COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES

Green Communities Act Section 32 Class II Renewable Portfolio Standard Implementation Issues	)))))

COMMENTS OF PINETREE POWER FITCHBURG, INC.
ON RPS CLASS II IMPLEMENTATION ISSUES

1.0 Introduction.

Pinetree Power Fitchburg, Inc.[1] ("PPF") submits these comments to the Department of Energy Resources ("DOER") in response to the Department's request for comments on certain implementation issues arising under Section 32 of the Green Communities Act ("GCA"). Section 32 of the GCA amends the Massachusetts Renewable Portfolio Standard law ("RPS"), M.G.L. Ch. 25A, Section 11F. Among other requirements, Section 32(d) of the GCA requires retail electric suppliers to provide a certain amount of Class II generation attributes in their sales to end-use customers beginning January 1, 2009. Class II generation attributes are those associated with the renewable energy generators described in GCA Section 32(d) and which commenced commercial operation before December 31, 1997.

The legislature, in enacting Section 32 of the GCA, delegated responsibility for the following issues pertaining to implementation of the Class II requirement to DOER: (i) determination of the Class II annual purchase percentage, GCA Section 32(e); (ii) establishment of an alternative compliance payment ("ACP") amount for Class II, GCA Section 32(f), and (iii) determination of the low-emission standard for Class II wood-fired renewable energy generators.

In delegating authority to DOER to determine the Class II annual purchase percentage to be provided by retail electric suppliers to end-use customers, the legislature did not mandate the use of any particular calculation methodology.[2] In directing DOER to determine the Class II

[1] Pinetree Power Fitchburg, Inc. owns and operates an existing 17 MW wood-fired energy generator located in Westminster, Massachusetts and is a wholly-owned subsidiary of Suez Renewable Energy N.A., LLC, which also owns and operates three additional existing wood-fired energy generators in New England. As used in these comments "wood-fired" means the generator's primary fuel is composed of clean wood in the form of wood fiber, chips, slash and brush, trimmings, and sawmill clean wood by-products.

[2] In fact, an earlier House of Representatives version of the GCA, House Bill 4373 Section 19(e), contained a particular calculation methodology. The committee of conference that produced the GCA did not include that methodology in the final GCA.

annual purchase percentage, however, the legislature stated "that the [DOER] shall specify that a certain percentage of these requirements shall be met through energy generated from a specific technology or fuel type ..." GCA Section 32(e). Thus, the legislature required DOER to implement the Class II annual purchase percentage by making distinctions among the various types of resources that comprise Class II. This legislative mandate is significant because, unlike DOER's authorization to create a Class I program, DOER's authorization under GCA Section 32(e) recognizes the need to distinguish renewable generators that have little or no fuel cost from those renewable energy generators with significant fuel costs, while promoting a diversity of technologies.

The legislature also indicated its intent that the annual purchase percentage be selected with the aim of creating a viable or robust Class II program. Thus, GCA Section 32(e) authorizes DOER to adjust the purchase percentages "as necessary to promote the continued operation of existing energy generating resources" that meet Class II requirements.

In light of the foregoing legislative and policy background, these comments address the:

1. Class II annual purchase percentage and recommend that a separate percentage be determined for existing wood-fired energy generators (see Section 2.0);

2. low-emission standards for existing wood-fired generators and recommend that DOER establish NO_x and particulate matter emission levels that will allow renewable energy certificates ("RECs") from existing wood-fired energy generators to be eligible for use in compliance with the greatest number of New England state renewable portfolio standard laws. Consistent with the foregoing, DOER should consider establishing different low-emission standards for wood-fired energy generators 25 MWs or less in size and for wood-fired energy generators greater than 25 MWs in size (see Section 3.0); and

3. ACP for existing wood-fired energy generators and recommend that the wood-fired ACP be set at a level that recognizes that wood-fired energy generators must make significant capital investments to qualify under Class II and, unlike other Class II generators, have a significant fuel cost (see Section 4.0).

In addressing these issues, we are mindful that they are interrelated: the requirement that wood-fired energy generators undertake air emission reduction capital investments to qualify for Class II places upward pressure on the amount of REC revenues needed to support that investment and the other costs associated with wood-fired energy generation;[3] this upward

[3] In the case of an existing wood-fired energy generator REC revenue must be adequate to cover (a) the capital investment in the additional air emissions reduction equipment needed to qualify under Class II, (b) the increased operation and maintenance costs associated with that capital equipment, (c) the loss of energy revenue resulting from the increased station-service needs associated with operation of the

pressure on REC revenues, in turn, places upward pressure on the level to be established for the ACP; and the percentage purchase requirement should balance the supply of, and demand for, RECs such that REC pricing is adequate to support the necessary capital investment and other costs associated with wood-fired energy generation. Conversely, if REC revenues are seen as inadequate for Class II RPS purposes, then new capital investments in air emission reduction equipment will not be made by existing facilities. These factors must be balanced to create a robust Class II market that will fulfill the legislative goal of promoting the continued operation of existing Class II renewable facilities, and with regard to existing wood-fired energy generators in particular, the legislative goal of incenting further reductions in air emissions.

2.0 DOER Should Give Effect to Legislative Intent by Distinguishing Among Fuel Types and Technologies and Establish a Separate Class II Annual Purchase Percentage for Wood-Fired Energy Generators.

DOER should establish a separate annual purchase percentage for wood-fired energy generators, waste-to-energy and all other Class II generation technologies based on fuel, technology and RPS technology requirements. Class II generators can be distinguished based upon the following: (a) waste-to-energy facilities do not have an explicit fuel cost, but must utilize a portion of their REC revenues for an approved recycling program; (b) wood-fired energy generators have significant fuel costs, must make substantial capital investments to fulfill the GCA's goal of low-emissions, and will incur increased operational costs and lost generation revenue as a result of adding the equipment needed for Class II RPS eligibility; and (c) the remaining existing technologies need not dedicate a portion of REC revenues to a particular use, have no or low fuel costs, and are not required to incur incremental capital investments to qualify for Class II. These distinctions among the Class II technologies favor the establishment of three subclasses within Class II for purposes of setting an annual purchase percentage.

Establishing a separate annual purchase percentage based on use of wood as the fuel source promotes a number of policy objectives. First, distinguishing among fuel types recognizes that significant environmental and clean air benefits can be obtained from New England's existing fleet of wood-fired energy generators. PPF estimates that a single wood-fired energy generator with a Title V NO_x emission limit of 0.175 lbs/MMBtu could achieve an approximate 111 ton reduction in NO_x emissions annually at an RPS NO_x eligibility standard of 0.075 lbs/MMBtu.[4] When extrapolated to the existing wood-fired generation fleet located in

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additional equipment, and (d) the escalating cost of wood fuel. See Section 4.0 on determination of the ACP.

[4] This example assumes a 17 MW facility with a rated heat input of 260 MMBtu/hr and a capacity factor of 98% produces maximum potential emissions of 195.3 tons / year. (0.175 x 260 x 8760 x .98)/2000 equals 195.3 tons/year. At the proposed RPS emission standard of 0.075 lbs / MMBtu the facility will achieve a 57% reduction compared to the assumed Title V emission limit of 0.175 lbs/MMBtu. This 57% reduction results in maximum potential emissions of 83.7 tons / year, or a reduction of 111.6 tons / year.

New England, a NOx eligibility standard of 0.075 lbs/MMBtu, as an order of magnitude estimate, could produce additional annual emission reductions of approximately 2,292 tons.[5]

Second, distinctions based upon fuel type and technology will assist in achieving the legislative goal of a robust Class II RPS because it allows similarly situated resources to compete against one another. If DOER were to set only one percentage for all of the technologies and fuel types, then the remaining Class II resources, which have no fuel costs and little or no incremental capital cost requirements to attain Class II eligibility[6] may be able to subscribe the entire available purchase percentage to the disadvantage of existing wood-fired energy generators. This would occur not only because these other generators do not have fuel costs and significant incremental capital cost requirements, but also because of the time needed for the class of existing wood-fired energy generators to add additional air emissions reduction equipment and test for compliance with the RPS low-emission standards. If other technologies are permitted to subscribe the percentage to the exclusion of wood-fired energy generators, then neither the goal of promoting the continued operation of the wood-fired technologies included in Class II nor the goal of incenting air emission reductions will be achieved.

The overall direction given by the GCA regarding Class II existing facilities allows DOER to adjust, and therefore originally to set, the purchase percentages "as necessary to promote the continued operation of existing energy generating sources." GCA at Section 32(e). In the context of determining the purchase percentage for Class II wood-fired energy generators, however, the annual purchase percentage should result in a REC market price adequate for operations and to incent existing wood-fired energy generators to add the required air emission control equipment. The following paragraphs provide an analysis of the order of magnitude of the Class II annual purchase percentage needed to meet these GCA policy goals.

PPF estimates that there are approximately 350 MW of wood-fired energy generators in New England that could qualify for Class II if existing wood-fired energy generators add additional air emission reduction equipment to meet the low-emission standards discussed in Section 3.0, below. Of the 350 MW estimate of existing wood-fired energy generators, 120

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[5] This order of magnitude estimate is based upon the same assumptions set forth in footnote 4 and the further assumption that the emission rates and capacity factors of all existing wood-fired energy generators are similar. The NO_x/ MW ratio in the example is 11.5. (195.3 tons NO_x/17 MW equals 11.5 tons NO_x / MW.) Under this hypothetical, the estimated 350 MW of existing wood-fired energy generators in New England would have aggregate emissions of 4,021 tons/year. A 57% reduction equates to 2,292 less tons per year.

[6] This statement assumes that DOER adopts comments made at the September 29, 2008 stakeholder conference that the environmental standards under GCA Section 32(d)(6) for hydroelectric facilities would be met by reference to the requirements embodied in the existing hydroelectric facilities' existing Section 401 Clean Water Act permits. If so, these units would not incur an incremental capital cost as part of Class II eligibility.

MWs are estimated to be available from facilities that are 25 MW or less in capacity and 230 MW are estimated to be available from facilities larger than 25 MW.[7] At a 98% capacity factor, these facilities could generate a Class II REC supply of 1,030,176 and 1,974,504 Class II RECs, respectively, or a total supply of 3,004,680 Class II wood-fired RECs. DOER's February 15, 2008 report on RPS compliance for 2006 projected that the Massachusetts RPS retail load obligation will be 52,045,556 MWh in the year 2009; the first year of the Class II purchase requirement. See *Massachusetts RPS Annual Compliance Report for 2006* at 13. Consequently, the estimated supply of RECs from Class II existing wood-fired energy generators is about 6% of the overall RPS retail load obligation. Given that the foregoing estimate of REC supply calculation assumed a 98% plant factor for REC generation and did not adjust the REC supply for the fact that some RECs may be used for compliance with the renewable portfolio standards of other states (notably, Connecticut), the DOER could consider establishing a Class II wood-fired RPS annual purchase percentage in the 5.5% to 6% range.[8]

Experience with Class I and with other states' RPS programs suggests that, because of the capital expenditures and testing requirements that must be made by wood-fired energy generators to achieve low-emissions standards, not all generators will retrofit at once. Consequently, DOER could consider establishing an initial annual purchase percentage that is lower than the total potential supply but sufficient to incent participation, and then escalate the percentage on a yearly basis on a predetermined schedule. For example, DOER could initially set the annual purchase percentage for Class II wood-fired RECs at 4.5% and then increase the amount by 0.5% a year until the annual percentage purchase requirement equals 6.0%. After three years, DOER could conduct a study to determine whether the 6.0% purchase requirement is sufficient to promote the continued operation of existing Class II wood-fired energy generators.

3.0 DOER Should Establish Low-Emission Air Requirements That Will Promote the Use of RECs for Compliance with a Number of REC Markets and Thereby Create a Robust Class II RPS.

REC purchasers, sellers, and generators ascribe value to RECs based in part on the number of renewable portfolio markets that will accept the REC as compliant with any such market's requirements. Therefore, uniformity of air emission eligibility requirements across New England REC markets is an important criterion to consider when establishing Class II low-

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[7] These amounts are estimated based on a review of publicly available industry and NEPOOL data. The generation total also assumes that DOER will require facilities that are Class I-eligible to limit their participation to Class I, and that DOER will not permit such facilities to claim Class II eligibility, with the sole exception of that portion of a vintage waiver generator's output that does not qualify for Class I under the vintage waiver, but which otherwise complies with the Class II requirements. This estimate also understates the potential of existing behind-the-meter wood-fired energy generators and thus, the annual purchase percentage may need to be higher if DOER assumes or finds significant participation in Class II by such generators.

[8] This range could be adjusted if a more rigorous evaluation of REC supply were undertaken by DOER. Also, note that any such evaluation should address the amount of REC supply available from behind-the-meter generation. See note 7 above.

emission standards. In determining the Class II low-emission standard, therefore, DOER should evaluate the following:

(a) The Connecticut Class I renewable portfolio standard applies to new and existing wood-fired energy generators regardless of generator size and utilizes a single low-emission eligibility standard of 0.075 lbs/MMBtu of NO_x or less.

(b) The New Hampshire Class III renewable portfolio standard applies to existing wood-fired energy generators no larger than 25 MWs in capacity and utilizes two low-emission eligibility standards: 0.075 lbs/MMBtu of NO_x and 0.02 lbs/MMBtu of particulate matter ("PM") or less.

(c) The Massachusetts Class I renewable portfolio standard for new wood-fired energy generators presently requires low-emission standards of 0.065 lbs/MMBtu NO_x and 0.012 lbs/MMBtu PM or less for new applicants; and

(d) The Rhode Island renewable portfolio standard explicitly requires compliance with a current air permit and the Maine law assumes compliance with a current air permit. Neither law sets standards for specific pollutants.

Given the foregoing, DOER should distinguish existing wood-fired energy generators (and the presumably lower ACP to be established for Class II) from "new" wood-fired generators (and the higher ACP for Class I), and not adopt the low-emission standards applicable to new renewable generators under the Massachusetts Class I RPS as the Class II existing wood-fired energy generator standard. Instead, DOER should establish a NO_x and PM standard for Class II that would allow RECs from existing wood-fired energy generators to be used to comply with the greatest number of New England renewable portfolio standard markets. Therefore, based on the above data, we propose that DOER set the low-emission standards for Class II existing wood-fired energy generators at 0.075 lbs/MMBtu for NO_x and 0.02 lbs/MMBtu for PM. As a further option, to allow existing wood-fired energy generators to determine an efficient deployment of capital, DOER could consider allowing generators to provide further NO_x reductions or CO reductions in lieu of the proposed PM standard. In this regard, we propose that Class II wood-fired energy generators less than 25 MWs in capacity meet the PM standard of 0.02 lbs/MMBtu set forth above, or meet the PM standard in its existing permit and either emit no more than 0.065 lbs/MMBtu of NO_x or 0.15 lbs/MMBtu of CO.

As a further refinement to its low-emission standard, and similar to the wood-fired energy generator eligibility requirements applicable under its existing regulations,[9] DOER could

[9] DOER has set different pollution limit levels for differently sized wood-fired energy generators for Class I eligibility. See *Guidelines on the RPS Eligibility of Wood-fired Generation Units* issued November 7, 2007, at 3.

establish low-emission requirements for existing wood-fired energy generators based on the capacity of the unit. Larger existing wood-fired energy generators would have lower low-emission standards under Class II than would smaller wood-fired energy generators. The rationale for this distinction is that larger wood-fired energy generators will have significantly greater REC revenue than smaller wood-fired energy generators,[10] and as a policy matter DOER could require that some of that revenue be expended on further air emission reductions. In distinguishing unit size for the foregoing purpose and mindful of the value of uniformity across New England REC markets we propose that existing wood-fired energy generators 25 MWs or less have the low-emission standards noted above, and that wood-fired energy generators greater than 25 MWs, at a minimum, meet the low-emission standards applicable to the Massachusetts Class I RPS or such other lower standards as DOER may determine.

In determining low-emission standards, DOER should also evaluate the applicability of those standards to existing wood-fired energy generators that participate in the Massachusetts Class I RPS under the vintage waiver rule at 225 CMR 14.05(2). While vintage generation that is not Class I eligible may be Class II eligible, such vintage generation should not qualify in Class II unless the generation unit meets the low-emission standards to be set for Class II by DOER. See also note 7 above.

4.0 DOER Should Set Different Alternative Compliance Payments for Each Class II Annual Purchase Percentage Subclass, and Should Set the Alternative Compliance Payment for Class II Wood-Fired Energy Generators at Forty-Five Dollars.

Consistent with the fuel and technology specific Class II annual purchase percentages recommended above, DOER should set an ACP for each such annual purchase percentage. This multi-tiered renewable portfolio standard model has been employed in New Hampshire to create four classes with separate ACPs and in Connecticut to create three classes with separate ACPs.

In establishing the ACP for Class II existing wood-fired energy generators, the DOER should take the following factors into account: the current market price of energy, the significant cost of wood fuel for such generators, the required Class II capital investments, increased operating costs (e.g., catalyst replacement, increased down-time for maintenance, additional chemical needs, and chemical storage costs) and lost generation revenues arising from increased station service electrical needs due to compliance by such generators with the Class II low-emissions control equipment requirements.[11]

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[10] For example, a 50 MW wood-fired energy generator with an 85% capacity factor will produce 372,300 MWH or RECs. A 15 MW wood-fired energy generator with the same capacity factor will produce only 111,690 MWH or RECs.

[11] These characteristics apply to all wood-fired energy generators regardless of size but financially affect smaller sized generators (25 MW and under) differently because larger generators spread their fixed costs over greater levels of output and hence, revenue.

An order of magnitude determination of the REC market price to be paid to the generator (and hence, the ACP) can be seen from just examining the wood fuel cost and the current price of energy and capacity in ISO-NE. Three years ago wood fuel costs, which can vary somewhat based on location, ranged around $18 a ton. At that time, these fuel costs equated to about $35 per MWH of the total cost of production for a wood-fired energy generator of about 15-20 MWs of capacity. Today, wood fuel costs are in a range around $36 a ton or about $70 per MWH for a 15-20 MW generator.

Today, ISO-NE energy prices are in the $60 per MWH to $70 per MWH range and capacity revenues can add another $5 per MWH for a 15-20 MW wood-fired energy generator.[12] Thus, these revenues may cover the fuel costs of such a wood-fired energy generator.[13] Under this simple analysis, all other fixed and variable costs, including Class II capital and increased operation cost requirement, labor, operation and maintenance, federal, state and local taxes, insurance, and risk-adjusted return must be covered by the REC revenue.

Given the foregoing, we propose that the Class II wood-fired energy generator ACP be set initially at $45, in the expectation that, with an appropriate Class II annual purchase percentage requirements, the market price of a REC to be paid to the generator will be in the $35 to $40 range. The initial ACP would escalate using the same methodology for Class I RPS ACP escalation.

5.0. Conclusion.

PPF recommends that DOER set a separate percentage purchase requirement for existing wood-fired energy generators sufficient to support a target market price for Class II wood-fired RECs between $35 and $40, set an ACP for existing wood-fired energy generators at $45, and set emissions criteria for wood-fired generators 25 MW or less in size at 0.075 lbs NO_x / MMBtu and 0.02 lbs PM / MMBtu while requiring existing wood-fired energy generators larger than 25 MW in size to meet the Class I low-emissions criteria.

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[12] Since August 2008 the average locational marginal price for energy at the New England "Hub" as published by ISO-NE has been $70 MWH or less. For example, the September 29-October 5, 2008 LMP Weekly Market Summary documents the Hub price at $60.05 for the day-ahead energy market and $61.51 for the real-time energy market. For weekly market summaries, see http://www.iso-ne.com/markets/mkt_anlys_rpts/wkly_mktops_rpts/index.html and for monthly market summaries, see http://www.iso-ne.com/markets/mkt_anlys_rpts/mnly_mktops_rtps/index.html. Also note that capacity values may decrease as the last forward capacity market auction was over-subscribed and cleared at the floor price of 0.6 CONE. Given the continued expectation of excess supply for the next auction, it may also clear at the floor price, which will be lower than the prior floor price given that the floor price of this auction will be the floor price of the prior auction times 0.6.

[13] The ability of a generator to sell energy at this price over time is problematic due to the uncertainty of forecasting whether energy prices will decline as a result of today's conditions in the financial and commodity markets and the fact of lack of significant long-term contracting opportunities for renewable generators.

Respectfully submitted,

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By its Attorneys,
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By: _____

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