

**COMMONWEALTH OF MASSACHUSETTS
Office of Consumer Affairs & Business Regulation
DIVISION OF ENERGY RESOURCES**

RENEWABLE ENERGY PORTFOLIO STANDARD

**ADVISORY RULING
FOR
NORTHERN POWER SYSTEMS, INC.'S
PROPOSED LANDFILL GAS PROJECT
IN WESTMINSTER, MASSACHUSETTS**

May 18, 2004

1. Advisory Ruling – Northern Power Systems, Inc.

Northern Power Systems, Inc., has requested that the Massachusetts Division of Energy Resources (DOER or the Division) provide an Advisory Ruling with regard to the qualification for the Massachusetts Renewable Energy Portfolio Standard (RPS) of a proposed new landfill gas project in Westminister, Massachusetts.¹ This document is DOER's response to that request.

The RPS regulations, at 225 CMR 14.06(5),² provide an opportunity for a generation unit owner or developer “to request an advisory ruling from the Division to determine whether a Generation Unit would qualify as a New Renewable Generation Unit.”³

2. Description of Northern Power Systems, Inc.’s Proposed Landfill Gas Project

Northern Power Systems (hereafter “Northern”) proposes to construct a 3 MW landfill gas fired combustion turbine with a waste heat recovery boiler at the site of Tractebel Power, Inc.'s Pinetree Power Station (hereafter “Pinetree”) in Westminister, Massachusetts. The new combustion turbine is expected to produce about 25,600 MWh of electricity annually. The landfill gas is piped to the site directly from the nearby Fitchburg-Westminister Landfill. Since January 1997 the gas has been piped into Pinetree, where it has been co-fired with whole tree chips, recycled pallet wood and, since 2000, Paper Derived Fuel. The proposed project would divert the flow of gas to the new unit. In addition to producing electricity, the turbine’s exhaust would feed a waste heat recovery boiler, and the steam output of that boiler would be piped into Pinetree. If the final project were built to produce high pressure steam, then the steam would go directly to Pinetree's steam turbine to increase its electricity output. If it were built to produce

¹ The Northern request was provided in the form of a letter to Howard B. Bernstein at DOER, dated January 16, 2004, amended by another letter dated February 16, 2004. The letters will be referenced as the 1/16/04 letter and the 2/16/04 letter, respectively.

² Hereafter, all references to the RPS regulations will be to sections of 225 CMR 14.00.

³ More information about Advisory Rulings for MA RPS is at <http://www.state.ma.us/doer/rps/advisory.htm>.

low pressure steam, then it would be fed to Pinetree's boiler water de-aerator to replace steam that currently is tapped off the steam turbine. Thus, the steam could increase Pinetree steam turbine's electricity output either directly or indirectly. In either case, the estimated annual contribution to Pinetree's total electricity output of steam from the heat recovery steam boiler is about 12,129 MWh.

Northern has requested a ruling on the likely qualification as New Renewable Generation of the following:

1. The electricity output of the proposed landfill gas-fired combustion turbine; and
2. Either of the following two alternative uses for steam from the proposed waste heat recovery steam boiler that would use the heat of the combustion turbine's exhaust gas:
 - the share of the Pinetree electricity output that can be attributed to the input into its steam turbine of high pressure steam (with the combustion turbine's exhaust heat possibly supplemented by duct firing with a small share of the landfill gas); or
 - the share of the Pinetree output that can be attributed to low pressure steam being fed to Pinetree's boiler water de-aerator, replacing steam that currently is tapped off the steam turbine and, thereby, reduces the turbine's current output.

Both of these proposals new questions under the RPS regulations.

3. Discussion of the Questions Posed

DOER would regard the proposed landfill gas combustion turbine, as described, to be a New Renewable Generation Unit under the following Eligibility Criteria of the RPS regulations:

- 14.05(1)(a)5 in relation to the fuel, landfill methane gas;
- 14.05(1)(b) in relation to the future Commercial Operation Date of the new unit; and
- (14.05(1)(c) in relation to the metering – assuming that its electricity output would be separately verifiable by ISO New England, as is the current output of Pinetree.

However, the regulations at 14.05(1)(d)3 provide that "If the Generation Unit is located on or in a parcel of land, landfill or structure that was the site of Vintage Generation between the years 1995 through 1997, such Unit must receive a Vintage Waiver pursuant to 225 CMR 14.05 (2)." Thus, DOER must decide if the Pinetree site was the site of Vintage Generation.

Vintage Generation is defined in the RPS regulations at 14.02 as "The electrical energy output of a Vintage Generation Unit . . ." A Vintage Generation Unit is defined at 14.02 as "A Generation Unit that meets the requirements of 225 CMR 14.05 (1) (a) and that has a Commercial Operation Date of December 31, 1997, or earlier." Pinetree was and is fueled by Eligible Biomass Fuels,⁴ and it began operation in 1992. However, because it uses "stoker combustion," which is explicitly excluded under the "advanced biomass power conversion technologies" criteria for

⁴ This characterization is from information provided by Jonathan Clapp, Pinetree Plant Manager, in an email message dated May 13, 2004. The same message dates the use of Paper Derived Fuel, which might include some plastic content, from the spring of 2000.

biomass units at 14.05(1)(a)6, Pinetree is not a Vintage Generation Unit, and, therefore, the Pinetree site is not a site of Vintage Generation.⁵

Accordingly, the landfill gas-fired combustion turbine project is likely to qualify as a New Renewable Generation Unit, and all of its directly generated electricity output would qualify as New Renewable Generation. This is subject, of course, to more detailed information provided in a Statement of Qualification Application.

We now consider Northern's second question: whether the portion of the total electricity output of Pinetree attributable to the input of steam from the proposed heat recovery steam boiler would qualify as New Renewable Generation. In effect, the landfill gas would, by means of steam generated from the exhaust heat of the landfill gas combustion turbine, indirectly increase the electricity output of Pinetree, compensating for part of the reduction in output that would result from diverting landfill gas from Pinetree to the new combustion turbine. Northern seems to assume that the landfill gas would indirectly "co-fire" into Pinetree, and that the indirectly co-fired portion of the total Pinetree output could qualify under the Co-Firing Waiver provisions of the regulations at 14.05(3). However, those provisions *explicitly* pertain to a "Generation Unit that uses an ineligible fuel in conjunction with an Eligible New Renewable Fuel." In this case, the eligible fuel would be the landfill gas (indirectly), but the other fuel of Pinetree is Eligible Biomass Fuel, which is *not* an ineligible fuel. Since the landfill gas is not co-firing (indirectly) with an ineligible fuel, then the Co-Firing Waiver provisions cannot apply.

Accordingly, DOER would *not* regard as New Renewable Generation the portion of the total electricity output of Pinetree attributable to the landfill gas via steam input from the proposed heat recovery steam boiler.

4. Conclusion

DOER finds that the landfill gas project proposed by Northern is likely to qualify as a New Renewable Generation Unit because it meets all of the relevant provisions of the RPS regulations at 14.05(1). This finding is not diminished by the fact that the landfill gas had been fired into the Pinetree Power Station since early 1997 because Pinetree is not a Vintage Generation Unit, and, therefore, the Pinetree site is not a site of Vintage Generation. However, DOER would *not* regard as New Renewable Generation the portion of the total electricity output of Pinetree attributable to the landfill gas via steam input from the proposed waste heat recovery steam boiler.

Although Northern did not request an Advisory Ruling regarding other options for the Pinetree site, DOER volunteers them here.⁶ DOER is likely to regard as New Renewable Generation the electricity output of a new steam boiler that was not part of Pinetree and that recovered waste heat from the exhaust of the proposed landfill gas combustion turbine. DOER also is likely to regard as a New Renewable Generation Unit any additional unit at the Pinetree site that solely utilized gas from future increases in the gas output of the Fitchburg-Westminster Landfill. However, equipment used for either such project would have to be "new" itself – that is, equipment never previously used to produce electricity from Eligible New Renewable Fuels.

⁵ This is also explained in DOER's *Guideline on the MA RPS Eligibility of Generation Units That Re-tool with Low Emission, Advanced Biomass Technologies*, dated April 16, 2004, accessible via a link at <http://www.mass.gov/doer/rps/advbio.htm>.

⁶ Both of the options noted here were mentioned by James McNamara of Northern Power Systems and/ or Jonathan Clapp of Pinetree. Mr. Clapp also confirmed the expected Expansion of the Fitchburg-Westminster Landfill in his May 13, 2004 email message.