Ohio | Public Utilities Commission

Online Application for Certification as an Eligible Ohio Renewable Energy Resource Generating Facility

Case Number: 14-0432-EL-REN

A. Generating Facility

Name of Renewable Generating Facility: Verso Quinnesec Mill-TG2
The name specified will appear on the facility's certificate of eligibility issued by the Public Utilities Commission of Ohio.

Facility Location
Street Address: W6791 US Hwy 2
City: Quinnesec **State:** MI **County:** Dickinson **Zip Code:** 49876

Facility Latitude and Longitude
Latitude: 45.803435 **Longitude:** -87.964933
There are internet mapping tools available to determine the latitude and longitude, if you do not have this information.

If applicable, U.S. Department of Energy, Energy Information Administration Form EIA-860 Plant Name and Plant Code.

EIA-860 Plant Name: Verso Paper Quinnesec Mich Mill
EIA Plant Code: 56187

B. Legal Name of the Facility Owner

Please note that the facility owner name listed will be the name that appears on the certificate.
The address provided in this section is where the certificate will be sent.
If the facility has multiple owners, please provide the following information for each on additional sheets.

Legal Name of the Facility Owner: Verso Quinnesec LLC
Legal Name of Facility Owner Representative: Steven Brooks
Title: Energy Optimization Manager
Organization: Verso Paper Corp.
Street Address: W 6889 US Hwy 2
City: Quinnesec **State:** MI **Zip Code:** 49876
Phone: 906-779-3681 **Fax:** 906-779-3265
Email Address: steve.brooks@versopaper.com
Web Site Address (if applicable): www.versopaper.com

C. List the name, address, telephone number and web site address under which the Applicant will do business in Ohio

Legal Name of Facility Owner Representative: Steven Brooks
Title: Energy Optimization Manager
Organization: Verso Paper Corp.
Street Address: W 6889 US Hwy 2
City: Quinnesec **State:** MI **Zip Code:** 49876
Phone: 906-779-3681 **Fax:** 906-779-3265
Email Address: steve.brooks@versopaper.com
Web Site Address (if applicable): www.versopaper.com

D. Name of Generation Facility Operating Company

Name of Generation Facility Operating Company: Verso Quinnesec LLC
Legal Name of Contact Person: Steven Brooks
Title: Energy Optimization Manager
Organization: Verso Paper Corp.
Street Address: W 6889 US Hwy 2
City: Quinnesec **State:** MI **Zip Code:** 49876
Phone: 906-779-3681 **Fax:** 906-779-3265
Email Address: steve.brooks@versopaper.com
Web Site Address (if applicable): www.versopaper.com

E. Regulatory/Emergency Contact

Legal Name of Contact Person: Mike Wilinski
Title: Quinnesec Mill Controller
Organization: Verso Paper Corp.
Street Address: W 6889 US Hwy 2
City: Quinnesec **State:** MI **Zip Code:** 49876
Phone: 906-779-3227 **Fax:** 906-779-3265
Email Address: mike.wilinski@versopaper.com
Web Site Address (if applicable): www.versopaper.com

F. Certification Criteria 1: Deliverability of the Generation into Ohio

Ohio Revised Code (ORC) Sec. 4928.64(B)(3)

The facility must have an interconnection with an electric utility.

Check which of the following applies to the facility's location:

No The facility is located in Ohio.

Yes The facility is located in a state geographically contiguous to Ohio (IN, KY, MI, PA, WV).

No The facility is located in the following state:

(If the renewable energy resource generation facility is not located in Ohio, Indiana, Kentucky, Michigan, Pennsylvania, or West Virginia, you are required to submit a POWER FLOW study by one of the regional transmission organizations (RTO) operating in Ohio, either PJM or Midwest ISO, demonstrating that the power from the facility is physically deliverable into the state of Ohio. This study must be appended to the application as an exhibit. THE FACILITY MUST BE INTERCONNECTED TO TRANSMISSION LINES. FOR ADDITIONAL INFORMATION ON DELIVERABILITY REQUIREMENTS, PLASE REFER TO THE COMMISSION FINDING & ORDER of 3/23/11 IN CASE NO. 09-555-EL-REN.)

G. Certification Criteria 2: Qualified Resource or Technology

You should provide information for only one resource or technology on this application; please check and/or fill out only one of the sections below. If you are applying for more than one resource or technology, you will need to complete a separate application for each resource or technology.

G.1. For the resource or technology you identify in Sections G.4 - G.13 below, please provide a written description of the system.

Verso Quinnesec LLC (the "Mill") operates a Pulp and Paper Mill in Quinnesec Michigan. According to Sec. 4928.64 et seq., Michigan is a state geographically contiguous to Ohio and Michigan eligible renewable assets can seek certification under Ohio Public Utilities Commission. The Mill produces black liquor and bark as byproducts of the Pulp and Paper manufacturing process. The Mill also purchases wood waste to supplement its own made fuels. These fuels are processed through two biomass boilers: The Recovery Boiler burning black liquor, and the Waste Fuel Boiler burning solid woody waste material. These fuels are considered to be renewable energy sources under Sec. 4928.64 et seq. In addition to burning black liquor and bark, the mill sometimes produces a small portion of its steam requirements from coal and natural gas.

The Mill generates electricity with a back pressure turbine registered as "Verso Quinnesec Mill-TG1" (TG1) and a newly installed steam turbine generator with double automatic extractions and condensing (TG2). TG2 (new project "Verso Quinnesec Mill-TG2") is the applicable generator to this application and was installed in combination with significant upgrades to the two biomass boilers and their supporting systems.

The Mill operates a total of three boilers:

Package Boiler - Natural Gas
Waste Fuel Boiler - Bark, Natural Gas, Coal
Recovery Boiler – Black Liquor, Natural Gas

The steam produced by the boilers feeds a single 600 PSIG steam header. This steam header is the sole supply of steam to the steam turbine generators. The total steam flows from each boiler are monitored continuously and the data archived in the Mill Process Information (PI) System.

Natural Gas flows are collected from field metering devices on each unit operation (including the three boilers) and the flows in KSCFH are archived in the PI System.

Black Liquor flow to the Recovery Boiler is measured in gallons with flow transmitters and refractometers which are used to determine the dry solids content. A calculated mass flow in thousand pounds per hour is archived in the PI system.

There is a belt scale on the bark conveyor to the Waste Fuel Boiler which provides an estimate of bark flow in tons per hour with the output archived in the PI System. Coal flow is not metered directly. The monthly coal use is measured by deliveries and adjusted for change in inventory.

The boilers feed to a total of two generators:

TG1 is a back pressure turbine (65 psig) rated at 28 MW and commissioned in 1985.

TG2 has 165 psig and 65 psig extractions as well as a condenser and is rated at 31 MW. TG2 was commissioned on December 8th 2011. TG2 was installed in combination with upgrades to the two biomass boilers beginning in 2010 and continuing into 2011. The upgrades included the combustion air system on both boilers, induced draft fans for both boilers, boiler feedwater drive replacements, new purchased wood waste processing system, and new processing equipment for own-made wood waste material. TG2 is the applicable generator to this application.

G.2. Please include a detailed description of how the output of the facility is going to be measured and verified, including the configuration of the meter(s) and the meter type(s).

TG2 has a Siemens 9510 revenue grade power meter to measure electrical output. This data is continuously measured and output to the distributed control system. The power output is archived in the PI System every 2 seconds if the value changes by more than 0.00036 MW (0.001% of range) between readings.

Renewable Energy Allocation Calculation Method
The steam produced by the boilers feeds a common steam header. Fuel consumption and subsequent steam production in the boilers is determined by the following process:
1. Using PI System information, the total Natural Gas purchases adjusted for changes in inventory are allocated to the operating equipment based on PI data for flows providing the most accurate possible Natural Gas consumption by unit operation.
2. Actual coal consumption is calculated monthly based on purchases for the month adjusted for inventory changes.
3. Steam produced by fossil fuels in the Waste Fuel and Recovery Boilers is calculated by using the fuel heat content and boiler efficiencies for the respective fuels. The total steam from fossil fuels is the sum of the preceding plus the total steam output from the Package Boiler (all Natural Gas).
4. The steam from renewable fuels is assumed to be the balance of steam produced which is derived from Wood Waste (Waste Fuel Boiler) and Black Liquor (Recovery Boiler).
5. The installation of TG2 coincides with an increase in output from the Recovery Boiler and Waste Fuel Boiler. There were no upgrades or anticipated increase in output from the Package Boiler. In alignment with this intent, the steam output from the Package Boiler will be allocated first to TG1. The balance of steam to TG1 will be at the ratio of output from the Recovery Boiler and Waste Fuel Boiler. The calculation of renewable energy from TG1 will be based on the ratio of fossil fuel steam to total steam.
6. If the Package Boiler steam output exceeds TG1 capacity or TG1 is out of service, the balance of Package Boiler steam will be allocated to TG2 in proportion to the balance of package boiler steam not used on TG1 and the output of the two other boilers. The calculation of renewable generation from TG2 will generally be based on the ratio of steam output from the Recovery Boiler and Waste Fuel Boiler. The calculation of renewable energy from TG2 will be based on the ratio of fossil fuel steam to total steam.
7. Total Generation (both for On Peak and for Off Peak) is based on the archived PI System data. For each generator, the Net Generation (both for On Peak and for Off Peak) is determined by subtracting the Station Service from the Total Generation.
8. The Power from renewable fuels is finally calculated by multiplying the Net Power generated by the percentage of steam produced by renewable fuels for each generator.

For calculation illustrated with example numbers, please refer to Appendix attached to Section O.

G.3. Please submit digital photographs that depict an accurate characterization of the renewable generating facility. Please indicate the date(s) the photographs were taken. For existing facilities, these photographs must be submitted for your application to be reviewed. For proposed facilities or those under construction, photographs will be required to be filed within 30 days of the on-line date of the facility.


Boiler Buildings
Turbine Building
Cooling Tower
Biomass Feed/Reclaims
Purchased Bioimass
Truck Dump

G.10__ BIOMASS (includes biologically-derived methane gas, such as landfill gas)

G.10a Identify the fuel type used by the facility:

Landfill gas: No

Solid fuel:

No Wood
No Agricultural
No Other

Wood and paper manufacturing waste: **Yes**

Biogas (anaerobic digestion):

No On-farm
No Wastewater treatment
No Food processing
No Other

Biofuel (biodiesel): No

Biomass (other): No

G.10b Describe the content (fully characterize the fuel material) and source of solid waste: Bark/Solid Woody Waste: Bark and chipping by-product of the facility pulping process; purchased wood harvest residuals and solid wood processing residuals
Black Liquor: Lignin byproduct from pulping at the mill
Natural Gas: Purchased from DTE Energy and BP Canada Energy Marketing
Coal: Purchased from C Reiss coal company and the spec is East Kentucky Stoker Blend with max sulfur content of 0.95%

G.10c What is the expected heat content for each of the fuels used by the plant?
Bark/Solid Woody Waste: 8.37 MMBtu/short ton
Black Liquor: 11.6 MMBtu/short ton
Natural Gas: 1.009 MMBtu/mcf
Coal: 24 MMBtu/metric ton
All as accounting standard intended to represent average heat content

G.10d Is the facility co-firing more than one fuel type? **Yes**

If co-firing an electric generating facility with a biomass energy resource, the proportion of heat input attributable to the biomass energy resource shall dictate the proportion of electricity output from the facility that can be considered biomass energy.

G.10e List all fuel types used by the facility and respective proportions (show by the percent of heat input):
Bark/Solid Woody Waste: 38.3%
Black Liquor: 60.6%
Natural Gas: 1.03%
Coal: 0.07%

G.10f Please submit (or input here) the formula for computing the proportions of output per fuel type by MWh or kWh generated:
Renewable steam is calculated based on the difference between actual metered steam and theoretical fossil steam generation. Please see appendix for detailed calculation.

G.10g What is the projected annual gross generation from each fuel type?
Bark/Solid Woody Waste: 75,478 MWh
Black Liquor: 119,589 MWh
Natural Gas: 2,037 MWh
Coal: 132 MWh

H. Certification Criteria 3: Placed-in-Service Date (Sec. 4928.64. (A)(1) O.R.C.)

The Renewable Energy Facility:

No has a placed-in-service date before January 1, 1998; Date:

Yes has a placed-in-service date on or after January 1, 1998; Date: **12/8/11**

No has been modified or retrofitted on or after January 1, 1998; Date:

Please provide a detailed description of the modifications or retrofits made to the facility that rendered it eligible for consideration as a qualified renewable energy resource. In your description, please include the date of initial operation and the date of modification or retrofit to use a qualified renewable resource. Please include this description as an exhibit attached to your application filing and identify the subject matter in the heading of the exhibit.

No Not yet online; projected in-service date:

H.1 Is the renewable energy facility owner a mercantile customer? Yes

ORC Sec. 4928.01 (19) "Mercantile customer" means a commercial or industrial customer if the electricity consumed is for nonresidential use and the customer consumes more than seven hundred thousand kilowatt hours per year or is part of a national account involving multiple facilities in one or more states.

Has the mercantile customer facility owner committed to integrate the resource under the provisions of Rule 4901:1-39-08 O.A.C? No

If yes, please insert/submit a copy of your approved application as an exhibit to this filing.

I. Facility Information

I.a The nameplate capacity of the entire facility kilowatts (kW): 31,000.00 **(megawatts (MW):** 31)

I.b If applicable, what is the expected heat rate of resource used per kWh of net generation:
9,723,000,000 BTU/kWh

I.1 For each generating unit, provide the following information:

Unit In-Service Date	Unit Nameplate Capacity (MW)	Projected Gross Annual Generation	Expected Annual Capacity Factor %	Number of Generating Units
12/8/11	31	166,781	61.4	1

$$\text{Capacity Factor \%} = \frac{\text{Projected Annual Generation}}{\text{Nameplate Capacity} \times 8{,}760} \times 100$$

J. Regional Transmission Organization Information

In which Regional Transmission Organization area is your facility located:

No Within Geographic Area of PJM Interconnection, L.L.C.

Yes Within Geographic Area of Midwest ISO

No Other (specify):

K. Attribute Tracking System Information

Are you currently registered with an attribute tracking system: Yes

In which attribute tracking system are you currently registered or in which do you intend to register ***(the tracking system you identify will be the system the PUCO contacts with your eligibility certification):***

Yes GATS (Generation Attribute Tracking System)

No M-RETS (Midwest Renewable Energy Tracking System)

Other (specify):

K.1 Enter the generation ID number you have been assigned by the tracking system:
(If the generation ID number has not yet been assigned, you will need to file this number in the PUCO Case Docket within 15 days of the facility receiving this number from the tracking system).

K.2 Has any of the generation of the facility been tracked as RECS that have been sold or otherwise consumed? No

L. Other State Certification

Is the facility certified by another state as an eligible generating resource to meet the renewable portfolio standards of that state? Yes

L.1 If yes, for each state, provide the following information:

Name of State	State Certification Agency	State Certification Number	Certification Date Issued
Michigan	MIRECs	GEN234	03/01/2012

M. Type of Generating Facility

Please check all of the following that apply to the facility:

No Utility Generating Facility:

No Investor Owned Utility

No Rural Electric Cooperative

No Municipal System

No Electric Services Company (competitive retail electric service provider certified by the PUCO)

No Distributed Generation with a net metering and interconnection agreement with a utility.
Identify the Utility:

Yes Distributed Generation with both on-site use and wholesale sales.
Identify the Utility: **WE Energies of MI - WI Electric Power Company**

No Distributed Generation, interconnected without net metering.
Identify the Utility:

N. Meter Specifications

Metering Requirements

1. If the renewable energy resource generating facility is 6 kW or below, the output may be measured with either an inverter meter or a utility grade meter.

2. All facilities that are larger than 6 kW must measure the output of the facility with a utility grade meter. Facilities that are larger than 6 kW and that are not measuring output with a utility grade meter will not be certified. OAC* 4901:1-40-04 *(D)(1)

3. Please only report on the meter or the meters used to measure the output from the facility which will be reported to the attribute tracking system.

N.a The meter(s) that are measuring output from the facility are:

No Inverter Meter(s)

Yes Utility Grade Meter(s) *(Must meet ANSI 12.1, or demonstrate an accuracy level of ± 2%)*

N.1 Please provide the following information for each meter used in your system.

N.1.a Manufacturer: Siemens

N.1.b Serial Number: 9510DC-1156-GZZA-77615000216

N.1.c Type: 9510 Revenue Grade Power Meter

N.1.d Date of Last Certification: December 21, 2011

Attach a photograph of the meter(s) with date image taken. The meter reading(s) must be clearly visible in the photograph.

N.1.e Report the total meter reading number at the time the photograph was taken and specify the appropriate unit of generation (e.g., kWh): 4603911 (kWh delivered)

1/31/2014 12:00:00AM

Renewable Energy Allocation Calculation Method

The calculation method described below uses January 2012 operating data in examples.

The steam produced by the boilers feeds a common steam header. Fuel consumption and subsequent steam production in the boilers is determined by the following process:

- Using PI System information, the total Natural Gas purchases adjusted for changes in inventory are allocated to the operating equipment based on PI data for flows providing the most accurate possible Natural Gas consumption by unit operation.
- Actual coal consumption is calculated monthly based on purchases for the month adjusted for inventory changes.
- Steam produced by fossil fuels in the Waste Fuel and Recovery Boilers is calculated by using the fuel heat content and boiler efficiencies for the respective fuels. The total steam from fossil fuels is the sum of the preceding plus the total steam output from the Package Boiler (all Natural Gas).
- The steam from renewable fuels is assumed to be the balance of steam produced which is derived from Wood Waste (Waste Fuel Boiler) and Black Liquor (Recovery Boiler).

Fossil Fuel Boiler Efficiencies - Factors

Boiler	Fuel	mmBTU/Unit	Units	Efficiency	BTU/# Stm	# Stm / Unit
Package Boiler	Natural Gas	1.00	mmBTU	85.8%	1173	705
Waste Fuel Boiler	Natural Gas	1.00	mmBTU	92.8%	1110	749
Waste Fuel Boiler	Coal	24.150	Tons	82.8%	1110	17,357
Recovery Boiler	Natural Gas	1.00	mmBTU	73.0%	1166	626

Steam From Fossil Fuels by Boiler

Boiler	Fuel	Use	Units	#Stm/Unit	K# Steam
Package Boiler	Natural Gas	N/A	N/A	N/A	21,507
Waste Fuel Boiler	Natural Gas	19,000	mmBTU	749	14,242
Waste Fuel Boiler	Coal	39	Tons	17,357	698
Recovery Boiler	Natural Gas	5,623	mmBTU	626	3,521
Total					**39,968**

Renewable Steam Ratio by Boiler

Boiler	Renewable Fuel	Boiler K# Steam	Fossil K# Steam	Renewable K# Steam	Renewable Steam %	Coal %	NG %
Package Boiler	N/A	21,507	21,507	0	0.0%	0.0%	100.0%
Waste Fuel Boiler	Bark	277,771	14,940	263,831	94.6%	5.4%	5.1%
Recovery Boiler	Black Liquor	422,216	3,521	418,695	99.2%	0.8%	0.8%
Total		722,494	39,968	682,526	94.5%	6.1%	5.4%

The installation of TG12 coincides with an increase in output from the Recovery Boiler and Waste Fuel Boiler. There were no upgrades or anticipated increase in output from the Package Boiler. In alignment with this intent, the steam output from the Package Boiler will be allocated first to TG1. The balance of steam to TG1 will be at the ratio of output from the Recovery Boiler and Waste Fuel Boiler. The calculation of renewable energy from TG1 will be based on the ratio of fossil fuel steam to total steam.

TG1 Renewable Energy Calculation

Total Steam to TG1	414,580	K#
Package Boiler Steam to TG1	21,507	K#
Package Boiler Steam Avail. to TG2	-	K#
Steam from WFB & RB	393,083	K#
Steam Ratio of PB to (WFB+RB+PB)	5.2%	
Steam Ratio of WFB to (WFB+RB+PB)	37.7%	
Steam Ratio of RB to (WFB+RB+PB)	57.1%	
PB Steam Flow to TG1	21,507	K#
WFB Steam Flow to TG1	156,323	K#
RB Steam Flow to TG1	236,760	K#
% Coal	0.1%	
% Natural Gas	7.6%	
% Renewable Steam to TG1	**92.3%**	

If the Package Boiler steam output exceeds TG1 capacity or TG1 is out of service, the balance of Package Boiler steam will be allocated to TG2 in proportion to the balance of package boiler steam not used on TG1. The ratio of steam output from the Recovery Boiler and Waste Fuel Boiler to TG2 will generally be based on the ratio of steam output from the Recovery Boiler and Waste Fuel Boiler. The calculation of renewable energy from TG2 will be based on the ratio of fossil fuel steam to total steam.

TG2 Renewable Energy Calculation

Total Steam to TG2	247,770	K#
Package Boiler Steam after TG1	-	K#
Ratio of PB to (WFB+RB+PB) Steam	0.0%	
Ratio of WFB to (WFB+RB+PB) Steam	39.8%	
Ratio of RB to (WFB+RB+PB) Steam	60.2%	
PB Steam Flow	-	K#
WFB Steam Flow	98,544	K#
RB Steam Flow	149,236	K#
% Coal	0.1%	
% Natural Gas	2.5%	
% Rewewable Steam to TG2	**97.4%**	

Total Generation (both for On Peak and for Off Peak) is based on the archived PI System data. For each generator, the Net Generation (both for On Peak and for Off Peak) is determined by subtracting the Station Service (see Appendix B – Calculated Station Service) from the Total Generation.

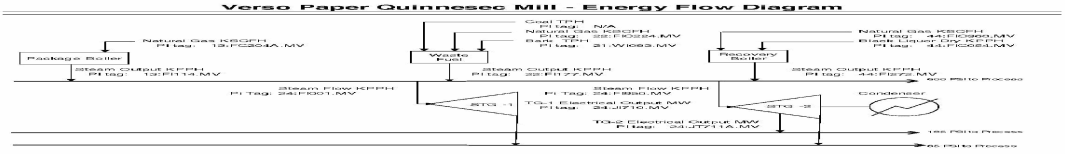
Generating Unit	On Peak Power MWH	Off Peak Power MWH	On Peak Hours	Off Peak Hours	Station Service On Peak MW	Station Service On Peak MWH	Station Service Off Peak MWH	Total Net Generation MWH	On Peak Net Generation MWH	Off Peak Net Generation MWH
TG1	9,308.4	11,142.0	336.5	407.5	0.5	268	325	19,857	9,040	10,817
TG2	6,307.1	7,735.5	336.5	407.5	1.5	504	611	12,923	5,803	7,120

The Power from renewable fuels is calculated by multiplying the Net Power generated by the percentage of steam produced by renewable fuels for each generator.

Generating Unit	Total Net Generation MWH	On Peak Net Generation MWH	Off Peak Net Generation MWH	Renewable On Peak MWH	Renewable Off Peak MWH	Renewable	Coal	NG
						%	%	%
TG1	19,857	9,040	10,817	8,345	9,986	92.3%	0.1%	7.6%
TG2	12,923	5,803	7,120	5,650	6,932	97.4%	0.1%	2.5%

APPENDIX A
Simplified Energy Diagram

Verso Paper Quinnesec Mill - Energy Flow Diagram



APPENDIX B
Calculated Station Service

The Mill power plant provides energy in a combined heat and power configuration for an integrated pulp and paper facility. A significant portion of the thermal energy from the power plant is used in the manufacture of pulp and paper. In fact, most of the energy produced in the Mill's boilers is used for manufacturing. This results in a situation where the load for the power plant is higher than might otherwise be expected for the amount of electricity produced. The configuration presents challenges with respect to estimating how much of the load used in the power plant should be allocated as station service for the purpose of calculating renewable energy credits.

There are three main (metered) breakers that provide power to the power plant and auxiliaries. A review of the connected load per breaker was completed to determine the percentage of connected load related to power and steam production on each, e.g. connected loads relating to the Water Treatment Plant (WTP) were excluded. The total power plant load is calculated by multiplying the metered load on each breaker by its respective power & steam related connected load percentage and totalling the results. The meter outputs are recorded in the PI system and archived. Below is a sample calculation for total load (all calculations are based on January 2012 operating data).

Steam & Power Related Load by Feeder Breaker

Mill Breaker	Description	Total Breaker Load MW	Steam & Power Related Connected Load Ratio %	Steam & Power Related Load MW
HT07	Waste Fuel	2.74	88.45%	2.70
HT11	Recovery	4.98	85.91%	4.28
HT10	Package & WTP	3.06	68.60%	2.10
	Total	10.78		**9.08**

In an effort to properly allocate power plant load between manufacturing and electrical generation, the Mill proposes to calculate the Station Service by multiplying the Steam & Power Related Load by the ratio of thermal heat consumed by the generators to the total heat energy in steam energy output. The heat rate of each generator (million BTU of steam heat consumed by a turbine generator divided by the kilowatthour outputs) is used to determine the total heat required by each turbine. For the back pressure turbine, this value is relatively constant at 9.554 mmBTU/KWH calculated from PI data in January 2012. TG12, which includes condensing, is somewhat more complicated. The thermal load will vary with condensing power production, the expected range is from 7.363 mmBTU / KWH (winter conditions) to 10.400 mmBTU / KWH (summer conditions) with an annual average of 9.723 mmBTU / KWH. For purposes of the renewable energy calculation, Verso proposes to assume a fixed heat rate equivalent to the design annual average of 9.723 mmBTU / KWH. The boiler steam energy output is based on the sum of steam output from each boiler multiplied by the enthalpy rise in the unit. To reduce complexity, each boiler enthalpy rise is fixed based on the process design of the upgraded power plant. Below is the calculation of total Station Service.

Thermal Load by Turbine Generator

Generating Unit	Power Output MWH	Heat Rate mmBTU/KWH	Total Thermal Energy mmBTU
TG1	20,450	9.554	72,681
TG2	14,038	9.723	136,488
Total	34,488	56%	209,169

Total Thermal Energy from Steam

Boiler	Steam K#	Factor	mmBTU
Package	21,507	1.178	25,334
Waste Fuel	278,771	1.110	309,539
Recovery	422,216	1.166	492,218
Total	722,494		827,091

Total Station Service based on Thermal Steam Energy to Power

	Value	Units
Boiler Thermal Energy	827,091	mmBTU
Generator Thermal Load	209,169	mmBTU
% TGs Thermal Energy	25%	
Steam & Power Load	9.1	MW
Total TG Related Load	2.3	MW
Hours in Month	744	Hours
Monthly Station Service Load	**1,708**	**MWH**

The total Station Service is allocated between the two generators based on the ratio of their respective thermal energy consumed as shown below.

Station Service Allocation by Generator

Generating Unit	TG Thermal Energy % of Total	Station Service Allocation MW	Station Service Allocation MWH
TG1	34.7%	0.8	594
TG2	65.3%	1.5	1,115
Total	**100.0%**	**2.3**	**1,708**

Ohio | Public Utilities Commission

Affidavit for Application for Certification as an Eligible Ohio Renewable Energy Resource Generating Facility

Please be advised that all applicant's contact information, including address and telephone number, will be made public and is not subject to confidential treatment. Additionally, any information pertaining to trade secrets contained within the application will be made public unless filed under seal with a motion for protective order, pursuant to Rule 4901-1-24 of the Ohio Administrative Code.

Case Number: 14-0432-EL-REN

Facility Name: Verso Quinnesec Mill-TG2

Name of person making this affidavit: Steven Brooks

State of Michigan
County of Dickinson

The undersigned, being duly sworn according to law, deposes and says that:

1. I am authorized to and do hereby make this affidavit on behalf of the Applicant.

2. All facts and statements made in the application for certification, including all attachments and supplemental information or filings, are true and complete to the best of my knowledge, information, and belief.

3. The facility has obtained or will obtain and will maintain all required local, state, and federal environmental permits.

4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Steven C Brooks, Energy Optimization Manager
Signature of Affiant & Title

Sworn and subscribed before me this 31st day of March, 2014 Month/Year

Jenny Coates
Notary

My commission expires on 5-21-2017

JENNY COATES
Notary Public - Michigan
Dickinson County
My Commission Expires May 21, 2017
Acting in the County of Dickinson

The Public Utilities Commission of Ohio reserves the right to verify the accuracy of the data reported to the tracking system and to the PUCO.

Version: June 3, 2013

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

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Case No(s). 14-0432-EL-REN

Summary: Application of 14-0432-EL-REN, Verso Quinnesec TG2 electronically filed by Mr. Rex Zhang on behalf of Verso Quinnesec LLC and Mr. Steven Brooks