule establishes minimum control requirements for emergency and non-emergency generators, and also establishes phased-in fuel sulfur limits.

In addition to the Basis Statement above, the Department has filed with the Secretary of State response to representative comments received during the comment period.