The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.T.E./D.P.U. 06-60 August 22, 2008

Petition of Russell Biomass LLC, pursuant to G.L. c. 40A, § 3, for exemption from the zoning by-laws of the Town of Russell to construct and operate a wood-burning electric generating facility.

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TABLE OF CONTENTS

I. SUMMARY

In this Order, the Department denies the petition by Russell Biomass LLC for an exemption from the zoning by-laws of the Town of Russell.

In coming to our decision in this case, the Department is not denying the siting, construction, or operation of the proposed Russell Biomass facility. Instead, our decision is limited to denying the Company's request that the Department exempt the facility from review by the Town of Russell. In this Order, we find that the proposed facility has potential value to the public as a renewable resource that could provide downward pressure on the price of electricity in the region and the cost of meeting our renewable portfolio standards, could contribute to improving the reliability of electricity supply, and could do so in a way that may help Massachusetts meet its carbon control mandate. As a general matter, the Department considers it very important to carefully consider the long-term benefits associated with the development of renewable resources in Massachusetts in its evaluation of petitions for exemption from local zoning ordinances; in a recent decision, the Department considered just such factors and determined that, in consideration of the public benefits of renewable resource development, an exemption from local zoning ordinances was warranted. See Princeton Municipal Light Department, D.T.E./D.P.U. 06-11 (2007) (granting zoning exemptions for two proposed 1.6 megawatt ("MW") wind turbines).

We distinguish this case from our decision in D.T.E./D.P.U. 06-11 based on the seriousness of the local impacts against which we must balance the broader set of public benefits. Specifically, we find that, on balance, the public interest benefits associated with

operation of the Russell Biomass facility are outweighed by significant impacts on the local interests of the town of Russell, in particular those impacts associated with a substantial and disruptive increase in large truck traffic along the main street of the town. Exemption from the town's zoning by-laws could prevent the Town of Russell from working with the developer of the Russell Biomass facility to ensure that the town's concerns with respect to local impacts are adequately addressed prior to construction or operation of the facility. The Department cannot conclude that the public benefits of the proposed facility warrant overriding the town's ability to determine whether and how to address the significant local impacts of the proposed facility. Consequently, we find pursuant to G.L. c. 40A, § 3 that, on balance, the Russell Biomass project as proposed is not reasonably necessary for the convenience or welfare of the public, and thus we deny the Company's petition.

II. INTRODUCTION

Pursuant to G.L. c. 40A, § 3, Russell Biomass LLC ("Russell Biomass" or "Company") has filed a petition with the Massachusetts Department of Public Utilities ("Department") for certain exemptions from the Town of Russell zoning bylaws ("by-laws") in connection with the Company's proposed construction of a 50-megawatt ("MW") biomass (wood-fired) electric generating facility in Russell ("proposed facility" or "project").

G.L. c. 40A, § 3 permits companies that are determined by the Department to be public service corporations to seek an exemption by the Department from local zoning ordinances if the Department determines that the proposed use of the land is reasonably necessary for the public convenience or welfare. In making this determination, as described herein, the

Department must balance the public benefits of the project with its impacts on the local interest.

A. Description of the Proposed Project and Site

1. The Proposed Project

The proposed biomass facility would burn approximately 510,000 tons per year ("tpy") of wood to produce steam to drive the facility's turbine and produce electricity (Exh. RB-1, at 3). Approximately 2,000 tons per day of wood would be supplied to the facility by tractor-trailer trucks five days a week, with an average of 150-160, and a maximum of 240, truck trips per day (Exh. PB-1, at 5; RR-DPU-2). The wood to be used would be "wood fuel" as defined by the Massachusetts Department of Environmental Protection ("MassDEP"). The facility's annual net energy production would be approximately 400 million kilowatt hours ("kWh"); the electricity would be transmitted to the grid by a proposed new five-mile-long transmission line (Exh. DTE-6-1, at 3-1).[1]

The facility would include either a stoker-fired or a bubbling fluidized bed ("BFB") boiler, a 133-foot-high boiler house with a fuel-oil start up system, a 60-foot-high turbine building, a 300-foot-high exhaust stack, and an electrical switching station (Exhs. DTE-6-1, at 3-1; DPU–8; RB-7). The facility would include a 1.5-million-gallon water-storage tank; average cooling-water withdrawals from the Westfield River would total approximately 662,000 gallons per day, with a maximum withdrawal of 885,000 gallons per day (Exhs.

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[1] The Energy Facilities Siting Board is reviewing the Company's transmission line proposal in a separate proceeding, Russell Biomass LLC/Western Massachusetts Electric Company, EFSB 07-4/DTE 07-35/07-36.

RB-1, at 4; DTE-6-1, at 10-3). The facility also would include a 15,000-gallon above-ground aqueous ammonia storage tank, and a 65,000-gallon above-ground fuel oil storage tank for the facility's low-sulfur fuel-oil boiler start-up system (Exhs. CHI-7; DTE-6-1, at 12-6; RB-1, at 4). The facility would include a 5.1-acre outdoor wood-stockpiling area capable of storing an approximately 30-day supply of wood (Exh. DTE-6-1, at 3-1).

2. The Proposed Site

Russell is a small, rural town with a population of approximately 1,650 as of 2000 (Exhs. DPU-RU-1(2) at 55; DPU-82, at 6). The site for the proposed facility is located at the base of Shatterack Mountain, along the eastern side of the Westfield River; a CSX rail line runs between the river and the site, and the areas to the east, north, and south are undeveloped forested lands (Exhs. RB-3, at 1-2; RB-1, at 51; DPU-RU-1(2) at 1). The Company stated that the site has been used for industrial purposes since the mid-1800s (Exhs. DTE-6-1, at 15-1; RB-1, at 51). The Westfield Paper Company produced glassine paper at the site from 1915 to 1994 (Exhs. RB-3, at 1-2; DPU-3, at 14-1). Gravel mining operations were conducted at the site from 2000 to 2005 (Exh. DTE-6-1, at 4-6; Tr. 4, at 540). Since 1999, a portion of the site has been used as a transfer location for logs that have been harvested and are in transition for delivery to saw mills (Exhs. DTE-6-1, at 4-5; KEN-23(S); Tr. 4, at 529-531). There are no homes located on the east side of the Westfield River in the area of the site; the closest residential areas are the Grove Street and River Street neighborhoods across the river, which are situated approximately 1000 feet to 2000 feet, respectively, northwest of the proposed plant stack (Exhs. RB-1, at 51; DTE-6-1, at 4-6).

Sole access to the proposed site is from Route 20, via Main Street in Russell, crossing the Westfield River bridge for a distance of approximately one-half mile to the site driveway (Exhs. RB-7; RR-DPU-6-1(S)(2)). The Main Street area is known as "the village"; it includes five residential streets, four of which are cul-de-sacs that can be accessed only from Main Street (Tr. 8, at 1108). The record indicates that Main Street itself is 78 percent residential (Exh. DPU-73). Maps indicate that Main Street appears to have the following: approximately 30 residences on both sides of the street; five cross-streets; three cross-walks; three handicapped parking areas; pedestrian sidewalks on both sides (on some portions); and on-street parking on one or both sides (Exh. RPB-39; RR-DPU-6-1(S)). Although all of the residences on Main Street have off-street parking, residents also park along Main Street in front of their homes (Exh. DPU-73). Approximately 17 percent of Main Street frontage consists of public services or facilities: the Town Hall, post office,[2] library, fire department, two churches, a Masonic lodge, and the wastewater treatment plant (Exh. DPU-73; RR-DPU-6).[3]

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[2] Residents of the village area must pick up their mail at the post office as there is no home delivery in this area of Russell (Tr. 8, at 1109).

[3] The Russell Center Historic District is located along Main Street and consists of 38 buildings and one site (Exh. DPU-3, at 14-4; RR-DPU-33). The Company stated that the National Register's Historic District designation is "non-restrictive" and "honorary," and that Russell does not have a local historic by-law; therefore, there are no specific requirements pertaining to the Russell Center Historic District (Exh. DPU-3, at 14-4; RR-DPU-33). With regard to the proposed site and the remaining papermill buildings, the Company indicated that the Massachusetts Historical Commission has determined that the facility is not eligible for listing in the National Registry of Historic Places, and the Russell Historic Commission opined that the proposed use is in keeping

(continued…)

B. Procedural History

1. Local Zoning Review

The proposed facility site is located in an industrial use district, and the proposed facility is classified as a general manufacturing use under the by-laws (Exh. RB-1, at 14). As a result, the facility requires a Special Permit from the Russell Zoning Board of Appeals ("ZBA") and site plan approval from the Russell Planning Board ("Planning Board") (id.; Exh. RB-6, Table 1, at 2). On March 1, 2005, the Company applied to the ZBA for a Special Permit and submitted a site plan to the Planning Board ("zoning application") (Exh. RB-1, at 14). The ZBA and Planning Board conducted joint public hearings on the Company's zoning application in April, May, and June 2005. On June 28, 2005, the ZBA voted 3-0 to grant the project a Special Permit. The Special Permit included 29 conditions. On the same date, the Planning Board voted 3-1 to grant approval, subject to essentially the same 29 conditions (id.; Exhs. RB-1(1); RB-1(2)).[4] On August 1, 2005, four individual Russell residents filed an appeal of the Special Permit in the Massachusetts Land Court (Exh. RB-1, at 16; Exh. RB-1(3)). In September 2006, the parties to the Land Court appeal agreed to stay the appeal pending the Department's issuance of a decision in this proceeding, and the Land Court approved the stay (Exh. DPU-7).

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[3] (…continued)
with past historic uses (Exh. DTE-6-1, at 15-2, App. L).

[4] The two permits will be referred to herein as the "Special Permit."

2. DPU Zoning Exemption Proceeding

The Company filed this zoning exemption petition with the Department on June 29, 2006. The Petition was duly noticed, and on September 13, 2006, the Department conducted a site visit and public comment hearing in Russell. The Department received 37 petitions for leave to intervene in the proceeding, and four petitions for limited participant status. The Department granted intervenor status to the following: the Town of Russell and the ZBA (jointly); the Planning Board; and 25 individual Russell residents. The Department granted limited participant status was granted to the City of Westfield, the Town of Montgomery, Western Massachusetts Electric Company ("WMECO"), and one individual.

The Department and the intervenors issued approximately 350 written information requests to Russell Biomass. The Company issued approximately 50 information requests to the intervenors. The Department conducted 13 days of evidentiary hearings, nine of which were conducted in Boston, and four of which were conducted in the City of Westfield. Russell Biomass presented the testimony of 11 witnesses, including testimony of project principals and engineering and environmental consultants. The intervenors presented the testimony of 15 witnesses, including Town of Russell officials, professional truck drivers, and environmental and engineering consultants.

The Company filed an Initial Brief and a Reply Brief. Intervenors and limited participants filing Initial Briefs were: Ruth Kennedy and Brian Janik, jointly; James and Robin

Unger;[5] the Russell Planning Board; the City of Westfield; and the Town of Montgomery. Ruth Kennedy and Brian Janik, jointly, filed a Reply Brief.

3. Requested DPU Zoning Relief

In its petition, the Company seeks exemption from four individual sections of the by-laws, as well as a comprehensive exemption from the by-laws as a whole (Exhs. RB-1, at 17-28; CHI-29; Tr. 1, at 15-19). Additionally, in place of the 29 conditions in the Special Permit, Russell Biomass has proposed 29 "Directives," which the Company suggests that the Department include in its approval of the Company's petition.

a. Requested Exemptions

The Company seeks exemption from Section 3 of the by-laws, "Schedule of Use Regulations," and the related Section 6.4, "Special Permits." The Company states that, as a general manufacturing use in an industrially-zoned district under Section 3, the proposed facility requires a Special Permit from the ZBA pursuant to Section 6.4 (Exhs. RB-1, at 13; RB-6, at Table 1).[6] The Company acknowledged that the Planning Board and ZBA have issued a Special Permit for the proposed facility (Exh. RB-1, at 16). The Company asserted that it nonetheless seeks exemption from the Special Permit requirements in Section 3 and Section 6.4 because (1) the Special Permit has been appealed to the Land Court and its

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[5] The Unger Brief was filed on behalf of 21 of the 25 citizen-intervenors ("joint intervenors").

[6] Section 3.06.3 of the by-laws requires the Company to obtain both a Special Permit and site plan approval for the proposed facility (Exh. RB-6, Table 1). Thus, exempting the Company from Section 3 also would exempt it from site plan review.

effectiveness has been stayed as a matter of law pending the resolution of the appeal; (2) if the Land Court does not uphold the Special Permit, the likely remedy would be a remand to the ZBA and another special permit proceeding; (3) even if the Special Permit were upheld by the Land Court, the plaintiffs could appeal the decision to the Massachusetts Appeals Court, seek a further stay of the Special Permit, and thus further delay the project; and (4) even if the Special Permit were upheld, the Company has determined that it cannot comply with certain of the 29 conditions in the Special Permit without adversely affecting the project's financeability (Exh. RB-1, at 16-23).

The Company also seeks exemption from certain dimensional and density requirements in the by-laws because of differences between the most recent site plan for the facility and the site plan submitted to the ZBA and Planning Board in the 2005 Special Permit proceeding (Exhs. RB-1, App. 5; RB-7). The Company stated that three facility components -- the pump house, water clarifier, and water storage tank-- now would not meet the applicable 30-foot setback requirement (Exh. DPU-11(S)). Additionally, the Company asserted that up to six buildings or structures on-site, including the boiler house (133 feet high) and the stack (300 feet high) may require variances from the 35-foot height limitation (Exhs. DPU-8; DPU-61). Finally, the Company seeks exemption from Section 5.2 of the by-laws, "Earth Removal," which requires a special permit for the excavation, removal, or processing of earth (Exh. CHI-29; Tr. 1, at 16).

In addition to the four individual exemptions, the Company also seeks a comprehensive exemption from the by-laws. The Company asserts that the Department should issue a

comprehensive exemption because: (1) the Land Court appeal of the Special Permit prevents the project from moving forward; (2) even if the Land Court appeal is resolved quickly and favorably, other outstanding zoning issues relative to height limitations and recent changes to the project's site plan likely will result in unacceptable project delays; (3) a delay in project development would make it more difficult for Massachusetts to satisfy its renewables requirements;[7] and (4) issuance of a comprehensive exemption now will avoid piecemeal zoning exemption requests for the project in the future (Exh. RB-1, at 12).

b. Proposed Company Directives

The Special Permit issued by the ZBA and Planning Board for the proposed project contained 18 findings and 29 conditions (Exh. BR-1, Att. 3). In place of the Special Permit's findings and conditions, Russell Biomass has proposed, and has offered to comply with, a set of 29 "Directives." The Company asserts that its 29 Directives parallel, and are consistent with the spirit of, the 29 conditions, and has suggested that the Department include the Directives as part of the Order granting the Company's zoning exemption petition (Exh. RB-1, at 23-24).

Many of the proposed Directives are similar to their counterparts in the Special Permit. However, as discussed in more detail in Section V, below, three of the directives would represent material changes to the project as presented to, and approved by, the ZBA and Planning Board. Specifically, Directive 1 would allow the plant to burn wood from sources specifically prohibited by the Special Permit; Directive 2 would increase the allowable number

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[7] See Section V.A, below.

of fuel-truck deliveries from a daily maximum of 60 to a daily maximum of 120, and a daily average of 75-80; and Directive 8 would eliminate certain time-of-day limits set by the Town on facility construction activities, and the need for the Company to seek Town approval to construct outside those limits (Exh. UNG-3(1)). See also Attachment A, appended hereto.[8]

III. STANDARD OF REVIEW

G.L. c. 40A, § 3 provides, in relevant part, that

> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public . . .

Thus, a petitioner seeking exemption from a local zoning by-law under G.L. c. 40A, § 3 must meet three criteria. First, the petitioner must qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975). Second, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Boston Gas Company, D.T.E. 00-24, at 3 (2001). Finally, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002).

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[8] Attachment A compares nine of the Special Permit conditions and one of its specific findings to the Company's ten corresponding proposed Directives in this proceeding.

A. Public Service Corporation

In determining whether a petitioner qualifies as a "public service corporation" for the purposes of G.L. c. 40A, § 3, the Massachusetts Supreme Judicial Court has stated:

> among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. at 680. See also D.T.E. 00-24, at 3-4; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997). The Department interprets this list not as a test, but rather as guidance to ensure that the intent of G.L. c. 40A, § 3 will be realized, i.e., that a present or proposed use of land or structure that is determined by the Department to be "reasonably necessary for the convenience or welfare of the public" not be foreclosed due to local opposition. See D.P.U. 96-104, at 30; Save the Bay, 366 Mass. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407, at 410 (1974). The Department has interpreted the "pertinent considerations" as a "flexible set of criteria which allow the Department to respond to changes in the environment in which the industries it regulates operate and still provide for the public welfare." D.P.U. 96-104, at 30; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of "an appropriate franchise" in order to establish public service corporation status. D.P.U. 96-104, at 31.

B. Exemption Required

In determining whether exemption from a particular provision of a zoning bylaw is "required" for purposes of G.L. c. 40A, § 3, the Department looks to whether the exemption is necessary to allow construction or operation of the petitioner's project as proposed. See D.T.E. 01-77, at 4-5; D.T.E. 01-57, at 5; Western Massachusetts Electric Company, D.P.U./ D.T.E. 99-35, at 4, 6-8 (1999); Tennessee Gas Company, D.P.U. 92-261, at 20-21 (1993). It is the petitioner's burden to identify the individual zoning provisions applicable to the project and then to establish on the record that exemption from each of those provisions is required:

> The Company is both in a better position to identify its needs, and has the responsibility to fully plead its own case... The Department fully expects that, henceforth, all public service corporations seeking exemptions under c. 40A, § 3 will identify fully and in a timely manner all exemptions that are necessary for the corporation to proceed with its proposed activities, so that the Department is provided ample opportunity to investigate the need for the required exemptions.

New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

C. Public Convenience or Welfare

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Save the Bay, 366 Mass. at 680; Town of Truro, 365 Mass. at 410. Specifically, the Department is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964). When reviewing a

petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant. Save the Bay, 366 Mass. at 685; New York Central Railroad, 347 Mass. at 592.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, 347 Mass. at 591.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines: (1) the present or proposed use and any alternatives or alternative sites identified; (2) the need for, or public benefits of, the present or proposed use; and (3) the environmental impacts or any other impacts of the present or proposed use. The Department then balances the interests of the general public against the local interest, and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. D.T.E. 00-24, at 2-6; D.T.E. 01-77, at 5-6; D.T.E. 01-57, at 5-6; Tennessee Gas Company, D.T.E. 98-33, at 4-5 (1998).

IV. PUBLIC SERVICE CORPORATION

The Company argued that, in accordance with Department precedent, "any corporation that owns generating assets in Massachusetts, and makes those assets available to serve the New England market, is a public service corporation" (Exh. RB-1, at 8, citing USGen New England, Inc., D.T.E. 03-83, at 15 n.9 (2004)). The record shows that Russell Biomass is a Massachusetts limited liability company whose business is "the investment in and development of power generating facilities . . . including buying, acquiring, owning, [and] operating such facilities" (Exh. RB-1, at 5; RB-1(6)). The Company states that Russell Biomass LLC would be the corporate owner of the proposed generating facility assets, and that the Company plans to make the output of the facility available to the New England energy market (Exh. RB-1, at 8).[9] Given the above facts, the Department finds that Russell Biomass qualifies as a public service corporation in accordance with G.L. c. 40A, § 3.

V. PUBLIC CONVENIENCE OR WELFARE

A. Need for or Public Benefit of Use

1. Company Position

The Company asserted that the proposed project would help Massachusetts and the region: (1) meet the need for new renewable electric generating supplies; (2) meet greenhouse gas reduction goals; (3) meet the need for lower-cost electricity and reliable energy supplies; and (4) reduce dependence on natural gas and oil to produce electricity (Company Brief at

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[9] The Company stated that it has no plans to sell electricity at retail and, therefore, that it is a wholesale generation company as defined by G.L. c. 164, § 1 (Exh. RB-1, at 6).

26-27). The Company further asserted that the proposed project would dispose of wood by-products in an efficient and environmentally sensitive manner (id.).

Russell Biomass indicated that it received an Advisory Ruling in April 2005 from the Massachusetts Department of Energy Resources ("DOER") stating that the proposed project, as then described, qualified as a New Renewable Generation Unit under the Massachusetts Renewable Portfolio Standard ("RPS") program (Exh. RB-1, at 39; RB-1(7)).[10] The Company asserted that as a qualified renewable energy source, the proposed facility would help the Commonwealth and retail electricity suppliers meet the RPS mandate that an increasing percentage of customers' electricity needs be met by renewable resources. The Company characterized this as a unique public benefit (Exh. RB-1, at 2, 11). The Company stated that all of the New England states have either a mandatory or voluntary RPS program (Exh. RB-DP/MH(C) at 10). The Company asserted that renewable energy certificates ("RECs") generated by the proposed facility would likely meet most or all of these states' RPS requirements (Exh. RB-1, at 11).

The Company projected that as Massachusetts RPS requirements continue to increase, the demand for renewable energy in New England would be approximately 4700 gigawatt

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[10] The RPS program requires retail electricity suppliers in Massachusetts to provide customers with an annually increasing percentage of electricity produced by renewable energy generators (Exh. RB-DP/MH(C) at 10). See G.L. c. 25A, § 11F; 225 C.M.R. § 14.00. The statute originally required one percent of kWh sales in 2003, with an increase of 0.5 percent each year through 2009 (Exh. RB-DP/MH(C), at 10; Exh. RB-1, at 34). On July 2, 2008, Governor Deval Patrick signed a comprehensive energy reform bill, the Green Communities Act, Chapter 169 of the Acts of 2008 ("Act"). Among other things, the Act doubles the required annual rate of increase in the RPS from 0.5 percent to one percent.

hours ("GWh") by 2009 and 5900 GWh by 2010 (Exh. DPU-24-S). The Company then calculated that the total supply in New England would be approximately 2800 to 3100 GWh by 2008 (Exh. DPU-24-S). The Company estimated that the gap in supply and demand would be 2800 GWh at a minimum by 2010, the equivalent of 360 MW to 380 MW of biomass (id.).[11] Notably, the Company's analysis compares its estimate of RPS demand with New England-only RPS-eligible resources, ignoring a significant quantity of RPS-eligible resources that are in operation or development in New York and other neighboring regions.

Under the RPS program, electric suppliers may meet their annual RPS obligations either by purchasing RECs [12] or by paying an Alternative Compliance Payment ("ACP") if they are unable to procure the requisite number of RECs (Exhs. RB-1, at 35; RB-DP/MH(C) at 11). The ACP was set at $50/MWh in 2003, to be adjusted for annual inflation (Exh. RB-DP/MH(C) at 11). The Company asserted that when there are insufficient RECs to meet the RPS targets, the price for RECs will rise to equal the ACP, which is now above $55/MWh (Tr. 6, at 675). The Company asserted that these higher costs will be passed on to consumers (id.).

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[11] This analysis is based on load projections from ISO-New England's 2007 Capacity, Energy, Load, and Transmission ("CELT") report, and incorporates updates to reflect Maine's RPS goal and Connecticut's extension of its renewable targets for Class I resources to 20 percent by 2020 (Exh. DPU-24-S). The analysis was performed prior to enactment of the July 2, 2008 Green Communities Act, which doubled the rate at which Massachusetts suppliers must increase their percentage of renewable power resources. See n.10, above.

[12] If a renewable energy facility qualifies as an RPS-eligible resource, it is issued a REC for each MWh of generation output.

Under the Regional Greenhouse Gas Initiative ("RGGI"), emissions of CO_2 are capped across the RGGI region, and all fossil-fuel generators with a capacity greater than 25 MW must acquire CO_2 allowances for each ton of CO_2 emitted (Exh. RB-DP/MH(C) at 13; Tr. 8, at 959).[13] The Company stated that the proposed project would not be subject to RGGI since it is not a fossil-fuel generation facility (Tr. 8, at 959). The Company stated that the proposed facility could help meet RGGI CO_2-reduction goals, however, because the development of biomass plants would displace some of the need to build additional carbon-emitting generation or would displace some output from existing fossil-fuel generation (Exh. RB-DP/MH(C) at 14; Tr. 8, at 958).

The Company asserted that the proposed project would provide 50 MW of reliable capacity, which would increase the amount of generating capacity and energy available to the Springfield area, Massachusetts, and New England, and thus enhance the adequacy and reliability of the electric supply (Exhs. RB-DP/MH-1 (Att. C) at 3; DPU-28). In support, the Company provided information on the anticipated growth in energy and peak load for Massachusetts and the region based on ISO-New England's (ISO-NE") Regional System Plan, dated October 2006 ("2006 RSP") (Exh. DPU-26-1). Specifically for 2010 (the year the facility is projected to come on-line), ISO-NE identified a possible need for 3105 MW of new

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[13] RGGI is an agreement ("MOU") among ten northeastern states to jointly limit CO_2 emissions from large electric generating facilities through a cap and trade program. Governor Patrick signed the RGGI MOU on January 17, 2007. In January 2008, the MassDEP issued regulations implementing RGGI in Massachusetts.

capacity assuming a zero availability of tie-line benefits,[14] 2070 MW of new capacity assuming 1000 MW of available tie-line benefits, and 1035 MW assuming 2000 MW of available tie-line benefits (Exh. RB-DP/MH(C) at 5).[15] The Company reported that in later years the need for new capacity would trend upward to 4313 MW in 2015, assuming the 2000 MW level of tie-line benefits; the trend would be higher assuming either of the lower levels of possible tie-line benefits (id.).[16]

The Company stated that the project would be located in central Massachusetts/ northeast Massachusetts ("CMA/NEMA") – in which ISO-NE projects that new generation would result in higher reliability benefits to the region than new generation sited in the more remote regions of New England (Exhs. RB-DP/MH(C) at 6-7; DPU-26-1, at 40-41). Within Massachusetts, however, the Company noted generation was rated as beneficial to the same degree in the western Massachusetts, central Massachusetts, and northeastern Massachusetts

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[14] The amount of electric capacity available to an electrically integrated region, such as New England, from a second region (e.g., New York) via interconnection transmission facilities between the two regions is known as a tie-line benefit. The amount of tie-line benefits available is limited by both the capacity of the transmission line and the electric capacity available for transmission from the second region.

[15] The Company indicated that 2000 MW in tie-line benefits is the amount that ISO-NE has used for the past few years to set installed capacity requirements, and that in the 2007 RSP the number is approximately 150 to 200 MW less than 2000 (Tr. 6, at 628-629).

[16] The Company also provided an estimate based on the ISO-NE 2007 CELT report that contemplated the potential retirement of older units, which the RSP analysis does not (Exh. DPU-27). The Company's comparison of existing capacity less the assumed retirements and installed capacity requirement based on the 2007 CELT report reference case leads to a difference of approximately 3300 MW by 2010 and 7200 MW by 2015 (Exhs. DPU-27; RB-DP/MH(C) at 4-5).

regions (Tr. 6, at 635-639; Exhs. DPU-27, at 5-6; DPU-26-1, at 41). The Company's witness explained that load pocket considerations in the Boston area, within northeastern Massachusetts, account for the common benefit level across Massachusetts (Tr. 6, at 638-639). The Company noted that ISO-NE has established a Forward Capacity Market ("FCM") to meet both system and local capacity requirements starting in the summer of 2010 and beyond (Exh. RB-DP/MH(C) at 7). The FCM would pay suppliers for their availability to produce power (Tr. 6, at 612).

The Company explained that as the proposed facility would likely operate as a baseload unit,[17] it has the potential to suppress market prices because the introduction of lower-cost baseload supply would displace energy from higher-cost peaking sources, thereby lowering the clearing price for the entire market (Exh. RB-DP/MH(C) at 9; Tr. 6, at 663-665).[18] The Company also asserted that because wholesale electricity prices have a locational component, the introduction of the proposed project into the local supply of generation for the Russell/Westfield area should provide some locational marginal pricing benefits (Exh. RB-DP/MH(C) at 10). The Company estimated that the project has the potential to suppress

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[17] The Company explained that for any facility to be categorized as a baseload unit it must have a competitive variable cost (Tr. 6, at 664). Specifically, in the context of the New England market, to the extent that a facility's variable cost is cheaper than gas-fired generation using an efficient combined-cycle unit, the Company stated that the facility would run as a baseload unit (id. at 665-666).

[18] The Company explained that biomass can compete with an efficient gas-fired combined-cycle unit because the cost of biomass fuel today is less than half of that of natural gas, and biomass receives incentives to operate, such as the production tax credit and RECs (Tr. 6, at 666-667).

regional energy costs by $30 million per year (id.). The Company based this estimate on the 2006 RSP analysis which estimated the potential saving of $600 million in electric costs resulting from the installation of a hypothetical additional 1,000 MW of baseload generation in 2005 (id. at 9).

The Company stated that it has reserved capacity from the proposed facility, up to one MW, for the Town of Russell at a fixed price (Exhs. RPB-3; RPB-33). The Company expects to offer a set of increasing fixed prices for 30 years, which it estimates would be an average of about ten cents/kWh (RR-DPU-3; RR-DPU-25). One of the Company principals estimated that based on his analysis, this rate could be potentially two cents/kWh lower than those in the marketplace, based on fossil-fuel power, or a savings of about $200 per year for the average household (Exh. RPB-3; RR-DPU-3). He explained that, to estimate avoided cost, he used a projection of natural gas power prices out to the years 2030 and 2040 to approximate the average electric rates over 30 years (RR-DPU-3; Tr. 8, at 973).

The Company asserted that the proposed facility is needed for fuel diversity in Massachusetts and the region to address both an economic and reliability need (Exh. RB-DP/MH(C) at 8; Tr. 6, at 659). The Company pointed to the high percentage (60 percent) of generating capacity fueled by gas or oil, and asserted that this fuel mix poses long-term risks of interrupted fuel supply and increased energy costs (Exh. RB-DP/MH(C) at 8). The Company noted that, 90 percent of the time, gas is the fuel that determines the market price for energy (Tr. 6, at 661). The Company concluded that the proposed project would diversify the

fuel mix and help reduce the long-term risks of interrupted fuel supply and price volatility (Exh. RB-DP/MH(C) at 9).

The Company asserted that Russell Biomass would burn approximately 510,000 tpy of wood fuel, using wood waste that has already been generated from various economic development activities (Exh. DPU-102; Tr. 1, at 144-147). The Company indicated that it would not clear cut any forest trees or contribute to the depletion of Massachusetts wood resources (Tr. 1, at 147-148). The Company asserted that based on data from 2002, approximately 4.1 million tpy of woody biomass is available in Massachusetts and Connecticut within a 75- to 100- mile radius of the proposed project site (Exhs. DPU-92; DTE-6-1, at 12-9; Tr. 2, at 223). The Company stated that, to date, it has received letters of interest in supplying wood to the proposed facility totaling approximately 1.03 million tpy (RR-DPU-14). The Company noted that it would categorize the project as "sustainably harvested biomass" because the amount of wood used by the facility would be less than the amount of new tree growth, based on an area including Massachusetts and the surrounding states, indicating no net loss of forest resource (Tr. 1, at 146-148; Tr. 2, at 225).

The Company indicated that the EPA has defined biomass as carbon neutral based on the carbon lifecycle associated with biomass (Tr. 8, at 959-960, 996). The Company stated that biomass generally is treated as carbon neutral because CO_2 emitted by a biomass facility is reabsorbed by other plant matter, which in turn can be used as a biomass fuel, a short-term cycle compared to petroleum-based fuel (id. at 961-964; Company Brief at 29). Thus, the Company stated, classification of biomass as carbon neutral is not affected by the fact that the

CO_2 emitted from a biomass facility is on the same order of magnitude as that of a gas- or coal-fired generating unit (Tr. 8, at 965).[19]

2. Intervenor Position

The Planning Board noted that the proposed plant would contribute only 0.16 percent of the ISO-NE projected electric demand in 2012 (Exh. RPB-34). The Planning Board questioned how such a small contribution could be justified as reasonably necessary for the public convenience and welfare in light of the proposed facility's local impacts (id.).

3. Analysis and Findings

The proposed project would qualify as a new renewable generation unit under the Massachusetts RPS program and would be qualified to earn RECs for its generation output. By providing additional RECs through the operation of a qualified renewable energy resource, the proposed project could contribute to lowering the price of a REC in the New England region.[20]

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[19] The proposed facility would emit 546,000 tpy of CO_2 (Tr. 5, at 562).

[20] The Department notes that under the RPS program, a retail supplier must meet the RPS through either the retirement of RECs or by paying the ACP. See 225 C.M.R. § 14.02. Consequently, an individual project can not "help to meet" the RPS standards, as those standards must be met as a matter of law and regulation by all retail suppliers through either REC retirement or ACP payments. However, incremental REC-eligible resources can serve to reduce the need for ACP payments or lower the marginal price of RECs in the market. While there is no specific evidence on record demonstrating that the addition of the proposed facility's 50 MW would necessarily lower the price of RECs, increasing the competitiveness of the REC market, and adding a new source of REC supply should - all else being equal - place downward pressure on marginal prices for RECs in the long run.

The extent to which the proposed project would or would not be carbon neutral depends on a number of factors related to at least (1) the source of the biomass, (2) the sustainabilty and permanence of the biomass supply over the life of the project, and (3) the interaction of the emissions from the proposed facility with regional and (future) national carbon control programs. While the Company has presented information relevant to certain of these points, the degree of uncertainty with respect to items (2) and (3) prevent the Department from reaching a conclusion on the likely carbon impact of this facility over the life of its operation. In particular, while the Company has made representations as to the likely characteristics and longevity of its biomass supply source, there is no contractual guarantee that the facility will be supplied from such sources over the lifetime of its operation. Nevertheless, the Department finds that the facility could be considered carbon neutral for at least its early phase of operation, based on information presented by the Company on the initial source of the biomass – wood waste from other economic activities – and the expectation (and initial expression of interest from suppliers) that this source would be sufficient for plant operations for many years. As such, the proposed project would help meet energy demand while at least initially providing carbon control benefits, consistent with the Commonwealth's statutory mandate to reduce greenhouse gas emissions under the Global Warming Solutions Act.[21]

The Company has maintained that the proposed project is needed for regional reliability. In support of this, the Company asserts that a need for new capacity could arise in

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[21] Chapter 298 of the Acts of 2008, signed into law by Governor Deval Patrick on August 8, 2008.

2010, and could reach 4000 MW in 2015 or earlier, based on projected peak electricity demand and currently known generation availability for those years. Expected to be on line in 2010, the proposed project would constitute new capacity able to help serve the identified reliability need in 2010-2015 and beyond. The Department agrees that, should the project come on line, it would reduce the need to add capacity to meet future load growth in New England by 50 MW, and would at that time contribute to meeting the region's resource needs and maintaining the reliability of the regional electric grid. However, the Department notes that the project is one of many new generating projects and energy resource measures that are currently proposed to meet ISO-NE's projected reliability need. Consequently, while the proposed resource could contribute to the future reliability of New England power system operations, it is also likely that system reliability would be sufficient absent development of the Russell Biomass facility.

With regard to cost, the Company provides a 2006 estimate of $600 million in savings from a hypothetical addition in 2005 of 1000 MW of new baseload generation, and translates this into a $30 million (five percent of $600 million) cost savings associated with the proposed facility (which is 50 MW, or five percent of 1000 MW). We note that the possibility of cost benefits is similar to the possibility of reliability benefits discussed in the preceding section. Namely, the Department agrees with the Company that the addition of baseload capacity to the generation mix – provided it is priced lower than marginal generating capacity – would provide cost benefits to electricity customers by displacing higher-priced generation at certain times

throughout the year.[22] Consequently, to the extent that the owners of Russell Biomass bid operation of their facility at infra-marginal prices, they could contribute to a reduction in the marginal wholesale price of electricity in certain hours. We note, however, that the project is not the only potential generating resource that could provide such benefits, and it is difficult to conclude based on the evidence before us that - absent development of the proposed facility - the region would not obtain the same wholesale price benefits through the development of alternative infra-marginal capacity resources.

Diversity of generation supply is generally assigned a number of benefits and characteristics. For example, diversity in size and number of generating resources can mitigate the risks of over-reliance on too small a number of large generating resources; diversity in location of generating resources can mitigate the risks of events affecting supply in a specific geographic location. Similarly, diversity in fuel supply can mitigate the risks to reliability associated with over-reliance on the supply of fuel from a specific location, and/or the risks to price associated with over-reliance on a single fuel for price formation. Unfortunately, quantifying the actual risks associated with heavy reliance on a given fuel, and thus the potential benefits of reducing such reliance at the margin, is fraught with speculation about future supply conditions and uncertain fuel price forecasts, events with extremely low

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[22] The Department notes that Russell Biomass has offered to set aside one MW of capacity for the Russell Municipal Electric Light Department and has estimated the potential cost savings to be $200 per year for the average household. This set-aside may provide a lower cost to the town for energy supply, depending on the long range forecast for energy prices and at what price Russell Biomass ultimately decides to offer the capacity to the town.

probability, and about quantifying the value of protecting against loss of load or temporary spikes in prices. Consequently, the value of "fuel diversity" is most often represented in qualitative terms – that is, we know that diversity is good, and something that increases diversity, all else being equal, is better than something that does not.

In this case, it is clear that adding a biomass resource to the region - assuming it is in place of additional gas-fired generation - would reduce our region's reliance on natural gas for electricity generation. Consequently, while we can not quantify the magnitude of the impact or conclude that it is significant, the Department finds that the proposed facility would likely increase the diversity of generation supply in the region, and could thereby contribute to improving power supply reliability.

In sum, the Department finds that the proposed facility has the potential to provide energy benefits for Massachusetts, in that development of the facility could: supply added renewable energy resources, potentially providing downward pressure on the price of RECs in New England; help meet electricity demand in a manner that at least initially provides carbon control benefits, consistent with the Commonwealth's mandate to reduce emissions of greenhouse gases over time; contribute to maintaining the reliability of the bulk power system and potentially lower wholesale prices in some hours; and help provide a more diverse electricity supply which may provide a measure of protection against possible fuel supply disruption.

B. Impacts of the Proposed Use

1. Traffic

a. Company Position

i. Construction Traffic

With regard to construction traffic, the Company calculated the Level of Service ("LOS") on Main Street in Russell based on a daily workforce of 200, with 150 vehicles arriving during the daytime peak hour and 50 arriving prior to or after the peak hour (Exhs. DPU-42; DPU-71; Tr. 2, at 290-291).[23] The Company assumed no car pooling (Exh. DPU-71). The Company indicated that, based on its LOS analysis, there would be no need for any traffic mitigation during construction of the proposed facility (Tr. 3, at 373).

ii. Operational Traffic

While operating, the proposed facility would burn approximately 2,000 tons of wood daily (Exh. RB-1, at 5). To keep the facility supplied with fuel, Condition 2 of the Special Permit issued by the Town allowed up to 60 semi-tractor- trailer wood fuel deliveries per day (120 truck trips) Monday through Friday (Exh. RB-1(1)). The Company acknowledged as early as September 2005 that this increase in existing truck traffic "would have a significant impact on Main Street residents" (Exh. DPU-EX-3, at 20). The Company now seeks permission from the Department for a greater number of trucks than initially proposed: an average of 75 to 80 fuel trucks per day (150-160 truck trips) (Exh. RB-1, at 5; Tr. 4, at

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[23] Traffic conditions on a roadway and at intersections are represented by the letters A through F on the LOS scale continuum, where LOS A represents a free flow condition with minimal delays, and LOS F represents forced flow or breakdown conditions.

517).[24, 25, 26] Based on the average of 160 trips per day, one truck would travel Main Street on average approximately every four minutes (Exh. CHI- 1; Tr. 2, at 330; Tr. 4, at 515-517).[27]

The Company acknowledged that the daily volume of 75 to 80 trucks is an annual average, not a maximum daily volume, and that there will be days and weeks when the number of trucks will either fall below or exceed this average (RR-DPU-2; Tr. 4, at 517). The Company noted, for example, that the daily volume would exceed 160 trucks 30 percent of the time (RR-DPU-2). To reflect this operational issue, the Company committed to (1) allowing no more than 120 truck deliveries (240 trips) in a one-day period, and (2) allowing no more than 550 truck deliveries (1,100 trips) in any five-day period (id.).[28] In addition to tractor-trailer fuel delivery trucks, four pick-up trucks per day for ash removal (eight one-way trips), and an average of 23 employee automobiles per day (46 one-way trips) would be expected daily (Exh. RB-1, at 60).

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24 Deliveries would occur five days a week, between 6:00 a.m. and 5:30 p.m., with the exception of eight holidays (Exh. RB-15; RR-DPU-2).

25 The Company explained that the figure of 60 deliveries assumed the use of construction and demolition ("C&D") material. The Company stated that because of its subsequent agreement with the Town not to burn C&D material, it would need to replace the C&D material with other, heavier, wood products, and as a result would require more deliveries (Exh. RB-1, at 62).

26 See Attachment A for a comparison of Special Permit Condition 2 and proposed Directive 2.

27 The Company explained that the actual number of trucks per hour would vary based on a number of factors (Exh. CHI-1).

28 The Company asserted that the variations in the delivery numbers would not change traffic impacts because Main Street has the physical capacity to accommodate peak truck delivery days (RR-DPU-2).

The Company asserted that Main Street can physically handle the proposed volume of project traffic (Tr. 3, at 281, 283). In support, the Company provided an LOS analysis for Main Street and Route 20, with and without the proposed project (Exh. DPU-3, at 12-4). The impact of the proposed project was modeled on total daily added traffic of 220 vehicle trips (Exh. DPU-3, at 12-3; Tr. 10, at 1537-1539). The Company indicated that the LOS analysis involves several factors and equations inherent in the software that converts heavy vehicles such as trucks and buses to passenger car equivalents to account for the additional length of the larger vehicles and their slower traffic speeds (RR-DPU-5). The Company explained that it is not a simple, direct correlation involved in the equivalent conversion, and that the software incorporates a complex calculation that is not based on a particular size truck or bus (Tr. 11, at 1766).[29] The LOS analysis indicated that both Main Street and Route 20 currently operate at a favorable LOS during the afternoon period: LOS A and LOS C, respectively (Exh. DPU-3, at 12-4). The LOS analysis indicated that with the addition of traffic generated by the proposed facility while operating, the Main Street LOS would change from A to B, and the Route 20 LOS would remain the same (id.).

The Company counts of current traffic on Main Street provided a breakdown by cars and trucks, and further broke down the trucks by axle size (Exh. RB-4). The Company indicated that the majority of the wood deliveries would be in large vehicles such as five-axle and six-axle trailer trucks (Exhs. RB-4; DPU-46; Tr. 2, at 263). Based on these two

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[29] The Company provided an example of the conversion rates which, when analyzed by Department staff, showed a 2.4 factor for existing conditions and a 1.6 factor under conditions with the proposed facility (RR-DPU-5).

categories, the Main Street count of trucks (by trips) that the Company asserted are similar in type to the proposed biomass fuel trucks was 51 (Tr. 2, at 263)

The Company asserted that the volume of traffic generated by the plant would be similar to that generated by the Westfield Paper Company when it was in operation at the same site (Exhs. RPB-20; DPU-45; RPB-23; Tr. 2, at 251). The Company acknowledged that actual data on the amount of traffic generated by Westfield Paper is not available (Exh. RPB-23; Tr. 2, at 251). The Company's witness calculated a traffic estimate for Westfield Paper based on the Institute of Transportation Engineers Trip Generation Manual ("Trip Generation Manual") (Exh. RPB-23; Tr. 2, at 251-252). The Company stated that the Trip Generation Manual calculates the number of vehicle trips that a facility would generate by: (1) assigning a standardized Land Use Code ("LUC") to the facility in question; and (2) multiplying the statistically derived trip generation rate for that LUC by the estimated number of facility employees or the facility's square footage (Exhs. RB-4, Tab 3, at 3; RPB-23; RB-4, at 5-6; Tr. 2, at 251-253).[30] The Company estimated that Westfield Paper employed approximately 125 people during peak operation; thus, multiplying 125 times 2.1 vehicle trips, the Company calculated that approximately 263 daily vehicle trips per day were generated by Westfield Paper (Exh. RPB-23). The Company acknowledged that the 2.1 vehicle trip multiplier includes all types of vehicles and does not break them down by category; thus, it is not

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[30] The Company categorized Westfield Paper as Land Use Code #140 (manufacturing facilities) and stated that the Trip Generation Manual assigns to that category of use an average daily trip generation rate of 2.1 vehicle trips per employee (Exhs. RPB-23; RB-4, at 5-6; Tr. 2, at 251-253).

possible to tell how many of the 263 calculated trips were truck trips and how many were car trips (id.; Tr. 2, at 253).

The Company stated that the fuel delivery trucks would have a maximum overall length of 65 feet, a maximum width of 8½ feet, and an approximate weight when loaded of 80,000 pounds each (Exh. DPU-43). The Company asserted that Main Street meets or exceeds the minimum pavement width needed to accommodate two-way travel with parking on one side of the road for all vehicle types (Exh. DPU-72). The width of Main Street ranges from 27 feet at its narrowest to 32 feet at the Westfield River bridge, and the sidewalks are five feet wide (Exh. DPU-43). The Company stated that the Massachusetts Highway Department ("MHD") recommended roadway design guidelines specify a minimum width of nine feet for travel lanes and seven feet for paved parking lanes, or a total width of 25 feet for two travels lanes and one parking lane (id.).[31] Thus, the Company asserted, even at its narrowest point (27 feet wide), Main Street meets the minimum MHD design guideline width of 25 feet and would be able to accommodate the fuel trucks (Exh. DPU-72).

The Company noted that the line of sight turning onto Route 20 from Main Street is not optimal, but that the project-related traffic would not affect existing sight lines (Tr. 3, at 381). The Company asserted that there is no need to mitigate project traffic impacts, but offered to make six voluntary improvements to Main Street (RR-DPU-6; Tr. 2, at 316-318; Tr. 3, at 365). The proposed modifications would include enhancing the curb radius for turning from

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[31] The Company cited the MHD's 2006 Project Development and Design Guide (Exh. DPU-43).

Route 20 to Main Street; shifting and re-striping the travel lanes on Main Street to eliminate parking on one side of the street; improving existing crosswalks and signage; upgrading and better defining parking spaces; and funding additional off-street or widened parking spaces in the Main Street village area (RR-DPU-6; RR-RK-4; Tr. 2, at 316-318).

The Company stated that there would be no queuing of delivery trucks on Main Street, pointing to proposed Directives 2 through 7, which prohibit trucks from parking on any town street and from making any deliveries before 6:00 a.m. (Exhs. RB-15; CHI-13; Tr. 10, at 1501). In addition, the Company stated that there is approximately 2000 linear feet of circumferential roadway around the on-site fuel piles, providing sufficient space for a single line of up to 20 trucks, or a double line of 40 trucks, to wait on-site while waiting to unload fuel (Tr. 3 at 392, 399).[32]

b. Intevenor Position

An independent study conducted for the Town of Russell, and paid for by the Company, ("ARI Report") concluded that the most significant impact of the proposed project on the town would be the increased safety hazard, noise and vibration from the project's truck traffic on Main Street (Exh. DPU-RU-1(2) at 4). The ARI report recommended that a fuller safety hazard evaluation be conducted (id. at 1, 5). The Report noted that while reasonable

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[32] The Company indicated four to five trucks per hour can be unloaded at each of the three dumpers on-site, for a total of 12-15 trucks per hour (Tr. 3, at 399). The Company estimated the total time required to unload a fuel truck is approximately 12-15 minutes, from entering the site to unloading, assuming use of whole-truck dumpers, wherein the entire truck is backed up to a platform and it is then raised 35 to 40 degrees (Tr. 3, at 394-395, 399-400).

measures had been proposed to mitigate traffic impacts, the impacts would be noticeable and lasting (id.). Further, the author of the ARI Report stated that there were no obvious forms of additional mitigation that could lessen the traffic impacts (Tr. 9, at 1224).

Three intervenors introduced into evidence a video containing a visual demonstration of both a 64- and a 65-foot semi-tractor trailer-truck[33] turning, passing, and traveling on both Main Street and Route 20 (Exhs. UNG-JO-1; UNG-JO-1(1).[34] The drivers of the trucks ("truck drivers") appeared as witnesses on behalf of the intervenors during the hearings; they stated that they deliver wood fuel to biomass plants in New Hampshire and Vermont using the trucks in the video (Exh. UNG-JO-1). The truck drivers indicated that the trucks can carry a gross weight of up to 104,000 lbs, which is the equivalent of approximately 20 cars, and that the trucks measure 9½ feet in width from mirror to mirror; the drivers testified that a

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[33] These types of semi-tractor-trailers use a 45-foot trailer, which the owner of TJ Bark Mulch, James Oleksak, stated is the most commonly used size (Exh. UNG-JO-1). He stated that, in general, 48- and 54-foot trailers also can be used for fuel delivery to biomass plants (id.).

[34] The demonstration was conducted by TJ Bark Mulch Trucks. The demonstration was conducted by three professional truck drivers, Randy Purinton, Robert Kiosk, Dave Elliot, and Mr. Olesak (Exhs. UNG-RP-1; UNG-RK-1; UNG-JO-1; UNG-DE-1). Mr. Purinton has delivered wood fuel to the Rygate biomass plant in Rygate, Vermont; Mr. Kiosk has delivered wood fuel to the Hemphill plant in George Mill, New Hampshire; and Mr. Elliot has delivered wood fuel to Rygate, the Burlington Electric plant in Burlington, Vermont, and the Gilman plant in Gilman, Vermont (Exhs. UNG-RP-1; UNG-RK-1; UNG-DE-1). Video provided by the intervenors demonstrating one and two tractor-trailer trucks traveling on Main Street included (1) a view of one truck in a travel lane, with a car in the other travel lane and a car in a parking lane; and (2) a view of two trucks traveling in opposite directions along Main Street, with one lane of parking (Exh. UNG-JO-1(1)).

clearance of one to 1½ feet would be required between a truck and a parked car (Tr. 7, at 842).

Referencing the video of the Main Street demonstration, the truck drivers asserted that: (1) with cars parked on the north side of Main Street, there would be insufficient room for two fuel delivery trucks to pass each other on Main Street; (2) with two fuel delivery trucks approaching each other on Main Street, there would be insufficient room to pull over and let emergency vehicles pass; (3) if there were an accident or other emergency on Main Street, there would be insufficient room for a fuel delivery truck to turn around; (4) there is not enough room for the trucks to turn from Route 20 northbound onto Main Street without crossing the center double yellow line; and (5) there is not enough room for the trucks to safely turn from Main Street onto Route 20 (Exhs. UNG-RP-1; UNG-RK-1; UNG-DE-1; Tr. 7, at 852).

The truck drivers noted that presently there is not a good line of sight when making a left turn from Main Street onto Route 20 southbound (Exh. UNG-JO-1; Tr. 7, at 859). The truck drivers referred to the video and noted that a right hand turn from Route 20 northbound to Main Street cannot be made without crossing the center line or going over the curb (Tr. 7, at 854-856). The truck drivers noted that with the exception of the Burlington Electric plant in Burlington, Vermont,[35] all of the other biomass plants they deliver to have dedicated access

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[35] The 50 MW Burlington Electric biomass plant receives 75 percent of its wood fuel by rail and 25 percent by truck (Exh. RB-112-1). The Company stated that, as a condition to operate, Burlington Electric was required to provide the specified percent of rail deliveries to mitigate traffic impacts (Tr. 4, at 509).

roads thereby avoiding interference with local traffic; therefore, there would be no problems at those facilities with emergency vehicles or insufficient turning radii on local roads (Exhs. DPU-IG1-7; DPU-IG1-8; Tr. 7, at 836-837).

With regard to the timing of fuel deliveries, the truck drivers stated that it is customary in the industry for drivers to make their first delivery to a plant as early in the morning as possible, so that they can deliver another load in the same day (Tr. 7, at 827). Thus, they stated, a large number of fuel deliveries to the Russell site typically would occur first thing in the morning, deliveries then would taper off, and another large number of deliveries would occur in the afternoon (id. at 825-827). Because of this delivery pattern, the drivers asserted, trucks likely would be waiting outside the gate to the Russell site prior to its opening at 6:00 a.m.; and, because the Russell site lacks a dedicated access road, the trucks would of necessity park or idle on Main Street while waiting (id. at 826-828, 831). The truck drivers asserted that the waiting trucks likely would be idling, as the five-minute federal Department of Transportation ("DOT") limit on idling is not enforced, nor is it generally complied with, because restarting an engine causes wear and tear (id. at 802-803). In addition, the drivers noted, truck drivers generally leave engines running in the wintertime because (1) it is difficult to start a diesel engine in cold weather, and (2) the cabs are kept warm (id. at 803). The truck drivers testified that they have never been prohibited from idling at any plant to which they have delivered (id. at 851).

With regard to historic traffic use, Ms. Taverna, a member of the Planning Board and long term resident of Russell, stated that the former traffic manager of Westfield Paper

indicated a daily average of 10-12 trucks (20-24 trips) on Main Street during the period when the plant was at peak operation; Ms. Taverna also noted that many of the paper mill's employees lived within walking distance of the plant and did not drive to work (Exh. DPU-IG2-8; Tr. 7, at 835). Mr. Olesak, intervenor witness and owner of the TJ Bark Mulch Trucks, stated that the trucks that currently use Main Street – in particular the five-axle trucks that are part of the Company's traffic count – are shorter and lower in height than the semi-tractor trailer-trucks that Russell Biomass would use to deliver wood (Tr. 7, at 831-834).

The Russell Fire Department is located on Main Street and, therefore, all project truck traffic would need to pass the fire station twice per delivery, i.e., both when traveling to and leaving the site (RR-DPU-6-1(S)(2)). Michael Morrissey, the Town of Russell Fire Chief, explained that the Russell Fire Department is an on-call department (Tr. 11, at 1846-1847). Therefore, when paged, responders must travel Main Street twice: first to the fire station in their personal vehicles to acquire emergency equipment and vehicles, and then from the fire station to the site of the emergency call (id. at 1854-1856, 1899). He stated that an increase in the daily frequency of truck traffic on Main Street as proposed by the Company could hinder emergency response both by firefighters and by ambulances (id. at 1862-1864; 1896). He testified that a delay of a minute or two could adversely affect the success of a response to an emergency such as an acute medical condition (id. at 1857-1858, 1896). Chief Morrissey stated that potential mitigation measures, such as automated traffic management devices and consultations with the Department of Public Works or State Police, could be considered if project-related traffic proved to be problematic (id. at 1904).

c. Analysis and Findings

As noted above, Main Street in Russell is predominantly residential. In addition, the town's local government functions and services are located along Main Street, such as Town Hall, the library, the post office, and the fire station. Main Street is the only center of the town. The record shows that currently, approximately 50 truck trips occur on Main Street in a given 24-hour period.[36] The Company would add to that an average of 160 daily truck trips, for a total of 210, or an increase of approximately 320 percent. Compared to current conditions on Main Street, an increase in truck traffic of this magnitude would be significant in itself.[37] In addition, the record shows that: (1) the number of truck trips on some days would be 240, rather than 160, an increase of approximately 480 percent rather than 320 percent; (2) fuel deliveries would not be spread out equally over the day; (3) truck traffic likely would be even more concentrated in early morning and late afternoon, which could coincide with commuting or school bus schedules; (4) because the site lacks a dedicated access road, there could be reason for parking or idling of trucks on Main Street or other town streets to occur in the morning before the plant opened, notwithstanding the Company's commitment to prohibit

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[36] The Company characterized the trucks it counted as similar to those that would be used for fuel deliveries to the proposed plant. However, the truck drivers testified that the types of trucks that would be used to deliver the wood fuel would be larger, taller, and heavier than the types of trucks that currently use Main Street.

[37] Department observations regarding Main Street are based on a half-day site visit by Department Staff, the video of truck traffic on Main Street submitted by the intervenors, and the CD of television advertisements entered into evidence by the Company.

such activity; and (5) some percentage of the Russell Biomass trucks would likely be larger, taller, and heavier than the types of trucks that currently use Main Street.

According to the Company's LOS analysis of Main Street, the addition of the traffic associated with the proposed plant would not exceed the physical operating capacity of Main Street as designed. However, the LOS analysis understates the impacts of the projected traffic increase. For 30 percent of the year, the average number of daily fuel-truck trips would exceed 160, up to a maximum of 240 trips; the Company based its LOS analysis on 160 trips, not 240 trips. More importantly, relying on an LOS analysis for this proposed project may not provide an adequate indicator of traffic impacts. While the LOS analysis does contain some level of conversion from cars to trucks, it does not appear to capture the important features of the proposed tractor-trailer truck delivery schedule for the proposed facility. The added traffic in this case would consist disproportionally of semi-tractor-trailer fuel delivery trucks: 75-80 trucks versus 23 passenger cars. The trucks are an average of 64-feet in length, 8½ feet in width (9½ feet from mirror to mirror), and weigh more than 80,000 lbs.[38] Due to their size, these trucks would block sight lines to a greater degree than an automobile would; would take more time to accelerate from stops, thus slowing traffic flow more; and would be unable to enter or leave Main Street without crossing the center line or running over the curb. An LOS analysis, due to its nature as an engineering roadway capacity model, does not fully take into account these operational impacts. Further, since a LOS analysis is used to determine whether

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[38] In comparison, a mid-size sedan is approximately 16 feet long and six feet wide. A large SUV is approximately 17 feet long and close to seven feet wide.

a particular roadway can physically handle an anticipated increase in traffic, such analyses do not reflect the other impacts that typically result from an increase in traffic, such as air emissions, noise impacts, safety impacts, and impacts on the existing character of the roadway and adjacent areas.

The Company has argued that the traffic generated by the proposed project would be similar to or less than that generated by Westfield Paper, based on the Company's modeled estimate of Westfield Paper's past traffic. However, comparing past and projected traffic based on the available record is problematic. First, the Company acknowledged that it could not provide actual data on trips generated by Westfield Paper either for deliveries or employee traffic, because the facility closed in 1994 (Exh. RPB-23; Tr. 2, at 251). Second, while the peak number of employees at Westfield Paper was likely significantly higher than the number of employees that would staff the proposed Russell Biomass facility, a number of factors related to the differences in context are important: (1) Westfield Paper employee car trips may have been fewer than estimated by the Company to the extent workers living nearby walked to work; (2) the most important local impact of the proposed facility is not the number of additional employee cars, but rather the number of additional heavy trucks that would travel on Main Street; (3) the modeling of historic traffic counts used by the Company did not distinguish between cars and trucks; and (4) testimony of long-time local residents that truck traffic generated by Westfield Paper likely was much lower than what would be generated by the proposed project. Finally, we note that the historical traffic, largely reflective of employee trips, likely occurred at focused intervals twice a day, while traffic to the proposed facility can

occur over an entire 11.5 hour period. In consideration of these factors, we conclude that the impacts of the traffic generated by the proposed facility would be greater than that associated with operation of Westfield Paper – perhaps significantly greater.

The present width of Main Street ranges from 27 to 32 feet wide. According to the Company, the minimum required design-width based on MHD guidelines for two travel lanes and two parking lanes is 32-feet, and for two travel lanes and one parking lane is 25-feet (Exh. DPU-43). This is based on a nine-foot travel lane and a seven-foot parking lane. The Department notes that these lane layouts are minimums, which would allow very little clearance for vehicles. Further, the truck drivers measured their trucks and determined that from mirror to mirror, the trucks are 9½ feet wide, which is wider than the minimum nine-foot travel lane (Tr. 7, at 842). Video provided by the intervenors demonstrating one and two tractor-trailer trucks traveling on Main Street included (1) a view of one truck in a travel lane, with a car in the other travel lane and a car in a parking lane; and (2) a view of two trucks traveling in opposite directions along Main Street, with one lane of parking. Based on the video and testimony of the truck drivers, pedestrian and vehicle movement would be, at a minimum, highly constrained under these conditions. Finally, the present street design of two lanes of parking on both sides of Main Street cannot physically allow the truck traffic as proposed by the Company.

Thus, in this proceeding, the Company has proposed a series of traffic measures that it has characterized as enhancements, which were not included in the Special Permit. A number of these improvements relate to existing signage and design, while maintaining the same

general layout of Main Street and therefore continuing the same travel patterns for vehicles and pedestrians. However, one measure would alter road layout. Specifically, the Company has proposed restriping Main Street so that the travel lanes would be wider, and would remove parking on the south side of the street. Given the number of residences and the presence of municipal services, this proposed alteration, raised in this proceeding alone, could represent a significant change in the historic use of Main Street. There have been no studies conducted or evidence provided to substantiate that this reconfiguration of reduced on-street parking would serve the needs of residents who live along Main Street or visitors to the village area. For example, it could very well be an added inconvenience on a daily basis to residents required to pick up their mail from the post office, and for Main Street residents and visitors who regularly park on the south side of Main Street. Finally, there has been no community input as to revamping the current design of Main Street.

Based on information provided by the parties with regard to other biomass facilities in New England, facility access via a dedicated access road of some length off a state road or highway is typical. The proposed route to Russell Biomass does not have a dedicated access road; additionally, there is limited space outside of the gate to the proposed facility where trucks could park while waiting to enter the facility, and the trucks would not be allowed to queue up along Main Street or to park on any town street. This could be a problem if drivers often arrive before a facility is open in the morning in order to unload early so that they can be back on the road to begin more deliveries - a frequent occurrence at similar biomass facilities in the region, according to testimony of the intervenors' witnesses (Tr. 7, at 825-827).

As noted earlier, the Russell fire station is located on Main Street, and thus is accessible only by a segment of roadway that is part of the truck delivery route. Therefore, all facility-related traffic would need to travel directly past the fire station, Monday through Friday. The record also shows that the Russell fire station is unmanned. Therefore, responses to fires and emergencies require personnel to negotiate traffic on Main Street twice in order to respond to an incident. The Russell Fire Chief testified that under certain circumstances, the proposed increase in daily traffic on Main Street could delay emergency responses by both firefighting equipment and ambulances (Tr. 11, at 1862-1864, 1896). He stated that if the plant were built, and if such delays were to occur, he would attempt to work with the Department of Public Works and the State Police to see if any mitigation measures could be identified (Tr. 11, at 1904).

Based on the record in this case, the Department finds that the amount and type of traffic to be generated by operation of the proposed biomass facility would significantly and adversely affect the character of the town of Russell. The volume of additional heavy truck traffic would likely be greater than the volume generated in the past by the Westfield Paper Company. The proposed increase in truck traffic is significantly greater than presented to, and approved by, the Town of Russell during the Special Permit process. The proposed traffic would interfere with access to homes on and near Main Street, and with access to municipal services, including emergency and fire services. The convenience and safety of individuals using Main Street, e.g., drivers, pedestrians, and bicyclists, would be adversely affected. The proposed truck traffic would generate additional and noticeable noise, and diesel fumes, on and

in the vicinity of Main Street.[39] The modifications to Main Street offered by the Company would not eliminate or substantially mitigate these impacts. Moreover, the Department notes that while the Company claims that its proposed modifications would be beneficial, there is no evidence that the town would view the Company's reconfiguration of Main Street as desirable. To the contrary, there is evidence that some existing amenities, such as off-street parking, would be eliminated under the Company's plan. It appears that the impacts associated with the increase in truck traffic could not be avoided short of using an alternative means of fuel delivery such as a road other than Main Street or rail transport. Based on the foregoing, the Department finds that the proposed increase in traffic on Main Street, and its associated safety and noise impacts, would have significant adverse impacts on the town of Russell.

2. Noise Impacts

a. Company Position

The Company asserted that the proposed project would not create a noise nuisance condition, would fully comply with the MassDEP noise policy, and would be consistent with the previous industrial uses of the site (RR-DPU-16 (1), at 3).

To determine the noise impacts of the proposed facility, the Company analyzed existing noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from construction and operation of the facility (RR-DPU-16 (1), at 11). The Company measured daytime and nightime background noise levels at four noise sensitive areas

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[39] These traffic-related impacts are discussed in Sections V.B.2 (noise) and V.B.5 (diesel exhaust emissions), below.

("NSA"): 75 Grove Street, 24 Lincoln Street (200 feet south of its intersection with Main Street), 39 River Street, and the Russell Elementary School (daytime only) (id. at 11, fig. 1). The Company stated that the only nearby sensitive land uses are within the town of Russell (id. at 11). The Company's measurements indicated that existing L_{90} levels[40] in the vicinity of the proposed facility ranged from 47 dBA to 60 dBA during the day, and at night varied from 32 dBA at River Road to 45 dBA at Lincoln Street to 56 dBA at Grove Street (id. at 13, Table 3).

The Company stated that the major exterior project noise sources would be the cooling tower, switchyard, boiler stack, conveyers, water pumps, emergency generator, and building and combustion fans (RR-DPU-16 (1), at 16). The Company explained that it modeled three scenarios: Nighttime MassDEP Compliance, Daytime MassDEP Compliance, and Daytime All Sources (id. at 18). The daytime measurements also included the sound from two front end loaders and three truck dumpers, as they would operate only during daytime delivery periods (id.). The Company noted that the MassDEP noise policy does not apply to OSHA-mandated safety back-up alarms or to truck deliveries to the site; therefore, these additional mobile source sounds are included only in the Daytime All Sources scenario (id.; Tr. 4, at 628-629).

Based on its noise impact analysis, the Company indicated that under all three scenarios, L_{90} noise increases at all NSAs would range from less than one dBA to four dBA for both the day and night (RR-DPU-41-A-C2). The Company further indicated that although Grove Street, as the closest residential area, would receive the highest sound levels from the

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[40] The Company indicated that L_{90} noise is the sound level that is exceeded 90 percent of the time during the measurement period (Exh. DTE-6-1, App. K at 6).

proposed facility, the majority of the noise would be masked by the Russell Falls and the associated hydroelectric facility on the Westfield River (Exh. DTE-6-1, at 13-18: Tr. 4, at 605-606).

With regard to noise from the wood fuel delivery trucks, the Company argued that on a short-interval basis, the wood fuel delivery trucks would cause no change in the maximum sound level on Main Street because large trucks currently travel up and down Main Street daily (Tr. 4, at 638). The Company further asserted that the sound levels from a wood fuel truck are no different than any other heavy duty or tractor-trailer truck (Exh. DPU-110).

The Company provided an analysis of truck noise impact based on hourly L_{eq}[41] noise from 14 trucks per hour added to existing traffic noise, assuming the peak hour traffic volume (Exhs. DPU-110-S; DPU-110-1; DPU-110-2; RR-DPU-19).[42] The Company explained that to calculate the L_{eq}, it assumed the traffic numbers for the average peak afternoon hour along Main Street, including cars and trucks (Tr. 4, at 638).[43] The Company's analysis shows that the one-hour L_{eq} on Main Street ranges from 49.5 to 51 dBA without the proposed project, and would increase to 55 to 57 dBA with the proposed project (Exh. DPU-110-2). The analysis further shows that a tractor-trailer truck traveling on Main Street at 25 mph would produce a

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41 L_{eq} noise is the sound average over a specific period of time, in this case it was a one-hour average sound level (Exh. DPU-110).

42 The Company's use of 14 trucks per hour is based on a daily average of 83 truck deliveries, divided by 11.5 hours, the delivery-day schedule, doubled to account for round trips (RR-DPU-19; Tr. 10, at 1601).

43 The traffic data used in the truck noise analysis represent traffic counts for the average afternoon peak hour during the week of March 14-21, 2006 (RR-DPU-19).

maximum sound level (" L_{max}")[44] of 76 dBA at 50 feet and 82 dBA at 25 feet from the roadway, which represents locations of residences, depending on the baseline monitoring location (Exhs. DPU-110(S); DPU-110-2; Tr. 4, at 633). While acknowledging that a variation in the number of trucks would affect hourly noise levels, the Company asserted, without any analysis, that a 50 percent greater volume of truck traffic in one hour would result in an increase of only one decibel or less of project-related truck noise, and a 100 percent greater volume would result in a one to two decibel increase (Tr. 10, at 1601-1602).

The Company explained that it analyzed predicted sound levels at three Main Street residences to compare with the Federal Highway Administration ("FHWA") Noise Abatement Criteria (Tr. 4, at 633). The Company noted that although the FHWA criteria are used formally only when a federal highway project involving new construction or widening is involved, they provide a useful guideline to judge the effects of increased traffic as they provide an objective definition of traffic noise impacts (Exh. DPU-110-S; Tr. 4, at 633). Under the FHWA criteria, a traffic noise impact occurs when the predicted future traffic sound levels for the hour with the highest local traffic exceed 67 dBA L_{eq} for residential areas, or when future sound levels increase by 15 dBA or more (Exhs. DPU-110-S; DPU-110-1; Tr. 4, at 637). Using these criteria, the Company asserted that there would be no noise impact from truck traffic based on its analyses of the highest L_{eq} of 57 dBA (Exhs. DPU-110-S; DPU-110-1; DPU-110-2).

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[44] L_{max} sound level is the maximum instantaneous sound corresponding to a sampling interval of 1/8 second (Exh. DPU-110).

The Company asserted that it has agreed to numerous conditions to limit traffic noise, such as (1) limiting the number of trucks traveling to and from the facility; (2) prohibiting deliveries before 6:00 a.m. and after 5:30 p.m. and on weekends and holidays; (3) prohibiting idling outside the facility and limiting on-site idling to five minutes; (4) limiting truck speed to 25 mph on Main Street; (5) limiting the use of engine brakes on Main Street to the extent possible; and (6) requiring all delivery trucks to be properly licenced and in conformance with state and federal noise and pollution control requirements (Company Brief at 54, citing Exh. RB-15, Directives 3-7). The Company further stated that exhaust mufflers would be used and maintained in good working order (Exh. DTE-6-1, at 13-19).

With regard to construction noise, the Company asserted that project construction would not create a noise nuisance in any residential location since construction sound levels would be lower than existing daytime sound levels at the measured residential locations (Exh. DPU-51; RR-DPU-16, at 5).

Special Permit Condition 8 allowed construction as follows:

> "Hours of operation during construction are from 7:00 a.m. to 5:00 p.m., Monday through Friday. No construction on the above cited holidays with the possibility of additional hours allowed if critical construction needs arise subject to the approval of at least two members of the Russell and three members of the Planning Board

(Exh. RB-1(1))

The Company stated that the construction period for the facility would be approximately two years, during which "regular construction activities" would occur between the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday (Exhs. DPU-22; DPU-49;

RB-15).[45] However, the Company stated that it intends to conduct quieter construction activities, such as indoor and shielded outdoor activities at any time (Exhs. RB-1(1); RB-15). In addition, the Company stated that: (1) after nine months of construction, weekend construction would begin, with either two eight-hour shifts or one twelve-hour shift per weekend day; (2) during the last six to eight months of construction, overnight construction would occur from 5:00 p.m. to 7:00 a.m.;[46] and (3) during the last four months of construction, plant testing would be conducted seven days a week, 24 hours a day, and construction hours would occur as needed (Exh. DPU-22).[47]

The Company argued that the extra hours it has proposed are necessary to complete construction within two years and are typical for construction projects of this type (Exh. DPU-77). The Company pointed out that the contractor would be responsible for ensuring that noisier construction activities occur during daytime hours and that quieter activities occur during nights, weekends, and holidays (Exh. DPU-49). The Company stated

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45 The Company defined "regular construction" as (1) the type of construction during daytime hours that is standard in the power industry for construction of projects like the Russell Biomass plant; and (2) construction that includes the type of activities necessary to clear the site, excavate, do foundation work, erect buildings, install equipment, and conduct finishing and testing (Exh. DPU-76).

46 The overnight shift would consist of 50-100 workers divided into two shifts, with approximately 2/3 of the workers on the first shift from 5:00 p.m. to midnight, and the remaining workers on the second shift from midnight to 7:00 a.m. (Exhs. DPU-50; DPU-80).

47 See Attachment A for a comparison of Special Permit Condition 8 and proposed Company Directive 8.

that it would, if required, develop a complaint response system for construction noise complaints through a clearinghouse or hot-line (Exh. DPU-78).

b. Intervenor Position

The intervenors criticized the Company's reliance on computer modeling to project noise impacts, as opposed to using sound simulations from existing biomass facilities (Joint Intervenor Brief at 5-6). The Planning Board noted that the Company proposes to alter the terms of Special Permit Condition 8, which concerns limits to hours of construction, as well as other conditions, to diminish the protections provided by the Special Permit to the town residents (Exh. UNG-AT-1). The Town of Russell stated that Russell Biomass has significantly expanded the original scope of Special Permit Condition 8 regarding hours of construction, specifically with regard to the span of time that noise would emanate from the construction area (Exh. ZBA-RM-1). The Town indicated that the substance of Special Permit Condition 8 should be adhered to, and that it is in the best interest of the town and its residents that construction noise be kept to an absolute minimum (id.).

c. Analysis and Findings

With regard to the incremental noise impacts of the operation of the proposed facility, ambient levels are relatively high due to the proximity of the Westfield River and the hydroelectric facility. The noise impacts from the proposed facility at the nearest sensitive receptors would range from one dBA to four dBA. The Company also analyzed daytime noise increases by incorporating noise from backup beepers and truck loading and unloading, and the daytime noise levels were projected to increase by approximately four dBA. Based on the

Company's analysis, the Department concludes that operation of the proposed facility would not create an undue noise impact.

The increase in noise from fuel-delivery truck traffic approaching and departing in the project area also was modeled, using data on existing traffic conditions from March 2006 and May 2005. The Department notes that the parameters and inputs used to measure noise from truck deliveries are more difficult to quantity than for stationary sources, and established criteria and modeling protocols that would apply to this particular situation are limited. The Company's analysis showed the one hour L_{eq} noise from traffic is approximately 49.5 to 51 dBA without the project and 55 to 57 dBA with the project (an increase of six dBA). The modeled L_{max} from a passing tractor-trailer truck is 76 dBA at 50 feet from the roadway, which is 25 to 26.5 dBA louder than the modeled pre-project L_{eq} noise level from traffic at 50 feet; at 25 feet from the roadway the L_{max} is 82 dBA, which is 31 to 32.5 dBA louder than the modeled pre-project L_{eq} noise level. In addition, since the 25-foot and 50-foot measurements represent noise levels at Main Street residences; noise levels from passing fuel delivery trucks would be even louder on the sidewalk and along the street itself, affecting other drivers, bicylists, and pedestrians to an even greater degree.

The Company asserted that there would be no noise impact from the truck traffic based on analyses using the FHWA Noise Abatement criteria, which are used to evaluate and mitigate noise from highway projects under FHWA auspices. The criteria provide that residential sound levels be below 67 dBA L_{eq}, and L_{eq} increases be below 15 dBA. The modeled maximum noise of 57 dBA and maximum increase of 6 dBA meet these criteria.

The Department notes that the FHWA criteria are applicable to the hour with the highest local traffic. However, the Company did not apply the criteria based on the hour with the highest volume of traffic, but rather an average hour. The Company further assumed 14 trucks per hour, which is based on the 160 average daily truck trip use, which does not account for times when there would be 21 or more trucks per hour, such as days on which the 240 maximum daily truck trips occur, or when multiple trucks arrive together in the morning hours.

Further, we note that the FHWA criteria are intended for use in developing and implementing roadway improvements that must be accommodated based on existing conditions and trends. The FHWA context differs from the circumstances here, wherein a zoning exemption is sought to allow a specific proposed use of land that would generate added traffic, traffic that would not exist if the project were not built. Further, near this proposed use, the extent of added traffic impact is significant locally, consisting entirely of large vehicles passing and representing a several-fold increase in the volume of such vehicles. The FHWA criteria is based on average noise over hourly periods, and does not directly evaluate the peak condition of repeated, short-term impacts of passing truck traffic. Thus, it is inappropriate to use the FHWA criteria in this case.

We recognize other noise evaluation methods incorporating different noise measures than those underlying FHWA's criteria are often used in site-based project review. These include, for example: (1) MassDEP's use of a ten dBA limit for the margin of community L_{90} noise with a project, over pre-existing background L_{90} noise (i.e. L_{90} noise without the

project); and (2) EPA's use of a 55-dBA guideline for maximum 24-hour "day-night" noise in residential areas.[48] However, like the FHWA criteria, these methods incorporate noise indicators that are a measure of average or quietest baseline noise over an hourly or 24-hour period, not direct measures of the repeated, short-term impacts of passing truck traffic. Given that Main Street currently is not a heavily traveled highway corridor with sustained traffic noise, it is critical to evaluate proposed noise changes there based directly on the instantaneous maximum noise levels, not representative averages.

The Department therefore does not agree with the Company that its analysis based on FWHA criteria demonstrates the project would have no adverse noise impact for purposes of zoning exemption review. We note that modeled L_{max} from passing trucks on Main Street, 76 to 82 dBA at residences and more at street and sidewalk locations, is very high. This impact is compounded by the proposed truck trip frequency averaging 14 per hour and ranging to 21 per hour, or more. Based on the sound level of passing trucks, and the possible peak as well as projected average hourly trip frequency, the Department concludes that the project's fuel delivery truck traffic would create disturbing traffic noise on Main Street on a frequent, or at times near-continuous, basis. Overall, the Department considers project truck traffic noise to be a significant adverse impact on the local interest.

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[48] 24-hour day-night noise is a measure of average 24-hour noise, based on averaging actual time varying noise for the hours 7:00 a.m. to 10:00 p.m., and actual time varying noise plus a constant ten dBA adjustment factor for the hours of 10:00 p.m. to 7:00 a.m. The day-night measure of noise corresponds generally to L_{eq} noise averaged over the same 24 hours, albeit marginally higher based on the adjustment factor for certain hours of that period.

Special Permit Condition 8 limited construction to 7:00 a.m. to 5:00 p.m. Monday through Friday, unless additional hours were requested by the Company and expressly allowed in advance by the Town. The Company's proposed Directive 8, however, would (1) allow construction inside buildings and shielded outdoor activities any day at any time; (2) include weekend work with either two eight-hour shifts or one twelve-hour shift over the last 15 months of construction; and (3) include an overnight construction shift from 5:00 p.m. to 7:00 a.m. during last six to eight months of construction -- one third of the total two-year construction period. The Company's intended construction schedule thus would differ substantially from the specified hours and intensity of construction allowed under the Special Permit. The Department concludes that these changes to Special Permit Condition 8 would be a significant adverse impact on the local interest.

3. Safety Impacts

a. Company Position

The Company stated that 19 percent aqueous ammonia would be used as a reagent in the proposed facility's selective catalytic reduction ("SCR") system to control NOx emissions (Exh. DPU-108, at 1). The Company stated that the ammonia would be stored in an above-ground 15,000-gallon single-walled steel tank at the southern end of the proposed site (Exhs. DPU-108(1); DPU-3(S)(1) at 31). The Company indicated that the ammonia tank would be surrounded by a 110-percent-capacity concrete or impervious steel-walled dike, 18 feet in diameter and nine feet high (Exhs. DPU-108; DPU-109). The Company explained that the surface of the dike would be covered with a floating layer of plastic baffles that would

reduce the liquid surface area by 90 percent, thus in the event of a spill the potential ammonia vaporization rate would be reduced (Exhs. DPU-108, at 1-2; DPU-109(S)).

The Company modeled the results of a worst-case ammonia spill. With respect to potential off-site exposure, the Company calculated that a worst-case spill would result in a maximum ammonia concentration, after one hour, of 365 parts per million ("ppm") at the site's west property line; 194 ppm at the east and south property lines; and 19.7 ppm at the north property line (Exh. DPU-109 (S)). Maximum exposure levels at the nearest residence, on Grove Street, would be 26 ppm. (id.). The Company's witness stated that, in terms of adverse human health effects, a safe goal for a worst-case ammonia spill is 150 ppm (Tr. 5, at 578-579). With regard to on-site exposure, the Company stated that most employees would be in the administration building, where outdoor exposure concentrations would be 194 ppm and indoor levels would be 43 ppm (Exhs. DPU-109(S) at 4; RB-7). The Company did not address the potential exposure of numerous delivery personnel while on-site; however, the most recent facility site plan shows that the ammonia tank would be located in the immediate vicinity of one of the facility's wood fuel unloading stations and that all of the fuel unloading areas as well as the site's internal access road are located well inside the site's property lines, where exposure levels would be higher than at the respective property lines (Exh. RB-7; Tr. 3, at 395, 438-439). The Company stated that it has not yet prepared an emergency response plan or written safety or operation procedures for the aqueous ammonia system but would do so (Exh. DPU-108, at 2).

The Company's witness stated that the Russell Fire Department would not need to respond to fires at the facility, because the facility will have an internal fire brigade composed of Company employees (Exh. RPB-14, at 1). He stated that the facility would incorporate fire protection and suppression systems in accordance with National Fire Protection Association ("NFPA") 850, NFPA 230, and NFPA-1 (id.). He stated that the original facility site plan provided for a 5.1-acre outdoor woodchip storage area with wood chips in a single-pile approximately 45 feet in height (Exh. MIE-14; Tr. 3, at 408-411). He stated that the Company subsequently changed the configuration of the fuel storage area from a single pile to two piles separated by an access road, to comply with the NFPA-1 fire protection requirements for woodchip fuel storage (Tr. 3, at 408-411). He stated that NFPA-1 allows wood storage piles up to 60 feet in height (id; Exh. MIE-14(S)). He stated that the Company has had no conversations to date with the Town of Russell Fire Chief, but that the Fire Chief would be invited to comment on the proposed design of the plant's firefighting systems once facility permits were obtained and final engineering and design were underway (Exh. RPB-14; Tr. 3, at 418). He stated that an outside fire department wishing to assist in a fire emergency at the plant would need to be fully trained in use of the Company's firefighting systems and equipment (Tr. 3, at 419-420). He stated that he would recommend that the Company train and work with the Russell Fire Department (id. at 423).

b. Intervenor Position

Mr. Morrissey, the Town of Russell Fire Chief, stated that the Company's position that it would handle its fires internally without assistance from the Town's Fire Department is inconsistent with state law (Tr. 11, at 1883). Chief Morrissey stated that neither NFPA 850, NFPA 600, nor NFPA-1 has been adopted or recognized in Massachusetts and thus would not be enforceable by the Town (id. at 1876-1878). He stated that the provisions governing outdoor woodchip storage in Massachusetts are in NFPA 230, which has been adopted by Massachusetts, and in 527 CMR 10.03 (5) which limits wood piles to 20 feet in height, not the 60 feet allowed by NFPA-1 or the 45 feet proposed by the Company (id. at 1880).

Chief Morrissey testified that the Russell Fire Department presently does not have the necessary high-rise training or equipment to respond to fires at heights that could occur on the facility site (Tr. 11, at 1885-1886). He testified that the Fire Department currently has 35-foot ladder-trucks; however, the facility would have a number of structures that significantly exceed 35 feet in height, including the turbine building (60 feet), the boiler house (133 feet), the bag house (75 feet) the SCR (90 feet) and the facility's exhaust stack (300 feet). He stated that if the project goes forward, he would ask that the Company be required to provide facility-specific training for the Fire Department, as the other industrial facilities in Russell have done (id. at 1877). He reported that the State Fire Marshal has recommended that a fire protection study for the facility be performed by an independent consultant (id. at 1888).

c. Analysis and Findings

The Company's calculations show that a worst-case spill of aqueous ammonia on the proposed project site would result in off-site exposure levels that would exceed industry safety criteria on three sides of the site. While the parcels adjoining the site are presently undeveloped, there is no indication that members of the public cannot access these parcels, nor is there any indication that the parcels will not be developed in the future. With respect to potential on-site exposure, an average of 75-80 truck drivers would be on-site daily, and in the event of an ammonia spill, could be subject to even higher exposure levels than those modeled at the property boundaries, depending on their location on-site at the time of the spill. The Department notes that the projected ammonia exposure levels are relatively high, and that the Company has proposed no mitigation to reduce them, such as a double-walled tank or a containment structure.[49] Without the implementation of additional mitigation measures, a

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[49] In contrast, in its review of proposed generating facilities the Energy Facilities Siting Board consistently has required, or the project proponent has offered, the use of double-walled tanks, a containment structure, or other comparable safeguards, where projected off-site exposure levels have been substantially lower than the projected levels here. See, e.g., Braintree Electric Light Department, EFSB 07-1/D.T.E./D.P.U. 07-5, at 51 (2008) (EPRG-2 level of 150 ppm not exceeded beyond site boundaries except for a small inaccessible area, but containment structure required by the Siting Board because members of the public would regularly be on-site); Southern Energy Kendall, LLC, 11 DOMSB 255, at 352-353 (2000) (double-walled tank or containment structure required where ammonia concentration at nearby office building would be 100 ppm, and where public recreational use abutted facility site); IDC Bellingham, 9 DOMSB 225, at 317 (1999) (ammonia concentration would be 200 ppm 317 feet from tank; containment building to be used even though nearest property line was 1500 feet from tank); ANP Blackstone Energy Company, 8 DOMSB 1, at 179 (1999) (highest concentration at fenceline was 69 ppm; containment building to be used); ANP Bellingham Energy Company, 7 DOMSB 39, at 151 (1998) (highest concentration at fenceline was 42 ppm; containment structure to be used).

worst-case ammonia spill at the Russell Biomass facility could result in human exposure to ammonia levels, both on-site and off-site, in excess of industry safety standards.

The Department notes that the Company has not yet consulted with the Russell Fire Department with respect to applicable fire safety requirements, and that the Company has stated it will follow certain NFPA guidelines which the Russell Fire Chief has identified as inapplicable and unenforceable in Massachusetts. The Fire Chief has testified that the Fire Department presently does not have the necessary high-rise training or equipment to respond to fires at heights that could occur at the facility.

The Company to date may not be fully informed on fire protection requirements applicable to the proposed facility. If the proposed facility ultimately were to be built, the Department expects that consultations between the Company and the Fire Chief would occur; that the Company would arrange for the conduct of a fire protection study as recommended by the State Fire Marshal; and that the biomass facility ultimately would be designed and operated in conformance with applicable federal and state fire protection requirements.

4. Visual Impacts

a. Company Position

The Company asserted that Russell has had a long history of industrial and manufacturing operations along the Westfield River associated with the paper mill industry, and the proposed plant site itself has been used for industrial purposes for over a century (Exhs. RB-1, at 52; RB-4, at 2).

The height of buildings and structures for the proposed facility would include a 300-foot-tall stack, a 133-foot-high boiler house, a 90-foot SCR (with the BFB design) or an 85-foot precipator (with the stoker design) and a 75-foot bag house (with BFB design) and a 60-foot turbine building (Exh. DPU-8). The applicable height limitation stated in Section 3.2.1(e) of the by-laws is 35-feet (Exhs. RB-6; DPU-8; DPU-61; DPU-62).

In May 2005, The Company conducted a one-time analysis of visual impacts by floating two balloons up to the 300-foot height of the stack and photographing the results from 26 locations (Exhs. RB-1, at 52; RB-4, at 4, and App. D).[50] The Company asserted that the balloons were not visible from most of the residential neighborhoods nor from a majority of the homes along Main Street (Exhs. RB-1, at 52; RB-4, App. D).[51] The Company acknowledged that the stack would be visible from some areas in the Russell village area, as well as from some recreational locations (Tr. 9, at 1353-1355). With regard to the lighting of the stacks, the Company stated that it has not yet discussed the project with the Federal Aviation Administration; however, the Company provided a list of possible lighting requirements and stated it would consider the impacts of facility lighting on the community (Exh. DPU-57). The Company stated that the project would be situated at the southern end of

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[50] The photographs are marked with a small circle indicating the location of the balloon, if visible, on the horizon (Exh. RB-4, App. D). A representation of the stack itself is not superimposed on the photograph (id.).

[51] Of the 26 locations, approximately six were from points along Main Street, three were from neighborhoods accessed from Main Street, seven were from other residential areas, three were from Route 20, four were from recreational/school sites, three were from businesses or public works sites, and two were from the top of Shatterack Mountain (Exh. RB-4, App. D).

the site to minimize visual impacts to residents, and the building and stack would be painted colors to blend into the surrounding area (Exhs. SKM-12; DPU-97).

b. Intervenor Position

The intervenors argued that the Company failed to provide a meaningful representation of the visual impact of the proposed plant (Joint Intervenor Brief at 8). Specifically, the intervenors pointed out that the Company did not present any artist's rendering or other visual representation of the plant buildings against Shatterack Mountain and the Westfield River Valley (id.). The intervenors noted that the balloon test did not represent limited foliage conditions (Tr. 8, at 1078). Further, the joint intervenors asserted that due to problems with elevating the balloons, the balloon test was only in place for two hours; thus, most residents were unable to view it (Joint Intervenor Brief at 7).

c. Analysis and Findings

In terms of visual impacts, the facility's 300-foot stack would be visible from the intersection of Frog Hollow Road and Main Street, and from the intersection of River Road and Main Street, located in the village area. The stack also would be visible from the Main Street Bridge, Route 20 and Blandford Stage Road, Route 20 and the golf course, Route 20 east of Westfield Road, the wastewater treatment plant, the Russell Cemetery, Grove Street, and the Hull office building. The stack would extend above the background horizon in virtually all of the views.

We note that the photographs of the balloon test afford limited evidence of the potential visual impacts of the proposed project. The Company provided no visual representation of

the overall dimensional outline of the stack, and how the stack would appear against the horizon or against Shatterack Mountain. In addition, there is no representation regarding impacts of other facility buildings and structures, a number of which would be between 75-feet and 133-feet high. Finally, the photos were taken in May, with leaf-on conditions, therefore there are no representations of the visual impacts with leaf-off conditions.

The Department concludes that the visibility of the proposed project would represent a modest adverse impact on the local interest.

5. Air Impacts

a. Company Position

The Company stated that the proposed project would burn only "clean wood fuel" in conformance with the MassDEP definition of "wood fuel" at 310 CMR 7.00 (Exhs. DTE-2; RB-1, at 21).[52] The Company proposes to use up to seven clean wood fuel sources: wood chips, wood by-product, ground pallets, wood stove pellets, sawmill bark and sawdust, ground stumps, and clean municipal recycling facility wood (Exhs. DPU-103; DTE-6-1, at 12-6). The Company explained that approximately 90 percent of the wood fuel would be from the wood residue market, with approximately ten percent from pallets (Exhs. DPU-102; DTE-6-1, at 12-9). The Company stated that it would stipulate in its wood supply contracts that no treated or

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[52] Wood fuel, as defined by the MassDEP regulations is "all wood intended to be used as a fuel included but not to limited trees, cord wood, logs, lumber, saw dust, and wood from: manufacturing processes (but[t] offs, shavings, turnings, sander dust, etc.), wood pellets, slabs, bark, chips, waste pallets, boxes, etc. This definition does not include materials which are chemically treated with any preservative, paint, or oil" (Exhs. DTE-2; DTE-6-1, at 12-5 to 12-6).

hazardous wood is to be supplied (Exh. RPB-27). The Company stated that it has entered into an agreement with the Town of Russell not to burn construction and demolition wood, specifically defined as "material taken from construction and demolition operations that consist mostly of wood and wood products, but can contain other non-wood material" (Exh. DPU-101).

Two boiler designs are under consideration for the proposed facility, a BFB design and a stoker design (Exh. DTE-6-1, at 13-5). The Company stated that it does not have a preference for either design and has requested that MassDEP issue a comprehensive air plan approval based on the use of either design (Exhs. DTE-6-1, at 13-5; DPU-31).[53] The Company indicated that air emissions for the two boiler types are identical, with the exception of NOx, which is lower for the stoker option (Exh. DPU-32). The emission rates for each criteria pollutant would be achieved by using best available control technology ("BACT"), with the exception of NOx emissions, which would be subject to lowest achievable emission rate ("LAER") requirements (Exh. RB-1, at 48; RB-5, at 1; DTE-1-1, at 1). The Company's ambient air quality impact analyses demonstrate that the project would produce air emissions concentrations that are below National Ambient Air Quality Standards ("NAAQS") for each

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[53] The facility is required by MassDEP to submit a Major Comprehensive Plan Approval ("CPA") Application (Exh. DTE-6-1, at 13-4 to 13-5). The facility is "major" because its potential emissions would be above the applicable major source thresholds for NOx, CO, and Hazardous Air Pollutants ("HAPs") (id.). The CPA Application was submitted to MassDEP in September 2005, and a supplement was filed April 2007 (Exh. DPU-3, Table 2-2).

criteria pollutant (Exhs. DTE-6-1, at 13-5, Table 13-9; DTE-1-1, at Tables 5A and 5B).[54] The proposed facility would not exceed the Threshold Effects Exposure Limits ("TELs") or the Allowable Ambient Limits ("AALs") established by MassDEP for air toxics (Exh. DTE-6-1, at 13-5).

With regard to emissions modeling, the Company explained that it could not use Westfield Airport data, as more than 20 percent of the data was missing from records; therefore, the Company stated, MassDEP directed the Company to use the five-year meteorological data base from the Westover Airforce Base, located in Chicopee, as the most representative data available for modeling (Exh. DTE-1-1, Section 9, at 1; Tr. 5, at 546). The Company further asserted that background pollution concentrations are directly related to the intensity of development and the density of motor vehicle traffic; thus, the use of air monitoring data from Chicopee and Springfield overestimate background levels for Russell (Exh. DPU-36).

The Company asserted that operation of the proposed facility's cooling tower would not cause icing or fogging on nearby roadways or the Main Street bridge (Exh. DPU-37). The Company stated that it conducted visual plume modeling and that the results showed visible plumes from the cooling tower would occur infrequently, from .07 percent to three percent of

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[54] The criteria pollutants are NOx, SO_2, $PM_{2.5}/PM_{10}$, CO and lead (Exh. DTE-6-1, at 13-5 to 13-6). Annually, the proposed facility would emit approximately 244 tpy of NOx for the BFB technology and 212 tpy for the stoker technology, 83 tpy of SO_2, 39 tpy of $PM_{2.5}/PM_{10}$, and 243.1 tpy of CO (id. at 13-4; Exh. DPU-32).

the time, in the direction of the Lincoln Street, Grove Street, and River Street neighborhoods (Exh. DTE-1-1, Att. 10, at 3, 4).

The Company modeled air quality impacts of the diesel truck traffic that would be associated with operation of the project, using EPA emissions and dispersion models (Exhs. RB-21; DTE-6-1, App. K).[55] The Company stated it modeled the levels of diesel particulate matter ("DPM") from 83 trucks per day traveling to and from the project site along Main Street, and considered all operating conditions including starting, stopping, acceleration and deceleration, at an average truck speed of 25 mph (Exh. DTE-6-1, App. K). The Company used the EPA MOBILE6.2 model for Main Street, for a total road length of 2,640 feet (id.). The Company explained that EPA uses DPM as a surrogate for total diesel emissions in health assessment studies, and that EPA has suggested a concentration of five micrograms per cubic meter on an annual basis as the upper limit to protect the most sensitive persons in the population from adverse effects (id.). The study concluded that maximum levels of DPM on Main Street would be only one percent of this limit (Exhs. RB-21; DTE-6-1, App.K; Tr. 5, at 558-559).

The Company indicated that it also modeled DPM levels for portions of Route 20, and that the results were statistically the same as the Main Street results (RR-UNG-8). The Company asserted that the EPA developed the MOBILE6.2 model for all applications, that it is

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[55] The Company stated that the analysis accounted for the use of ultra-low sulfur diesel fuel but did not take into account the use of new or remanufactured truck engines which will be required in future years to meet stricter federal emission standards (Exh. DTE-6-1, App. K).

used often by air-quality consultants to analyze emissions for individual roadway links, and that its use is not confined to roadways at least 7.5 miles in length as asserted by the intervenors (Tr. 10, at 1547-1549). The Company indicated that it performed another more recent analysis using the AERMOD model and that the modeled DPM levels were lower than those predicted with the MOBILE6.2 model (id.). The Company explained that since the original modeling in 2006, EPA has changed its recommended air dispersion model to the AERMOD model (RR-UNG-8).

The Company asserted that the EPA standards for analyzing DPM take into account the start and stops of trucks, and that trucks starting up from a stopped position have almost no excessive emission problems, as opposed to cold start-ups (Tr. 10, at 1480). The Company further asserted that the predicted emission rates from trucks do not change if the vehicle speed is lower than 25 mph (Exh. DPU-99).

The Company stated that under Massachusetts state law, five minutes is the maximum allowable vehicle idling time (Exh. CHI-13; Company Brief at 49). The Company points to its proposed Directives, as well as Special Permit conditions that limit truck idling to five minutes inside the facility and prohibit truck idling or parking outside of the facility or on any town street (Exhs. RB-15; RB-1(1); CHI-13). Specifically, it cited proposed Directive 4 and Special Permit Condition 4, and asserted that facility management would enforce these restrictions through a three-tier approach of warning, fine, and termination (Exhs. RB-15; RB-1(1); Tr. 10, at 1479). The Company's witness testified that even if trucks were to idle longer than five

minutes, the increase in emissions would still be a very low percentage of the EPA thresholds for no adverse health effect (Tr. 9, at 1229).

b. Intervenor Position

The joint intervenors pointed out that Specific Finding 3 in the Special Permit provides that:

> The Applicant will not be allowed to burn anything other than Virgin Wood. By eliminating the burning of construction and demolition materials by the Applicant, the Zoning and Planning Boards have addressed an important and major concern (potential hazardous air pollutants) expressed by most of the opponents to the project.

(Exh. RB-1, App. 1, at 3 (emphasis in original). The Special Permit defines "virgin wood" as "pre-consumer wood taken from its point of growth only" (id.). As noted above, the Company intends to burn "wood fuel" as defined by MassDEP. This definition is broader than the definition of "virgin wood,"and includes many post-consumer wood sources, including "wood from manufacturing processes," waste pallets, and boxes (id.).

The joint intervenors took issue with the use of weather data for dispersion modeling taken from Westover Airforce Base in Chicopee rather than from the vicinity of the proposed project (Joint Intervenor Brief at 9). The joint intervenors contend that from a topographic and meteorological standpoint, data from these two locations are not valid substitutes for Russell weather conditions (id.). Mr. Morganelli, a meteorologist, testified that the weather in the valley would assist in maximizing the potential hazards and non-dispersion of NOx and other emissions (Exh. UNG-NJM-1). He asserted that the type of weather inversion that occurs in the valley has not been fully represented in the data used in the air modeling (id.).

Mr. Morganelli noted that Russell has more snowfall than Springfield, Albany or Chicopee, which he stated would affect fogging and icing (id.). Another of the intervenors' witnesses asserted that ground-level fogging conditions from the proposed cooling tower would be certain to occur (Tr. 9, at 1265). He stated that the responsible course would be to require dry-cooling or parallel cooling (id. at 1269).

The intervenors argued that the model used by the Company to analyze diesel truck emissions, EPA MOBILE6.2, is not an appropriate method for Main Street in Russell (id. at 1285, 1293-1318). Specifically, the intervenors' witness explained that MOBILE6.2 is meant for multilane highways 7.5 miles and greater, and that the federal government has pointed out deficiencies that compromise the capability of MOBILE6.2 to estimate emissions (id. at 1297). The intervenors cited to literature from the U.S. Department of Transportation, Federal Highway Administration which states that "while MOBILE6.2 is used to predict emissions at a regional level, it has limited applicability at the project level, and it is a trip-based model" (Tr. 9, at 1305; Exh. UNG-4, at 2).[56] Further, the intervenors noted that the model does not take into account accelerating onto Route 20 and uses a constant level of speed (Tr. 9, at 1302, 1312).

c. Analysis and Findings

The Special Permit allows the burning of "virgin wood" exclusively, which is defined as "pre-consumer wood taken from its point of growth only"(id.). The Company intends to

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[56] The document as cited is APPENDIX C- Prototype Language for Compliance with 40 C.F.R. § 1502.22, issued by the Federal Highway Administration (Exh. UNG-4).

burn "wood fuel" as defined by MassDEP. The definition of wood fuel is significantly broader than the definition of "virgin wood", and includes many post-consumer wood sources, including waste pallets. Thus, the project as currently proposed would burn wood from sources specifically prohibited by the Special Permit.

With respect to air quality, the proposed facility would emit NOx, SO_2, $PM_{2.5}/PM_{10}$, CO and lead. The proposed facility requires a Major Comprehensive Air Plan Approval from MassDEP because potential emissions for NOx, CO and HAPs are above the applicable major source thresholds. MassDEP approved the Company's air monitoring protocol and directed the Company to use baseline meteorological data from Chicopee, rather than the Westfield airport, due to gaps in the Westfield Airport data base. Both the BFB and stoker designs would meet NAAQS, and the emissions control technology represents BACT and LAER.[57]

With respect to diesel truck emissions, the modeling as conducted by the Company shows statistically a very small impact in terms of human health, complying with the EPA no-effect standard. However, as discussed in Section V.B.1, above, the number of tractor-trailer trucks on a daily basis could be greater than what was modeled, and the number of trucks on an hourly basis could be greater due to the potential stacking of deliveries in the morning and afternoon hours. Further, there could be periods of idling on Main Street over what was

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[57] Massachusetts has recently adopted a "MEPA Greenhouse Gas Emissions Policy and Protocol" ("GHG Policy"). Pursuant to the GHG Policy, "damage to the environment" under MEPA now includes the emission of greenhouse gases. If the Environmental Notification Form for the proposed project were filed today, the Company would be required to quantify and provide mitigation for the project's GHG emissions, including the emissions from the fuel-delivery trucks.

modeled. Consequently, the Department expects that concentrations of pollutants could periodically be in excess of the Company's estimated results, given the potential for greater emissions under conditions of truck numbers, frequency, and idling times than configured in the model; however, the Department can not confirm this result based on evidence in this docket. Therefore, the Department cannot make a definitive conclusion as to the extent and significance of diesel truck emissions on the local interest.

6. Water Resources and Wetlands Impacts

a. Company Position

The proposed project would use water-cooled technology, with water from the Westfield River (Exhs. RB-1, at 3-4; DPU-3, at 8-2). The estimated amount of water to be withdrawn is based on the plant operating 24-hours a day, 365 days per year; the average withdrawal would be 662,000 gallons per day ("gpd") and the maximum daily withdrawal would be 885,000 gpd (1.37 cubic feet per second ("cfs")) (Exhs. RB-1, at 57-58; DPU-3, at 8-2). Under the Water Management Act ("WMA"), any new water withdrawal in excess of an annual average of 100,000 gpd requires a water withdrawal permit from MassDEP (Exh. DPU-3, at 8-3).[58]

The Company asserted that the proposed water withdrawal would not alter the Westfield River's flow rate in any way that would adversely affect navigation, fishing or other recreation, the river's biology, or operation of downstream wastewater treatment plants

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[58] Westfield Paper Lands, LLC and Indian River Power Supply, LLC have entered into an easement agreement granting the Company the right to withdraw the annual average of 662,000 gpd and the maximum daily volume of 885,000 gpd (Exh. DPU-3, at 8-3).

(Exh. DPU-96; Company Brief at 39).[59] Using the USGS Streamstats program[60] the existing flow rates were estimated based on (1) stream flow exceeded 50 percent of the time (50 percent duration); (2) lowest mean flow for seven consecutive days to be expected once every ten years (7Q10 flow); and (3) median flow for the month of August (August median) (Exh. DPU-94). Compared to these stream flow indicators, the proposed project's maximum water withdrawal rate of 1.37 cfs is approximately 0.39 percent of the 50 percent duration flow, 4.2 percent of the 7Q10 flow, and 1.3 percent of the August median flow (Exhs. DPU-94; DTE-6-1, Table 10-2). In addition, the Company noted that the proposed maximum withdrawal would be 7.7 percent of flow under the worst case scenario, using the estimated single lowest one-day flow of 17.8 cfs, which occurred in August 1970 (Exh. DPU-94). The Company asserted that MassDEP uses the 7Q10 and August median flow rates to determine low flow benchmarks, and that typically for regulatory review the single one-day event is not used (Exh. DPU-94; Tr. 6, at 704).

As of March 28, 2008, MassDEP had issued a Draft Water Management Act Permit and Draft Findings of Fact in Support of the Final Permit Decision ("Draft Permit") for public

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[59] The Westfield River has been designated by the National Marine Fisheries Service as Essential Fish Habitat for the Atlantic salmon (Exh. DPU-1, at 6-26). The Company indicated that the segment of the Westfield River adjacent to the proposed project is designated a Class B warm-water fishery, although this portion of the river also supports cold-water fish (Exh. DTE-6-1, at 9-8). The Company stated that the proposed discharge to the river would not raise the temperature above either the warm-water criteria or the cold-water criteria (Exh. DPU-95; Tr. 6, at 717).

[60] Streamstats is a web-based application for computing streamflow statistics, first developed and used in 2000 for Massachusetts streams (Exh. DPU-3, at 8-9).

review (Exh. DPU-4, at 21). The Draft Permit determined that the requested water withdrawal volumes would not have a significant or detrimental effect on the Westfield River streamflow (id.). The Draft Permit sets a series of restrictions, measuring, and reporting requirements to mitigate the potential impact of withdrawal during low flow periods (id. at 22). Specifically, if the 24-hour running average flow is less than 17.8 cfs, the Company must cease water withdrawal operations until the 24-hour running average rises above 17.8 cfs (id.).

The Company indicated that there are no wetlands or waterways on the project site, but that there are wetland buffer zones, bank, bordering land subject to flooding, and riverfront area (Exhs. DPU-3, at 7-4; DPU-1, at 8-1; Tr. 6, at 732).[61] Construction of the plant would be subject to an Order of Conditions from the Russell Conservation Commission (Exh. DPU-21; Tr. 6, at 731). The Company has received a determination from MassDEP that a license pursuant to G.L. c. 91 would not be required for construction of the facility (Tr. 6, at 730).

b. Intervenor Position

The Planning Board's witness opined that the lowest day flow of 17.8 cfs is not conservative enough because it does not reflect severe drought conditions (Exh. RPB-EM-1, at 7). Further, she stated that the analysis used does not present a realistic estimate of the potential impacts of the project water withdrawals on the Westfield River, as more analysis is needed or a sizeable safety factor needs to be applied to the lowest flow value (id.). She

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[61] Portions of the riverfront areas are exempt from wetlands protection requirements due to the historic designation of the existing mill complex (Exhs. DPU-1, at 8-8; DPU-3, at 7-5).

concluded that continuous monitoring of the water withdrawal should occur, along with an automatic shutdown of the plant if water withdrawals exceed a certain threshold (id.).

c. Analysis and Findings

The Company has elected to use water-cooling rather than air-cooling for the proposed facility. As a result, significant daily withdrawals of water from the Westfield River would occur when the plant is operating: an average of 662,000 gpd, and a maximum of 885,000 gpd. It is possible that these withdrawals could have some modest impacts on the river, particularly under severe drought conditions. MassDEP, the agency charged with implementation of the Commonwealth's Water Management Act, has issued a Draft Water Management Act Permit approving the proposed facility's cooling water withdrawals. The Department notes that the Draft Permit requires the proposed facility to cease operating if the 24-hour flow of the river falls below a specified minimum. Such a requirement helps address concerns regarding water withdrawals from the river under severe drought conditions.

C. Alternatives Considered

1. Company Position

The Company stated that it considered three sites for the proposed facility: the proposed Russell site, the Cortland Mill site in the town of Chester, and a site in the town of Huntington (Exh. RB-1, at 42). The Cortland Mill site is a 32-acre abandoned industrial site located on Bendix Drive in Chester (Exhs. UNG-21-3; RB-1, at 42). The Huntington site is a 60-acre site located along the west side of Route 20 in the towns of Huntington and Blandford, which was purchased by Hull Forestlands in November 1998 (Exhs. UNG-21; UNG-21-2;

Tr. 4, at 495).[62] The Huntington and Chester sites are approximately 6½ and 10½ miles away from the Russell site, respectively (Exh. UNG-21).

Russell Biomass asserted that wood-supply access was the primary consideration in selecting western Massachusetts as the geographic area of the Company's search for a facility site (Exh. DPU-92).[63] The Company stated that it then narrowed its search to the Berkshire hill-town region, which includes the towns of Russell, Chester and Huntington.[64] (Exh. DPU-30; Tr. 3, at 487). The Company noted the following benefits of the hill-town region: (1) the Westfield River watershed is one of most heavily wooded drainage basins in Massachusetts; (2) a good network of state roads exists in vicinity of Russell, Huntington, and Chester;[65] and (3) it would be beneficial to bring an agriculturally-based, industrial type of operation to the economically depressed hill-town region (id.).

The Company stated that characteristics of the Russell site favoring its use as the site for proposed facility included: (1) the site is large, with level ground, and is located in an industrial district; (2) the site has access to existing infrastructure such as a right-of-way

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62 See n.68, below.

63 The Company explained that due to the cost of delivery, it attempts to limit wood procurement to a 75-mile to 100-mile radius from a plant (Tr. 1, at 95-97, 117).

64 The hill-town area includes other towns as well. The Company defined the hill-town area as a region extending from the Vermont border to the Connecticut border in a strip of land that is west of the Connecticut River Valley almost to the New York border (Tr. 4, at 485).

65 The Company stated that it refined the area to the three towns because I-90 goes through the area with an exit in Westfield and an exit in Lee, and that Route 20, for the most part, parallels I-90 (Tr. 4, at 489).

("ROW") for a 115-kV line[66] and deeded rights to water withdrawal from the Westfield River; (3) the site is located within 75 to 100 miles of biomass suppliers; (4) no homes are located near the site and the site is separated from the Russell village area by the Westfield River; (5) the Westfield River bridge is relatively new and has the capacity to handle project traffic; and (6) the site benefits from the existing road network because the fuel delivery route to the site would be on state roads (e.g., Route 20 and the Mass Turnpike) from almost every direction, with the exception of the last half-mile on Main Street in Russell (Exh. KEN-13-S; Tr. 1, at 134, 151; Tr. 4, at 494).[67]

The Company asserted that neither of the two other sites had as many positive site characteristics as the Russell site (Exh. RB-1, at 42). The Company pointed out that the Chester site has inadequate useable acreage, is less than 200 feet from residences, and is located in the 100-year flood plain of the Westfield River (id.; Exh. UNG-21). The Company stated that the Huntington site is not industrially zoned and contains extensive wetlands (Exhs. RB-1, at 42; UNG-21). In addition, the Company acknowledged that the entire Huntington

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66 The Company stated that there would be different ROW clearing impacts associated with the northern and southern portions of the approximately five-mile transmission line corridor, and that the northern approximately three miles of the corridor would require vegetation clearing for the full 100-foot width (RR-DPU-27; Tr. 9, at 1341-1343). Overall, it is estimated that 43.6 to 46.1 acres would need to be permanently cleared to allow for the transmission corridor (id.).

67 The Company stated that it developed and applied fourteen criteria to the potential plant sites: (1) utility system compatibility; (2) utility transmission; (3) adequate water supply; (4) air quality; (5) noise; (6) zoning suitability; (7) site acreage/soils sustainabilty; (8) terrain suitability; (9) buffer zone; (10) traffic access; (11) rail option for receipt of fuel; (12) geographic economic benefits; (13) municipal compatibility; and (14) town officials' support (Exh. RB-1, at 41-42).

site was placed under a conservation easement in 2000, which would prohibit the construction of the biomass facility on this site (Tr. 4, at 495-496).[68]

With regard to the present Russell site, the Company also looked at alternative ways to deliver the wood fuel to the facility. Russell Biomass stated that, during preparation of its 2005 Special Permit application, it realized the need to evaluate alternative means of delivering fuel to the proposed site, because "Main Street in Russell is the only truck access to the site, and the biomass traffic would have a significant impact on Main Street residents" (Exh. DPU-EX-3, at 20). The Company thus considered three different access routes to the Russell site: (1) the proposed route from Route 20 to the site via Main Street; (2) construction of a new one-mile roadway around Turtle Bend Mountain to Frog Hollow Road, bypassing Main Street ("bypass route"); and (3) construction of a new bridge over the Westfield River off Route 20, south of Main Street (Exh. RB-1, at 44-45). The Company stated that MassDEP communicated that criteria for approving a new bridge could not be met, as the existing bridge operates at far below its maximum capacity and is adequately sized to support traffic that would be generated by the proposed facility (id. at 45; Exh. DPU-3, at 4-4). With respect to the bypass route, the Company asserted that it would be a town decision whether to proceed with the design and construction of a new road, and that option therefore is not within the Company's control (Exh. DTE-5). With respect to the use of Main Street to access the site,

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[68] William Hull, a principal in Russell Biomass LLC, is the owner of both the Huntington site and the proposed Russell site. Mr. Hull purchased the Huntington site in 1998-1999 and sold the conservation restriction in June 2000 (Tr. 4, at 496). Mr. Hull purchased the Russell site in 1999 (Exh. DTE-6-1, at 4-5).

the Company stated that Main Street has had truck traffic for decades, that the road was adequate to service the facility, and that the Company saw no reason not to use that route (Tr. 4, at 495).[69]

2. Intervenor Position

The joint intervenors asserted that the Company did not develop a set of site selection criteria and then proceed to seek out the best possible location for the proposed facility (Joint Intervenor Brief at 17). Rather, the joint intervenors asserted, the Company chose the Russell site and then developed criteria to support its decision to use that site (id. at 18). The joint intervenors noted that the Company did not provide any evidence that it attempted to find another site that matched, or at least nearly matched, the positive characteristics of the Russell site (id.). The joint intervenors opined that with the site decision already made, it became the Company's objective to move the project forward despite any significant shortcomings that the site might have (id.).

3. Analysis and Findings

The Department acknowledges that the Company's proposed site for the facility has a number of attributes favorable to the siting of an energy facility. Primary among these are: the re-use of an industrial brownfield site as opposed to the use of undeveloped land or open space; the presence of existing water supply infrastructure; and the separation provided by the

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[69] The Company also reviewed the option of transporting the wood fuel to the proposed facility by rail. The Company asserted that the use of rail would be impracticable for a number of reasons and would be cost-prohibitive, increasing the cost of producing electricity by 30 percent (Exhs. DPU-111; DPU-85; Tr. 1, at 114-115).

Westfield River between the site and the residences, schools, and civic areas of the Russell village. The Department also finds that the relatively close proximity of I-90 and Route 20 is beneficial, in light of the number, frequency, and size of the trucks that would be necessary to keep the facility supplied with fuel.

However, the Department believes that the proposed site has clear drawbacks as well. In particular, as discussed in detail in Section V.B.1, above, all of the traffic generated by the facility would be required to travel the length of Main Street in Russell to reach the site, with considerable adverse consequences for the town. As such, ease and safety of access by local residents to their homes and to municipal services, including emergency services, would be lessened; localized levels of noise and diesel emissions would be increased; and the existing character of Main Street, and the town, would be adversely affected. Further, although the Company identifies as a benefit of the Russell site the availability of an existing easement rights for a 115-kV transmission line, formerly used for a Western Massachusetts Electric Company ("WMECO") line, the ROW presently is undeveloped, and its use would involve the clearing of a significant amount of vegetation.

It is not clear that no reasonable alternative existed to the selection of the Russell site because: (1) the Company reviewed only two alternative sites; the Company itself acknowledged that both of these sites were identified early on in the site-screening process as unbuildable, yet the Company did not proceed to evaluate other sites; (2) the three sites that were considered are located within ten miles of each other; (3) the proposed site is already owned by one of the Company's principals, and previous development plans for that site were

unrealized; and (4) the Company did not assert, and there is no evidence in the record of, a scarcity of suitable biomass facility sites in New England or western Massachusetts.

The record shows that the Company recognized drawbacks to the use of Main Street and (1) considered alternative ways to reach the Russell site (a new bridge, a new road, and use of rail transport); and (2) offered to make certain physical changes to Main Street to mitigate traffic impacts. According to the Company, none of the route alternatives proved viable. The Department has found that the proposed Main Street improvements would not eliminate or significantly mitigate the impacts of the proposed increase in truck traffic. Evidence in the record shows that other biomass facilities in New England have been sited in locations that (1) either do not require fuel-delivery traffic to travel through residential neighborhoods or have implemented significant mitigation to reduce residential impacts (e.g., the required rail delivery of 75 percent of the fuel for the Burlington biomass facility) and (2) reduce the likelihood of fuel-truck parking and idling on municipal streets because they include a dedicated access road where trucks can queue while waiting to unload or for the facility to open (Exhs. DPU-IG1-7; DPU-IG1-8; Tr. 7, at 836-837). On balance, the Department concludes that the Company's analysis of alternative sites does not lend support to the Company's case that use of the Russell site for the proposed biomass facility, with Main Street as the sole access route to the facility, is reasonably necessary for the public convenience or welfare.

D. Conclusion on Public Convenience or Welfare

Russell Biomass has requested that the Department exempt the Company's proposed generating project from compliance with the Town of Russell's zoning requirements. To grant such an exemption, the Department must determine that the public benefits of the project outweigh its local impacts.

The Department has found that the proposed facility would have clear public benefits. In particular, we have found that the proposed facility has the potential to provide energy benefits for Massachusetts, in that development of the facility could: supply added renewable energy resources potentially providing downward pressure on the price of RECs in New England; help meet electricity demand in a manner that at least initially provides carbon control benefits, consistent with the Commonwealth's mandate to reduce emissions of green-house gases over time; contribute to maintaining the reliability of the bulk power system and potentially lower wholesale prices in some hours; and help provide a more diverse electricity supply which may provide a measure of protection against possible fuel supply disruption.

The Department also has found that the proposed facility would come with significant local impacts. Primarily because Main Street in Russell is the sole means of vehicular access to the proposed facility, the project would have significant local traffic, traffic safety, and noise impacts. As discussed, operation of the facility would require an average of 150-160, and up to 240, trips daily by tractor-trailer trucks delivering wood fuel, significantly increasing the size and volume of the vehicles that currently travel on Main Street, and significantly increasing noise above existing levels for a period of up to 11.5 hours each weekday. As a

result, ease and safety of local residents' access to their homes and to municipal services, including emergency services, could be compromised and, in some circumstances, precluded. The existing character and aesthetic of the town and Main Street would be degraded.

With respect to the availability of other potential sites for the facility, the adverse impacts of bringing substantial volumes of heavy traffic onto the main street of a small town on a daily basis were noted by the Company as being of concern at an early stage in the project development process (Exh. DPU-EX-3). Yet the Company considered only two other possible sites for the project, both of which were known early on to be fatally flawed. Russell Biomass did not demonstrate, or claim, that other potentially feasible sites for the facility were unavailable in its targeted development areas, the hill-town region and western Massachusetts. Based on the above, the Department has found that there is not support in the record for concluding that the use of the Russell site for the proposed facility is reasonably necessary for the public convenience or welfare.

The Department fully supports the development of renewable energy resources in the Commonwealth, particularly those that have the potential to assist in reducing the carbon impact of Massachusetts power supply, and has acted in consideration of this viewpoint. The Department recently granted a zoning exemption sought by the Princeton Municipal Light Department ("PMLD") to construct two 1.6 MW wind turbines. The Department granted the exemption on the bases that (1) the benefits of the project were substantial: the project would supply PMLD with energy resources to meet an average of 40 percent of its system needs and would provide PMLD with cost savings of approximately $800,000 in the first year of

operation; and (2) the project would result in modest local adverse impacts. As stated above, the Department finds that in this case the proposed Russell Biomass facility could assist with Massachusetts and regional needs for additional renewable energy resources and a more diverse fuel supply; however, this case differs from the PMLD case in the uncertainty of expected benefits, and the magnitude and significance of local adverse impacts. In this case, local impacts are significant, disruptive, and lasting. In consideration of this, the Department can not conclude that the public benefits of the biomass facility warrant overriding the right of the town to determine whether and how to address the significant local impacts that would result from locating the facility at the Company's proposed site. Further, there is no evidence of need for the use of this site based on a lack of usable, appropriate sites elsewhere with less severe local traffic impacts. The Department notes further that the project as currently proposed differs from the project originally approved by the Town of Russell not only in the increased volume of daily truck traffic, but in the type of fuel to be used and in construction scheduling. If the biomass facility ultimately is built on the Russell site, decisions regarding and/or resolving these issues will have direct and long-lasting implications for the town and its residents, and are exactly the types of decisions that are optimally made by the town.

In coming to our decision in this case, the Department is not denying the siting, construction, or operation of the proposed Russell Biomass facility. Instead, we find that, in weighing the public benefits of the proposed facility against local impacts, we can not approve the Company's request that the Department provide an exemption from the local zoning by-laws of the Town of Russell. Based on the foregoing, the Department finds pursuant to

G.L. c. 40A, § 3 that the proposed use of the Russell site is not reasonably necessary for the convenience or welfare of the public, and thus we deny the Company's petition.

VI. ORDER

The Petition of Russell Biomass LLC for exemption from the Town of Russell zoning by-laws pursuant to G.L. c. 40A, § 3 is denied.[70]

By Order of the Department,

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Paul H. Hibbard, Chairman

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W. Robert Keating, Commissioner

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Tim Woolf, Commissioner

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[70] Pursuant to MEPA, a state agency that takes "agency action" on a proposed project for which the Secretary has required an Environmental Impact Report (" EIR"), must make Section 61 findings with respect to the environmental impacts of the project. G.L. c. 30, § 61; 301 C.M.R. § 11.12(5). An agency action is "any formal and final action taken by an Agency . . . that grants a Permit, provides financial assistance or closes a Land Transfer." 301 C.M.R. § 11.02 (2). As the Department has denied the Company's zoning exemption petition, the Department is not required to include Section 61 findings in this Order.

A T T A C H M E N T A

Special Permit Conditions Approved by Town	Company Proposed Directives (Revised 11/13/07)
(1) Notwithstanding any future ammendment to the Russell Zoning By-Law, Mass. G.L. c. 40A or any other legislative act: (a) the daily kilowatt generating capacity of the Biomass Plant to be constructed and operated shall be limited for up to 50 MW; (b) the tract of land on which the Russell Biomass facility is to be located shall not be altered or used except: 1. As granted by this Special Permit 2. As shown on the Special Permit Application Plan entitled Russell Biomass Facility referenced above; 3. In accordance with subsequent plans and amendments to the Special Permit approved, in writing, by the ZBA and, to the extent necessary, the Planning Board. (c) the entire tract of land and buildings to be constructed shall not be used, sold, transferred or leased except in conformity with this Special Permit. If the Applicant petitions for amendment to this Special Permit, it must submit all plans and information to the change as required by the Zoning By-Law and requested by the Planning Board and the ZBA, as the case may be.	**(1)** (a) The design net generating capacity of the Facility will be 50 megawatts: (b) The Facility shall use wood fuel as defined in 310 CMR 7.00; (c) Russell Biomass shall not use the tract of land on which the Facility is to be located except as described in the Petition for the zoning exemption.
(**2**) The average daily operational vehicular traffic to and from the facility be limited to a maximum of 60 semi-tractor trucks for fuel delivery, 4 semi-tractor trailer trucks for ash removal and 4 semi-tractor trucks for log storage. Additional other commercial trucks (other than semi-tractor trailer trucks) not to exceed 5 per day are allowed. Additionally, an average of 23 cars (for employees etc.) will be allowed per day with visitor access to the facility allowed as required. The term Semi-Tractor Trailer Trucks as used herein means a truck with a gross vehicle weight of 26,000 lbs. or greater	**(2)** The average daily operational vehicular traffic to and from the facility shall be limited to a daily average of 75 to 80 (both Semi-Tractor Trucks and smaller commercial trucks) for fuel delivery, and four Semi-Tractor Trailer Trucks for ash removal. Additionally, an average of 23 cars (for employees etc.) will be allowed per day with additional visitor access to the Facility allowed as required. The term Semi-Tractor Trailer Trucks as used herein means a truck with a gross vehicle weight of 80,000 lbs. or greater

A T T A C H M E N T A

Special Permit Conditions Approved by Town	Company Proposed Directives (Revised 11/13/07)
(8) Hours of operation during construction are from 7:00 a.m. to 5:00 p.m., Monday through Friday. No construction on the above cited holidays with the possibility of additional hours allowed if critical construction needs arise subject to the approval of at least two members of the Russell and three members of the Planning Board.	**(8)** Regular construction activities shall occur between the hours of 7:00 a.m. and 5:00 p.m. Monday through Friday. In compliance with DEP noise regulations at 310 CMR 7.10, no unnecessary emissions of sound from construction equipment will occur. Construction activities such as activities inside buildings and structures and shielded outdoor activities, are allowed at anytime. However absent extraordinary circumstances, any weekend, nighttime or holiday work shall be limited to quieter activities such as welding, interior work, electrical work, and installation of equipment, cabling and instrumentation. The following noisy activities may not be performed during nighttime, weekend, or holiday construction absent extraordinary circumstances; operation of heavy machinery, pile driving, dynamic compaction, operation of cement trucks, soil drilling, truck or fuel unloading, operation of major hydraulic equipment, and use of cranes.
(10) The cost of maintenance and repair of Main Street resulting from Biomass truck traffic shall occur following the completion of the facility's construction or an as needed basis as determined by a joint meeting between the Biomass Facility's management and the Town of Russell Board of Selectmen. A Passbook Account (intended to serve as a revolving fund pursuant to G.L. Chapter 44, Section 53E½) for the Town of Russell as a special fund for road maintenance shall be started with an initial amount of $100,000 from Russell Biomass, LLC which will be due and payable upon issuance of the building permit for the Facility. This fund to be augmented each year by $10,000 for five years and reviewed every three years thereafter at which time new figures (of principal) and time periods for contributions and/or restorations of principal may be reestablished and required. At a minimum, the principal of the fund shall be restored within ten days by the Applicant with the same principal amount of any withdrawal (e.g. once the fund has been fully funded at $150,000 and $75,000 is withdrawn for road repair, the Applicant shall immediately restore the fund back to $150,000). The Select Board shall use this account for road repair and maintenance as needed on Main Street only. The Applicant's failure to adhere to any term may result in suspension or revocation of the Special Permit.	**(10)** The cost of additional maintenance and repair of Main Street resulting from the Facility's truck traffic shall be funded by Russell Biomass following the completion of the Facility's construction as follows. A Passbook Escrow Account (intended to serve as a revolving fund pursuant to G.L. Chapter 44, Section 53E½) for the Town of Russell as a special fund for road maintenance shall be started with an initial amount of $100,000 from Russell Biomass, LLC which will be due and payable upon issuance of the building permit for the Facility. The fund will be augmented each year by $10,000 for five years of the facility. The principal of the fund shall be restored within ten days by Russell LLC with the same principal amount of any withdrawal (e.g. once the fund has been fully funded at $150,000 and $75,000 is withdrawn for road repair, the Applicant shall immediately restore the fund back to $150,000, provided that the expenditures from such Fund in a given operating year not exceed the maximum amount of the fund, i.e., $100,000 in the first operating year, $110,000 in the second operating year, $120,000 in the third operating year, $140,000 in the fourth operating year, and $150,00 for all other years beginning with the fifth operating year). The Select Board shall use this account for road repair and maintenance as needed on Main Street only, and shall make a reasonable determination as to the share of the maintenance or repairs applicable to the Facility.

A T T A C H M E N T A

Special Permit Conditions Approved by Town	Company Proposed Directives (Revised 11/13/07)
(21) Russell Biomass Management shall meet at least semi-annually on mutually agreeable dates and locations with interested residents of Russell to discuss common problems or concerns relative to the Russell Biomass Facility. Resident of Russell, which shall include at least one member from each of the following boards: Zoning Board, Board of Selectmen, Planning Board, Fire and Police Departments.	**(21)** Starting from the commencement of construction until the start of Commercial Operations, Russell Biomass management shall meet twice a year on mutually agreeable dates and locations with interested residents of Russell and Town officials as suggested by the Selectmen to discuss common problems or concerns relative to the facility. The Selectmen may change the frequency of these meetings depending on the frequency and number of issues to be addressed.
(22) All noise study parameters shall be adhered to as outlined in the Noise Study Analysis done by Russell Biomass. If any other equipment is added, other that what is currently applied for in the original proposal, Russell Biomass must seek a modification of the Special Permit for the ZBA and Planning Board. Additional layering of insulation and buffering for the added equipment shall be required to such as extent that it does not exceed the maximum noise level as defined in the Noise Study Analysis.	**(22)** Russell Biomass will submit it Major Comprehensive Plan Approval Application to the Massachusetts Department of Environmental Protection and will adhere to and comply with all DEP requirements, conditions, and directives relative to noise emissions, noise mitigation and controls, and noise testing and monitoring.
(24) The Russell Biomass Facility shall be required to upgrade their continuous emissions monitors to maximum attainable technology standards as they are approved by federal and/or state agencies.	**(24)** The Facility shall be required to employ continuous emissions monitoring equipment as required by DEP in its approval of Russell Biomass's Major Comprehensive Plan Approval Application.
(25) Russell Biomass shall implement any necessary technology in order to guarantee that as a result of the Applicant's application, the Westfield River maintain a "Class B" status under any applicable state and federal law.	**(25)** The Facility shall be required to employ technology required in permits issued by DEP relative to the facility's impact on the Westfield River.
(27) All terms and conditions of this Special Permit shall be reviewed, jointly, by the ZBA and the Planning Board on a semi-annual basis with the Applicant at regular or special meetings of the boards (each being a "Review Date"). The ZBA and the Planning Board expressly reserve the right, at any Review Date, to further modify, amend and/or impose additional terms and conditions, as they reasonably determine, to this Special Permit.	**(27)** Russell Biomass shall provide the Board of Selectmen with a description of any proposed modifications or revisions to the Facility or its operations which constitute a significant and material change to the Facility and/or Facility operations as described in the Petition. Upon request, Russell Biomass will meet with the Board of Selectmen and/or other Town officials as suggested by the Selectmen to discuss any such proposed modification or revision to the Facility or its operations. In addition, before petitioning the DPU for any revision, modification, amendment or change to the Directives, Russell Biomass will present the proposed change(s0 and the need therefore to the Board of Selectmen and/or other Town officials as suggested by the Selectmen, and will work with the Town to draft mutually acceptable language for any proposed Directive modification(s)/ amendment(s).

A T T A C H M E N T A

Special Permit Conditions Approved by Town	Company Proposed Directives (Revised 11/13/07)
Specific Finding #3 The Applicant will not be allowed to burn anything other than Virgin Wood. By eliminating the burning of construction and demolition materials by the Applicant, the Zoning and Planning Boards have addressed an important and major concern (potential hazardous air pollutants) expressed by most of the opponents to the project.	**(1)** (b) The Facility shall use wood fuel as defined in 310 CMR 7.00;

Source: Exhs. RB-1(1); RB-15

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).