

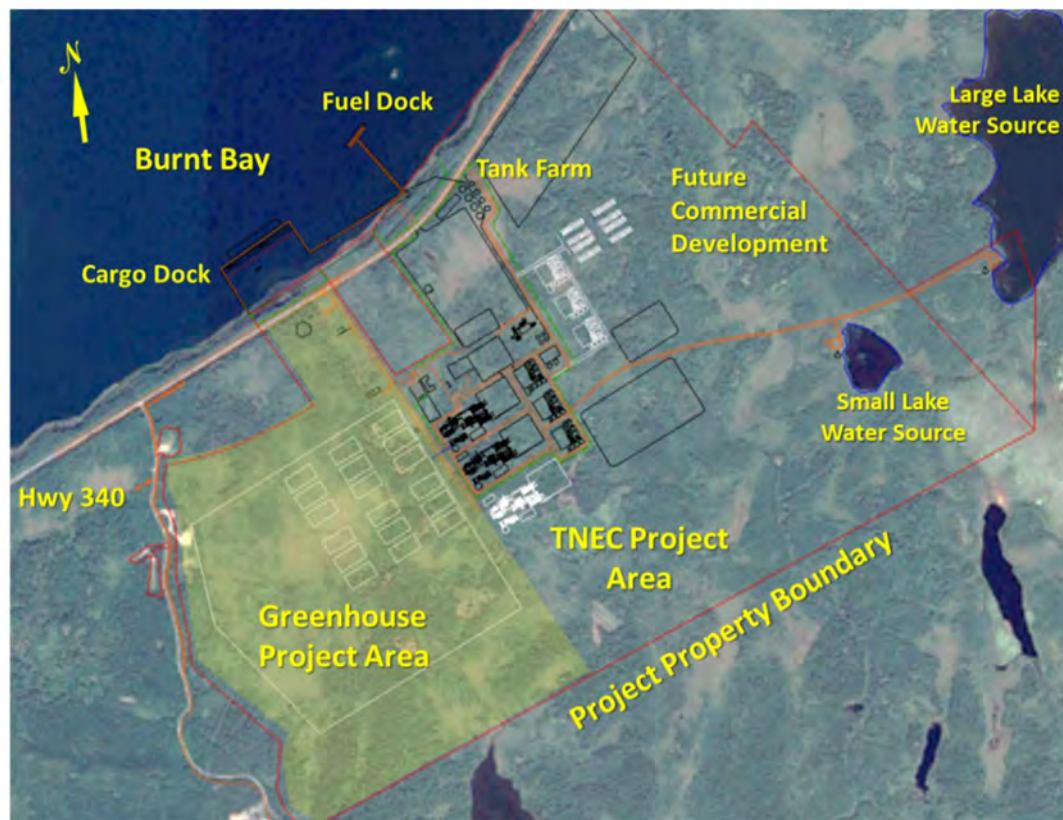
## **APPENDIX A: Greenhouse Gas Public Private Partnership**

## APPENDIX A

---

Under a public private partnership (PPP) arrangement between Lewisporte and SWPNL, the owners of the TNEC, up to 40 hectares of land, fully prepared for construction of greenhouses, will be made available for lease to agriculturists. The greenhouse plots will have available hot water for space heating, electrical power, potable water, irrigation water, and optional carbon dioxide for CO<sub>2</sub> crop dosing on demand.

SWPNL will be responsible for the basic layout of the dedicated greenhouse property, as well as the civil work, main access road and infrastructure, along with heat and electrical energy, irrigation, and potable water, and recovered CO<sub>2</sub>.



**Figure A1. Greenhouse project area relative to the main TNEC property**

Lewisporte will be responsible for management of the greenhouse development (shaded yellow on the map in Figure A1) with SWPNL holding a minority position required for the consortium to self-generate its own electrical and thermal energy. The Town will also be responsible for funding the swimming pool and associated infrastructure.

SWPNL will make a return on its investment in the project by selling metered irrigation and potable water, as well as CO<sub>2</sub> and electrical and thermal energy, to the greenhouse operators.

## APPENDIX A

---

Onsite sourcing of water, as well as power, thermal energy, and CO<sub>2</sub>, will allow rates for these utilities to be adjusted to make the greenhouses economically attractive for their operators.

A copy of a draft letter describing the Greenhouse project roles and responsibilities from the Town of Lewisporte is attached. At this point in the project, terms and conditions set forth in that letter supersede any contrary or statements that may occur elsewhere in this Appendix. Roles and responsibilities for this PPP are described below.

### Lewisporte Roles and Responsibilities

1. Assume responsibility for long term lease of the land shown shaded in yellow to the southwest of the main site access road, as indicated on the first page map.
2. Establish an appropriate PPP commercial entity, as required, to own and operate the greenhouse development project for the public good as described herein and assume majority ownership.
3. Assume operational responsibility for the project including marketing, leasing, plot lease revenue collection, accounting, site insurance, including liability for personal injury , soil surface water, or ground water contamination, etc. as well as the public swimming pool.
4. Lewisporte Town will also be responsible for funding the construction of the demonstration greenhouse, swimming pool and associated grounds, access roads, and parking areas.

### SWPC / TNREC Roles and Responsibilities

1. Assume responsibility for long term lease of land marked TNEC Project area, including the cargo dock, and fuel dock land, with guaranteed access to the included pond and nearby lake for back-up water supply. If and when available, the “Notch” land will be added to the TNEC Lease area.
2. Assume minority ownership in the PPP entity sufficient to allow self-generation of power for the greenhouse project.
3. In cooperation with Lewisporte and consultants, fund the greenhouse project design and civil work, as well as the installation of the irrigation, heating, and potable water lines, and electrical power lines to the property boundary. SWPNL will not be responsibility for the public swimming pool or pre-sale installation of utilities on the greenhouse land. Beyond utilities for the demonstration units, utilities on Greenhouse land will be installed as short-term demand requires.
4. Preliminary designs for the irrigation water and heating water lines pumps and tanks for the greenhouse project will be the responsibility of SWPNL and are described in the Project Registration document.

## **APPENDIX A**

---

5. If demand justifies the cost, a CO<sub>2</sub> gas supply system will be installed to accommodate growers who wish to use CO<sub>2</sub> dosing to improve crop yields.

### **Public Private Partnership Operation**

1. Lewisporte Town will manage the greenhouse project and be responsible for negotiating lease contracts, collecting lease payments from the growers (leases), paying taxes and fees, etc. Lewisporte will consult with SWPNL in setting fees for utility services.
2. SWPNL will report utility usage meter readings for billing to Lewisporte on a periodic basis as mutually agreed.
3. Electrical demand power rates will be lower than those available from Newfoundland Power.
4. Hot water will be provided at a cost per MWh<sub>thermal</sub> that will be lower than the cost of heating with either electricity or fuel oil, and competitive with process steam thermal energy costs elsewhere in Canada.
5. Lewisporte and SWPNL will write quarterly activity reports, which will be reconciled prior to release. The PPP will hold an annual stakeholders meeting and will be externally audited annually.

### **NOTE**

Final agreement on terms and conditions of the Greenhouse Public Private Partnership project relationship between SWPNL and the Town of Lewisporte will be determined in a written agreement to be concluded once the TNEC project is approved and financed.



P.O. Box 219  
Lewisporte, NL A0G 3A0  
Phone (709) 535-2737  
Fax (709) 535-2695  
Website: [www.lewisportecanada.com](http://www.lewisportecanada.com)

August 8, 2021

**Re: [TNEC] Public Private Partnership for Greenhouse Development**

Mr. Manual,

Please see revised "Roles and Responsibilities Town of Lewisporte" with regards to above noted.

1. Lewisporte / Agricultural stakeholder will assume responsibility for long term lease of the land shown shaded in yellow to the Southwest of the Main site access road, as indicated on the first page map.
2. The area leased to Lewisporte will expand to the North to Highway 340 ROW as soon as the "Notch" property is included in the [SWPNL] lease area.
3. The Town of Lewisporte will "champion" the establishment of an appropriate PPP commercial entity as required, to own and operate the greenhouse development project for the public good as described herein with the Agricultural stakeholder assuming majority ownership.
4. Lead by the Town of Lewisporte the Agricultural Stakeholder will assume operational responsibility for the project including marketing, leasing, plot lease revenue collection, accounting, site insurance, including liability for personal injury, soil surface water or ground water contamination.
5. The Town of Lewisporte will assist the Agricultural Stakeholder in securing funding for the construction of the demonstration greenhouse and associated grounds, access roads and parking areas.

Regards

Todd Champion

Town Manager

## **APPENDIX B:** Alternative Site Considerations

## APPENDIX B

---

The first site considered for the TNEC project was the existing port in Lewisporte using the existing dock and a lay down area that is connected to the property. That site included a paved lay-down area, and the Town was going to allow EPRD use the old Shell oil property and more land behind the existing tank farm. The existing dock is in poor condition and would require substantial upgrade to be usable. At this location, the actual plant site considered would not be far from existing residential areas.

This first site was not selected for several reasons including the poor condition of the dock, insufficient water depth for the ships to be used, proximity to possible residential development and the large volume of truck traffic that the plant on that site would impose on the streets Lewisporte.

The second site considered was on Embree road with the land and shoreline in the Town boundaries and would also require use of the existing dock and port facility. This second site was not selected for several reasons, again because of the volume of truck traffic in Lewisporte, residential development already taking place in the area, and large amounts of private land in this that would need to be purchased.

The third alternative site considered was on south side Lewisporte on Route 340 along Burnt Bay. This site is shown in Appendix A. As can be seen from the satellite images and plan view drawings the third site was further from residential areas and would allow for a dock to be built directly adjacent to the plant site.

It was determined that a new dock could be built there for fuel and SRF import, as well as export of bottom ash aggregate ash and possibly additional local products such, as timber, that would benefit from an available nearby port. Most importantly, there was a large area of Crown Land available approximately 3.5 km from any residential development, deep water near the shore for a dock, large amounts of surface freshwater for plant and greenhouse development, ready access to 138 kV transmission line and available soil rock material for port construction and project development civil work.


## **APPENDIX C: Operations Plan Table of Contents**



### TNEC PRELIMINARY FACILITY OPERATIONS PLAN TABLE OF CONTENTS

<b>1.0</b>	<b>Overview</b>	<b>3</b>
<b>2.0</b>	<b>Facilities and Personnel</b>	<b>5</b>
2.1	Facilities Description	5
2.2	Personnel and Staffing Position Descriptions	7
2.3	Ongoing Staff Professional and Safety Training Program	21
2.4	Personnel Recruitment Interviewing and Screening	22
<b>3.0</b>	<b>TNEC Facility Administration and Operations</b>	<b>23</b>
3.1	Administration	23
3.2	Operations	25
3.2.1.	Operations Management System	25
3.2.2	TNEC Port Operations	26
3.2.3	Liquid Fuel Storage	26
3.2.4	Facility Inspection	27
3.2.5	Facility Maintenance	28
<b>3.0</b>	<b>Health and Safety Policies and Procedures</b>	<b>30</b>
3.1	Industrial Hygiene and Worker Safety	30
3.1.1	Worker Protection During Inspection and Maintenance	33
3.1.2	Safety, Caution, Equipment, and Machinery Signage	33
3.2.10	Safety in Plant Design and Construction	34
3.2	Maintenance Procedures	35
3.2.1	Welding	35
3.2.2	Lockout/Tag Out Procedures	35
3.2.3	Smoking and Vaping Policy	35
3.2.4	Drug and Alcohol Policy	36
3.2.5	Noise	36
3.2.6	Fire Prevention and Protection	37
3.2.7	Fire Response Plan	37
3.2.9	Emergency Contingency Plans	38
3.2.11	Fire Safety Training and Equipment	39
3.2.12	Development of Emergency Procedures	40
3.2.13	Fire Emergency Procedures	41
<b>4.0</b>	<b>Records Security</b>	<b>42</b>

## **APPENDIX D: Air Permits and Sustainalytics Second Opinion**

<div><p><b>CLARK COUNTY</b> DEPARTMENT OF AIR QUALITY <i>4701 West Russell Road, Suite 200, Las Vegas, Nevada 89118</i> <b>Synthetic Minor Source Permit</b> <b>Source: 17399</b> Issued in accordance with the Clark County Air Quality Regulations (Section 12.1)</p></div>	
<hr/>	
<b>ISSUED TO:</b>	<b>EP Renewable Las Vegas, Inc.</b> 601 S. Federal Hwy, Suite 203 Boca Raton, FL 33432
<b>SOURCE:</b>	<b>EnviroPower Renewable Las Vegas Gasification Facility</b> Apex Industrial Park Las Vegas, Nevada 89124
<b>RESPONSIBLE OFFICIAL:</b>	
Name:	Bary Wilson
Title:	Chief Technical Officer
Phone:	(561) 843-0843
E-Mail Address:	barywilson@eprenewable.com
<b>Permit Issuance:</b>	<b>May 5, 2015</b>
<b>Expiration Date:</b>	<b>May 4, 2020</b>
<b>ISSUED BY: CLARK COUNTY DEPARTMENT OF AIR QUALITY</b>	
	
Richard Beckstead Permitting Manager, Clark County Department of Air Quality	

STATE OF TENNESSEE  
AIR POLLUTION CONTROL BOARD  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
NASHVILLE, TENNESSEE 37243



**Permit to Construct or Modify and Air Contaminant Source Issued Pursuant to Tennessee Air Quality Act**

**Date Issued:** October 14, 2016

**Permit Number:**  
971766

**Date Expires:** October 13, 2018

**Issued To:**  
EnviroPower Cumberland, LLC  
at the Bi-County Renewable Energy Authority site

**Installation Address:**  
3212 Dover Rd (Highway 76)  
Woodlawn

**Installation Description:**

**Municipal Waste Gasification Plant**  
Two identical lines for two-stage gasification with modular units for processing 854 tons/day of MSW that is sorted, construction and demolition waste, and shredded tires. Each gasification line has two shallow bed fluidized gasifiers feeding a rotary kiln gasifier, pollution control devices exhausted to a separate stack with steam generation with heat recovery steam generators (HRSG)/ boilers with 16 MWe per line and plant total of 32 MWe for electrical power generation. Each small municipal waste combustion unit (SMWCU) is below 250 tons/day and is a Class 1 unit since plant aggregate exceeds 250 T/day  
Source 01: A01 Boiler (224 MMBtu/hr), provided by B01 Gasifier (128MMBtu/hr), B02 Gasifier (128MMBtu/hr) and C01 Gasifier (90 MMBtu/hr) with a single stack  
Source 02: A02 Boiler (224 MMBtu/hr), provided by B03 Gasifier (128MMBtu/hr), B04 Gasifier (128MMBtu/hr) and C02 Gasifier (90 MMBtu/hr) with a single stack

**Emission Source Reference No.**  
63-0340-01 and 02  
40 CFR 60 Subpart AAAAA  
Conditional Major Source

The holder of this permit shall comply with the conditions contained in this permit as well as all applicable provisions of the Tennessee Air Pollution Control Regulation.

1. The application that was utilized in the preparation of this permit is dated June 20, 2016 and signed by Bary Wilson, Chief Operations Officer for the permitted facility. If this person terminates employment or is assigned different duties and is no longer the responsible person to represent and bind the facility in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification shall be in writing and submitted within thirty (30) days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the facility in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

TAPCR 1200-03-09-.03(8)

(continued on the next page)

*Michelle W. Avery*  
TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

NON TRANSFERABLE

POST AT INSTALLATION ADDRESS

## APPENDIX D

Note: The precertification from the California Energy Commission shown below was applied for by the gasification project being developed in North Las Vegas, NV. This application was approved, and certification is granted upon demonstration of compliant plant operation.

12/4/2017

RPS



CALIFORNIA  
ENERGY COMMISSION

HOME

APPLICATIONS

ACCT MGMT

Kath Hurlbert | [Home](#) | [Logout](#)

EP Renewable LV

### Facility Summary

RPS ID: 63667

[Save](#)

[Cancel](#)

#### Facility Certification

Type: Pre-Certification  
Facility Name: Apex Astra Renewable Energy Facility (AAREF)  
Begin On: 11/03/2017

#### Applications

	Request Date	Facility Owner
Select	11/03/2017	EP Renewable, Las Vegas, Inc.
Select	10/11/2017	EP Renewable, Las Vegas, Inc.

#### Application Status

Status	Status Date
Approved	12/04/2017
Pending	11/30/2017
Corrections Sent	11/30/2017
Corrections Needed	11/30/2017
Pending	11/30/2017
Corrections Sent	11/30/2017
Corrections Needed	11/29/2017
Pending	11/03/2017
Received	11/03/2017





## Second-Party Opinion

# EnviroPower Renewable Las Vegas Green Bond

## Evaluation Summary

Sustainalytics is of the opinion that the EnviroPower Renewable Las Vegas ('EPRLV') Green Bond Framework is credible and impactful, and aligns with the four core components of the Green Bond Principles 2018. This assessment is based on the following:



**USE OF PROCEEDS** The eligible category for the use of proceeds (the biomass power plant Apex Astra Renewable Energy Facility or 'AAREF' and the biomass fuel storage facility Garnet Valley Energy Facility or 'GVEF') is aligned with those recognized by the Green Bond Principles (Renewable Energy and Pollution Prevention and Control). Sustainalytics considers that AAREF biomass power plant in conjunction with the GVEF biomass storage facility will help decrease fossil fuel reliance, landfill dependence, contribute to lower Nevada's overall energy intensity and GHG emissions, and will advance the UN Sustainable Development Goals 7 and 12.



**PROJECT EVALUATION / SELECTION** EPRLV's internal process in evaluating and selecting projects is aligned with market best practices as the technology and design supporting the biomass power plant and biomass storage facility was independently reviewed, validated and approved by various third-parties including the Oak Ridge National Laboratory and GDS Engineers who performed the authorization on behalf of the US Army. Additionally, EPRLV added a clear set of exclusionary criteria specifically excluding GVEF's three gas fired turbine generators, which are typically used for back-up and peaking power purposes.



**MANAGEMENT OF PROCEEDS** EPRLV confirmed that the management of proceeds will be executed through separate accounts for each source of funds and will use an accounting software application to track the green bond proceeds accordingly. This process is in line with market practices.



**REPORTING** EPRLV will provide an annual allocation and impact report which will be disclosed on the website of EPRLV's parent-company, EnviroPower Renewable, Inc. The allocation report will be executed by an external independent accounting firm and will comprise various transaction information such as the total green bond proceeds allocated or remaining balances. With regards to the impact report, EPRLV will provide relevant quantitative annual performance indicators. Sustainalytics views positively the granularity and level of detail of the impact reporting and assesses the allocation reporting as best market practice due to the independent assurance provided by the external accounting firm.

Evaluation date	July 20, 2018
Issuer Location	Boca Raton, USA

### Report Sections

Introduction .....	2
Sustainalytics' Opinion .....	3
Appendices .....	7

For inquiries, contact the Sustainable Finance Solutions project team:

**Ankita Shukla (New York)**  
Project Manager  
ankita.shukla@sustainalytics.com  
(+1) 617 603 3329

**Zach Margolis (Toronto)**  
Project Support  
zach.margolis@sustainalytics.com  
(+1) 647 695 4341

**Mihai Cojocaru (Timisoara)**  
Project Support  
mihai.cojocaru@sustainalytics.com  
(+31) 20 888 7292

**Charlotte Peyraud (New York)**  
Client Relations Manager  
charlotte.peyraud@sustainalytics.com  
(+1) 646 518 0184

## **APPENDIX E:** Heat and Material Balance Summary

### **E1: Excerpt from Heat and Material Balance for a 50 MW Gasification Power Plant**

This document includes the heat and material balance for a 50 MWe gasification power plant under typical operating conditions. This summary information is provided as an example only as it represents a feedstock different from the SRF designated for the TNEC plant. The full document with Tables for all process units that comprise the gasification power plant thermal island is available upon request. Additional heat and materials balances have been prepared based on the size limiting cases for the different equipment. These are:

- Annual Average, 3% excess O<sub>2</sub>, target operating case based on average fuel quality, used for sizing the flue gas recycling system and emissions estimates,
- Worst Case Fuel, 5% excess O<sub>2</sub>, fuel with high moisture and ash content, used for sizing most equipment,
- Summer High Temperatures, used primarily for sizing the air-cooled condenser and air ducts,
- Kiln Worst Case, poor fuel producing a hot, low BTU gas, used for sizing the rotary kilns.

Only the first is included here for brevity, but all are available from EPRD upon request. Numbers correspond with the process flow diagram included at the end of the document (not shown).

#### **Method**

The heat and material balance below was calculated using performance input from a variety of equipment vendors. The equipment on the gas path is well established and should change very little in the next round of proposals. However, the performance of key equipment in the steam path (i.e., the steam turbine, HRSG, deaerator, etc.) may change somewhat based on changes in the eventual equipment manufacturer.

Thermodynamic calculations for the 50 MW process were performed using proprietary software developed by EPRD. This software balances standard thermal power equipment, as well as EPRD's patented technology in the LoNOx burner and rotary kiln, using an iterative process. EPRD performs detailed system pressure balances separately. Pressures in these tables should be taken as approximations.

The balance for the plant water treatment and wastewater treatment (unit 122) is not included in this document. The balance and design of the water system is supplied by a contractor and available on request.



## Summary

A summary of the results of the heat and material balance is provided in **Table 1** and **Table 2** below.

**Table 1.** Overall Heat Balance under Typical Conditions

<b>Input</b>	<b>Heat Flow (MMBTU/hr)</b>
Fuel	692.9
<b>Output</b>	
Stack	129.6
Air-Cooled Condenser	338.4
Other Heat Loss*	54.1
Electrical Power	170.8
*Other heat losses include heat loss through refractory, ash byproduct, boiler blowdown and cooling water system	

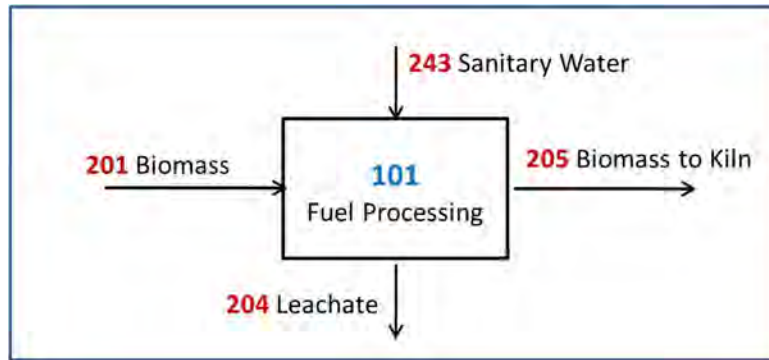
**Table 2.** Overall Mass Balance for the Gasification Line under Typical Conditions

<b>Input</b>	<b>Mass Flow (PPH)</b>
Fuel into Kiln	116,270
Process Air	617,801
Process Steam	2,789
Cleanup Reagents	2,680
<b>Output</b>	
Flue Gas	726,696
Inert Ash	11,304
Cleanup Byproducts	1,540

**Note:** A complete and closed heat and material balance (H&MB) with detailed inflow and outflow stream characteristics, to and from each process unit in the system, is available for a 50 MWe gasification power plant, as well as plants at other scales and under other operating conditions. Two examples of the data tables from these H&MB documents are shown below. Due to the proprietary nature of this information, complete H&MB documents for a plant of the scale selected for this project will be made available only under NDA, and upon request.

## APPENDIX E

### Unit 101: Fuel Processing



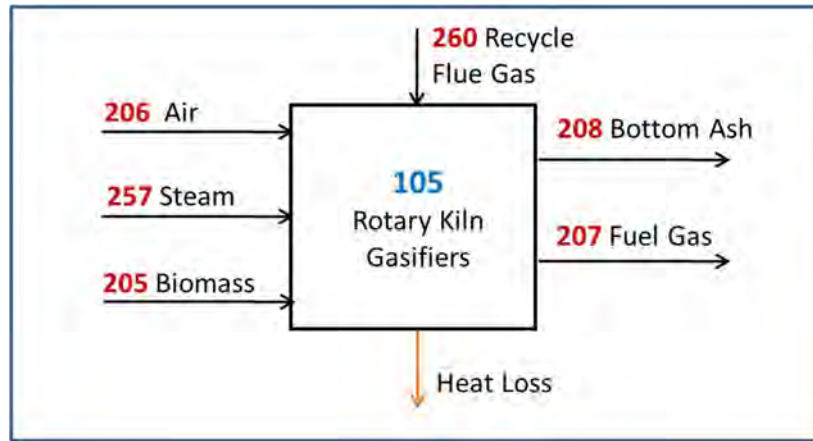
**Figure 101. Heat and material balance design envelope process streams for Unit 101**

Annual Average Conditions, 3% excess O<sub>2</sub>

Unit 101		In			Out	
Stream number		201	202	243	204	205
		Biomass Into Fuel Prep	Ancillary Fuel	Sanitation Water	Leachate	Biomass to Gasifier
Pressure	"wcg	0	0	0	0	0
Pressure	psia					
Temperature	F	67.10	67.10	67.10	67.10	67.10
				-		
Component	Formula	PPH	PPH	PPH	PPH	PPH
Carbon	C	42,233.81	-	-	-	42,233.81
Hydrogen	H	5,783.44	-	-	-	5,783.44
Oxygen	O	40,861.27	-	-	-	40,861.27
Nitrogen	N	676.03	-	-	-	676.03
Sulfur	S	186.91	-	-	-	186.91
Chlorine	Cl	38.61	-	-	-	38.61
Methane	CH <sub>4</sub>	-	-	-	-	-
Carbon Monoxide	CO	-	-	-	-	-
Carbon Dioxide	CO <sub>2</sub>	-	-	-	-	-
Water Vapor	H <sub>2</sub> O(g)	-	-	-	-	-
Hydrogen	H <sub>2</sub>	-	-	-	-	-
Nitrogen	N <sub>2</sub>	-	-	-	-	-
Oxygen	O <sub>2</sub>	-	-	-	-	-
Hydrochloric Acid	HCl	-	-	-	-	-
NO x	NO <sub>2</sub>	-	-	-	-	-
SO x	SO <sub>2</sub>	-	-	-	-	-
Ammonia	NH <sub>3</sub>	-	-	-	-	-
Hydrogen Sulfide	H <sub>2</sub> S	-	-	-	-	-
Ash	na	11,417.83	-	-	-	11,417.83
Water	H <sub>2</sub> O(l)	17,444.88	-	3,266.50	3,266.50	15,072.03
Total (PPH)		118,642.77	-	3,266.50	3,266.50	116,269.92
Energy (MMBTU/hr)		692.96	-	-	-	692.96
Flow Rate (SCFM or GPM)		72.22	-	6.53	6.53	72.22

## APPENDIX E

### Unit 105: Rotary Kiln Gasifier



**Figure 105. Heat and material balance design envelope process stream IDs for Unit 105**

Annual Average Conditions, 3% excess O<sub>2</sub>. Combined flow through four rotary kiln gasifiers.

Unit 105		In					
Stream number		205	206	260	257	207	208
		Biomass to Gasifier	UFA Into Kiln	RFG to Kiln	Steam To Kilns	Fuel Gas To Reformer	Kiln Bottom Ash
Pressure	"wgc	0	10	2		-1	0
Pressure	psia				146.95		
Temperature	F	67.1	67.1	700.0	392.0	1,500.1	1,200.0
Component	Formula	PPH	PPH	PPH	PPH	PPH	PPH
Carbon	C	42,233.81	-	-	-	-	-
Hydrogen	H	5,783.44	-	-	-	-	-
Oxygen	O	40,861.27	-	-	-	-	-
Nitrogen	N	676.03	-	-	-	-	-
Sulfur	S	186.91	-	-	-	-	-
Chlorine	Cl	38.61	-	-	-	-	-
Methane	CH <sub>4</sub>	-	-	-	-	10,392.04	-
Carbon Monoxide	CO	-	-	-	-	32,164.74	-
Carbon Dioxide	CO <sub>2</sub>	-	-	6,194.63	-	79,103.86	-
Water Vapor	H <sub>2</sub> O(g)	-	745.67	2,788.82	2,788.82	29,155.91	-
Hydrogen	H <sub>2</sub>	-	-	-	-	2,092.25	-
Nitrogen	N <sub>2</sub>	-	119,965.09	18,882.13	-	138,896.81	-
Oxygen	O <sub>2</sub>	-	36,445.09	960.09	-	-	-
Hydrochloric Acid	HCl	-	-	-	-	39.69	-
NO x	NO <sub>2</sub>	-	-	-	-	-	-
SO x	SO <sub>2</sub>	-	-	-	-	-	-
Ammonia	NH <sub>3</sub>	-	-	-	-	822.69	-
Hydrogen Sulfide	H <sub>2</sub> S	-	-	-	-	198.65	-
Ash	na	11,417.83	-	0.53	-	114.18	11,303.65
Tar	C <sub>14</sub> H <sub>10</sub>					753.66	
Water	H <sub>2</sub> O(l)	15,072.03	-	-	-	-	-
Total (PPH)		116,269.92	157,155.85	28,826.20	2,788.82	293,734.48	11,303.65
Energy (MMBTU/hr)		692.96	2.06	7.87	3.39	699.49	3.30
Flow Rate (SCFM or GPM)		72.22	34,506.16	6,314.09	977.81	71,145.55	3.04

E2: TNEC Material Balance Overview

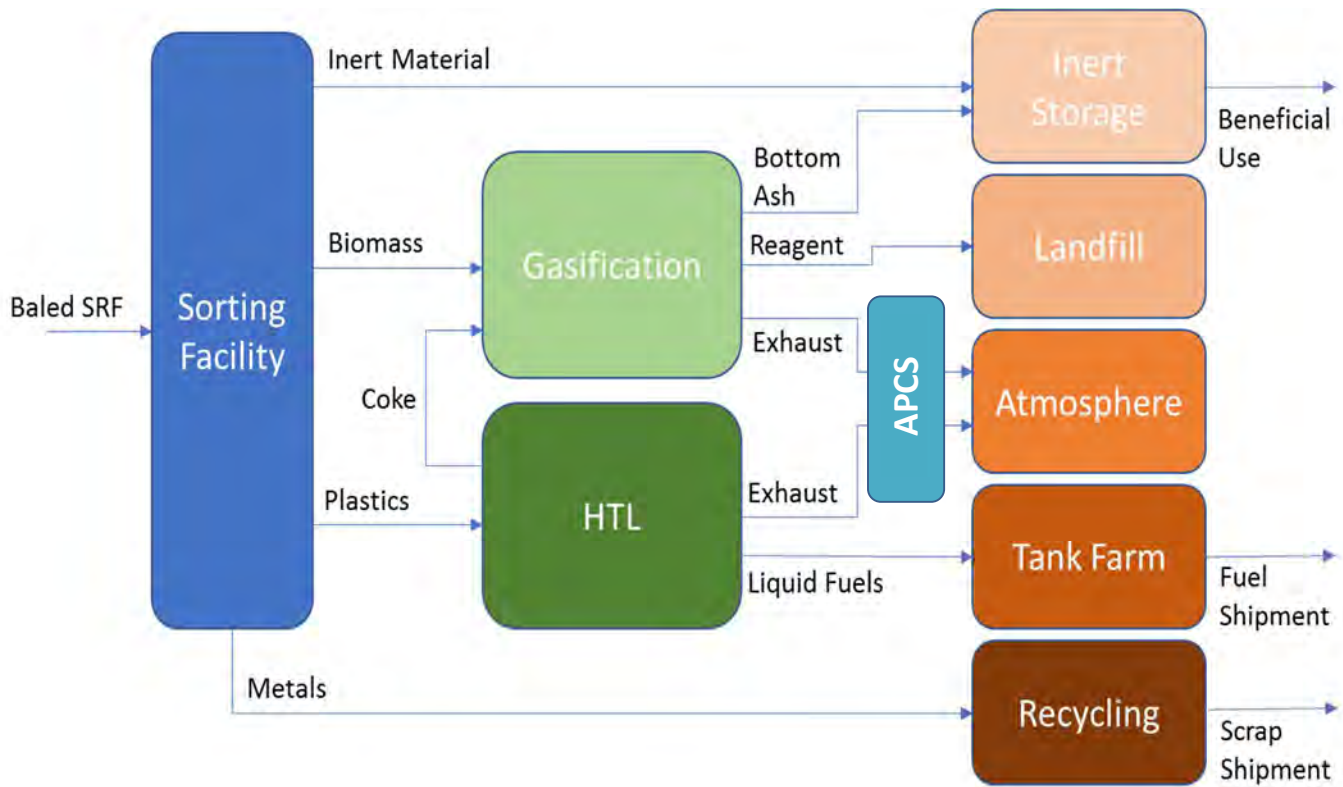


Figure E2-1. TNEC Mass Flow Overview

Table 1. Example SRF composition received at TNEC

Component	%	t/y
Plastics	30%	225,000
Paper/Card	45%	337,500
Fabrics	10%	75,000
Wood	10%	75,000
Metals	1%	7,500
Inert Material	4%	30,000
<b>Total</b>	<b>100%</b>	<b>750,000</b>

Table 2. Sorted Material Flow for SRF at TNEC

	t/y	t/d
<b>To Gasification</b>		<b>1522.7</b>
Paper/Card	337,500	1022.7
Fabrics	75,000	227.3
Wood	75,000	227.3
Inert Material	15,000	45.5
<b>To Inert Storage</b>		<b>45.5</b>
Inert Material	15,000	45.5
<b>To HTL</b>		<b>681.8</b>
Plastics	225,000	681.8
<b>To Recycling</b>		<b>22.7</b>
Metals	7500	22.7

## **APPENDIX F:** HTL and CHP APCS Block Diagrams

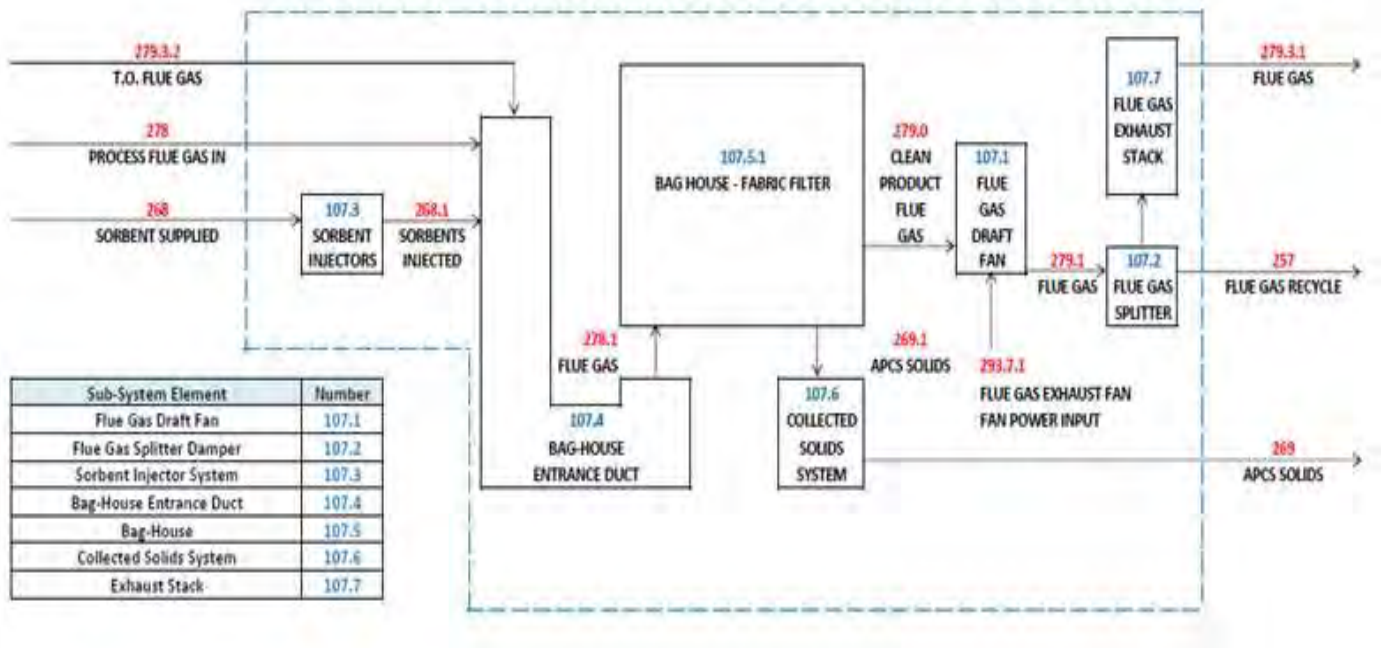


Figure F1. HTL exhaust gas clean-up system

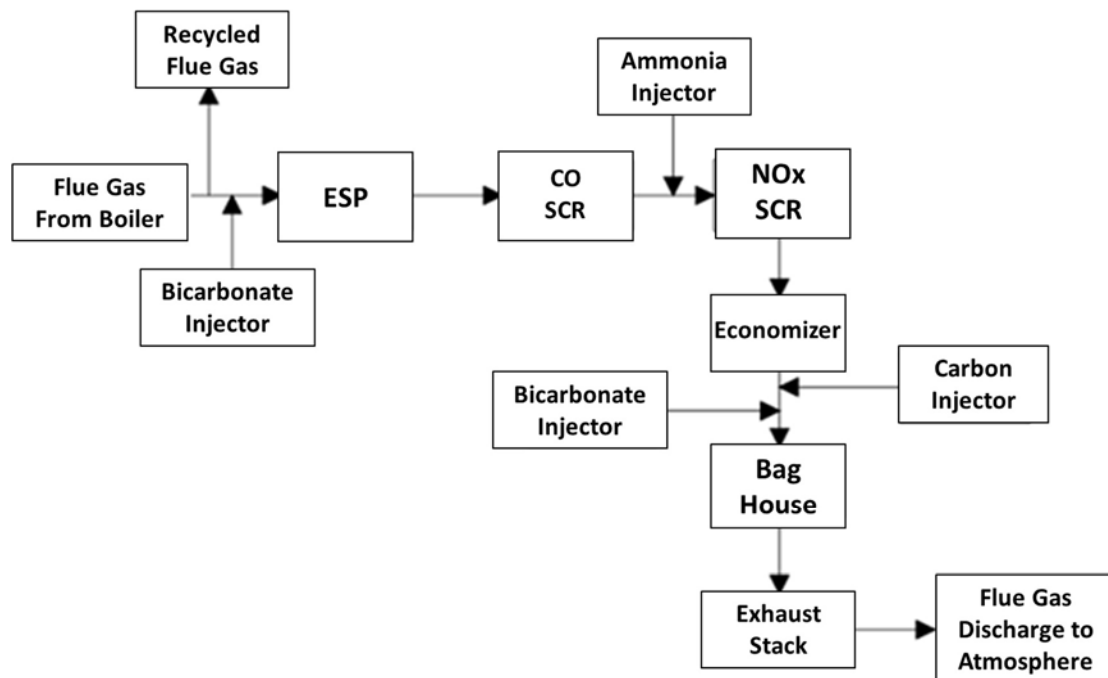


Figure F2. Gasification CHP Flue gas clean-up system

## **APPENDIX G:** Mechanical Feedstock Sorting Equipment Elevation and Plan Views

# APPENDIX G

