



Verso Paper Corp.
Verso Bucksport LLC
14 Bagley Ave.
Bucksport, ME 04416

David W. Norman, PE
Manuf. Support Leader: Energy

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February 26, 2013

Ms. Luly E. Massaro, Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, Rhode Island 02888

RE: Renewable Energy Resources Eligibility Form and Appendices for Verso Bucksport LLC and its Bucksport Renewable Energy Project

Dear Ms. Massaro:

Pursuant to the Renewable Energy Act, Section 39-26-1 et. seq. of the General Laws of Rhode Island ("RES Regulations"), Verso Bucksport LLC ("Verso") hereby submits this application to the State of Rhode Island and Providence Plantations Public Utilities Commission (the "Commission") to certify its biomass power plant, specifically its new Turbine Generator No. 5 ("TG5") in Bucksport, Maine, as a Rhode Island Class I "New" Renewable Energy Resource.

Verso owns and operates a paper mill in Bucksport, Maine. Verso is an indirect, wholly-owned subsidiary of Verso Paper Corp., which also owns and operates paper mills in Jay, Maine and Quinnesec, Michigan. The completed Bucksport Renewable Energy Project, described more fully in the accompanying application, represents a significant expansion of the mill's renewable electricity generation capability over its Historical Generation Baseline.

In addition to the Renewable Energy Resources Eligibility Form and Appendices, a Table of Contents is attached further describing the supporting documents Verso is submitting with this application.

Please contact me if you have any questions regarding this application.

Sincerely,

A handwritten signature in blue ink, appearing to read 'David W. Norman', is written over the word 'Sincerely'.

David W. Norman



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February 25, 2013

Ms. Luly E. Massaro, Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, Rhode Island 02888

**RE: Verso Bucksport LLC
Request for Protection of Privileged Information**

Dear Ms. Massaro:

Pursuant to Rule 1.2(g) of the Commission's Rules of Practice and Procedure, Verso Bucksport LLC ("Verso") hereby submits this written request as a claim of privilege to protect sensitive business-confidential information contained in Verso's application for certification of its biomass-fueled Bucksport Renewable Energy Project as a renewable energy resource. Specifically, Verso requests confidential treatment of its Historical Generation Baseline calculation on the grounds that this information is competitively sensitive as further described in this request.

Verso owns and operates a paper mill in Bucksport, Maine. Built in 1930, the mill purchases and procures biomass for use as fiber in the papermaking process as well as for use as fuel in biomass boilers. The completed Bucksport Renewable Energy Project, described more fully in the accompanying application, represents a significant expansion of the mill's renewable electricity generation capability over its Historical Generation Baseline.

Because the mill's wood supply market is both tight and extremely competitive, Verso does not publicly disclose confidential information about the volume of wood it purchases. Such privileged information includes details such as how many tons of wood are, or have been, delivered to the mill. Verso's competitors and suppliers could use this information to gain a competitive edge over Verso in the procurement of fiber and biomass resources. Verso accordingly requests protection of its Historical Generation Baseline calculation as privileged information.

Please contact me if you have any questions regarding this request.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Norman', written over a horizontal line.

David W. Norman

RIPUC Use Only

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

GIS Certification #:

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM

**The Standard Application Form
Required of all Applicants for Certification of Eligibility of Renewable Energy Resource
(Version 7 – June 11, 2010)**

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

NOTICE:

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

- Please complete the Renewable Energy Resources Eligibility Form and Appendices using a typewriter or black ink.
- Please submit one original and three copies of the completed Application Form, applicable Appendices and all supporting documentation to the Commission at the following address:

Rhode Island Public Utilities Commission
89 Jefferson Blvd
Warwick, RI 02888

Attn: Renewable Energy Resources Eligibility

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

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

SECTION I: Identification Information

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

Verso Bucksport LLC – TG5

1.2 Type of Certification being requested (check one):

Standard Certification Prospective Certification (Declaratory Judgment)

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

- APPENDIX A: Authorized Representative Certification for Individual Owner or Operator
- APPENDIX B: Authorized Representative Certification for Non-Corporate Entities Other Than Individuals
- APPENDIX C: Existing Renewable Energy Resources
- APPENDIX D: Special Provisions for Aggregators of Customer-sited or Off-grid Generation Facilities
- APPENDIX E: Special Provisions for a Generation Unit Located in a Control Area Adjacent to NEPOOL
- APPENDIX F: Fuel Source Plan for Eligible Biomass Fuels

1.4 Primary Contact Person name and title:

David Norman, Manufacturing Support Leader - Energy

1.5 Primary Contact Person address and contact information:

Address: **Verso Paper, 2 River Rd., P.O. Box 1200, Bucksport, ME 04416**

Phone: **207 902-1209** Fax: **207 902-1205**

Email: **David.Norman@versopaper.com**

1.6 Backup Contact Person name and title:

Bradley Flannery, Energy Manager

1.7 Backup Contact Person address and contact information:

Address: **Verso Paper, 2 River Rd., P.O. Box 1200, Bucksport, ME 04416**

Phone: **207 469-1450** Fax: **207 902-1205**

Email: **Brad.Flannery@versopaper.com**

1.8 Name and Title of Authorized Representative (*i.e.*, the individual responsible for certifying the accuracy of all information contained in this form and associated appendices, and whose signature will appear on the application):

Glenn Poole, Manufacturing Support Manager - Energy

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

Appendix A or B (as appropriate) completed and attached? Yes No N/A

1.9 Authorized Representative address and contact information:

Address: **Verso Paper, 2 River Rd., P.O. Box 1200, Bucksport, ME 04416**

Phone: **207 469-1230** Fax: **207 902-1205**

Email: **Glenn. Poole@versopaper.com**

1.10 Owner name and title: **Verso Bucksport LLC**

1.11 Owner address and contact information:

Address: **2 River Rd., Bucksport, ME 04416**

Phone: **207 469-1230** Fax: **207 902-1205**

Email: _____

1.12 Owner business organization type (check one):

Individual

Partnership

Corporation

Other: _____

1.13 Operator name and title: **Verso Bucksport LLC**

1.14 Operator address and contact information:

Address: **2 River Rd., Bucksport, ME 04416**

Phone: **207 469-1230** Fax: **207 902-1205**

Email: _____

1.15 Operator business organization type (check one):

Individual

Partnership

Corporation

Other: _____

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

2.1 ISO-NE Generation Unit Asset Identification Number or NEPOOL GIS Identification Number (either or both as applicable): **40342**

2.2 Generation Unit Nameplate Capacity: **24 MW**

2.3 Maximum Demonstrated Capacity: **24.1 MW**

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

Direct solar radiation

The wind

Movement of or the latent heat of the ocean

The heat of the earth

Small hydro facilities

Biomass facilities using Eligible Biomass Fuels and maintaining compliance with all aspects of current air permits; Eligible Biomass Fuels may be co-fired with fossil fuels, provided that only the renewable energy fraction of production from multi-fuel facilities shall be considered eligible.

Biomass facilities using unlisted biomass fuel

Biomass facilities, multi-fueled or using fossil fuel co-firing

Fuel cells using a renewable resource referenced in this section

2.5 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility’s aggregate capacity does not exceed 30 MW. – *per RES Regulations Section 3.32*

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

N/A or other (please explain) _____

2.6 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility does not involve any new impoundment or diversion of water with an average salinity of twenty (20) parts per thousand or less. – *per RES Regulations Section 3.32*

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

N/A or other (please explain) _____

2.7 If you checked one of the Biomass facilities boxes in Section 2.4 above, please respond to the following:

A. Please specify the fuel or fuels used or to be used in the Unit:

Primary Fuel: Wood defined as bark/residue from the associated manufacturing process or other forest products manufacturing, ground tops & branches, whole tree grindings, wood and pulp derived fiber (reclaimed from the mill), and recycled pallets.

Back-up or Secondary Fuels: Natural Gas, Oil

B. Please complete and attach Appendix F, Eligible Biomass Fuel Source Plan.
Appendix F completed and attached? Yes No N/A
(See Appendix F and the associated Attachment 1)

2.8 Has the Generation Unit been certified as a Renewable Energy Resource for eligibility in another state's renewable portfolio standard?
 Yes No If yes, please attach a copy of that state's certifying order.
Copy of State's certifying order attached? Yes No N/A
(See Attachment 2)

SECTION III: Commercial Operation Date

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

3.1 Date Generation Unit first entered Commercial Operation: 11 / 15 / 12 at the site.

If the commercial operation date is after December 31, 1997, please provide independent verification, such as the utility log or metering data, showing that the meter first spun after December 31, 1997. This is needed in order to verify that the facility qualifies as a New Renewable Energy Resource.

Documentation attached? Yes No N/A

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

Yes
 No

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

Appendix C completed and attached? Yes No N/A
(See Appendix C)

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

Yes No

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

SECTION IV: Metering

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

ISO-NE Market Settlement System

Self-reported to the NEPOOL GIS Administrator (see Attachment 3: **Measuring Renewable Electricity Production from Steam Turbine Generation at Verso Bucksport LLC’s Integrated Manufacturing Facility – a document prepared for the Maine Public Utilities Commission**)

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

Appendix D completed and attached?

Yes No N/A

SECTION V: Location

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

Grid Connected Generation

Off-Grid Generation (not connected to a utility transmission or distribution system)

Customer Sited Generation (interconnected on the end-use customer side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer)

5.2 Generation Unit address: **Verso Bucksport
2 River Rd.
Bucksport, ME 04416**

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

A. Universal Transverse Mercator Coordinates: **482830.8 Easting, 7632587.8 Northing, Zone 38**

B. Longitude/Latitude: **44.574487° / -68.804187°**

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

In the NEPOOL control area

In a control area adjacent to the NEPOOL control area

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

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

Appendix E completed and attached?

Yes No N/A

SECTION VI: Certification

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

Corporations

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

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

Evidence of Board Vote provided? Yes No N/A

Corporate Certification provided? Yes No N/A
(See Attachment 4)

Individuals

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

Appendix A completed and attached? Yes No N/A

Non-Corporate Entities

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

Appendix B completed and attached? Yes No N/A

6.2 Authorized Representative Certification and Signature:

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

Signature of Authorized Representative:

SIGNATURE:

Glenn S. Poole
Manufacturing Support Mgr. - Energy
(Title)

DATE:

Feb 26, 2013

APPENDIX C
(Revised 6/11/10)
**(Required of all Applicants with Generation Units at the Site of Existing
Renewable Energy Resources)**

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM
Pursuant to the Renewable Energy Act
Section 39-26-1 et. seq. of the General Laws of Rhode Island

If the Generation Unit: (1) first entered into commercial operation before December 31, 1997; or (2) is located at the exact site of an Existing Renewable Energy Resource, please complete the following and attach documentation, as necessary to support all responses:

- C.1 Is the Generating Unit seeking certification, either in whole or in part, as a New Renewable Energy Resource? Yes No
- C.2 If you answered "Yes" to question C.1, please complete the remainder of Appendix C. If you answered "No" and are seeking certification entirely as an Existing Renewable Energy Resource, you do NOT need to complete the remainder of Appendix C.
- C.3 If an Existing Renewable Energy Resource is/was located at the site, has such Existing Renewable Energy Resource been retired and replaced with the new Generation Unit at the same site? Yes No

The unit, Verso's Turbine-Generator TG5, is a new turbine-generator unit added to our power plant in the 4th quarter of 2012. It is driven by steam produced from a comprehensive retrofit of our existing #8 Boiler. The renewable electricity generation capacity of our #8 boiler has been increased by approximately 4-5 times. In addition to the new turbine-generator TG5, new fuel handling and delivery systems, a new Over-fire Air system, new economizer, and a new SNCR emissions control system has been added to #8 boiler dramatically increasing its capacity and efficiency. The biomass fuel delivery system included the addition of new suspension firing technology. The total budgeted cost of this project was in excess of \$42 million.

- C.4 Is the Generation Unit a Repowered Generation Unit (as defined in Section 3.29 of the RES Regulations) which uses Eligible Renewable Energy Resources and which first

entered commercial operation after December 31, 1997 at the site of an existing Generation Unit? Yes No

- C.5 If you checked “Yes” to question C.4 above, please provide documentation to support that the entire output of the Repowered Generation Unit first entered commercial operation after December 31, 1997.
- C.6 Is the Generation Unit a multi-fuel facility in which an Eligible Biomass Fuel is first co-fired with fossil fuels after December 31, 1997? Yes No
- C.7 If you checked “Yes” to question C.6 above, please provide documentation to support that the renewable energy fraction of the energy output first occurred after December 31, 1997.
- C.8 Is the Generation Unit an Existing Renewable Energy Resource other than an Intermittent Resource (as defined in Sections 3.10 and 3.15 of the RES Regulations)? Yes No
- C.9 If you checked “Yes” to question C.8 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and can be demonstrated to increase annual electricity output in excess of ten percent (10%). As specified in Section 3.23.v of the RES Regulations, the determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity.

Please provide the single proposed percentage of production to be deemed incremental, attributable to the efficiency improvements or additions of capacity placed in service after December 31, 1997. Please make this calculation by comparing actual electrical output over the three calendar years 1995-1997 (the “Historical Generation Baseline”) with the actual output following the improvements. The incremental production above the Historical Generation Baseline will be considered “New” generation for the purposes of RES. Please give the percentage of the facility’s total output that qualifies as such to be considered “New” generation.

The Historical Generation Baseline for 1995-1997 is 81,236 MWh. Verso has determined that the post-project total annual generation minus the Historical Generation Baseline, or the incremental generation, will be more than the annual generation from TG5 (additional renewable generation capacity will also be gained on G2 and G3.) Thus, TG5’s generation is eligible to qualify as a New Renewable Energy Resource. Therefore, we believe 100% of the new TG5 turbine-generator’s renewable output qualifies as “New” generation. Verso will share these production estimates with the RI Public Utilities Commission subject to a confidentiality order.

C.10 Is the Generating Unit an Existing Renewable Energy Resource that is an Intermittent Resource? Yes No

C.11 If you checked “Yes” to question C.10 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and have demonstrated on a normalized basis to increase annual electricity output in excess of ten percent (10%). The determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity. In no event shall any production that would have existed during the Historical Generation Baseline period in the absence of the efficiency improvements or additions to capacity be considered incremental production. Please refer to Section 3.23.vi of the RES Regulations for further guidance.

C.12 If you checked “Yes” to C.10, provide the single proposed percentage of production to be deemed incremental, attributable to the efficiency improvements or additions of capacity placed in service after December 31, 1997. The incremental production above the Historical Generation Baseline will be considered “New” generation for the purposes of RES. Please make this calculation by comparing actual monthly electrical output over the three calendar years 1995-1997 (the “Historical Generation Baseline”) with the actual output following the improvements on a normalized basis. Please provide back-up information sufficient for the Commission to make a determination of this incremental production percentage.

For example, for small hydro facilities, please use historical river flow data to create a monthly normalized comparison (e.g. average MWh produced per cubic foot/second of river flow for each month) between actual output values post-improvements with the Historical Generation Baseline. For solar and wind facilities, please use historical solar irradiation, wind flow, or other applicable data to normalize the facility’s current production against the Historical Generation Baseline.

C.13 If you checked “no” to both C.3 and C.4 above, please complete the following:

a. Was the Existing Renewable Energy Resource located at the exact site at any time during calendar years 1995 through 1997? Yes No

b. If you checked “yes” in Subsection (a) above, please provide the Generation Unit Asset Identification Number and the average annual electrical production (MWhs) for the three calendar years 1995 through 1997, or for the first 36 months after the Commercial Operation Date if that date is after December 31, 1994, for each such Generation Unit.

There are no ISO-NE Generation Unit Asset Identification Numbers associated with the other Verso Bucksport units as they are behind the meter assets. The Historical Generation Baseline for 1995-1997 is 81,236 MWh.

- c. Please attach a copy of the derivation of the average provided in (b) above, along with documentation support (such as ISO reports) for the information provided in Subsection (b) above. Data must be consistent with quantities used for ISO Market Settlement System.

The derivation of the Historical Generation Baseline has been developed in a spreadsheet. It includes Verso Bucksport's actual fuel usage for 1995-1997 and calculates the Baseline using actual fuel BTU value and moisture testing as well as equipment efficiency. It is available to the Rhode Island PUC subject to a confidentiality order.

APPENDIX F
(Revised 6/11/10)
Eligible Biomass Fuel Source Plan
(Required of all Applicants Proposing to Use An Eligible Biomass Fuel)

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

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

The phrase "Eligible Biomass Fuel" (per RES Regulations Section 3.7) means fuel sources including brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips, shavings, slash, yard trimmings, site clearing waste, wood packaging, and other clean wood that is not mixed with other unsorted solid wastes²; agricultural waste, food and vegetative material; energy crops; landfill methane³ or biogas⁴, provided that such gas is collected and conveyed directly to the Generation Unit without use of facilities used as common carriers of natural gas; or neat bio-diesel and other neat liquid fuels that are derived from such fuel sources.

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

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

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

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

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

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

Detailed description attached? Yes No N/A

Comments: **See Verso Bucksport Biomass Fuel Source Plan – Attachment 1**

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

Further substantiation attached? Yes No N/A

Comments: **See Verso Bucksport Biomass Fuel Source Plan – Attachment 1**

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

Description attached? Yes No N/A

Comments: (See Attachment 3: Measuring Renewable Electricity Production from Steam Turbine Generation at Verso Bucksport LLC's Integrated Manufacturing Facility – a document prepared for the Maine Public Utilities Commission. It includes a description of the calculation methodology.)

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

Description provided? Yes No N/A

Comments: **See Verso Bucksport Biomass Fuel Source Plan – Attachment 1**

F.5 Please include in the Fuel Source Plan an acknowledgement that the fuels stored at or brought to the Generation Unit will only be either Eligible Biomass Fuels or fossil fuels used for co-firing and that Biomass Fuels not deemed eligible will not be allowed at the

premises of the certified Generation Unit. And please check the following box to certify that this statement is true.

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

N/A or other (please explain) _____

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

Documentation attached?

Yes No N/A

Comments: **See Verso Bucksport Biomass Fuel Source Plan – Attachment 1**

- F.7 Please certify that you will file all reports and other information necessary to enable the Commission to verify the on-going eligibility of the renewable energy generators pursuant to Section 6.3 of the RES Regulations. Specifically, RES Regulations Section 6.3(i) states that Renewable Energy Resources of the type that combust fuel to generate electricity must file quarterly reports due 60 days after the end of each quarter on the fuel stream used during the quarter. Instructions and filing documents for the quarterly reports can be found on the Commissions website or can be furnished upon request.

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

N/A or other (please explain) _____

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

Valid Air Permit or equivalent attached?

Yes No N/A

Comments: **See attached Air Permit – Attachment 6**

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

November 29, 2010

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

State of Maine

Attachment 1

Verso Paper - Bucksport Mill - Biomass Fuel Source Plan

Supplement to RI FORM Appendix F
State of Rhode Island Public Utilities Commission
Renewable Energy Resources Eligibility Application
February 15, 2013

F.1: Types of eligible biomass fuel to be used at the Generation Unit

The No. 8 boiler at Verso's Bucksport Mill, the steam source for Verso's Turbine-Generator TG5 Unit, has a history of burning eligible clean biomass originating from forest residues, whole tree chips, bark, chip screenings, recovered wood and pulp derived fiber, yard trimmings, arborist chips, and ground pallets. The rebuild of No. 8 boiler will dramatically increase consumption of these same biomass materials. These biomass materials are produced by a highly integrated forest products industry that is well established in the state of Maine. A wide variety of field chippers and grinders produce these materials roadside directly from active logging jobs. Chip mills, pulp mills, and sawmills separate out bark, screening losses, and edgings from their mill operations and transfer them as fuel to Bucksport. Wooden pallets are recycled, de-nailed, and ground into eligible biomass fuel. No fraction of the fuel supply is coming from construction or demolition debris or solid waste recycling operations.

F.2: Other Clean Wood

Only eligible biomass fuels consistent with section 3.6 of the RI REC rules will be burned in the Bucksport No 8 boiler. These include brush, stumps, yard trimmings, site clearing wastes, wood packaging and other clean wood.

F.3: See the attached: **Measuring Renewable Electricity Production from Steam Turbine Generation at Verso Bucksport LLC's Integrated Manufacturing Facility**

F.4: Ensuring that Only Eligible Fuels are used

Verso's wood procurement team is a group of 18 professionals charged with the procurement of roughly 3 million green tons of wood and chips into two different Maine pulp mills. Purchasing procedures, contracts, purchase orders, and wood payment systems are well established that track the point of origin of each load of wood (including the biomass). The State of Maine has a "trip ticket law" that sets forth standardized requirements for information which must be collected and maintained at each purchase point in Maine. Collected data includes contract number, producer name, trucking provider, landowner name, township, and the Maine Forest Service notification number if the logging site is within the state of Maine. This data is computerized and kept on file

for reference and audit for a period of at least 5 years. Procurement staff reviews this detail each week during the settlement process to assure that the wood is coming from the intended sources. The applicable Maine state statute is:

Title 10: COMMERCE AND TRADE
Part 6: WEIGHTS AND MEASURES
Chapter 501: WEIGHTS AND MEASURES LAW
Subchapter 2-A: MEASUREMENT OF WOOD
§2364-B. Transportation of wood
1-6

F.5: We certify that all fuels stored at or brought to the Generation Unit will only be either Eligible Biomass Fuels or fossil fuels used for co-firing and that Biomass Fuels not deemed eligible will not be allowed at the premises of the Generation Unit.

F.6: Recycled Wood Wastes

The only fraction of the planned fuel mix at Bucksport that is considered to be “recycled” would be the pallet grindings and these are expressly permitted by the RES Regulations. No other recycled materials are planned at this time.

ATTACHMENT 2

REDACTED

STATE OF MAINE
PUBLIC UTILITIES COMMISSION

Docket No. 2011-102

November 23, 2011

VERSO BUCKSPORT LLC
Request for Certification for RPS Eligibility

ORDER GRANTING NEW
RENEWABLE RESOURCE
CERTIFICATION

WELCH, Chairman; VAFIADES and LITTELL, Commissioners

I. SUMMARY

We grant the Verso Bucksport, LLC biomass facility in Bucksport, Maine (Verso) certification as a Class I New Renewable Resource that is eligible to satisfy Maine's new renewable resource portfolio requirement pursuant to Chapter 311, § 3(B) of the Commission's rules.¹ This certification is for the renewable biomass generation, as specified in this Order, produced by Verso as of September 1, 2011 and thereafter.

II. BACKGROUND

A. New Renewable Resource Portfolio Requirement

During its 2007 session, the Legislature enacted an Act To Stimulate Demand for Renewable Energy (Act). P.L. 2007, ch. 403 (codified at 35-A M.R.S.A. § 3210(3-A)). The Act added a mandate that specified percentages of electricity that supply Maine's consumers come from "new" renewable resources.² Generally, new renewable resources are renewable facilities that have an in-service date, resumed

¹ Commissioner Littell concurs, in part, and dissents, in part, with this Order, but agrees with the Commission's ultimate decision to grant Verso Class I New Renewable Resource certification as specified in this Order.

² Maine's electric restructuring law, which became effective in March 2000, contained a portfolio requirement that mandated that at least 30% of the electricity to supply retail customers in the State come from eligible resources, which are either renewable or efficient resources. 35-A M.R.S.A. § 3210(3). The Act did not modify this 30% requirement.

operation or were refurbished after September 1, 2005. The percentage requirement starts at one percent in 2008 and increases in annual one percent increments to ten percent in 2017, unless the Commission suspends the requirement pursuant to the provisions of the Act.

As required by the Act, the Commission modified its portfolio requirement rule (Chapter 311) to implement the “new” renewable resource requirement. *Order Adopting Rule and Statement of Factual and Policy Basis*, Docket No. 2007-391 (Oct. 22, 2007). The implementing rules designated the “new” renewable resource requirement as “Class I”³ and incorporated the resource type, capacity limit, and the vintage requirements as specified in the Act. The rules thus state that a new renewable resource used to satisfy the Class I portfolio requirement must be of the following types:

- fuel cells;
- tidal power;
- solar arrays and installations;
- wind power installations;
- geothermal installations;
- hydroelectric generators that meet all state and federal fish passage requirements; or
- biomass generators, including generators fueled by landfill gas.

In addition, except for wind power installations, the generating resource must not have a nameplate capacity that exceeds 100 MW. Finally, the resource must satisfy one of four vintage requirements. These are:

- 1) renewable capacity with an in-service date after September 1, 2005;
- 2) renewable capacity that has been added to an existing facility after September 1, 2005;
- 3) renewable capacity that has not operated for two years or was not recognized as a capacity resource by the ISO-NE or the NMISA and has resumed operation or has been recognized by the ISO-NE or NMISA after September 1, 2005; or

³ The “new” renewable resource requirement was designated as Class I because the requirement is similar to portfolio requirements in other New England states that are referred to as “Class I.” Maine’s pre-existing “eligible” resource portfolio requirement is designated as Class II.

4) renewable capacity that has been refurbished after September 1, 2005, and is operating beyond its useful life or employing an alternate technology that significantly increases the efficiency of the generation process.⁴

The implementing rules contained in Chapter 311, section 3(B)(4) of the Commission's rules, establish a certification process that requires generators to pre-certify facilities as a new renewable resource under the requirements of the rule and provides for a Commission determination of resource eligibility on a case-by-case basis.⁵ The rule contains the information that must be included in a petition for certification and specifies that the Commission shall provide an opportunity for public comment if a petitioner seeks certification under vintage categories 2, 3 and 4. Finally, the rule specifies that the Commission may revoke a certification if there is a material change in circumstance that renders the generation facility ineligible as a new renewable resource.

B. Petition for Certification

On March 24, 2011, Verso Bucksport, LLC (Verso), a subsidiary of Verso Paper Corporation, filed a petition to certify its Biomass Plant located in Bucksport, Maine as a Class I New Renewable Resource. After a protective order was issued by the Commission Staff, Verso supplemented its petition with confidential documents on March 29, 2011. The Staff requested additional information and met with Verso representatives several times over the course of the proceeding. Verso responded to Staff's information requests with additional filings on April 27th, June 7th, June 27th, September 8th, September 16th, and September 23rd, 2011. The record in this case consists of these filings made by Verso, as well as Staff's information requests.

According to Verso's Petition, the Bucksport Biomass Plant is part of the larger Bucksport Paper Mill (Mill), a facility containing multiple boilers capable of burning various fuels. Verso states that it uses the steam from the boilers to: 1) operate the paper production and associated facilities, 2) produce behind-the-meter electricity to serve mill load, and 3) export electricity to the grid.

The generation facility at issue in this proceeding is the Bucksport Biomass Plant. The Bucksport Biomass Plant comprises the renewable output of Boiler Number 8 (Boiler 8), and the two turbine generators it feeds: Turbine Generator Number 2 (TG2), a 47 year old turbine with a nameplate capacity of 21 MW, and Turbine

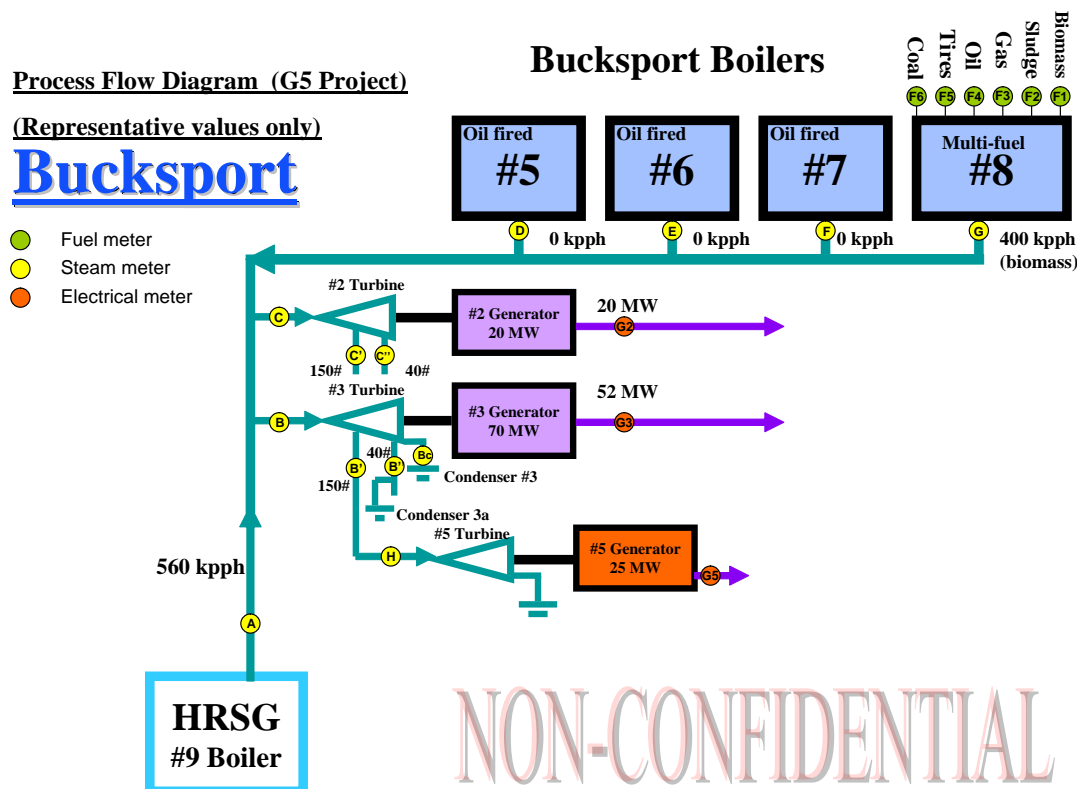
⁴ The 125th Maine State Legislature recently amended 35-A M.R.S.A. § 3210, sub-§ 2, B-4, to provide additional guidance on the meaning of the term refurbish. The new language states that "to refurbish" means to make an investment in equipment or facilities, other than for routine maintenance and repair, to renovate, reequip or restore the renewable capacity resource." P. L. 2011, Ch. 413, § 1.

⁵ In the *Order Adopting Rule* at 6, the Commission noted that a request for certification can be made at any time so that a ruling can be obtained before a capital investment is made in a generation facility.

Generator Number 3 (TG3), a 24 year old steam turbine with a nameplate capacity of 72 MW (collectively referred to as the Bucksport Biomass Plant). According to Verso's petition, Boiler 8 is a 26 year-old Combustion Engineering VU40 multi-fuel boiler that can burn a variety of fuels concurrently, including biomass, sludge, tire derived fuel, #6 oil, pulverized coal and natural gas. The renewable fuels that Verso presently burns in Boiler 8 are biomass that is purchased from an outside source and sludge derived from the Bucksport Mill's papermaking process. Verso also currently burns non-eligible fuels in Boiler 8. Under the current configuration of the Mill, the steam produced by Boiler 8 (along with the steam from several oil-fired boilers and a natural-gas fired boiler, Boiler 9) feeds into TG2 and TG3. Steam extractions from those turbines provide steam for the Mill's paper making process. TG3 also has a condenser to help balance steam supply and demand.

In its Petition, Verso requests that the Commission certify the Bucksport Biomass Plant as a Class I New Renewable Resource. Verso also requests that the Commission prospectively certify Turbine Generator Number 5 (TG5) once the TG5 is installed in the Bucksport Biomass Plant upon the completion of the Bucksport Renewable Energy Project (BREP) (Figure 1).

Figure 1. Schematic illustrating the Verso Bucksport energy generation facility at the completion of the Bucksport Renewable Energy Project. The process flow diagram indicates how steam (as measured in kpph) will typically flow from the various boilers to TG2 and TG3, and the new TG5 turbine generator. Note that the HRSG Number 9 Boiler is a natural gas fired boiler.



In support of its Petition for Certification, Verso states that it has made significant refurbishments to Boiler 8 and to TG2 and TG3 to allow them to remain in operation beyond their useful lives. Verso also states that it is currently making substantial investments as part of the BREP to improve and increase the Bucksport Biomass Plant's utilization of biomass by changing Boiler 8's fuel combustion system from the existing traveling grate to a suspension firing system as well as adding the new 25 MW TG5. The BREP will also include the installation of a new biomass unloading and processing system to facilitate the suspension firing. The Petition states the suspension firing system is an alternate technology that has not been deployed in Maine at this scale before and that will increase boiler efficiency. Verso states that the BREP will more than double the steam production from Boiler 8 and that nearly 100% of this steam will be produced from biomass, much of which will be Verso's own biomass derived from the its wood processing facility.

As required by our rules, the Commission provided interested persons with an opportunity to comment on Verso Petition for Certification. The Commission received no comments.

III. DECISION

A. New Renewable Resource Certification

After considering Verso's Petition and the additional information provided by Verso in response to Staff's questions, we find that Verso's existing Bucksport Biomass Plant has been refurbished pursuant to Chapter 311, section 3(B)(3)(d), and therefore qualifies as a Maine Class I New Renewable Resource. Our decision to grant Verso's Bucksport Biomass Plant Class I certification is based upon our finding that Verso has satisfied each of the following elements of Class I New Renewable Resource eligibility: (1) Resource Type; (2) Capacity Limit; and (3) Vintage. Additionally, we find that the additional biomass output resulting from Verso's installation of the new 25 MW TG5 is pre-certified as a Maine Class I New Renewable Resource under Chapter 311, section 3(B)(3)(b), the additional capacity vintage category.

1. Resource Type

Verso's petition states that Boiler 8 is a multi-fuel unit that can burn a variety of fuels, including biomass, sludge, tire derived fuel, #6 oil, pulverized coal and natural gas. Although Boiler 8 currently burns various Class I eligible and non-eligible fuels concurrently, Verso seeks Class I certification for only the portion of the generation derived from biomass and sludge.⁶ Verso also states in its petition that after Boiler 8 is

⁶ Verso stated in its April 27, 2011 Response to Staff requests for additional information (Response No. 12) that that the mill process sludge burned in Boiler 8 is a renewable biomass slurry derived from wood and wood byproducts.

modified as part of the BREP project, Boiler 8 will normally only burn woody biomass and biomass sludge.⁷

We find that the fuels burned in Boiler 8 for which Verso seeks certification are eligible biomass resources under the definition of biomass set forth in our Order Adopting Rule 311 in Docket No. 2007-391 and reiterated in our Order Granting New Renewable Resource Certification in Docket No. 2008-173.⁸

2. Capacity Limit

Chapter 311, section 3(B)(2) provides that a new renewable resource other than wind must not have a nameplate capacity that exceeds 100 MW. The total nameplate capacity of the entire Verso Bucksport mill exceeds this limit. The combined total nameplate capacity of TG2, TG3 and TG5 is 115 MW.⁹

Since section 3(B)(1) defines a new renewable resource as a generation facility that generates electricity with the renewable fuels set forth in the rule, we consider only the portion of the Bucksport Paper Mill's nameplate capacity attributable to the renewable output, namely the Bucksport Biomass Plant. Although, as discussed in more detail below, the precise amount of generation related to renewable fuel varies to some degree depending on the method chosen to calculate RECs, given the present and foreseeable projected operations of the Mill, the capacity attributed to renewable fuel is substantially below the 100 MW limit under all methods. This is true even after addition of TG5. Therefore, we conclude that the Bucksport Biomass Plant does not exceed the 100 MW capacity limit set forth in section 3(B)(2) of Chapter 311 of the Commission rules.

3. Vintage

Verso seeks certification under the refurbishment prong of the vintage criteria contained in Chapter 311, section 3(B)(3)(d). This refurbishment prong is also contained in definition of "New" as applied to any renewable capacity resource in Title 35-A, section 3210(2)(B-4) of the Maine Revised Statutes (Renewable Resources

⁷ Verso stated in its September 8, 2011 filing in response to Staff questions that the Verso Bucksport Biomass Plant will burn **[REDACTED]** tons of eligible biomass post-BREP.

⁸ In the Commission's October 27, 2007 Order Adopting Rule and Statement of Factual and Policy Basis (Docket No. 2007-397), the Commission concluded that, "without further legislative direction and in light of the unqualified statutory term "biomass," the Commission would adopt a relatively broad definition that includes all fuel derived from wood and wood byproducts (along with other organic sources)."

⁹ The Verso Mill also has additional capacity above the 115 MW that does not take steam from Boiler 8 and is, therefore, not part of the Bucksport Biomass Plant.

Statute). The refurbishment prong defines a new renewable resource as a generation facility that:

Has been refurbished after September 1, 2005 and is operating beyond its previous useful life or is employing an alternate technology that significantly increases the efficiency of the generation process.

This is a two part test that requires the Commission to first determine whether the facility has been “refurbished,” and then to determine whether the facility is operating beyond its previous useful life or employing an alternate technology that significantly increases the efficiency of the generation process.

Neither Chapter 311 of Commission’s rules, nor the Renewable Resources Statute, specifically define what is meant by refurbishment. Therefore, the Commission addresses the question of whether a refurbishment has occurred on a case-by-case basis taking into account the legislative purposes underlying the renewable resource portfolio requirement in the statute.¹⁰

The Commission’s practice in assessing whether a generation facility has been refurbished is to examine the condition of the facility prior to the expenditures, the amount of the expenditures made by the Petitioner after September 1, 2005, and the nature of the expenditures to determine whether they appear to be related to routine maintenance and repair, or a more long-term capital investment. No single factor is determinative. Instead, the Commission examines the collection of factors and determines whether the bulk of available information weighs in favor of or against a finding of refurbishment.

In its Petition, Verso states that it has refurbished Boiler 8, TG2 and TG3. In support of its contention, Verso provided a list of the investments that it made to each component of the facility since September 1, 2005, as well as the projected investments to complete the BREP. Verso made significant capitalized upgrades to TG2 in 2008, wherein the turbine rotor and governor were replaced. These investments combined with other capital investments made in Boiler 8 and TG2 and TG3 from September 1, 2005, through September 1, 2011, in their entirety, support a finding of refurbishment of the Bucksport Biomass Plant. Additionally, there is little question that the plant modifications associated with the BREP, including outfitting the Boiler 8 with a suspension firing system and the overhaul of the biomass handling system, taken

¹⁰ As discussed above in footnote 3, the Legislature recently revised the Renewable Resources Statute, 35-A M.R.S.A. § 3210(2)(B-4), to add language clarifying the term “refurbish.” Although this revision may not apply to Verso’s petition because the revised language became effective in September 2011, more than five months after Verso filed its petition for certification, the new language merely makes explicit the Commission’s existing practice of disregarding investments made for routine maintenance and repair when looking at whether a facility has been refurbished.

together constitute refurbishment in light of the magnitude and nature of the improvements.

In addition to the nature of the capital investments, the amount of the expenditures made by Verso also supports a finding of refurbishment. As of September 1, 2011, Verso had made more than \$5.5 million in capitalized investments in Boiler 8, TG2 and TG3. In addition, although it is not operational yet, Verso has invested over \$3 million in the biomass handling equipment as part of the BREP. These capitalized upgrades represent more than a 100% increase in the net book value of the facility.¹¹ And finally, Verso's capitalized investments in the Bucksport Biomass Plant relative to the acquired value of the Plant are greater than 50%.¹²

In light of the significant level of Verso's capitalized expenditures combined with the nature of those expenditures, the majority of which are for the purpose of renovating and reequipping the facility to burn 100% Verso generated biomass, we find that the Bucksport Biomass Plant has been refurbished as of September 1, 2011.¹³

To qualify as new under section 3(B)(3)(d), Verso must also establish that the Bucksport Biomass Plant is operating beyond its previous useful life or is employing an alternate technology that significantly increases the efficiency of the generation process.

The Bucksport Biomass Plant presently comprises the 26 year old Boiler 8 that feeds TG2 and TG3, which are 47 years old and 24 years old, respectively. In its Petition, Verso stated that the useful life of all of these assets is 20 years. In

¹¹ Additionally, Verso's capitalized investments in the Bucksport Biomass Plant divided by the nameplate capacity of the Bucksport Biomass Plant reveals an investment ratio of more than \$200 per kW, which is substantial.

¹² It can be difficult to directly compare investment levels on a percent of plant value basis because available plant values are often not expressed in a manner that is directly comparable. However, we note that the capital investments made by Sappi in its Westbrook biomass facility constituted approximately 45% of Sappi's reported Westbrook facility value. The Commission found that these expenditures constituted a refurbishment of the facility. *S.D. Warren Company d/b/a Sappi Fine Paper North America*, Docket No. 2009-395, Order Granting New Renewable Resource Certification (January 5, 2010).

¹³ Based on the information submitted by Verso concerning the timing of its investments, we conclude that the refurbishment had been completed as of September 1, 2011. We reach no conclusion concerning whether the timing of the investment would support an earlier date, but note that the additional investments made during 2011 were material to our decision.

support of this contention, Verso provided an affidavit by Paul Mercer, a Professor at Maine Maritime Academy that established that major refurbishments are needed to allow Boiler 8, TG2 and TG3 to continue to operate beyond twenty years. Professor Mercer also stated that, but for the refurbishments that Verso performed since September 1, 2005, these units would not be operating today and each of these energy assets is now operating beyond its previous useful life solely as a result of Verso's refurbishments.¹⁴ Based upon this evidence as a whole, we find that the Bucksport Biomass Plant is operating beyond its previous useful life.¹⁵

Although the finding of operation beyond useful life is sufficient to qualify the facility as a new Class I Maine renewable resource, we note that the Bucksport Biomass Plant likely qualifies as a new renewable resource under the second prong of the refurbishment vintage category that requires that the generation facility employ an alternate technology that significantly increases the efficiency of the generation process.¹⁶ In its Petition and responses to Staff questions, Verso represented that the suspension firing technology that Verso is installing in Boiler 8 as part of the first phase of the BREP has not been deployed in any other biomass generation facility in New England at this scale before. Verso also stated that this alternate technology will improve biomass combustion efficiency, increasing boiler efficiency from approximately 64% to approximately 69% (an 8% relative increase). Finally, Verso stated that the steam exiting Boiler No. 8 will be at a higher temperature, providing approximately 1% of additional efficiency in the generators. Given that we have already determined that the Bucksport Biomass Plant meets the refurbishment standard, it is not necessary to make a finding as to whether these improvements would

¹⁴ For tax depreciation purposes, the IRS suggests that steam and electrical generation systems have a useful life of 22 years. See IRS Publication 946, Appendix B (Asset class 00.4 – Industrial Steam and Electrical Generation and/or Distribution Systems), which can be found at the following link: <http://www.irs.gov/pub/irs-pdf/p946.pdf>.

¹⁵ Commissioner Littell does not join in this finding that Boiler 8 is operating beyond its useful life. See Commissioner Littell's concurrence, in part, and dissent, in part, at page 13 of this Order.

¹⁶ Because Commissioner Vafiades and Chairman Welch agree that the first prong of the test is met (the useful life prong), the discussion in this majority opinion concerning whether the second prong (alternative technology) may also be met does not, properly speaking, reflect any conclusion by the Commission on that second prong. Commissioner Vafiades does not agree that Verso satisfied its burden to establish that the suspension firing technology is an alternative technology, and believes that the Commission does not need to reach this issue given its finding that the Verso Bucksport Biomass Plant is operating beyond its previous useful life. As noted in his concurring opinion, Commissioner Littell believes that the second prong has been met (though not the first), and concurs in the result on that ground. Chairman Welch believes that it is likely that the second prong of the test has been met based on the facts as presented, but did not base his ultimate conclusion on that belief.

meet the “alternative technology” test. However, we find it likely that these improvements would have met this standard as well.

4. Additional Capacity

Verso's petition states that TG5, the new 25 MW turbine, will be installed as part of the BREP by the end of 2012. The output of this turbine derived from biomass and mill process sludge burned in Boiler 8 is eligible as a Maine Class I New Renewable Resource under Chapter 311, section 3(B)(3)(b) because TG5 has been added to an existing facility after September 1, 2005.

B. Methodology for Calculating RECs

There are various methods available to us that provide a reasonable approach to calculating the REC output of a multifuel facility where different Class I eligible and ineligible fuel types are fired simultaneously. Verso has proposed a complex method for calculating REC output. This method, which is referred to as the Verso Method, treats the steam from Boiler 8 as incremental to Verso's process steam requirements and, therefore, assumes that this incremental Boiler 8 steam exits via the condenser outlet in TG3 under most operating conditions. Under the Verso method, the steam which exits this condenser outlet is assumed to produce more generation per klb than the steam exiting at the other turbine outlets. Accordingly, the Verso Method is highly dependent upon how the plant is actually operated, as well as critical assumptions that Boiler 8's steam is incremental, and the generation factor assumed for the condenser-outlet steam.¹⁷ Additionally, verification of the steam flows through the TG3 condenser is essential to confirming the calculations for Class I REC production.

An alternative method for calculating REC production is to determine the qualifying MWh output of RECs prorating the total output of TG2, TG3 and TG5 in each hour by the proportion of steam produced by Class I eligible fuel inputs from Boiler 8 relative to the total steam produced by other fuels (in Boiler 8 as well as the other boilers that feed TG2, TG3 and TG5) (the Proportional Method). The advantage of this approach is that it is less complex, requires less steam metering and verification, and it does not depend directly on operational decisions regarding steam extractions or a pre-determined production factor for the condenser outlet. These factors improve the calculations' simplicity, objectivity and replicability, which enables others who have not been involved in this proceeding and who are less familiar with the Bucksport Biomass Plant to more easily understand and verify the calculation.

Although the Verso Method may be a reasonable method of calculating Class I REC production, given its complexity, we are not able to find that Verso has satisfied its burden to show that this method of calculation is the most appropriate method to use, particularly as we may be called to apply a similar approach to other

¹⁷ Verso's Method assumes a constant factor of 0.125 MW for every klb of steam that exits at the TG3 condenser outlet.

plants in the future.¹⁸ Therefore, we certify Verso's Bucksport Biomass Plant using the Proportional Method, which is calculated on an hourly basis using the following formula:

$$QF * (S_8 / S_T) * (G_2 + G_3 + G_5) = \text{RECs}$$

Where,

$$QF = (F_1 + F_2) / (F_1 + F_2 + F_3 + F_4 + F_5 + F_6)$$

And,

$$S_T = (S_5 + S_6 + S_7 + S_8 + S_9)$$

And as defined by,

RECs = Maine Class I Renewable Energy Credits

QF = Qualifying Fraction

S_T = Total steam production in klbs

G₂ = Metered electrical production of Generator #2 in MWh

G₃ = Metered electrical production of Generator #3 in MWh

G₅ = Metered electrical production of Generator #5 in MWh

S₅ = Metered Boiler #5 steam production in klbs

S₆ = Metered Boiler #6 steam production in klbs

S₇ = Metered Boiler #7 steam production in klbs

S₈ = Metered Boiler #8 steam production in klbs

S₉ = Metered Boiler #9 steam production in klbs

F₁ = Biomass fuel input to Boiler #8 in total mmbtus

F₂ = Sludge fuel input to Boiler #8 in total mmbtus

F₃ = Natural Gas fuel input to Boiler #8 in total mmbtus

F₄ = #6 Oil fuel input to Boiler #8 in total mmbtus

F₅ = Tire Derived fuel input to Boiler #8 in total mmbtus

F₆ = Coal fuel input to Boiler #8 in total mmbtus

The Proportional Method will be employed to calculate the REC production from the Bucksport Biomass Plant until such time as the Commission determines that another method of calculation may be more appropriate based upon subsequent filings by Verso. We invite Verso to file a supplemental petition that explains the Verso Method, provides supporting documentation for the assumptions that form the basis of the Verso Method, and demonstrates that the alternative method is appropriate, objective and verifiable. Any such filing should include an explanation of how the Commission can ensure that the operation of the facility is consistent with the

¹⁸ Chairman Welch would have supported a decision to allow the Verso Method.

assumptions that would underlie the use of the Verso Method or similar “incremental” approach.

Therefore, for the reasons stated above, and in accordance with the Proportional REC calculation method outlined above, we grant certification of the Verso Bucksport biomass facility as a Class I new renewable resource eligible to satisfy Maine’s new renewable resource portfolio requirement pursuant to Chapter 311, § 3(B) of the Commission rules.

To the extent that any of the Class I RECs are for behind-the-meter generation, we conclude that Verso must retain GIS certificates or otherwise obtain GIS certificates necessary to satisfy Maine’s RPS (both the original 30% and the “new” requirement) for that portion of its load that is served by the facility. See *Lincoln Paper and Tissue, LLC, Request for Certification for RPS Eligibility*, Docket No. 2008-173, Order Granting New Renewable Resource Certification at 8 (January 27, 2009). Verso shall submit to the Commission an annual report by July 1st of each year that demonstrates compliance with this requirement.

Accordingly, we

ORDER

1. That the existing Bucksport Biomass Plant is certified as a Maine Class I New Renewable Resource as of September 1, 2011;
2. That the additional renewable output enabled by the addition of the 25 MW TG5 is pre-certified as a Maine Class I New Renewable Resource;
3. That Verso Bucksport LLC file documentation at the time of completion of the Bucksport Renewable Energy Project that, among other relevant information signifying the completion of the project, includes an itemized list of the individual components of the Bucksport Renewable Energy Project, the completion dates of those components, and identifies any BREP components submitted in previous filings with the Commission in this proceeding that were not implemented as part of the BREP;
4. That the calculation of qualifying RECs employ the Proportional Method outlined in the body of this Order without prejudice with respect to the Commission’s future consideration of other calculation methods for RECs;
5. That Verso Bucksport LLC, on an annual basis beginning on December 31, 2012, shall file with the Commission an independent audit report verifying the calculation of the RECs including, but not limited to, verification of the quantity and mmbtu content of all fuel inputs F_{1-6} utilized in the Proportional Method REC calculation as well as the accuracy of the steam metering and electrical generation equipment associated with Boiler 8, and TG2, TG3 and TG5.

6. That Verso Bucksport LLC shall submit a report to the Commission by July 1st of each year that demonstrates compliance with the requirement that it retain GIS certificates or otherwise obtain GIS certificates necessary to satisfy Maine's portfolio requirements for that portion of its load that is served by the certified biomass facility; and
7. That Verso Bucksport LLC shall provide timely notice to the Commission of any material change in the operation of the facility, including the type of fuel used in the generation process, from that described in the submissions filed by Verso in this proceeding.

Dated at Hallowell, Maine, this 23rd day of November, 2011.

BY ORDER OF THE COMMISSION

Karen Geraghty
Administrative Director

COMMISSIONERS VOTING FOR:

Welch
Vafiades
Littell:

Concurring in part and dissenting
In part. See attached Opinion.

CONCURRENCE, IN PART, AND DISSENT, IN PART, OF COMMISSIONER LITTELL

I am unable to conclude that Boiler 8 is operating beyond its useful life. Nonetheless, I concur in the decision that entire Verso Biomass Project satisfies the overall refurbishment test based on the fact that the suspension firing system installed in Boiler 8 is an alternative technology that Verso's engineers attest will result in a significant increase in steam production from Boiler 8, and electricity production from turbines TG2 and TG3 and the new TG5. I join in the opinion fully regarding the conclusion that the alternative technology that will significantly increase the efficiency of the generation process is met.

The use of the present tense in the statute requiring that the resource "is operating beyond its useful life" compels a close examination of this criteria. The information provided by the Petitioner here would not support a finding that the pre-modification configuration of Boiler 8 was inferior in any regard to other multi-fuel boilers or other industrial boilers. With routine and regular maintenance, the useful life of a boiler can well exceed the 26 years of Boiler 8.¹⁹ In the case of Sappi's renewable resource certification, the boiler had been in operation for 29 years at the time the Commission concluded it was in operation beyond its useful life.²⁰ While there is no magical number applicable to all industrial boilers, nor subcategories such as multi-fuel boilers, I observe that with routine and regular maintenance, the life of a boiler can well exceed even the 29 years in the Sappi case, though I do not question the outcome of the Sappi certification

National studies indicate that the bulk of industrial boilers in operation are older than 30 years. An Oak Ridge National Laboratory-commissioned study suggests that approximately 50 percent of the U.S. boiler fleet is more than 40 years old and more than 75 percent of the U.S. boiler fleet is greater than 30 years old.²¹ Maine has its share of older industrial boilers, and I did not find the affidavit submitted by Professor Mercer on behalf of Verso convincing, as it did not address why Verso's Boiler 8 has a purported shorter useful life than other industrial boilers in Maine, or in the U.S. for that matter.

Further, because the Renewable Portfolio Standards, particularly for Class I New Renewable Resources, are intended to encourage investments within Maine in new renewable electrical generation facilities, I am reluctant to find that a boiler that is little more than 25 years old is operating beyond its previous useful life. Although this

¹⁹ "The useful life of a power plant is probably closer to 30 years, and this must be considered in making the investment commitment." Ralph L. Vandagriff, *Practical Guide to Industrial Boiler Systems*, Chapter 1 at 4 (CRC Press, 2001).

²⁰ *S.D. Warren Company d/b/a Sappi Fine Paper North America Request for Certification for RPS Eligibility*, Docket No. 2009-395, Order Granting New Renewable Resource Certification (January 5, 2010).

²¹ Oak Ridge National Laboratory, *Characterization of the U.S. Industrial Commercial Boiler Population* (May 2005), located at <http://www.cibo.org/pubs/industrialboilerpopulationanalysis.pdf>.

Commission came to a different conclusion regarding the renewable generation facilities in the Covanta cases, which contained boilers that were similar in age to the Bucksport Biomass Plant Boiler 8, upon consideration of the available information on this specific issue which was not part of the disposition of the Covanta cases, I now believe that statement *in dicta* regarding those facilities operating beyond their previous useful lives may have been incorrect.²²

Nonetheless, given the significant increase in efficiency accomplished by these Verso investments in advanced biomass combustion and handling technologies, I readily agree that the efficiency improvements criteria for a qualifying refurbishment is satisfied as set forth in the Commission decision above. Therefore, I concur in the conclusion that these Boiler and generator modifications and additions are a sufficient investment in upgrading Verso's power generation plant to satisfy the refurbishment standard under the improvements in efficiency prong and qualify for approval as a Maine Class I New Renewable Resource.

²² I note this would not change the Commission's decision in the Covanta cases because the Commission found in the Covanta cases that the Jonesport and West Enfield renewable generation facilities did not satisfy the standard for refurbishment. *Covanta Energy Request for RPS Eligibility*, Docket Nos. 2010-189 and 2010-210, Order Denying New Renewable Resource Certification (November 12, 2010).

NOTICE OF RIGHTS TO REVIEW OR APPEAL

5 M.R.S.A. § 9061 requires the Public Utilities Commission to give each party to an adjudicatory proceeding written notice of the party's rights to review or appeal of its decision made at the conclusion of the adjudicatory proceeding. The methods of review or appeal of PUC decisions at the conclusion of an adjudicatory proceeding are as follows:

1. Reconsideration of the Commission's Order may be requested under Section 1004 of the Commission's Rules of Practice and Procedure (65-407 C.M.R.110) within 20 days of the date of the Order by filing a petition with the Commission stating the grounds upon which reconsideration is sought.
2. Appeal of a final decision of the Commission may be taken to the Law Court by filing, within 21 days of the date of the Order, a Notice of Appeal with the Administrative Director of the Commission, pursuant to 35-A M.R.S.A. § 1320(1)-(4) and the Maine Rules of Appellate Procedure.
3. Additional court review of constitutional issues or issues involving the justness or reasonableness of rates may be had by the filing of an appeal with the Law Court, pursuant to 35-A M.R.S.A. § 1320(5).

Note: The attachment of this Notice to a document does not indicate the Commission's view that the particular document may be subject to review or appeal. Similarly, the failure of the Commission to attach a copy of this Notice to a document does not indicate the Commission's view that the document is not subject to review or appeal.

Claimed Capability Audit – Notification of Results

In accordance with the provisions of the M-RPA Manual, a Claimed Capability Audit (CCA) has been conducted on your Generator Asset. This is the notification of results of the CCA.

Audit ID# **8139**

Audit Date: **11/29/12**

Demonstration Period: **Winter**

Demonstration Year: **2012**

Asset Name: **VERSO BUCKSPORT G5**

EMS Short Name: **BKG5**

Asset ID #: **40342**

Asset Audit Type: **F**

Seasonal Claimed Capability (SCC) at time audit was conducted:

Winter	Summer
25	25

Audit Type: **CCA-Establish**

Date Audit Requested (CCA-Establish, CCA-Restore, CCA-Retest)	11/15/12 0:00
Date Designation of Audit received by ISO-NE (CCA-Test)	
Date and Time of Audit Start (Hour ending, 1-24)	11/19/12 11:00
Date and Time of Audit End (Hour ending, 1-24)	11/19/2012 14:00

Audit Details

Audit Duration Hours: **4**

Adjustment Data, if Applicable

Date and HE of Audit	Net MW Output (RQM)	Station Service Load	Gross MW Output
11/19/2012 11:00	23.587*	0.000	24.063
11/19/2012 12:00	23.585	0.000	24.068
11/19/2012 13:00	23.573	0.000	24.070
11/19/2012 14:00	23.599	0.000	24.071
Average Output Demonstrated, unadjusted (MW)			
	23.586	0.000	24.068

	Temperature (degrees F)	Steam Exports (lbs./hr.)
HE		
HE		
HE		
HE		
HE		
HE		
HE		
HE		
HE		
HE		
Avg. Temp.		

For Units Requiring Temperature and/or Steam Export Adjustment

Average Output Demonstrated, Adjusted for Temperature and/or Steam Exports - Winter (MW)	0.000
Average Output Demonstrated, Adjusted for Temperature and/or Steam Exports - Summer (MW)	0.000
Audit Result:	Successful

*This is the corrected value to be submitted by Meter Reader
 This was a successful CCA-Establish however the asset did not meet or beat the submitted target SCC. ISO New England adjusted the Winter and Summer SCC's on the NX-12 to the demonstrated amount. No further action is required. □
 Ask ISO Issue 12752 was created and assigned to this CCA-Establish. □

Actions required with comments

Name
 Audit Results processed by: **Jim Nichols**

Telephone #
413-540-4678

E-mail
jnichols@iso-ne.com

VERSO BUCKSPORT LLC
CERTIFICATE OF SECRETARY

The undersigned, being the duly qualified, appointed and acting Secretary of Verso Bucksport LLC, a Delaware limited liability company (the "Company"), hereby certifies that Glenn Poole, in his capacity as Manufacturing Support Manager – Energy, is authorized, in the name and on behalf of the Company, to execute, deliver and file with the State of Rhode Island Public Utilities Commission a Statement of Eligibility Application relating to the sale of renewable energy credits arising from the generation of electricity at the Company's biomass generation facilities (the "Application"), to legally bind the Company as set forth in the Application, and to take any and all other actions in furtherance of the Company's interest in connection with the Application.

IN WITNESS WHEREOF, the undersigned has executed and delivered this Certificate of Secretary on April 3, 2012.

VERSO BUCKSPORT LLC

By: Peter H. Kesser
Peter H. Kesser
Secretary

Verso Paper Bucksport, Maine Historical Generation Baseline for Verso Bucksport: Redacted

Fuels Consumed						
Year	#6 Fuel Oil Burned (Gallons) in all Boilers	Coal Burned #8 (Tons)	Biomass Burned #8 (Tons)	TDF Burned #8 (Tons)	Biomass - Fiber Burned #8 (Tons)	Total Heat Input (MMBTu)
1995						9,577,203
1996						7,237,672
1997						9,751,402

Renewable Generation Calculations											
Year	Biomass BTU/lb dry	Bark % H2O	Biomass - Fiber BTU/lb dry	Biomass - Fiber % H2O	Biomass BTU/lb AR*	Biomass-Fiber BTU/lb AR*	Biomass AR* mmBTU/ton	Biomass-Fiber AR* mmBTU/ton	Biomass MWh	Biomass-Fiber MWh	Total Renew MWh
1995	8,847	40.3	5,947	72.4	5281.7	1641.4	10.56	3.28	86733	4244	90977
1996	8,847	50.9	6,283	78.7	4343.9	1338.3	8.69	2.68	56335	4141	60476
1997	8,745	41.3	6,930	72.2	5133.3	1926.5	10.27	3.85	85326	6929	92255
Average									76131	5105	81236

Btu/lb. dry

Biomass – 8847, 8847, 8745 @ 40.3%, 50.9%, and 41.3% H2O respectively

Biomass - Recovered Fiber – 5947, 6283, 6930 @ 72.4%, 78.7%, 72.2% H2O respectively

Conversion Factors	
Fuel to steam efficiency (#8)	
steam to electricity efficiency	
BTU's per 1 kWh	3414

* AR - As received or Green basis



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

BETH NAGUSKY
ACTING COMMISSIONER

**Verso Bucksport, LLC
Hancock County
Bucksport, Maine
A-22-77-4-A**

**Departmental
Findings of Fact and Order
New Source Review
Amendment #3**

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

I. REGISTRATION

A. Introduction

FACILITY	Verso Bucksport LLC (Verso Bucksport)
PART 70 LICENSE NUMBER	A-22-70-A-I
LICENSE TYPE	Chapter 115 Major Modification
NAICS CODES	322121 (pulp mill producing paper)
NATURE OF BUSINESS	Groundwood and thermomechanical pulp, papermaking
FACILITY LOCATION	Main Street, Bucksport, Maine
PART 70 LICENSE ISSUANCE DATE	December 30, 2004
NSR AMENDMENT ISSUANCE DATE	November 29, 2010

B. Amendment Description

Verso Bucksport has submitted a major modification to modify the biomass feed rate in Boiler 8 to allow for the use of additional biomass fuel (from 26 tons/hr to approximately 80 tons/hr) in order to produce additional energy with a new 25 MW turbine. Both coal and tire derived fuel will be removed as licensed fuels, and fuel oil will be limited to 1.5 million gallons per year.

This amendment includes PM, SO₂, NO_x, and CO Best Available Control Technology (BACT) findings, VOC Lowest Achievable Emission Rate (LAER) findings, VOC offsets, and an ambient air quality analysis.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04679-2094
(207) 764-0477 FAX: (207) 760-3143

C. Emission Equipment

The equipment addressed in this air emission license is the 814 MMBtu/hr multi-fuel Boiler 8. The proposed modifications are as follows:

	Current Boiler 8	Proposed Boiler 8
Capacity:	814 MMBtu/hr	- 814 MMBtu/hr
Fuels:	<ul style="list-style-type: none">- biomass- #6 and #2 fuel oil, waste oil- natural gas- coal- tire derived fuel	<ul style="list-style-type: none">- increase biomass feed rate- 1.5 million gallons annual fuel oil limit- natural gas- discontinuation of coal and tire derived fuel
Control Equipment:	<ul style="list-style-type: none">- Multiple centrifugal cyclones- Electrostatic Precipitator (ESP)- low NO_x burners	<ul style="list-style-type: none">- Multiple centrifugal cyclones- ESP- low NO_x burners- Selective Non-catalytic Reduction (SNCR)

D. Application Classification

The application for Verso Bucksport seeks to modify a Best Available Control Technology (BACT) analysis performed per New Source Review. The application does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping.

The modification of a major source is considered a major modification based on whether or not expected emissions increases exceed the "Significant Emission Increase Levels" as given in *Definitions Regulation*, 06-096 CMR 100 (as amended).

The emission increases are determined by subtracting the average actual emissions of the 24 months preceding the modification (or representative 24 months) from the maximum future license allowed emissions. The results of these calculations are as follows:

Pollutant	Past Actuals ^a (tons/yr)		Future License ^b (ton/year)	Net Change (ton/year)	Significance Level (ton/year)
	2007	2008			
PM	18.2	15.5	95.3	78	25
PM ₁₀	18.2	15.5	95.3	78	15
SO ₂	490.3	334.7	243.9	-169	40
NO _x	357.2	302.9	476.3	146	40
CO	224.1	190.7	952.7	745	100
VOC	70	59.6	158.8	94	40

^a 2007 and 2008 numbers are calculated using actual fuel use; emission factors used for NO_x and CO are based on CEMS data, for CO and VOC are based on license limits; and for PM are based on stack test results.

^b Proposed allowables (future license) are based on license limits and operational caps.

Note: The above numbers are for Boiler 8 only. None of the other equipment at the facility is affected by this amendment.

This amendment is determined to be a major modification for PM/PM₁₀, NO_x, CO, and VOC. The amendment has been processed under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended) since the changes being made are not prohibited in the Part 70 air emission license. This amendment will need to be incorporated into the Part 70 air emission license no later than 12 months from commencement of the requested operation.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

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

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

Process Description

The increase in biomass usage in Boiler 8 to approximately 80 tons/hour will require various combustion changes to the boiler, including upgrades to the overfire air system.

The increased biomass usage will necessitate a capacity upgrade of the existing biomass handling and storage system. The additions to the biomass handling and storage system will be: a new truck dumper with a live bottom bin and back rake; a new scalping screen and hog for biomass from the new truck dumper; and an additional biomass storage pile.

The new turbine generator will be a 25 MW condensing single casing turbine with a generator gear reducer. The generator (generator 5) will be cooled with a brushless excitation system. The condenser will utilize steam ejectors for air removal and vertical turbine pumps will transfer condensate from the condenser hotwell to an existing condensate collection tank in the boiler building. Circulation water pumps will supply river water for cooling from the existing dump condenser cooling water line.

B. Boiler 8

Boiler 8 is an 814 MMBtu/hr boiler construction started in 1982 and operations began in 1984. The unit is licensed to fire fuel oil (including specification waste oil, off-specification waste oil, and #6 and #2 fuel oil), natural gas, tire derived fuel, bituminous coal, and biomass (including wood waste, wood chips, bark, paper mill sludge, waste papers, and fiber core ends). Boiler 8 is controlled by multiple centrifugal cyclones, an electrostatic precipitator (ESP), and low NO_x burners for oil and gas. Emissions exit through a 362 ft stack.

Verso Bucksport has requested to make upgrades to the boiler to be able to increase the biomass firing rate to approximately 80 tons/hr (from 26 tons/hr) in order to generate steam from renewable resources to drive a new approximately 25 MW turbine. The proposed emissions assume a peak heat input rate of 814 MMBtu/hr and a 725 MMBtu/hr average rating with an annual fuel oil limit of 1.5 million gallons. Coal and tire derived fuel will be discontinued once the changes to the boiler are in place.

New Source Performance Standards (NSPS) Requirements

Boiler 8 is subject to NSPS 40 CFR Part 60 Subpart A, *General Provisions* and Subpart D, *Standards of Performance For Fossil Fuel Fired Steam Generators For Which Construction Is Commenced After August 17, 1971*. After the proposed changes, Boiler 8 will continue to be subject to 40 CFR Part 60 Subpart D.

The boiler changes will not trigger additional requirements under NSPS 40 CFR Part 60 for new sources since the changes do not meet the definitions of a modification or a reconstruction. Under NSPS 40 CFR §60.14(a), modification is

results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act.” and 40 CFR §60.14(b) states “...Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable.” Emission rates in lb/MMBtu and lb/hr will either be reduced or remain the same as currently licensed as a result of the upgrades to Boiler 8, therefore the proposed changes do not qualify as a modification under NSPS. Under NSPS 40 CFR §60.15(b), reconstruction is defined as “... the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technologically and economically feasible to meet the applicable standards set forth in Part 60/Part 63.” 40 CFR §60.15(c) further defines ‘fixed capital cost’ as “the capital needed to provide all the appreciable components”. Based on preliminary estimates and engineering by a third party, the cost of the Boiler 8 changes attributable to the boiler and the wood handling infrastructure, including the equipment, materials, labor, and engineering (excluding the turbine and condensers) is approximately \$17,031,000 (40% of the \$42,096,000 estimated project cost). The cost of a new 814 MMBtu/hr biomass boiler and corresponding material handling system is approximately \$73,000,000 based on EPA’s September 2007 CHP Biomass Catalog, Chapter 5 scaled to a 814 MMBtu/hr boiler. The proposed Boiler 8 modifications are 23% of the cost to construct a new facility, therefore the Boiler 8 upgrades do not meet the definition of reconstruction under NSPS.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements

The Boiler 8 upgrades will not trigger new source requirements under MACT (Maximum Achievable Control Technology), based on the definitions in 40 CFR §63.2 which are similar to the NSPS definitions. Boiler 8 may be subject to the proposed 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial and Institutional Boilers and Process Heaters once the regulation is promulgated.

Acid Rain Program

The Acid Rain Program (Title IV of the Clean Air Act of 1990) addresses reductions of SO₂ and NO_x emissions from electric generating utility units. 40 CFR §72.2 defines a utility unit as a fossil fuel fired combustion device owned or operated by a utility: “(1) That serves a generator in any State that produces electricity for sale, or (2) That during 1985, served a generator in any State that produced electricity for sale.....(4) Notwithstanding paragraphs (1) and (2) of this definition, a unit that cogenerates steam and electricity is not a utility unit for

purposes of the Acid Rain Program, unless the unit is constructed for the purpose of supplying, or commences construction after November 15, 1990 and supplies, more than one-third of its potential electrical output capacity and more than 25 MWe output to any power distribution system for sale.” 40 CFR §72.6(b)(4)(i) clarifies further and states that this type of cogeneration unit is not considered an affected unit “...A cogeneration facility which: (i) For a unit that commenced construction on or prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis)...” For Boiler 8, historically Generator 3 has never exceeded 219,000 MW-hrs of annual output for sale (this is the only unit supplied by Boiler 8 which sells to the grid). Future power generation projections anticipate that Generator 3 in combination with the proposed Generator 5 will not exceed the 219,000 MW-hrs or 1/3 capacity for electrical sales threshold. Therefore, Boiler 8 meets the exemption criteria for the Acid Rain Program.

Best Available Control Technology (BACT)

Verso Bucksport submitted a BACT analysis as part of the license application. EPA’s RACT/BACT/LAER Clearinghouse was reviewed for requirements on similar units. Verso Bucksport also included a review of 12 recent Maine air emission licenses for biomass boilers. This information, along with economic impact, technical feasibility, and environmental impact, was used to determine the available control technologies and corresponding levels of control for the boiler.

The summary of the BACT analysis for Boiler 8 is the following:

PM/PM₁₀/PM_{2.5} - Options for controlling particulate matter from biomass boilers include mechanical collectors, wet scrubbers, electrostatic precipitators (ESPs), fabric filters, and good combustion control. The most effective PM control equipment being successfully applied to biomass boilers are ESPs (90-99% removal). The other types of control equipment have lower removal rates.

PM limits for biomass boilers recently licensed in Maine ranged from 0.02 lb/MMBtu to 0.036 lb/MMBtu with varying averaging times. PM limits for biomass boilers in EPA’s BACT/RACT/LAER Clearinghouse ranged from 0.012 lb/MMBtu (LAER and not yet built) to 0.14 lb/MMBtu with varying averaging times.

Verso Bucksport shall continue to use an ESP on Boiler 8 and meet a BACT emission limit for PM/PM₁₀ of 0.03 lb/MMBtu (24.4 lb/hr).

This limit is more stringent than the PM/PM₁₀ NSPS 40 CFR Part 60, Subpart D standard of 0.1 lb/MMBtu and the 0.06 lb/MMBtu standard in *Fuel Burning Equipment Particulate Emission Standard*, 06-096 CMR 103 (as amended). Boiler 8 is currently licensed at a PM limit of 0.06 lb/MMBtu.

Verso Bucksport shall perform two PM_{2.5} stack tests within a 16 month period after the start of operation of the upgraded boiler. The stack tests shall be performed in accordance with the appropriate EPA method or other method as approved by EPA and the Department. Verso Bucksport shall submit an amendment application to the Department which shall include a proposed PM_{2.5} limit for the boiler within 6 months of the last test date.

SO₂ – The options for controlling sulfur dioxide from boilers include wet scrubbers, spray dryer absorbers, sulfur-absorbing bed compounds such as limestone or dolomite, dry sorbent injection followed by either a fabric filter or ESP, and low sulfur fuels with good combustion controls. This boiler will not be firing high sulfur fuels such as coal and tire derived fuel. Due to the small quantity of SO₂ emissions from biomass, the fuel oil limit, and the extensive cost of controls, post combustion controls were not justified as BACT.

Verso Bucksport shall meet the currently licensed BACT SO₂ limit of 0.8 lb/MMBtu (651.2 lb/hr).

NO_x - Combustion control options for controlling nitrogen oxides from biomass boilers include overfire air ports, low excess air firing, water injection into the furnace, and Ecotube technology. Post-combustion control options include selective catalytic reduction (SCR), regenerative selective catalytic reduction (R-SCR), and selective non-catalytic reduction (SNCR). All three post combustion control technologies consist of urea (or ammonia) injection into the flue gas to selectively reduce NO_x to nitrogen and water.

SCR, which uses ammonia as a reducing agent and a catalyst placed in the flue gas stream at a specific temperature, was determined to be technically feasible for this boiler. SCR systems are normally placed prior to other air pollution control equipment, however the use of wood as a fuel creates fine particulate matter that would likely plug an SCR catalyst and reduce the effectiveness of the SCR system. Also, ammonia salts would likely be formed from the reaction of acid gases and residual ammonia, adding to the plugging of the catalyst. These problems would require frequent catalyst replacement which results in high operating costs. Based on the operating temperature requirements for SCR (600°F) and the high

particulate loading of a biomass boiler, a post particulate control reheat system would be required and therefore R-SCR was further analyzed as a BACT option, rather than the traditional SCR system.

R-SCR, which is a combination of standard SCR technology and the regenerative heat recovery technology utilized with Regenerative Thermal Oxidizers (RTOs), was considered technically feasible for this boiler. An R-SCR system would be located downstream of the ESP to minimize particulate binding. However, with cooler stack temperatures at this location, additional heat must be added for optimum catalytic performance. An R-SCR system also requires considerable space to allow the ammonia reagent to mix with the flue gas prior to contacting the catalyst to ensure NO_x removal efficiency.

R-SCR was rejected as BACT due to high operating costs, including high additional heat requirements, efficiency losses from excessive back pressure, chemical usage, and catalyst replacement. R-SCR (estimated as being equivalent cost to SCR) was estimated having a direct annual cost of \$1,501,482 and indirect annual cost of \$2,868,563 (total annual cost of \$4,370,046), and a cost effectiveness value of \$7478 per ton of NO_x removed. The cost effectiveness was based on a control efficiency of 70%.

SNCR uses injection of ammonia or urea into the flue gas downstream of the combustion zone. The high temperature of the injection zone supports high chemical reaction so that a catalyst is not required. The cost effectiveness of an SNCR system was estimated to be \$2468 per ton of NO_x removed, based on a control efficiency of 50% (removing 344 tons of NO_x). Although there are environmental impacts (unreacted ammonia emissions known as ammonia slip) and energy impacts (additional electric power used and fuel combusted), SNCR was considered a viable BACT option.

Wood biomass boilers in the Northeast have been issued permits with the limits in the range of 0.065 to 0.0752 lb/MMBtu (with various averaging times and justifications) using Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), or modified configurations of these controls. These limits were included in Verso's BACT analysis and were found to be neither technically nor economically feasible for Boiler 8 as described above. The permits incorporating modified SCR/SNCR technologies fell into one or more of the following three categories which do not apply to Boiler 8: (1) subject to LAER; (2) electing to install the technology to meet a given State's Renewable Portfolio Standard (RPS);

and /or (3) have not yet been constructed and have not proven simultaneous compliance with current NO_x, CO, and NH₃ BACT limits.

Boiler 8 differs from the facilities that have been permitted with modified SCR/SNCR for the following reasons:

- it is not subject to LAER;
- it is a retrofit of an existing boiler;
- it will be fitted with a multi-level fuel feed system including biomass suspension firing with is substantively unique;
- it serves a manufacturing plant and therefore swings based on changing demand, unlike a base-loaded electric utility operation which is more steady state;
- it is a multifuel boiler licensed to burn a broad range of sludge and woody biomass with variable moisture contents and fossil fuels;
- it must simultaneously meet restrictive NO_x, CO, and NH₃ standards; and
- the lb/MMBtu limit includes startup and shutdown conditions.

NO_x limits for biomass boilers recently licensed in Maine ranged from 0.0752 lb/MMBtu to 0.3 lb/MMBtu with varying averaging times, control devices, and reasons for the limits.

Verso Bucksport proposed SNCR on Boiler 8. The Department determined the NO_x BACT emission limits to be 244.2 lb/hr (calculated using 0.3 lb/MMBtu) on an hourly basis and 0.15 lb/MMBtu on a 30 day rolling average for all fuels.

This is more stringent than the current license limit which has separate emission rates for the various fuels based on 40 CFR Part 60, Subpart D (0.2 lb/MMBtu on a 3-hr rolling average for gaseous fuels, 0.3 lb/MMBtu on a 3-hr rolling average for oil or a combination of natural gas, TDF, oil, or biomass, and 0.45 lb/MMBtu on a 24-hr block average for coal or a combination of coal, TDF, and biomass).

- CO - The options for controlling carbon monoxide from a biomass boiler include an oxidation catalyst, thermal oxidation, and good combustion control. CO emissions result from incomplete combustion.

An oxidation catalyst lowers the activation energy necessary for CO to react with available oxygen in the boiler exhaust to produce CO₂. An oxidation catalyst is more typically applied to boilers without a high particulate matter emission rate since the catalyst should be placed before the PM control device to take advantage of the optimum temperature for catalyst activation. For a biomass boiler, the oxidation catalyst would

need to be placed after a PM control device which would mean reheating the flue gas. An oxidation catalyst was estimated having a direct annual cost of \$742,790, indirect annual cost of \$2,249,104, total annual cost of \$2,99,895, and a cost effectiveness value of \$6,281 per ton of CO removed (removing 476 tons of CO). The cost effectiveness was based on a control efficiency of 50%. Based on the economics, the energy impacts of firing additional fuel to support the reheat burners, and the environmental impacts of additional emissions, an oxidation catalyst was not proposed as BACT.

Thermal oxidation reduces CO emissions by using high temperature post combustion. The application of additional thermal oxidation for Boiler 8 would require additional fuel usage and would result in additional secondary emissions. This type of additional control is usually not found on biomass boilers, and is essentially occurring in Boiler 8 already. Thermal oxidation was not considered further as a viable BACT option.

Good combustion practices include optimizing combustion conditions such as residence time, temperature, and mixing to reduce CO emissions.

CO limits for biomass boilers recently licensed in Maine ranged from 0.08 lb/MMBtu to 1.5 lb/MMBtu with varying averaging times. CO limits for biomass boilers in EPA's BACT/RACT/LAER Clearinghouse ranged from 0.1 lb/MMBtu to 0.78 lb/MMBtu with varying averaging times.

Verso Bucksport proposed to use good combustion practices to minimize CO emissions. The Department determined the CO BACT emission limits to be 435 lb/hr on a 24 hour block average basis (based on 0.6 lb/MMBtu and 725 MMBtu/hr) and 0.30 lb/MMBtu on a 30 day rolling average.

This is an increase over the current license limit which is 0.16 lb/MMBtu.

Ammonia – Unreacted ammonia (ammonia slip) from the SNCR system shall be limited to a BACT emission rate of 40 ppm from startup of the upgraded boiler until 24 months later when the limit shall be 20 ppm.

Opacity – Visible emissions from Boiler 8 shall not exceed 20% opacity on a six (6) minute block average basis, except one (1) six (6) minute block average in a 1-hour block period of not more than 27% opacity.

To minimize opacity as an indicator of particulate matter emissions, Verso Bucksport shall use an indicator set point of 10% opacity. Specifically, when an opacity reading of greater than 10% for ten consecutive six-minute block average periods is reached, Verso Bucksport will check the

particulate control parameters of the multiple centrifugal cyclones and the ESP. An opacity reading of greater than 10% for ten consecutive six-minute block average periods will be considered an excursion that shall be reported in the quarterly report, along with corrective action. This shall not apply during startup, shutdown, and malfunction. Excursion shall have the definition as stated in 40 CFR §64.1 (an excursion is not necessarily an exceedance). The Department may amend or remove this requirement upon written justification from the facility.

Lowest Achievable Emission Rate (LAER)

Verso Bucksport is subject to LAER for VOCs. Per the definition in 06-096 CMR 100, LAER is the more stringent rate of emissions based on (1) the most stringent emission limitation contained in the implementation plan of any State for that class or category of source, unless the owner or operator of the proposed source demonstrates that those limitations are not achievable; or (2) the most stringent emission limitation which is achieved in practice by that class or category of source, whichever is more stringent.

VOC - The options for controlling volatile organic compounds from industrial process where VOCs are emitted through evaporation of solvents include incineration, catalytic oxidation, adsorption, and condensation. However, no add-on pollution control technologies are typically used to control VOC from boilers since boiler combustion chambers act as incineration units to combust the majority of VOCs. Because of the low quantity and concentration of VOC in the flue gas, add-on control technologies are not considered technically feasible for the biomass boiler.

Verso Bucksport proposed to use good combustion practices to minimize VOC emissions. The LAER emission limit for VOC from Boiler 8 is determined to be the existing 0.05 lb/MMBtu limit (40.7 lb/hr).

Verso Bucksport will obtain offsets for the VOC emissions as set forth in section II(C) below.

Control Equipment

Emissions from Boiler 8 will be controlled with multiple centrifugal cyclones, an ESP, low NO_x burners for oil and gas, an SNCR system, and good combustion control.

Periodic Monitoring

Periodic monitoring for boiler 8 shall consist of maintaining fuel use records, fuel oil sulfur percent by weight, a log of ESP secondary T/R voltage and current

readings, stack testing for particulate matter every two years, and inspection and maintenance of pollution control equipment (including following a multiclone maintenance plan). Note that the periodic monitoring in this license relating to the ESP for Boiler 8 may be superceded by the monitoring requirements of 40 CFR Part 63, Subpart DDDDD once promulgated.

CEMS and COMS

Continuous emission monitors (CEMs) shall be required for NO_x, SO₂, CO, CO₂ or O₂, and a continuous opacity monitor (COM) shall be required for opacity. The CEMs and COM shall be operated in accordance with Verso Bucksport's monitoring plan, incorporating 40 CFR §60.45 and *Source Surveillance*, 06-096 CMR 117 (as amended).

C. VOC Offsets

Verso Bucksport must obtain offsets for the proposed VOC increase of 94 tons/year. Per *Growth Offset Regulation*, 06-096 CMR 113 (last amended April 18, 1999), major sources located within the geographical bounds of an area which is designated as nonattainment under the former one-hour federal ozone standard or under the eight-hour federal ozone standard, whichever is in effect, or in the Ozone Transport Region must obtain offset credits. This includes sources proposing a modification that would result in a significant emissions increase of the nonattainment pollutant after the application of LAER. The offset credit must be permanent, enforceable, surplus, real and a quantifiable reduction.

For the proposed Boiler 8 upgrade, Verso Bucksport must obtain reduction credits for VOC, but not NO_x. The facility is located within the Section 182(f) 'NO_x waiver' area and is therefore exempt from obtaining offsets for NO_x emissions.

Since Verso Bucksport is in the NO_x waiver area, NO_x credits may be used to offset VOC emissions to the extent allowed under the Clean Air Act. The same number of offset credits must be obtained whether NO_x or VOC credits are used. All trades involving VOC offset credits or an increase in VOC emissions requiring offsets must be presented to the Board of Environmental Protection prior to Department approval and the offset credit reductions must be federally enforceable by the time the air emission license for the user is issued.

Verso Bucksport has proposed to permanently shutdown Boiler 7 (226 MMBtu/hr, oil fired) to obtain the offsets for the Boiler 8 project. Using the established VOC offset ratio of 1.15 to 1, Verso Bucksport must obtain 108.1 tons to offset the 94 ton VOC increase. Offset credits may be generated based on actual emission reductions for any consecutive 24-month period after May 31, 1994. Boiler 7 NO_x credits were calculated based on 1997 and 1998 fuel oil data.

An average of 8,366,000 gallons of #6 fuel was used (8,541,000 gallons in 1997 and 8,191,000 gallons in 1998). Actual NO_x emissions were calculated to be 170.5 ton/year (using historic NO_x CEM data of 0.27 lb/MMBtu). 06-096 CMR 113, section 5(D) requires an adjustment to the base credit by applying a compliance assurance multiplier reflecting the method of measurement. Use of CEM data has a 0.95 compliance assurance multiplier; therefore, the NO_x offset credit available from Boiler 7 is 162 tons/year. 06-096 CMR 113, section 4(K) allows the use of offset credits from shutdowns provided that the source using the offset credits demonstrates to MEDEP that the use of these offset credits will result in a net air quality benefit in Maine, as compared with emissions prior to the shutdown. The NO_x reductions from permanently shutting down Boiler 7 have not been previously accounted for or used in netting calculations. The Department certifies that the emissions from the permanent shutdown of Boiler 7 can be used to offset the upgraded Boiler 8 VOC emissions.

D. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review amendment shall apply to the facility upon amendment issuance. Per *Part 70 Air Emission License Regulations*, 06-096 CMR 140 (as amended), Section 2(J)(2)(d), for a modification that has undergone NSR requirements or been processed through 06-096 CMR 115, the source must then apply for an amendment to the Part 70 license within one year of commencing the proposed operations as provided in 40 CFR Part 70.5.

III. AMBIENT AIR QUALITY ANALYSIS

A. Overview

A refined modeling analysis was performed to show that emissions from Verso Bucksport, in conjunction with other sources, will not cause or contribute to violations of Maine and National Ambient Air Quality Standards (MAAQS/NAAQS) for PM₁₀, NO₂ or CO. Since SO₂ impacts were adequately addressed as part of a previous modeling analysis and because no emissions increase in SO₂ will occur, no MAAQS and NAAQS SO₂ analyses were required.

It has been determined that Verso Bucksport does not consume SO₂, PM₁₀ or NO₂ increment, therefore, no Class I or Class II increment analyses were required.

Based upon the distance from Verso Bucksport to the nearest Class I area (38 kilometers) and the magnitude of emissions increase, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I increment standards and Air Quality Related Values (AQRVs) is not required.

B. Model Inputs

The AERMOD-PRIME refined model was used to address standards and increments in all areas. The modeling analysis accounted for the potential of building wake and cavity effects on emissions from all modeled stacks that are below their calculated formula GEP stack heights.

All modeling was performed in accordance with all applicable requirements of the Maine Department of Environmental Protection, Bureau of Air Quality (MEDEP-BAQ) and the United States Environmental Protection Agency (USEPA).

A valid five-year hourly on-site meteorological database was used in the AERMOD-PRIME refined modeling analysis. Five years of wind and temperature data were collected at heights of 15 and 100 meters at the Verso Bucksport monitoring site from 1988-1992. When possible, surface data collected at the Bangor NWS site were substituted for missing on-site data. All other missing data were interpolated or coded as missing, per USEPA guidance. In addition, hourly Bangor NWS data, from the same time period, were also used to supplement the primary surface dataset for the required variables that were not explicitly collected at the Verso monitoring site.

The surface meteorological data was combined with concurrent hourly cloud cover and upper-air data obtained from the Portland National Weather Service (NWS). Missing cloud cover and/or upper-air data values were interpolated or coded as missing, per USEPA guidance.

All necessary representative micrometeorological surface variables for inclusion into AERMET (surface roughness, Bowen ratio and albedo) were calculated using AERSURFACE from procedures recommended by USEPA.

Point-source parameters used in the modeling are listed in Table III-1.

TABLE III-1 : Point Source Stack Parameters

Facility/Stack	Stack Base Elevation (m)	Stack Height (m)	GEP Stack Height (m)	Stack Diameter (m)	UTM Easting NAD83 (km)	UTM Northing NAD83 (km)
CURRENT/PROPOSED						
Verso Bucksport						
• Stack 1 (Boilers 5, 6, 7)	3.96	81.99	116.96	2.60	515.471	4935.628
• Stack 2 (Boiler 8)	3.96	110.33	116.96	3.20	515.587	4935.680
• Turbine Stack	3.96	76.20	116.96	5.79	515.644	4935.694

Emission parameters for NAAQS, MAAQS and increment modeling are listed in Table III-2. The emission parameters for Verso Bucksport are based on the

maximum license allowed (worst-case) operating configuration. For the purposes of determining PM₁₀, all PM emissions were conservatively assumed to convert to PM₁₀. For the purposes of determining NO₂ impacts, the Plume Volume Molar Ratio Method (PVMRM) was applied. The PVMRM is the third-tier screening approach which limits the conversion of NO to NO₂ based on the amount of monitored ozone available. Representative ozone data, concurrent with the 1988-1992 meteorological database, was used in the analysis.

TABLE III-2 : Stack Emission Parameters

Facility/Stack	Averaging Periods	SO ₂ (g/s)	PM ₁₀ (g/s)	NO ₂ (g/s)	CO (g/s)	Stack Temp (K)	Stack Velocity (m/s)
MAXIMUM LICENSE ALLOWED							
Verso Bucksport							
• Stack 1 (Boilers 5, 6, 7)	All	nm	7.80	42.80	3.64	433.00	24.20
• Stack 2 (Boiler 8)	All	nm	3.08	30.77	61.54	439.00	13.60
• Turbine Stack	All	nm	2.14	35.15	15.49	469.26	17.00

C. Single Source Modeling Impacts

AERMOD-PRIME refined modeling, using five years of sequential meteorological data, was performed for a total of nine operating scenarios that represented maximum, typical and minimum operations.

The modeling results for Verso Bucksport alone are shown in Tables III-3. Maximum predicted impacts that exceed their respective significance level are indicated in boldface type. No further modeling was required for pollutants that did not exceed their respective significance levels.

TABLE III-3: Maximum AERMOD-PRIME Impacts from Verso Bucksport Alone

Pollutant	Averaging Period	Max Impact (µg/m ³)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Class II Significance Level (µg/m ³)
PM ₁₀	24-hour	7.10	513.980	4933.020	160.05	5
	Annual	0.38	514.430	4934.220	154.80	1
NO ₂	1-hour	645.53¹	-	-	-	10²
	Annual	2.48	514.430	4934.220	154.80	1
CO	1-hour	419.70	513.980	4934.120	165.19	2000
	8-hour	80.73	513.980	4932.820	170.81	500

¹ PVMRM not applied for determining significance impacts. Value based on the average of H1H (high-1st-high) concentrations for each of the five years of meteorological data, regardless of receptor location, per NESCAUM guidance.

² Interim Significant Impact Level (SIL) adopted by NESCAUM states

D. Combined Source Modeling Impacts

For predicted modeled impacts from Verso Bucksport alone that exceeded significance levels, as indicated in boldface type in Table III-3, other sources not explicitly included in the modeling analysis must be accounted for by using representative background concentrations for the area.

Background concentrations, listed in Table III-4, are derived from representative rural background data for use in the Eastern Maine region.

TABLE III-4 : Background Concentrations

Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$)
PM ₁₀	24-hour	42 ¹
NO ₂	1-hour	47 ²
	Annual	2 ³

¹ Background site - Baileyville

² MicMac Site - Presque Isle

³ Cadillac Mountain Site - Acadia National Park

MEDEP examined other area sources whose impacts would be significant in or near Verso Bucksport's significant impact area. Due to the Verso Bucksport's location, extent of the significant impact area and nearby source's emissions, MEDEP has determined that no other sources would be considered for combined source modeling.

For pollutant averaging periods that exceeded significance levels, the maximum modeled impacts for all sources were added with conservative rural background concentrations to demonstrate compliance with MAAQS and NAAQS, as shown in Table III-5. Because impacts for all pollutants using this method meet MAAQS and NAAQS, no further modeling analyses need to be performed.

TABLE III-5 : Maximum AERMOD-PRIME Combined Source Impacts

Pollutant	Averaging Period	Max Impact ($\mu\text{g}/\text{m}^3$)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Back-Ground ($\mu\text{g}/\text{m}^3$)	Max Total Impact ($\mu\text{g}/\text{m}^3$)	MAAQs/NAAQS ($\mu\text{g}/\text{m}^3$)
PM ₁₀	24-hour	7.10	513.980	4933.020	160.05	42	49.10	150
NO ₂	1-hour	94.45 ¹	514.380	4934.270	156.12	47	141.45	188
	Annual	2.48	514.430	4934.220	154.80	2	4.48	100

¹ PVMRM applied for determining final maximum predicted impact.

While PM_{2.5} modeling was not explicitly addressed as part of the AERMOD modeling analysis, USEPA determined that Verso Bucksport should demonstrate that they will not cause or contribute to violations of PM_{2.5} NAAQS. Results from the PM₁₀ modeling demonstrate that the 24-hour and annual predicted impacts were 7.10 and 0.38 $\mu\text{g}/\text{m}^3$, respectively. Based upon the very conservative assumption that all PM₁₀ emissions are converted to PM_{2.5}, these results, when coupled with representative background values of 17 $\mu\text{g}/\text{m}^3$ and 4.1 $\mu\text{g}/\text{m}^3$ (24-hour and annual background values, respectively), indicate that Verso Bucksport will not only meet 24-hour and annual PM₁₀ NAAQS, but will also meet 24-hour and annual PM_{2.5} NAAQS of 35 $\mu\text{g}/\text{m}^3$ and 15 $\mu\text{g}/\text{m}^3$.

E. Increment

It has been determined by that Verso Bucksport does not consume SO₂, PM₁₀ or NO₂ increment, therefore, Class II SO₂, PM₁₀, and NO₂ increment analyses were not performed.

F. Class I Impacts

Based upon the distance from Verso Bucksport to the nearest Class I area (38 kilometers) and the magnitude of emissions increase, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I increment standards and Air Quality Related Values (AQRVs) is not required.

G. Summary

In summary, it has been demonstrated that Verso Bucksport in its proposed configuration will not cause or contribute to a violation of any MAAQS or NAAQS for SO₂, PM₁₀, NO₂ or CO; or any SO₂, PM₁₀ or NO₂ Class I or II increment standard.

ORDER

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

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

The Department hereby grants Air Emission License A-22-77-4-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the standard and special conditions below.

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

SPECIFIC CONDITIONS

(1) Boiler 8 Upgrades

Verso Bucksport may upgrade Boiler 8 to allow for increased biomass firing. [06-096 CMR 115, BACT]

(2) Boiler 8 Requirements

These conditions shall be effective once the Boiler 8 starts up after upgrades have been completed, unless otherwise noted.

A. Verso Bucksport is licensed to fire the following fuels in boiler 8 (814 MMBtu/hr): fuel oil (including fuel oil, off-specification waste oil, and specification waste oil), natural gas, and biomass (including wood waste, wood chips, bark, mill waste treatment sludge, paper roll core ends, and waste papers).

1. The fuel oil sulfur content shall not exceed 0.7% by weight, demonstrated through record keeping.
2. Verso Bucksport shall not exceed a fuel oil usage of 1.5 million gallons per year in Boiler 8, based on a 12 month rolling total. Compliance shall be demonstrated through recordkeeping on a monthly and 12 month rolling total.

[MEDEP Chapter 115, BACT]

B. Verso Bucksport shall control particulate matter emissions from Boiler 8 with the operation and maintenance of a multicyclone followed by an electrostatic precipitator (ESP). The ESP is not required to be operated when firing only natural gas in Boiler 8. [06-096 CMR 115, BACT]

- C. Verso Bucksport shall control nitrogen oxide emissions from Boiler 8 with the operation and maintenance of an SNCR system. [MEDEP Chapter 115, BACT]
- D. Emissions from Boiler 8 shall not exceed the following, with the lb/MMBtu limits effective 9 months after startup of the upgraded boiler (the existing limits shall apply until that time) and the lb/hr limits effective at startup of the upgraded boiler:

	lb/MMBtu	Origin and Authority
PM	0.03	MEDEP 06-096 CMR 115, BACT
SO ₂	0.80 (3-hr rolling ave)	40 CFR §60.43
NO _x	0.15 (30 day rolling ave)	MEDEP 06-096 CMR 115, BACT
CO	0.30 (30 day rolling ave)	MEDEP 06-096 CMR 115, BACT

Pollutant	lb/hr	Origin and Authority
PM	24.4	MEDEP 06-096 CMR 115, BACT
PM ₁₀	24.4	MEDEP 06-096 CMR 115, BACT
SO ₂	651.2	MEDEP 06-096 CMR 115, BACT
NO _x	244.2	MEDEP 06-096 CMR 115, BACT
CO	435 (24-hr block ave)	MEDEP 06-096 CMR 115, BACT
VOC	40.7	MEDEP 06-096 CMR 115, BACT

E. Opacity

1. Verso Bucksport shall operate Boiler 8 such that visible emissions from the stack does not exceed 20% opacity on a six (6) minute block average basis, except one (1) six (6) minute block average in a 1-hour block period of not more than 27% opacity. [40 CFR § 60.42]
2. Verso Bucksport shall use an indicator set point of 10% opacity at which level an inspection of the particulate control parameters of the multiple centrifugal cyclones and EPS will be initiated when an opacity reading of greater than 10% for ten consecutive six-minute block average periods is reached. An opacity reading of greater than 10% for ten consecutive six-minute block average periods will be considered an excursion that shall be reported in the quarterly report, along with corrective action taken. This requirement shall not apply during startup, shutdowns, and malfunctions. [06-096 CMR 115]

- F. Ammonia emissions shall not exceed 40 ppm from startup of the upgraded boiler until 24 months later when the limit shall be 20 ppm. Compliance with the ammonia limit shall be demonstrated by a stack test within 12 months of start of operation of the SNCR system, again within 24 months of the initial

test, and by request thereafter. The stack test shall be performed in accordance with the appropriate 40 CFR Part 60, Appendix A Method or other method as approved by EPA and the Department. [06-096 CMR 115, BACT]

- G. Compliance with the opacity limit on the Boiler 8 stack shall be demonstrated by a continuous opacity monitoring system (COM) and the COM shall be maintained and operated in accordance with 06-096 CMR 117 and 40 CFR §60.45. [40 CFR §60.45 and 06-096 CMR 117]
- H. Verso Bucksport shall perform stack tests every other year on Boiler 8 to determine compliance with the PM emission limits (lb/MMBtu and lb/hr). The first stack test shall occur within 12 months of the start of operation of the upgraded boiler. The stack tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 or other method as approved by EPA and the Department. [MEDEP 06-096 CMR 115, BACT]

Verso Bucksport shall perform two PM_{2.5} stack tests within a 16 month period after the start of operation of the upgraded boiler. The stack tests shall be performed in accordance with the appropriate EPA method or other method as approved by EPA and the Department. Verso Bucksport shall submit an amendment application to the Department which shall include a proposed PM_{2.5} limit for the boiler within 6 months of the last test date. [MEDEP 06-096 CMR 115, BACT]

- I. Compliance with the SO₂ lb/MMBtu emission limits for Boiler 8 shall be on a 3-hr rolling average, demonstrated by an SO₂ CEMS. [40 CFR Part 60.45]. Verso Bucksport shall maintain the SO₂ CEMS in accordance with 06-096 CMR 117, and 40 CFR Part 60, Section 60.45. [MEDEP 06-096 CMR 117 and 40 CFR §60.45]
- J. Compliance with the NO_x lb/MMBtu emission limits for Boiler 8 shall be on a 30 day rolling average, demonstrated by a NO_x CEMS. Startup and shutdown shall be included in determining the 30 day rolling arithmetic average emission rates. [40 CFR §60.45]. Verso Bucksport shall maintain the NO_x CEMS in accordance with 06-096 CMR 117 and 40 CFR §60.45. [MEDEP 06-096 CMR 117 and 40 CFR §60.45]
- K. Compliance with the CO lb/MMBtu and lb/hr emission limits for Boiler 8 shall be on a 30 day rolling average and a 24-hr block average, respectively, demonstrated by a CO CEMS. Startup and shutdown shall be included in determining the 30 day rolling and 24-hr block arithmetic average emission rates. Verso Bucksport shall maintain the CO CEMS in accordance with 06-096 CMR 117. [MEDEP 06-096 CMR 117]

L. Calculation Corrections

1. For no more than six (6) hours during start-up, Verso Bucksport may make the following calculation corrections for Boiler 8:
 - a. Stack O₂ levels that exceed 14.0% may be replaced with a value of 14.0
 - b. Stack CO₂ levels less than 5.0% may be replaced with a value of 5.0
 - c. Hourly lb/MMBtu averages for SO₂, NO_x, and CO may be recalculated if the observed stack O₂ is greater than 14.0% and/or the observed stack CO₂ is less than 5.0% for no more than six (6) hours during start-up.
 - d. The recalculated hourly lb/MMBtu averages may be used for compliance purposes.
 2. While operating in warm standby mode firing natural gas without producing usable steam (boiler pressure is less than or equal to header pressure), Verso Bucksport may make the following calculation corrections for Boiler 8:
 - a. Stack O₂ levels that exceed 14.0% may be replaced with a value of 14.0
 - b. Hourly lb/MMBtu averages for SO₂ and NO_x may be recalculated if the observed stack O₂ is greater than 14.0% during warm standby mode firing natural gas without producing usable steam.
 - c. The recalculated hourly lb/MMBtu averages may be used for compliance purposes.
- [06-096 CMR 115, BACT]

M. For Boiler 8, exceedances of the opacity limit during the first six hours following the initiation of start-up from cold start-up, warm standby where no usable steam is being produced (boiler pressure is less than or equal to header pressure), or planned shutdown shall be exempt by the Department, provided that operating records are available to demonstrate that the facility was being operated to minimize emissions and, in the case of warm standby, to demonstrate that no usable steam was being produced. The total exemptions shall not be greater than 10 exceedances, based on 6 minute averages. Any person claiming an exemption shall have the burden of proving that any excess emissions were not caused entirely, or in part, by poor maintenance, careless operation, poor design or any other reasonably preventable condition.

[06-096 CMR 115, BACT]

N. Boiler 8 Periodic Monitoring

1. Verso Bucksport shall maintain monthly records of all fuels used in the boiler. The fuel oil use records shall include sulfur content, demonstrated by fuel analysis (es) from the supplier for each delivery. The waste oil use records may be on a monthly mill total basis and not a per boiler basis.

2. Verso Bucksport shall keep records of the results of the analysis(es) of representative waste oil sample(s) and shall test representative samples annually or more frequently if changes occur in the process that may effect the composition of the waste oil collected. The results of the analyses shall be kept on-site.
3. Verso Bucksport shall maintain a log of the ESP secondary T/R voltage and current meter reading and record the voltage and current meter reading once per day. The periodic monitoring in this license relating to the boiler 8 ESP will be superceded by the continuous monitoring system requirements of 40 CFR Part 63, Subpart DDDDD once the regulation is promulgated.
4. Verso Bucksport shall maintain a log detailing all routine and non-routine maintenance on the ESP. Verso Bucksport shall keep a log documenting the date and nature of all ESP failures.
5. Verso Bucksport shall keep a log(s) and maintain the Boiler 8 multiclones according to the plan previously submitted to the Department.

[MEDEP Chapter 115, BACT]

- O. Boiler 8 is subject to and shall comply with the applicable requirements of the Federal New Source Performance Standards 40 CFR Part 60, Subpart A (General Provisions) and Subpart D. [40 CFR Part 60, Subparts A and D]
- P. Verso Bucksport shall meet any applicable standards of 40 CFR Part 63, Subpart DDDDD once the regulation is promulgated.

(3) Offsets (Boiler 7)

1. Verso Bucksport shall permanently disable Boiler 7. Boiler 7 will no longer be a licensed source (effective once Boiler 8 starts up after its upgrades have been completed).
2. The Department certifies that the shutdown of Boiler 7 generates offset credits of 162 tons of NO_x.
3. Verso Bucksport shall use 108.1 tons of the Boiler 7 offset credits for the 94 tons increase of VOC from the Boiler 8 upgrade (at the 1.15 to 1 ratio).

[06-096 CMR 113]

Verso Bucksport, LLC
Hancock County
Bucksport, Maine
A-22-77-4-A

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Departmental
Findings of Fact and Order
New Source Review
Amendment #3

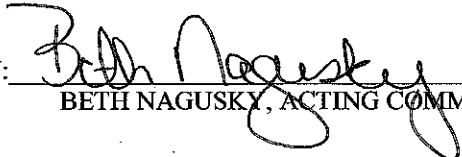
(4) Part 70 License Amendment

Verso Bucksport shall apply for a Part 70 license amendment within 12 months of commencing operation after the Boiler 8 upgrades occur as provided in 40 CFR Part 70.5. [06-096 CMR 140]

DONE AND DATED IN AUGUSTA, MAINE THIS 29th DAY OF November, 2010.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:


BETH NAGUSKY, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: July 26, 2010

Date of application acceptance: July 28, 2010

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.