MONITORING REPORT #2022-2 FOR THE GREATER NEW BEDFORD LFG UTILIZATION PROJECT, DARTMOUTH, MA

Document Prepared By: CommonWealth Resource Management Corporation
For its wholly owned subsidiary
CommonWealth New Bedford Energy, LLC

Project Title	Greater New Bedford LFG Utilization Project
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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Project is a landfill methane (a.k.a., "landfill gas" or "LFG") capture and utilization project located at a solid waste landfill (the "Landfill") in Dartmouth, Massachusetts. The Landfill is owned by the Greater New Bedford Regional Refuse Management District (the "District"). The owner of the Project is CommonWealth New Bedford Energy, LLC ("CNBE"), a wholly-owned subsidiary of CommonWealth Resource Management Corporation ("CRMC"), a Massachusetts corporation based in Boston, Massachusetts, U.S.A. CNBE also owns the exclusive rights to all of the LFG at the Landfill, and all of the environmental attributes associated with the collection, destruction and use of all of the LFG at the Landfill.

The Project voluntarily captures and destroys LFG methane from the Crapo Hill Landfill located in Dartmouth, Massachusetts (latitude and longitude are 41° 43' 28.12" N and 70° 59' 04.82" W, respectively). The Project captures LFG from the expanded active collection system and destroys it either via four Caterpillar 3516 engine-generator sets or a back-up open flare. The Project achieves emissions reductions through the destruction of LFG that would otherwise have been released to the atmosphere. The back-up flare did not operate for any significant period of time during the current verification period; therefore, emission reductions are not claimed from flaring.

The Project was implemented according to the description provided in the revalidated PD. The Project became operational in January 2002 with the expansion of an existing active LFG collection and destruction system. Emission reductions from the current verification period were claimed for LFG collected from the expanded active LFG collection system and destructed in the Caterpillar 3516 engine-generator sets. The back-up flare had limited operation during the current verification period and no emission reductions are claimed from flaring. CRMC claims GHG emission reductions eligible under VCS program of 69,463 metric tons of CO2e for the verification period July 1 through December 31, 2022.

1.2 Sectoral Scope and Project Type

The sectoral scope is renewable energy industry. The Project is not a grouped project.

1.3 Project Proponent

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1.4 Other Entities Involved in the Project

None.

1.5 Project Start Date

January 1, 2002

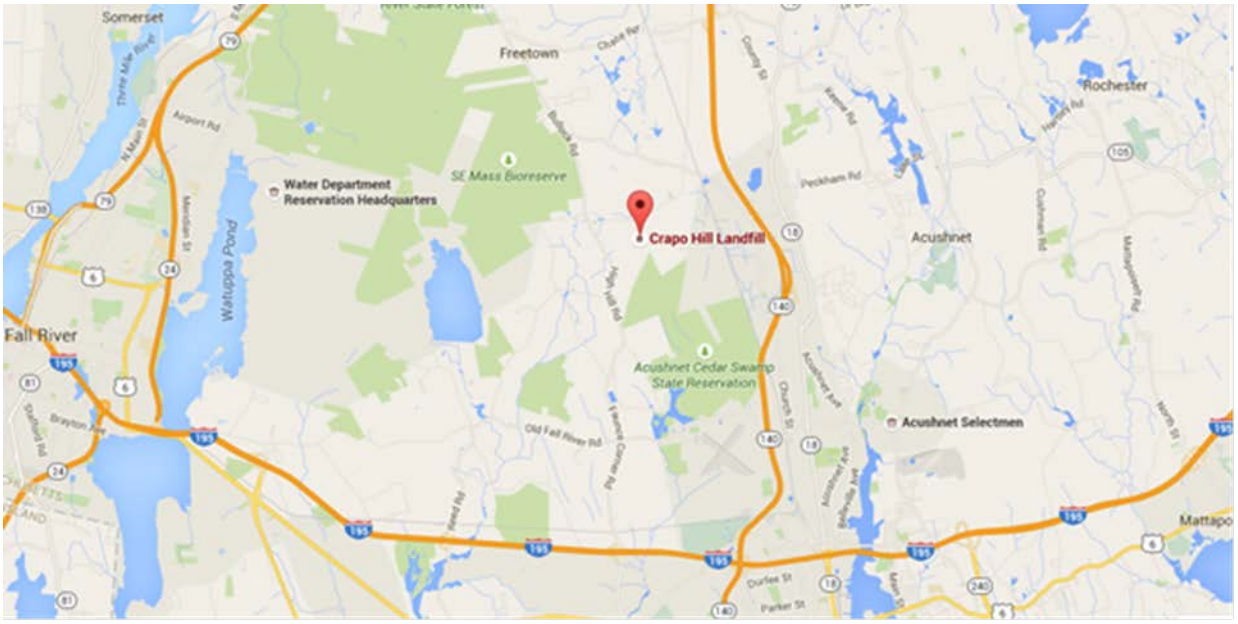
1.6 Project Crediting Period

The first Project Credit Period was a 10-year period starting March 28, 2006 and ending March 28, 2016.

The second Project Credit Period is a 10-year period starting March 29, 2016 and ending March 28, 2026.

1.7 Project Location

The Project is at the Crapo Hill Landfill located west of Samuel Barnet Boulevard in the northeast portion of the Town of Dartmouth, Massachusetts (latitude and longitude are 41° 43’ 28.12” N and 70° 59’ 04.82”).



1.8 Title and Reference of Methodology

As outlined in the Project Description document, the VCS methodology applied to the Project was the approved consolidated baseline methodology UNFCCC's ACM0001, Version 16, "Large-scale Consolidated Methodology – Flaring or use of landfill gas".

1.9 Participation under other GHG Programs

The Project is registered at the American Carbon Registry – Project ID of ACR 113. The emission reductions verified for this monitoring period will not be claimed under or registered on the ACR or any other registry. The last year that credits from this Project were registered under the ACR were for the full year of 2008 vintage. See both "Exhibit 7 Attestation Statement" and separately submitted to VERRA "Issuance Deed of Representation", which attest that carbon credits verified hereunder will be registered on the VERRA Registry only.

1.10 Other Forms of Credit

- Emission Trading Programs and Other Binding Limits: The Project does not participate in emission trading programs and does not have other binding limits.
- Renewable Energy Portfolio Programs: The Project is qualified under the Massachusetts, Connecticut, Maine and New Hampshire Renewable Energy

Portfolio Programs to produce Class 1 Renewable Energy Credits in Massachusetts, Connecticut, Rhode Island and Maine; and Class III Renewable Energy Credits in New Hampshire. These programs and the resulting Renewable Energy Credits do not include the GHG emission reduction attributes associated with the destruction of methane.

1.11 Sustainable Development Contributions

The Project is a renewable energy project that supports sustainable development in the United States. The Project continues to add collection equipment to new areas of the active landfill to collect newly generated landfill gas. The Project continues to add automated monitoring and collection equipment to well heads to monitor and record real time data from new wellheads and control the flow of landfill gas through the wellheads to optimize the efficiency of the collection system to collect the maximum quantity of landfill gas.

The Project supports the United States Environmental Protection Agency Landfill Methane Outreach Program (LMOP), which is a voluntary program that works cooperatively with industry stakeholders and waste officials to reduce or avoid methane emissions from landfills. LMOP encourages the recovery and beneficial use of biogas generated from organic municipal solid waste. CRMC has been a member of LMOP since 1995. The project is a listed on LMOP and CRMC reports performance of the project annually. The project helps LMOP to achieve its stated goals to reduce greenhouse gas emissions, reduction of air pollution by offsetting the use of non-renewable resources, create health and safety benefits, and benefit the community and economy.

The Project supports several of the United Nations Sustainable Development Goals. The specific support of these goals is described in the table below.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	7.0	Ensure access to Affordable, Reliable, Sustainable and Modern Energy	Implemented activities to increase production of reliable, low cost, base-load renewable energy to four local municipal utilities.	During second half of 2022, increased production of renewable electricity by 24% over second half of 2021.	The project has increased affordable, reliable, base-load renewable electricity in Massachusetts by 356,822 Megawatt hours since 2005.
2)	9.0	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Implemented activities to increase the collection of landfill gas.	Installed additional landfill collectors and automated monitoring and control of landfill wells using Loci Controls technology. Collected an addition 450 metric tons of methane during monitoring period.	The project increased collection of landfill gas by expanding collection and increased the efficiency of the collection by adding automated collection and control system. Collected approximately 4.5 trillion Btus of landfill gas (methane) since 2005. The landfill gas was destroyed but first converted to renewable energy.
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented project activities to collect and destroy methane gas that would otherwise be emitted to the atmosphere.	By collecting and destroying landfill gas, the Project has reduced or avoided methane emissions of 69,000 metric tons of CO2 equivalents.	Reduced 1.7 million metric tons of CO2 equivalents since 2005.

2 SAFEGUARDS

2.1 No Net Harm

None. The Project is an environmental control project that is designed and operated to (1) collect and control landfill gas emissions from a landfill that may otherwise be uncollected and uncontrolled and (2) utilize an energy resource that may be otherwise wasted.

Review of the EPA Enforcement and Compliance History Online (ECHO) shows that during this reporting period, no notice of non-compliance are associated with the Project or site of the Project.

2.2 Local Stakeholder Consultation

Provide tours of the facility to interested parties including school groups, college students, environmental advocacy groups, political leaders, etc. The project has been typically used as an example by the State of Massachusetts Clean Energy Council and Department of Environmental Protection as an important environmental project that helps to achieve the environmental, renewable energy, GHG reduction and sustainability goals of Massachusetts. The Project was awarded the Silver Metal for Excellence in 2010 for landfill gas and biogas projects by the Solid Waste Association of North America (SWANA). Criteria used for this national award for excellence included Site Design & Construction, Environmental Controls, Regulatory Compliance, Planning, Operations & Financial Management, Utilization of Equipment/Systems and Technologies, Public Acceptance, Appearance and Aesthetics, and Innovation and Creativity.

The mechanisms for ongoing communication with stakeholders include

1. Providing all stakeholders and the general public with detailed descriptions of the Project through both the CommonWealth Resource Management Corporation (CRMC) website (www.crmcx.com) and the Greater New Bedford Regional Refuse Management District website (https://gnbrrmdistrict.org).
2. Direct outreach from CNBE by providing presentations to industry groups, by responding to inquiries from the public and organizing public tours of the facility and providing annual data to the Massachusetts Department of Environmental Protection and other regulatory agencies.
3. Direct outreach from the Executive Director of the Greater New Bedford Regional Refuse Management District who responds to all stakeholder inquiries regarding all activities at the landfill including the Project. Stakeholder inquiries of the Project are typically relayed to CNBE and CNBE communicates with the interested stakeholders.

Members of the public have access to CNBE's owners and operators through direct email and telephone contact information listed on the CRMC website.

2.3 AFOLU-Specific Safeguards

The Project is not an Agriculture, Forestry and Other Land Use (AFOLU) project.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity is in service.

The project activity operated normally during the monitoring period subject to this verification. The four engines destroyed landfill gas during the period. The back-up flare had limited operation during the current verification period and no emission reductions are claimed from flaring.

3.2 Deviations

3.2.1 Methodology Deviations

The following methodology deviations were previously validated and approved for the Project during the initial crediting period and again during the revalidation assessment in 2016:

- The SCADA system was programmed to calculate the methane gas flow in units of million British thermal units (MMBtu) using standardized gas flow (at 68°F and one atmosphere of pressure), methane concentration, the gross heat content (higher heating value) of methane, and the actual temperature and pressure. CNBE determined the volume of methane destroyed by converting the MMBtu values to total methane gas flow in standard cubic feet. This deviation from the monitoring methodology was previously approved by independent verifiers and had a conservative impact on the quantification of GHG emissions reductions during the verification period.
- The Project reference conditions are 20 degrees Centigrade and 1 atmosphere rather than ACM0001 reference conditions of 0 degrees Centigrade and 1 atmosphere.

The following methodology deviations were previously approved during the re-validation assessment in 2016.

1. A separate LFG meter is not present on each of the four combustion engines. A single meter is used immediately before the piping splits to each engine. This meter is

continuously recording data. Operating data is tracked for each engine, so it is possible to calculate the flow destroyed by each engine and to ensure that LFG is destroyed. Flow controls are in place to ensure no LFG is sent to an engine that is not operating. This does not affect the conservativeness of the emissions reductions claimed.

2. Ex-ante emissions reductions calculations use historic Project specific data as the basis for projecting future emissions rather than the required CDM estimation tools. Using real data allows the estimations to be more accurate and reflect actual Project operating conditions. This does not affect the conservativeness of the emissions reductions claimed but increases the accuracy of the ex-ante projections ensuring the project is forecasting obtainable, appropriate emissions reductions.

3. There is no flow meter installed on the collection pipe from the District Initial System to separately monitor the contribution of the original baseline system. Given the collection system design and meter requirements, installing a meter at this location would not produce reliable, meaningful results. Instead, well-head flow measurements are collected manually. These results are used to calculate the relative contribution of the District Initial System to the overall flow of LFG destroyed by the engines. This portion of the total flow represents $F_{CH4,BL,y}$ and will be calculated on a monthly basis and subtracted from the total flow to account for the amount of methane destroyed in the baseline scenario. This approach represents an accurate measurement of the flow because (a) the portion of the landfill that includes the District Initial System (Phase 1) is capped so no landfill gas can be passively emitted to the atmosphere, and (b) the remaining active wells from the District Initial System are located in such a way as to enable capture of all LFG generated within the sphere of influence of the District Initial System. This deviation decreases the conservativeness of the emissions reductions claimed but significantly increases the accuracy of the calculations as is allowable under VCS Standard v4.1, Section 3.17.1 and 2.

4. The Project uses the eGrid electricity emissions factor rather than the default emissions factor provided in the CDM tool as explained in the project emissions section. This deviation decreases the conservativeness of the emissions reductions claimed but significantly increases the accuracy of the calculations as is allowable under VCS Standard v4.1, Section 3.17.1 and 2.

These deviations only apply to the monitoring and measurement portions of the Project.

3.2.2 Project Description Deviations

No project description deviations applied during this monitoring period.

3.3 Grouped Projects

The Project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	OXtop_layer
Data unit	Dimensionless
Description	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline
Source of data	Consistent with how oxidation is accounted for in the methodological tool “Emissions from solid waste disposal”
Value applied:	0.1
Justification of choice of data or description of measurement methods and procedures applied	In accordance with requirements of ACM0001
Purpose of Data	Calculation of baseline emissions
Comments	No comments

Data / Parameter	GWPCH4
Data unit	T CO2e / t CH4
Description	Global warming potential of methane
Source of data	IPCC – Fourth Assessment Report
Value applied:	28
Justification of choice of data or description of measurement methods and procedures applied	Updated from 25 to 28 pursuant to (1) the re-validation report dated May 16, 2016, and (2) the VCS approval (in its VCS Standard v.4.1 issued April 22, 2021 and VCS Standard v4.2 issued January 20, 2022) of updated global warming potentials provided in the IPCC’s Fifth Assessment Report (Table 8.A.1) (2013).
Purpose of Data	Calculation of baseline emissions

Comments	No comments

Data / Parameter	Regulatory requirements
Data unit	Not applicable
Description	Regulatory requirements applicable to the Project Activity
Source of data	Publicly available information on local, regional and national regulations
Value applied:	Not applicable
Justification of choice of data or description of measurement methods and procedures applied	Not applicable
Purpose of Data	To ensure continued compliance and regulatory additionality
Comments	This information is summarized in the PDD and will be monitored during the crediting period for any applicable changes.

Data / Parameter	Methane oxidation efficiency for electricity generation
Data unit	Percent
Description	Quantity of methane oxidized during combustion for electricity generation
Source of data	CDM Methodologies and Tools
Value applied:	100
Purpose of the data	Calculation of baseline and emissions reductions
Comments	None

Data Unit / Parameter:	Methane oxidation efficiency for flare
Data unit:	Percent
Description:	Quantity of methane oxidized during combustion using flare
Source of data:	40 CFR § 63.670 Requirements for flare control devices
Value applied:	98
Purpose of the data:	Baseline and emissions reductions
Any comment:	None

Data / Parameter	Fuel Use by the Emergency Generator
Data unit	Gallons/hour
Description	Average consumption of a 150kW generator operating at ¾ load to be used to calculate fuel consumed annually
Source of data	Diesel Service and Supply Company
Value applied:	8.4 gallons/hour
Justification of choice of data or description of measurement methods and procedures applied	Conservative for this piece of equipment given output needed vs total capacity
Purpose of the data	Calculation of project emissions
Comments	None

4.2 Data and Parameters Monitored

Data Unit / Parameter:	Methane content of gas (LFG and biogas)
Data unit:	Percent methane content of gas (LFG and biogas)
Description:	Methane content of gas (LFG and biogas)
Source of data:	SCADA System at Facility
Description of measurement methods and procedures to be applied:	Non-dispersive infrared
Frequency of monitoring/recording:	Continuous, hourly, daily
Value monitored:	Methane concentration, % Value varies. During the monitoring period methane value averaged 52.8% with range of 46.9% to 56.4%.
Monitoring equipment:	California Analytical 602P, Serial # S07002

Data Unit / Parameter:	Methane content of gas (LFG and biogas)
QA/QC procedures to be applied:	Field calibrated once per week. A zero check and value check is performed by comparison with standard certified gas.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Used in calculation to obtain heat value of gas (LFG and biogas) in Btu per scf of gas (LFG and biogas)
Any comment:	CO2 and O2 are also continuously monitored using the same instrument.

Data Unit / Parameter:	Volume of gas (LFG and biogas) to engines
Data unit:	Actual cubic feet per minute
Description:	Quantity of gas (LFG and biogas) used to fuel engines
Source of data:	SCADA System at Facility
Description of measurement methods and procedures to be applied:	Differential pressure measured across orifice plate
Frequency of monitoring/recording:	Continuous, hourly, daily
Value monitored:	Differential pressure Value varies. During monitoring period differential pressure value ranged between 8 to 10 inches water gauge that is used to calculate actual cubic feet per minute flow average.
Monitoring equipment:	Oripac Model 4150, Serial #30154
QA/QC procedures to be applied:	Field calibrated once per month.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Fluid flow equation (Bernoulli) calculates actual cubic feet per minute of gas (LFG and biogas).
Any comment:	None

Data Unit / Parameter:	Temperature of gas (LFG and biogas) to engines
Data unit:	Degrees Fahrenheit
Description:	Temperature of gas (LFG and biogas)
Source of data:	SCADA System at Facility
Description of measurement methods and procedures to be applied:	Thermocouple
Frequency of monitoring/recording:	Continuous
Value monitored:	Temperature Value varies. Typical range of temperatures is 107 to 120 degrees F.
Monitoring equipment:	Thermocouple, Omega or equivalent
QA/QC procedures to be applied:	Field calibrated using thermometer.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Used in fluid flow equation (Bernoulli) to calculate standard cubic feet per minute from actual cubic feet per minute of gas (LFG and biogas).
Any comment:	None

Data Unit / Parameter:	Pressure of gas (LFG and biogas) to engines
Data unit:	PSIG
Description:	Pressure of gas (LFG and biogas)
Source of data:	SCADA System at Facility
Description of measurement methods and procedures to be applied:	Pressure transducer
Frequency of monitoring/recording:	Continuous
Value monitored:	Static pressure Value varies. The typical range of static pressure is 1.9 to 2.3 psig.
Monitoring equipment:	Pressure transducer, Omega or equivalent
QA/QC procedures to be applied:	Field calibrated using pressure gauge.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Used in fluid flow equation (Bernoulli) to calculate standard cubic feet per minute from

	actual cubic feet per minute of gas (LFG and biogas).
Any comment:	None

Data Unit / Parameter:	Methane content of biogas
Data unit:	Percent methane content of biogas
Description:	Methane content of biogas
Source of data:	CRMC Bioenergy Facility (anaerobic digester system) tied to SCADA System at Facility
Description of measurement methods and procedures to be applied:	Non-dispersive infrared
Frequency of monitoring/recording:	Continuous and a totalization of biogas volume
Value monitored:	Methane concentration, % Value varies. During the monitoring period methane value averaged 60.6% with range of 12.2% to 72.0%.
Monitoring equipment:	Hitech Model: IR600 Infra-Red Gas Analyzer, Serial #1-09916

Data Unit / Parameter:	Methane content of biogas
QA/QC procedures to be applied:	Field calibrated periodically. A value check is performed by comparison with standard certified gas.
Purpose of the data	Calculate emissions reductions.
Calculation method:	Used in calculation to obtain heat value of biogas in Btu per scf of biogas
Any comment:	None

Data Unit / Parameter:	Volume of biogas
Data unit:	Standard cubic feet per minute
Description:	Quantity of biogas added to LFG, both used to fuel engines
Source of data:	CRMC Bioenergy Facility (anaerobic digester system) tied to SCADA System at Facility
Description of measurement methods and procedures to be applied:	Differential pressure measured across a pitot tube
Frequency of monitoring/recording:	Continuous and at totalization of biogas volume
Value monitored:	Differential pressure Value varies. During monitoring period differential pressure value ranged between 0 to 0.16 inches water gauge that is used to calculate actual cubic feet per minute flow average.
Monitoring equipment:	Dwyer Series DS-300 Flow Sensor, which is an averaging pitot tube
QA/QC procedures to be applied:	Field calibrated once per month.
Purpose of the data	Calculate emissions reductions.
Calculation method:	Fluid flow equation (Bernoulli) calculates actual cubic feet per minute of gas.
Any comment:	None

Data Unit / Parameter:	Temperature of biogas
Data unit:	Degrees Fahrenheit
Description:	Temperature of gas
Source of data:	CRMC Bioenergy Facility (anaerobic digester system) tied to SCADA System at Facility
Description of measurement methods and procedures to be applied:	Thermocouple
Frequency of monitoring/recording:	Continuous monitoring
Value monitored:	Temperature Value varies slightly. Average value of 85 degrees F.
Monitoring equipment:	Thermocouple, Omega or equivalent
QA/QC procedures to be applied:	Field calibrated using thermometer.
Purpose of the data	Calculate emissions reductions.
Calculation method:	Used in fluid flow equation (Bernoulli) to calculate standard cubic feet per minute from actual cubic feet per minute of gas.
Any comment:	None

Data Unit / Parameter:	Pressure of biogas
Data unit:	PSIG
Description:	Pressure of gas
Source of data:	SCADA System at Facility
Description of measurement methods and procedures to be applied:	Pressure transducer Value of 6 inches water gauge maintained continuously.
Frequency of monitoring/recording:	Continuous
Value monitored:	Static pressure
Monitoring equipment:	Pressure transducer, Omega or equivalent

QA/QC procedures to be applied:	Field calibrated using pressure gauge.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Used in fluid flow equation (Bernoulli) to calculate standard cubic feet per minute from actual cubic feet per minute of gas.
Any comment:	None

Data Unit / Parameter:	Volume of LFG to the flare
Data unit:	Standard cubic feet per minute
Description:	Quantity of landfill gas combusted in flare
Source of data:	Flare station
Description of measurement methods and procedures to be applied:	Differential pressure measured across orifice plate
Frequency of monitoring/recording:	Continuous, hourly, daily
Value monitored:	Standard cubic feet per minute Varies periodically. Typically, 0 scfm. Few times that flare operates varies between 300 to 800 scfm.
Monitoring equipment:	Omega PDF65 sqrt, Serial #57493
QA/QC procedures to be applied:	Field calibrated as required when operating.
Purpose of the data	Calculate baseline and emissions reductions.
Calculation method:	Fluid flow equation (Bernoulli) calculates standard cubic feet per minute of LFG.
Any comment:	None

Data / Parameter	Fraction of total LFG collected attributable to District Initial System
Data unit	Percentage
Description	Amount of LFG collected from the District Initial System that would have been destroyed in the baseline scenario

Source of data	Well-head measurements
Description of measurement methods and procedures to be applied	Measurements at each well-head using a hand-held instrument
Frequency of monitoring/recording	Once per month
Value applied:	4.1% was used in the ex-ante calculation based on data July 1, 2022 through December 31, 2022. See Exhibit 4.
Monitoring equipment	Elkin Earthworks Model 1104M64-06
QA/QC procedures to be applied	Calibrations are conducted prior to each set of measurements and documented.
Purpose of data	Calculation of the baseline emissions
Calculation method	LFG flows from District Initial System/Total LFG flow from all wells
Comments	None

Data Unit / Parameter	EF EL,Grid,y
Data unit	tonnes CO2/MWh
Description	Emission factor for electricity generation in year y
Source of data	US EPA eGRID data
Description of measurement methods and procedures to be applied	This value converted from the pounds CO2/MWh provided by the US EPA.
Frequency of monitoring/recording	The eGRID data will be reviewed each year to ensure that the most current value is used. See Exhibit 4
Value applied	0.24 tonnes CO2/MWh
Monitoring equipment	None
QA/QC procedures to be applied	None
Purpose of data	Calculation of project emissions

Calculation method	528.238 lbs CO2/MWH*0.454545455 kg/lbs*0.001 tonnes/kg = 0.24 tonnes CO2/MWh
Any comment:	None

Data Unit / Parameter	TDL Grid,y
Data unit	--
Description	Average technical transmission and distribution losses for grid in year y
Source of data	Energy Information Administration (EIA) Department of Energy (DOE) Annual Energy Review 2011: Chapter 2 Energy Consumption by Sector. P. 66
Description of measurement methods and procedures to be applied	None
Frequency of monitoring/recording	This data will be reviewed each year to ensure that the most current value is used.
Value applied	0.07
Monitoring equipment	None
QA/QC procedures to be applied	None
Purpose of data	Calculation of project emissions
Calculation method	None
Any comment	None

Data Unit / Parameter	EC Grid,y
Data unit	MWh
Description	Amount of grid electricity consumed by the project
Source of data	Bills as shown in Exhibit 5
Description of measurement methods and procedures to be applied	CNBE staff will compile the data.

Frequency of monitoring/recording	Data will be compiled annually.
Value applied	Ex Ante Calculation: 0 MWh/year based on July 1 through December 31, 2022 usage
Monitoring equipment	None
QA/QC procedures to be applied	None
Purpose of data	Calculation of project emissions
Calculation method	None
Any comment	None.

Data Unit / Parameter:	FCDiesel,y
Data unit:	Gallons/year
Description:	Amount of diesel consumed by the emergency generator
Source of data:	Run time log as shown in Exhibit 5
Description of measurement methods and procedures to be applied:	Plant operator will log the run time of the engine each time it is used
Frequency of monitoring/recording:	Data will be compiled annually.
Value applied:	Ex Ante Calculation: Based on July 1 –December 31, 2022 usage, the engine ran for 119 hours. Using a conservative assumption that the engine operated at ¾ load, it was assumed that the engine uses 8.4 gallons of diesel per hour run. (Technical specifications provided to validator. See Parameter in Section 5.1 of PD)
Monitoring equipment:	None
QA/QC procedures to be applied:	None
Purpose of data:	Calculation of project emissions
Calculation method:	The total run time will be multiplied by 8.4 gallons/hour to determine the total amount of diesel consumed in the year.
Any comment:	None.

Data Unit / Parameter:	NCVdiesel
Data unit:	MMBtu/ gallon
Description:	Energy content of the diesel
Source of data:	Draft 2011 US Greenhouse Gas Inventory Report
Description of measurement methods and procedures to be applied:	This was converted from the MMBtu/barrel data provided by the USEPA. 5.809 MMBtu/barrel
Frequency of monitoring/recording:	Annual
Value applied:	0.13831 MMBtu/gallon See ExAnteEstimate or Annual Calculation Workbooks for conversion
Monitoring equipment:	None
QA/QC procedures to be applied:	None
Calculation method:	None
Any comment:	Values provided by the EPA will be reviewed annually to ensure this value is the most up to date value available. This value is higher than the range provided by the IPCC in its 2006 Guidelines for National Greenhouse Gas Inventories and is therefore conservative.

Data Unit / Parameter:	EF CO2,Diesel,y
Data unit:	t CO2 /MMBtu
Description:	CO2 emissions factor for diesel
Source of data:	Draft 2011 US Greenhouse Gas Inventory Report
Description of measurement methods and procedures to be applied:	This was converted from the Tg C/Qbtu data provided by the US EPA. See ExAnteEstimate or Annual Calculation Workbooks for conversion
Frequency of monitoring/recording:	Annual
Value applied:	0.073957 t CO2 /MMBtu

Monitoring equipment:	N/A
QA/QC procedures to be applied:	N/A
Calculation method:	N/A
Any comment:	Values provided by the EPA will be reviewed annually to ensure this value is the most up to date value available.

4.3 Monitoring Plan

Critical for the accuracy and transparency of the calculation is that:

1. Measurements of gas flows are undertaken with reliable equipment that is regularly calibrated;
2. Sampling of Methane concentration in gas is undertaken with reliable equipment that is regularly calibrated;
3. Sampling of Methane concentration in gas takes place with a frequency that is sufficient to calculate average concentration factors that are statistically unbiased (i.e. they reflect the actual methane concentration of the gas);
4. Measurements of gas flows are undertaken at least on a monthly basis and are as frequent as necessary to apply statistically valid methane concentration factors (as described in (3), above);
5. Measurement and calibration equipment and processes and changes thereof are clearly described as part of the GHG emissions reporting process.

Unless otherwise specified through the GHG emissions reporting process, the following system is assumed to be in place.

4.3.1 Data Collection

At the Facility, the Supervisory Control and Data Acquisition (SCADA) system measures and records methane content and gas (LFG and biogas) volume to the engines and flare once per minute, and then calculates methane quantities each minute. The results are then accumulated to provide hourly and daily totals in units of million British thermal units on a higher heating value basis [MMBtu (HHV)] and thousand standard cubic feet (KSCF) of LFG. This data point provides information regarding the mixed landfill gas and biogas from the CRMC Bioenergy Facility (anaerobic digester system).

The same calculation is made using data from the biogas feed pipe. The difference between the total Btus entering the engines and the total Btus received from the biogas facility is the quantity attributed to the LFG collected and is used in the calculations described previously in the PDD. Because the calculations for this project are based on the use of Btus rather than metric tonnes of methane as discussed in the deviation section, the value obtained by this approach is not skewed by the mixing of the gases prior to the measurement of the gas entering the engines.

Flow Measurements

The flow meters are located directly upstream of the destruction devices. One flow meter serves as the unit for flow meter measurements to the four engines, one unit for flow measurement of the biogas, and one unit for flow meter measurements to the flare. Each flow meter is equipped with a totalizer that indicates the cumulative actual cubic feet of gas that have passed through that flow meter.

The Project uses an orifice plate flow meter purchased directly from its manufacturer, Lambda Square Inc for the engine measurements. The orifice plate flow meter is an Oripac® Model 5300 that determines flow based on pressure differentials measured across a 5-inch diameter bore pressure differential plate installed in the Project's 8-inch diameter LFG pipe. The design data for the instrument specifies an accuracy of ± 0.6 percent of full scale and the capability of measuring flows from 0 to 1,600 actual cubic feet per minute. The performance of the instrument in the field is assured by the manufacturer based on bench scale testing in accordance with applicable design and methodologies prescribed by the International Standards Organization (ISO) and the American Society of Mechanical Engineers (ASME).

The Project uses an Omega PDF65 flow meter for measuring flow to the flare and a Dwyer Series DS-300 Flow Sensor, which is an averaging pitot tube, for measuring flow of the biogas.

Methane Measurements

The methane content of the gas (LFG and biogas), on a percent volume basis, is measured at a sampling port in the main header pipe near the flow meter with the use of a California Analytical Instrument Non-dispersive infrared (NDIR) analyzer. The readings are also logged by the SCADA system once per minute.

The methane content of the biogas is measured using a Hitech Model: IR600 Infra-Red Gas Analyzer.

Wellfield Measurements

The landfill gas collection system is balance in two ways including (1) high quantity LFG producing wells incorporate automated landfill gas collection technology and (2) low quantity LFG producing wells incorporate manual landfill gas collection technology.

The automated landfill gas collection was installed and is operated by Loci Controls Inc. The Loci system allows for near continuous gas collection well measurements and valve adjustments using cellular connections to cloud based computing and data storage systems to improve gas collection system efficiency. These automated systems deploy collection well mounted hardware that provides continuous gas collection system measurement, data storage, control, and optimization. Algorithms are used to automate the valve adjustments to maximize collection efficiency, and reduce GHG emissions, based on individual collection well measurements and operating thresholds, along with aggregate gas composition thresholds for the entire collection system. The Loci automated technology transforms the high quantity LFG collection wells from periodic manual to continuous automated operation that increases landfill gas collection efficiency beyond regulatory requirements.

The manual technology requires a technician to monitor the landfill gas at each wellhead with a handheld gas analyzer and based on the data the technician adjusts a mechanical valve located on the wellhead above ground. The data is recorded by the technician and then moves on to the next wellheads to perform this same task repeatedly until all collection wells are monitored and adjusted. The technician measures LFG pressures, LFG flow rate, methane, carbon dioxide, oxygen and balance gas content of the LFG and based on these measurements adjusts the mechanical valve to control vacuum and flow from the collection well. Opening of the manual valve will increase the vacuum applied to the collection well. Closing the valve, will reduce the vacuum applied to the collection well. These results are logged in an electronic file to document system performance as well as to determine the percent contribution of LFG from the District Initial System.

Meter Calibrations

On installation, CNBE performed initial calibrations of the instruments, under actual field conditions using the USEPA Protocols described below. As a back-up to the flowmeter measurements, actual quantities of LFG destroyed in the Project engine-generators can be accurately calculated based on (a) the known engine heat rate (the number of British Thermal Units (Btus) required to produce a kilowatt hour electric power, (b) the measured heat content of the LFG fuel, and the metered electric power output of the Project.

CNBE performs calibration of the orifice plate flow meter at least quarterly and often monthly. CNBE follows the USEPA-promulgated test methods (USEPA Protocols) for determining flow rates of gas through pipes at 40 CFR 60 Appendix A, including (a) Method 1a - sample and velocity traverses for stationary sources with small stacks or ducts, and (b) Method 2c - determination of gas velocity and volumetric flow rate in small stacks or ducts (standard pitot tube). The USEPA Protocols were established by the USEPA to accurately determine the volumetric flow rates of

gases through pipes at industrial facilities to determine compliance with permit limitations on process and exhaust gases.

The calibration is performed by measuring the flow at a point near the orifice flow meters. A pitot tube attached to a manometer measures the flow. The pitot tube is inserted into the pipe and several points are measured across the full diameter of the pipe. The measurements taken by the pitot tube and manometer include velocity pressure and static pressure. Other measurements taken during calibration include gas temperature and barometric pressure.

Each week or more frequently as necessary, CNBE calibrates methane concentration measured on an automated basis by a California Instruments NDIR Analyzer installed at the Project, and any hand-held instrument that may be used in addition to the NDIR Analyzer is calibrated prior to its use. CNBE has found that weekly calibrations are sufficient to provide accurate measurements because of the reliable performance of the instrument, and the stringent dependence of engine operations on the accuracy of the methane measurements. CNBE typically experiences a weekly variance in the accuracy of methane content readings of one percent or less, which readings are measured by the California Instruments NDIR Analyzer and compared to readings from a certified standard gas containing a known methane concentration.

Another performance measure that is a further check and balance of methane content is the calculation of efficiency of the operating engine-generator sets, which is calculated daily and does not vary by more than approximately five percent during normal operations.

Biogas meters are calibrated as outlined in the relevant parameters.

4.3.2 Organizational structure, responsibilities, and competencies

CNBE owns and manages the operations of the Facility and is responsible for oversight of operations and data collection, calculating emissions reductions and ensuring proper Project documentation. CNBE personnel have extensive experience in these areas. They have successfully implemented the Project over many years and have had no employee turnover.

CNBE contracts an operating company to conduct the operations and maintenance of the Facility. The operating company employs a full-time operator to conduct operations, maintenance, inspections, calibrations, monitoring and record-keeping at the facility. The operator receives training on the necessary tasks and has a task reminder calendar to ensure duties are performed at the appropriate time.

4.3.3 Recordkeeping

The SCADA system creates a Microsoft Excel file that contains the hourly and daily totals of landfill gas flow, landfill gas heat value, landfill gas methane content, operating hours of each

engine, gross power output of each engine, gross and net power output of the facility. This file is created each day at mid-night for the prior 24-hour period. The file is automatically stored on the SCADA system computer. This file can be accessed remotely or at the facility. The file is manually copied from in its entirety and pasted into the monthly quantification excel spreadsheet. No individual pieces of data are manually entered. The files are backed up at the Facility and off-site.

The SCADA systems also records all biogas data which is also transferred in its entirety and used in calculating the landfill gas values for determining Project emissions reductions.
Operator records including the Facility operation logs, maintenance logs and manually recorded data logs are maintained at the Facility. Operator records also include the log noting the run time of the emergency generator.

4.3.4 Internal Review

The Project uses several layers of review to ensure proper operations, data collection and quantification of emissions reductions.

The monthly quantification spreadsheet calculates several key performance parameters each day that are compared a few times per week to the expected performance range of each parameter. If the calculations show a significant deviation, corrective actions are taken. Corrective actions involve repairing equipment that is performing outside its normal range or correcting data that may have been reported in error. Equipment problems and corrective actions are noted in the “Service Section” of the monthly reports. CNBE includes notes to fully explain the problem and corrective action to the extent necessary. This information also identifies any deviations from this monitoring plan which can then be recorded in the verified Monitoring Report.

CNBE has established monthly operations meetings at the Facility between CNBE’s contract operator and the owners of CNBE. During each monthly meeting CNBE and the operator review the prior month operations performance including the production reports, work order list, unscheduled repairs and maintenance, and routine maintenance; the current month’s additions to the work orders that would prevent and correct deficiencies discovered and make overall improvements in performance of the Facility; review reports including monthly outage report, methane calibration logs, exhaust gas oxygen logs, lubricating oil logs, spare parts inventory report and others that may be relevant. In addition, CNBE meets with the District and Loci Control Inc. to review the status of the LFG collection system performance and work required to prevent and correct deficiencies discovered and make overall improvements in performance of the system.

CNBE annually calculates the project emissions from electricity use and emergency generator use as outlined in the PD.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

For Section 5.1 through 5.4 below and in accordance with the process for Periodic VCU Issuance described in section 4.5 of the document entitled "Registration and Issuance Process, v4.3" (issued 17 January 2023), CommonWealth Resource Management Corporation (the Project Proponent) submitted to Verra on 30 March 2023 via the Registry's on-line document upload mechanism the file entitled "VCS ER Calculation Spreadsheet – project 138 01 July 22 to 31 Dec 22 V2 (30 March 2023).xls", which file contains all of the equations used in the Monitoring Report's ERR calculations. This spreadsheet, which was also submitted to GHD for verification, provides the Exhibits 1 through 4 that are included in the Appendix.

5.1 Baseline Emissions

To quantify Baseline Emissions for the Project, the following methodology was used:

- UNFCCC CDM "Large scale Consolidated Methodology – Flaring or use of landfill gas", ACM0001, Version 16.0 dated 16 October 2015.

The calculation methodology was applied to the calculation of emissions from methane contained within LFG which is generated from the decomposition of solid waste from within the landfill and combusted during electricity generation or in a flare.

For this Project Activity the baseline emissions consist of those associated with the volume of LFG that is destroyed in the flare and the engines to generate electricity. Further, the emissions associated with the fraction of LFG related to the District Initial System, need to be subtracted as this system was installed voluntarily as part of the baseline of the Project Activity. This subtraction of emissions is understood to occur in the baseline of the Project Activity.

The Baseline Emissions also include quantification of the fraction of methane in the LFG that would be oxidized in the top layer of the landfill in the baseline. This is a dimensionless value (0.1) that was available at validation and is therefore defined in the VCS PD. The Baseline Emissions calculations are presented in Exhibits 1 and 2 and the equation is shown below:
Baseline emissions of methane from the Project Activity in year y are found as follows:

$$BE_{CH4,y} = ((1-OX_{top\_layer}) \times F_{CH4,PJ,y} - F_{CH,BL,y}) \times GWP_{CH4} \quad \text{(Eq. 2)}$$

Where:

$BE_{CH4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO2e/yr)
OX_{top_layer} = Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr)
$F_{CH,BL,y}$= Amount of methane in the LFG that would be flared in the baseline in year y (tCH_4/yr)
GWP_{CH4} = Global warming potential of CH_4 (tCO_2e / tCH_4)

For this Project, $F_{CH4,PJ,y}$ is the sum of the quantities of methane flared and used in power generation during the year. This term is calculated as follows according to Equation 3 from the methodology,

modified to remove the heat generation and natural gas distribution terms, which are not applicable to this Project.

$F_{CH4,PJ,y} = F_{CH4,flared,y} + F_{CH4,EL,y}$ (modified Eq. 3)

Where

$F_{CH4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr)
$F_{CH4,flared,y}$ = Amount of methane in the LFG which is destroyed by flaring in year y (tCH_4/yr)
$F_{CH4,EL,y}$ = Amount of methane in the LFG which is used for electricity generation in year y (tCH_4/yr)

5.2 Project Emissions

The following methodology and tool were used to quantify Project Emissions:

- UNFCCC CDM "Large scale Consolidated Methodology – Flaring or use of landfill gas", ACM0001, Version 16.0 dated 16 October 2015.
- UNFCCC CDM “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 01) 16 March 2008.

Project emissions are defined by the following equation:

$PE_y = PE_{EC,y} + PE_{FC,j,y}$

Where:

$PE_{EC,y}$ = Emissions from consumption of electricity due to the Project activity, in year y (t CO2/yr)
$PE_{FC,j,y}$ = Emissions from consumption of fossil fuels due to the Project activity, for purpose other than electricity generation, in year y (t CO2/yr)

Note that emissions reductions from methane destruction from the flare are not included in this monitoring report.

The calculation methodology for the project emissions was applied to the calculation of emissions from the following sources:

- Fossil Fuel Emissions – CO_2 – Generated from the combustion of fossil fuels (diesel) in an emergency generator. The equations and calculations are presented in “Exhibit 4” under Supporting Information. The equations and calculations are repeated herein below.

Fossil Fuel Project Emissions

Emergency Generator - Diesel Use

Gallons of Diesel Consumed (July 1 - December 31, 2022)

999.6 gallons FC_{Diesel} = Number of hours run * Gallons used/hour

$COEF_{Diesel,2015} = NCV_{Diesel,2015} * EF_{CO2,Diesel,2015}$

$COEF_{Diesel,2015}$ 0.010229 See inputs on USEPA Data Conversions Tab
tonnes CO2/gallon diesel

$PE_{FC,2015} = FC_{Diesel,2015} * COEF_{Diesel,2015}$

PEFC, 2010 10.22 tonnes CO2

Assumptions Used

Generator runs at 3/4 load during testing and operation
(This is conservative as the plant requires 75-90kW/hr to operate
and the generator can produce up to 150kW/hr)

The generator requires 8.4 gallons/hour running at 3/4 Load (see estimate fuel consumption)

Run time from July 1 - December 31, 2022
119 hours* 8.4 gallons/hour
999.6 gallons

- Electricity Consumption Emissions – CO_2 – Generated from the grid consumption of electricity within the Project BoundaryThe equations and calculations are presented in “Exhibit 4” under Supporting Information. The equations and calculations are repeated herein below.

Electricity Consumption Project Emissions

$PE_{EC,y} = EC_{PJ,Grid,y} * FE_{EL,Grid,y} * (1 + TDL_{Grid,y})$

0.00 tonnes CO2

Variable	Value	Units	Data Source
ECPJ,Grid, y	0	MWhr	See Eversource bill
FEEL,Grid,y	0.24	tonnes CO2/MWh	USEPA Conversions tableGrid data
TDLGrid,y	0.07	None	EIA Annual Energy Report 2011

5.3 Leakage

As per the applied methodology (ACM0001): “No leakage effects are accounted for under this methodology.”

5.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2022 2nd Half (July 1 – December 31, 2022)	69,473	10	0	69,463
Total	69,473	10	0	69,463

The net GHG emission reductions are simply calculated by subtracting the project emissions and leakage emissions from the baseline emissions. The equation is as follows:
Net GHG emissions reduction = Baseline emissions - Project emissions – Leakage emissions.

APPENDIX : SUPPORTING DOCUMENTAON

Exhibit 1: The emission reductions credits in CO2 equivalent tons in accordance with Project Methodology from July 1, 2022 through December 31, 2022.

Exhibit 2: Gas totalizer readings, and methane content readings for the period July 1, 2022 through December 31, 2022, and calculations using the verification protocols under the VCS to obtain emission reductions from methane oxidation during energy generation.

Exhibit 3: LFG totalizer readings, and methane content readings for the periods from July 1, 2022 through December 31, 2022, and calculations using the verification protocols under the VCS to obtain emission reductions from methane oxidation during flaring.

Exhibit 4: The key factors, equations, and calculation of VCUs in accordance with the approved consolidated baseline methodology ACM0001, Version 16.0 Large-scale Consolidated Methodology – Flaring or use of landfill gas" dated 16 October 2015 as promulgated by the United Nations Framework Convention of Climate Change (UNFCCC) under the Clean Development Mechanism (CDM).

Exhibit 5: Compilation of the field data logs recording the total gas volumes and methane content readings for the identified reporting period. Comment section includes information on Planned and Unplanned Outages. Emergency Generator Operating Hours during period. Eversource Meter Photo and Data

Exhibit 6: Calibration of the LFG and biogas flow rates, composition meters, other instrumentation for the periods.

Exhibit 7: Attestation Statement

Exhibit 8: Permits and Other Regulatory Documentation

1. Amended Final Air Quality Operation Permit (Renewal) Issued August 3, 2022.
2. NMOC Emission Rate Report, August 5, 2022. The NMOC Emission Report demonstrates that the NMOCs emissions continue to be below the NSPS applicability threshold and therefore the Crapo Hill Landfill is not subject to the requirements of NSPS.

Exhibit 9: RECs Agreements

EXHIBIT 1
CommonWealth New Bedford Energy LLC
Greater New Bedford LFG Utilization Project
Dartmouth, Massachusetts
Calculation of Verified Emission Reduction Credits in CO2 equivalent tons
in accordance with the Project Methodology

Key parameters used in calculations

Parameter	VCS
Methane oxidation efficiency electricity generation	100.0%
Methane oxidation efficiency LFG flaring	98.0%
Methane, molecular weight	16.04
Pounds per metric ton	2,204.62
Gas constant (scf per lb-mole)	385.32
Global Warming Potential (GWP) methane	28

Summary results

	Unit	
Electricity generation		
Start date		1-Jul-22
End date		31-Dec-22
Methane delivered	scf	146,114,935
Emission Reductions	metric tons CO2e	**77,262**
Flaring		
Start date		1-Jul-22
End date		31-Dec-22
Methane delivered	scf	-
Emission Reductions	metric tons CO2e	**-**
Subtotal		
Methane delivered	scf	146,114,935
Emission Reductions	metric tons CO2e	**77,262**
Deductions		
Oxidation potential	metric tons CO2e	7,726
District Initial System	metric tons CO2e	63
Electricity use utility and diesel backup	metric tons CO2e	10
Total		
Emission Reductions eligible under VCS program	metric tons CO2e	**69,463**

Exhibit 2:
Gas totalizer readings, and methane content readings for the period July 1, 2022 through December 31, 2022, and calculations using the verification protocols under the VCS to obtain emission reductions from methane oxidation during energy generation.

EXHIBIT 2
CommonWealth New Bedford Energy LLC
Emission Reductions from methane oxidation during energy generation

Physical constants:	
Methane, molecular weight (lb per lb-mole)	16.04
Pounds to metric ton	2,204.62
Gas constant, scf per lb-mole	385.32

Calculation of Verified Emission Reduction in CO2 equivalent tons per the following:
Verification Process: UNFCCC's CDM methodology ACM0001 (Version 16)
Standard of Verification: Verified Carbon Standard Version 4.2 January 20, 2022, v4.2

Begin period - date	**End period - date**	**Totalizer reading end period**	**Totalizer reading start period**	**Total in period**	**Methane delivered to engines**	**Methane delivered cumulative**	**Methane delivered in the period**	**Methane delivered in the period cumulative**	**Methane oxidation efficiency**	**MD electricity, Mass methane destroyed in the period**	**MD electricity, Mass methane destroyed cumulative**	**Global warming potential methane**	**Emission reduction**	**Emission reduction cumulative**
mm/dd/yy	*mm/dd/yy*	*MMBtu HHV*	*MMBtu HHV*	*MMBtu HHV*	*scf*	*scf*	*metric tons*	*metric tons*	*%*	*metric tons*	*metric tons*	*tons CO2 equivalent per ton methane*	*CO2 equivalent metric tons*	*CO2 equivalent metric tons*
	1-Jul-22													
1-Jul-22	31-Jul-22	26,318	-	26,318	26,005,738	26,005,738	491	491	100.0%	491	491	28	13,751	13,751
1-Aug-22	31-Aug-22	52,058	26,318	25,741	25,435,364	51,441,102	480	971	100.0%	480	971	28	13,450	27,201
1-Sep-22	30-Sep-22	76,493	52,058	24,434	24,144,652	75,585,754	456	1,427	100.0%	456	1,427	28	12,767	39,968
1-Oct-22	31-Oct-22	102,190	76,493	25,697	25,392,225	100,977,979	480	1,907	100.0%	480	1,907	28	13,427	53,395
1-Nov-22	30-Nov-22	124,741	102,190	22,551	22,283,698	123,261,677	421	2,328	100.0%	421	2,328	28	11,783	65,178
1-Dec-22	31-Dec-22	147,868	124,741	23,127	22,853,258	146,114,935	432	2,759	100.0%	432	2,759	28	12,084	77,262

Exhibit 3:
LFG totalizer readings, and methane content readings for the periods from July 1, 2022 through December 31, 2022, and calculations using the verification protocols under the VCS to obtain emission reductions from methane oxidation during flaring.

EXHIBIT 3
CommonWealth New Bedford Energy LLC
Calculation of Verified Emission Reduction in CO2 equivalent tons per the Project Methodology
Emission Reductions from methane oxidation from LFG flaring

Physical constants:	
Methane, molecular weight (lb per lb-mole)	16.04
Pounds to metric ton	2,204.62
Gas constant, scf per lb-mole	385.32

Calculation of Verified Emission Reduction in CO2 equivalent tons per the following:
Verification Process: UNFCCC's CDM methodology ACM0001 (Version 16)
Standard of Verification: Verified Carbon Standard Version 4.2 January 20, 2022, v4.2

Begin period - date	End period - date	Totalizer reading end period	Totalizer reading start period	Total in period	Methane delivered to flare	Methane delivered cumulative	Methane delivered in the period	Methane delivered cumulative	Methane oxidation efficiency	MD flare, Mass methane destroyed in the period	MD flare, Mass methane destroyed cumulative	Global warming potential methane	Emission reduction	Emission reduction cumulative	PE flare, Project emissions (uncontrolled emissions to atmosphere from flare)	PE flare, Project emissions cumulative (uncontrolled emissions to atmosphere from flare)
mm/dd/yy	*mm/dd/yy*	*MMBtu HHV*	*MMBtu HHV*	*MMBtu HHV*	*scf*	*scf*	*metric tons*	*metric tons*	*%*	*metric tons*	*metric tons*	*tons CO2 equivalent per ton methane*	*CO2 equivalent metric tons*	*CO2 equivalent metric tons*	*CO2 equivalent metric tons*	*CO2 equivalent metric tons*
	1-Jul-22			-												
1-Jul-22	31-Jul-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-
1-Aug-22	31-Aug-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-
1-Sep-22	30-Sep-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-
1-Oct-22	31-Oct-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-
1-Nov-22	30-Nov-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-
1-Dec-22	31-Dec-22	-	-	-	-	-	0	0	98%	-	-	28	-	-	-	-

Exhibit 4:
The key factors, equations, and calculation of VCUs in accordance with the approved consolidated baseline methodology ACM0001, Version 16.0 Largescale Consolidated Methodology – Flaring or use of landfill gas" dated 16 October 2015 as promulgated by the United Nations Framework Convention of Climate Change (UNFCCC) under the Clean Development Mechanism (CDM).

EXHIBIT 4
EX Ante Estimates of Annual Emissions Reductions

	Formula variables	Value used	Units	Source if appropriate
$ER_y = BE_y - PE_y$				
69,463	BE_y	see below	tCO2e/period	
	PE_y	10.22	tCO2e/period	See Electricity Tab + Emergency Generator Tab
$BE_y = BE_{CH4,y}$				
69,473	$BE_{CH4,y}$	see below	tCO2e/period	
$BE_{CH4,y} = ((1-OX_{top\_layer}) \times F_{CH4,PJ,y} - F_{CH,BL,y}) \times GWP_{CH4}$				
69,473	OX_{top_layer}	0.1		ACM001 Methodology value
	GWP_{CH4}	28	tCO2e / tCH4	IPCC Value - 5th assessment report (2013)
	$F_{CH4,PJ,y}$	see below	t CH4/period	
	$F_{CH,BL,y}$	see below	t CH4/period	
$F_{CH4,PJ,y} = F_{CH4,flared,y} + F_{CH4,EL,y}$				
2,759	$F_{CH4,flared,y}$	0	t CH4/period	See Exhibit 3 tab
	$F_{CH4,EL,y}$	2,759	t CH_4/period	See Exhibit 2 tab
$F_{CH4,BL,y} = F_{CH4,BL,sys,y}$				
$F_{CH4,BL,sys,y} = \%DistrictInitialSystem \times F_{CH4,PJ,y}$	%DistrictInitial System	4.09		See DistrictInitialSystemTab
2.3	$F_{CH4,PJ,y}$	see above	t CH4/period	
		98%	Methane oxidation efficiency for flare	

Supporting Information for Exhibit 4

Electricity Consumption Project Emissions

$PE_{EC,y} = EC_{PJ,Grid,y} * FE_{EL,Grid,y} * (1 + TDL_{Grid,y})$

0.00 tonnes CO2

Variable	Value	Units	Data Source
ECPJ,Grid, y	0	MWhr	See Eversource bill
FEEL,Grid,y	0.24	tonnes CO2/MWh	USEPA Conversions tableGrid data
TDLGrid,y	0.07	None	EIA Annual Energy Report 2011

Supporting Information for Exhibit 4

Fossil Fuel Project Emissions

Emergency Generator - Diesel Use

Gallons of Diesel Consumed (July 1 - December 31, 2022)

999.6 gallons FC_{Diesel} = Number of hours run * Gallons used/hour

$COEF_{Diesel,2015} = NCV_{Diesel,2015} * EF_{CO2,Diesel,2015}$

$COEF_{Diesel,2015}$ 0.010229 See inputs on USEPA Data Conversions Tab
tonnes CO2/gallon diesel

$PE_{FC,2015} = FC_{Diesel,2015} * COEF_{Diesel,2015}$

PEFC, 2010 10.22 tonnes CO2

Assumptions Used

Generator runs at 3/4 load during testing and operation
(This is conservative as the plant requires 75-90kW/hr to operate
and the generator can produce up to 150kW/hr)

The generator requires 8.4 gallons/hour running at 3/4 Load (see estimate fuel consumption)

Run time from July 1 - December 31, 2022
119 hours* 8.4 gallons/hour
999.6 gallons

Supporting Information for Exhibit 4

Gas extraction from District Initial System versus Phase 1 Area and District Total System

Month	Days	LFG flow rate from District Initial System contained in Phase 1 area cfm @50% methane	LFG flow rate from District Total System, cfm @50% methane	District Initial System/Total
Jul-22	31	45	1,165	3.9%
Aug-22	31	45	1,140	3.9%
Sep-22	30	45	1,118	4.0%
Oct-22	31	45	1,138	4.0%
Nov-22	30	45	1,032	4.4%
Dec-22	31	45	1,024	4.4%
Weighted Average based on days				4.1%
Weighted Average based on LFG flow				4.1%
Average		45	1,103	4.1%

Note: During July 1, 2023 through December 31, 2023, the Initial District System consists of 9 remaining active wells measuring less than 5 cfm lower detection limit of each well. Assume worst conservative case of 5 cfm from each remaining well.

Fossil Fuel Consumption

NCV Conversion

5.809	42	0.1383095
mmBtu/barrel	gallons/barrel	mmBtu/gallon

NCV Comparison to IPCC Values

0.13831	1,000,000	1.05506E-06	0.001	0.26417	1.176471	1,000,000	=	45.35
MMBtu/gallon	Btu/MMBtu	GJ/Btu	TJ/GJ	gallons/liter	liter/kg	kg/Gg		TJ/Gg

Emissions Factor

20.17	1E-15	1000000	3.666667	1E+12	0.000001	0.073957
Tg C/Qbtu	Qbtu/btu	btu/Mmbtu	g C02/g C	g/Tg	Tonnes/g	Tonnes CO2/Mmbtu

IPCC Values state 41.4-43.3 TJ/Gg
This value is higher and therefore conservative.

Data obtained from the Draft 2011 US Greenhouse Gas Report:
US EPA Inventory of US Greenhouse Gas Emissions and Sinks to provide a national factor.
Results were compared to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Electricity Consumption

eGRID Emissions Factor

528.238	0.454545455	0.001	0.24
lbs CO2/MWh	kg/lbs	tonnes/kg	tonnes CO2/MWh

eGRID Factor taken from NEWE region of eGRID2020 data

Exhibit 1:
The emission reductions credits in CO2 equivalent tons in accordance with Project Methodology from July 1, 2022 through December 31, 2022.

Exhibit 5:
Compilation of the field data logs recording the total gas volumes and methane content readings for the identified reporting period. Comment section includes information on Planned and Unplanned Outages. Emergency Generator Operating Hours during period. Eversource Meter Photo and Data

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

JULY 2022

July 2022																	
		Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		7/1/2022	7/2/2022	7/3/2022	7/4/2022	7/5/2022	7/6/2022	7/7/2022	7/8/2022	7/9/2022	7/10/2022	7/11/2022	7/12/2022	7/13/2022	7/14/2022	7/15/2022	7/16/2022
LFG and Biogas Flow to the Engines (KSCF)		1,620	1,623	1,654	1,630	1,607	1,623	1,586	1,610	1,630	1,607	1,343	1,508	1,620	1,665	1,647	1,632
LFG and Biogas Flow to the Engines (MMBTU HHV)		869	879	890	877	877	874	860	869	873	868	746	816	867	884	876	876
LFG and Biogas Flow to the Flare (KSCF)		-	-	-	-	-	-	-	-	-	-	162	-	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)		-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-
LFG and Biogas Total Flow (KSCF)		1,620	1,623	1,654	1,630	1,607	1,623	1,586	1,610	1,630	1,607	1,505	1,508	1,620	1,665	1,647	1,632
LFG and Biogas Total Flow (MMBTU HHV)		869	879	890	877	877	874	860	869	873	868	835	816	867	884	876	876
Average Methane Content (%)		53.0	53.5	53.1	53.2	53.9	53.2	53.5	53.3	52.9	53.4	54.8	53.5	52.9	52.4	52.5	53.0
Engine 1 Hours		24	24	24	24	24	24	24	24	24	24	24	21	21	21	24	24
Engine 2 Hours		24	24	24	24	24	24	24	24	24	24	20	20	22	24	24	24
Engine 3 Hours		24	24	24	24	24	24	24	24	24	24	24	21	21	21	24	24
Engine 4 Hours		24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Generator 1 Power Output (kWhr)		16,780	16,784	16,780	16,780	16,780	16,780	15,660	16,428	16,780	16,780	13,804	14,364	16,400	16,776	15,936	15,596
Generator 2 Power Output (kWhr)		16,788	16,792	16,688	15,608	15,808	16,332	14,608	15,612	15,412	14,812	12,512	14,368	16,016	15,648	15,536	15,580
Generator 3 Power Output (kWhr)		16,764	16,764	16,760	16,760	16,756	16,760	16,748	16,768	16,760	16,752	14,476	15,440	16,752	16,748	16,664	16,740
Generator 4 Power Output (kWhr)		16,724	16,720	16,728	16,732	16,732	16,728	16,724	16,740	16,740	16,736	15,104	15,396	16,716	16,720	16,672	16,732
Gross Power Output (kWhr)		67,141	67,205	67,034	65,929	66,296	66,714	63,740	65,572	65,748	65,141	55,931	59,655	65,939	65,947	64,858	64,714
Net Power Output (kWhr)		64,903	65,008	64,873	63,823	63,999	64,482	61,660	63,428	63,605	63,069	53,939	57,664	63,703	63,713	62,679	62,631
Power Sold as metered by NStar, (kWhr)		64,755	64,874	64,767	63,698	63,861	64,339	61,588	63,255	63,481	62,950	53,832	57,554	63,568	63,570	62,555	62,498
Offgrid RECs (kWhr)		2,238	2,197	2,161	2,106	2,297	2,232	2,080	2,144	2,143	2,072	1,992	1,991	2,236	2,234	2,179	2,083
Calculated Performance Results																	
Daily																	
Power output (kW average when running)																	
Generator 1		699	699	699	699	699	699	653	685	699	699	575	684	781	799	664	650
Generator 2		700	700	695	650	659	681	609	651	642	617	626	718	728	652	647	649
Generator 3		699	699	698	698	698	698	698	699	698	698	603	735	798	798	694	698
Generator 4		697	697	697	697	697	697	697	698	698	697	629	642	697	697	695	697
Power output (kW average over 24-hrs)																	
Facility Gross		2,798	2,800	2,793	2,747	2,762	2,780	2,656	2,732	2,740	2,714	2,330	2,486	2,747	2,748	2,702	2,696
Facility Net		2,704	2,709	2,703	2,659	2,667	2,687	2,569	2,643	2,650	2,628	2,247	2,403	2,654	2,655	2,612	2,610
In-plant load		93	92	90	88	96	93	87	89	89	86	83	83	93	93	91	87
Daily availability factor																	
Facility		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	90%	92%	94%	100%	100%
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	88%	88%	100%	100%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	83%	92%	100%	100%	100%
Engine 3		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	88%	88%	100%	100%
Engine 4		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Daily capacity factor																	
Facility		85%	85%	85%	83%	84%	84%	80%	83%	83%	82%	71%	75%	83%	83%	82%	82%
Engine 1		85%	85%	85%	85%	85%	85%	79%	83%	85%	85%	70%	83%	95%	97%	80%	79%
Engine 2		85%	85%	84%	79%	80%	82%	74%	79%	78%	75%	76%	87%	88%	79%	78%	79%
Engine 3		85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	73%	89%	97%	97%	84%	85%
Engine 4		84%	84%	84%	85%	85%	84%	84%	85%	85%	85%	76%	78%	84%	84%	84%	85%
Cumulative by engine																	
Engine operating run hours in the month																	
Max Cumulative Available, hours		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 1		24	48	72	96	120	144	168	192	216	240	264	285	306	327	351	375
Engine 2		24	48	72	96	120	144	168	192	216	240	260	280	302	326	350	374
Engine 3		24	48	72	96	120	144	168	192	216	240	264	285	306	327	351	375
Engine 4		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine operating run hours total from 0 hours																	
Engine 1	126,571	126,595	126,619	126,643	126,667	126,691	126,715	126,739	126,763	126,787	126,811	126,835	126,856	126,877	126,898	126,922	126,946
Engine 2	115,776	115,800	115,824	115,848	115,872	115,896	115,920	115,944	115,968	115,992	116,016	116,036	116,056	116,078	116,102	116,126	116,150
Engine 3	125,889	125,913	125,937	125,961	125,985	126,009	126,033	126,057	126,081	126,105	126,129	126,153	126,174	126,195	126,216	126,240	126,264
Engine 4	121,464	121,488	121,512	121,536	121,560	121,584	121,608	121,632	121,656	121,680	121,704	121,728	121,752	121,776	121,800	121,824	121,848
Cumulative availability, %	July 1, 2022 @ 00:00 hours																
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	98%	98%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	97%	97%	97%	97%	97%
Engine 3		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	98%	98%
Engine 4		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine cumulative gross output, kWhr																	
Max cumulative capacity one engine		825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1		699	1,399	2,098	2,797	3,496	4,195	4,848	5,532	6,231	6,931	7,506	8,190	8,971	9,769	10,433	11,083
Engine 2		700	1,399	2,095	2,745	3,404	4,084	4,693	5,343	5,985	6,603	7,228	7,947	8,675	9,327	9,974	10,623
Engine 3		699	1,397	2,095	2,794	3,492	4,190	4,888	5,587	6,285	6,983	7,586	8,321	9,119	9,917	10,611	11,308
Engine 4		697	1,394	2,091	2,788	3,485	4,182	4,879	5,576	6,274	6,971	7,600	8,242	8,938	9,635	10,330	11,027
Cumulative capacity factor, %																	
Engine 1		85%	85%	85%	85%	85%	85%	84%	84%	84%	84%	83%	83%	84%	85%	84%	84%
Engine 2		85%	85%	85%	83%	83%	83%	81%	81%	81%	80%	80%	80%	81%	81%	81%	80%
Engine 3		85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	84%	84%	85%	86%	86%	86%
Engine 4		84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	83%	83%	83%	83%	84%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

JULY 2022

	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	7/1/2022	7/2/2022	7/3/2022	7/4/2022	7/5/2022	7/6/2022	7/7/2022	7/8/2022	7/9/2022	7/10/2022	7/11/2022	7/12/2022	7/13/2022	7/14/2022	7/15/2022	7/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,152	1,248	1,344	1,440	1,536
Actual cumulative engine run hours	96	192	288	384	480	576	672	768	864	960	1,052	1,138	1,226	1,316	1,412	1,508
Cumulative Availability, %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	98.8%	98.2%	97.9%	98.1%	98.2%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	475,200	554,400	633,600	712,800	792,000	871,200	950,400	1,029,600	1,108,800	1,188,000	1,267,200
Actual cumulative gross output, kWhr	67,141	134,346	201,380	267,309	333,605	400,319	464,059	529,631	595,379	660,520	716,451	776,106	842,045	907,992	972,850	1,037,564
Cumulative Capacity Factor	84.8%	84.8%	84.8%	84.4%	84.2%	84.2%	83.7%	83.6%	83.5%	83.4%	82.2%	81.7%	81.8%	81.9%	81.9%	81.9%
Cumulative fuel input, MMBtu HHV	869	1,748	2,638	3,515	4,392	5,266	6,125	6,994	7,867	8,735	9,481	10,297	11,164	12,048	12,923	13,799
Cumulative gross output, kWhr	67,141	134,346	201,380	267,309	333,605	400,319	464,059	529,631	595,379	660,520	716,451	776,106	842,045	907,992	972,850	1,037,564
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	11,654	11,774	11,949	11,972	11,906	11,796	12,140	11,929	11,949	11,998	12,000	12,318	11,839	12,060	12,154	12,181
Daily heat rate, Btu/kWe gross HHV	12,946	13,079	13,274	13,299	13,226	13,104	13,486	13,251	13,273	13,328	13,330	13,684	13,152	13,397	13,502	13,532
Cumulative heat rate, Btu/kWe gross LHV	11,654	11,714	11,792	11,837	11,850	11,841	11,882	11,888	11,895	11,905	11,912	11,943	11,935	11,944	11,958	11,972
Cumulative heat rate, Btu/kWe gross HHV	12,946	13,013	13,100	13,149	13,164	13,154	13,200	13,206	13,213	13,225	13,233	13,268	13,259	13,269	13,284	13,300
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	17,468	17,564	17,660	17,756	17,852	17,948	18,044	18,140	18,236	18,332	18,428	18,524	18,620	18,716	18,812	18,908
Actual cumulative engine run hours	16,407	16,503	16,599	16,695	16,791	16,887	16,983	17,079	17,175	17,271	17,363	17,449	17,537	17,627	17,723	17,819
Cumulative Availability, %	93.9%	94.0%	94.0%	94.0%	94.1%	94.1%	94.1%	94.2%	94.2%	94.2%	94.2%	94.2%	94.2%	94.2%	94.2%	94.2%
Max cumulative gross output, kWhr	14,411,100	14,490,300	14,569,500	14,648,700	14,727,900	14,807,100	14,886,300	14,965,500	15,044,700	15,123,900	15,203,100	15,282,300	15,361,500	15,440,700	15,519,900	15,599,100
Actual cumulative gross output, kWhr	10,939,989	11,007,194	11,074,228	11,140,157	11,206,453	11,273,167	11,336,907	11,402,479	11,468,227	11,533,368	11,589,299	11,648,954	11,714,893	11,780,840	11,845,698	11,910,412
Cumulative Capacity Factor	75.9%	76.0%	76.0%	76.0%	76.1%	76.1%	76.2%	76.2%	76.2%	76.3%	76.2%	76.2%	76.3%	76.3%	76.3%	76.4%
Cumulative fuel input, MMBtu HHV	147,012	147,891	148,781	149,658	150,535	151,409	152,268	153,137	154,010	154,878	155,624	156,440	157,307	158,191	159,067	159,942
Cumulative gross output, kWhr	10,939,989	11,007,194	11,074,228	11,140,157	11,206,453	11,273,167	11,336,907	11,402,479	11,468,227	11,533,368	11,589,299	11,648,954	11,714,893	11,780,840	11,845,698	11,910,412
Cumulative heat rate, Btu/kWe gross LHV	12,097	12,095	12,094	12,093	12,092	12,090	12,091	12,090	12,089	12,088	12,088	12,089	12,088	12,088	12,088	12,089
Cumulative heat rate, Btu/kWe gross HHV	13,438	13,436	13,435	13,434	13,433	13,431	13,431	13,430	13,429	13,429	13,428	13,430	13,428	13,428	13,428	13,429
Service																
Engine 1																
Engine 2											Trip	Eversource trip.	Operations Meeting			
Engine 3											Condensate					
Engine 4											Sump Pump fail.					
Oil - oil and filter change											Flare on					
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date	7/1/2022	7/2/2022	7/3/2022	7/4/2022	7/5/2022	7/6/2022	7/7/2022	7/8/2022	7/9/2022	7/10/2022	7/11/2022	7/12/2022	7/13/2022	7/14/2022	7/15/2022	7/16/2022
Hour																
1	2,706	2,706	2,707	2,660	2,658	2,707	2,634	2,609	2,653	2,611	2,656	2,612	2,609	2,699	2,655	2,606
2	2,706	2,705	2,707	2,660	2,659	2,708	2,611	2,609	2,654	2,612	2,303	2,613	2,609	2,700	2,654	2,608
3	2,707	2,705	2,707	2,660	2,659	2,707	2,612	2,608	2,655	2,612	2,475	2,613	2,609	2,699	2,655	2,607
4	2,707	2,707	2,707	2,660	2,660	2,707	2,612	2,611	2,655	2,612	2,656	2,612	2,608	2,700	2,654	2,610
5	2,707	2,706	2,706	2,661	2,660	2,707	2,612	2,612	2,654	2,613	2,656	2,612	2,609	2,700	2,656	2,611
6	2,705	2,706	2,707	2,660	2,658	2,696	2,612	2,612	2,654	2,612	2,655	576	2,607	2,699	2,657	2,611
7	2,702	2,706	2,707	2,661	2,657	2,702	2,612	2,610	2,654	2,613	2,652	1,486	2,607	2,697	2,656	2,610
8	2,699	2,706	2,706	2,660	2,651	2,702	2,606	2,629	2,654	2,611	2,369	2,598	2,630	2,691	2,587	2,608
9	2,694	2,706	2,704	2,658	2,648	2,695	2,602	2,643	2,653	2,607	2,051	2,598	2,685	2,668	2,408	2,606
10	2,680	2,706	2,703	2,649	2,643	2,687	2,406	2,641	2,651	2,604	219	2,595	2,681	2,639	2,631	2,597
11	2,679	2,703	2,703	2,646	2,640	2,689	2,267	2,641	2,650	2,604	130	1,991	2,680	2,286	2,594	2,594
12	2,681	2,701	2,702	2,644	2,637	2,689	2,190	2,639	2,650	2,604	130	2,592	2,306	2,640	2,579	2,595
13	2,682	2,700	2,699	2,644	2,641	2,686	2,575	2,640	2,649	2,604	2,196	2,590	2,680	2,640	2,573	2,597
14	2,679	2,700	2,690	2,644	2,644	2,685	2,596	2,642	2,648	2,604	2,593	2,590	2,686	2,638	2,582	2,593
15	2,689	2,699	2,689	2,643	2,649	2,677	2,595	2,643	2,649	2,604	2,596	2,250	2,687	2,637	2,585	2,598
16	2,693	2,697	2,689	2,642	2,649	2,648	2,600	2,644	2,649	2,605	2,601	1,767	2,689	2,644	2,594	2,599
17	2,703	2,699	2,695	2,643	2,655	2,653	2,602	2,651	2,650	2,646	2,611	2,606	2,695	2,645	2,601	2,599
18	2,704	2,699	2,704	2,655	2,656	2,655	2,602	2,652	2,649	2,652	2,612	2,607	2,699	2,648	2,603	2,604
19	2,705	2,700	2,705	2,657	2,656	2,656	2,604	2,652	2,650	2,652	2,612	2,607	2,699	2,648	2,603	2,605
20	2,705	2,700	2,704	2,658	2,663	2,656	2,607	2,653	2,653	2,652	2,609	2,606	2,698	2,650	2,605	2,606
21	2,705	2,700	2,705	2,658	2,704	2,656	2,607	2,654	2,616	2,653	2,613	2,607	2,699	2,650	2,605	2,608
22	2,705	2,704	2,702	2,658	2,703	2,656	2,608	2,653	2,609	2,653	2,612	2,609	2,698	2,650	2,606	2,608
23	2,706	2,706	2,659	2,658	2,704	2,657	2,608	2,653	2,611	2,655	2,613	2,608	2,698	2,651	2,606	2,609
24	2,706	2,707	2,660	2,659	2,707	2,658	2,608	2,654	2,611	2,655	2,612	2,609	2,700	2,651	2,606	2,609
TOTAL	64,755	64,874	64,767	63,698	63,861	64,339	61,588	63,255	63,481	62,950	53,832	57,554	63,568	63,570	62,555	62,498
Cumulative Output Sold, kWhr	64,755	129,629	194,396	258,094	321,955	386,294	447,882	511,137	574,618	637,568	691,400	748,954	812,522	876,092	938,647	1,001,145
Transformer and line efficiency	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.7%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Hourly average	2,698	2,703	2,699	2,654	2,661	2,681	2,566	2,636	2,645	2,623	2,243	2,398	2,649	2,649	2,606	2,604

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

JULY 2022

July 2022																		
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
	7/17/2022	7/18/2022	7/19/2022	7/20/2022	7/21/2022	7/22/2022	7/23/2022	7/24/2022	7/25/2022	7/26/2022	7/27/2022	7/28/2022	7/29/2022	7/30/2022	7/31/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,637	1,592	1,636	1,571	1,594	1,613	1,655	1,613	1,648	1,331	1,635	1,643	1,648	1,658	1,661	49,741	850	48,892
LFG and Biogas Flow to the Engine	885	865	887	857	867	863	875	855	870	712	865	863	865	863	863	26,653	335	26,318
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	-	-	148	-	-	-	-	-	310	1.3%	98.7%
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	-	-	79	-	-	-	-	-	169		
LFG and Biogas Total Flow (KSCF	1,637	1,592	1,636	1,571	1,594	1,613	1,655	1,613	1,648	1,479	1,635	1,643	1,648	1,658	1,661	50,051		
LFG and Biogas Total Flow (MMBT	885	865	887	857	867	863	875	855	870	791	865	863	865	863	863	26,822		
Average Methane Content (%)	53.5	53.6	53.6	53.9	53.8	52.9	52.3	52.4	52.2	52.9	52.3	51.9	51.8	51.4	51.3	53.0		
Engine 1 Hours	24	24	24	24	24	24	24	24	24	21	24	24	24	24	24	732		
Engine 2 Hours	24	24	24	24	24	24	24	24	24	20	24	24	24	24	24	730		
Engine 3 Hours	24	24	24	24	24	24	24	24	24	20	23	23	24	24	24	729		
Engine 4 Hours	24	24	24	24	24	24	24	24	24	20	24	24	24	24	24	740		
Generator 1 Power Output (kWhr)	15,588	16,416	16,772	16,772	16,772	15,968	15,592	15,592	15,580	12,772	16,404	16,132	15,596	15,592	15,588	496,344		
Generator 2 Power Output (kWhr)	15,580	15,576	15,580	14,884	15,576	15,572	15,464	14,884	15,576	12,760	15,576	15,580	15,580	15,412	14,404	476,124		
Generator 3 Power Output (kWhr)	16,740	16,740	16,740	16,744	15,472	16,736	16,740	16,736	16,744	13,584	16,740	16,736	16,740	16,736	16,732	511,072		
Generator 4 Power Output (kWhr)	16,728	16,720	16,716	15,340	16,716	16,716	16,724	16,724	16,724	13,572	16,720	16,720	16,712	16,716	16,712	510,904		
Gross Power Output (kWhr)	64,702	65,537	65,889	63,829	64,588	65,054	64,623	64,029	64,702	53,042	65,534	65,290	64,742	64,554	63,525	1,997,204		
Net Power Output (kWhr)	62,591	63,328	63,597	61,571	62,334	62,695	62,321	61,754	62,368	50,970	63,249	62,953	62,371	62,303	61,309	1,928,893		
Power Sold as metered by NStar, (	62,481	63,183	63,437	61,427	62,172	62,531	62,188	61,638	62,207	50,837	63,093	62,806	62,200	62,128	61,158	1,924,631	CRMCB inplant	
Offgrid RECs (kWhr)	2,111	2,209	2,292	2,258	2,254	2,359	2,302	2,275	2,334	2,072	2,285	2,337	2,371	2,251	2,216	68,311	10,207	
Calculated Performance Results																	15%	
Daily																	of total in-plant	
Power output (kW average whe																	power	
Generator 1	650	684	699	699	699	665	650	650	649	608	684	672	650	650	650			
Generator 2	649	649	649	620	649	649	644	620	649	638	649	649	649	642	600			
Generator 3	698	698	698	698	645	697	698	697	698	679	728	728	698	697	697			
Generator 4	697	697	697	639	697	697	697	697	697	679	697	697	696	697	696			
Power output (kW average ove																		
Facility Gross	2,696	2,731	2,745	2,660	2,691	2,711	2,693	2,668	2,696	2,210	2,731	2,720	2,698	2,690	2,647			
Facility Net	2,608	2,639	2,650	2,565	2,597	2,612	2,597	2,573	2,599	2,124	2,635	2,623	2,599	2,596	2,555			
In-plant load	88	92	96	94	94	98	96	95	97	86	95	97	99	94	92			
Daily availability factor																		
Facility	100%	100%	100%	100%	100%	100%	100%	100%	100%	84%	99%	99%	100%	100%	100%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	100%	100%	100%	100%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	96%	96%	100%	100%	100%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	100%	100%	100%	100%	100%			
Daily capacity factor																		
Facility	82%	83%	83%	81%	82%	82%	82%	81%	82%	67%	83%	82%	82%	82%	80%			
Engine 1	79%	83%	85%	85%	85%	81%	79%	79%	79%	74%	83%	81%	79%	79%	79%			
Engine 2	79%	79%	79%	75%	79%	79%	78%	75%	79%	77%	79%	79%	79%	78%	73%			
Engine 3	85%	85%	85%	85%	78%	85%	85%	85%	85%	82%	88%	88%	85%	85%	85%			
Engine 4	84%	84%	84%	77%	84%	84%	84%	84%	84%	82%	84%	84%	84%	84%	84%			
Cumulative by engine																		
Engine operating run hours in th																		
Max Cumulative Available,	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 1	399	423	447	471	495	519	543	567	591	612	636	660	684	708	732			
Engine 2	398	422	446	470	494	518	542	566	590	610	634	658	682	706	730			
Engine 3	399	423	447	471	495	519	543	567	591	611	634	657	681	705	729			
Engine 4	408	432	456	480	504	528	552	576	600	620	644	668	692	716	740			
Engine operating run hours tota																		
Engine 1	126,970	126,994	127,018	127,042	127,066	127,090	127,114	127,138	127,162	127,183	127,207	127,231	127,255	127,279	127,303			
Engine 2	116,174	116,198	116,222	116,246	116,270	116,294	116,318	116,342	116,366	116,386	116,410	116,434	116,458	116,482	116,506			
Engine 3	126,288	126,312	126,336	126,360	126,384	126,408	126,432	126,456	126,480	126,500	126,523	126,546	126,570	126,594	126,618			
Engine 4	121,872	121,896	121,920	121,944	121,968	121,992	122,016	122,040	122,064	122,084	122,108	122,132	122,156	122,180	122,204			
Cumulative availability, %																		
Engine 1	98%	98%	98%	98%	98%	98%	98%	98%	99%	98%	98%	98%	98%	98%	98%			
Engine 2	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%			
Engine 3	98%	98%	98%	98%	98%	98%	98%	98%	99%	98%	98%	98%	98%	98%	98%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	99%			
Engine cumulative gross output																		
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750	25,575			
Engine 1	11,733	12,417	13,116	13,814	14,513	15,179	15,828	16,478	17,127	17,735	18,419	19,091	19,741	20,391	21,040			
Engine 2	11,272	11,921	12,570	13,191	13,840	14,488	15,133	15,753	16,402	17,040	17,689	18,338	18,987	19,629	20,230			
Engine 3	12,006	12,703	13,401	14,099	14,743	15,441	16,138	16,835	17,533	18,212	18,940	19,668	20,365	21,063	21,760			
Engine 4	11,724	12,421	13,117	13,756	14,453	15,149	15,846	16,543	17,240	17,918	18,615	19,312	20,008	20,704	21,401			
Cumulative capacity factor, %																		
Engine 1	84%	84%	84%	84%	84%	84%	83%	83%	83%	83%	83%	83%	83%	82%	82%			
Engine 2	80%	80%	80%	80%	80%	80%	80%	80%	80%	79%	79%	79%	79%	79%	79%			
Engine 3	86%	86%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%			
Engine 4	84%	84%	84%	83%	83%	83%	84%	84%	84%	84%	84%	84%	84%	84%	84%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

JULY 2022

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
	7/17/2022	7/18/2022	7/19/2022	7/20/2022	7/21/2022	7/22/2022	7/23/2022	7/24/2022	7/25/2022	7/26/2022	7/27/2022	7/28/2022	7/29/2022	7/30/2022	7/31/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																		
Max cumulative available engi	1,632	1,728	1,824	1,920	2,016	2,112	2,208	2,304	2,400	2,496	2,592	2,688	2,784	2,880	2,976			
Actual cumulative engine run h	1,604	1,700	1,796	1,892	1,988	2,084	2,180	2,276	2,372	2,453	2,548	2,643	2,739	2,835	2,931			
Cumulative Availability, %	98.3%	98.4%	98.5%	98.5%	98.6%	98.7%	98.7%	98.8%	98.8%	98.3%	98.3%	98.3%	98.4%	98.4%	98.5%			
Max cumulative gross output, k	1,346,400	1,425,600	1,504,800	1,584,000	1,663,200	1,742,400	1,821,600	1,900,800	1,980,000	2,059,200	2,138,400	2,217,600	2,296,800	2,376,000	2,455,200			
Actual cumulative gross output,	1,102,266	1,167,803	1,233,692	1,297,521	1,362,109	1,427,163	1,491,786	1,555,815	1,620,517	1,673,559	1,739,093	1,804,383	1,869,125	1,933,679	1,997,204			
Cumulative Capacity Factor	81.9%	81.9%	82.0%	81.9%	81.9%	81.9%	81.9%	81.9%	81.8%	81.3%	81.3%	81.4%	81.4%	81.4%	81.3%			
Cumulative fuel input, MMBtu h	14,685	15,549	16,436	17,293	18,160	19,024	19,899	20,754	21,624	22,336	23,201	24,063	24,928	25,791	26,653			
Cumulative gross output, kWhr	1,102,266	1,167,803	1,233,692	1,297,521	1,362,109	1,427,163	1,491,786	1,555,815	1,620,517	1,673,559	1,739,093	1,804,383	1,869,125	1,933,679	1,997,204			
Heat Rate																		
Daily heat rate, Btu/kWe gross	12,319	11,875	12,124	12,082	12,087	11,945	12,193	12,018	12,103	12,083	11,885	11,892	12,025	12,027	12,222			
Daily heat rate, Btu/kWe gross	13,684	13,191	13,468	13,422	13,427	13,269	13,545	13,350	13,445	13,423	13,202	13,210	13,358	13,361	13,577			
Cumulative heat rate, Btu/kWe	11,993	11,986	11,993	11,998	12,002	11,999	12,008	12,008	12,012	12,014	12,009	12,005	12,006	12,006	12,013			
Cumulative heat rate, Btu/kWe	13,322	13,315	13,323	13,328	13,333	13,330	13,339	13,339	13,344	13,346	13,341	13,336	13,337	13,338	13,345			
Cumulative by Facility starting C																		
Max cumulative available engi	19,004	19,100	19,196	19,292	19,388	19,484	19,580	19,676	19,772	19,868	19,964	20,060	20,156	20,252	20,348			
Actual cumulative engine run h	17,915	18,011	18,107	18,203	18,299	18,395	18,491	18,587	18,683	18,764	18,859	18,954	19,050	19,146	19,242			
Cumulative Availability, %	94.3%	94.3%	94.3%	94.4%	94.4%	94.4%	94.4%	94.5%	94.5%	94.4%	94.5%	94.5%	94.5%	94.5%	94.6%			
Max cumulative gross output, k	15,678,300	15,757,500	15,836,700	15,915,900	15,995,100	16,074,300	16,153,500	16,232,700	16,311,900	16,391,100	16,470,300	16,549,500	16,628,700	16,707,900	16,787,100			
Actual cumulative gross output,	11,975,114	12,040,651	12,106,540	12,170,369	12,234,957	12,300,011	12,364,634	12,428,663	12,493,365	12,546,407	12,611,941	12,677,231	12,741,973	12,806,527	12,870,052			
Cumulative Capacity Factor	76.4%	76.4%	76.4%	76.5%	76.5%	76.5%	76.5%	76.6%	76.6%	76.5%	76.6%	76.6%	76.6%	76.6%	76.7%			
Cumulative fuel input, MMBtu h	160,828	161,692	162,580	163,436	164,303	165,167	166,042	166,897	167,767	168,479	169,344	170,206	171,071	171,934	172,796			
Cumulative gross output, kWhr	11,975,114	12,040,651	12,106,540	12,170,369	12,234,957	12,300,011	12,364,634	12,428,663	12,493,365	12,546,407	12,611,941	12,677,231	12,741,973	12,806,527	12,870,052			
Cumulative heat rate, Btu/kWe	12,090	12,089	12,089	12,089	12,089	12,088	12,089	12,088	12,088	12,088	12,087	12,086	12,086	12,086	12,086			
Cumulative heat rate, Btu/kWe	13,430	13,429	13,429	13,429	13,429	13,428	13,429	13,428	13,428	13,428	13,427	13,426	13,426	13,425	13,426			
Service																		
Engine 1										District raise								
Engine 2										a few wellheads								
Engine 3					E3 1,000 hour services and repair of oil leaks.					Condensate								
Engine 4				E4 1,000 hour services.						pump failure - warranty?								
Oil - oil and filter change																		
Service - plugs, air filter, valve insp																		
Precipitation																		
NSTAR Power Reports	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
Date	7/17/2022	7/18/2022	7/19/2022	7/20/2022	7/21/2022	7/22/2022	7/23/2022	7/24/2022	7/25/2022	7/26/2022	7/27/2022	7/28/2022	7/29/2022	7/30/2022	7/31/2022	TOTAL		
Hour																		
1	2,609	2,607	2,653	2,654	2,654	2,639	2,600	2,555	2,599	2,597	2,605	2,651	2,599	2,596	2,553			
2	2,610	2,607	2,653	2,655	2,654	2,639	2,603	2,556	2,600	2,599	2,606	2,652	2,600	2,598	2,553			
3	2,610	2,608	2,654	2,655	2,652	2,639	2,603	2,556	2,599	2,599	2,606	2,651	2,600	2,598	2,554			
4	2,610	2,607	2,654	2,655	2,652	2,639	2,603	2,555	2,598	2,600	2,606	2,651	2,600	2,600	2,554			
5	2,610	2,607	2,654	2,656	2,652	2,639	2,603	2,556	2,600	2,599	2,606	2,651	2,600	2,599	2,555			
6	2,610	2,608	2,656	2,655	2,652	2,639	2,603	2,556	2,598	2,600	2,607	2,651	2,599	2,601	2,555			
7	2,610	2,607	2,656	2,655	2,649	2,639	2,603	2,554	2,581	2,601	2,607	2,652	2,600	2,599	2,555			
8	2,610	2,635	2,648	2,642	2,645	2,623	2,600	2,554	2,592	2,587	2,628	2,647	2,594	2,600	2,554			
9	2,607	2,643	2,640	2,265	2,334	2,588	2,598	2,552	2,584	2,391	2,640	2,637	2,589	2,598	2,552			
10	2,606	2,635	2,632	1,953	1,962	2,584	2,595	2,549	2,581	2,484	2,634	2,633	2,583	2,598	2,549			
11	2,599	2,633	2,631	2,334	2,395	2,583	2,590	2,545	2,582	2,481	2,625	2,628	2,581	2,592	2,535			
12	2,589	2,633	2,625	2,629	2,635	2,580	2,586	2,540	2,581	40	2,626	2,584	2,578	2,583	2,534			
13	2,584	2,633	2,619	2,631	2,633	2,579	2,584	2,537	2,583	-	2,625	2,583	2,576	2,584	2,534			
14	2,594	2,635	2,617	2,626	2,629	2,577	2,587	2,537	2,582	-	2,624	2,580	2,577	2,584	2,534			
15	2,595	2,635	2,626	2,624	2,629	2,580	2,585	2,573	2,583	-	2,632	2,582	2,577	2,588	2,540			
16	2,595	2,646	2,634	2,633	2,640	2,582	2,584	2,587	2,590	1,808	2,637	2,589	2,585	2,594	2,542			
17	2,596	2,650	2,641	2,641	2,637	2,591	2,587	2,593	2,594	2,609	2,642	2,596	2,592	2,594	2,548			
18	2,599	2,650	2,646	2,644	2,637	2,595	2,591	2,594	2,597	2,608	2,646	2,598	2,594	2,596	2,550			
19	2,606	2,651	2,649	2,646	2,639	2,598	2,595	2,597	2,597	2,606	2,647	2,598	2,596	2,597	2,551			
20	2,606	2,650	2,650	2,649	2,638	2,600	2,597	2,598	2,597	2,606	2,647	2,598	2,596	2,596	2,550			
21	2,606	2,649	2,649	2,649	2,638	2,597	2,600	2,599	2,597	2,606	2,648	2,599	2,596	2,579	2,551			
22	2,606	2,650	2,649	2,326	2,639	2,599	2,585	2,598	2,597	2,606	2,648	2,598	2,596	2,551	2,551			
23	2,606	2,652	2,650	2,296	2,638	2,601	2,553	2,599	2,597	2,605	2,650	2,598	2,596	2,552	2,552			
24	2,608	2,652	2,651	2,654	2,639	2,601	2,553	2,598	2,598	2,605	2,651	2,599	2,596	2,551	2,552			
TOTAL	62,481	63,183	63,437	61,427	62,172	62,531	62,188	61,638	62,207	50,837	63,093	62,806	62,200	62,128	61,158			
Cumulative Output Sold, kV	1,063,626	1,126,809	1,190,246	1,251,673	1,313,845	1,376,376	1,438,564	1,500,202	1,562,409	1,613,246	1,676,339	1,739,145	1,801,345	1,863,473	1,924,631			
Transformer and line efficienc	99.8%	99.8%	99.7%	99.8%	99.7%	99.7%	99.8%	99.8%	99.7%	99.7%	99.8%	99.8%	99.7%	99.7%	99.8%			
Hourly average	2,603	2,633	2,643	2,559	2,591	2,605	2,591	2,568	2,592	2,118	2,629	2,617	2,592	2,589	2,548			

AUGUST 2022																		
		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
		8/1/2022	8/2/2022	8/3/2022	8/4/2022	8/5/2022	8/6/2022	8/7/2022	8/8/2022	8/9/2022	8/10/2022	8/11/2022	8/12/2022	8/13/2022	8/14/2022	8/15/2022	8/16/2022
LFG and Biogas Flow to the Engines (KSCF)		1,640	1,640	1,648	1,658	1,648	1,656	1,631	1,587	1,641	1,664	1,667	1,643	1,656	1,547	1,606	1,573
LFG and Biogas Flow to the Engines (MMBTU HHV)		865	865	854	862	849	852	852	841	851	858	858	842	848	734	836	828
LFG and Biogas Flow to the Flare (KSCF)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and Biogas Total Flow (KSCF)		1,640	1,640	1,648	1,658	1,648	1,656	1,631	1,587	1,641	1,664	1,667	1,643	1,656	1,547	1,606	1,573
LFG and Biogas Total Flow (MMBTU HHV)		865	865	854	862	849	852	852	841	851	858	858	842	848	734	836	828
Average Methane Content (%)		52.1	52.1	51.2	51.4	50.9	50.9	51.6	52.4	51.2	50.9	50.8	50.6	50.6	46.9	51.4	52.0
Engine 1 Hours		24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24
Engine 2 Hours		24	24	24	24	24	24	24	24	23	23	23	23	23	21	24	24
Engine 3 Hours		25	25	25	25	25	25	25	25	24	24	24	24	24	21	24	24
Engine 4 Hours		24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24
Generator 1 Power Output (kWhr)		15,592	15,588	15,592	15,592	15,592	15,596	15,588	14,952	15,148	15,588	15,588	15,120	15,584	12,928	14,472	14,648
Generator 2 Power Output (kWhr)		15,136	15,580	15,580	15,584	15,580	15,576	15,576	14,596	15,140	15,532	14,404	14,712	14,408	12,636	14,372	14,304
Generator 3 Power Output (kWhr)		16,736	16,740	16,176	15,556	15,556	15,556	15,556	14,908	15,884	16,728	16,724	16,728	16,728	13,748	15,352	15,028
Generator 4 Power Output (kWhr)		16,716	16,716	16,712	16,716	16,716	16,724	16,716	15,996	16,224	16,712	16,712	16,716	16,724	13,816	15,800	15,460
Gross Power Output (kWhr)		64,306	64,744	64,202	63,538	63,562	63,452	63,436	60,581	62,537	64,574	63,450	63,287	63,460	53,223	60,076	59,522
Net Power Output (kWhr)		62,041	62,415	61,839	61,215	61,215	61,278	61,285	58,323	60,195	62,297	61,219	61,038	61,319	51,439	57,928	57,418
Power Sold as metered by NStar, (kWhr)		61,892	62,259	61,672	61,071	61,109	61,165	61,205	58,202	60,059	62,165	61,108	60,894	61,214	51,376	57,819	57,309
Offgrid RECs (kWhr)		2,265	2,329	2,363	2,323	2,347	2,174	2,151	2,258	2,342	2,277	2,231	2,249	2,141	1,784	2,148	2,104
Calculated Performance Results																	
Daily																	
Power output (kW average when running)																	
Generator 1		650	650	650	650	650	650	650	623	631	650	650	630	649	646	603	610
Generator 2		631	649	649	649	649	649	649	608	658	675	626	640	626	602	599	596
Generator 3		669	670	647	622	622	622	622	596	662	697	697	697	697	655	640	626
Generator 4		697	697	696	697	697	697	697	667	676	696	696	697	697	691	658	644
Power output (kW average over 24-hrs)																	
Facility Gross		2,679	2,698	2,675	2,647	2,648	2,644	2,643	2,524	2,606	2,691	2,644	2,637	2,644	2,218	2,503	2,480
Facility Net		2,585	2,601	2,577	2,551	2,551	2,553	2,554	2,430	2,508	2,596	2,551	2,543	2,555	2,143	2,414	2,392
In-plant load		94	97	98	97	98	91	90	94	98	95	93	94	89	74	90	88
Daily availability factor																	
Facility		101%	101%	101%	101%	101%	101%	101%	101%	99%	99%	99%	99%	99%	85%	100%	100%
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	100%	100%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	96%	96%	96%	96%	96%	88%	100%	100%
Engine 3		104%	104%	104%	104%	104%	104%	104%	104%	100%	100%	100%	100%	100%	88%	100%	100%
Engine 4		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	100%	100%
Daily capacity factor																	
Facility		81%	82%	81%	80%	80%	80%	80%	76%	79%	82%	80%	80%	80%	67%	76%	75%
Engine 1		79%	79%	79%	79%	79%	79%	79%	76%	77%	79%	79%	76%	79%	78%	73%	74%
Engine 2		76%	79%	79%	79%	79%	79%	79%	74%	80%	82%	76%	78%	76%	73%	73%	72%
Engine 3		81%	81%	78%	75%	75%	75%	75%	72%	80%	84%	84%	84%	84%	79%	78%	76%
Engine 4		84%	84%	84%	84%	84%	84%	84%	81%	82%	84%	84%	84%	84%	84%	80%	78%
Cumulative by engine																	
Engine operating run hours in the month																	
Max Cumulative Available, hours		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 1		24	48	72	96	120	144	168	192	216	240	264	288	312	332	356	380
Engine 2		24	48	72	96	120	144	168	192	215	238	261	284	307	328	352	376
Engine 3		25	50	75	100	125	150	175	200	224	248	272	296	320	341	365	389
Engine 4		24	48	72	96	120	144	168	192	216	240	264	288	312	332	356	380
Engine operating run hours total from 0 hours																	
Engine 1	127,306	127,330	127,354	127,378	127,402	127,426	127,450	127,474	127,498	127,522	127,546	127,570	127,594	127,618	127,638	127,662	127,686
Engine 2	116,509	116,533	116,557	116,581	116,605	116,629	116,653	116,677	116,701	116,724	116,747	116,770	116,793	116,816	116,837	116,861	116,885
Engine 3	126,624	126,649	126,674	126,699	126,724	126,749	126,774	126,799	126,824	126,848	126,872	126,896	126,920	126,944	126,965	126,989	127,013
Engine 4	122,202	122,226	122,250	122,274	122,298	122,322	122,346	122,370	122,394	122,418	122,442	122,466	122,490	122,514	122,534	122,558	122,582
Cumulative availability, %	August 1, 2022 @ 00:00 hours																
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	98%	98%	98%	98%
Engine 3		104%	104%	104%	104%	104%	104%	104%	104%	104%	103%	103%	103%	103%	101%	101%	101%
Engine 4		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%
Engine cumulative gross output, kWhr																	
Max cumulative capacity one engine		825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1		650	1,299	1,949	2,599	3,248	3,898	4,548	5,171	5,802	6,451	7,101	7,731	8,380	9,026	9,629	10,240
Engine 2		631	1,280	1,929	2,578	3,228	3,877	4,526	5,134	5,792	6,467	7,093	7,733	8,360	8,961	9,560	10,156
Engine 3		669	1,339	1,986	2,608	3,231	3,853	4,475	5,071	5,733	6,430	7,127	7,824	8,521	9,176	9,815	10,442
Engine 4		697	1,393	2,089	2,786	3,482	4,179	4,876	5,542	6,218	6,915	7,611	8,307	9,004	9,695	10,353	10,997
Cumulative capacity factor, %																	
Engine 1		79%	79%	79%	79%	79%	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%
Engine 2		76%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	77%	77%
Engine 3		81%	81%	80%	79%	78%	78%	77%	77%	77%	78%	79%	79%	79%	79%	79%	79%
Engine 4		84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	83%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

AUGUST 2022

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
	8/1/2022	8/2/2022	8/3/2022	8/4/2022	8/5/2022	8/6/2022	8/7/2022	8/8/2022	8/9/2022	8/10/2022	8/11/2022	8/12/2022	8/13/2022	8/14/2022	8/15/2022	8/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,152	1,248	1,344	1,440	1,536
Actual cumulative engine run hours	97	194	291	388	485	582	679	776	871	966	1,061	1,156	1,251	1,333	1,429	1,525
Cumulative Availability, %	101.0%	101.0%	101.0%	101.0%	101.0%	101.0%	101.0%	101.0%	100.8%	100.6%	100.5%	100.3%	100.2%	99.2%	99.2%	99.3%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	475,200	554,400	633,600	712,800	792,000	871,200	950,400	1,029,600	1,108,800	1,188,000	1,267,200
Actual cumulative gross output, kWhr	64,306	129,050	193,252	256,790	320,352	383,804	447,240	507,821	570,358	634,932	698,382	761,669	825,129	878,352	938,428	997,950
Cumulative Capacity Factor	81.2%	81.5%	81.3%	81.1%	80.9%	80.8%	80.7%	80.1%	80.0%	80.2%	80.2%	80.1%	80.1%	79.2%	79.0%	78.8%
Cumulative fuel input, MMBtu HHV	865	1,730	2,585	3,446	4,296	5,148	6,000	6,841	7,692	8,550	9,407	10,249	11,096	11,830	12,665	13,494
Cumulative gross output, kWhr	64,306	129,050	193,252	256,790	320,352	383,804	447,240	507,821	570,358	634,932	698,382	761,669	825,129	878,352	938,428	997,950
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	12,110	12,028	11,978	12,211	12,025	12,092	12,095	12,498	12,248	11,954	12,166	11,972	12,022	12,406	12,519	12,527
Daily heat rate, Btu/kWe gross HHV	13,453	13,362	13,306	13,565	13,359	13,432	13,436	13,884	13,606	13,279	13,515	13,300	13,355	13,782	13,907	13,916
Cumulative heat rate, Btu/kWe gross LHV	12,110	12,069	12,039	12,082	12,070	12,074	12,077	12,127	12,140	12,122	12,126	12,113	12,106	12,124	12,149	12,172
Cumulative heat rate, Btu/kWe gross HHV	13,453	13,407	13,374	13,421	13,409	13,413	13,416	13,472	13,486	13,465	13,470	13,456	13,448	13,468	13,496	13,521
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	20,444	20,540	20,636	20,732	20,828	20,924	21,020	21,116	21,212	21,308	21,404	21,500	21,596	21,692	21,788	21,884
Actual cumulative engine run hours	19,339	19,436	19,533	19,630	19,727	19,824	19,921	20,018	20,113	20,208	20,303	20,398	20,493	20,575	20,671	20,767
Cumulative Availability, %	94.6%	94.6%	94.7%	94.7%	94.7%	94.7%	94.8%	94.8%	94.8%	94.8%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%
Max cumulative gross output, kWhr	16,866,300	16,945,500	17,024,700	17,103,900	17,183,100	17,262,300	17,341,500	17,420,700	17,499,900	17,579,100	17,658,300	17,737,500	17,816,700	17,895,900	17,975,100	18,054,300
Actual cumulative gross output, kWhr	12,934,358	12,999,102	13,063,304	13,126,842	13,190,404	13,253,856	13,317,292	13,377,873	13,440,410	13,504,984	13,568,434	13,631,721	13,695,181	13,748,404	13,808,480	13,868,002
Cumulative Capacity Factor	76.7%	76.7%	76.7%	76.7%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.9%	76.9%	76.8%	76.8%	76.8%
Cumulative fuel input, MMBtu HHV	173,661	174,526	175,381	176,242	177,092	177,944	178,796	179,637	180,488	181,346	182,203	183,045	183,892	184,626	185,461	186,290
Cumulative gross output, kWhr	12,934,358	12,999,102	13,063,304	13,126,842	13,190,404	13,253,856	13,317,292	13,377,873	13,440,410	13,504,984	13,568,434	13,631,721	13,695,181	13,748,404	13,808,480	13,868,002
Cumulative heat rate, Btu/kWe gross LHV	12,086	12,086	12,086	12,086	12,086	12,086	12,086	12,088	12,089	12,088	12,088	12,088	12,087	12,089	12,091	12,092
Cumulative heat rate, Btu/kWe gross HHV	13,426	13,426	13,425	13,426	13,426	13,426	13,426	13,428	13,429	13,428	13,428	13,428	13,428	13,429	13,431	13,433
Service																
Engine 1														Overcurrent	District raised	District raised
Engine 2														Ray?	wellheads	wellheads
Engine 3																
Engine 4																
Oil - oil and filter change																
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
Date	8/1/2022	8/2/2022	8/3/2022	8/4/2022	8/5/2022	8/6/2022	8/7/2022	8/8/2022	8/9/2022	8/10/2022	8/11/2022	8/12/2022	8/13/2022	8/14/2022	8/15/2022	8/16/2022
Hour																
1	2,552	2,604	2,600	2,553	2,554	2,554	2,552	2,554	2,555	2,600	2,551	2,552	2,551	2,557	2,606	2,416
2	2,554	2,603	2,599	2,553	2,556	2,553	2,553	2,554	2,555	2,600	2,551	2,551	2,555	2,557	2,607	2,417
3	2,553	2,603	2,599	2,554	2,555	2,554	2,553	2,554	2,556	2,600	2,552	2,552	2,555	2,557	2,607	2,416
4	2,554	2,603	2,599	2,554	2,556	2,553	2,553	2,555	2,555	2,600	2,552	2,551	2,556	2,558	2,606	2,417
5	2,553	2,603	2,600	2,555	2,556	2,554	2,553	2,556	2,554	2,600	2,553	2,551	2,556	2,557	2,606	2,417
6	2,554	2,603	2,601	2,555	2,555	2,553	2,554	2,555	2,555	2,600	2,551	2,552	2,556	1,934	2,604	2,417
7	2,554	2,603	2,601	2,556	2,550	2,553	2,553	2,551	2,555	2,599	2,550	2,545	2,557	-	2,601	2,416
8	2,550	2,600	2,595	2,549	2,545	2,553	2,552	2,543	2,577	2,597	2,549	2,545	2,557	-	2,594	2,410
9	2,543	2,592	2,588	2,543	2,541	2,551	2,551	1,230	2,582	2,586	2,536	2,542	2,555	-	2,588	1,188
10	2,585	2,589	2,582	2,535	2,534	2,548	2,549	1,157	2,580	2,582	2,533	2,531	2,550	640	2,583	1,701
11	2,583	2,576	2,578	2,528	2,533	2,544	2,548	2,540	2,577	2,583	2,526	2,530	2,542	2,162	1,240	2,488
12	2,583	2,571	2,571	2,523	2,532	2,539	2,546	2,274	2,574	2,577	2,528	2,530	2,540	2,594	767	2,486
13	2,581	2,580	2,561	2,521	2,532	2,536	2,543	2,536	2,572	2,577	2,532	2,433	2,538	2,599	2,454	2,446
14	2,585	2,580	2,531	2,521	2,532	2,536	2,543	2,534	2,572	2,575	2,541	2,226	2,539	2,604	2,583	2,486
15	2,590	2,581	2,532	2,528	2,536	2,538	2,542	2,535	2,572	2,579	2,545	2,580	2,540	2,604	2,545	2,490
16	2,595	2,586	2,537	2,540	2,536	2,541	2,545	2,542	2,583	2,586	2,549	2,588	2,549	2,605	2,530	2,547
17	2,603	2,593	2,543	2,545	2,542	2,545	2,546	2,549	2,591	2,592	2,551	2,590	2,550	2,606	2,504	2,552
18	2,603	2,595	2,547	2,549	2,547	2,547	2,550	2,552	2,222	2,594	2,551	2,590	2,550	2,606	2,472	2,546
19	2,604	2,598	2,550	2,550	2,553	2,552	2,552	2,555	1,187	2,595	2,551	2,593	2,550	2,606	2,459	2,509
20	2,603	2,600	2,551	2,551	2,553	2,553	2,553	2,556	2,598	2,594	2,551	2,562	2,550	2,606	2,459	2,507
21	2,602	2,599	2,552	2,552	2,553	2,552	2,553	2,556	2,597	2,595	2,551	2,550	2,552	2,606	2,460	2,507
22	2,603	2,599	2,551	2,552	2,552	2,551	2,553	2,554	2,596	2,598	2,551	2,550	2,554	2,606	2,460	2,509
23	2,603	2,599	2,552	2,552	2,553	2,553	2,554	2,554	2,598	2,599	2,552	2,550	2,555	2,606	2,462	2,510
24	2,602	2,599	2,552	2,552	2,553	2,552	2,554	2,556	2,596	2,557	2,551	2,550	2,557	2,606	2,422	2,511
TOTAL	61,892	62,259	61,672	61,071	61,109	61,165	61,205	58,202	60,059	62,165	61,108	60,894	61,214	51,376	57,819	57,309
Cumulative Output Sold, kWhr	61,892	124,151	185,823	246,894	308,003	369,168	430,373	488,575	548,634	610,799	671,907	732,801	794,015	845,391	903,210	960,519
Transformer and line efficiency	99.8%	99.8%	99.7%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%
Hourly average	2,579	2,594	2,570	2,545	2,546	2,549	2,550	2,425	2,502	2,590	2,546	2,537	2,551	2,141	2,409	2,388

AUGUST 2022																		
	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
	8/17/2022	8/18/2022	8/19/2022	8/20/2022	8/21/2022	8/22/2022	8/23/2022	8/24/2022	8/25/2022	8/26/2022	8/27/2022	8/28/2022	8/29/2022	8/30/2022	8/31/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,593	1,621	1,624	1,609	1,595	1,589	1,581	1,604	1,590	1,590	1,619	1,603	1,583	1,592	1,572	50,067	756	49,311
LFG and Biogas Flow to the Engine	836	855	849	844	837	837	836	844	830	833	846	839	831	836	828	26,073	333	25,741
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3%	99%
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LFG and Biogas Total Flow (KSCF	1,593	1,621	1,624	1,609	1,595	1,589	1,581	1,604	1,590	1,590	1,619	1,603	1,583	1,592	1,572	50,067		
LFG and Biogas Total Flow (MMBT	836	855	849	844	837	837	836	844	830	833	846	839	831	836	828	26,073		
Average Methane Content (%)	51.9	52.1	51.7	51.8	51.8	52.0	52.2	52.0	51.6	51.8	51.7	51.7	51.9	51.9	52.1	51.5		
Engine 1 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	740		
Engine 2 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	736		
Engine 3 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	749		
Engine 4 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	740		
Generator 1 Power Output (kWhr)	15,588	15,588	15,588	15,584	15,588	15,588	14,772	15,592	15,592	15,588	15,516	14,412	15,508	15,584	15,588	474,844		
Generator 2 Power Output (kWhr)	15,208	15,580	15,296	14,416	14,412	14,876	15,216	14,500	14,604	14,412	14,412	14,412	14,408	14,412	14,416	459,296		
Generator 3 Power Output (kWhr)	15,552	15,552	15,552	15,556	15,548	15,552	15,556	15,556	15,552	15,556	15,548	15,552	15,552	15,552	15,552	486,992		
Generator 4 Power Output (kWhr)	15,920	15,540	15,540	15,544	15,544	15,536	15,528	15,536	15,536	15,536	15,540	15,540	15,536	15,536	15,536	494,624		
Gross Power Output (kWhr)	62,341	62,302	62,028	61,152	61,152	61,629	61,134	61,254	61,370	61,157	61,125	59,970	61,071	61,177	61,183	1,917,995		
Net Power Output (kWhr)	60,237	60,175	59,837	59,032	59,067	59,474	58,994	59,081	59,160	58,950	59,030	57,934	58,913	58,952	59,032	1,850,332		
Power Sold as metered by NStar, (	60,131	60,050	59,708	58,932	58,986	59,346	58,854	58,959	59,028	58,804	58,954	57,868	58,766	58,816	58,897	1,846,618	CRMCB inplant	
Offgrid RECs (kWhr)	2,104	2,127	2,191	2,120	2,085	2,155	2,140	2,173	2,210	2,207	2,095	2,036	2,158	2,225	2,151	67,663	10,294	
Calculated Performance Results																	15%	
Daily																	of total in-plant	
Power output (kW average whe																	power	
Generator 1	650	650	650	649	650	650	616	650	650	650	647	601	646	649	650			
Generator 2	634	649	637	601	601	620	634	604	609	601	601	601	600	601	601			
Generator 3	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648			
Generator 4	663	648	648	648	648	647	647	647	647	647	648	648	647	647	647			
Power output (kW average ove																		
Facility Gross	2,598	2,596	2,585	2,548	2,548	2,568	2,547	2,552	2,557	2,548	2,547	2,499	2,545	2,549	2,549			
Facility Net	2,510	2,507	2,493	2,460	2,461	2,478	2,458	2,462	2,465	2,456	2,460	2,414	2,455	2,456	2,460			
In-plant load	88	89	91	88	87	90	89	91	92	92	87	85	90	93	90			
Daily availability factor																		
Facility	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Daily capacity factor																		
Facility	79%	79%	78%	77%	77%	78%	77%	77%	77%	77%	77%	76%	77%	77%	77%			
Engine 1	79%	79%	79%	79%	79%	79%	75%	79%	79%	79%	78%	73%	78%	79%	79%			
Engine 2	77%	79%	77%	73%	73%	75%	77%	73%	74%	73%	73%	73%	73%	73%	73%			
Engine 3	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%			
Engine 4	80%	78%	78%	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%			
Cumulative by engine																		
Engine operating run hours in th																		
Max Cumulative Available,	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 1	404	428	452	476	500	524	548	572	596	620	644	668	692	716	740			
Engine 2	400	424	448	472	496	520	544	568	592	616	640	664	688	712	736			
Engine 3	413	437	461	485	509	533	557	581	605	629	653	677	701	725	749			
Engine 4	404	428	452	476	500	524	548	572	596	620	644	668	692	716	740			
Engine operating run hours tota																		
Engine 1	127,710	127,734	127,758	127,782	127,806	127,830	127,854	127,878	127,902	127,926	127,950	127,974	127,998	128,022	128,046			
Engine 2	116,909	116,933	116,957	116,981	117,005	117,029	117,053	117,077	117,101	117,125	117,149	117,173	117,197	117,221	117,245			
Engine 3	127,037	127,061	127,085	127,109	127,133	127,157	127,181	127,205	127,229	127,253	127,277	127,301	127,325	127,349	127,373			
Engine 4	122,606	122,630	122,654	122,678	122,702	122,726	122,750	122,774	122,798	122,822	122,846	122,870	122,894	122,918	122,942			
Cumulative availability, %																		
Engine 1	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%			
Engine 2	98%	98%	98%	98%	98%	98%	99%	99%	99%	99%	99%	99%	99%	99%	99%			
Engine 3	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%			
Engine 4	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%			
Engine cumulative gross output																		
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750	25,575			
Engine 1	10,889	11,539	12,188	12,838	13,487	14,137	14,752	15,402	16,051	16,701	17,347	17,948	18,594	19,243	19,893			
Engine 2	10,790	11,439	12,076	12,677	13,277	13,897	14,531	15,135	15,744	16,344	16,945	17,545	18,146	18,746	19,347			
Engine 3	11,090	11,738	12,386	13,034	13,682	14,330	14,978	15,626	16,274	16,922	17,570	18,218	18,866	19,514	20,162			
Engine 4	11,661	12,308	12,956	13,603	14,251	14,898	15,545	16,193	16,840	17,487	18,135	18,782	19,430	20,077	20,724			
Cumulative capacity factor, %																		
Engine 1	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%			
Engine 2	77%	77%	77%	77%	77%	77%	77%	76%	76%	76%	76%	76%	76%	76%	76%			
Engine 3	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%			
Engine 4	83%	83%	83%	82%	82%	82%	82%	82%	82%	82%	81%	81%	81%	81%	81%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

AUGUST 2022

	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
	8/17/2022	8/18/2022	8/19/2022	8/20/2022	8/21/2022	8/22/2022	8/23/2022	8/24/2022	8/25/2022	8/26/2022	8/27/2022	8/28/2022	8/29/2022	8/30/2022	8/31/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																		
Max cumulative available engi	1,632	1,728	1,824	1,920	2,016	2,112	2,208	2,304	2,400	2,496	2,592	2,688	2,784	2,880	2,976			
Actual cumulative engine run h	1,621	1,717	1,813	1,909	2,005	2,101	2,197	2,293	2,389	2,485	2,581	2,677	2,773	2,869	2,965			
Cumulative Availability, %	99.3%	99.4%	99.4%	99.4%	99.5%	99.5%	99.5%	99.5%	99.5%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%			
Max cumulative gross output, k	1,346,400	1,425,600	1,504,800	1,584,000	1,663,200	1,742,400	1,821,600	1,900,800	1,980,000	2,059,200	2,138,400	2,217,600	2,296,800	2,376,000	2,455,200			
Actual cumulative gross output,	1,060,291	1,122,593	1,184,621	1,245,773	1,306,925	1,368,554	1,429,688	1,490,942	1,552,312	1,613,469	1,674,594	1,734,564	1,795,635	1,856,812	1,917,995			
Cumulative Capacity Factor	78.8%	78.7%	78.7%	78.6%	78.6%	78.5%	78.5%	78.4%	78.4%	78.4%	78.3%	78.2%	78.2%	78.1%	78.1%			
Cumulative fuel input, MMBtu h	14,330	15,184	16,034	16,878	17,714	18,551	19,386	20,230	21,060	21,893	22,740	23,579	24,410	25,245	26,073			
Cumulative gross output, kWhr	1,060,291	1,122,593	1,184,621	1,245,773	1,306,925	1,368,554	1,429,688	1,490,942	1,552,312	1,613,469	1,674,594	1,734,564	1,795,635	1,856,812	1,917,995			
Heat Rate																		
Daily heat rate, Btu/kWe gross	12,070	12,351	12,326	12,426	12,314	12,219	12,303	12,402	12,172	12,267	12,462	12,600	12,246	12,296	12,184			
Daily heat rate, Btu/kWe gross	13,409	13,720	13,692	13,803	13,679	13,573	13,667	13,777	13,521	13,627	13,844	13,997	13,604	13,659	13,535			
Cumulative heat rate, Btu/kWe	12,166	12,176	12,184	12,196	12,201	12,202	12,206	12,214	12,213	12,215	12,224	12,237	12,237	12,239	12,237			
Cumulative heat rate, Btu/kWe	13,515	13,526	13,535	13,548	13,554	13,555	13,560	13,569	13,567	13,569	13,579	13,594	13,594	13,596	13,594			
Cumulative by Facility starting C																		
Max cumulative available engi	21,980	22,076	22,172	22,268	22,364	22,460	22,556	22,652	22,748	22,844	22,940	23,036	23,132	23,228	23,324			
Actual cumulative engine run h	20,863	20,959	21,055	21,151	21,247	21,343	21,439	21,535	21,631	21,727	21,823	21,919	22,015	22,111	22,207			
Cumulative Availability, %	94.9%	94.9%	95.0%	95.0%	95.0%	95.0%	95.0%	95.1%	95.1%	95.1%	95.1%	95.2%	95.2%	95.2%	95.2%			
Max cumulative gross output, k	18,133,500	18,212,700	18,291,900	18,371,100	18,450,300	18,529,500	18,608,700	18,687,900	18,767,100	18,846,300	18,925,500	19,004,700	19,083,900	19,163,100	19,242,300			
Actual cumulative gross output,	13,930,343	13,992,645	14,054,673	14,115,825	14,176,977	14,238,606	14,299,740	14,360,994	14,422,364	14,483,521	14,544,646	14,604,616	14,665,687	14,726,864	14,788,047			
Cumulative Capacity Factor	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.9%	76.9%	76.8%	76.8%	76.9%	76.9%			
Cumulative fuel input, MMBtu h	187,126	187,980	188,830	189,674	190,510	191,347	192,182	193,026	193,856	194,689	195,536	196,375	197,206	198,041	198,869			
Cumulative gross output, kWhr	13,930,343	13,992,645	14,054,673	14,115,825	14,176,977	14,238,606	14,299,740	14,360,994	14,422,364	14,483,521	14,544,646	14,604,616	14,665,687	14,726,864	14,788,047			
Cumulative heat rate, Btu/kWe	12,092	12,093	12,094	12,096	12,097	12,097	12,098	12,100	12,100	12,101	12,102	12,104	12,105	12,106	12,106			
Cumulative heat rate, Btu/kWe	13,433	13,434	13,435	13,437	13,438	13,439	13,440	13,441	13,441	13,442	13,444	13,446	13,447	13,448	13,448			
Service																		
Engine 1							Monthly service											
Engine 2								Monthly service										
Engine 3																		
Engine 4																		
Oil - oil and filter change																		
Service - plugs, air filter, valve insp																		
Precipitation																		
NSTAR Power Reports	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
Date	8/17/2022	8/18/2022	8/19/2022	8/20/2022	8/21/2022	8/22/2022	8/23/2022	8/24/2022	8/25/2022	8/26/2022	8/27/2022	8/28/2022	8/29/2022	8/30/2022	8/31/2022	TOTAL		
Hour																		
1	2,511	2,510	2,508	2,460	2,461	2,464	2,462	2,509	2,461	2,461	2,460	2,416	2,415	2,457	2,456			
2	2,512	2,512	2,509	2,460	2,462	2,465	2,463	2,510	2,462	2,460	2,461	2,415	2,437	2,462	2,457			
3	2,512	2,511	2,509	2,461	2,461	2,464	2,463	2,509	2,462	2,462	2,462	2,415	2,465	2,460	2,456			
4	2,512	2,511	2,510	2,461	2,461	2,463	2,463	2,509	2,463	2,462	2,463	2,416	2,464	2,461	2,455			
5	2,512	2,512	2,510	2,461	2,461	2,461	2,462	2,510	2,463	2,461	2,462	2,415	2,465	2,460	2,456			
6	2,512	2,512	2,509	2,462	2,461	2,457	2,459	2,509	2,463	2,458	2,462	2,415	2,462	2,457	2,454			
7	2,512	2,512	2,509	2,462	2,461	2,455	2,457	2,508	2,462	2,456	2,464	2,416	2,460	2,457	2,459			
8	2,505	2,499	2,499	2,461	2,462	2,452	2,476	2,502	2,477	2,454	2,462	2,414	2,456	2,451	2,456			
9	2,498	2,495	2,493	2,460	2,461	2,494	2,372	2,348	2,494	2,445	2,455	2,413	2,447	2,444	2,453			
10	2,499	2,496	2,446	2,459	2,457	2,488	1,854	1,856	2,485	2,437	2,453	2,408	2,448	2,435	2,448			
11	2,500	2,487	2,440	2,457	2,450	2,488	2,439	2,435	2,483	2,433	2,456	2,402	2,437	2,437	2,443			
12	2,498	2,482	2,469	2,449	2,443	2,488	2,484	2,487	2,457	2,428	2,454	2,396	2,434	2,436	2,434			
13	2,500	2,483	2,482	2,439	2,446	2,492	2,485	2,490	2,437	2,423	2,451	2,396	2,439	2,439	2,441			
14	2,493	2,489	2,483	2,437	2,447	2,492	2,485	2,486	2,436	2,433	2,455	2,406	2,435	2,437	2,448			
15	2,499	2,497	2,488	2,437	2,452	2,495	2,488	2,489	2,441	2,442	2,457	2,410	2,441	2,444	2,448			
16	2,498	2,496	2,492	2,445	2,457	2,498	2,491	2,498	2,448	2,450	2,458	2,410	2,446	2,448	2,456			
17	2,499	2,506	2,497	2,453	2,457	2,508	2,498	2,502	2,449	2,454	2,458	2,410	2,449	2,452	2,457			
18	2,507	2,506	2,500	2,456	2,458	2,483	2,506	2,501	2,451	2,454	2,460	2,412	2,448	2,454	2,457			
19	2,507	2,505	2,502	2,458	2,459	2,453	2,507	2,501	2,451	2,451	2,460	2,412	2,451	2,452	2,459			
20	2,507	2,502	2,502	2,458	2,460	2,453	2,504	2,463	2,453	2,449	2,460	2,413	2,450	2,453	2,459			
21	2,509	2,504	2,476	2,457	2,460	2,456	2,508	2,458	2,454	2,457	2,462	2,413	2,453	2,454	2,460			
22	2,509	2,507	2,456	2,459	2,462	2,458	2,509	2,458	2,455	2,456	2,462	2,414	2,454	2,455	2,461			
23	2,510	2,507	2,459	2,460	2,463	2,460	2,510	2,460	2,460	2,458	2,442	2,415	2,456	2,455	2,463			
24	2,510	2,509	2,460	2,460	2,464	2,459	2,509	2,461	2,461	2,460	2,415	2,416	2,454	2,456	2,461			
TOTAL	60,131	60,050	59,708	58,932	58,986	59,346	58,854	58,959	59,028	58,804	58,954	57,868	58,766	58,816	58,897			
Cumulative Output Sold, kV	1,020,650	1,080,700	1,140,408	1,199,340	1,258,326	1,317,672	1,376,526	1,435,485	1,494,513	1,553,317	1,612,271	1,670,139	1,728,905	1,787,721	1,846,618			
Transformer and line efficienc	99.8%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.9%	99.8%	99.8%	99.8%			
Hourly average	2,505	2,502	2,488	2,456	2,458	2,473	2,452	2,457	2,460	2,450	2,456	2,411	2,449	2,451	2,454			

SEPTEMBER 2022																	
		Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
		9/1/2022	9/2/2022	9/3/2022	9/4/2022	9/5/2022	9/6/2022	9/7/2022	9/8/2022	9/9/2022	9/10/2022	9/11/2022	9/12/2022	9/13/2022	9/14/2022	9/15/2022	9/16/2022
LFG and Biogas Flow to the Engines (KSCF)		1,593	1,598	1,581	1,571	1,580	1,559	1,590	1,590	1,596	1,621	1,585	1,585	1,601	1,574	1,598	1,577
LFG and Biogas Flow to the Engines (MMBTU HHV)		835	821	821	822	829	829	838	835	835	846	831	840	851	836	836	827
LFG and Biogas Flow to the Flare (KSCF)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and Biogas Total Flow (KSCF)		1,593	1,598	1,581	1,571	1,580	1,559	1,590	1,590	1,596	1,621	1,585	1,585	1,601	1,574	1,598	1,577
LFG and Biogas Total Flow (MMBTU HHV)		835	821	821	822	829	829	838	835	835	846	831	840	851	836	836	827
Average Methane Content (%)		51.8	50.7	51.3	51.7	51.8	52.5	52.1	51.9	51.7	51.6	51.8	52.3	52.5	52.5	51.7	51.8
Engine 1 Hours		24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 2 Hours		24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 3 Hours		24	24	24	24	24	24	22	24	24	24	24	24	24	24	24	24
Engine 4 Hours		24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23
Generator 1 Power Output (kWhr)		15,584	14,484	14,408	14,404	14,460	15,584	15,584	15,588	15,588	15,584	15,588	15,588	15,584	15,588	15,588	15,592
Generator 2 Power Output (kWhr)		14,412	14,412	14,412	14,412	14,416	15,160	15,584	15,584	14,948	14,416	14,412	15,344	15,580	14,888	15,404	14,412
Generator 3 Power Output (kWhr)		15,552	15,552	15,552	15,548	15,548	14,652	15,556	15,556	15,556	15,556	15,552	15,560	15,556	15,552	15,556	15,560
Generator 4 Power Output (kWhr)		15,536	15,540	15,544	15,540	15,544	15,540	14,636	15,544	15,540	15,544	15,548	15,540	15,540	15,536	15,540	15,544
Gross Power Output (kWhr)		61,167	60,083	60,029	60,008	60,075	61,040	61,462	62,362	61,713	61,185	61,190	62,131	62,367	61,671	62,196	61,225
Net Power Output (kWhr)		59,028	58,020	58,020	57,975	58,049	58,979	59,414	60,229	59,603	59,114	59,142	59,990	60,236	59,598	60,086	59,200
Power Sold as metered by NStar, (kWhr)		58,904	57,897	57,947	57,914	58,007	58,868	59,325	60,125	59,472	59,020	59,058	59,861	60,111	59,493	59,956	59,077
Offgrid RECs (kWhr)		2,139	2,063	2,009	2,033	2,026	2,061	2,048	2,133	2,110	2,071	2,048	2,141	2,131	2,073	2,110	2,025
Calculated Performance Results																	
Daily																	
Power output (kW average when running)																	
Generator 1		649	604	600	600	603	649	649	650	650	649	650	650	649	650	650	650
Generator 2		601	601	601	601	601	632	649	649	623	601	601	639	649	620	642	601
Generator 3		648	648	648	648	648	611	707	648	648	648	648	648	648	648	648	648
Generator 4		647	648	648	648	648	648	610	676	676	676	676	676	676	675	676	676
Power output (kW average over 24-hrs)																	
Facility Gross		2,549	2,503	2,501	2,500	2,503	2,543	2,561	2,598	2,571	2,549	2,550	2,589	2,599	2,570	2,592	2,551
Facility Net		2,460	2,418	2,418	2,416	2,419	2,457	2,476	2,510	2,483	2,463	2,464	2,500	2,510	2,483	2,504	2,467
In-plant load		89	86	84	85	84	86	85	89	88	86	85	89	89	86	88	84
Daily availability factor																	
Facility		100%	100%	100%	100%	100%	100%	98%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 3		100%	100%	100%	100%	100%	100%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 4		100%	100%	100%	100%	100%	100%	100%	96%	96%	96%	96%	96%	96%	96%	96%	96%
Daily capacity factor																	
Facility		77%	76%	76%	76%	76%	77%	78%	79%	78%	77%	77%	78%	79%	78%	79%	77%
Engine 1		79%	73%	73%	73%	73%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
Engine 2		73%	73%	73%	73%	73%	77%	79%	79%	75%	73%	73%	77%	79%	75%	78%	73%
Engine 3		79%	79%	79%	79%	79%	74%	86%	79%	79%	79%	79%	79%	79%	79%	79%	79%
Engine 4		78%	78%	79%	78%	79%	78%	74%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Cumulative by engine																	
Engine operating run hours in the month																	
Max Cumulative Available, hours		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 1		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 2		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 3		24	48	72	96	120	144	166	190	214	238	262	286	310	334	358	382
Engine 4		24	48	72	96	120	144	168	191	214	237	260	283	306	329	352	375
Engine operating run hours total from 0 hours																	
Engine 1	128,045	128,069	128,093	128,117	128,141	128,165	128,189	128,213	128,237	128,261	128,285	128,309	128,333	128,357	128,381	128,405	128,429
Engine 2	117,247	117,271	117,295	117,319	117,343	117,367	117,391	117,415	117,439	117,463	117,487	117,511	117,535	117,559	117,583	117,607	117,631
Engine 3	127,364	127,388	127,412	127,436	127,460	127,484	127,508	127,530	127,554	127,578	127,602	127,626	127,650	127,674	127,698	127,722	127,746
Engine 4	122,942	122,966	122,990	123,014	123,038	123,062	123,086	123,110	123,133	123,156	123,179	123,202	123,225	123,248	123,271	123,294	123,317
Cumulative availability, %	September 1, 2022 @ 00:00 hours																
Engine 1		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 2		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 3		100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Engine 4		100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	98%	98%	98%	98%	98%	98%
Engine cumulative gross output, kWhr																	
Max cumulative capacity one engine		825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1		649	1,253	1,853	2,453	3,056	3,705	4,355	5,004	5,654	6,303	6,952	7,602	8,251	8,901	9,550	10,200
Engine 2		601	1,201	1,802	2,402	3,003	3,634	4,284	4,933	5,556	6,157	6,757	7,396	8,046	8,666	9,308	9,908
Engine 3		648	1,296	1,944	2,592	3,240	3,850	4,557	5,205	5,854	6,502	7,150	7,798	8,446	9,094	9,742	10,391
Engine 4		647	1,295	1,943	2,590	3,238	3,885	4,495	5,171	5,846	6,522	7,198	7,874	8,550	9,225	9,901	10,577
Cumulative capacity factor, %																	
Engine 1		79%	76%	75%	74%	74%	75%	75%	76%	76%	76%	77%	77%	77%	77%	77%	77%
Engine 2		73%	73%	73%	73%	73%	73%	74%	75%	75%	75%	74%	75%	75%	75%	75%	75%
Engine 3		79%	79%	79%	79%	79%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
Engine 4		78%	78%	78%	78%	78%	78%	78%	78%	79%	79%	79%	80%	80%	80%	80%	80%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

SEPTEMBER 2022

	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	9/1/2022	9/2/2022	9/3/2022	9/4/2022	9/5/2022	9/6/2022	9/7/2022	9/8/2022	9/9/2022	9/10/2022	9/11/2022	9/12/2022	9/13/2022	9/14/2022	9/15/2022	9/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,152	1,248	1,344	1,440	1,536
Actual cumulative engine run hours	96	192	288	384	480	576	670	765	860	955	1,050	1,145	1,240	1,335	1,430	1,525
Cumulative Availability, %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.7%	99.6%	99.5%	99.5%	99.4%	99.4%	99.4%	99.3%	99.3%	99.3%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	475,200	554,400	633,600	712,800	792,000	871,200	950,400	1,029,600	1,108,800	1,188,000	1,267,200
Actual cumulative gross output, kWhr	61,167	121,250	181,279	241,287	301,362	362,402	423,864	486,226	547,939	609,124	670,314	732,445	794,812	856,483	918,679	979,904
Cumulative Capacity Factor	77.2%	76.5%	76.3%	76.2%	76.1%	76.3%	76.5%	76.7%	76.9%	76.9%	76.9%	77.1%	77.2%	77.2%	77.3%	77.3%
Cumulative fuel input, MMBtu HHV	835	1,655	2,476	3,298	4,127	4,956	5,795	6,629	7,464	8,310	9,141	9,981	10,832	11,668	12,504	13,332
Cumulative gross output, kWhr	61,167	121,250	181,279	241,287	301,362	362,402	423,864	486,226	547,939	609,124	670,314	732,445	794,812	856,483	918,679	979,904
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	12,287	12,293	12,304	12,337	12,422	12,226	12,280	12,049	12,176	12,445	12,231	12,168	12,280	12,204	12,101	12,165
Daily heat rate, Btu/kWe gross HHV	13,650	13,656	13,668	13,705	13,799	13,581	13,641	13,385	13,526	13,825	13,587	13,517	13,642	13,557	13,443	13,514
Cumulative heat rate, Btu/kWe gross LHV	12,287	12,290	12,295	12,305	12,329	12,311	12,307	12,274	12,263	12,281	12,276	12,267	12,268	12,264	12,253	12,247
Cumulative heat rate, Btu/kWe gross HHV	13,650	13,653	13,658	13,670	13,695	13,676	13,671	13,634	13,622	13,643	13,637	13,627	13,628	13,623	13,611	13,605
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	23,420	23,516	23,612	23,708	23,804	23,900	23,996	24,092	24,188	24,284	24,380	24,476	24,572	24,668	24,764	24,860
Actual cumulative engine run hours	22,303	22,399	22,495	22,591	22,687	22,783	22,877	22,972	23,067	23,162	23,257	23,352	23,447	23,542	23,637	23,732
Cumulative Availability, %	95.2%	95.3%	95.3%	95.3%	95.3%	95.3%	95.3%	95.4%	95.4%	95.4%	95.4%	95.4%	95.4%	95.4%	95.4%	95.5%
Max cumulative gross output, kWhr	19,321,500	19,400,700	19,479,900	19,559,100	19,638,300	19,717,500	19,796,700	19,875,900	19,955,100	20,034,300	20,113,500	20,192,700	20,271,900	20,351,100	20,430,300	20,509,500
Actual cumulative gross output, kWhr	14,849,214	14,909,297	14,969,326	15,029,334	15,089,409	15,150,449	15,211,911	15,274,273	15,335,986	15,397,171	15,458,361	15,520,492	15,582,859	15,644,530	15,706,726	15,767,951
Cumulative Capacity Factor	76.9%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%
Cumulative fuel input, MMBtu HHV	199,704	200,525	201,345	202,168	202,997	203,826	204,664	205,499	206,334	207,179	208,011	208,851	209,701	210,538	211,374	212,201
Cumulative gross output, kWhr	14,849,214	14,909,297	14,969,326	15,029,334	15,089,409	15,150,449	15,211,911	15,274,273	15,335,986	15,397,171	15,458,361	15,520,492	15,582,859	15,644,530	15,706,726	15,767,951
Cumulative heat rate, Btu/kWe gross LHV	12,107	12,107	12,108	12,109	12,110	12,111	12,111	12,111	12,111	12,113	12,113	12,113	12,114	12,114	12,114	12,115
Cumulative heat rate, Btu/kWe gross HHV	13,449	13,450	13,451	13,452	13,453	13,453	13,454	13,454	13,454	13,456	13,456	13,456	13,457	13,458	13,458	13,458
Service																
Engine 1																
Engine 2								Operations Meeting								
Engine 3																
Engine 4																
Oil - oil and filter change																
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Date	9/1/2022	9/2/2022	9/3/2022	9/4/2022	9/5/2022	9/6/2022	9/7/2022	9/8/2022	9/9/2022	9/10/2022	9/11/2022	9/12/2022	9/13/2022	9/14/2022	9/15/2022	9/16/2022
Hour																
1	2,463	2,464	2,418	2,418	2,415	2,464	2,513	2,513	2,509	2,465	2,464	2,462	2,510	2,512	2,514	2,469
2	2,463	2,441	2,418	2,419	2,416	2,464	2,512	2,513	2,509	2,465	2,464	2,464	2,509	2,511	2,514	2,468
3	2,465	2,417	2,418	2,418	2,417	2,465	2,513	2,514	2,509	2,466	2,465	2,465	2,510	2,512	2,513	2,469
4	2,464	2,416	2,418	2,418	2,416	2,466	2,513	2,513	2,510	2,465	2,465	2,465	2,509	2,512	2,513	2,469
5	2,465	2,417	2,418	2,418	2,416	2,467	2,513	2,513	2,509	2,465	2,465	2,467	2,510	2,514	2,513	2,469
6	2,464	2,417	2,419	2,419	2,417	2,464	2,511	2,513	2,509	2,465	2,465	2,508	2,509	2,514	2,513	2,469
7	2,464	2,414	2,418	2,419	2,417	2,460	2,505	2,509	2,507	2,464	2,465	2,508	2,504	2,510	2,509	2,466
8	2,458	2,406	2,419	2,418	2,416	2,456	2,502	2,502	2,501	2,465	2,465	2,504	2,502	2,505	2,504	2,462
9	2,450	2,401	2,417	2,415	2,414	2,340	2,235	2,502	2,503	2,463	2,464	2,498	2,497	2,433	2,498	2,459
10	2,442	2,401	2,412	2,412	2,413	1,867	1,911	2,491	2,501	2,460	2,463	2,494	2,497	2,140	2,493	2,459
11	2,436	2,400	2,408	2,406	2,412	2,375	2,499	2,494	2,496	2,454	2,458	2,493	2,496	2,256	2,489	2,452
12	2,433	2,401	2,407	2,407	2,411	2,494	2,505	2,493	2,446	2,448	2,457	2,493	2,499	2,496	2,490	2,452
13	2,430	2,402	2,408	2,406	2,412	2,498	2,504	2,492	2,443	2,446	2,456	2,494	2,501	2,494	2,490	2,452
14	2,429	2,401	2,407	2,404	2,413	2,497	2,502	2,496	2,443	2,446	2,456	2,494	2,499	2,494	2,493	2,451
15	2,436	2,400	2,407	2,403	2,413	2,500	2,502	2,499	2,446	2,445	2,455	2,498	2,502	2,501	2,498	2,451
16	2,449	2,402	2,411	2,409	2,414	2,505	2,501	2,501	2,449	2,454	2,457	2,501	2,503	2,503	2,499	2,453
17	2,456	2,406	2,412	2,410	2,415	2,510	2,506	2,507	2,457	2,456	2,457	2,506	2,509	2,508	2,504	2,458
18	2,461	2,407	2,413	2,412	2,416	2,511	2,512	2,507	2,458	2,457	2,457	2,505	2,507	2,509	2,505	2,459
19	2,461	2,407	2,415	2,413	2,415	2,511	2,512	2,507	2,458	2,459	2,457	2,504	2,505	2,509	2,509	2,459
20	2,461	2,414	2,415	2,413	2,416	2,511	2,511	2,509	2,457	2,460	2,458	2,505	2,505	2,509	2,511	2,463
21	2,462	2,414	2,416	2,414	2,415	2,511	2,510	2,509	2,463	2,462	2,460	2,506	2,504	2,511	2,482	2,465
22	2,464	2,415	2,417	2,414	2,415	2,510	2,511	2,509	2,463	2,462	2,461	2,508	2,507	2,513	2,466	2,467
23	2,464	2,416	2,418	2,415	2,417	2,511	2,511	2,509	2,463	2,464	2,462	2,508	2,507	2,514	2,468	2,468
24	2,464	2,418	2,418	2,414	2,466	2,511	2,511	2,510	2,463	2,464	2,462	2,511	2,510	2,513	2,468	2,468
TOTAL	58,904	57,897	57,947	57,914	58,007	58,868	59,325	60,125	59,472	59,020	59,058	59,861	60,111	59,493	59,956	59,077
Cumulative Output Sold, kWhr	58,904	116,801	174,748	232,662	290,669	349,537	408,862	468,987	528,459	587,479	646,537	706,398	766,509	826,002	885,958	945,035
Transformer and line efficiency	99.8%	99.8%	99.9%	99.9%	99.9%	99.8%	99.9%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%
Hourly average	2,454	2,412	2,414	2,413	2,417	2,453	2,472	2,505	2,478	2,459	2,461	2,494	2,505	2,479	2,498	2,462

SEPTEMBER 2022																		
	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday			
	9/17/2022	9/18/2022	9/19/2022	9/20/2022	9/21/2022	9/22/2022	9/23/2022	9/24/2022	9/25/2022	9/26/2022	9/27/2022	9/28/2022	9/29/2022	9/30/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,610	1,606	1,589	1,589	1,571	1,592	1,511	1,652	1,579	1,589	1,485	1,470	1,448	1,499	47,187	636	46,552
LFG and Biogas Flow to the Engine	844	849	840	837	824	846	791	867	835	839	791	781	776	809	24,859	424	24,434
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LFG and Biogas Total Flow (KSCF	1,610	1,606	1,589	1,589	1,571	1,592	1,511	1,652	1,579	1,589	1,485	1,470	1,448	1,499	47,187		
LFG and Biogas Total Flow (MMBT	844	849	840	837	824	846	791	867	835	839	791	781	776	809	24,859		
Average Methane Content (%)	51.8	52.2	52.2	52.1	51.9	52.5	51.7	51.8	52.3	52.2	52.6	52.5	52.9	53.3	52.1		
Engine 1 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	720		
Engine 2 Hours	24	24	24	24	24	24	24	24	24	24	6	1	17	24	672		
Engine 3 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	718		
Engine 4 Hours	23	23	23	23	24	24	24	24	24	24	24	24	7	7	673		
Generator 1 Power Output (kWhr)	15,588	15,584	15,584	15,588	15,588	15,588	15,596	15,588	15,588	15,584	17,368	19,144	19,132	18,124	474,440		
Generator 2 Power Output (kWhr)	14,412	14,408	14,816	15,156	14,872	15,588	15,340	14,412	14,960	15,200	3,640	-	13,392	18,120	422,112		
Generator 3 Power Output (kWhr)	15,556	15,548	15,556	15,556	15,556	15,564	15,560	15,556	15,552	15,552	18,012	19,136	19,124	18,108	477,900		
Generator 4 Power Output (kWhr)	15,548	15,540	15,540	15,544	15,548	15,544	15,544	15,556	15,544	15,544	18,136	19,060	5,364	4,536	450,304		
Gross Power Output (kWhr)	61,240	61,235	61,644	61,994	61,704	62,420	62,174	61,233	61,769	62,009	57,242	57,489	57,115	58,989	1,828,161		
Net Power Output (kWhr)	59,258	59,214	59,578	59,936	59,630	60,370	60,068	59,258	59,774	59,926	55,344	55,506	55,166	56,784	1,766,495		
Power Sold as metered by NStar, (	59,163	59,126	59,471	59,839	59,541	60,263	59,958	59,166	59,721	59,799	55,222	55,383	55,046	56,659	1,763,392	CRMCB inplant	
Offgrid RECs (kWhr)	1,982	2,021	2,066	2,058	2,074	2,050	2,106	1,975	1,995	2,083	1,898	1,983	1,949	2,205	61,666	9,748	
Calculated Performance Results																16%	
Daily																of total in-plant	
Power output (kW average whe																power	
Generator 1	650	649	649	650	650	650	650	650	650	649	724	798	797	755			
Generator 2	601	600	617	632	620	650	639	601	623	633	607	-	788	755			
Generator 3	648	648	648	648	648	649	648	648	648	648	751	797	797	755			
Generator 4	676	676	676	676	648	648	648	648	648	648	756	794	766	648			
Power output (kW average ove																	
Facility Gross	2,552	2,551	2,569	2,583	2,571	2,601	2,591	2,551	2,574	2,584	2,385	2,395	2,380	2,458			
Facility Net	2,469	2,467	2,482	2,497	2,485	2,515	2,503	2,469	2,491	2,497	2,306	2,313	2,299	2,366			
In-plant load	83	84	86	86	86	85	88	82	83	87	79	83	81	92			
Daily availability factor																	
Facility	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	81%	76%	75%	82%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	4%	71%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 4	96%	96%	96%	96%	100%	100%	100%	100%	100%	100%	100%	100%	29%	29%			
Daily capacity factor																	
Facility	77%	77%	78%	78%	78%	79%	79%	77%	78%	78%	72%	73%	72%	74%			
Engine 1	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	88%	97%	97%	92%			
Engine 2	73%	73%	75%	77%	75%	79%	77%	73%	76%	77%	74%	0%	95%	92%			
Engine 3	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	91%	97%	97%	91%			
Engine 4	82%	82%	82%	82%	79%	79%	79%	79%	79%	79%	92%	96%	93%	79%			
Cumulative by engine																	
Engine operating run hours in th																	
Max Cumulative Available,	408	432	456	480	504	528	552	576	600	624	648	672	696	720			
Engine 1	408	432	456	480	504	528	552	576	600	624	648	672	696	720			
Engine 2	408	432	456	480	504	528	552	576	600	624	630	631	648	672			
Engine 3	406	430	454	478	502	526	550	574	598	622	646	670	694	718			
Engine 4	398	421	444	467	491	515	539	563	587	611	635	659	666	673			
Engine operating run hours tota																	
Engine 1	128,453	128,477	128,501	128,525	128,549	128,573	128,597	128,621	128,645	128,669	128,693	128,717	128,741	128,765			
Engine 2	117,655	117,679	117,703	117,727	117,751	117,775	117,799	117,823	117,847	117,871	117,877	117,878	117,895	117,919			
Engine 3	127,770	127,794	127,818	127,842	127,866	127,890	127,914	127,938	127,962	127,986	128,010	128,034	128,058	128,082			
Engine 4	123,340	123,363	123,386	123,409	123,433	123,457	123,481	123,505	123,529	123,553	123,577	123,601	123,608	123,615			
Cumulative availability, %																	
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	94%	93%	93%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 4	98%	97%	97%	97%	97%	98%	98%	98%	98%	98%	98%	98%	96%	93%			
Engine cumulative gross output																	
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750			
Engine 1	10,849	11,499	12,148	12,798	13,447	14,097	14,746	15,396	16,045	16,695	17,418	18,216	19,013	19,768			
Engine 2	10,509	11,109	11,726	12,358	12,978	13,627	14,266	14,867	15,490	16,123	16,730	16,730	17,518	18,273			
Engine 3	11,039	11,687	12,335	12,983	13,631	14,280	14,928	15,576	16,224	16,872	17,623	18,420	19,217	19,971			
Engine 4	11,253	11,928	12,604	13,280	13,928	14,575	15,223	15,871	16,519	17,166	17,922	18,716	19,482	20,130			
Cumulative capacity factor, %																	
Engine 1	77%	77%	77%	78%	78%	78%	78%	78%	78%	78%	78%	79%	79%	80%			
Engine 2	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	72%	73%	74%			
Engine 3	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	80%	80%	81%			
Engine 4	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	81%	81%	81%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

SEPTEMBER 2022

	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday			
	9/17/2022	9/18/2022	9/19/2022	9/20/2022	9/21/2022	9/22/2022	9/23/2022	9/24/2022	9/25/2022	9/26/2022	9/27/2022	9/28/2022	9/29/2022	9/30/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																	
Max cumulative available engi	1,632	1,728	1,824	1,920	2,016	2,112	2,208	2,304	2,400	2,496	2,592	2,688	2,784	2,880			
Actual cumulative engine run h	1,620	1,715	1,810	1,905	2,001	2,097	2,193	2,289	2,385	2,481	2,559	2,632	2,704	2,783			
Cumulative Availability, %	99.3%	99.2%	99.2%	99.2%	99.3%	99.3%	99.3%	99.3%	99.4%	99.4%	98.7%	97.9%	97.1%	96.6%			
Max cumulative gross output, k	1,346,400	1,425,600	1,504,800	1,584,000	1,663,200	1,742,400	1,821,600	1,900,800	1,980,000	2,059,200	2,138,400	2,217,600	2,296,800	2,376,000			
Actual cumulative gross output,	1,041,144	1,102,379	1,164,023	1,226,017	1,287,721	1,350,141	1,412,315	1,473,548	1,535,317	1,597,326	1,654,568	1,712,057	1,769,172	1,828,161			
Cumulative Capacity Factor	77.3%	77.3%	77.4%	77.4%	77.4%	77.5%	77.5%	77.5%	77.5%	77.6%	77.4%	77.2%	77.0%	76.9%			
Cumulative fuel input, MMBtu h	14,176	15,024	15,864	16,701	17,525	18,371	19,163	20,029	20,864	21,703	22,493	23,274	24,050	24,859			
Cumulative gross output, kWhr	1,041,144	1,102,379	1,164,023	1,226,017	1,287,721	1,350,141	1,412,315	1,473,548	1,535,317	1,597,326	1,654,568	1,712,057	1,769,172	1,828,161			
Heat Rate																	
Daily heat rate, Btu/kWe gross	12,405	12,475	12,267	12,151	12,024	12,205	11,454	12,743	12,169	12,173	12,433	12,225	12,229	12,340			
Daily heat rate, Btu/kWe gross	13,780	13,858	13,627	13,498	13,357	13,558	12,724	14,156	13,518	13,522	13,812	13,580	13,585	13,708			
Cumulative heat rate, Btu/kWe	12,256	12,269	12,269	12,263	12,251	12,249	12,214	12,236	12,233	12,231	12,238	12,237	12,237	12,241			
Cumulative heat rate, Btu/kWe	13,615	13,629	13,629	13,622	13,609	13,607	13,568	13,593	13,590	13,587	13,595	13,594	13,594	13,598			
Cumulative by Facility starting C																	
Max cumulative available engi	24,956	25,052	25,148	25,244	25,340	25,436	25,532	25,628	25,724	25,820	25,916	26,012	26,108	26,204			
Actual cumulative engine run h	23,827	23,922	24,017	24,112	24,208	24,304	24,400	24,496	24,592	24,688	24,766	24,839	24,911	24,990			
Cumulative Availability, %	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.6%	95.6%	95.6%	95.6%	95.6%	95.5%	95.4%	95.4%			
Max cumulative gross output, k	20,588,700	20,667,900	20,747,100	20,826,300	20,905,500	20,984,700	21,063,900	21,143,100	21,222,300	21,301,500	21,380,700	21,459,900	21,539,100	21,618,300			
Actual cumulative gross output,	15,829,191	15,890,426	15,952,070	16,014,064	16,075,768	16,138,188	16,200,362	16,261,595	16,323,364	16,385,373	16,442,615	16,500,104	16,557,219	16,616,208			
Cumulative Capacity Factor	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%			
Cumulative fuel input, MMBtu h	213,045	213,894	214,734	215,570	216,395	217,241	218,032	218,899	219,734	220,572	221,363	222,144	222,919	223,728			
Cumulative gross output, kWhr	15,829,191	15,890,426	15,952,070	16,014,064	16,075,768	16,138,188	16,200,362	16,261,595	16,323,364	16,385,373	16,442,615	16,500,104	16,557,219	16,616,208			
Cumulative heat rate, Btu/kWe	12,116	12,117	12,118	12,118	12,117	12,118	12,115	12,118	12,118	12,118	12,119	12,120	12,120	12,121			
Cumulative heat rate, Btu/kWe	13,459	13,461	13,461	13,461	13,461	13,461	13,458	13,461	13,461	13,462	13,463	13,463	13,464	13,464			
Service																	
Engine 1																	
Engine 2											Top-End Overhaul		Top-End Overhaul				
Engine 3											on E-2 start		on E-4 start				
Engine 4																	
Oil - oil and filter change																	
Service - plugs, air filter, valve insp																	
Precipitation																	
NSTAR Power Reports	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday			
Date	9/17/2022	9/18/2022	9/19/2022	9/20/2022	9/21/2022	9/22/2022	9/23/2022	9/24/2022	9/25/2022	9/26/2022	9/27/2022	9/28/2022	9/29/2022	9/30/2022	TOTAL		
Hour																	
1	2,469	2,470	2,466	2,514	2,467	2,515	2,515	2,468	2,468	2,515	2,466	2,321	2,317	2,310			
2	2,468	2,471	2,466	2,514	2,468	2,514	2,515	2,468	2,469	2,517	2,466	2,321	2,318	2,310			
3	2,468	2,470	2,466	2,514	2,468	2,515	2,515	2,469	2,469	2,517	2,466	2,321	2,318	2,310			
4	2,469	2,469	2,466	2,515	2,468	2,514	2,515	2,469	2,469	2,517	2,467	2,321	2,318	2,310			
5	2,469	2,470	2,467	2,515	2,467	2,513	2,515	2,469	2,469	2,517	2,467	2,320	2,319	2,311			
6	2,469	2,469	2,461	2,515	2,468	2,513	2,514	2,469	2,470	2,514	2,465	2,319	2,317	2,309			
7	2,470	2,469	2,459	2,514	2,466	2,507	2,514	2,469	2,470	2,510	2,197	2,307	2,383	2,305			
8	2,469	2,468	2,454	2,508	2,459	2,506	2,506	2,469	2,471	2,504	2,307	2,301	1,890	2,305			
9	2,467	2,467	2,457	2,504	2,450	2,504	2,500	2,468	2,469	2,505	1,927	2,291	2,295	2,298			
10	2,461	2,462	2,459	2,507	2,450	2,504	2,495	2,464	2,469	2,502	2,039	2,287	2,304	2,294			
11	2,459	2,460	2,457	2,505	2,450	2,504	2,489	2,463	2,466	2,499	1,948	2,284	2,303	2,300			
12	2,459	2,456	2,460	2,504	2,450	2,503	2,490	2,458	2,465	2,494	2,288	2,287	2,302	2,301			
13	2,459	2,457	2,459	2,505	2,452	2,502	2,498	2,457	2,480	2,497	2,288	2,291	2,302	2,300			
14	2,460	2,456	2,457	2,504	2,460	2,504	2,494	2,457	2,512	2,494	2,296	2,289	2,299	2,301			
15	2,459	2,455	2,457	2,505	2,476	2,508	2,495	2,456	2,510	2,495	2,302	2,292	2,300	2,300			
16	2,460	2,455	2,470	2,473	2,508	2,511	2,506	2,458	2,510	2,497	2,306	2,303	2,300	2,297			
17	2,460	2,460	2,511	2,464	2,514	2,517	2,515	2,465	2,510	2,468	2,307	2,314	2,301	2,315			
18	2,465	2,461	2,511	2,465	2,514	2,516	2,515	2,466	2,509	2,457	2,313	2,316	2,307	2,534			
19	2,466	2,461	2,510	2,465	2,514	2,516	2,513	2,467	2,510	2,459	2,315	2,316	2,309	2,491			
20	2,465	2,462	2,511	2,464	2,514	2,516	2,467	2,467	2,510	2,461	2,315	2,316	2,309	2,491			
21	2,466	2,463	2,510	2,465	2,514	2,516	2,467	2,466	2,509	2,465	2,318	2,316	2,308	2,491			
22	2,467	2,465	2,511	2,466	2,514	2,515	2,468	2,467	2,509	2,464	2,319	2,317	2,308	2,492			
23	2,469	2,465	2,512	2,467	2,515	2,515	2,468	2,468	2,513	2,465	2,320	2,316	2,309	2,492			
24	2,470	2,465	2,514	2,467	2,515	2,515	2,469	2,469	2,515	2,466	2,320	2,317	2,310	2,492			
TOTAL	59,163	59,126	59,471	59,839	59,541	60,263	59,958	59,166	59,721	59,799	55,222	55,383	55,046	56,659			
Cumulative Output Sold, kV	1,004,198	1,063,324	1,122,795	1,182,634	1,242,175	1,302,438	1,362,396	1,421,562	1,481,283	1,541,082	1,596,304	1,651,687	1,706,733	1,763,392			
Transformer and line efficienc	99.8%	99.9%	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%			
Hourly average	2,465	2,464	2,478	2,493	2,481	2,511	2,498	2,465	2,488	2,492	2,301	2,308	2,294	2,361			

OCTOBER 2022																	
	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	10/1/2022	10/2/2022	10/3/2022	10/4/2022	10/5/2022	10/6/2022	10/7/2022	10/8/2022	10/9/2022	10/10/2022	10/11/2022	10/12/2022	10/13/2022	10/14/2022	10/15/2022	10/16/2022
LFG and Biogas Flow to the Engines (KSCF)	1,558	1,566	1,573	1,590	1,572	1,567	1,598	1,600	1,623	1,584	1,562	1,562	1,596	1,606	1,606	1,621
LFG and Biogas Flow to the Engines (MMBTU HHV)	827	827	823	843	843	841	848	840	852	830	818	822	849	849	844	854
LFG and Biogas Flow to the Flare (KSCF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and Biogas Total Flow (KSCF)	1,558	1,566	1,573	1,590	1,572	1,567	1,598	1,600	1,623	1,584	1,562	1,562	1,596	1,606	1,606	1,621
LFG and Biogas Total Flow (MMBTU HHV)	827	827	823	843	843	841	848	840	852	830	818	822	849	849	844	854
Average Methane Content (%)	52.5	52.2	51.7	52.4	53.0	53.0	52.4	51.9	51.8	51.8	51.7	52.0	52.6	52.2	51.9	52.1
Engine 1 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 2 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 3 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 4 Hours	24	24	24	24	24	24	24	24	24	24	24	21	24	24	24	24
Generator 1 Power Output (kWhr)	15,584	15,576	15,580	15,580	15,580	15,576	15,576	15,580	15,576	14,676	14,408	14,812	14,716	15,580	15,608	15,592
Generator 2 Power Output (kWhr)	15,604	15,600	15,600	15,604	16,432	15,668	16,446	15,824	15,596	15,600	15,588	15,160	16,224	16,764	16,372	16,000
Generator 3 Power Output (kWhr)	15,560	15,552	15,560	15,556	15,556	15,132	15,321	15,556	15,552	15,556	15,552	15,144	15,552	15,540	15,564	15,552
Generator 4 Power Output (kWhr)	15,516	15,512	15,516	15,516	16,340	16,688	16,440	16,692	16,692	16,692	16,708	13,740	16,184	16,708	16,740	16,736
Gross Power Output (kWhr)	62,373	62,373	62,150	62,402	63,982	63,203	64,626	63,830	63,575	62,697	62,448	59,216	62,800	64,749	64,409	64,020
Net Power Output (kWhr)	59,906	59,888	59,770	59,794	61,430	60,618	62,084	61,282	61,036	60,170	60,030	56,950	60,714	62,628	62,318	61,960
Power Sold as metered by NStar, (kWhr)	59,811	59,797	59,654	59,668	61,305	60,502	61,973	61,200	60,970	60,072	59,934	56,861	60,611	62,573	62,177	61,855
Offgrid RECs (kWhr)	2,467	2,485	2,380	2,608	2,552	2,585	2,542	2,548	2,539	2,527	2,418	2,266	2,086	2,121	2,091	2,060
Calculated Performance Results																
Daily																
Power output (kW average when running)																
Generator 1	649	649	649	649	649	649	649	649	649	612	600	617	613	649	650	650
Generator 2	650	650	650	650	685	653	685	659	650	650	650	632	676	699	682	667
Generator 3	648	648	648	648	648	631	638	648	648	648	648	631	648	648	649	648
Generator 4	647	646	647	647	681	695	685	696	696	696	696	654	674	696	698	697
Power output (kW average over 24-hrs)																
Facility Gross	2,599	2,599	2,590	2,600	2,666	2,633	2,693	2,660	2,649	2,612	2,602	2,467	2,617	2,698	2,684	2,668
Facility Net	2,496	2,495	2,490	2,491	2,560	2,526	2,587	2,553	2,543	2,507	2,501	2,373	2,530	2,610	2,597	2,582
In-plant load	103	104	99	109	106	108	106	106	106	105	101	94	87	88	87	86
Daily availability factor																
Facility	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	100%	100%	100%	100%
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	100%	100%	100%	100%
Daily capacity factor																
Facility	79%	79%	78%	79%	81%	80%	82%	81%	80%	79%	79%	75%	79%	82%	81%	81%
Engine 1	79%	79%	79%	79%	79%	79%	79%	79%	79%	74%	73%	75%	74%	79%	79%	79%
Engine 2	79%	79%	79%	79%	83%	79%	83%	80%	79%	79%	79%	77%	82%	85%	83%	81%
Engine 3	79%	79%	79%	79%	79%	76%	77%	79%	79%	79%	79%	76%	79%	78%	79%	79%
Engine 4	78%	78%	78%	78%	83%	84%	83%	84%	84%	84%	84%	79%	82%	84%	85%	85%
Cumulative by engine																
Engine operating run hours in the month																
Max Cumulative Available, hours	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 1	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 2	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 3	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 4	24	48	72	96	120	144	168	192	216	240	264	285	309	333	357	381
Engine operating run hours total from 0 hours																
Engine 1 128,765	128,789	128,813	128,837	128,861	128,885	128,909	128,933	128,957	128,981	129,005	129,029	129,053	129,077	129,101	129,125	129,149
Engine 2 117,919	117,943	117,967	117,991	118,015	118,039	118,063	118,087	118,111	118,135	118,159	118,183	118,207	118,231	118,255	118,279	118,303
Engine 3 128,082	128,106	128,130	128,154	128,178	128,202	128,226	128,250	128,274	128,298	128,322	128,346	128,370	128,394	128,418	128,442	128,466
Engine 4 123,615	123,639	123,663	123,687	123,711	123,735	123,759	123,783	123,807	123,831	123,855	123,879	123,900	123,924	123,948	123,972	123,996
Cumulative availability, % October 1, 2022 @ 00:00 hours																
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%
Engine cumulative gross output, kWhr																
Max cumulative capacity one engine	825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1	649	1,298	1,948	2,597	3,246	3,895	4,544	5,193	5,842	6,454	7,054	7,671	8,284	8,933	9,584	10,233
Engine 2	650	1,300	1,950	2,600	3,285	3,938	4,623	5,282	5,932	6,582	7,232	7,863	8,539	9,238	9,920	10,587
Engine 3	648	1,296	1,945	2,593	3,241	3,872	4,510	5,158	5,806	6,454	7,102	7,733	8,381	9,029	9,677	10,325
Engine 4	647	1,293	1,939	2,586	3,267	3,962	4,647	5,342	6,038	6,733	7,430	8,084	8,758	9,454	10,152	10,849
Cumulative capacity factor, %																
Engine 1	79%	79%	79%	79%	79%	79%	79%	79%	79%	78%	78%	77%	77%	77%	77%	78%
Engine 2	79%	79%	79%	79%	80%	80%	80%	80%	80%	80%	80%	79%	80%	80%	80%	80%
Engine 3	79%	79%	79%	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%
Engine 4	78%	78%	78%	78%	79%	80%	80%	81%	81%	82%	82%	82%	82%	82%	82%	82%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

OCTOBER 2022

	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	10/1/2022	10/2/2022	10/3/2022	10/4/2022	10/5/2022	10/6/2022	10/7/2022	10/8/2022	10/9/2022	10/10/2022	10/11/2022	10/12/2022	10/13/2022	10/14/2022	10/15/2022	10/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,152	1,248	1,344	1,440	1,536
Actual cumulative engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,149	1,245	1,341	1,437	1,533
Cumulative Availability, %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.7%	99.8%	99.8%	99.8%	99.8%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	475,200	554,400	633,600	712,800	792,000	871,200	950,400	1,029,600	1,108,800	1,188,000	1,267,200
Actual cumulative gross output, kWhr	62,373	124,746	186,896	249,298	313,280	376,483	441,109	504,939	568,514	631,211	693,659	752,875	815,675	880,424	944,833	1,008,853
Cumulative Capacity Factor	78.8%	78.8%	78.7%	78.7%	79.1%	79.2%	79.6%	79.7%	79.8%	79.7%	79.6%	79.2%	79.2%	79.4%	79.5%	79.6%
Cumulative fuel input, MMBtu HHV	827	1,655	2,477	3,320	4,164	5,004	5,852	6,691	7,543	8,373	9,191	10,013	10,862	11,711	12,555	13,409
Cumulative gross output, kWhr	62,373	124,746	186,896	249,298	313,280	376,483	441,109	504,939	568,514	631,211	693,659	752,875	815,675	880,424	944,833	1,008,853
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	11,940	11,940	11,916	12,162	11,862	11,974	11,805	11,842	12,060	11,921	11,787	12,490	12,171	11,805	11,797	12,004
Daily heat rate, Btu/kWe gross HHV	13,264	13,264	13,237	13,511	13,177	13,302	13,114	13,155	13,397	13,243	13,094	13,875	13,521	13,114	13,105	13,335
Cumulative heat rate, Btu/kWe gross LHV	11,940	11,940	11,932	11,990	11,964	11,965	11,942	11,929	11,944	11,942	11,928	11,972	11,987	11,974	11,962	11,965
Cumulative heat rate, Btu/kWe gross HHV	13,264	13,264	13,255	13,319	13,290	13,292	13,266	13,252	13,268	13,266	13,250	13,299	13,316	13,301	13,288	13,291
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	26,300	26,396	26,492	26,588	26,684	26,780	26,876	26,972	27,068	27,164	27,260	27,356	27,452	27,548	27,644	27,740
Actual cumulative engine run hours	25,086	25,182	25,278	25,374	25,470	25,566	25,662	25,758	25,854	25,950	26,046	26,139	26,235	26,331	26,427	26,523
Cumulative Availability, %	95.4%	95.4%	95.4%	95.4%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.6%	95.6%	95.6%	95.6%	95.6%
Max cumulative gross output, kWhr	21,697,500	21,776,700	21,855,900	21,935,100	22,014,300	22,093,500	22,172,700	22,251,900	22,331,100	22,410,300	22,489,500	22,568,700	22,647,900	22,727,100	22,806,300	22,885,500
Actual cumulative gross output, kWhr	16,678,581	16,740,954	16,803,104	16,865,506	16,929,488	16,992,691	17,057,317	17,121,147	17,184,722	17,247,419	17,309,867	17,369,083	17,431,883	17,496,632	17,561,041	17,625,061
Cumulative Capacity Factor	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	76.9%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%
Cumulative fuel input, MMBtu HHV	224,555	225,383	226,205	227,048	227,892	228,732	229,580	230,419	231,271	232,101	232,919	233,741	234,590	235,439	236,283	237,137
Cumulative gross output, kWhr	16,678,581	16,740,954	16,803,104	16,865,506	16,929,488	16,992,691	17,057,317	17,121,147	17,184,722	17,247,419	17,309,867	17,369,083	17,431,883	17,496,632	17,561,041	17,625,061
Cumulative heat rate, Btu/kWe gross LHV	12,120	12,119	12,119	12,119	12,118	12,117	12,116	12,115	12,115	12,114	12,113	12,114	12,114	12,113	12,112	12,112
Cumulative heat rate, Btu/kWe gross HHV	13,464	13,463	13,462	13,462	13,461	13,461	13,459	13,458	13,458	13,457	13,456	13,457	13,458	13,456	13,455	13,455
Service																
Engine 1												District Wellfield Work				
Engine 2						Operations Meeting						CNBE lower load				
Engine 3						Oil Change										
Engine 4												250 hour maintenance				
Oil - oil and filter change																
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Date	10/1/2022	10/2/2022	10/3/2022	10/4/2022	10/5/2022	10/6/2022	10/7/2022	10/8/2022	10/9/2022	10/10/2022	10/11/2022	10/12/2022	10/13/2022	10/14/2022	10/15/2022	10/16/2022
Hour																
1	2,491	2,493	2,491	2,490	2,493	2,587	2,591	2,590	2,542	2,541	2,496	2,515	2,514	2,611	2,611	2,562
2	2,492	2,493	2,490	2,490	2,493	2,587	2,592	2,590	2,540	2,540	2,496	2,515	2,514	2,612	2,611	2,563
3	2,492	2,493	2,490	2,490	2,493	2,587	2,592	2,591	2,541	2,541	2,496	2,515	2,514	2,612	2,611	2,564
4	2,492	2,492	2,491	2,491	2,493	2,587	2,592	2,590	2,540	2,540	2,496	2,515	2,513	2,612	2,611	2,564
5	2,492	2,493	2,490	2,490	2,493	2,588	2,592	2,564	2,541	2,541	2,496	2,515	2,512	2,611	2,611	2,564
6	2,491	2,491	2,490	2,491	2,493	2,588	2,590	2,542	2,542	2,516	2,493	2,513	2,514	2,609	2,610	2,564
7	2,491	2,491	2,491	2,491	2,494	2,588	2,587	2,543	2,542	2,490	2,491	2,508	2,507	2,608	2,611	2,564
8	2,491	2,491	2,486	2,487	2,569	2,581	2,584	2,543	2,542	2,491	2,491	2,509	2,502	2,604	2,609	2,565
9	2,492	2,492	2,477	2,478	2,573	2,570	2,579	2,543	2,542	2,491	2,483	2,176	2,498	2,603	2,608	2,564
10	2,492	2,492	2,474	2,474	2,572	2,570	2,576	2,542	2,541	2,492	2,476	1,623	2,248	2,602	2,607	2,564
11	2,492	2,492	2,474	2,475	2,570	2,232	2,561	2,540	2,538	2,492	2,475	1,135	1,900	2,600	2,606	2,561
12	2,491	2,492	2,474	2,475	2,571	1,891	2,527	2,539	2,539	2,491	2,475	1,701	2,592	2,600	2,601	2,556
13	2,491	2,493	2,477	2,476	2,571	2,159	2,554	2,539	2,540	2,491	2,478	2,508	2,603	2,602	2,599	2,585
14	2,493	2,492	2,483	2,476	2,572	2,500	2,580	2,540	2,540	2,492	2,489	2,504	2,602	2,602	2,595	2,601
15	2,493	2,492	2,478	2,476	2,572	2,578	2,581	2,540	2,541	2,492	2,489	2,498	2,594	2,602	2,600	2,601
16	2,493	2,491	2,476	2,477	2,583	2,582	2,581	2,540	2,540	2,492	2,504	2,510	2,605	2,604	2,589	2,603
17	2,494	2,492	2,491	2,493	2,588	2,589	2,587	2,540	2,540	2,493	2,513	2,513	2,610	2,609	2,558	2,605
18	2,493	2,491	2,491	2,493	2,589	2,591	2,590	2,541	2,540	2,493	2,514	2,514	2,611	2,610	2,562	2,606
19	2,493	2,491	2,490	2,493	2,587	2,592	2,589	2,541	2,539	2,492	2,514	2,511	2,610	2,609	2,562	2,608
20	2,492	2,490	2,490	2,492	2,587	2,590	2,589	2,540	2,538	2,491	2,514	2,510	2,610	2,609	2,561	2,610
21	2,493	2,490	2,490	2,492	2,587	2,591	2,589	2,539	2,540	2,490	2,513	2,513	2,610	2,609	2,560	2,594
22	2,492	2,490	2,490	2,493	2,587	2,591	2,589	2,540	2,540	2,492	2,513	2,513	2,610	2,610	2,559	2,562
23	2,493	2,490	2,490	2,492	2,588	2,591	2,591	2,542	2,541	2,493	2,514	2,513	2,609	2,611	2,562	2,562
24	2,492	2,490	2,490	2,493	2,587	2,592	2,590	2,541	2,541	2,495	2,515	2,514	2,609	2,612	2,563	2,563
TOTAL	59,811	59,797	59,654	59,668	61,305	60,502	61,973	61,200	60,970	60,072	59,934	56,861	60,611	62,573	62,177	61,855
Cumulative Output Sold, kWhr	59,811	119,608	179,262	238,930	300,235	360,737	422,710	483,910	544,880	604,952	664,886	721,747	782,358	844,931	907,108	968,963
Transformer and line efficiency	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.9%	99.8%	99.8%	99.8%	99.8%	99.9%	99.8%	99.8%
Hourly average	2,492	2,492	2,486	2,486	2,554	2,521	2,582	2,550	2,540	2,503	2,497	2,369	2,525	2,607	2,591	2,577

OCTOBER 2022																		
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday			
	10/17/2022	10/18/2022	10/19/2022	10/20/2022	10/21/2022	10/22/2022	10/23/2022	10/24/2022	10/25/2022	10/26/2022	10/27/2022	10/28/2022	10/29/2022	10/30/2022	10/31/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,555	1,579	1,606	1,582	1,557	1,528	1,528	1,537	1,531	1,502	1,523	1,523	1,539	1,535	1,509	48,517	359	48,157
LFG and Biogas Flow to the Engine	825	844	847	822	822	820	833	848	848	845	839	819	843	853	837	25,952	255	25,697
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LFG and Biogas Total Flow (KSCF	1,555	1,579	1,606	1,582	1,557	1,528	1,528	1,537	1,531	1,502	1,523	1,523	1,539	1,535	1,509	48,517		
LFG and Biogas Total Flow (MMBT	825	844	847	822	822	820	833	848	848	845	839	819	843	853	837	25,952		
Average Methane Content (%)	52.4	52.8	52.1	51.3	52.1	53.0	53.9	54.5	54.8	55.6	54.4	53.1	54.2	54.9	54.8	52.9		
Engine 1 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	744		
Engine 2 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	744		
Engine 3 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	744		
Engine 4 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	741		
Generator 1 Power Output (kWhr)	15,592	15,588	15,592	15,408	15,588	15,592	15,592	15,592	15,588	15,592	15,176	15,596	15,600	15,592	15,596	478,884		
Generator 2 Power Output (kWhr)	15,356	15,416	14,980	14,500	14,572	14,696	14,576	15,592	15,600	16,388	15,724	14,428	15,284	15,592	15,364	482,150		
Generator 3 Power Output (kWhr)	15,552	15,556	15,560	15,564	15,564	15,564	15,556	15,560	15,560	14,576	15,556	15,564	15,560	15,560	15,560	480,217		
Generator 4 Power Output (kWhr)	16,728	16,728	16,732	15,924	15,552	15,556	15,556	15,552	16,304	16,720	16,724	15,920	15,564	15,556	15,560	499,096		
Gross Power Output (kWhr)	63,362	63,416	62,997	61,524	61,435	61,576	61,377	62,455	63,225	63,431	63,332	61,678	62,181	62,442	62,267	1,945,551		
Net Power Output (kWhr)	61,270	61,334	60,736	59,248	59,300	59,560	59,480	60,416	61,228	61,436	61,288	59,556	60,168	60,438	60,198	1,876,234		
Power Sold as metered by NStar, (	61,177	61,224	60,643	59,150	59,194	59,457	59,416	60,328	61,125	61,329	61,167	59,456	60,077	60,356	60,074	1,873,136	CRMCB inplant	
Offgrid RECs (kWhr)	2,092	2,082	2,261	2,276	2,135	2,016	1,897	2,039	1,997	1,995	2,044	2,122	2,013	2,004	2,069	69,317	10,393	
Calculated Performance Results																	15%	
Daily																	of total in-plant	
Power output (kW average whe																	power	
Generator 1	650	650	650	642	650	650	650	650	650	650	632	650	650	650	650			
Generator 2	640	642	624	604	607	612	607	650	650	683	655	601	637	650	640			
Generator 3	648	648	648	649	649	649	648	648	648	607	648	649	648	648	648			
Generator 4	697	697	697	664	648	648	648	648	679	697	697	663	649	648	648			
Power output (kW average ove																		
Facility Gross	2,640	2,642	2,625	2,564	2,560	2,566	2,557	2,602	2,634	2,643	2,639	2,570	2,591	2,602	2,594			
Facility Net	2,553	2,556	2,531	2,469	2,471	2,482	2,478	2,517	2,551	2,560	2,554	2,482	2,507	2,518	2,508			
In-plant load	87	87	94	95	89	84	79	85	83	83	85	88	84	84	86			
Daily availability factor																		
Facility	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Daily capacity factor																		
Facility	80%	80%	80%	78%	78%	78%	77%	79%	80%	80%	80%	78%	79%	79%	79%			
Engine 1	79%	79%	79%	78%	79%	79%	79%	79%	79%	79%	77%	79%	79%	79%	79%			
Engine 2	78%	78%	76%	73%	74%	74%	74%	79%	79%	83%	79%	73%	77%	79%	78%			
Engine 3	79%	79%	79%	79%	79%	79%	79%	79%	79%	74%	79%	79%	79%	79%	79%			
Engine 4	84%	84%	85%	80%	79%	79%	79%	79%	82%	84%	84%	80%	79%	79%	79%			
Cumulative by engine																		
Engine operating run hours in th																		
Max Cumulative Available,	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 1	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 2	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 3	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 4	405	429	453	477	501	525	549	573	597	621	645	669	693	717	741			
Engine operating run hours tota																		
Engine 1	129,173	129,197	129,221	129,245	129,269	129,293	129,317	129,341	129,365	129,389	129,413	129,437	129,461	129,485	129,509			
Engine 2	118,327	118,351	118,375	118,399	118,423	118,447	118,471	118,495	118,519	118,543	118,567	118,591	118,615	118,639	118,663			
Engine 3	128,490	128,514	128,538	128,562	128,586	128,610	128,634	128,658	128,682	128,706	128,730	128,754	128,778	128,802	128,826			
Engine 4	124,020	124,044	124,068	124,092	124,116	124,140	124,164	124,188	124,212	124,236	124,260	124,284	124,308	124,332	124,356			
Cumulative availability, %																		
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 4	99%	99%	99%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%			
Engine cumulative gross output																		
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750	25,575			
Engine 1	10,883	11,533	12,182	12,824	13,474	14,123	14,773	15,423	16,072	16,722	17,354	18,004	18,654	19,304	19,954			
Engine 2	11,227	11,869	12,493	13,097	13,704	14,317	14,924	15,574	16,224	16,907	17,562	18,163	18,800	19,449	20,090			
Engine 3	10,973	11,621	12,270	12,918	13,567	14,215	14,863	15,512	16,160	16,767	17,416	18,064	18,712	19,361	20,009			
Engine 4	11,546	12,243	12,940	13,604	14,252	14,900	15,548	16,196	16,876	17,572	18,269	18,932	19,581	20,229	20,877			
Cumulative capacity factor, %																		
Engine 1	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%			
Engine 2	80%	80%	80%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%			
Engine 3	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%			
Engine 4	82%	82%	83%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

OCTOBER 2022

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday			
	10/17/2022	10/18/2022	10/19/2022	10/20/2022	10/21/2022	10/22/2022	10/23/2022	10/24/2022	10/25/2022	10/26/2022	10/27/2022	10/28/2022	10/29/2022	10/30/2022	10/31/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																		
Max cumulative available engi	1,632	1,728	1,824	1,920	2,016	2,112	2,208	2,304	2,400	2,496	2,592	2,688	2,784	2,880	2,976			
Actual cumulative engine run h	1,629	1,725	1,821	1,917	2,013	2,109	2,205	2,301	2,397	2,493	2,589	2,685	2,781	2,877	2,973			
Cumulative Availability, %	99.8%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%			
Max cumulative gross output, k	1,346,400	1,425,600	1,504,800	1,584,000	1,663,200	1,742,400	1,821,600	1,900,800	1,980,000	2,059,200	2,138,400	2,217,600	2,296,800	2,376,000	2,455,200			
Actual cumulative gross output,	1,072,215	1,135,631	1,198,628	1,260,152	1,321,587	1,383,163	1,444,540	1,506,995	1,570,220	1,633,651	1,696,983	1,758,661	1,820,842	1,883,284	1,945,551			
Cumulative Capacity Factor	79.6%	79.7%	79.7%	79.6%	79.5%	79.4%	79.3%	79.3%	79.3%	79.3%	79.4%	79.3%	79.3%	79.3%	79.2%			
Cumulative fuel input, MMBtu h	14,233	15,077	15,924	16,745	17,567	18,387	19,220	20,068	20,916	21,762	22,600	23,419	24,262	25,115	25,952			
Cumulative gross output, kWhr	1,072,215	1,135,631	1,198,628	1,260,152	1,321,587	1,383,163	1,444,540	1,506,995	1,570,220	1,633,651	1,696,983	1,758,661	1,820,842	1,883,284	1,945,551			
Heat Rate																		
Daily heat rate, Btu/kWe gross	11,715	11,975	12,099	12,021	12,039	11,986	12,217	12,227	12,078	11,996	11,923	11,949	12,208	12,290	12,103			
Daily heat rate, Btu/kWe gross	13,014	13,303	13,440	13,354	13,373	13,315	13,572	13,583	13,417	13,326	13,244	13,274	13,562	13,653	13,445			
Cumulative heat rate, Btu/kWe	11,950	11,951	11,959	11,962	11,966	11,967	11,977	11,988	11,991	11,991	11,989	11,987	11,995	12,005	12,008			
Cumulative heat rate, Btu/kWe	13,275	13,276	13,285	13,288	13,292	13,293	13,305	13,317	13,321	13,321	13,318	13,316	13,325	13,336	13,339			
Cumulative by Facility starting C																		
Max cumulative available engi	27,836	27,932	28,028	28,124	28,220	28,316	28,412	28,508	28,604	28,700	28,796	28,892	28,988	29,084	29,180			
Actual cumulative engine run h	26,619	26,715	26,811	26,907	27,003	27,099	27,195	27,291	27,387	27,483	27,579	27,675	27,771	27,867	27,963			
Cumulative Availability, %	95.6%	95.6%	95.7%	95.7%	95.7%	95.7%	95.7%	95.7%	95.7%	95.8%	95.8%	95.8%	95.8%	95.8%	95.8%			
Max cumulative gross output, k	22,964,700	23,043,900	23,123,100	23,202,300	23,281,500	23,360,700	23,439,900	23,519,100	23,598,300	23,677,500	23,756,700	23,835,900	23,915,100	23,994,300	24,073,500			
Actual cumulative gross output,	17,688,423	17,751,839	17,814,836	17,876,360	17,937,795	17,999,371	18,060,748	18,123,203	18,186,428	18,249,859	18,313,191	18,374,869	18,437,050	18,499,492	18,561,759			
Cumulative Capacity Factor	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.1%	77.1%	77.1%	77.1%	77.1%	77.1%	77.1%	77.1%	77.1%			
Cumulative fuel input, MMBtu h	237,961	238,805	239,652	240,473	241,295	242,115	242,948	243,796	244,644	245,490	246,328	247,147	247,990	248,843	249,680			
Cumulative gross output, kWhr	17,688,423	17,751,839	17,814,836	17,876,360	17,937,795	17,999,371	18,060,748	18,123,203	18,186,428	18,249,859	18,313,191	18,374,869	18,437,050	18,499,492	18,561,759			
Cumulative heat rate, Btu/kWe	12,110	12,110	12,110	12,109	12,109	12,109	12,109	12,110	12,109	12,109	12,108	12,108	12,108	12,109	12,109			
Cumulative heat rate, Btu/kWe	13,453	13,452	13,452	13,452	13,452	13,451	13,452	13,452	13,452	13,452	13,451	13,450	13,451	13,451	13,451			
Service																		
Engine 1																		
Engine 2																		
Engine 3																		
Engine 4																		
Oil - oil and filter change																		
Service - plugs, air filter, valve insp																		
Precipitation																		
NSTAR Power Reports	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday			
Date	10/17/2022	10/18/2022	10/19/2022	10/20/2022	10/21/2022	10/22/2022	10/23/2022	10/24/2022	10/25/2022	10/26/2022	10/27/2022	10/28/2022	10/29/2022	10/30/2022	10/31/2022	TOTAL		
Hour																		
1	2,563	2,514	2,562	2,506	2,461	2,517	2,471	2,518	2,520	2,569	2,612	2,510	2,468	2,515	2,513			
2	2,563	2,514	2,562	2,506	2,460	2,512	2,471	2,519	2,520	2,568	2,612	2,509	2,468	2,515	2,515			
3	2,564	2,514	2,562	2,504	2,460	2,515	2,471	2,519	2,520	2,568	2,612	2,509	2,466	2,515	2,514			
4	2,564	2,538	2,562	2,504	2,460	2,515	2,471	2,519	2,520	2,568	2,612	2,510	2,468	2,515	2,513			
5	2,562	2,563	2,561	2,503	2,460	2,514	2,471	2,519	2,521	2,569	2,612	2,509	2,466	2,515	2,487			
6	2,560	2,561	2,557	2,500	2,457	2,491	2,471	2,514	2,516	2,568	2,612	2,510	2,466	2,514	2,467			
7	2,558	2,561	2,557	2,497	2,454	2,467	2,471	2,513	2,515	2,568	2,612	2,508	2,502	2,514	2,466			
8	2,554	2,555	2,546	2,495	2,456	2,464	2,471	2,510	2,514	2,559	2,599	2,476	2,513	2,514	2,463			
9	2,549	2,552	2,536	2,493	2,449	2,468	2,470	2,501	2,526	2,601	2,357	2,456	2,516	2,515	2,457			
10	2,596	2,557	2,535	2,451	2,448	2,468	2,470	2,499	2,553	2,258	2,350	2,450	2,519	2,519	2,496			
11	2,602	2,544	2,538	2,450	2,447	2,463	2,469	2,508	2,559	2,010	2,557	2,459	2,517	2,513	2,501			
12	2,598	2,549	2,518	2,431	2,455	2,461	2,469	2,510	2,560	2,593	2,554	2,459	2,513	2,509	2,502			
13	2,555	2,550	2,503	2,406	2,455	2,462	2,469	2,513	2,560	2,609	2,552	2,463	2,509	2,509	2,510			
14	2,554	2,551	2,497	2,402	2,454	2,462	2,470	2,506	2,560	2,608	2,551	2,461	2,511	2,508	2,511			
15	2,554	2,553	2,501	2,389	2,457	2,463	2,470	2,501	2,558	2,607	2,555	2,461	2,515	2,511	2,506			
16	2,555	2,559	2,502	2,424	2,466	2,466	2,467	2,501	2,564	2,608	2,561	2,459	2,519	2,514	2,517			
17	2,530	2,561	2,508	2,462	2,470	2,466	2,465	2,519	2,566	2,613	2,563	2,469	2,520	2,518	2,517			
18	2,514	2,562	2,506	2,463	2,470	2,466	2,465	2,520	2,567	2,613	2,564	2,471	2,520	2,519	2,518			
19	2,513	2,562	2,505	2,463	2,470	2,466	2,466	2,520	2,566	2,612	2,552	2,469	2,520	2,519	2,517			
20	2,513	2,560	2,503	2,463	2,469	2,467	2,466	2,520	2,568	2,612	2,516	2,469	2,519	2,519	2,517			
21	2,514	2,560	2,506	2,463	2,470	2,471	2,478	2,520	2,568	2,612	2,516	2,470	2,519	2,518	2,517			
22	2,513	2,560	2,505	2,455	2,512	2,471	2,517	2,520	2,568	2,612	2,516	2,465	2,513	2,518	2,517			
23	2,514	2,562	2,508	2,461	2,517	2,471	2,518	2,520	2,568	2,612	2,511	2,467	2,516	2,513	2,516			
24	2,515	2,562	2,503	2,459	2,517	2,471	2,519	2,519	2,568	2,612	2,509	2,467	2,514	2,517	2,517			
TOTAL	61,177	61,224	60,643	59,150	59,194	59,457	59,416	60,328	61,125	61,329	61,167	59,456	60,077	60,356	60,074			
Cumulative Output Sold, kV	1,030,140	1,091,364	1,152,007	1,211,157	1,270,351	1,329,808	1,389,224	1,449,552	1,510,677	1,572,006	1,633,173	1,692,629	1,752,706	1,813,062	1,873,136			
Transformer and line efficienc	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.8%			
Hourly average	2,549	2,551	2,527	2,465	2,466	2,477	2,476	2,514	2,547	2,555	2,549	2,477	2,503	2,515	2,503			

NOVEMBER 2022							Day Light Savings Time										
	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
	11/1/2022	11/2/2022	11/3/2022	11/4/2022	11/5/2022	11/6/2022	11/7/2022	11/8/2022	11/9/2022	11/10/2022	11/11/2022	11/12/2022	11/13/2022	11/14/2022	11/15/2022	11/16/2022
LFG and Biogas Flow to the Engines (KSCF)	1,536	1,515	911	1,531	1,520	1,633	1,542	1,527	1,549	1,544	1,538	164	1,582	1,555	1,517	1,499
LFG and Biogas Flow to the Engines (MMBTU HHV)	853	830	503	839	842	904	854	835	838	855	838	91	830	820	820	837
LFG and Biogas Flow to the Flare (KSCF)	-	-	391	-	-	-	-	-	-	-	-	1,041	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)	-	-	216	-	-	-	-	-	-	-	-	573	-	-	-	-
LFG and Biogas Total Flow (KSCF)	1,536	1,515	1,302	1,531	1,520	1,633	1,542	1,527	1,549	1,544	1,538	1,205	1,582	1,555	1,517	1,499
LFG and Biogas Total Flow (MMBTU HHV)	853	830	719	839	842	904	854	835	838	855	838	664	830	820	820	837
Average Methane Content (%)	54.9	54.1	54.6	54.2	54.7	54.7	54.8	54.0	53.5	54.7	53.9	54.4	51.8	52.1	53.4	55.2
Engine 1 Hours	24	24	15	24	24	25	24	24	24	24	23	3	24	24	24	24
Engine 2 Hours	24	24	15	24	24	25	24	24	24	24	23	3	24	24	24	24
Engine 3 Hours	24	24	15	24	24	25	24	24	24	24	24	3	24	24	24	24
Engine 4 Hours	24	24	15	24	24	25	24	24	24	24	23	3	24	24	24	24
Generator 1 Power Output (kWhr)	15,596	15,596	9,428	15,596	15,596	16,244	15,596	15,160	15,600	15,592	15,100	1,684	15,600	15,336	14,936	15,325
Generator 2 Power Output (kWhr)	15,600	14,836	8,992	15,600	15,592	15,472	15,244	14,868	14,428	15,556	15,100	1,676	15,412	14,428	14,432	15,456
Generator 3 Power Output (kWhr)	15,568	15,560	9,396	15,568	15,568	16,220	15,568	14,848	15,568	15,572	15,072	1,672	15,572	15,564	15,572	15,576
Generator 4 Power Output (kWhr)	15,552	15,556	9,388	15,564	15,568	16,212	15,560	15,280	15,580	15,572	15,068	1,676	15,576	15,576	15,576	15,657
Gross Power Output (kWhr)	62,501	61,698	37,433	62,428	62,408	64,478	62,076	60,243	61,272	62,403	60,507	6,895	62,222	60,967	60,609	62,616
Net Power Output (kWhr)	60,466	59,656	36,048	60,338	60,376	62,186	60,044	58,182	59,134	60,344	58,494	6,492	60,118	58,726	58,412	60,528
Power Sold as metered by NStar, (kWhr)	60,324	59,521	36,002	60,221	60,256	62,057	59,928	58,075	59,017	60,224	58,431	6,476	60,038	58,611	58,310	60,435
Offgrid RECs (kWhr)	2,035	2,042	1,385	2,090	2,032	2,292	2,032	2,061	2,138	2,059	2,013	403	2,104	2,241	2,197	2,088
Calculated Performance Results																
Daily																
Power output (kW average when running)																
Generator 1	650	650	629	650	650	650	650	632	650	650	657	561	650	639	622	639
Generator 2	650	618	599	650	650	619	635	620	601	648	657	559	642	601	601	644
Generator 3	649	648	626	649	649	649	649	619	649	649	628	557	649	649	649	649
Generator 4	648	648	626	649	649	648	648	637	649	649	655	559	649	649	649	652
Power output (kW average over 24-hrs)																
Facility Gross	2,604	2,571	1,560	2,601	2,600	2,579	2,587	2,510	2,553	2,600	2,521	287	2,593	2,540	2,525	2,609
Facility Net	2,519	2,486	1,502	2,514	2,516	2,487	2,502	2,424	2,464	2,514	2,437	271	2,505	2,447	2,434	2,522
In-plant load	85	85	58	87	85	92	85	86	89	86	84	17	88	93	92	87
Daily availability factor																
Facility	100%	100%	63%	100%	100%	100%	100%	100%	100%	100%	97%	13%	100%	100%	100%	100%
Engine 1	100%	100%	63%	100%	100%	100%	100%	100%	100%	100%	96%	13%	100%	100%	100%	100%
Engine 2	100%	100%	63%	100%	100%	100%	100%	100%	100%	100%	96%	13%	100%	100%	100%	100%
Engine 3	100%	100%	63%	100%	100%	100%	100%	100%	100%	100%	100%	13%	100%	100%	100%	100%
Engine 4	100%	100%	63%	100%	100%	100%	100%	100%	100%	100%	96%	13%	100%	100%	100%	100%
Daily capacity factor																
Facility	79%	78%	47%	79%	79%	78%	78%	76%	77%	79%	76%	9%	79%	77%	77%	79%
Engine 1	79%	79%	76%	79%	79%	79%	79%	77%	79%	79%	80%	68%	79%	77%	75%	77%
Engine 2	79%	75%	73%	79%	79%	75%	77%	75%	73%	79%	80%	68%	78%	73%	73%	78%
Engine 3	79%	79%	76%	79%	79%	79%	79%	75%	79%	79%	76%	68%	79%	79%	79%	79%
Engine 4	79%	79%	76%	79%	79%	79%	79%	77%	79%	79%	79%	68%	79%	79%	79%	79%
Cumulative by engine																
Engine operating run hours in the month																
Max Cumulative Available, hours	24	48	72	96	120	145	169	193	217	241	265	289	313	337	361	385
Engine 1	24	48	63	87	111	136	160	184	208	232	255	258	282	306	330	354
Engine 2	24	48	63	87	111	136	160	184	208	232	255	258	282	306	330	354
Engine 3	24	48	63	87	111	136	160	184	208	232	256	259	283	307	331	355
Engine 4	24	48	63	87	111	136	160	184	208	232	255	258	282	306	330	354
Engine operating run hours total from 0 hours																
Engine 1 129,509	129,533	129,557	129,572	129,596	129,620	129,645	129,669	129,693	129,717	129,741	129,764	129,767	129,791	129,815	129,839	129,863
Engine 2 118,663	118,687	118,711	118,726	118,750	118,774	118,799	118,823	118,847	118,871	118,895	118,918	118,921	118,945	118,969	118,993	119,017
Engine 3 128,826	128,850	128,874	128,889	128,913	128,937	128,962	128,986	129,010	129,034	129,058	129,082	129,085	129,109	129,133	129,157	129,181
Engine 4 124,356	124,380	124,404	124,419	124,443	124,467	124,492	124,516	124,540	124,564	124,588	124,611	124,614	124,638	124,662	124,686	124,710
Cumulative availability, % November 1, 2022 @ 00:00 hours																
Engine 1	100%	100%	88%	91%	93%	94%	95%	95%	96%	96%	96%	89%	90%	91%	91%	92%
Engine 2	100%	100%	88%	91%	93%	94%	95%	95%	96%	96%	96%	89%	90%	91%	91%	92%
Engine 3	100%	100%	88%	91%	93%	94%	95%	95%	96%	96%	97%	90%	90%	91%	92%	92%
Engine 4	100%	100%	88%	91%	93%	94%	95%	95%	96%	96%	96%	89%	90%	91%	91%	92%
Engine cumulative gross output, kWhr																
Max cumulative capacity one engine	825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1	650	1,300	1,928	2,578	3,228	3,878	4,527	5,159	5,809	6,459	7,115	7,677	8,327	8,966	9,588	10,227
Engine 2	650	1,268	1,868	2,518	3,167	3,786	4,421	5,041	5,642	6,290	6,947	7,505	8,148	8,749	9,350	9,994
Engine 3	649	1,297	1,923	2,572	3,221	3,870	4,518	5,137	5,786	6,434	7,062	7,620	8,269	8,917	9,566	10,215
Engine 4	648	1,296	1,922	2,571	3,219	3,868	4,516	5,153	5,802	6,451	7,106	7,664	8,313	8,962	9,611	10,264
Cumulative capacity factor, %																
Engine 1	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	77%	77%
Engine 2	79%	77%	75%	76%	77%	76%	77%	76%	76%	76%	77%	76%	76%	76%	76%	76%
Engine 3	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	77%	77%	77%	77%	77%
Engine 4	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	77%	78%	78%	78%	78%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

NOVEMBER 2022

	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
	11/1/2022	11/2/2022	11/3/2022	11/4/2022	11/5/2022	11/6/2022	11/7/2022	11/8/2022	11/9/2022	11/10/2022	11/11/2022	11/12/2022	11/13/2022	11/14/2022	11/15/2022	11/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	580	676	772	868	964	1,060	1,156	1,252	1,348	1,444	1,540
Actual cumulative engine run hours	96	192	252	348	444	544	640	736	832	928	1,021	1,033	1,129	1,225	1,321	1,417
Cumulative Availability, %	100.0%	100.0%	87.5%	90.6%	92.5%	93.8%	94.7%	95.3%	95.9%	96.3%	96.3%	89.4%	90.2%	90.9%	91.5%	92.0%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	478,500	557,700	636,900	716,100	795,300	874,500	953,700	1,032,900	1,112,100	1,191,300	1,270,500
Actual cumulative gross output, kWhr	62,501	124,199	161,632	224,060	286,468	350,946	413,022	473,265	534,537	596,940	657,447	664,342	726,564	787,531	848,140	910,756
Cumulative Capacity Factor	78.9%	78.4%	68.0%	70.7%	72.3%	73.3%	74.1%	74.3%	74.6%	75.1%	75.2%	69.7%	70.3%	70.8%	71.2%	71.7%
Cumulative fuel input, MMBtu HHV	853	1,682	2,185	3,025	3,867	4,771	5,625	6,460	7,299	8,154	8,992	9,082	9,912	10,732	11,552	12,389
Cumulative gross output, kWhr	62,501	124,199	161,632	224,060	286,468	350,946	413,022	473,265	534,537	596,940	657,447	664,342	726,564	787,531	848,140	910,756
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	12,281	12,103	12,100	12,103	12,147	12,624	12,389	12,477	12,318	12,332	12,470	11,823	12,009	12,108	12,179	12,027
Daily heat rate, Btu/kWe gross HHV	13,643	13,445	13,441	13,444	13,493	14,023	13,762	13,861	13,683	13,700	13,853	13,133	13,341	13,450	13,529	13,360
Cumulative heat rate, Btu/kWe gross LHV	12,281	12,193	12,171	12,152	12,151	12,238	12,260	12,288	12,291	12,296	12,312	12,307	12,281	12,268	12,261	12,245
Cumulative heat rate, Btu/kWe gross HHV	13,643	13,544	13,521	13,499	13,498	13,595	13,620	13,650	13,654	13,659	13,677	13,671	13,643	13,628	13,621	13,603
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	29,276	29,372	29,468	29,564	29,660	29,760	29,856	29,952	30,048	30,144	30,240	30,336	30,432	30,528	30,624	30,720
Actual cumulative engine run hours	28,059	28,155	28,215	28,311	28,407	28,507	28,603	28,699	28,795	28,891	28,984	28,996	29,092	29,188	29,284	29,380
Cumulative Availability, %	95.8%	95.9%	95.7%	95.8%	95.8%	95.8%	95.8%	95.8%	95.8%	95.8%	95.8%	95.6%	95.6%	95.6%	95.6%	95.6%
Max cumulative gross output, kWhr	24,152,700	24,231,900	24,311,100	24,390,300	24,469,500	24,552,000	24,631,200	24,710,400	24,789,600	24,868,800	24,948,000	25,027,200	25,106,400	25,185,600	25,264,800	25,344,000
Actual cumulative gross output, kWhr	18,624,260	18,685,958	18,723,391	18,785,819	18,848,227	18,912,705	18,974,781	19,035,024	19,096,296	19,158,699	19,219,206	19,226,101	19,288,323	19,349,290	19,409,899	19,472,515
Cumulative Capacity Factor	77.1%	77.1%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	76.8%	76.8%	76.8%	76.8%	76.8%
Cumulative fuel input, MMBtu HHV	250,533	251,362	251,866	252,705	253,547	254,451	255,305	256,140	256,979	257,834	258,672	258,763	259,593	260,413	261,233	262,069
Cumulative gross output, kWhr	18,624,260	18,685,958	18,723,391	18,785,819	18,848,227	18,912,705	18,974,781	19,035,024	19,096,296	19,158,699	19,219,206	19,226,101	19,288,323	19,349,290	19,409,899	19,472,515
Cumulative heat rate, Btu/kWe gross LHV	12,109	12,109	12,109	12,109	12,109	12,111	12,112	12,113	12,114	12,115	12,116	12,116	12,115	12,115	12,116	12,115
Cumulative heat rate, Btu/kWe gross HHV	13,452	13,452	13,452	13,452	13,452	13,454	13,455	13,456	13,457	13,458	13,459	13,459	13,459	13,459	13,459	13,458
Service																
Engine 1			Eversource													
Engine 2			Planned							Operations meeting		Eversource Outage				Insurance meeting
Engine 3			Outage									107 line. Needs jumping.				
Engine 4												Ground fault				
Oil - oil and filter change			Flare on									Flare on				
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
Date	11/1/2022	11/2/2022	11/3/2022	11/4/2022	11/5/2022	11/6/2022	11/7/2022	11/8/2022	11/9/2022	11/10/2022	11/11/2022	11/12/2022	11/13/2022	11/14/2022	11/15/2022	11/16/2022
Hour																
1	2,517	2,517	2,463	2,518	2,511	2,512	2,466	2,516	2,460	2,477	2,518	-	2,511	2,457	2,457	2,463
2	2,517	2,516	2,463	2,518	2,512	2,513	2,466	2,507	2,463	2,512	2,519	-	2,510	2,457	2,460	2,465
3	2,517	2,516	2,462	2,517	2,511	2,512	2,467	2,510	2,460	2,513	2,518	-	2,511	2,457	2,460	2,465
4	2,517	2,516	2,463	2,513	2,511	2,512	2,467	2,484	2,461	2,513	2,518	-	2,510	2,456	2,458	2,513
5	2,517	2,516	2,465	2,515	2,511	2,513	2,468	2,463	2,461	2,513	2,519	-	2,510	2,454	2,417	2,514
6	2,518	2,516	2,461	2,512	2,511	2,513	2,467	2,458	2,461	2,510	2,518	-	2,509	2,454	2,409	2,514
7	2,518	2,515	2,463	2,509	2,511	2,514	2,467	2,457	2,458	2,510	2,515	-	2,508	2,453	2,406	2,512
8	2,517	2,512	2,458	2,511	2,510	2,514	2,500	2,458	2,458	2,510	2,514	-	2,511	2,422	2,407	2,512
9	2,507	2,475	1,863	2,502	2,507	2,514	2,508	2,460	2,447	2,499	2,505	-	2,510	2,395	2,401	2,542
10	2,501	2,457	-	2,500	2,506	2,466	2,503	2,459	2,451	2,499	2,508	-	2,510	2,394	2,392	2,548
11	2,501	2,458	-	2,504	2,506	2,463	2,501	1,950	2,453	2,500	2,511	-	2,509	2,386	2,401	2,549
12	2,511	2,452	-	2,504	2,502	2,460	2,499	1,818	2,444	2,504	2,510	-	2,511	2,394	2,401	2,556
13	2,511	2,451	-	2,504	2,506	2,460	2,500	2,071	2,450	2,503	2,509	-	2,511	2,413	2,410	2,559
14	2,505	2,453	-	2,503	2,509	2,463	2,502	2,511	2,457	2,507	2,509	-	2,509	2,451	2,409	2,559
15	2,501	2,457	-	2,499	2,513	2,466	2,507	2,512	2,460	2,502	2,500	-	2,510	2,457	2,407	2,554
16	2,511	2,464	-	2,505	2,513	2,466	2,511	2,512	2,464	2,516	2,503	-	2,511	2,448	2,401	2,524
17	2,518	2,469	-	2,511	2,513	2,466	2,516	2,516	2,470	2,517	2,516	-	2,509	2,461	2,412	2,519
18	2,518	2,469	-	2,511	2,514	2,466	2,517	2,508	2,460	2,517	2,517	-	2,507	2,453	2,436	2,505
19	2,517	2,467	1,847	2,511	2,514	2,466	2,516	2,510	2,463	2,517	2,517	-	2,507	2,461	2,461	2,511
20	2,517	2,468	2,521	2,511	2,513	2,466	2,516	2,508	2,463	2,517	2,518	-	2,506	2,458	2,460	2,511
21	2,517	2,468	2,519	2,510	2,513	2,466	2,516	2,503	2,463	2,517	2,518	-	2,471	2,457	2,460	2,510
22	2,517	2,467	2,517	2,511	2,513	2,466	2,516	2,461	2,463	2,517	2,518	1,453	2,459	2,457	2,460	2,509
23	2,517	2,459	2,519	2,511	2,513	2,466	2,516	2,461	2,464	2,517	2,517	2,511	2,458	2,457	2,462	2,510
24	2,517	2,463	2,518	2,511	2,513	2,467	2,516	2,462	2,463	2,517	616	2,512	2,460	2,459	2,463	2,511
						2,467										
TOTAL	60,324	59,521	36,002	60,221	60,256	62,057	59,928	58,075	59,017	60,224	58,431	6,476	60,038	58,611	58,310	60,435
Cumulative Output Sold, kWhr	60,324	119,845	155,847	216,068	276,324	338,381	398,309	456,384	515,401	575,625	634,056	640,532	700,570	759,181	817,491	877,926
Transformer and line efficiency	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.9%	99.8%	99.9%	99.8%	99.8%	99.8%
Hourly average	2,514	2,480	1,500	2,509	2,511	2,586	2,497	2,420	2,459	2,509	2,435	270	2,502	2,442	2,430	2,518

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

NOVEMBER 2022

NOVEMBER 2022																		
	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
	11/17/2022	11/18/2022	11/19/2022	11/20/2022	11/21/2022	11/22/2022	11/23/2022	11/24/2022	11/25/2022	11/26/2022	11/27/2022	11/28/2022	11/29/2022	11/30/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,519	1,512	1,533	1,529	1,504	1,504	1,535	520	897	1,473	1,529	1,542	1,150	1,222	41,629	249	41,380
LFG and Biogas Flow to the Engine	840	830	835	835	813	819	836	279	502	803	841	835	617	656	22,728	176	22,551
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	642	413	-	-	-	287	216	2,990	0.8%	99%
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	345	231	-	-	-	154	116	1,635		
LFG and Biogas Total Flow (KSCF	1,519	1,512	1,533	1,529	1,504	1,504	1,535	1,163	1,310	1,473	1,529	1,542	1,437	1,437	44,619		
LFG and Biogas Total Flow (MMBT	840	830	835	835	813	819	836	624	733	803	841	835	772	772	24,362		
Average Methane Content (%)	54.6	54.2	53.8	53.9	53.4	53.8	53.8	53.0	55.3	53.9	54.3	53.5	53.0	53.0	54.0		
Engine 1 Hours	24	24	24	24	24	24	24	9	14	-	24	24	19	19	631		
Engine 2 Hours	24	24	24	24	24	24	24	8	15	-	24	24	19	19	631		
Engine 3 Hours	24	24	24	24	24	24	24	8	15	-	24	24	19	19	632		
Engine 4 Hours	24	24	24	24	24	24	24	8	15	-	24	24	19	19	631		
Generator 1 Power Output (kWhr)	15,596	15,596	15,600	15,256	14,416	14,964	15,600	5,268	9,188	15,584	15,596	15,468	11,500	12,232	419,849		
Generator 2 Power Output (kWhr)	15,596	15,244	14,428	14,944	14,964	14,120	14,432	4,920	9,184	14,640	14,648	14,808	11,000	11,688	407,308		
Generator 3 Power Output (kWhr)	15,572	15,060	15,568	15,576	15,092	15,336	14,904	4,908	9,164	14,397	15,528	14,892	11,500	12,100	418,061		
Generator 4 Power Output (kWhr)	15,576	15,088	15,580	15,588	15,584	15,576	15,588	5,316	9,164	15,572	15,580	15,576	11,900	12,328	422,977		
Gross Power Output (kWhr)	62,427	61,067	61,242	61,420	60,122	60,063	60,611	20,445	36,779	60,710	61,461	60,849	45,900	48,401	1,672,253		
Net Power Output (kWhr)	60,268	58,878	58,948	59,110	57,924	57,956	58,414	19,642	35,522	58,613	59,380	58,770	44,231	46,732	1,613,932		
Power Sold as metered by NStar, (	60,174	58,781	58,861	59,021	57,814	57,860	58,332	19,617	35,462	58,498	59,301	58,668	44,092	46,658	1,611,065	CRMCB inplant	
Offgrid RECs (kWhr)	2,159	2,189	2,294	2,310	2,198	2,107	2,197	803	1,257	2,097	2,081	2,079	1,669	1,669	58,321	12,686	
Calculated Performance Results																22%	
Daily																of total in-plant	
Power output (kW average whe																power	
Generator 1	650	650	650	636	601	624	650	585	656	-	650	645	605	644			
Generator 2	650	635	601	623	624	588	601	615	612	-	610	617	579	615			
Generator 3	649	628	649	649	629	639	621	614	611	-	647	621	605	637			
Generator 4	649	629	649	650	649	649	650	665	611	-	649	649	626	649			
Power output (kW average ove																	
Facility Gross	2,601	2,544	2,552	2,559	2,505	2,503	2,525	852	1,532	2,530	2,561	2,535	1,913	2,017			
Facility Net	2,511	2,453	2,456	2,463	2,414	2,415	2,434	818	1,480	2,442	2,474	2,449	1,843	1,947			
In-plant load	90	91	96	96	92	88	92	33	52	87	87	87	70	70			
Daily availability factor																	
Facility	100%	100%	100%	100%	100%	100%	100%	34%	61%	0%	100%	100%	79%	79%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	38%	58%	0%	100%	100%	79%	79%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	33%	63%	0%	100%	100%	79%	79%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	33%	63%	0%	100%	100%	79%	79%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	33%	63%	0%	100%	100%	79%	79%			
Daily capacity factor																	
Facility	79%	77%	77%	78%	76%	76%	77%	26%	46%	77%	78%	77%	58%	61%			
Engine 1	79%	79%	79%	77%	73%	76%	79%	71%	80%	0%	79%	78%	73%	78%			
Engine 2	79%	77%	73%	75%	76%	71%	73%	75%	74%	0%	74%	75%	70%	75%			
Engine 3	79%	76%	79%	79%	76%	77%	75%	74%	74%	0%	78%	75%	73%	77%			
Engine 4	79%	76%	79%	79%	79%	79%	79%	81%	74%	0%	79%	79%	76%	79%			
Cumulative by engine																	
Engine operating run hours in th																	
Max Cumulative Available,	409	433	457	481	505	529	553	577	601	625	649	673	697	721			
Engine 1	378	402	426	450	474	498	522	531	545	545	569	593	612	631			
Engine 2	378	402	426	450	474	498	522	530	545	545	569	593	612	631			
Engine 3	379	403	427	451	475	499	523	531	546	546	570	594	613	632			
Engine 4	378	402	426	450	474	498	522	530	545	545	569	593	612	631			
Engine operating run hours tota																	
Engine 1	129,887	129,911	129,935	129,959	129,983	130,007	130,031	130,040	130,054	130,054	130,078	130,102	130,121	130,140			
Engine 2	119,041	119,065	119,089	119,113	119,137	119,161	119,185	119,193	119,208	119,208	119,232	119,256	119,275	119,294			
Engine 3	129,205	129,229	129,253	129,277	129,301	129,325	129,349	129,357	129,372	129,372	129,396	129,420	129,439	129,458			
Engine 4	124,734	124,758	124,782	124,806	124,830	124,854	124,878	124,886	124,901	124,901	124,925	124,949	124,968	124,987			
Cumulative availability, %																	
Engine 1	92%	93%	93%	94%	94%	94%	94%	92%	91%	87%	88%	88%	88%	88%			
Engine 2	92%	93%	93%	94%	94%	94%	94%	92%	91%	87%	88%	88%	88%	88%			
Engine 3	93%	93%	93%	94%	94%	94%	95%	92%	91%	87%	88%	88%	88%	88%			
Engine 4	92%	93%	93%	94%	94%	94%	94%	92%	91%	87%	88%	88%	88%	88%			
Engine cumulative gross output																	
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750			
Engine 1	10,876	11,526	12,176	12,812	13,413	14,036	14,686	15,271	15,928	15,928	16,577	17,222	17,827	18,471			
Engine 2	10,644	11,279	11,880	12,503	13,126	13,715	14,316	14,931	15,543	15,543	16,154	16,771	17,350	17,965			
Engine 3	10,864	11,491	12,140	12,789	13,418	14,057	14,678	15,291	15,902	15,902	16,549	17,170	17,775	18,412			
Engine 4	10,913	11,542	12,191	12,840	13,490	14,139	14,788	15,453	16,063	16,063	16,713	17,362	17,988	18,637			
Cumulative capacity factor, %																	
Engine 1	78%	78%	78%	78%	77%	77%	77%	77%	77%	74%	74%	75%	75%	75%			
Engine 2	76%	76%	76%	76%	76%	76%	75%	75%	75%	72%	73%	73%	73%	73%			
Engine 3	77%	77%	77%	78%	77%	77%	77%	77%	77%	74%	74%	74%	74%	74%			
Engine 4	78%	78%	78%	78%	78%	78%	78%	78%	78%	75%	75%	75%	75%	75%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

NOVEMBER 2022

	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
	11/17/2022	11/18/2022	11/19/2022	11/20/2022	11/21/2022	11/22/2022	11/23/2022	11/24/2022	11/25/2022	11/26/2022	11/27/2022	11/28/2022	11/29/2022	11/30/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																	
Max cumulative available engi	1,636	1,732	1,828	1,924	2,020	2,116	2,212	2,308	2,404	2,500	2,596	2,692	2,788	2,884			
Actual cumulative engine run h	1,513	1,609	1,705	1,801	1,897	1,993	2,089	2,122	2,181	2,181	2,277	2,373	2,449	2,525			
Cumulative Availability, %	92.5%	92.9%	93.3%	93.6%	93.9%	94.2%	94.4%	91.9%	90.7%	87.2%	87.7%	88.2%	87.8%	87.6%			
Max cumulative gross output, k	1,349,700	1,428,900	1,508,100	1,587,300	1,666,500	1,745,700	1,824,900	1,904,100	1,983,300	2,062,500	2,141,700	2,220,900	2,300,100	2,379,300			
Actual cumulative gross output,	973,183	1,034,250	1,095,492	1,156,912	1,217,034	1,277,097	1,337,708	1,358,153	1,394,932	1,455,642	1,517,103	1,577,952	1,623,852	1,672,253			
Cumulative Capacity Factor	72.1%	72.4%	72.6%	72.9%	73.0%	73.2%	73.3%	71.3%	70.3%	70.6%	70.8%	71.1%	70.6%	70.3%			
Cumulative fuel input, MMBtu h	13,228	14,058	14,893	15,728	16,541	17,360	18,195	18,475	18,976	19,779	20,620	21,455	22,072	22,728			
Cumulative gross output, kWhr	973,183	1,034,250	1,095,492	1,156,912	1,217,034	1,277,097	1,337,708	1,358,153	1,394,932	1,455,642	1,517,103	1,577,952	1,623,852	1,672,253			
Heat Rate																	
Daily heat rate, Btu/kWe gross	12,106	12,228	12,272	12,237	12,170	12,275	12,413	12,300	12,280	11,905	12,312	12,347	12,105	12,197			
Daily heat rate, Btu/kWe gross	13,448	13,583	13,633	13,593	13,519	13,636	13,790	13,664	13,641	13,225	13,677	13,716	13,447	13,549			
Cumulative heat rate, Btu/kWe	12,236	12,236	12,238	12,238	12,234	12,236	12,244	12,245	12,246	12,232	12,235	12,239	12,236	12,235			
Cumulative heat rate, Btu/kWe	13,593	13,592	13,595	13,595	13,591	13,593	13,602	13,603	13,604	13,588	13,592	13,596	13,592	13,591			
Cumulative by Facility starting C																	
Max cumulative available engi	30,816	30,912	31,008	31,104	31,200	31,296	31,392	31,488	31,584	31,680	31,776	31,872	31,968	32,064			
Actual cumulative engine run h	29,476	29,572	29,668	29,764	29,860	29,956	30,052	30,085	30,144	30,144	30,240	30,336	30,412	30,488			
Cumulative Availability, %	95.7%	95.7%	95.7%	95.7%	95.7%	95.7%	95.7%	95.5%	95.4%	95.2%	95.2%	95.2%	95.1%	95.1%			
Max cumulative gross output, k	25,423,200	25,502,400	25,581,600	25,660,800	25,740,000	25,819,200	25,898,400	25,977,600	26,056,800	26,136,000	26,215,200	26,294,400	26,373,600	26,452,800			
Actual cumulative gross output,	19,534,942	19,596,009	19,657,251	19,718,671	19,778,793	19,838,856	19,899,467	19,919,912	19,956,691	20,017,401	20,078,862	20,139,711	20,185,611	20,234,012			
Cumulative Capacity Factor	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.8%	76.7%	76.6%	76.6%	76.6%	76.6%	76.5%	76.5%			
Cumulative fuel input, MMBtu h	262,909	263,738	264,573	265,408	266,221	267,040	267,876	268,155	268,657	269,460	270,300	271,135	271,752	272,408			
Cumulative gross output, kWhr	19,534,942	19,596,009	19,657,251	19,718,671	19,778,793	19,838,856	19,899,467	19,919,912	19,956,691	20,017,401	20,078,862	20,139,711	20,185,611	20,234,012			
Cumulative heat rate, Btu/kWe	12,115	12,116	12,116	12,116	12,117	12,117	12,118	12,118	12,118	12,118	12,118	12,119	12,119	12,119			
Cumulative heat rate, Btu/kWe	13,458	13,459	13,459	13,460	13,460	13,460	13,461	13,462	13,462	13,461	13,462	13,463	13,463	13,463			
Service																	
Engine 1								Eversource Outage					Eversource Outage	Eversource Outage			
Engine 2								Recloser at CNBE Ground Fault Phase B				Planned install of Park Reclosers		Ground fault			
Engine 3													for third substation line	Drones and heavy service			
Engine 4																	
Oil - oil and filter change																	
Service - plugs, air filter, valve insp																	
Precipitation																	
NSTAR Power Reports	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday			
Date	11/17/2022	11/18/2022	11/19/2022	11/20/2022	11/21/2022	11/22/2022	11/23/2022	11/24/2022	11/25/2022	11/26/2022	11/27/2022	11/28/2022	11/29/2022	11/30/2022	TOTAL		
Hour																	
1	2,510	2,512	2,453	2,451	2,401	2,458	2,461	2,402	-	2,506	2,418	2,511	2,361	2,460			
2	2,511	2,512	2,452	2,452	2,401	2,457	2,460	2,402	-	2,506	2,462	2,510	2,360	2,458			
3	2,511	2,511	2,451	2,453	2,396	2,407	2,459	2,362	-	2,507	2,462	2,510	2,361	2,459			
4	2,511	2,511	2,451	2,453	2,353	2,361	2,460	2,403	-	2,506	2,462	2,511	2,360	2,460			
5	2,508	2,511	2,452	2,479	2,353	2,362	2,459	2,403	-	2,486	2,461	2,510	2,359	2,461			
6	2,511	2,479	2,451	2,502	2,349	2,359	2,460	2,402	-	2,457	2,461	2,510	2,359	2,457			
7	2,511	2,460	2,451	2,503	2,352	2,357	2,460	2,402	-	2,459	2,460	2,509	2,356	2,458			
8	2,509	2,459	2,452	2,503	2,350	2,394	2,458	2,400	-	2,459	2,463	2,496	2,357	2,455			
9	2,504	2,404	2,451	2,502	2,345	2,406	2,455	441	-	2,439	2,466	2,463	1,617	2,457			
10	2,498	1,991	2,452	2,499	2,357	2,415	2,459	-	342	2,411	2,465	2,464	-	2,412			
11	2,497	2,071	2,449	2,500	2,363	2,111	2,433	-	2,486	2,407	2,466	2,432	-	2,372			
12	2,497	2,493	2,448	2,497	2,363	1,972	2,414	-	2,514	2,403	2,465	2,417	-	2,362			
13	2,502	2,497	2,452	2,497	2,396	2,475	2,415	-	2,513	2,406	2,465	2,419	-	2,380			
14	2,499	2,509	2,454	2,504	2,466	2,513	2,415	-	2,513	2,405	2,464	2,417	-	2,450			
15	2,495	2,513	2,459	2,501	2,465	2,515	2,415	-	2,513	2,415	2,465	2,418	1,109	2,510			
16	2,499	2,507	2,456	2,456	2,453	2,509	2,410	-	2,513	2,417	2,464	2,420	2,515	2,502			
17	2,516	2,500	2,456	2,451	2,454	2,510	2,407	-	2,513	2,416	2,465	2,413	2,498	2,508			
18	2,513	2,503	2,454	2,404	2,458	2,501	2,405	-	2,510	2,410	2,464	2,414	2,507	2,511			
19	2,512	2,502	2,454	2,403	2,454	2,490	2,406	-	2,504	2,414	2,465	2,405	2,507	2,510			
20	2,512	2,501	2,454	2,403	2,455	2,458	2,405	-	2,510	2,413	2,491	2,411	2,506	16			
21	2,513	2,478	2,452	2,402	2,457	2,458	2,406	-	2,508	2,414	2,512	2,408	2,507	-			
22	2,512	2,452	2,453	2,402	2,459	2,457	2,403	-	2,509	2,413	2,512	2,380	2,506	-			
23	2,511	2,452	2,452	2,402	2,457	2,457	2,403	-	2,506	2,416	2,512	2,360	2,489	-			
24	2,512	2,453	2,452	2,402	2,457	2,458	2,404	-	2,508	2,413	2,511	2,360	2,458	-			
TOTAL	60,174	58,781	58,861	59,021	57,814	57,860	58,332	19,617	35,462	58,498	59,301	58,668	44,092	46,658			
Cumulative Output Sold, kV	938,100	996,881	1,055,742	1,114,763	1,172,577	1,230,437	1,288,769	1,308,386	1,343,848	1,402,346	1,461,647	1,520,315	1,564,407	1,611,065			
Transformer and line efficienc	99.8%	99.8%	99.9%	99.8%	99.8%	99.8%	99.9%	99.9%	99.8%	99.8%	99.9%	99.8%	99.7%	99.8%			
Hourly average	2,507	2,449	2,453	2,459	2,409	2,411	2,431	817	1,478	2,437	2,471	2,445	1,837	1,944			

DECEMBER 2022																	
		Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
		12/1/2022	12/2/2022	12/3/2022	12/4/2022	12/5/2022	12/6/2022	12/7/2022	12/8/2022	12/9/2022	12/10/2022	12/11/2022	12/12/2022	12/13/2022	12/14/2022	12/15/2022	12/16/2022
LFG and Biogas Flow to the Engines (KSCF)		-	192	753	1,541	1,499	1,522	1,497	1,528	1,504	1,511	1,481	1,490	1,512	1,496	1,490	1,505
LFG and Biogas Flow to the Engines (MMBTU HHV)		-	107	412	845	787	825	825	833	813	813	804	808	821	813	804	840
LFG and Biogas Flow to the Flare (KSCF)		986	879	505	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and BiogasFlow to the Flare (MMBTU HHV)		549	490	276	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG and Biogas Total Flow (KSCF)		986	1,070	1,258	1,541	1,499	1,522	1,497	1,528	1,504	1,511	1,481	1,490	1,512	1,496	1,490	1,505
LFG and Biogas Total Flow (MMBTU HHV)		549	597	688	845	787	825	825	833	813	813	804	808	821	813	804	840
Average Methane Content (%)		55.0	55.1	54.1	54.2	51.9	53.6	54.5	53.9	53.4	53.2	53.6	53.6	53.7	53.7	53.3	55.2
Engine 1 Hours		-	4	12	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 2 Hours		-	4	12	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 3 Hours		-	-	12	24	24	24	24	24	24	24	24	24	24	24	24	24
Engine 4 Hours		-	4	12	24	24	24	24	24	24	24	24	24	24	24	24	24
Generator 1 Power Output (kWhr)		-	1,968	7,568	15,604	15,584	15,348	15,596	15,596	15,604	15,364	15,604	15,604	15,604	15,604	15,560	15,604
Generator 2 Power Output (kWhr)		-	1,960	7,560	15,600	14,780	14,392	15,052	15,360	14,432	14,432	14,424	14,672	14,428	14,428	14,724	15,232
Generator 3 Power Output (kWhr)		-	1,956	7,548	15,572	14,888	14,348	15,504	15,568	15,364	14,392	14,876	15,084	14,852	15,280	13,948	15,572
Generator 4 Power Output (kWhr)		-	1,960	7,548	15,576	15,556	15,532	15,564	15,564	15,576	15,580	15,576	15,576	15,568	15,568	15,564	15,560
Gross Power Output (kWhr)		-	7,881	30,268	62,413	60,926	59,732	61,831	62,191	61,065	59,844	60,579	61,015	60,542	60,961	59,880	62,044
Net Power Output (kWhr)		-	7,594	29,266	60,316	58,830	57,728	59,850	60,144	58,962	57,740	58,462	58,818	58,370	58,814	57,806	59,992
Power Sold as metered by NStar, (kWhr)		-	7,583	29,224	60,238	58,816	57,765	59,744	60,033	58,864	57,644	58,364	58,693	58,239	58,680	57,670	59,856
Offgrid RECs (kWhr)		-	287	1,002	2,097	2,096	2,004	1,981	2,047	2,103	2,104	2,117	2,197	2,172	2,148	2,074	2,052
Calculated Performance Results																	
Daily																	
Power output (kW average when running)																	
Generator 1		-	492	631	650	649	640	650	650	650	640	650	650	650	650	648	650
Generator 2		-	490	630	650	616	600	627	640	601	601	601	611	601	601	614	635
Generator 3		-	-	629	649	620	598	646	649	640	600	620	629	619	637	581	649
Generator 4		-	490	629	649	648	647	649	649	649	649	649	649	649	649	649	648
Power output (kW average over 24-hrs)																	
Facility Gross		-	328	1,261	2,601	2,539	2,489	2,576	2,591	2,544	2,494	2,524	2,542	2,523	2,540	2,495	2,585
Facility Net		-	316	1,219	2,513	2,451	2,405	2,494	2,506	2,457	2,406	2,436	2,451	2,432	2,451	2,409	2,500
In-plant load		-	12	42	87	87	84	83	85	88	88	88	92	91	89	86	86
Daily availability factor																	
Facility		0%	13%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 1		0%	17%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 2		0%	17%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 3		0%	0%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Engine 4		0%	17%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Daily capacity factor																	
Facility		0%	10%	38%	79%	77%	75%	78%	79%	77%	76%	76%	77%	76%	77%	76%	78%
Engine 1		0%	60%	76%	79%	79%	78%	79%	79%	79%	78%	79%	79%	79%	79%	79%	79%
Engine 2		0%	59%	76%	79%	75%	73%	76%	78%	73%	73%	73%	74%	73%	73%	74%	77%
Engine 3		0%	0%	76%	79%	75%	72%	78%	79%	78%	73%	75%	76%	75%	77%	70%	79%
Engine 4		0%	59%	76%	79%	79%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
Cumulative by engine																	
Engine operating run hours in the month																	
Max Cumulative Available, hours		24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384
Engine 1		0	4	16	40	64	88	112	136	160	184	208	232	256	280	304	328
Engine 2		0	4	16	40	64	88	112	136	160	184	208	232	256	280	304	328
Engine 3		0	0	12	36	60	84	108	132	156	180	204	228	252	276	300	324
Engine 4		0	4	16	40	64	88	112	136	160	184	208	232	256	280	304	328
Engine operating run hours total from 0 hours																	
Engine 1	129,509	129,509	129,513	129,525	129,549	129,573	129,597	129,621	129,645	129,669	129,693	129,717	129,741	129,765	129,789	129,813	129,837
Engine 2	118,663	118,663	118,667	118,679	118,703	118,727	118,751	118,775	118,799	118,823	118,847	118,871	118,895	118,919	118,943	118,967	118,991
Engine 3	128,826	128,826	128,826	128,838	128,862	128,886	128,910	128,934	128,958	128,982	129,006	129,030	129,054	129,078	129,102	129,126	129,150
Engine 4	124,356	124,356	124,360	124,372	124,396	124,420	124,444	124,468	124,492	124,516	124,540	124,564	124,588	124,612	124,636	124,660	124,684
Cumulative availability, %	December 1, 2022 @ 00:00 hours																
Engine 1		0%	8%	22%	42%	53%	61%	67%	71%	74%	77%	79%	81%	82%	83%	84%	85%
Engine 2		0%	8%	22%	42%	53%	61%	67%	71%	74%	77%	79%	81%	82%	83%	84%	85%
Engine 3		0%	0%	17%	38%	50%	58%	64%	69%	72%	75%	77%	79%	81%	82%	83%	84%
Engine 4		0%	8%	22%	42%	53%	61%	67%	71%	74%	77%	79%	81%	82%	83%	84%	85%
Engine cumulative gross output, kWhr																	
Max cumulative capacity one engine		825	1,650	2,475	3,300	4,125	4,950	5,775	6,600	7,425	8,250	9,075	9,900	10,725	11,550	12,375	13,200
Engine 1		-	492	1,123	1,773	2,422	3,062	3,712	4,361	5,012	5,652	6,302	6,952	7,602	8,252	8,901	9,551
Engine 2		-	490	1,120	1,770	2,386	2,986	3,613	4,253	4,854	5,455	6,056	6,668	7,269	7,870	8,484	9,118
Engine 3		-	-	629	1,278	1,898	2,496	3,142	3,791	4,431	5,031	5,650	6,279	6,898	7,534	8,116	8,764
Engine 4		-	490	1,119	1,768	2,416	3,063	3,712	4,360	5,009	5,659	6,308	6,957	7,605	8,254	8,902	9,551
Cumulative capacity factor, %																	
Engine 1		0%	30%	45%	54%	59%	62%	64%	66%	67%	69%	69%	70%	71%	71%	72%	72%
Engine 2		0%	30%	45%	54%	58%	60%	63%	64%	65%	66%	67%	67%	68%	68%	69%	69%
Engine 3		0%	0%	25%	39%	46%	50%	54%	57%	60%	61%	62%	63%	64%	65%	66%	66%
Engine 4		0%	30%	45%	54%	59%	62%	64%	66%	67%	69%	70%	70%	71%	71%	72%	72%

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

DECEMBER 2022

	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	12/1/2022	12/2/2022	12/3/2022	12/4/2022	12/5/2022	12/6/2022	12/7/2022	12/8/2022	12/9/2022	12/10/2022	12/11/2022	12/12/2022	12/13/2022	12/14/2022	12/15/2022	12/16/2022
Cumulative by Facility in month																
Max cumulative available engine run hours	96	192	288	384	480	576	672	768	864	960	1,056	1,152	1,248	1,344	1,440	1,536
Actual cumulative engine run hours	-	12	60	156	252	348	444	540	636	732	828	924	1,020	1,116	1,212	1,308
Cumulative Availability, %	0.0%	6.3%	20.8%	40.6%	52.5%	60.4%	66.1%	70.3%	73.6%	76.3%	78.4%	80.2%	81.7%	83.0%	84.2%	85.2%
Max cumulative gross output, kWhr	79,200	158,400	237,600	316,800	396,000	478,500	557,700	636,900	716,100	795,300	874,500	953,700	1,032,900	1,112,100	1,191,300	1,270,500
Actual cumulative gross output, kWhr	-	7,881	38,149	100,562	161,488	221,220	283,051	345,242	406,307	466,151	526,730	587,745	648,287	709,248	769,128	831,172
Cumulative Capacity Factor	0.0%	5.0%	16.1%	31.7%	40.8%	46.2%	50.8%	54.2%	56.7%	58.6%	60.2%	61.6%	62.8%	63.8%	64.6%	65.4%
Cumulative fuel input, MMBtu HHV	-	107	519	1,364	2,151	2,976	3,801	4,634	5,447	6,260	7,064	7,871	8,693	9,505	10,309	11,149
Cumulative gross output, kWhr	-	7,881	38,149	100,562	161,488	221,220	283,051	345,242	406,307	466,151	526,730	587,745	648,287	709,248	769,128	831,172
Heat Rate																
Daily heat rate, Btu/kWe gross LHV	-	12,200	12,250	12,192	11,630	12,436	12,014	12,057	11,983	12,228	11,940	11,915	12,212	12,001	12,082	12,190
Daily heat rate, Btu/kWe gross HHV	-	13,553	13,608	13,544	12,919	13,815	13,346	13,394	13,312	13,584	13,264	13,236	13,566	13,331	13,422	13,542
Cumulative heat rate, Btu/kWe gross LHV	-	12,200	12,240	12,210	11,991	12,111	12,090	12,084	12,069	12,089	12,072	12,056	12,070	12,065	12,066	12,075
Cumulative heat rate, Btu/kWe gross HHV	-	13,553	13,597	13,564	13,320	13,454	13,430	13,424	13,407	13,430	13,411	13,393	13,409	13,402	13,404	13,414
Cumulative by Facility starting Calendar Year																
Max cumulative available engine run hours	32,160	32,256	32,352	32,448	32,544	32,640	32,736	32,832	32,928	33,024	33,120	33,216	33,312	33,408	33,504	33,600
Actual cumulative engine run hours	30,488	30,500	30,548	30,644	30,740	30,836	30,932	31,028	31,124	31,220	31,316	31,412	31,508	31,604	31,700	31,796
Cumulative Availability, %	94.8%	94.6%	94.4%	94.4%	94.5%	94.5%	94.5%	94.5%	94.5%	94.5%	94.6%	94.6%	94.6%	94.6%	94.6%	94.6%
Max cumulative gross output, kWhr	26,532,000	26,611,200	26,690,400	26,769,600	26,848,800	26,931,300	27,010,500	27,089,700	27,168,900	27,248,100	27,327,300	27,406,500	27,485,700	27,564,900	27,644,100	27,723,300
Actual cumulative gross output, kWhr	20,234,012	20,241,893	20,272,161	20,334,574	20,395,500	20,455,232	20,517,063	20,579,254	20,640,319	20,700,163	20,760,742	20,821,757	20,882,299	20,943,260	21,003,140	21,065,184
Cumulative Capacity Factor	76.3%	76.1%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%
Cumulative fuel input, MMBtu HHV	272,408	272,515	272,926	273,772	274,559	275,384	276,209	277,042	277,855	278,668	279,472	280,279	281,100	281,913	282,717	283,557
Cumulative gross output, kWhr	20,234,012	20,241,893	20,272,161	20,334,574	20,395,500	20,455,232	20,517,063	20,579,254	20,640,319	20,700,163	20,760,742	20,821,757	20,882,299	20,943,260	21,003,140	21,065,184
Cumulative heat rate, Btu/kWe gross LHV	12,119	12,119	12,119	12,120	12,118	12,119	12,119	12,119	12,118	12,119	12,118	12,117	12,118	12,117	12,117	12,117
Cumulative heat rate, Btu/kWe gross HHV	13,463	13,463	13,463	13,463	13,462	13,463	13,462	13,462	13,462	13,462	13,462	13,461	13,461	13,461	13,461	13,461
Service																
Engine 1	Eversource		Eversource													
Engine 2	Utility Outage		Outage													
Engine 3	Repairing lines		Relay to Reclose?													
Engine 4	Burnt isolators and other															
Oil - oil and filter change	Trouble Relay to Reclose															
Service - plugs, air filter, valve inspection and adjustment																
Precipitation																
NSTAR Power Reports	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Date	12/1/2022	12/2/2022	12/3/2022	12/4/2022	12/5/2022	12/6/2022	12/7/2022	12/8/2022	12/9/2022	12/10/2022	12/11/2022	12/12/2022	12/13/2022	12/14/2022	12/15/2022	12/16/2022
Hour																
1	-	-	2,510	2,508	2,509	2,413	2,417	2,513	2,459	2,411	2,412	2,460	2,403	2,455	2,407	2,456
2	-	-	2,509	2,513	2,507	2,415	2,456	2,513	2,458	2,410	2,409	2,475	2,405	2,456	2,405	2,460
3	-	-	2,509	2,510	2,507	2,415	2,463	2,513	2,459	2,412	2,410	2,507	2,405	2,457	2,405	2,460
4	-	-	2,509	2,510	2,509	2,413	2,458	2,513	2,459	2,410	2,411	2,505	2,404	2,457	2,404	2,459
5	-	-	2,511	2,510	2,509	2,416	2,465	2,513	2,457	2,412	2,412	2,506	2,405	2,457	2,407	2,460
6	-	-	2,513	2,508	2,507	2,414	2,466	2,510	2,459	2,410	2,410	2,507	2,405	2,456	2,406	2,461
7	-	-	2,512	2,508	2,503	2,416	2,466	2,505	2,459	2,410	2,410	2,485	2,405	2,455	2,407	2,461
8	-	-	2,513	2,509	2,486	2,406	2,465	2,509	2,457	2,412	2,411	2,455	2,402	2,452	2,406	2,484
9	-	-	2,512	2,510	2,457	2,414	2,468	2,515	2,464	2,412	2,412	2,453	2,400	2,448	2,396	2,507
10	-	-	1,980	2,509	2,463	2,418	2,471	2,516	2,467	2,414	2,412	2,408	2,403	2,455	2,151	2,509
11	-	-	-	2,511	2,445	2,416	2,471	2,516	2,466	2,414	2,412	2,410	2,411	2,456	1,884	2,509
12	-	-	-	2,511	2,422	2,416	2,510	2,516	2,468	2,412	2,413	2,412	2,410	2,463	2,297	2,513
13	-	-	-	2,512	2,423	2,416	2,518	2,515	2,466	2,415	2,415	2,412	2,413	2,466	2,514	2,511
14	-	-	-	2,514	2,423	2,419	2,518	2,516	2,468	2,414	2,414	2,437	2,413	2,465	2,515	2,514
15	-	-	-	2,516	2,423	2,421	2,518	2,515	2,468	2,413	2,459	2,453	2,442	2,466	2,508	2,506
16	-	-	-	2,510	2,414	2,420	2,511	2,510	2,469	2,396	2,462	2,455	2,462	2,461	2,489	2,507
17	-	-	-	2,512	2,418	2,412	2,513	2,514	2,456	2,363	2,461	2,455	2,459	2,459	2,458	2,509
18	-	-	-	2,509	2,411	2,391	2,512	2,506	2,460	2,364	2,460	2,453	2,457	2,457	2,460	2,509
19	-	-	-	2,508	2,412	2,368	2,513	2,505	2,458	2,362	2,460	2,422	2,457	2,409	2,458	2,510
20	-	-	-	2,507	2,411	2,369	2,513	2,467	2,448	2,362	2,460	2,406	2,455	2,408	2,459	2,510
21	-	84	-	2,509	2,415	2,370	2,513	2,458	2,410	2,383	2,460	2,404	2,457	2,406	2,459	2,511
22	-	2,475	-	2,506	2,413	2,373	2,513	2,458	2,409	2,412	2,461	2,404	2,454	2,406	2,457	2,510
23	-	2,512	2,134	2,509	2,415	2,417	2,513	2,459	2,409	2,411	2,459	2,405	2,457	2,405	2,459	2,510
24	-	2,512	2,512	2,509	2,414	2,417	2,513	2,458	2,411	2,410	2,459	2,404	2,455	2,405	2,459	2,510
TOTAL	-	7,583	29,224	60,238	58,816	57,765	59,744	60,033	58,864	57,644	58,364	58,693	58,239	58,680	57,670	59,856
Cumulative Output Sold, kWhr	-	7,583	36,807	97,045	155,861	213,626	273,370	333,403	392,267	449,911	508,275	566,968	625,207	683,887	741,557	801,413
Transformer and line efficiency	#DIV/0!	99.9%	99.9%	99.9%	100.0%	100.1%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Hourly average	-	316	1,218	2,510	2,451	2,407	2,489	2,501	2,453	2,402	2,432	2,446	2,427	2,445	2,403	2,494

DECEMBER 2022																		
	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
	12/17/2022	12/18/2022	12/19/2022	12/20/2022	12/21/2022	12/22/2022	12/23/2022	12/24/2022	12/25/2022	12/26/2022	12/27/2022	12/28/2022	12/29/2022	12/30/2022	12/31/2022	TOTAL	Biogas	LFG
LFG and Biogas Flow to the Engine	1,505	1,543	1,526	1,531	1,441	1,466	1,498	1,470	1,453	1,487	1,507	1,495	1,488	1,488	1,448	42,865	218	42,647
LFG and Biogas Flow to the Engine	829	821	801	806	779	811	855	811	795	795	792	792	808	825	812	23,281	154	23,127
LFG and Biogas Flow to the Flare (	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,370		
LFG and BiogasFlow to the Flare (M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,315		
LFG and Biogas Total Flow (KSCF	1,505	1,543	1,526	1,531	1,441	1,466	1,498	1,470	1,453	1,487	1,507	1,495	1,488	1,488	1,448	45,235		
LFG and Biogas Total Flow (MMBT	829	821	801	806	779	811	855	811	795	795	792	792	808	825	812	24,596		
Average Methane Content (%)	54.5	52.6	51.9	52.0	53.4	54.7	56.4	54.5	54.1	52.8	51.9	52.4	53.6	54.8	55.4	53.7		
Engine 1 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	688		
Engine 2 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	688		
Engine 3 Hours	24	24	24	24	24	24	24	24	24	24	24	19	24	24	24	679		
Engine 4 Hours	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	688		
Generator 1 Power Output (kWhr)	15,604	15,600	14,900	14,424	14,416	14,428	15,152	14,952	13,900	13,744	14,424	15,536	13,908	14,424	14,428	431,652		
Generator 2 Power Output (kWhr)	15,600	14,512	14,428	14,424	13,968	14,556	15,476	14,432	14,428	14,160	14,428	15,536	14,424	14,424	14,432	420,704		
Generator 3 Power Output (kWhr)	15,572	15,252	14,384	14,384	14,536	14,648	15,568	14,388	14,380	14,380	14,380	10,992	14,580	14,380	14,384	420,960		
Generator 4 Power Output (kWhr)	15,564	15,564	15,568	15,184	15,096	15,564	16,288	15,656	14,644	14,404	13,552	15,156	14,876	14,392	15,360	438,736		
Gross Power Output (kWhr)	62,401	60,996	59,368	58,497	56,802	59,266	62,545	59,479	57,430	56,776	56,869	57,315	57,860	57,698	58,692	1,713,166		
Net Power Output (kWhr)	60,308	58,816	57,202	56,350	54,778	57,202	60,532	57,308	55,278	54,614	54,728	55,376	55,972	55,800	56,832	1,653,788		
Power Sold as metered by NStar, (	60,176	58,685	57,057	56,215	55,916	57,053	60,401	57,167	55,131	54,463	54,591	55,231	55,833	55,647	56,641	1,651,620	CRMCB inplant	
Offgrid RECs (kWhr)	2,093	2,180	2,166	2,145	2,024	2,064	2,013	2,171	2,152	2,162	2,141	1,939	1,888	1,898	1,860	59,377	16,599	
Calculated Performance Results																	28%	
Daily																	of total in-plant	
Power output (kW average whe																	power	
Generator 1	650	650	621	601	601	601	631	623	579	573	601	647	580	601	601			
Generator 2	650	605	601	601	582	607	645	601	601	590	601	647	601	601	601			
Generator 3	649	636	599	599	606	610	649	600	599	599	599	579	608	599	599			
Generator 4	649	649	649	633	629	649	679	652	610	600	565	632	620	600	640			
Power output (kW average ove																		
Facility Gross	2,600	2,542	2,474	2,437	2,367	2,469	2,606	2,478	2,393	2,366	2,370	2,388	2,411	2,404	2,446			
Facility Net	2,513	2,451	2,383	2,348	2,282	2,383	2,522	2,388	2,303	2,276	2,280	2,307	2,332	2,325	2,368			
In-plant load	87	91	90	89	84	86	84	90	90	90	89	81	79	79	78			
Daily availability factor																		
Facility	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	95%	100%	100%	100%			
Engine 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Engine 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	79%	100%	100%	100%			
Engine 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Daily capacity factor																		
Facility	79%	77%	75%	74%	72%	75%	79%	75%	73%	72%	72%	72%	73%	73%	74%			
Engine 1	79%	79%	75%	73%	73%	73%	77%	76%	70%	69%	73%	78%	70%	73%	73%			
Engine 2	79%	73%	73%	73%	71%	74%	78%	73%	73%	72%	73%	78%	73%	73%	73%			
Engine 3	79%	77%	73%	73%	73%	74%	79%	73%	73%	73%	73%	70%	74%	73%	73%			
Engine 4	79%	79%	79%	77%	76%	79%	82%	79%	74%	73%	68%	77%	75%	73%	78%			
Cumulative by engine																		
Engine operating run hours in th																		
Max Cumulative Available,	408	432	456	480	504	528	552	576	600	624	648	672	696	720	744			
Engine 1	352	376	400	424	448	472	496	520	544	568	592	616	640	664	688			
Engine 2	352	376	400	424	448	472	496	520	544	568	592	616	640	664	688			
Engine 3	348	372	396	420	444	468	492	516	540	564	588	607	631	655	679			
Engine 4	352	376	400	424	448	472	496	520	544	568	592	616	640	664	688			
Engine operating run hours tota																		
Engine 1	129,861	129,885	129,909	129,933	129,957	129,981	130,005	130,029	130,053	130,077	130,101	130,125	130,149	130,173	130,197			
Engine 2	119,015	119,039	119,063	119,087	119,111	119,135	119,159	119,183	119,207	119,231	119,255	119,279	119,303	119,327	119,351			
Engine 3	129,174	129,198	129,222	129,246	129,270	129,294	129,318	129,342	129,366	129,390	129,414	129,433	129,457	129,481	129,505			
Engine 4	124,708	124,732	124,756	124,780	124,804	124,828	124,852	124,876	124,900	124,924	124,948	124,972	124,996	125,020	125,044			
Cumulative availability, %																		
Engine 1	86%	87%	88%	88%	89%	89%	90%	90%	91%	91%	91%	92%	92%	92%	92%			
Engine 2	86%	87%	88%	88%	89%	89%	90%	90%	91%	91%	91%	92%	92%	92%	92%			
Engine 3	85%	86%	87%	88%	88%	89%	89%	90%	90%	90%	91%	90%	91%	91%	91%			
Engine 4	86%	87%	88%	88%	89%	89%	90%	90%	91%	91%	91%	92%	92%	92%	92%			
Engine cumulative gross output																		
Max cumulative capacity or	14,025	14,850	15,675	16,500	17,325	18,150	18,975	19,800	20,625	21,450	22,275	23,100	23,925	24,750	25,575			
Engine 1	10,201	10,851	11,472	12,073	12,674	13,275	13,906	14,529	15,108	15,681	16,282	16,929	17,509	18,110	18,711			
Engine 2	9,768	10,373	10,974	11,575	12,157	12,764	13,408	14,010	14,611	15,201	15,802	16,449	17,050	17,651	18,253			
Engine 3	9,413	10,049	10,648	11,247	11,853	12,463	13,112	13,712	14,311	14,910	15,509	16,088	16,695	17,294	17,894			
Engine 4	10,199	10,848	11,496	12,129	12,758	13,407	14,085	14,738	15,348	15,948	16,513	17,144	17,764	18,364	19,004			
Cumulative capacity factor, %																		
Engine 1	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%			
Engine 2	70%	70%	70%	70%	70%	70%	71%	71%	71%	71%	71%	71%	71%	71%	71%			
Engine 3	67%	68%	68%	68%	68%	69%	69%	69%	69%	70%	70%	70%	70%	70%	70%			
Engine 4	73%	73%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%			

CommonWealth New Bedford Energy LLC
New Bedford/Dartmouth, Massachusetts

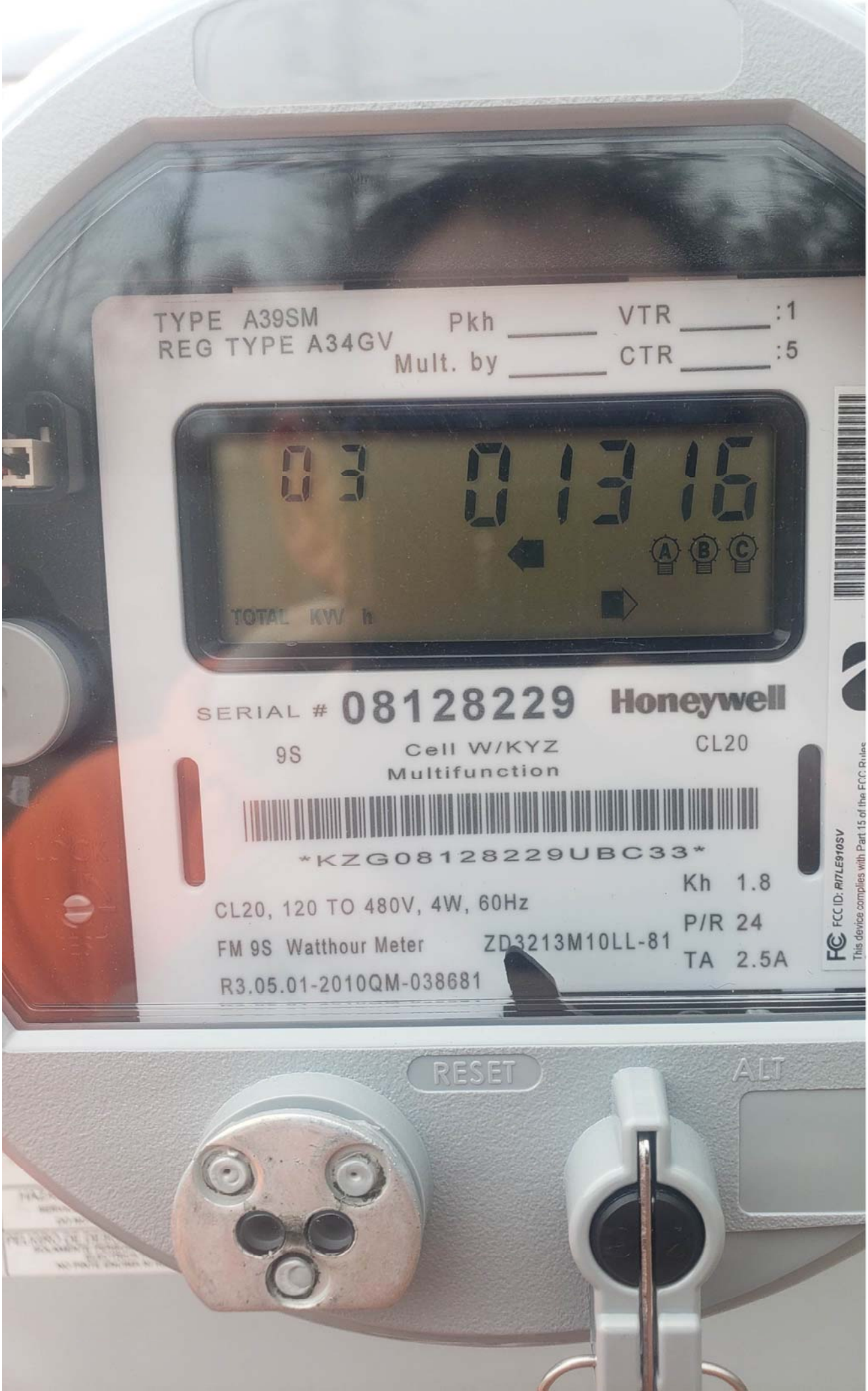
DECEMBER 2022

	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
	12/17/2022	12/18/2022	12/19/2022	12/20/2022	12/21/2022	12/22/2022	12/23/2022	12/24/2022	12/25/2022	12/26/2022	12/27/2022	12/28/2022	12/29/2022	12/30/2022	12/31/2022	TOTAL	Biogas	LFG
Cumulative by Facility in month																		
Max cumulative available engi	1,632	1,728	1,824	1,920	2,016	2,112	2,208	2,304	2,400	2,496	2,592	2,688	2,784	2,880	2,976			
Actual cumulative engine run h	1,404	1,500	1,596	1,692	1,788	1,884	1,980	2,076	2,172	2,268	2,364	2,455	2,551	2,647	2,743			
Cumulative Availability, %	86.0%	86.8%	87.5%	88.1%	88.7%	89.2%	89.7%	90.1%	90.5%	90.9%	91.2%	91.3%	91.6%	91.9%	92.2%			
Max cumulative gross output, k	1,349,700	1,428,900	1,508,100	1,587,300	1,666,500	1,745,700	1,824,900	1,904,100	1,983,300	2,062,500	2,141,700	2,220,900	2,300,100	2,379,300	2,458,500			
Actual cumulative gross output,	893,573	954,569	1,013,937	1,072,434	1,129,236	1,188,502	1,251,047	1,310,526	1,367,956	1,424,732	1,481,601	1,538,916	1,596,776	1,654,474	1,713,166			
Cumulative Capacity Factor	66.2%	66.8%	67.2%	67.6%	67.8%	68.1%	68.6%	68.8%	69.0%	69.1%	69.2%	69.3%	69.4%	69.5%	69.7%			
Cumulative fuel input, MMBtu h	11,979	12,800	13,601	14,407	15,186	15,997	16,852	17,663	18,458	19,253	20,045	20,837	21,644	22,470	23,281			
Cumulative gross output, kWhr	893,573	954,569	1,013,937	1,072,434	1,129,236	1,188,502	1,251,047	1,310,526	1,367,956	1,424,732	1,481,601	1,538,916	1,596,776	1,654,474	1,713,166			
Heat Rate																		
Daily heat rate, Btu/kWe gross	11,965	12,121	12,150	12,396	12,350	12,320	12,304	12,274	12,458	12,602	12,537	12,439	12,568	12,873	12,453			
Daily heat rate, Btu/kWe gross	13,291	13,465	13,497	13,770	13,720	13,686	13,669	13,635	13,839	13,999	13,927	13,818	13,961	14,300	13,833			
Cumulative heat rate, Btu/kWe	12,068	12,071	12,076	12,093	12,106	12,117	12,126	12,133	12,146	12,165	12,179	12,189	12,202	12,226	12,233			
Cumulative heat rate, Btu/kWe	13,405	13,409	13,414	13,434	13,448	13,460	13,470	13,478	13,493	13,513	13,529	13,540	13,555	13,581	13,590			
Cumulative by Facility starting C																		
Max cumulative available engi	33,696	33,792	33,888	33,984	34,080	34,176	34,272	34,368	34,464	34,560	34,656	34,752	34,848	34,944	35,040			
Actual cumulative engine run h	31,892	31,988	32,084	32,180	32,276	32,372	32,468	32,564	32,660	32,756	32,852	32,943	33,039	33,135	33,231			
Cumulative Availability, %	94.6%	94.7%	94.7%	94.7%	94.7%	94.7%	94.7%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%			
Max cumulative gross output, k	27,802,500	27,881,700	27,960,900	28,040,100	28,119,300	28,198,500	28,277,700	28,356,900	28,436,100	28,515,300	28,594,500	28,673,700	28,752,900	28,832,100	28,911,300			
Actual cumulative gross output,	21,127,585	21,188,581	21,247,949	21,306,446	21,363,248	21,422,514	21,485,059	21,544,538	21,601,968	21,658,744	21,715,613	21,772,928	21,830,788	21,888,486	21,947,178			
Cumulative Capacity Factor	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	75.9%	75.9%	75.9%	75.9%	75.9%			
Cumulative fuel input, MMBtu h	284,386	285,208	286,009	286,815	287,594	288,405	289,260	290,071	290,866	291,660	292,452	293,244	294,052	294,877	295,689			
Cumulative gross output, kWhr	21,127,585	21,188,581	21,247,949	21,306,446	21,363,248	21,422,514	21,485,059	21,544,538	21,601,968	21,658,744	21,715,613	21,772,928	21,830,788	21,888,486	21,947,178	2,505		
Cumulative heat rate, Btu/kWe	12,117	12,117	12,117	12,118	12,119	12,119	12,120	12,120	12,121	12,122	12,123	12,124	12,125	12,127	12,128			
Cumulative heat rate, Btu/kWe	13,460	13,460	13,461	13,461	13,462	13,463	13,463	13,464	13,465	13,466	13,467	13,468	13,470	13,472	13,473			
Service																		
Engine 1													Oil Service					
Engine 2					Oil Service													
Engine 3												Turbo Replacement						
Engine 4																		
Oil - oil and filter change			Really High Barometric Pressure ----------				Noreaster Storm - high winds and rain - freezing Saturday											
Service - plugs, air filter, valve insp						Low Barometric pressure												
Precipitation																		
NSTAR Power Reports	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
Date	12/17/2022	12/18/2022	12/19/2022	12/20/2022	12/21/2022	12/22/2022	12/23/2022	12/24/2022	12/25/2022	12/26/2022	12/27/2022	12/28/2022	12/29/2022	12/30/2022	12/31/2022	TOTAL		
Hour																		
1	2,511	2,500	2,403	2,356	2,309	2,357	2,460	2,459	2,352	2,259	2,279	2,258	2,319	2,321	2,319			
2	2,511	2,487	2,405	2,354	2,309	2,357	2,460	2,437	2,355	2,259	2,258	2,257	2,317	2,322	2,318			
3	2,508	2,453	2,403	2,355	2,308	2,356	2,460	2,405	2,353	2,257	2,259	2,258	2,317	2,319	2,320			
4	2,509	2,453	2,405	2,353	2,307	2,357	2,463	2,407	2,355	2,254	2,259	2,260	2,318	2,322	2,322			
5	2,508	2,451	2,403	2,355	2,308	2,358	2,464	2,407	2,352	2,257	2,260	2,259	2,317	2,319	2,354			
6	2,508	2,454	2,403	2,354	2,308	2,357	2,465	2,404	2,305	2,257	2,261	2,259	2,320	2,321	2,370			
7	2,507	2,456	2,405	2,355	2,308	2,356	2,465	2,406	2,305	2,256	2,260	2,260	2,317	2,321	2,367			
8	2,507	2,457	2,403	2,354	2,308	2,355	2,466	2,405	2,306	2,255	2,261	2,281	2,316	2,318	2,370			
9	2,508	2,454	2,397	2,351	2,309	2,358	2,466	2,405	2,266	2,208	2,262	2,304	2,317	2,318	2,371			
10	2,510	2,455	2,388	2,320	1,987	2,362	2,549	2,406	2,261	2,204	2,262	2,322	1,810	2,316	2,371			
11	2,510	2,457	2,359	2,311	2,300	2,364	2,561	2,393	2,264	2,209	2,265	2,323	2,320	2,314	2,370			
12	2,509	2,457	2,362	2,319	2,465	2,363	2,561	2,358	2,271	2,210	2,266	2,325	2,416	2,313	2,369			
13	2,509	2,457	2,362	2,319	2,416	2,370	2,560	2,358	2,311	2,211	2,267	2,319	2,417	2,317	2,369			
14	2,509	2,458	2,365	2,319	2,370	2,372	2,560	2,360	2,314	2,275	2,266	2,348	2,420	2,317	2,369			
15	2,510	2,461	2,368	2,370	2,375	2,363	2,561	2,360	2,311	2,313	2,311	2,328	2,421	2,317	2,369			
16	2,507	2,457	2,364	2,366	2,365	2,362	2,561	2,360	2,310	2,312	2,308	2,318	2,374	2,318	2,368			
17	2,508	2,457	2,359	2,360	2,361	2,362	2,562	2,357	2,309	2,310	2,312	2,322	2,370	2,319	2,368			
18	2,505	2,435	2,360	2,359	2,359	2,364	2,560	2,356	2,272	2,309	2,309	2,315	2,372	2,321	2,367			
19	2,504	2,405	2,359	2,357	2,358	2,380	2,554	2,356	2,260	2,309	2,308	2,322	2,368	2,321	2,367			
20	2,505	2,406	2,357	2,356	2,359	2,410	2,554	2,353	2,260	2,309	2,307	2,317	2,368	2,317	2,368			
21	2,503	2,403	2,358	2,346	2,357	2,413	2,555	2,354	2,260	2,308	2,273	2,320	2,359	2,316	2,368			
22	2,503	2,404	2,357	2,309	2,356	2,439	2,527	2,354	2,260	2,308	2,260	2,320	2,320	2,321	2,368			
23	2,504	2,404	2,355	2,308	2,357	2,458	2,503	2,353	2,260	2,308	2,260	2,317	2,321	2,318	2,369			
24	2,503	2,404	2,357	2,309	2,357	2,460	2,504	2,354	2,259	2,306	2,258	2,319	2,319	2,321	2,370			
TOTAL	60,176	58,685	57,057	56,215	55,916	57,053	60,401	57,167	55,131	54,463	54,591	55,231	55,833	55,647	56,641			
Cumulative Output Sold, kV	861,589	920,274	977,331	1,033,546	1,089,462	1,146,515	1,206,916	1,264,083	1,319,214	1,373,677	1,428,268	1,483,499	1,539,332	1,594,979	1,651,620			
Transformer and line efficienc	99.8%	99.8%	99.7%	99.8%	102.1%	99.7%	99.8%	99.8%	99.7%	99.7%	99.7%	99.7%	99.8%	99.7%	99.7%			
Hourly average	2,507	2,445	2,377	2,342	2,330	2,377	2,517	2,382	2,297	2,269	2,275	2,301	2,326	2,319	2,360			

EVERSOURCE OUTAGE IMPACT ON GREATER NE	
OWNED AND OPERATED BY COMMONWEALTH NE	
300 SAMUEL BARNET BLVD, NEW BEDFORD/DAR	
107 LINE	
HOURS LOST DUE TO PLANNED OUTAGES	
	2022
January	
February	
March	
April	62
May	
June	
July	
August	
September	
October	
November	16
December	
TOTAL	78
HOURS LOST DUE TO UNPLANNED OUTAGES	
	2022
January	
February	8
March	5.5
April	12
May	
June	
July	1
August	4
September	
October	
November	52
December	57
TOTAL	140

EMERGENCY GENERATOR LOG SHEET

	PRIOR TO RUNNING		AFTER SHUTTING DOWN			
DATE	TIME	RUN HRS	DATE	TIME	RUN HRS	REASON
19-Apr-22	5:08	530.8	19-Apr-22	14:38	540.3	Wind Storm
26-Aug-22	8:04	540.3	26-Aug-22	8:30	540.8	Test Run
3-Nov-22	10:50	540.8	3-Nov-22	17:46	547.7	Eversource Work
11-Nov-22	23:14	547.7	12-Nov-22	20:52	568.8	Wind Storm
24-Nov-22	8:30	568.8	25-Nov-22	9:10	593.5	Short To Ground Phase {B}
29-Nov-22	8:42	593.5	29-Nov-22	13:46	598.8	Eversource Work
30-Nov-22	19:25	598.8	2-Dec-22	20:25	647.9	Eversource Work
3-Dec-22	10:20	647.9	3-Dec-22	22:05	659.3	Eversource Work
10-Jan-23	8:06	659.3	10-Jan-23	13:36	664.9	Stepdown Trans. Service [EESCO]
					119	July 1 through December 31, 2022


TYPE A39SM
REG TYPE A34GV
Pkh _____
Mult. by _____
VTR _____:1
CTR _____:5
03 01316
TOTAL KW h
A
B
C
SERIAL # 08128229
Honeywell
9S
Cell W/KYZ
Multifunction
CL20
KZG08128229UBC33
CL20, 120 TO 480V, 4W, 60Hz
FM 9S Watthour Meter
ZD3213M10LL-81
R3.05.01-2010QM-038681
Kh 1.8
P/R 24
TA 2.5A
FCC ID: RI7LE910SV
This device complies with Part 15 of the FCC Rules
RESET
ALT

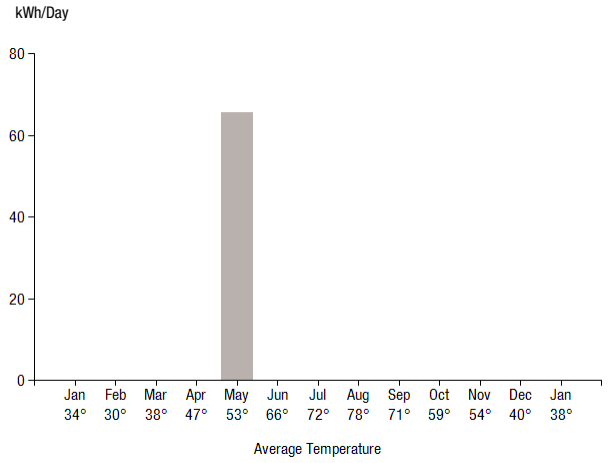
EVERSOURCE

Account Number: **2746 192 0012**
Statement Date: 01/19/23

Service Provided To:
COMMONWLTH NB ENERGY LLC

Total Amount Due by 02/13/23	**$63.10**
Amount Due On 01/13/23	$398.93
Last Payment Received On 12/29/22	-$398.93
Balance Forward	$0.00
Total Current Charges	$63.10

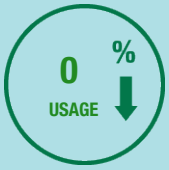
Electric Usage History - Kilowatt Hours (kWh)



Electric Usage Summary

This month your average daily use was less than
0.1 kWh

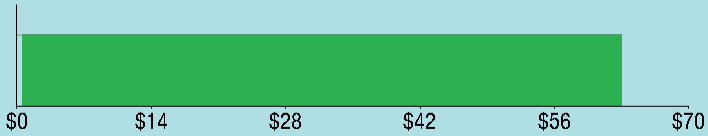
This month your usage stayed the same compared to same time last year.



Current Charges for Electricity

Supply
$0.00
Cost of electricity from CONSTELLATION - NEW BEDFORD CEA

Delivery
$63.10
Cost to deliver electricity from Eversource



Your electric supplier is

CONSTELLATION - NEW BEDFORD CEA
PO BOX 4911
HOUSTON, TX 77210-4911
WWW.CONSTELLATION.COM
833-461-0813

Billing for CITY OF NEW BEDFORD

News For You

We're taking a leadership role to prepare for Massachusetts' energy future by investing in clean and reliable energy and making the grid smarter to reduce outages, increase response times, and manage an increasingly complex system. Delivering on these commitments requires sustained investment which is why we implemented new rates in the "Delivery" section of your bill this month. For more information on the Rate Review, visit Eversource.com/ma-rate-review.

Remit Payment To: Eversource, PO Box 56007, Boston, MA 02205-6007

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EVERSOURCE

Account Number: **2746 192 0012**

You may be subject to a 0.82% late payment charge if the "Total Amount Due" is not received by 02/13/23

Please make your check payable to Eversource or to make your payment today visit Eversource.com.
If mailing your payment, please allow up to 5 business days to post to your account.

Total Amount Due by 02/13/23	**$63.10**

Amount Enclosed

COMMONWLTH NB ENERGY LLC
229 BILLINGS ST
SHARON MA 02067-2103

Eversource
PO Box 56007
Boston, MA 02205-6007

12 4 0000006310 12 70 2746 192 0012

EVERSOURCE

Account Number: **2746 192 0012**
Customer name key: COMM
Statement Date: 01/19/23
Service Provided To:
COMMONWLTH NB ENERGY LLC

Svc Addr: 300 SAMUEL-BARNET BLV CGN
NEW BEDFRD MA 02745
Rate 33 G1 SMALL GENERAL SERV NONDMD Cycle 12
Service from 12/16/22 - 01/18/23 33 Days
Next read date on or about: Feb 15, 2023

Meter Number	Current Read	Previous Read	Current Usage	Reading Type
8128229	**1**	**1**	**0**	**Actual**

Current Demand = 42.0 KW

0 x Meter Constant of 2100 = 0 Billed Usage for 33 Days

Monthly kWh Use

Jan	Feb	Mar	Apr	May	Jun	Jul
0	0	0	0	2100	0	0
Aug	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	
0	0	0	0	0	0	

Contact Information
Emergency: 800-592-2000
www.eversource.com
Pay by Phone: 888-783-6618
Customer Service: 800-340-9822

Total Amount Due by 02/13/23 $63.10

Electric Account Summary

Amount Due On 01/13/23	$398.93
Last Payment Received On 12/29/22	-$398.93
Balance Forward	$0.00
Current Charges/Credits	
Electric Supply Services	$0.00
Delivery Services	$63.10
Total Current Charges	$63.10
Total Amount Due	$63.10

Total Charges for Electricity

Supplier (CONSTELLATION - NEW BEDFORD CEA)
Meter 8128229

Generation Service Charge	0 kWh X .10470	$0.00
Subtotal Supplier Services		$0.00

Delivery
(Rate 33 G1 SMALL GENERAL SERV NONDMD) (Prorated)
Meter 8128229

Customer Charge		$10.91
Distribution Demand Charge		
1st 0	42.0 KW	$81.31
Transformer Ownership Credit		
1st 0	42.0 KW	-$24.97
Primary Service Discount		-$2.52
Primary Metering Discount		-$1.63
Subtotal Delivery Services		$63.10
Total Cost of Electricity		**$63.10**

Total Current Charges **$63.10**

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Eversource is required to comply with Department of Public Utilities' billing and termination regulations. If you have a dispute please see the bill insert for more information.

For an electronic version of this insert, residential customers go to Eversource.com/about-residential-bill and business customers go to Eversource.com/about-business-bill. Then select “Monthly Bill Inserts” from the page. Budget Billing is also available to pay a more consistent bill each month. Please see the Customer Rights Supplement for more information.

CRMC Bioenergy Biogas Flow Rate
SCADA

CRMC Bioenergy Biogas Flow Rate from SCADA

Data Point	Date	Time	Minutes in Period	Totalizer Reading, KSCF	scfm	Tot KSCF in month	% Methane Month	% Methane End	% Methane Start	Heat valued per time period, MMBtu	Tot Heat value in month, MMBtu	Average methane content, %	Biogas flow rate, ave scfm	Biogas flow rate 50% methane, ave scfm
30	1-Jul-22	0:00	1,440	5,849.31	16	**513.94**		69.1%	69.1%	16.3	357.5	68.7	12	16.4
	2-Jul-22	0:00	1,440	5,877.48	20			69.2%	69.1%	19.7				
	3-Jul-22	0:00	1,440	5,908.14	21			68.8%	69.2%	21.4				
	4-Jul-22	0:00	1,440	5,936.23	20			68.8%	68.8%	19.6				
	5-Jul-22	0:00	1,440	5,963.11	19			68.9%	68.8%	18.7				
	6-Jul-22	0:00	1,440	5,995.40	22			68.9%	68.9%	22.5				
	7-Jul-22	0:00	1,440	6,029.44	24			68.9%	68.9%	23.7				
	8-Jul-22	0:00	1,440	6,056.89	19			68.9%	68.9%	19.1				
	9-Jul-22	0:00	1,440	6,086.98	21			68.9%	68.9%	21.0				
	10-Jul-22	0:00	1,440	6,117.22	21			68.9%	68.9%	21.1				
	11-Jul-22	0:00	1,440	6,151.09	24			68.8%	68.9%	23.6				
	12-Jul-22	0:00	1,440	6,177.13	18			55.0%	68.8%	16.3				
	13-Jul-22	0:00	1,440	6,186.84	7			47.5%	55.0%	5.0				
	14-Jul-22	0:00	1,440	6,197.94	8			30.0%	47.5%	4.4				
	15-Jul-22	0:00	1,440	6,220.82	16			24.8%	30.0%	6.3				
	16-Jul-22	0:00	1,440	6,254.83	24			15.2%	24.8%	6.9				
	17-Jul-22	0:00	1,440	6,276.57	15			13.3%	15.2%	3.1				
	18-Jul-22	0:00	1,440	6,301.45	17			12.2%	13.3%	3.2				
	19-Jul-22	0:00	1,440	6,330.58	20			13.2%	12.2%	3.7				
	20-Jul-22	0:00	1,440	6,351.25	14			15.5%	13.2%	3.0				
	21-Jul-22	0:00	1,440	6,378.98	19			17.4%	15.5%	4.6				
	22-Jul-22	0:00	1,440	6,406.15	19			19.3%	17.4%	5.0				
	23-Jul-22	0:00	1,440	6,427.39	15			19.5%	19.3%	4.2				
	24-Jul-22	0:00	1,440	6,449.97	16			19.8%	19.5%	4.5				
	25-Jul-22	0:00	1,440	6,486.97	26			20.0%	19.8%	7.5				
	26-Jul-22	0:00	1,440	6,512.24	18			20.2%	20.0%	5.1				
	27-Jul-22	0:00	1,440	6,543.07	21			20.4%	20.2%	6.3				
	28-Jul-22	0:00	1,440	6,572.62	21			21.7%	20.4%	6.3				
	29-Jul-22	0:00	1,440	6,600.15	19			22.7%	21.7%	6.2				
	30-Jul-22	0:00	1,440	6,635.10	24			22.9%	22.7%	8.1				
	31-Jul-22	0:00	1,440	6,657.18	15			23.2%	22.9%	5.2				
31	1-Aug-22	0:00	1,440	6,698.91	29	**849.60**		23.4%	23.2%	9.8	335.3	39.0	19	14.8
	2-Aug-22	0:00	1,440	6,724.34	18			25.8%	23.4%	6.3				
	3-Aug-22	0:00	1,440	6,751.73	19			26.7%	25.8%	7.3				
	4-Aug-22	0:00	1,440	6,782.07	21			27.6%	26.7%	8.3				
	5-Aug-22	0:00	1,440	6,806.33	17			29.0%	27.6%	6.9				
	6-Aug-22	0:00	1,440	6,830.65	17			31.6%	29.0%	7.5				
	7-Aug-22	0:00	1,440	6,857.28	18			33.0%	31.6%	8.7				
	8-Aug-22	0:00	1,440	6,883.63	18			34.8%	33.0%	9.0				
	9-Aug-22	0:00	1,440	6,913.73	21			41.0%	34.8%	11.5				
	10-Aug-22	0:00	1,440	6,945.41	22			41.8%	41.0%	13.3				
	11-Aug-22	0:00	1,440	6,980.64	24			42.4%	41.8%	15.0				
	12-Aug-22	0:00	1,440	7,016.84	25			43.4%	42.4%	15.7				
	13-Aug-22	0:00	1,440	7,052.32	25			44.1%	43.4%	15.7				
	14-Aug-22	0:00	1,440	7,070.21	12			44.8%	44.1%	8.0				
	15-Aug-22	0:00	1,440	7,099.98	21			45.5%	44.8%	13.6				

CRMC Bioenergy Biogas Flow Rate from SCADA														
			Minutes	Totalizer Reading,	scfm	Tot KSCF		% Methane		Heat valued per time period,	Tot Heat value in month,	Average methane content,	Biogas flow rate,	Biogas flow rate 50% methane,
Data Point	Date	Time	in Period	KSCF		in month	Month	End	Start	MMBtu	MMBtu	%	ave scfm	ave scfm
	16-Aug-22	0:00	1,440	7,143.25	30			45.9%	45.5%	20.0				
	17-Aug-22	0:00	1,440	7,178.49	24			47.3%	45.9%	16.6				
	18-Aug-22	0:00	1,440	7,185.09	5			47.9%	47.3%	3.2				
	19-Aug-22	0:00	1,440	7,198.08	9			48.5%	47.9%	6.3				
	20-Aug-22	0:00	1,440	7,213.00	10			49.1%	48.5%	7.4				
	21-Aug-22	0:00	1,440	7,230.63	12			49.6%	49.1%	8.8				
	22-Aug-22	0:00	1,440	7,262.21	22			50.0%	49.6%	15.9				
	23-Aug-22	0:00	1,440	7,285.08	16			50.4%	50.0%	11.6				
	24-Aug-22	0:00	1,440	7,309.65	17			52.3%	50.4%	12.8				
	25-Aug-22	0:00	1,440	7,319.05	7			53.4%	52.3%	5.0				
	26-Aug-22	0:00	1,440	7,351.14	22			54.2%	53.4%	17.5				
	27-Aug-22	0:00	1,440	7,365.14	10			55.5%	54.2%	7.8				
	28-Aug-22	0:00	1,440	7,385.61	14			56.5%	55.5%	11.6				
	29-Aug-22	0:00	1,440	7,399.10	9			57.5%	56.5%	7.8				
	30-Aug-22	0:00	1,440	7,415.90	12			58.0%	57.5%	9.8				
	31-Aug-22	0:00	1,440	7,435.90	14			60.2%	58.0%	12.0				
31	1-Sep-22	0:00	1,440	7,455.00	13	**756.09**		61.5%	60.2%	11.8	332.8	43.5	17	14.7
	2-Sep-22	0:00	1,440	7,475.90	15			64.3%	61.5%	13.3				
	3-Sep-22	0:00	1,440	7,495.10	13			65.0%	64.3%	12.6				
	4-Sep-22	0:00	1,440	7,514.10	13			65.5%	65.0%	12.5				
	5-Sep-22	0:00	1,440	7,535.90	15			66.0%	65.5%	14.5				
	6-Sep-22	0:00	1,440	7,555.10	13			66.5%	66.0%	12.9				
	7-Sep-22	0:00	1,440	7,574.90	14			68.1%	66.5%	13.5				
	8-Sep-22	0:00	1,440	7,591.30	11			70.0%	68.1%	11.5				
	9-Sep-22	9:40	2,020	7,615.30	12			72.0%	70.0%	17.2				
	9-Sep-22	9:40	-	-	-	Reset to 0		72.0%	72.0%					
	10-Sep-22	0:00	860	15.00	17			72.0%	72.0%	10.9				
	11-Sep-22	0:00	1,440	36.54	15			72.0%	72.0%	15.7				
	12-Sep-22	0:00	1,440	62.05	18			72.0%	72.0%	18.6				
	13-Sep-22	0:00	1,440	87.32	18			72.0%	72.0%	18.4				
	14-Sep-22	0:00	1,440	110.25	16			71.7%	72.0%	16.7				
	15-Sep-22	0:00	1,440	135.80	18			71.8%	71.7%	18.6				
	15-Sep-22	14:03	843	148.90	16			71.8%	71.8%	9.5				
	15-Sep-22	14:03	-	-	-	Reset to 0		71.8%	71.8%					
	16-Sep-22	0:00	597	14.00	23			71.2%	71.8%	10.1				
	17-Sep-22	0:00	1,440	39.00	17			71.0%	71.2%	18.0				
	18-Sep-22	0:00	1,440	60.40	15			71.0%	71.0%	15.4				
	19-Sep-22	0:00	1,440	89.38	20			71.0%	71.0%	20.8				
	20-Sep-22	0:00	1,440	129.20	28			70.8%	71.0%	28.6				
	21-Sep-22	0:00	1,440	154.18	17			70.9%	70.8%	17.9				
	22-Sep-22	0:00	1,440	181.49	19			70.6%	70.9%	19.6				
	23-Sep-22	0:00	1,440	200.48	13			70.5%	70.6%	13.6				
	24-Sep-22	0:00	1,440	216.17	11			70.5%	70.5%	11.2				
	25-Sep-22	0:00	1,440	253.23	26			70.6%	70.5%	26.5				
	26-Sep-22	0:00	1,440	265.52	9			70.7%	70.6%	8.8				
	27-Sep-22	0:00	1,440	275.08	7			70.5%	70.7%	6.8				
	28-Sep-22	0:00	1,440	296.21	15			70.6%	70.5%	15.1				
	29-Sep-22	0:00	1,440	316.48	14			70.4%	70.6%	14.5				
	30-Sep-22	0:00	1,440	324.32	5			70.2%	70.4%	5.6				
30	1-Oct-22	0:00	1,440	326.32	1	**635.52**		70.2%	70.2%	1.4	424.2	66.0	15	19.4

CRMC Bioenergy Biogas Flow Rate from SCADA														
			Minutes	Totalizer Reading,	scfm	Tot KSCF		% Methane		Heat valued per time period,	Tot Heat value in month,	Average methane content,	Biogas flow rate,	Biogas flow rate 50% methane,
Data Point	Date	Time	in Period	KSCF		in month	Month	End	Start	MMBtu	MMBtu	%	ave scfm	ave scfm
	2-Oct-22	0:00	1,440	334.02	5			70.2%	70.2%	5.5				
	3-Oct-22	0:00	1,440	342.26	6			70.4%	70.2%	5.9				
	4-Oct-22	0:00	1,440	354.86	9			70.2%	70.4%	9.0				
	5-Oct-22	0:00	1,440	368.62	10			70.2%	70.2%	9.8				
	6-Oct-22	0:00	1,440	385.62	12			70.2%	70.2%	12.1				
	7-Oct-22	0:00	1,440	399.78	10			70.4%	70.2%	10.1				
	8-Oct-22	0:00	1,440	411.51	8			70.2%	70.4%	8.3				
	9-Oct-22	0:00	1,440	423.60	8			70.2%	70.2%	8.6				
	10-Oct-22	0:00	1,440	438.30	10			70.2%	70.2%	10.4				
	11-Oct-22	0:00	1,440	450.51	8			70.1%	70.2%	8.7				
	12-Oct-22	0:00	1,440	462.00	8			70.2%	70.1%	8.2				
	13-Oct-22	0:00	1,440	475.20	9			70.0%	70.2%	9.4				
	14-Oct-22	0:00	1,440	487.20	8			70.2%	70.0%	8.5				
	15-Oct-22	0:00	1,440	497.20	7			70.0%	70.2%	7.1				
	16-Oct-22	0:00	1,440	508.10	8			70.0%	70.0%	7.7				
	17-Oct-22	0:00	1,440	519.90	8			70.0%	70.0%	8.4				
	18-Oct-22	0:00	1,440	530.90	8			70.2%	70.0%	7.8				
	19-Oct-22	0:00	1,440	542.30	8			70.1%	70.2%	8.1				
	20-Oct-22	0:00	1,440	552.30	7			70.0%	70.1%	7.1				
	21-Oct-22	0:00	1,440	562.70	7			70.1%	70.0%	7.4				
	22-Oct-22	0:00	1,440	572.20	7			70.1%	70.1%	6.7				
	23-Oct-22	0:00	1,440	580.20	6			70.0%	70.1%	5.7				
	24-Oct-22	0:00	1,440	588.18	6			70.0%	70.0%	5.7				
	25-Oct-22	0:00	1,440	596.68	6			70.3%	70.0%	6.0				
	26-Oct-22	0:00	1,440	607.88	8			70.0%	70.3%	8.0				
	27-Oct-22	0:00	1,440	620.28	9			70.2%	70.0%	8.8				
	28-Oct-22	0:00	1,440	633.28	9			70.0%	70.2%	9.2				
	29-Oct-22	0:00	1,440	645.38	8			70.2%	70.0%	8.6				
	30-Oct-22	0:00	1,440	658.38	9			70.1%	70.2%	9.2				
	31-Oct-22	0:00	1,440	672.38	10			70.2%	70.1%	9.9				
31	1-Nov-22	0:00	1,440	685.78	9	**359.46**		70.1%	70.2%	9.5	255.2	70.1	8	11.3
	2-Nov-22	0:00	1,440	698.68	9			70.1%	70.1%	9.2				
	3-Nov-22	0:00	1,440	709.68	8			70.0%	70.1%	7.8				
	4-Nov-22	0:00	1,440	719.68	7			70.2%	70.0%	7.1				
	5-Nov-22	0:00	1,440	729.68	7			70.0%	70.2%	7.1				
	6-Nov-22	0:00	1,440	739.18	7			70.0%	70.0%	6.7				
	7-Nov-22	0:00	1,440	751.18	8			70.2%	70.0%	8.5				
	8-Nov-22	0:00	1,440	762.18	8			70.0%	70.2%	7.8				
	9-Nov-22	0:00	1,440	772.18	7			70.0%	70.0%	7.1				
	10-Nov-22	0:00	1,440	781.18	6			70.0%	70.0%	6.4				
	11-Nov-22	0:00	1,440	789.18	6			70.0%	70.0%	5.7				
	12-Nov-22	0:00	1,440	797.48	6			70.0%	70.0%	5.9				
	13-Nov-22	0:00	1,440	805.88	6			70.0%	70.0%	6.0				
	14-Nov-22	0:00	1,440	812.98	5			69.8%	70.0%	5.0				
	15-Nov-22	0:00	1,440	820.88	5			70.0%	69.8%	5.6				
	16-Nov-22	0:00	1,440	828.88	6			70.0%	70.0%	5.7				
	17-Nov-22	0:00	1,440	836.36	5			69.9%	70.0%	5.3				
	18-Nov-22	0:00	1,440	844.25	5			70.2%	69.9%	5.6				
	19-Nov-22	0:00	1,440	851.23	5			70.0%	70.2%	5.0				
	20-Nov-22	0:00	1,440	857.73	5			70.0%	70.0%	4.6				

CRMC Bioenergy Biogas Flow Rate from SCADA														
			Minutes	Totalizer Reading,	scfm	Tot KSCF	% Methane			Heat valued per time period,	Tot Heat value in month,	Average methane content,	Biogas flow rate,	Biogas flow rate 50% methane,
Data Point	Date	Time	in Period	KSCF		in month	Month	End	Start	MMBtu	MMBtu	%	ave scfm	ave scfm
	21-Nov-22	0:00	1,440	864.83	5			70.0%	70.0%	5.0				
	22-Nov-22	0:00	1,440	873.43	6			70.2%	70.0%	6.1				
	23-Nov-22	0:00	1,440	880.43	5			70.1%	70.2%	5.0				
	24-Nov-22	0:00	1,440	886.43	4			70.1%	70.1%	4.3				
	25-Nov-22	0:00	1,440	893.43	5			70.0%	70.1%	5.0				
	26-Nov-22	0:00	1,440	900.43	5			70.0%	70.0%	5.0				
	27-Nov-22	0:00	1,440	907.43	5			70.0%	70.0%	5.0				
	28-Nov-22	0:00	1,440	914.43	5			69.8%	70.0%	5.0				
	29-Nov-22	0:00	1,440	921.23	5			70.0%	69.8%	4.8				
	30-Nov-22	0:00	1,440	928.03	5			69.9%	70.0%	4.8				
30	1-Dec-22	0:00	1,440	934.73	5	**248.95**	6.7	69.8%	69.9%	4.7	176.4	70.0	6	8.1
	2-Dec-22	0:00	1,440	940.85	4			69.8%	69.8%	4.3				
	3-Dec-22	0:00	1,440	948.36	5			69.8%	69.8%	5.3				
	4-Dec-22	0:00	1,440	955.06	5			69.8%	69.8%	4.7				
	5-Dec-22	0:00	1,440	961.96	5			69.8%	69.8%	4.9				
	6-Dec-22	0:00	1,440	969.45	5			69.5%	69.8%	5.3				
	7-Dec-22	0:00	1,440	978.25	6			69.8%	69.5%	6.2				
	8-Dec-22	0:00	1,440	985.35	5			69.8%	69.8%	5.0				
	9-Dec-22	0:00	1,440	992.36	5			69.8%	69.8%	5.0				
	10-Dec-22	0:00	1,440	998.56	4			69.8%	69.8%	4.4				
	11-Dec-22	0:00	1,440	1,004.86	4			69.8%	69.8%	4.5				
	12-Dec-22	0:00	1,440	1,012.64	5			69.6%	69.8%	5.5				
	13-Dec-22	0:00	1,440	1,021.36	6			69.8%	69.6%	6.2				
	14-Dec-22	0:00	1,440	1,029.96	6			69.8%	69.8%	6.1				
	15-Dec-22	0:00	1,440	1,036.96	5			70.0%	69.8%	5.0				
	16-Dec-22	0:00	1,440	1,043.96	5			70.0%	70.0%	5.0				
	17-Dec-22	0:00	1,440	1,050.37	4			70.0%	70.0%	4.5				
	18-Dec-22	0:00	1,440	1,056.86	5			70.0%	70.0%	4.6				
	19-Dec-22	0:00	1,440	1,063.96	5			69.8%	70.0%	5.0				
	20-Dec-22	0:00	1,440	1,070.86	5			70.1%	69.8%	4.9				
	21-Dec-22	0:00	1,440	1,078.31	5			69.9%	70.1%	5.3				
	22-Dec-22	0:00	1,440	1,086.78	6			69.8%	69.9%	6.0				
	23-Dec-22	0:00	1,440	1,094.58	5			69.8%	69.8%	5.5				
	24-Dec-22	0:00	1,440	1,101.53	5			69.8%	69.8%	4.9				
	25-Dec-22	0:00	1,440	1,107.63	4			69.8%	69.8%	4.3				
	26-Dec-22	0:00	1,440	1,113.84	4			69.5%	69.8%	4.4				
	27-Dec-22	0:00	1,440	1,119.04	4			69.0%	69.5%	3.6				
	28-Dec-22	0:00	1,440	1,125.55	5			69.0%	69.0%	4.5				
	29-Dec-22	0:00	1,440	1,131.85	4			69.8%	69.0%	4.4				
	30-Dec-22	0:00	1,440	1,139.34	5			69.8%	69.8%	5.3				
	31-Dec-22	0:00	1,440	1,145.74	4			69.8%	69.8%	4.5				
31	1-Jan-23	0:00	1,440	1,152.85	5	**218.12**	6.7	69.8%	69.8%	5.0	154.0	69.8	5	6.8

Exhibit 6:
Calibration of the LFG and biogas flow rates, composition meters, other instrumentation for the periods.

Landfill Gas Flow Calculation

Crapo Hill Landfill, New Bedford/Dartmouth, Massachusetts

Note: Calculation of volumetric flow of LFG through a pipe using a pitot tube and manor

		Engine 1, kW	650	630	650	650	650	650
		Engine 2, kW	650	660	650	700	600	650
		Engine 3, kW	700	660	650	650	640	650
		Engine 4, kW	700	670	650	700	650	650
		Gross, kW	2,700	2,620	2,600	2,700	2,540	2,600
MEASURING INSTRUMENT:		Pitot Tube:	168	168	168	168	169	169
		Manometer:	Dwyer Mark II	Dwyer Mark II	Dwyer Mark II	yer Mark II	Dwyer Mark II	Dwyer Mark II
DATE OF MEASUREMENT:			11-Jul-22	9-Aug-22	8-Sep-22	5-Oct-22	9-Nov-22	8-Dec-22
TIME OF MEASUREMENT:			**15:00**	**14:00**	**12:00**	**12:00**	**12:00**	**13:00**
PARAMETERS		UNITS	VALUES	VALUES	VALUES	VALUES	VALUES	VALUES
Pipe dimensions								
Inside Diameter		inches	**10.420**	**10.420**	**10.420**	**10.420**	**10.420**	**10.420**
Area of cross section		square feet	0.5922	0.5922	0.5922	0.5922	0.5922	0.5922
Flow Calculation								
Kp	pitot tube constant	ft/sec[(lb/lb-mole)(in. Hg)/(R)(in H20)]^1/2	85.49	85.49	85.49	85.49	85.49	85.49
Cp	Pitot tube coefficient	dimensionless	1.00	1.00	1.00	1.00	1.00	1.00
dP	Average velocity pressure of stack gas	in H20	**0.254**	**0.262**	**0.268**	**0.277**	**0.243**	**0.253**
Blower Inlet								
Ts	Stack temperature	Degrees Fahrenheit	**76**	**80**	**78**	**71**	**70**	**63**
		Degrees Rankine	536	540	538	531	530	523
Pg	Stack static pressure	inch H20	-44	-60	-62	-62	-61	-60
		inch Hg	(3.24)	(4.41)	(4.56)	(4.56)	(4.49)	(4.41)
Ps	Absolute stack gas pressure	inch Hg	26.55	25.46	25.24	25.22	25.97	25.52
Blower Outlet								
Ts	Stack temperature	Degrees Fahrenheit	**119**	**120**	**114**	**111**	**112**	**114**
		Degrees Rankine	579	580	574	571	572	574
Pg	Stack static pressure	inch H20	63.7	63.7	63.9	64.2	63.1	63.7
		inch Hg	4.68	4.68	4.70	4.72	4.64	4.68
		psig	2.30	2.30	2.31	2.32	2.28	2.30
Pbar	Barometric pressure	inch Hg	**29.79**	**29.87**	**29.80**	**29.78**	**30.46**	**29.93**
Ps	Absolute stack gas pressure	inch Hg	34.47	34.55	34.50	34.50	35.10	34.61
Ms	Molecular weight of stack gas, wet	lb/lb-mole	27.25	27.33	27.37	27.40	27.48	27.43
Vs	Average stack gas velocity	feet per second	37.1	38.6	39.0	39.4	36.3	37.2
Qact	Volumetric Flow	actual cubic feet per minute	1,319	1,370	1,387	1,401	1,291	1,322
Qstd	**Volumetric Flow at actual methane content**	**standard cubic feet per minute ***	**1,153**	**1,140**	**1,148**	**1,174**	**1,117**	**1,138**
Qstd corr	Volumetric Flow at 50% methane	standard cubic feet per minute **	1,247	1,167	1,158	1,205	1,176	1,202
Ht HHV	Heat input	MMBtu per hour HHV	37.87	35.45	35.17	36.58	35.71	36.48
Ht LHV	Heat input	MMBtu per hour LHV	34.09	31.91	31.66	32.93	32.15	32.84
	Methane Content	%, vol/vol wet	54.10%	51.20%	50.44%	51.32%	52.67%	52.80%
Diff. between pitot tube and orifice reading:			1.0%	-0.8%	1.1%	1.0%	0.8%	2.0%
FACILITY ORIFICE FLOW METER:								
dP	Delta pressure across orifice plate	inches H20	**9.60**	**9.70**	**9.40**	**9.80**	**8.60**	**9.00**
Qact	Volumetric Flow	acfm	1,087	1,093	1,071	1,090	1,023	1,048
Qstd	**Volumetric Flow at actual methane content**	**standard cubic feet per minute ***	**1,142**	**1,150**	**1,136**	**1,162**	**1,108**	**1,115**
Qstd	Volumetric Flow at 50% methane	standard cubic feet per minute **	1,236	1,177	1,146	1,193	1,167	1,177
Ht HHV	Heat input	MMBtu per hour HHV	37.51	35.74	34.78	36.22	35.43	35.75
Ht LHV	Heat input	MMBtu per hour LHV	33.77	32.17	31.31	32.60	31.90	32.18

* Standard conditions are corrected to 68 degrees F and 29.92 in Hg at actual methane content.

** Standard conditions corrected to 50 % methane content.

Input values are in blue or bold.

Calculated output values are in black or not bold.

Calculation Formulas:

- Vs = Kp*Cp*(sqrt dP) * sqrt (Ts/(Ps*Ms))
- Qact = Vs * A * 60
- Qstd = Qact * Tstd/ Ts * Ps/Pstd
- Flow, ACFM = 96.3221*SQRT(dP)*SQRT((460+Temperature)/(2.703*(Pressure +14.7)))

Conversions and constants

- 13.5958 in H2O/in Hg
- 1 PSI = 2.036 in HG
- 1 PSI = 27.68 in WG
- Tstd = 528 degrees R
- Pstd = 29.92 in Hg

- Methane heat content = 1,012 BTU per scf HHV
- Methane heat content = 911 BTU per scf LHV

Landfill Gas Flow Measurements						
Crapo Hill Landfill, New Bedford/Dart						
Measurements by	TY, BG	TY, BG	TY, BG	TY, EN	TY, EN	TY, EN
Date	11-Jul-22	9-Aug-22	8-Sep-22	5-Oct-22	9-Nov-22	8-Dec-22
Time	15:00	14:00	12:00	12:00	12:00	13:00
Flow valve						
Pipe inside diameter, inches	10.42	10.42	10.42	10.42	10.42	10.42
Ambient Temperature, F	80	90	70	58	52	55
Barometric Pressure, In Hg	29.79	29.87	29.80	29.78	30.46	29.93
Blower Inlet Temperature, F	76	80	78	71	70	63
Outlet Temperature, F	119	120	114	111	112	114
Blower Inlet Pressure (SP), In H20	-44	-60	-62	-62	-61	-60
Blower Outlet Pressure, PSIG	2.30	2.30	2.31	2.32	2.28	2.30
Blower Outlet Pressure, In H20	63.66	63.66	63.94	64.22	63.11	63.66
Measurement						
Manometer						
Pitot Tube						
Velocity Pressure (dP)						
Point						
1	0.23	0.23	0.25	0.27	0.23	0.24
2	0.25	0.26	0.27	0.28	0.23	0.25
3	0.26	0.27	0.28	0.28	0.25	0.25
4	0.26	0.27	0.28	0.28	0.25	0.26
5	0.26	0.27	0.28	0.27	0.25	0.26
6	0.26	0.27	0.28	0.28	0.25	0.26
7	0.26	0.27	0.28	0.28	0.25	0.26
8	0.26	0.27	0.28	0.28	0.25	0.26
9	0.25	0.25	0.21	0.27	0.23	0.24
Average	0.254	0.262	0.268	0.277	0.243	0.253
Gas Composition						
Compound, %v/v						
Methane (CH4)	54.1%	51.2%	50.4%	51.3%	52.7%	52.8%
Carbon dioxide (CO2)	37.7%	36.0%	35.5%	35.9%	37.5%	37.0%
Oxygen (O2)	0.55%	1.50%	1.93%	1.72%	0.95%	0.90%
Balance gas	7.60%	11.30%	12.20%	11.08%	8.92%	9.30%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Moisture (H20) (included in balance gas	3.0%	3.5%	3.3%	2.6%	2.5%	1.9%
Molecular weight, lb/lb-mole wet	27.25	27.33	27.37	27.40	27.48	27.43
H2S, PPMV						
Pre-calibration LFG flow, scfm	1,142	1,150	1,136	1,162	1,108	1,115
Post-calibration LFG flow, scfm	1,142	1,150	1,136	1,162	1,108	1,115

Measurement confirmation/calibration for pressure and temperature

Measurements by		TY, BG	TY, BG	TY, BG	TY, EN	TY, EN	TY, EN
Date		11-Jul-22	9-Aug-22	8-Sep-22	5-Oct-22	9-Nov-22	8-Dec-22
Time		15:00	14:00	12:00	12:00	12:00	13:00
Pressure and Temperature Measurements							
Facility Flow Measurement Point							
Facility Pressure monitor, inches WG		2.30	2.30	2.30	2.30	2.30	2.30
Measurement Type	Gauge						
Independent Pressure monitor, inches WG		2.30	2.30	2.30	2.30	2.30	2.30
Measurement Type	Manometer						
Difference in Pressure, %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted Pressure, in WG		2.30	2.30	2.30	2.30	2.30	2.30
Facility Temperature monitor, F		119	120	114	111	112	114
Facility Temperature monitor, R		579	580	574	571	572	574
Measurement Type	Gauge						
Independent Temperature monitor, F		119	120	114	111	112	114
Facility Temperature monitor, R		579	580	574	571	572	574
Measurement Type	Thermometer						
Difference in Temperature, %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted Temperature, F		119	120	114	111	112	114
Calibration Flow Measurement Point							
Facility Pressure monitor, inches WG		-44	-60	-62	-62	-61	-60
Measurement Type	Transducer						
Independent Pressure monitor, inches WG		-44	-60	-62	-62	-61	-60
Measurement Type	Manometer						
Difference in Pressure, %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted Pressure, in WG		-44	-60	-62	-62	-61	-60
Facility Temperature monitor, F		76	80	78	71	70	63
Facility Temperature monitor, R		536	540	538	531	530	523
Measurement Type	Gauge						
Independent Temperature monitor, F		76	80	78	71	70	63
Facility Temperature monitor, R		536	540	538	531	530	523
Measurement Type	thermometer						
Difference in Temperature, %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted Temperature, F		76	80	78	71	70	63

CommonWealth New Bedford Energy, LLC
Greater New Bedford LFG Utilization Project
300 Samuel Barnett Blvd.
New Bedford, Massachusetts
(508) 985-0923

'California Analytical' Analyzer Calibration Results
California Analytical Instrument, Model 602P NDIR, Serial #S07002

Month:	Jul-22	**Methane (% v/v) measurements**						
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
7/3/22	7/8/22	76 F	54.00%	53.41%	53.16%	0.01%	53.19%	52.90%
7/10/22	7/15/22	79 F	54.00%	53.36%	52.21%	0.02%	53.23%	52.00%
7/17/22	7/22/22	81 F	54.00%	53.32%	53.19%	0.01%	52.28%	53.04%
7/24/22	7/29/22	81 F	54.00%	53.32%	51.40%	-0.01%	54.75%	51.32%

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Month:	Aug-22	**Methane (% v/v) measurements**						
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
8/1/22	8/5/22	82 F	54.00%	53.30%	50.66%	0.01%	53.84%	50.69%
8/8/22	8/12/22	81 F	54.00%	53.32%	51.43%	-0.01%	54.72%	51.39%
8/15/22	8/19/22	80 F	54.00%	53.34%	51.07%	0.02%	52.72%	50.95%
8/22/22	8/26/22	80 F	54.00%	53.34%	51.32%	-0.01%	53.09%	51.25%

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Month:	Sep-22	**Methane (% v/v) measurements**						
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
8/29/22	9/2/22	79 F	54.00%	53.36%	50.32%	0.01%	55.12%	50.48%
9/5/22	9/9/22	77 F	54.00%	53.39%	50.53%	-0.02%	52.87%	50.57%
9/12/22	9/16/22	77 F	54.00%	53.39%	50.59%	0.02%	53.71%	50.50%
9/19/22	9/23/22	75 F	54.00%	53.43%	50.47%	0.03%	52.32%	50.63%
9/26/22	9/30/22	70 F	54.00%	53.51%	50.53%	0.03%	54.37%	50.30%

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Month:	Oct-22	**Methane (% v/v) measurements**						
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
10/3/22	10/7/22	71 F	54.00%	53.50%	51.14%	-0.02%	52.23%	51.31%
10/10/22	10/14/22	77 F	54.00%	53.39%	51.99%	-0.02%	52.78%	51.94%
10/17/22	10/21/22	76 F	54.00%	53.41%	50.01%	-0.01%	53.22%	50.07%
10/24/22	10/28/22	71 F	54.00%	53.50%	52,08%	0.06%	54.43%	52.45%

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Month:	Nov-22				**Methane (% v/v) measurements**			
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
10/31/22	11/4/22	69 F	54.00%	53.53%	52.84%	-0.02%	54.22%	52.83%
11/7/22	11/11/22	69 F	54.00%	53.53%	53.48%	-0.02%	52.75%	53.05%
11/14/22	11/18/22	69 F	54.00%	53.53%	52.38%	0.01%	53.26%	52.32%
11/21/22	11/23/22	64 F	54.00%	53.60%	52.32%	0.02%	52.72%	52.38%

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'California Analytical' Analyzer Calibration Results
California Analytical Instrument, Model 602P NDIR, Serial #S07002

Month:	Dec-22				**Methane (% v/v) measurements**			
Week	Date	LFG Temp @ blower inlet	Cal Gas dry	Cal Gas wet	Pre-calibration	Zero gas	Span gas	Post-calibration
11/28/22	12/2/22	64 F	54.00%	53.60%	52.21%	0.00%	52.63%	52.26%
12/5/22	12/9/22	61 F	54.00%	53.63%	52.35%	0.04%	55.48%	52.46%
12/12/22	12/16/22	61 F	54.00%	53.63%	52.90%	0.02%	54.97%	52.96%
12/19/22	12/23/22	61 F	54.00%	53.63%	52.93%	0.00%	54.24%	53.03%
12/26/22	12/30/22	64 F	54.00%	53.60%	53.13%	0.00%	54.39%	53.00%

Biogas Flow Measurements									
Q =sqrt(dP/[Ss *(T + 460)/(K^2*D^4 * P * 16590)]									
							P	P	
		SCADA Reading				SCADA Reading	static	static	T
		Pre-calibration	Measured	Measured	Difference between	Post-calibration	pressure	pressure	temperature
Month	Date	flow rate, scfm	dP, inch WG	flow rate, scfm	Measured and SCADA, %	flow rate, scfm	inch WG	psia	F
Jul-22	11-Jul-22	24.0	0.12	23.9	0.6%	24	6	14.92	85
Aug-22	9-Aug-22	21.0	0.09	20.7	1.6%	21	6	14.92	85
Sep-22	8-Sep-22	11.0	0.027	11.3	-2.9%	11	6	14.92	85
Oct-22	5-Oct-22	10.0	0.02	9.7	2.6%	10	6	14.92	85
Nov-22	9-Nov-22	7.0	0.01	6.9	1.6%	7	6	14.92	85
Dec-22	8-Dec-22	5.0	0.005	4.9	2.6%	5	6	14.92	85

CRMC Bioenergy LLC							
Biogas Calibrations							
METHANE CONFIRMATIONS/CALIBRATIONS							
		SCADA Reading		Measured		SCADA Reading	
		Pre-calibration	Calibration	Calibration	Difference between	Post-calibration	
Month	Date	Methane, %	Methane, %	Methane, %	Measured and SCADA, %	Methane, %	
Jul-22	11-Jul-22	69.0%	50.0%	50.2%	-0.4%	69.0%	
Aug-22	9-Aug-22	40.0%	50.0%	50.0%	0.0%	40.0%	
Sep-22	8-Sep-22	70.0%	50.0%	49.2%	1.6%	70.0%	
Oct-22	5-Oct-22	70.0%	50.0%	49.8%	0.4%	70.0%	
Nov-22	9-Nov-22	70.0%	50.0%	50.2%	-0.4%	70.0%	
Dec-22	8-Dec-22	69.8%	50.0%	50.5%	-1.0%	69.8%	
PRESSURE AND TEMPERATURE CONFIRMATION/CALIBRATION							
		P	P			T	
		static	calibration		T	calibration	
		pressure	static pressure		temperature	temperature	
Month	Date	inch WG	inch WG	Adjustment	F	F	Adjustment
Jul-22	11-Jul-22	6	6	None	85	85	None
Aug-22	9-Aug-22	6	6	None	85	85	None
Sep-22	8-Sep-22	6	6	None	85	85	None
Oct-22	5-Oct-22	6	6	None	85	85	None
Nov-22	9-Nov-22	6	6	None	85	85	None
Dec-22	8-Dec-22	6	6	None	85	85	None

Exhibit 7:
Attestation Statement

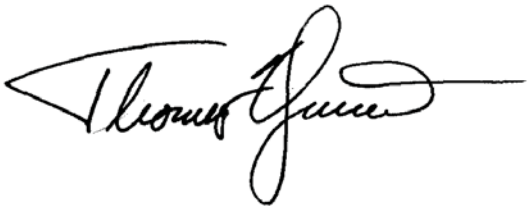
Attestation Statement

As an officer of CommonWealth New Bedford Energy LLC (CNBE) I hereby certify that the verified carbon units (VCUs) verified under the verified carbon standard (VCS) for the period July 1, 2022 through December 31, 2022 from the Project Activity will be registered on the VERRA Registry only.

Thomas Yeransian
Name

Principal of CommonWealth Resource Management Corporation, Member of CommonWealth New Bedford Energy LLC

Title



Signature

Date: February 06, 2023

Exhibit 8:

Permits and Other Regulatory Documentation

1. Amended Final Air Quality Operation Permit (Renewal) Issued August 3, 2022.
2. NMOC Emission Rate Report, August 5, 2022. The NMOC Emission Report demonstrates that the NMOCs emissions continue to be below the NSPS applicability threshold and therefore the Crapo Hill Landfill is not subject to the requirements of NSPS.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

AMENDED FINAL AIR QUALITY OPERATING PERMIT

Issued by the Massachusetts Department of Environmental Protection ("Department" or "MassDEP") pursuant to its authority under M.G.L. c. 111, §142B and §142D, 310 CMR 7.00 et seq., and in accordance with the provisions of 310 CMR 7.00: Appendix C.

ISSUED TO ["the Permittee"]:
CommonWealth New Bedford Energy, LLC
1 Bornheimer Place
Scarborough, ME 04074

INFORMATION RELIED UPON:
Application No. 17-AQ14/12-000003-APP
Application No. 4B04015
Approval No. SE-13-020
Application No. 22-AQ11-0002-AMD
ePlace Authorization No.: AQ-14-0000105

FACILITY LOCATION:
CommonWealth New Bedford Energy, LLC
300 Samuel Barnet Boulevard
Dartmouth, MA

FACILITY IDENTIFYING NUMBERS:
AQ ID: 1200624
FMF FAC No.: 402936
FMF RO No.: 402937

NATURE OF BUSINESS:
Electric Power Generation

Standard Industrial Classification (SIC): 4911
North American Industrial Classification System (NAICS): 221117

RESPONSIBLE OFFICIAL:
Name: Mr. Thomas Yeransian
Title: Principal of CommonWealth Resource Management Corporation, Managing Member of CommonWealth New Bedford Energy

FACILITY CONTACT PERSON:
Name: Mr. Thomas Yeransian
Title: Principal
Phone: (508) 339-3074
Email: tyeransian@crmcx.com
Fax: (508) 339-1326

This Operating Permit shall expire on July 23, 2025.

For the Department of Environmental Protection

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Permit Chief, Bureau of Air and Waste

August 3, 2022
Date

TABLE OF CONTENTS

SPECIAL CONDITIONS FOR OPERATING PERMIT

1. PERMITTED ACTIVITIES

In accordance with the provisions of 310 CMR 7.00:Appendix C and applicable rules and regulations, the Permittee is authorized to operate air emission units as shown in Table 1 and exempt, and insignificant activities as described in 310 CMR 7.00:Appendix C(5)(h) and (i). The units described in Table 1 are subject to the terms and conditions shown in Sections 4, 5, and 6 and to other terms and conditions as specified in this Permit. Emissions from the exempt activities shall be included in the total facility emissions for the emission-based portion of the fee calculation described in 310 CMR 4.00 and this Permit.

A. DESCRIPTION OF FACILITY AND OPERATIONS

CommonWealth New Bedford Energy, LLC, (CNBE) operates the Greater New Bedford LFG Utilization Project, a landfill gas (LFG) to energy, electric power generation facility ("Facility") located at the Crapo Hill Landfill in Dartmouth, Massachusetts, with a United States Postal Service mailing address of 300 Samuel Barnet Boulevard, New Bedford MA 02745. The facility is a Major Source, as defined in 310 CMR 7.00: Appendix C, of Carbon Monoxide (CO), and therefore subject to the 310 CMR 7.00: Appendix C: Operating Permit and Compliance Program, and the requirement to obtain an Operating Permit. The approved operation consists of up to five (5) identical LFG-fired reciprocating engine/generator sets. The reciprocating engines are Caterpillar Model 3516 engines. Each engine/generator set has a nominal output rating of approximately 825 kW of electricity, and a maximum output rating of 900 kW of electricity. The engines are housed in a generation building. Each engine has a separate exhaust stack, which discharges through the generation building roof at an exhaust height of 30 feet above ground.

The primary fuel supplied to the Facility is LFG generated from the Crapo Hill Landfill, which is owned and operated by the Greater New Bedford Regional Refuse Management District (District). A small quantity of digester gas supplements the LFG fuel supplied to the Facility. CRMC Bioenergy LLC owns and operates an anaerobic digestion facility that is located adjacent to the Facility and supplies the digester gas to CNBE. The anaerobic digestion facility operates in accordance with MassDEP Air Quality Plan Approval SE-13-020, Transmittal X254662, dated September 26, 2013. Both the Facility and anaerobic digestion facility are located on property leased from the District.

As part of the Operating Permit (OP) renewal process, MassDEP evaluated the relationship between the District and CNBE, to determine if the parties were under common control for purposes of implementing the Title V Operating Permit program. Based on a review of the case-specific facts, factors, and circumstances, and informal guidance documents and determination letters from the United States Environmental Protection Agency, MassDEP determined that the District and CNBE do not meet the criteria for common control, and therefore, the two entities should continue to be considered separate sources.

MassDEP also evaluated the relationship between CRMC Bioenergy LLC and CNBE and has determined that CRMC Bioenergy LLC and CNBE meet the criteria for common control for purposes of implementing the Title V Operating Permit program. This anaerobic digester system is identified as Emission Unit No. 8 (EU-8) in this Operating Permit.

Other equipment associated with Emission Unit Nos. 1 through 5 (EU-1 through EU-5) includes a LFG production system which conditions the LFG with a knockout drum, 2 (redundant) blowers, a

cooler, and a coalescing filter. The condensate from the conditioned LFG drains into the Landfill's leachate collection system for disposal. The engines are serviced by a closed-loop lubricating oil system that consists of a 2,000-gallon virgin oil tank and a 2,000-gallon waste oil tank. Each engine is cooled by a glycol/water mix that is run through a radiator outside of the building.

The key parameters that govern the facility operation are monitored and recorded through a supervisory control and data acquisition (SCADA) system. This electronic operator interface system allows for remote access to facility operations and is the main monitoring/recordkeeping tool. In addition, the operation of the engine-generators is controlled by General Electric Fanuc programmable logic controllers (PLCs) located in the switchgear for each engine. Controls include air-to-fuel ratio control, load control, electric generation controls and protective relays. The operation and control of the motors are by variable frequency drives (VFDs). The VFDs operate motors that drive the LFG blowers, the cooler, the engine room ventilation fans, and the radiators.

The facility also maintains a cold cleaning degreaser-parts washer identified as Emission Unit No. 6 (EU-6). The parts washer is subject to and operated in accordance with 310 CMR 7.03(8) and 310 CMR 7.18(8)(a).

The OP renewal application includes the addition of Emission Unit No. 7 (EU-7). EU7 is an emergency reciprocating internal combustion engine (RICE) which operates an emergency engine generator, fires No.2 fuel oil, and is rated at 150 kilowatts of power generation output. The unit was installed on November 13, 2014, and is subject to the requirements of 310 CMR 7.26(42) *Emergency Engines and Turbines*, 40 CFR 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and 40 CFR 63 Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.*

CNBE is considered an Area Source for Hazardous Air Pollutants (HAPs). The facility has proposed to restrict facility-wide HAP emissions to less than twenty-five (25) tons per year (aggregate total HAPs) and less than ten (10 tons per year (any Single HAP). The four (4) existing engines (EU-1, EU-2, EU-3, and EU-4) were installed prior to June 12, 2006. EU-1, EU-2, EU-3, EU-4 are subject to requirements for existing, non-emergency, non-black start, LFG-fired, stationary, spark ignited, reciprocating internal combustion engines (RICE) at 40 CFR Part 63, Subpart ZZZZ. The facility is approved for the installation of one (1) additional engine (EU-5). At the time of installation of EU-5, the Permittee shall notify MassDEP, evaluate the installation according to applicable State and Federal regulations (such as, but not limited to 40 CFR Part 63 Subpart ZZZZ, and 40 CFR Part 60 Subpart JJJJ), and propose to modify the Operating Permit as necessary. The facility does not currently have any emission units subject to requirements at 40 CFR Part 64, Compliance Assurance Monitoring (CAM).

A list of any exempt activities shall be maintained as indicated in Section 3, Table 2. Operating Permit Section 4, Tables 3, 4, 5, and 6 list the facility emission limits along with monitoring, testing, record-keeping and reporting requirements. Operating Permit Section 4, Table 7 lists regulations that are not applicable to the facility at this time.

The Permittee is subject to the requirements of Greenhouse Gas Emissions Reporting as defined by MassDEP in 310 CMR 7.71(3)(a).

This Amended Final Air Quality Operating Permit, amends Final Air Quality Operating Permit issued by MassDEP on July 23, 2020, as a result of a change in the Permittee's mailing address.

2. EMISSION UNIT IDENTIFICATION

The following emission units (Table 1) are subject to and regulated by this Operating Permit:

Table 1

EU	Description of EU	EU Design Capacity	Pollution Control Device (PCD)
EU-1 through EU-5(note 1)	Caterpillar Model No. 3516, Internal Combustion Engine	10.07 MMBtu/hr (maximum energy input) 900 kilowatts (maximum generator output)	None
EU-6	Parts Washer (Cold Cleaning Degreaser)	Meets design specifications at 310 CMR 7.18(8)(a)3.	None
EU-7	Emergency Generator Kohler Model 150REOZJF Date of Installation: 2014	Maximum heat rate input 1.725MMBtu/hr Fuel: No. 2 Fuel Oil	None
EU-8	Anaerobic Digestion System	100,000 gallon digester capacity	None

Table 1 Key:
MMBtu/hr = Million British thermal units per hour
CMR = Code of Massachusetts Regulations
EU = Emission Unit
No. = number

Table 1 Note:
(1) Facility currently consists of four (4) identical Caterpillar Engines which are identified in this Operating Permit as EU-1, EU-2, EU-3 and EU-4. EU-5 has not yet been installed.

3. IDENTIFICATION OF EXEMPT ACTIVITIES

The following are considered exempt activities in accordance with the criteria contained in 310 CMR 7.00: Appendix C(5)(h):

Table 2

Description of Current Exempt Activities	Reason
The list of current exempt activities is contained in the Operating Permit application and shall be updated by the Permittee to reflect changes at the facility over the Permit term. An up-to-date copy of exempt activities list shall be kept on-site at the facility and a copy shall be submitted to the MassDEP's Regional Office. Emissions from these activities shall be reported on the annual emissions statement pursuant to 310 CMR 7.12.	310 CMR 7.00: Appendix C(5)(h)

Table 2 Key:
MassDEP = Massachusetts Department of Environmental Protection

CMR = Code of Massachusetts Regulations

4. APPLICABLE REQUIREMENTS

A. OPERATIONAL AND/OR PRODUCTION EMISSION LIMITS AND RESTRICTIONS

The Permittee is subject to the limits/restrictions as contained in Table 3 below:

Table 3

EU	Fuel/Raw Material	Pollutant	Operational and/or Production Limits	Emissions Limits/Standards	Applicable Regulation and/or Approval No.
1,2,3,4,5 (per engine) (Note 2)	Landfill Gas/ Digester Gas	NO_x	N/A	0.166 lb/MMBtu	4B04015 SE-13-020
				0.60 g/bhp-hr	
				0.62 TPM	
				7.32 TPY (Note 1)	
		CO	N/A	0.83 lb/MMBtu	
				3.11 TPM	
				36.61 TPY (Note 1)	
		NMOC	N/A	0.083 lb/MMBtu	
				0.31 TPM	
				3.66 TPY (Note 1)	
		VOC	N/A	0.083 lb/MMBtu	
				0.31 TPM	
				3.66 TPY (Note 1)	
		$PM/PM_{10}/PM_{2.5}$	N/A	0.06 lb/MMBtu	
				0.21 TPM	
				2.40 TPY (Note 1)	
		SO_2	LFG $H_2S \leq 200$ ppm_v	0.064 lb/MMBtu	
				0.24 TPM	
				2.81 TPY (Note 1)	
1,2,3,4	Landfill Gas/ Digester Gas	HAP (Note 6)	Change oil and filter every 1440 hours of operation or annually(Note 3), whichever comes first; Inspect spark plugs every 1440 hours of operation or annually, whichever comes first; and Inspect all hoses and belts every 1440 hours of operation or annually, whichever comes first, and replace as necessary.		40 CFR Part 63, Subpart ZZZZ §§ 63.6603(a), 63.6625(j) and Table 2d
			At all times operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for		40 CFR Part 63, Subpart ZZZZ § 63.6605(a) and (b)

Table 3

EU	Fuel/Raw Material	Pollutant	Operational and/or Production Limits	Emissions Limits/Standards	Applicable Regulation and/or Approval No.
			minimizing emissions.		
1,2,3,4	Landfill Gas/ Digested Gas	HAP (Note 6)	i. Operate and maintain the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.		40 CFR Part 63, Subpart ZZZZ § 63.6625(e) and Table 6
			Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.		40 CFR Part 63, Subpart ZZZZ § 63.6625(h) and Table 2d
1,2,3,4,5 (Combined) (Note 4)	Landfill Gas/ Digester Gas	NO_x	See heat input limit below	3.10 TPM 36.6 TPY (Note 1)	4B04015 SE-13-020
		CO	See heat input limit below	15.5 TPM 183.0 TPY (Note 1)	
		VOC	See heat input limit below	1.55 TPM 18.3 TPY (Note 1)	
		NMOC	See heat input limit below	1.55 TPM 18.3 TPY (Note 1)	
			Operate each EU at all times when the collected LFG is routed to the EU	Each EU shall reduce NMOC emissions by 98% by weight, or reduce the stack NMOC concentration to < 20 ppm_{vd}, as hexane, at 3% O_2	
		$PM/PM_{10}/PM_{2.5}$	See heat input limit below	1.05 TPM 12.2 TPY (Note 1)	
		SO_2	See heat input limit below	1.20 TPM 14.0 TPY (Note 1)	
		All	Maximum heat input of LFG/DG shall not exceed 37,460 MMBtu per month	N/A	
			Maximum heat input of LFG/DG shall not exceed 440,925 MMBtu in any consecutive 12 month period	N/A	
1,2,3,4,5	Landfill Gas/ Digester Gas	Visible Emissions	Stack emissions shall not exceed 0% opacity (no visible emissions), with the exception of up to five (5) minutes during startup. During startup visible emissions shall comply with the provisions of 310 CMR 7.06.		4B04015 SE-13-020
6	Non-halogenated solvent	VOC	Solvent consumption < 100 gallons per month per unit	Operating procedures identified at 310 CMR 7.18(8)(e); **and** design features and specifications identified at 310 CMR	310 CMR 7.03(8) 310 CMR 7.18(8)(a) 310 CMR 7.18(8)(e)

Table 3

EU	Fuel/Raw Material	Pollutant	Operational and/or Production Limits	Emissions Limits/Standards	Applicable Regulation and/or Approval No.
				7.18(8)(a)	
7	No 2. Fuel Oil	All	≤ 100 hours per calendar year for maintenance and testing as recommended by the manufacturer; and As part of the above, ≤ 50 hours per calendar year for non-emergency situations; and During an emergency		310 CMR 7.26(42)(d)1.a.
			Affected source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines		40 CFR Part 63, Subpart ZZZZ § 63.6590(c) 310 CMR 7.26(42)(d)1.b.
		$NMHC + NO_x$	As noted below	4.0 g/kW-hr	40 CFR Part 60, Subpart IIII § 60.4211(a) and (c) § 60.4205(b) § 60.4202(a)(2) 40 CFR Part 89 Subpart B § 89.112
		CO	As noted below	3.5 g/kW-hr	
		PM	As noted below	0.20 g/kW-hr	
		Sulfur in fuel	N/A	≤ 0.0015 percent	310 CMR 7.26(42)(c) 310 CMR 7.05(1)(a)1.: Table 1
		All	N/A	Shall comply with applicable Emission limits set by US EPA for non-road engines (40 CFR 89).	310 CMR 7.26(42)(b)
			Operate and maintain engine and control device according to manufacturer's emission-related written instructions. ***See Table 4, Proviso No. 19***		40 CFR Part 60, Subpart IIII § 60.4211(a)(1) and (2)
			Limited to operation as noted at § 60.4211(f) for emergency stationary ICE. ***See Table 4, Provisos Nos. 16, 17, & 18***		40 CFR Part 60 Subpart IIII 310 CMR 7.26(42)(d)1.
		Smoke	N/A	< No. 1 of Chart[(1)], except ≥ No. 1 to < No. 2 of Chart for ≤ 6 minutes during any one hour, no time to equal or exceed No. 2 of the Chart.	310 CMR 7.26(42)(d)5. 310 CMR 7.06(1)(a)

Table 3

EU	Fuel/Raw Material	Pollutant	Operational and/or Production Limits	Emissions Limits/Standards	Applicable Regulation and/or Approval No.
7	No 2. Fuel Oil	Opacity	N/A	≤ 20 % except >20% to ≤ 40 % for ≤ 2 minutes during any 1 hour	310 CMR 7.26(42)(d)5. 310 CMR 7.06(1)(b)
		Sound		Constructed, located, operated and maintained to comply with 310 CMR 7.10	310 CMR 7.26(42)(d)2. 310 CMR 7.10 **(State Only Requirement)**
		All	Limited to stack height and Emission dispersion requirements. ***See Table 4 Proviso No. 21***	N/A	310 CMR 7.26(42)(d)3.a.
8	Digester Gas	N/A	3,000 gallons of feedstock per day based on a 90 day rolling average	N/A	SE-13-020
Facility-wide	All	Greenhouse Gas (Note 5)	N/A	N/A	310 CMR 7.71 **(State Only Requirement)**
	All	Any Single HAP	N/A	< 10 TPY	17-AQ14/12-000003-APP
		Total HAP		< 25 TPY	

Table 3 Key:

Btu = British thermal units
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CO = Carbon Monoxide
DG = Digester Gas
EU = Emission Unit
g/bhp-hr =grams per brake horsepower for one hour (engine output)
g/kW-hr = grams per kilowatt for one hour (engine output)
HAP = Hazardous Air Pollutant as listed in the 1990 Clean Air Act Amendments, Section 112(b)
H_2S = Hydrogen Sulfide
HAP = Hazardous Air Pollutant(s)
ICE = Internal Combustion Engine
lb/MMBtu = pound per Million British thermal units
LFG = Landfill Gas
MMBtu = Million Btu
N/A = Not Applicable
No. = Number
Nos. = Numbers
NMHC = Non-Methane HydroCarbons
NMOC = Non-Methane Organic Compounds

NO_x = Nitrogen Oxides
O_2 = Oxygen
PM = Total Particulate Matter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
ppm_v = Parts per million, by volume
ppm_{vd} = parts per million, by volume, dry basis
RICE = Reciprocating Internal Combustion Engine
SO_2 = Sulfur Dioxide
TPM = Tons Per Month
TPY = Tons Per consecutive12-month period [1]
VOC = Volatile Organic Compound
% = Percent
≥ = Greater than or equal to
< = Less than
≤ = Less than or equal to
+ = added to
§ = Section
§§ = Sections

Table 3 Foot Notes:

1. To calculate the amount of a consecutive 12 month rolling period take the current calendar month amount and add it to the previous 11 calendar months total amount.
2. Emission limits listed are for individual emission units.
3. Sources have the option to utilize an oil analysis program as described in § 63.6625(j) in order to extend the specified oil change requirement in Table 2d of this subpart.
4. Emission limits and Heat Input limits represent a combined total for up to five emission units.
5. Greenhouse Gas means any chemical or physical substance that is emitted into the air and that MassDEP may reasonably anticipate will cause or contribute to climate change including, but not limited to: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexaflouride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).
6. Hazardous Air Pollutants are as listed in the 1990 Clean Air Act (CAA) Amendments, Section 112(b).
7. Chart means the Ringelmann Scale for grading the density of smoke, as published by the United States Bureau of Mines and as referred to in the Bureau of Mines Information Circular No. 8333, or any smoke inspection guide approved by the MassDEP.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to the monitoring/testing, record keeping, and reporting requirements as contained in Tables 4, 5, and 6 below and 310 CMR 7.00 Appendix C (9) and (10) and applicable requirements contained in Table 3:

Table 4

EU	Monitoring And Testing Requirements
EU-1 EU-2 EU-3 EU-4	1. In accordance with Plan Approval No. 4B04015, one operable oxygen analyzer shall be maintained on-site and record shall be maintained of the stack outlet oxygen (O_2) levels at least once per week on each engine.
	2. As applicable, and in lieu of oil change required in Table 3, analyze engine oil for Total Acid Number, viscosity, and percent water content as specified at 40 CFR §63.6625(j).
	3. In accordance with Plan Approval No. 4B04015, each engine/generator set shall be continuously monitored for run time and kW produced.
	4. In accordance with Plan Approval No. 4B04015, a LFG flow recorder shall be maintained so that an on-site record of the total volume of LFG (scf) fired by the five (5) engine/generator sets will be available by date and time period.
	5. In accordance with Plan Approval No. 4B04015, the heat input of LFG (Btu) fired in each EU shall be determined by gas chromatograph and/or field measurements for each month and for each consecutive 12-month period.
	6. In accordance with 310 CMR 7.00: Appendix C(9)(b)2., monitor the H_2S concentration (ppm_v) of the LFG to be combusted on a monthly basis. The sampling shall be conducted using a protocol and test method(s) that are approved by MassDEP.
	7. In accordance with 310 CMR 7.00: Appendix C(9)(b)2., perform monthly visible emissions observations of each engine exhaust, in accordance with 40 CFR Part 60, Appendix A, Method 22, for a time period no less than fifteen (15) minutes while the engines are in operation.
	8. In accordance with Plan Approval No. 4B04015, the ability of the facility to maintain emission rates at or below approved levels shall be demonstrated to the MassDEP in the future if deemed necessary. Compliance testing, if requested by MassDEP, shall be conducted in accordance with MassDEP's "Guideline for Source Emission Testing" and test methods and procedures contained in 40 CFR Part 60, Appendix A.
EU-5	9. In accordance with Plan Approval No. 4B04015, the facility shall be constructed to accommodate the emission testing requirements contained in 40 CFR Part 60, Appendix A.
	10. In accordance with Plan Approval No. 4B04015, emission testing shall be performed to determine compliance with approved CO, NMOC and NO_x emission limits. Emission testing shall be completed within ninety (90) days from the date the engine commences LFG burning after startup of the facility.
	11. Upon installation the Permittee shall conduct, as applicable, monitoring and performance testing required at 40 CFR Part 60 and 40 CFR Part 63.
	12. In accordance with Plan Approval No. 4B04015, a NO_x/CO optimization/minimization diagnostic emission test program shall be conducted prior to emission testing.

Table 4	
EU	**Monitoring And Testing Requirements**
EU-6	13. In accordance with 310 CMR 7.18(8)(h), Persons subject to 310 CMR 7.18(8) shall, upon request of the MassDEP, perform or have performed test to demonstrate compliance. Testing shall be conducted in accordance with a method approved by the MassDEP and USEPA.
EU-7	14. In accordance with 40 CFR 60.4206, the Permittee must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4205(b) and 60.4202(a)(2) over the entire life of the engine.
	15. In accordance with 310 CMR 7.26(42)(d)1.c., and 40 CFR 60.4209(a), the Permittee must install a non-turn-back hour counter. The non-turn-back hour counter shall be operated and maintained in good working order.
	16. In accordance with 40 CFR 60.4211(f)(1), the Permittee may operate the emergency stationary ICE for emergency situations with no time limit.
	17. In accordance with 40 CFR 60.4211(f)(2)(i), the Permittee may operate the emergency stationary ICE for any combination of the purposes specified below for a maximum of 100 hours per calendar year. (i) Emergency Stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
	18. In accordance with 40 CFR 60.4211(f)(3), the Permittee may operate the Emergency stationary ICE for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (f)(2)(i) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per year for nonemergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. (i) The 50 hours per year for nonemergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met: *A. The Engine is dispatched by the local balancing authority or local transmission and distribution system operator;* *B. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.* *C. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or Guidelines.* *D. The power is provided only to the facility itself or to support the local transmission and distribution system.* *E. The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.*

Table 4

EU	Monitoring And Testing Requirements
EU-7	19. In accordance with 310 CMR 7.26(42)(e)2., MassDEP may require emission or other monitoring to assure compliance with the requirements of 310 CMR 7.26(42).
	20. In accordance with 310 CMR 7.26(42)(e)3., any testing when required shall comply with the following: a) Tests to certify compliance with emission limitations must be performed in accordance with EPA reference Methods, California Air Resources Board Methods approved by EPA, or equivalent methods as approved by MassDEP and EPA. b) Particulate matter from liquid fuel reciprocating engines shall be determined using Method 8178 D2 of the International Organization for Standardization. c) MassDEP may require emission or other testing to assure compliance with the emission limitations or fuel requirements.
	21. In accordance with 310 CMR 7.26(42)(d)3.a., the engine shall utilize an exhaust stack that discharges so as to not cause a condition of air pollution (310 CMR 7.01(1)). Exhaust stacks shall be configured to discharge the combustion gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted combustion gases. Any emission impacts of exhaust stacks upon sensitive receptors including, but not limited to, people, windows and doors that open, and building fresh air intakes shall be minimized by employing good air pollution control engineering practices. Such practices include without limitation: i) Avoiding locations that may be subject to downwash of the exhaust; and ii) Installing stack(s) of sufficient height in locations that will prevent and minimize flue gas impacts upon sensitive receptors.
EU-8	22. In accordance with Plan Approval SE-13-020, the Permittee shall continuously monitor the pressure in the Blending and Mixing tank to ensure it is maintained at a negative pressure at all times.
	23. In accordance with Plan Approval SE-13-020, the Permittee shall continuously monitor the biogas production rate of the anaerobic digestion system.
	24. In accordance with Plan Approval SE-13-020, if and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.
Facility-wide	25. In accordance with Plan Approval No. 4B04015 and 310 CMR 7.12, monitor operations such that information may be compiled for the annual preparation of a Source Registration/Emission Statement.
	26. In accordance with AQ14/12-000003-APP, the Permittee shall monitor so that comprehensive and accurate records are maintained onsite to demonstrate compliance with the facility-wide HAP emission limits contained in Table 3. Monitor so that records are compiled for actual emissions of all HAPs emitted for each calendar month and for each consecutive twelve-month period and compiled no later than the 15th day following each month.
	27. In accordance with 310 CMR 7.13(1) Any person owning, leasing, operating or controlling a facility for which the MassDEP has determined that stack testing is necessary to ascertain compliance with the MassDEP's regulations or design approval provisos shall cause such stack testing: a) to be conducted by a person knowledgeable in stack testing, b) to be conducted in accordance with procedures contained in a test protocol which has been approved by the MassDEP, c) to be conducted in the presence of a representative of the MassDEP when such is deemed necessary, and d) to be summarized and submitted to the MassDEP with analysis and report within such time as agreed to in the approved test protocol.

Table 4	
EU	**Monitoring And Testing Requirements**
Facility-wide	28. In accordance with 310 CMR 7.13(2) Any person having control of a facility relative to which the MassDEP determines that stack testing (to ascertain the mass emission rates of air contaminants emitted under various operating conditions) is necessary for the purposes of regulatory enforcement or determination of regulatory compliance shall cooperate with the MassDEP to provide: a) entrance to a location suitable for stack sampling, b) sampling ports at locations where representative samples may be obtained, c) tagging and ladders to support personnel and equipment for performing the tests, d) a suitable power source at the sampling location for the operation of sampling equipment, and e) such other reasonable facilities as may be requested by the MassDEP.
	29. In accordance with 310 CMR 7.00: Appendix C (9)(b), the Permittee shall; a) comply with all emissions monitoring and analysis procedures or test methods required under the applicable requirements, including those promulgated pursuant to 42 U.S.C. 7401, §§ 504(a) and 504(b) or 114(a)(3); b) if the applicable requirement does not require periodic testing or instrumental or non-instrumental monitoring (which may consist of record keeping designed to serve as monitoring), then the Permittee shall perform periodic monitoring sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit. Such monitoring requirements shall assure the use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Record keeping provisions may be sufficient to meet the requirements; and c) comply with requirements concerning the use, maintenance and installation of monitoring equipment or methods as the MassDEP deems appropriate.
	30. In accordance with 310 CMR 7.71(1) and Appendix C(9), the Permittee shall establish and maintain data systems or record keeping practices (e.g. fuel use records, SF_6 usage documentation, Continuous Emissions Monitoring System) for greenhouse gas emissions to ensure compliance with the reporting provisions of M.G.L. c. 21N, the Climate Protection and Green Economy Act, St. 2008, c. 298, § 6. (**State Only Requirement**)

Table 4 Key*:*
Btu= British thermal units
c. = chapter
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CO = Carbon Monoxide
e.g. = for example
EU = Emission Unit
HAP = Hazardous Air Pollutant, as listed in the 1990 Clean Air Act (CAA) Amendments, Section 112(b)
H_2S = Hydrogen Sulfide
ICE = Internal Combustion Engine
kW = kiloWatt
LFG = Landfill Gas
M.G.L. = Massachusetts General Law
NERC = North American Electric Reliability Corporation
NMOC = Non-Methane Organic Compound
NO_x = Nitrogen Oxides
No. = Number
O_2 = Oxygen
ppm_v = parts per million, by volume
scf = standard cubic foot
SF_6 = Sulfur Hexafluoride
SI = Spark Ignition
U.S.C. = United States Code
USEPA = United States Environmental Protection Agency
§ = Section
§§ = Sections

Table 5	
EU	**Record Keeping Requirements**
EU-1 EU-2 EU-3 EU-4 EU-5	1. In accordance with Plan Approval No. 4B04015, a record of stack oxygen levels, as determined at least weekly during operation, shall be maintained for each engine.
	2. In accordance with Plan Approval No. 4B04015, a copy of the NO_x/CO optimization/minimization program report for each engine shall be maintained on-site. 3. In accordance with Plan Approval No. 4B04015, a record of the volume of LFG (scf) fired in each engine/generator set for each month and for each consecutive 12 month period shall be maintained on-site. This record shall take into account the total volume of LFG fired by the combined engine/generator sets, and the individual engine/generator set run time and amount of electricity produced.
	4. In accordance with Plan Approval No. 4B04015, the heat input of LFG (Btu) fired in the engine/generator sets for each month and consecutive 12 month period shall be maintained on-site.
	5. In accordance with Plan Approval No. 4B04015, a record of NO_x, CO, NMOC, VOC, PM, and SO_2 monthly and consecutive 12 month period emission rate records for each engine/generator set shall be maintained on-site.
	6. In accordance with Plan Approval No. 4B04015, a copy of the Standard Operating and Maintenance Procedures for all subject equipment shall be maintained on-site.
	7. In accordance with Plan Approval No. 4B04015, an operation log, or other record keeping system, shall be maintained on-site at a level of detail sufficient to document that the Operation and Emission Limits in Table 3 are not exceeded.
	8. In accordance with 310 CMR 7.00: Appendix C(10)(b), maintain records of the monthly H_2S monitoring results to include H_2S concentration (ppm_v) in LFG and the corresponding SO_2 emission calculations.
	9. In accordance with 310 CMR 7.00: Appendix C(10)(b), maintain records of the monthly visible emissions observations to include date and time period of the observations, the result of observations with respect to visible emissions, and a description of the facility operations at the time of the observation.
	10. In accordance with Plan Approval No. 4B04015, all operating and monitoring records, including emission test reports, shall be maintained for the life of the facility; the five most recent years of data/records shall be maintained on-site.
	11. In accordance with 40 CFR 63.6655(a)(2), maintain records of the occurrence and duration of each malfunction of operation or the air pollution control and monitoring equipment.
	12. In accordance with 40 CFR 63.6655(a)(5), maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
	13. In accordance with 40 CFR 63.6655(d), maintain records of manufacturer's emission-related operation and maintenance instructions; or the facility maintenance plan, if developed as allowed at 40 CFR 63, Subpart ZZZZ, Table 6.

Table 5	
EU	**Record Keeping Requirements**
EU-1 EU-2 EU-3 EU-4 EU-5	14. In accordance with 40 CFR 63.6655(d) and (e), maintain records of the maintenance (and monitoring as specified at §63.6625(j), if applicable) conducted on the stationary RICE in order to demonstrate that the RICE was operated and maintained according the requirements of 40 CFR 63, Subpart ZZZZ, Table 2d and Table 6.
EU-6	15. In accordance with 310 CMR 7.03(6) and 7.18(8)(g), prepare and maintain records sufficient to demonstrate continuous compliance as stated in 310 CMR 7.18(8)(f) and with the monthly solvent usage restriction in 310 CMR 7.03(8). Records shall include, but are not limited to: identity, quantity, formulation and density of solvent(s) used and waste solvent(s) generated.
EU-7	16. In accordance with 310 CMR 7.26(42)(f), the Permittee shall maintain records described in 310 CMR 7.26(42)(f)1. through 4. Such records shall be maintained on site or for remote locations, at the closest facility where records can be maintained and shall be made available to MassDEP or its designee upon request. The owner or operator shall certify that records are accurate and true in accordance with 310 CMR 7.01(2)(a) through (c). 1) Information on equipment type, make and model, and rated power output; 2) A log of operations, including date, time and duration of operation and reason for each start per 310 CMR 7.26(42)(d)1., fuel type and supplier; 3) Purchase orders, invoices, and other documents to substantiate information in the log; 4) Copies of certificates and documents from the manufacturer related to certificates.
EU-8	17. In accordance with Plan Approval SE-13-020, the Permittee shall continuously record the pressure in the Blending and Mixing tank to document it is maintained at negative pressure at all times.
	18. In accordance with Plan Approval SE-13-020, the Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. These records shall be compiled no later than the 15th day following each month.
	19. In accordance with Plan Approval SE-13-020, the Permittee shall maintain records of monitoring and testing as required by Table 4.
	20. In accordance with Plan Approval SE-13-020, the Permittee shall maintain a copy of the most up-to-date SOMP for the EU(s) approved herein on-site.
	21. In accordance with Plan Approval SE-13-020, the Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	22. In accordance with Plan Approval SE-13-020, the Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
Facility-wide	23. In accordance with 310 CMR 7.71 (6) (b) and (c), the Permittee shall keep on site at the facility documents of the methodology and data used to quantify emissions for a period of 5 years from the date the document is created. The Permittee shall make these documents available to MassDEP upon request. (**State Only Requirement**).

Table 5	
EU	**Record Keeping Requirements**
Facility-wide	24. In accordance with AQ14/12-000003-APP, the Permittee shall maintain comprehensive and accurate records onsite to demonstrate compliance with the facility-wide HAP emission limits contained in Table 3. A record of all HAPs emitted for each calendar month and for each consecutive twelve-month period shall be maintained on-site. These records shall be compiled no later than the 15th day following each month.
	25. In accordance with Plan Approval No. 4B04015, a record keeping system shall be established and maintained on-site. All records shall be maintained up-to-date such that the year-to-date information is readily available for MassDEP examination. Record keeping shall, at a minimum, include: a) a record of routine maintenance activities performed on emission unit control and monitoring equipment including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed; and b) a record of all malfunctions on emission unit control and monitoring equipment shall include, at a minimum: the date and time the malfunctions occurred; a description of the malfunctions and the corrective actions taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the emission unit returned to compliance. All records shall be kept on-site for five (5) years and shall be made available to MassDEP personnel upon request.
	26. In accordance with 310 CMR 7.12, maintain records to facilitate compilation of data for the required Source Registration submittal.
	27. In accordance with 310 CMR 7.12(3)(c), copies of Source Registration and other information supplied to MassDEP, to comply with 310 CMR 7.12, shall be retained by the facility owner/operator for five years from the date of submittal.
	28. In accordance with Plan Approval SE-13-020, the Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 5 Key:

Btu = British thermal units
CFR= Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CO = Carbon Monoxide
EU = Emission Unit
HAP = Hazardous air pollutant, as listed in the 1990 Clean Air Act (CAA) Amendments, Section 112(b)
H_2S = Hydrogen Sulfide
LFG = Landfill Gas
MassDEP = Massachusetts Department of Environmental Protection
NMOC = Non-Methane organic compounds
NO_x = Nitrogen Oxides
No.= Number
PM = Particulate Matter
ppm_v = parts per million, by volume
RICE = Reciprocating Internal Combustion Engine
scf = standard cubic foot
SO_2 = Sulfur Dioxide
VOC = Volatile Organic Compounds
§= Section

Table 6

EU	Reporting Requirements
EU-1 EU-2 EU-3 EU-4 EU-5	1. In accordance with Plan Approval No. 4B04015, revisions to the Final Standard Operating and Maintenance Procedures shall be submitted to the MassDEP within seven (7) days from their initial use.
	2. In accordance with Plan Approval No. 4B04015, the MassDEP's Permit Chief for the Bureau of Air and Waste at this office must be notified by telephone or electronic mail within 24 hours, and with written notification within ten (10) days, after occurrence of any upsets or malfunctions to the facility equipment, air pollution control equipment, or monitoring equipment which result in an excess emission to the air and/or a condition of air pollution.
EU-5	3. In accordance with Plan Approval No. 4B04015, notification to the MassDEP, in writing, shall be made within 10 days from the date that EU-5 commences LFG or digester gas burning.
Facility-wide	4. In accordance with Plan Approval 4B04015 and 310 CMR 7.12, the Permittee shall submit a Source Registration/Emission Statement Form to MassDEP on an annual basis.
	5. In accordance with Plan Approval No. 4B04015, a stack test protocol shall be submitted to the MassDEP at least 30 days prior to the commencing of compliance testing. The final emission report shall be submitted to the MassDEP within 30 days from completion of on-site testing.
	6. In accordance with 310 CMR 7.13(1) and 7.13(2), if determined by MassDEP that stack testing is necessary to ascertain compliance with the Department's regulations or design approval provisos, the Permittee shall cause such stack testing to be summarized and submitted to MassDEP as prescribed in the agreed to pretest protocol.
	7. In accordance with 310 CMR 7.00: Appendix C(10)(c)., the Permittee shall report a summary of all monitoring data and related supporting information to MassDEP at least every six months (January 30 and July 30 of each calendar year).
	8. In accordance with General Condition 10 of this Permit, the Permittee shall submit the Annual Compliance report to MassDEP and USEPA by January 30 of each year.
	9. In accordance with 310 CMR 7.00: Appendix C (10)(f), the Permittee shall promptly report to the MassDEP all instances of deviations from permit requirements. This report shall include the deviation itself, including those attributable to upset conditions as defined in the permit, the probable cause of the deviation, and any corrective actions or preventative measures taken.
	10. Submit Annual Compliance report to MassDEP and USEPA by January 30 of each year and as required by General Condition 10 of this Permit.
	11. In accordance with 310 CMR 7.00: Appendix C (10)(h), all required reports must be certified by a responsible official consistent with 310 CMR 7.00: Appendix C (5)(c).
	12. Unless otherwise noted **(Note 1)**, all notifications and reporting required by this Operating Permit shall be sent to: Department of Environmental Protection Bureau of Air and Waste Southeast Regional Office 20 Riverside Drive Lakeville, MA 02347 ATTN: Chief, Air Permitting Telephone: (508) 946-2770 Electronic mail address: sero.air@mass.gov
	13. In accordance with 310 CMR 7.71(5), the Permittee shall electronically submit and certify by April 15th of each year a greenhouse gas emissions report to MassDEP. (**State Only Requirement**).

Table 6 Key:

EU = Emission Unit
CMR = CMR = Code of Massachusetts Regulations
MassDEP = Massachusetts Department of Environmental Protection
USEPA = United States Environmental Protection Agency
No. = Number
LFG = Landfill Gas

Table 6 Note:

(1) The annual Source Registration/Emission Statement shall be submitted to the MassDEP office specified in the instructions.

C. GENERAL APPLICABLE REQUIREMENTS

The Permittee shall comply with all generally applicable requirements contained in 310 CMR 7.00 et seq. and 310 CMR 8.00 et. seq., when subject.

D. REQUIREMENTS NOT CURRENTLY APPLICABLE

The Permittee is currently not subject to the following requirements:

Table 7

Regulation	Reason
310 CMR 7.16: Reduction of Single Occupant Commuter Vehicle Use	Facility is below employee threshold.
40 CFR Part 64: Compliance Assurance Monitoring	Facility has no subject emission units

Table 7 Key:

CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations

5. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to and shall comply with the following special terms and conditions that are not contained in Table 3, 4, 5, and 6:

Table 8

EU	Special Terms and Conditions
EU-5	1. In accordance with AQ14/12-000003-APP, at the time of installation of EU-5, the Permittee shall notify MassDEP, evaluate the installation according to applicable State and Federal regulations (such as, but not limited to 40 CFR Part 63 Subpart ZZZZ, and 40 CFR Part 60 Subpart JJJJ), and propose to modify the Operating Permit as necessary.
EU-7	2. In accordance with 310 CMR 7.26(42)(b)3., the Permittee shall obtain from the supplier a statement that a certificate of conformity has been obtained from the USEPA. Pursuant to 40 CFR 89.105 as in effect October 23, 1998, any engine certified under the USEPA non-road standards is automatically certified to operate as an emergency engine pursuant to 310 CMR 7.26(42).
EU-8	3. In accordance with Plan Approval SE-13-020, in the event that the engines at the facility are not operational, all digested gas from the anaerobic digester system shall be routed to the flare.
Facility-wide	4. Emission Units EU-1 through EU-5 construction shall be consistent with the Equipment and Design Schedule in Plan Approval Nos. 4B04015 and SE-13-020 as follows: **Engine/Electric Generator Sets** Manufacturer: Caterpillar (or equiv.) Model No.: 3516 (or equiv.) Max. Heat Input: 10.07 MMBtu/hr/engine @ 900 kW Fuel: Landfill Gas / Digester Gas Maximum Output: 900 kW/generator Nominal Output: 825 kW/generator Max. Stack Exit Temperature: 960 °F Stack Material: Steel Stack Height: 30 feet above ground Stack Exit Diameter: 12 inches Silencer Manufacturer: EM Products (or equiv.) Silencer Model No.: JCS12-X2608 (or equiv.) **Approximate Facility Location** UTM Coordinates: 334925 East, 4620880 North (Zone 19) Latitude/Longitude: North 41° 43' 28", West 70° 59'
	5. Emission units EU-1 through EU-4 are subject to the requirements of 40 CFR 63.1-15, Subpart A, "General Provisions" [as indicated in Table"8" to Subpart ZZZZ of 40 CFR 63] except §§ 63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), 63.9(g) and 63.9(h) as specified at § 63.6645(a)(5). Compliance with all applicable provisions therein is required.
	6. In accordance with Plan Approval No. 4B04015, there shall be no direct release or bypass of landfill gas from the facility to the ambient air.
	7. In accordance with Plan Approval No. 4B04015, sound impacts shall not exceed 10 dB(A) above background and shall not cause a puretone condition as defined in the MassDEP's DAQC Policy No. 90-001. (**State Only Requirement**)

Table 8	
EU	**Special Terms and Conditions**
Facility-wide	8. In accordance with Plan Approval No. 4B04015, MassDEP personnel shall be provided immediate access to the plant site, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
	9. In accordance with Plan Approval No. 4B04015, if any nuisance condition(s) should be generated by the operation of this facility, immediate appropriate steps shall be taken to abate the nuisance condition(s).

Table 8 Key:

CFR = Code of Federal Regulations
dB(A) = decibels weighted for the "A" scale
hr = hour
MMBtu = Million British Thermal Units
° = degrees
' = minutes
" = seconds
°F = degrees Fahrenheit
@ = at
equiv. = equivalent
DAQC = Division of Air Quality Control
EU = Emission Unit
kW = kilowatt
No. = Number
UTM = Universal Transverse Mercator
§ = Section
§§ = Sections
USEPA = United States Environmental Protection Agency
CMR = Code of Massachusetts Regulations
max. = maximum

6. ALTERNATIVE OPERATING SCENARIOS

The Permittee did not request alternative operating scenarios in its Operating Permit application.

7. EMISSIONS TRADING

A. INTRA-FACILITY EMISSION TRADING

The Permittee did not request intra-facility emissions trading in its Operating Permit application.

B. INTER-FACILITY EMISSION TRADING

The Permittee did not request inter-facility emissions trading in its Operating Permit application.

8. COMPLIANCE SCHEDULE

The Permittee has indicated that the Facility is in compliance and shall remain in compliance with the applicable requirements contained in Sections 4 and 5.

In addition, the Permittee shall comply with any applicable requirements that become effective during the Permit term.

GENERAL CONDITIONS FOR OPERATING PERMIT

9. FEES

The Permittee has paid the permit application processing fee and shall pay the annual compliance fee in accordance with the fee schedule pursuant to 310 CMR 4.00.

10. COMPLIANCE CERTIFICATION

All documents submitted to the MassDEP shall contain certification by the responsible official of truth, accuracy, and completeness. Such certification shall be in compliance with 310 CMR 7.01(2) and contain the following language:

"I certify that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments and that, based on 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 for submitting false information, including possible fines and imprisonment."

The "Operating Permit Reporting Kit" contains instructions and the Annual Compliance Report and Certification and the Semi-Annual Monitoring Summary Report and Certification. The "Operating Permit Reporting Kit" is available to the Permittee via the MassDEP's web site, http://www.mass.gov/dep/air/approvals/aqforms.htm#op.

A. Annual Compliance Report and Certification

The Responsible Official shall certify, annually for the calendar year, that the facility is in compliance with the requirements of this Operating Permit. The report shall be postmarked or delivered by January 30 to the MassDEP and to the Air Compliance Clerk, U.S. Environmental Protection Agency - New England Region. The report shall be submitted in compliance with the submission requirements below.

The compliance certification and report shall describe:

1) the terms and conditions of the Permit that are the basis of the certification;
2) the current compliance status and whether compliance was continuous or intermittent during the reporting period;
3) the methods used for determining compliance, including a description of the monitoring, record keeping, and reporting requirements and test methods; and
4) any additional information required by the MassDEP to determine the compliance status of the source.

B. Semi-Annual Monitoring Summary Report and Certification

The Responsible Official shall certify, semi-annually on the calendar year, that the Facility is in compliance with the requirements of this Permit. The report shall be postmarked or delivered by January 30 and July 30 to MassDEP. The report shall be submitted in compliance with the submission requirements below.

The compliance certification and report shall describe:

1) the terms and conditions of the Permit that are the basis of the certification;
2) the current compliance status during the reporting period;
3) the methods used for determining compliance, including a description of the monitoring, record keeping, and reporting requirements and test methods;
4) whether there were any deviations during the reporting period;
5) if there are any outstanding deviations at the time of reporting, and the Corrective Action Plan to remedy said deviation;
6) whether deviations in the reporting period were previously reported;
7) if there are any outstanding deviations at the time of reporting, the proposed date of return to compliance;
8) if the deviations in the reporting period have returned to compliance and date of such return to compliance; and
9) any additional information required by the MassDEP to determine the compliance status of the source.

11. NONCOMPLIANCE

Any noncompliance with a permit condition constitutes a violation of 310 CMR 7.00: Appendix C and the Clean Air Act, and is grounds for enforcement action, for Permit termination or revocation, or for denial of an Operating Permit renewal application by the MassDEP and/or EPA. Noncompliance may also be grounds for assessment of administrative or civil penalties under M.G.L. c.21A, §16 and 310 CMR 5.00; and civil penalties under M.G.L. c.111, §142A and 142B. This Permit does not relieve the Permittee from the obligation to comply with any other provisions of 310 CMR 7.00 or the Act, or to obtain any other necessary authorizations from other governmental agencies, or to comply with all other applicable Federal, State, or Local rules and regulations, not addressed in this Permit.

12. PERMIT SHIELD

A. This Facility has a permit shield provided that it operates in compliance with the terms and conditions of this Permit. Compliance with the terms and conditions of this Permit shall be deemed compliance with all applicable requirements specifically identified in Sections 4, 5, 6, and 7, for the emission units as described in the Permittee's application and as identified in this Permit.

Where there is a conflict between the terms and conditions of this Permit and any earlier approval or Permit, the terms and conditions of this Permit control.

B. The MassDEP has determined that the Permittee is not currently subject to the requirements listed in Section 4, Table 7.

C. Nothing in this Permit shall alter or affect the following:

1) the liability of the source for any violation of applicable requirements prior to or at the time of Permit issuance.
2) the applicable requirements of the Acid Rain Program, consistent with 42 U.S.C. §7401, §408(a); or
3) the ability of EPA to obtain information under 42 U.S.C. §7401, §114 or §303 of the Act.

13. ENFORCEMENT

The following regulations found at 310 CMR 7.02(8)(h) Table 6 for wood fuel, 7.04(9), 7.05(8), 7.09 (odor), 7.10 (noise), 7.18(1)(b), 7.70, 7.71, 7.72, 7.74, 7.75 and any condition(s) designated as "state only" are not federally enforceable because they are not required under the Act or under any of its applicable requirements. These regulations and conditions are not enforceable by the EPA. Citizens may seek equitable or declaratory relief to enforce these regulations and conditions pursuant to Massachusetts General Law Chapter 214, Section 7A

All other terms and conditions contained in this Permit, including any provisions designed to limit a facility's potential to emit, are enforceable by the MassDEP, EPA and citizens as defined under the Act.

A Permittee shall not claim as a defense in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

14. PERMIT TERM

This Permit shall expire on the date specified on the cover page of this Permit, which shall not be later than the date 5 years after issuance of this Permit.

Permit expiration terminates the Permittee's right to operate the facility's emission units, control equipment or associated equipment covered by this Permit, unless a timely and complete renewal application is submitted at least 6 months before the expiration date.

15. PERMIT RENEWAL

Upon the MassDEP’s receipt of a complete and timely application for renewal, this Facility may continue to operate subject to final action by the MassDEP on the renewal application.

In the event the MassDEP has not taken final action on the Operating Permit renewal application prior to this Permit's expiration date, this Permit shall remain in effect until the MassDEP takes final action on the renewal application, provided that a timely and complete renewal application has been submitted in accordance with 310 CMR 7.00: Appendix C(13).

16. REOPENING FOR CAUSE

This Permit may be modified, revoked, reopened, and reissued, or terminated for cause by the MassDEP and/or EPA. The responsible official of the Facility may request that the MassDEP terminate the facility's Operating Permit for cause. The MassDEP will reopen and amend this Permit in accordance with the conditions and procedures under 310 CMR 7.00: Appendix C(14).

The filing of a request by the Permittee for an Operating Permit revision, revocation and reissuance, or termination, or a notification of a planned change or anticipated noncompliance does not stay any Operating Permit condition.

17. DUTY TO PROVIDE INFORMATION

Upon the MassDEP's written request, the Permittee shall furnish, within a reasonable time, any information necessary for determining whether cause exists for modifying, revoking and reissuing, or terminating the Permit, or to determine compliance with the Permit. Upon request, the Permittee shall furnish to the MassDEP copies of records that the Permittee is required to retain by this Permit.

18. DUTY TO SUPPLEMENT

The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information. The Permittee shall also provide additional information as necessary to address any requirements that become applicable to the Facility after the date a complete renewal application was submitted but prior to release of a draft permit.

The Permittee shall promptly, on discovery, report to the MassDEP a material error or omission in any records, reports, plans, or other documents previously provided to the MassDEP.

19. TRANSFER OF OWNERSHIP OR OPERATION

This Permit is not transferable by the Permittee unless done in accordance with 310 CMR 7.00: Appendix C(8)(a). A change in ownership or operation control is considered an administrative permit amendment if no other change in the Permit is necessary and provided that a written agreement containing a specific date for transfer of Permit responsibility, coverage and liability between current and new Permittee, has been submitted to the MassDEP.

20. PROPERTY RIGHTS

This Permit does not convey any property rights of any sort, or any exclusive privilege.

21. INSPECTION AND ENTRY

Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow authorized representatives of the MassDEP, and EPA to perform the following:

A. Enter upon the Permittee's premises where an operating permit source activity is located or emissions-related activity is conducted, or where records must be kept under the conditions of this Permit;

B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

D. Sample or monitor at reasonable times any substances or parameters for the purpose of assuring compliance with the Operating Permit or applicable requirements as per 310 CMR 7.00 Appendix C(3)(g)(12).

22. PERMIT AVAILABILITY

The Permittee shall have available at the Facility, at all times, a copy of the materials listed under 310 CMR 7.00: Appendix C(10)(e) and shall provide a copy of the Operating Permit, including any amendments or attachments thereto, upon request by the MassDEP or EPA.

23. SEVERABILITY CLAUSE

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit, shall not be affected thereby.

24. EMERGENCY CONDITIONS

The Permittee shall be shielded from enforcement action brought for noncompliance with technology based[1] emission limitations specified in this Permit as a result of an emergency[2]. In order to use emergency as an affirmative defense to an action brought for noncompliance, the Permittee shall demonstrate the affirmative defense through properly signed, contemporaneous operating logs, or other relevant evidence that:

A. an emergency occurred and that the Permittee can identify the cause(s) of the emergency;

B. the permitted Facility was at the time being properly operated;

C. during the period of the emergency, the Permittee took all reasonable steps as expeditiously as possible, to minimize levels of emissions that exceeded the emissions standards, or other requirements in this Permit; and

D. the Permittee submitted notice of the emergency to the MassDEP within two (2) business days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emission, and corrective actions taken.

If an emergency episode requires immediate notification to the Bureau of Waste Site Cleanup/Emergency Response, immediate notification to the appropriate parties should be made as required by law.

25. PERMIT DEVIATION

Deviations are instances where any permit condition is violated and not reported as an emergency pursuant to section 24 of this Permit. Reporting a permit deviation is not an affirmative defense for action brought for noncompliance. Any reporting requirements listed in Table 6 of this Operating Permit shall supersede the following deviation reporting requirements, if applicable.

The Permittee shall report to the MassDEP's Regional Bureau of Air and Waste the following deviations from permit requirements, by telephone, by fax or by electronic mail (e-mail), within three (3) days of discovery of such deviation:

A. Unpermitted pollutant releases, excess emissions or opacity exceedances measured directly by CEMS/COMS, by EPA reference methods or by other credible evidence, which are ten percent (10%) or more above the emission limit.

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[1] Technology based emission limits are those established on the basis of emission reductions achievable with various control measures or process changes (e.g., a new source performance standard) rather than those established to attain health based air quality standards.

[2] An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation would require immediate corrective action to restore normal operation, and that causes the source to exceed a technology based limitation under the Permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operations, operator error or decision to keep operating despite knowledge of any of these things.

B. Exceedances of parameter limits established by this Operating Permit or other approvals, where the parameter limit is identified by the Permit or approval as surrogate for an emission limit.

C. Exceedances of Permit operational limitations directly correlated to excess emissions.

D. Failure to capture valid emissions or opacity monitoring data or to maintain monitoring equipment as required by statutes, regulations, this Operating Permit, or other approvals.

E. Failure to perform QA/QC measures as required by this Operating Permit or other approvals for instruments that directly monitor compliance.

For all other deviations, three (3) day notification is waived and is satisfied by the documentation required in the subsequent Semi-Annual Monitoring Summary and Certification. Instructions and forms for reporting deviations are found in the MassDEP Bureau of Air and Waste Air Operating Permit Reporting Kit, which is available to the Permittee via the MassDEP's web site, http://www.mass.gov/dep/air/approvals/aqforms.htm#op.
This report shall include the deviation, including those attributable to upset conditions as defined in the Permit, the probable cause of such deviations, and the corrective actions or preventative measures taken.

Deviations that were reported by telephone, fax or electronic mail (e-mail) within 3 days of discovery, said deviations shall also be submitted in writing via the Operating Permit Deviation Report to the regional Bureau of Air and Waste within ten (10) days of discovery. For deviations, which do not require 3-day verbal notification, follow-up reporting requirements are satisfied by the documentation required in the aforementioned Semi-Annual Monitoring Summary and Certification.

26. OPERATIONAL FLEXIBILITY

The Permittee is allowed to make changes at the Facility consistent with 42 U.S.C. §7401, §502(b)(10) not specifically prohibited by the Permit and in compliance with all applicable requirements provided the Permittee gives the EPA and the MassDEP written notice fifteen (15) days prior to said change; notification is not required for exempt activities listed at 310 CMR 7.00: Appendix C(5)(h) and (i). The notice shall comply with the requirements stated at 310 CMR 7.00: Appendix C(7)(a) and will be appended to the Facility's Permit. The permit shield allowed for at 310 CMR 7.00: Appendix C(12) shall not apply to these changes.

27. MODIFICATIONS

A. Administrative Amendments - The Permittee may make changes at the Facility which are considered administrative amendments pursuant to 310 CMR 7.00: Appendix C(8)(a)1., provided they comply with the requirements established at 310 CMR 7.00: Appendix C(8)(b).

B. Minor Modifications - The Permittee may make changes at the Facility which are considered minor modifications pursuant to 310 CMR 7.00: Appendix C(8)(a)2., provided they comply with the requirements established at 310 CMR 7.00: Appendix C(8)(d).

C. Significant Modifications - The Permittee may make changes at the Facility which are considered significant modifications pursuant to 310 CMR 7.00: Appendix C(8)(a)3., provided they comply with the requirements established at 310 CMR 7.00: Appendix C(8)(c).

D. No permit revision shall be required, under any approved economic incentives program, marketable permits program, emission trading program and other similar programs or processes, for changes that are provided in this Operating Permit. A revision to the Permit is not required for increases in emissions that are authorized by allowances acquired pursuant to the Acid Rain Program under Title IV of the Act, provided that such increases do not require an Operating Permit revision under any other applicable requirement.

28. OZONE DEPLETING SUBSTANCES

This section contains air pollution control requirements that are applicable to this Facility, and the United States Environmental Protection Agency enforces these requirements.

A. The Permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:

1) All containers containing a class I or class II substance that is stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to 40 CFR 82.106.

2) The placement of the required warning statement must comply with the requirements of 40 CFR 82.108.

3) The form of the label bearing the required warning statement must comply with the requirements of 40 CFR 82.110.

4) No person may modify, remove or interfere with the required warning statement except as described in 40 CFR 82.112.

B. The Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVAC) in Subpart B:

1) Persons opening appliances for maintenance, service, repair or disposal must comply with the required practices of 40 CFR 82.156.

2) Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment of 40 CFR 82.158.

3) Persons performing maintenance, service, repair or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

4) Persons disposing of small appliances, MVACs and MVAC-like appliances (as defined in 40 CFR 82.152) must comply with recordkeeping requirements of 40 CFR 82.166.

5) Persons owning commercial or industrial process refrigeration equipment must comply with the

leak repair equipment requirements of 40 CFR 82.156.

6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

C. If the Permittee manufactures, transforms, imports or exports a class I or class II substance, the Permittee is subject to all the requirements as specified in 40 CFR Part82, Subpart A, "Production and Consumption Controls".

D. If the Permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the Permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, "Servicing of Motor Vehicle Air Conditioners". The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo or system used on passenger buses using HCFC-22 refrigerant.

E. The Permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, "Significant New Alternatives Policy Program".

29. PREVENTION OF ACCIDENTAL RELEASES

This section contains air pollution control requirements that are applicable to this Facility and the United States Environmental Protection Agency enforces these requirements.

This Facility is subject to the requirements of the General Duty Clause, under 112(r)(1) of the CAA Amendments of 1990. This clause specifies that owners or operators of stationary sources producing, processing, handling or storing a chemical in any quantity listed in 40 CFR Part 68 or any other extremely hazardous substance have a general duty to identify hazards associated with these substances and to design, operate and maintain a safe facility, in order to prevent releases and to minimize the consequences of accidental releases which may occur.

APPEAL CONDITIONS FOR OPERATING PERMIT

This Permit is an action of the MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing within 21 days of issuance of this Permit. In addition, any person who participates in any public participation process required by the Federal Clean Air Act, 42 U.S.C. §7401, §502(b)(6) or under 310 CMR 7.00: Appendix C(6), with respect to the MassDEP's final action on operating permits governing air emissions, and who has standing to sue with respect to the matter pursuant to federal constitutional law, may initiate an adjudicatory hearing pursuant to Chapter 30A, and may obtain judicial review, pursuant to Chapter 30A, of a final decision therein.

If an adjudicatory hearing is requested, the Facility must continue to comply with all existing federal and state applicable requirements to which the Facility is currently subject, until a final decision is issued in the case or the appeal is withdrawn. During this period, the application shield shall remain in effect, and the Facility shall not be in violation of the Act for operating without a Permit.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts which are the grounds for the request, and the relief sought. Additionally, the request must state why the Permit is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to The Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

The Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver as described below.

The filing fee is not required if the appellant is a city or town (or municipal agency) county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

The MassDEP may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

1 Tech Drive, Suite 310
Andover, MA 01810

T: 978-794-0336

August 5, 2022

Mr. Patrick Bird
Director, Air Branch
USEPA Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: NMOC Emission Rate Report for 2021 and 2022
Crapo Hill Landfill, Dartmouth, Massachusetts
MassDEP Regulated Object Account #172448

Dear Mr. Bird:

On behalf of the Greater New Bedford Regional Refuse Management District (the District), Brown and Caldwell (BC) submits this letter report in accordance with the New Source Performance Standards (NSPS) for municipal solid waste (MSW) landfills contained in 40 CFR Part 60, Subpart XXX. Specifically, this letter report provides the uncontrolled emission rate of non-methane organic compounds (NMOCs) from the Crapo Hill Landfill for calendar years 2021 and 2022.

The NMOCs emission rate was determined in accordance with the methodology contained in 40 CFR Part 60, Subpart XXX. These NSPS regulations require calculation of the annual uncontrolled NMOCs emission rate for landfills that have a maximum landfill design capacity for waste disposal greater than or equal to 2.5 million megagrams (Mg). The Crapo Hill Landfill triggered this threshold as shown in the design report submitted to USEPA and MassDEP by BC on behalf of the District dated March 26, 2019, provided as Attachment 1. The NSPS provides a three-tiered procedure for calculating uncontrolled NMOC emission rates. If the landfill is calculated to generate less than 34 Mg per year of uncontrolled NMOCs under any of the tiered procedures, then the landfill is not subject to the control, monitoring and most reporting requirements under the NSPS. Both Tier 1 and Tier 2 procedures were followed as described below.

In accordance with the Tier 1 methodology, the uncontrolled NMOC emission rate is calculated using a first order decay equation with default parameters, combined with site-specific waste acceptance rates, to estimate uncontrolled or pre-control NMOC emissions from the landfill. BC used the model developed by the USEPA called “Landfill Gas Emissions Model” (LandGEM), which incorporates the decay equation and default parameters with site-specific waste acceptances values input by the user. The default value for NMOCs concentration contained in landfill gas corrected to 50% methane content is 4,000 ppmv as hexane. Using the default value, the result of the Tier 1 procedure indicated uncontrolled NMOCs greater than the 34 Mg threshold. Based upon the Tier 1 result, the Tier 2 calculation that allows for measured site-specific NMOC concentrations to be input to the LandGEM model to estimate the landfill’s emissions was performed.

In accordance with the Tier 2 methodology under 40 CFR Part 60, Subpart XXX, the following was performed.

- **Sampling**: In accordance with USEPA Methods 3C and 25C, three samples of landfill gas were collected on September 18, 2019 from the landfill gas (LFG) collection system. The collection site is located prior to control, upstream of the flare station and LFG power generating facility. Three six-liter Summa canisters each at an initial vacuum of 25 inches of mercury were connected to a sampling port in the main LFG header. LFG samples were extracted at a flow rate of approximately 350 milliliters per minute over a 5-minute period. The Summa canisters were sent to Atmospheric Analysis & Consulting, Inc. (AAC) in Ventura, California for laboratory analysis. Results for the three samples were previously submitted in the October 2019 Tier 2 Report.

- **Analyses:** AAC conducted USEPA Method 3C analysis to determine the concentration of fixed gases including hydrogen, oxygen, nitrogen, carbon monoxide, carbon dioxide, and methane, and USEPA Method 25C analysis to determine NMOCs (as carbon) concentration contained in the LFG prior to control.

- **Calculations:**
  - The site specific NMOC concentration results from USEPA Method 25C were converted from carbon to hexane basis in accordance with 40 CFR Part 60.764 – "Test methods and procedures". The average of three samples show uncontrolled NMOCs concentration is 83 ppmv, as hexane, corrected to 50-percent methane content in LFG. The fixed gases were used to correct the concentrations of NMOCs to 50-percent methane content in LFG. The uncorrected NMOC and fixed gases for each of the three samples are shown in the analytical laboratory report provided by AAC, which was previously provided in the October 2019 Tier 2 Report.
  - The site-specific NMOC concentration results reported in the October 2019 Tier 2 Report were used in the LandGEM Model, together with the USEPA recommended input values to calculate uncontrolled NMOC quantities contained in LFG in 2021 and 2022. The USEPA recommended input values included waste input rates from 1995 through 2021, methane generation rate (k) of 0.05 $year^{-1}$, potential methane generation capacity (L_o) of 170 cubic meters of methane per Mg waste, and the site specific NMOC concentrations in landfill gas of 83 ppmv as hexane, and a methane content of LFG of 50%.

The results of the calculations indicate the uncontrolled NMOC emissions of 6.87 Mg for calendar year 2021 and 6.98 Mg for calendar year 2022 (see LandGEM report provided as Attachment 2).

As noted previously, because the uncontrolled NMOC emissions are below the 34 Mg per year threshold as calculated by the Tier 2 methodology, the Crapo Hill Landfill is not subject to the controls, monitoring and most of the reporting requirements under the NSPS for MSW landfills contained in 40 CFR Part 60, Subpart XXX. However, the District is subject to the requirement under the NSPS to recalculate and report the uncontrolled NMOC mass emission rate annually as provided in

§60.767(b)(1) and retest the site-specific uncontrolled NMOC concentration every 5 years as required thereafter.

The site-specific uncontrolled NMOC concentration is scheduled to be re-determined through sampling of the LFG in 2024.

Please contact me directly at (508) 819-1444 or AKirschner@BrwnCald.com with any questions.

Very truly yours,

Brown and Caldwell

Alan R. Kirschner, P.E.
Vice President

cc: Scott Alfonse, Executive Director, Greater New Bedford Regional Refuse Management District
Thomas Yeransian, Commonwealth Resource Management Corporation
Mark Dakers, MassDEP Solid Waste
Thomas Cushing, MassDEP Air Quality

Attachments:

1. March 2019 NSPS Design Report
2. USEPA LandGEM Report and Calculations

Attachment 1

March 26, 2019 NSPS Design Report

101 Industrial Park Road, Suite 205
Taunton, MA 02780
T: 508.923.0879

March 26, 2019

Director, Office of Ecosystem Protection
U. S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: Amended Design Capacity Report, Crapo Hill Landfill, Dartmouth, MA
40 CFR Part 60, Subparts WWW and XXX

Dear Sir or Madam:

The Greater New Bedford Regional Refuse Management District has recently received an operating permit (Authorization to Operate) from the Massachusetts Department of Environmental Protection that increases the design capacity of the Crapo Hill Sanitary Landfill. Identifying information is as follows:

Name and address of Landfill:

Crapo Hill Sanitary Landfill
300 Samuel Barnet Boulevard
New Bedford, MA 02745
508-998-5674
(Note: Landfill is located in Dartmouth, MA but the mail address is New Bedford, MA)

Name and address of Landfill owner and operator:

Greater New Bedford Regional Refuse Management District
300 Samuel Barnet Boulevard
New Bedford, MA 02745
508-763-5924
Scott Alfonse, Executive Director

Permits issued by the Massachusetts Department of Environmental Protection for the construction and operation of the Crapo Hill Landfill include the following:

- Solid Waste Facility Permit and Authorization to Construct Phase 1, January 26, 1993, approving 69.8 acres of sanitary landfill and specifically authorizing construction of 18.6 acre Phase 1.
- Authorization to Operate Phase 1, December 28, 1994.
- Landfill Major Modification, Phase 1 Grades, February 3, 2000, authorizing a reconfiguration of the Phase 1 final elevations.
- Authorization to Construct New Phase of Permitted Landfill, July 12, 2000, authorizing construction of 10 acre Phase 2, Cells #1 and #2.
- Authorization to Operate Phase 2 Cells #1 and #2, April 22, 2002.
- Authorization to Construct New Phase of Permitted Landfill, December 15, 2006, authorizing construction of 9.5 acre Phase 2, Cells #3 and #4.
- Authorization to Operate Phase 2 Cells #3 and #4, September 8, 2008.

- Renewal of Authorization to Operate Phase 2, Cells #3 and #4, June 18, 2013
- Authorization to Construct New Phase of Permitted Landfill, October 23, 2014, authorizing construction of 12.13 acre Phase 2, Cells #5 and #6.
- Authorization to Operate Phase 2 Cell #5, March 8, 2016
- Authorization to Operate Phase 2 Cell #6, February 12, 2019

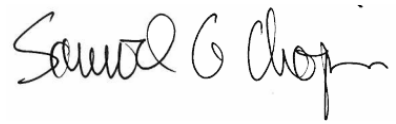
The total permitted waste disposal capacity of the landfill is 2,809,271 cubic meters. A calculation of this permitted capacity is attached. Also attached is a site locus map.

The Crapo Hill Landfill is currently provided with an active landfill gas collection and control system comprising 64 vertical extraction wells, approximately 30,000 feet of horizontal gas collectors, a 2,000 scfm open flare, and a landfill gas-fueled electric power generating plant. In addition, passive vent flares are used on the Landfill to provide localized landfill gas control. The landfill gas collection and control system is fully permitted by the Massachusetts Department of Environmental Protection.

Please contact Scott Alfonse, Executive Director, Greater New Bedford Regional Refuse Management District, or me at 508-819-1431 if you have any questions.

Very truly yours,

Brown and Caldwell



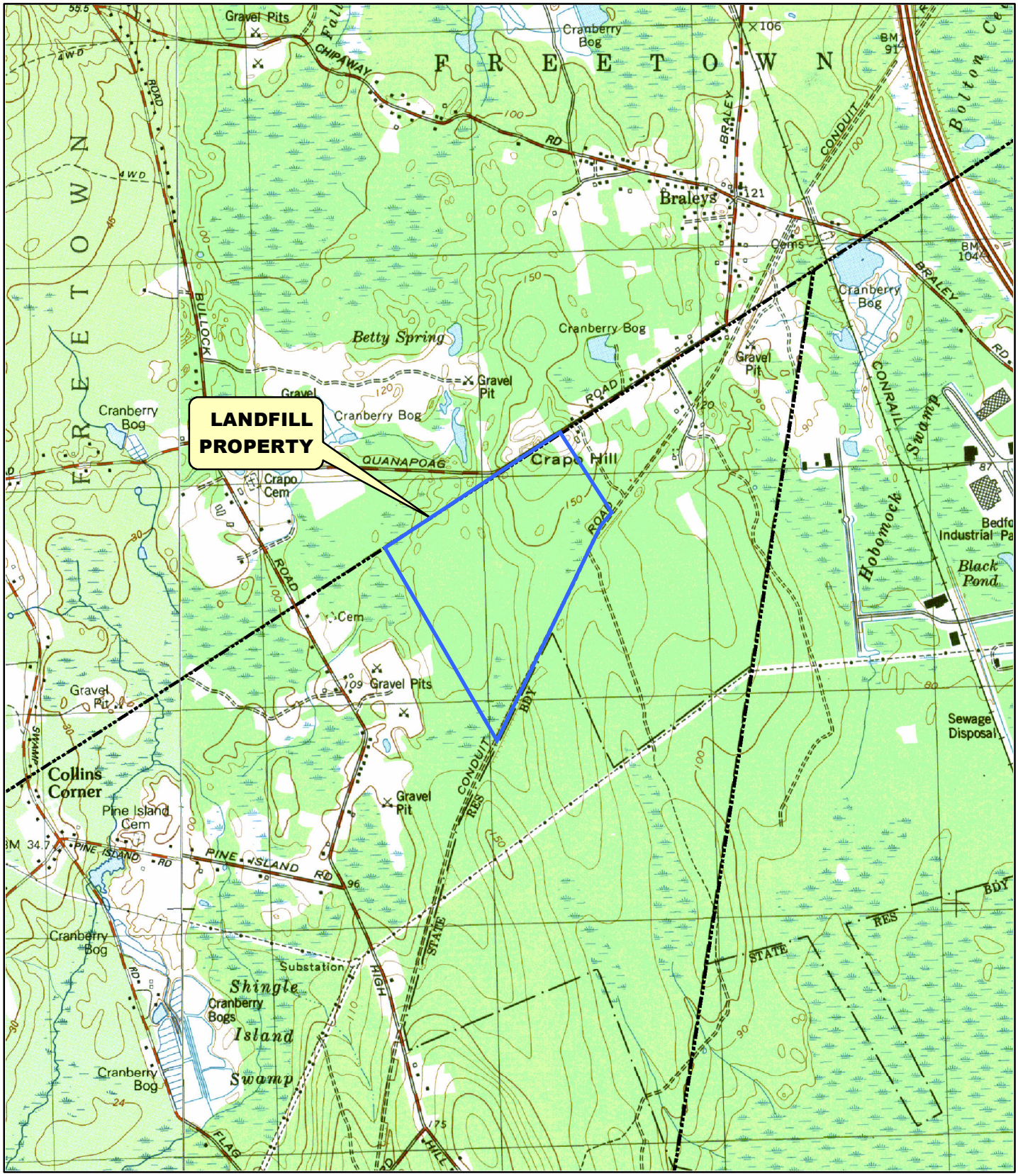
Samuel G. Chapin, P.E.
Managing Engineer

SGC

cc: Greater New Bedford Regional Refuse Management District

Attachments:
Site Locus Map
Design Capacity Calculation

Crapo Hill Landfill					
Dartmouth, MA					
Design Capacity					
Landfill Area	Volumes in cubic yards	Notes/Data Source			
Phase 1					
Gross Volume	1,286,000	Camp, Dresser & McKee Permit Documents			
Final Cover	63,243	2 foot thick over 19.6 acre slope area			
Net Usable Volume	1,222,757				
Daily and Intermediate Cover	330,144	Average 27% by volume over life of landfill			
Net Waste Volume	892,613				
Phase 1 Permit Modification					
Gross Volume	275,000	CGK Environmental calculation			
Final Cover		no increase in final cover			
Net Usable Volume	275,000				
Daily and Intermediate Cover	74,250	Average 27% by volume over life of landfill			
Net Waste Volume	200,750				
Phase 2 Cells #1 and #2					
Gross Volume	977,638	Brown and Caldwell digital modeling			
Final Cover	33,880	2 foot thick over 10.5 acre slope area			
Net Usable Volume	943,758				
Daily and Intermediate Cover	254,815	Average 27% by volume over life of landfill			
Net Waste Volume	688,943				
Phase 2 Cells #3 and #4					
Gross Volume	971,500	Brown and Caldwell digital modeling			
Final Cover	32,423	2 foot thick over 10.0 acre slope area			
Net Usable Volume	939,077				
Daily and Intermediate Cover	253,551	Average 27% by volume over life of landfill			
Net Waste Volume	685,526				
Phase 2 Cell #5					
Gross Volume	455,587	Brown and Caldwell digital modeling			
Final Cover	27,689	2 foot thick over 8.58 acre slope area			
Net Usable Volume	427,898				
Daily and Intermediate Cover	106,975	Average 25% by volume over life of landfill			
Net Waste Volume	320,924				
Phase 2 Cell #6					
Gross Volume	1,198,713	Brown and Caldwell digital modeling			
Final Cover	18,160	2 foot thick over 5.63 acre slope area			
Net Usable Volume	1,180,553				
Daily and Intermediate Cover	295,138	Average 25% by volume over life of landfill			
Net Waste Volume	885,415				
Total Waste Volume					
(Design Capacity)	3,674,170				
Waste Volume in cubic meters					
(Design Capacity)	2,809,271	1 cu. yd. = 0.7646 cu. meter			
Gross Volume, cubic yards	5,164,438				
Gross Volume, cubic meters	3,948,729				



BROWN AND CALDWELL
101 Industrial Park Road, Suite 205
Taunton, Massachusetts, 02780
Tel. (508) 923-0879 Fax. (508) 923-0894

Note: USGS Quad Maps obtained from MassGIS scanned 5-CDset, dated July 1996. All other data from MassGIS Data Viewer software, updated May 2009.

FIGURE 1
SITE LOCATION MAP

Crapo Hill Sanitary Landfill
Dartmouth, Massachusetts

Prepared for:
Greater New Bedford Regional
Refuse Management District

N
W E
S

0 500 1,000 2,000
Feet

Date: 05/2014

Project: 144674

Scale: 1" =2000'

File: Site locus

Attachment 2

USEPA LandGEM Report and Calculations

Summary Report

Landfill Name or Identifier: Crapo Hill Landfill

Date: Tuesday, July 19, 2022

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1995**	
Landfill Closure Year (with 80-year limit)	**2021**	
Actual Closure Year (without limit)	***2021***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**2,275,992**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**83**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **NMOC**
Gas / Pollutant #2:
Gas / Pollutant #3:
Gas / Pollutant #4:

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1995	86,851	95,536	0	0
1996	99,742	109,716	86,851	95,536
1997	100,430	110,472	186,593	205,252
1998	104,169	114,585	287,022	315,724
1999	98,743	108,617	391,191	430,310
2000	105,423	115,966	489,934	538,927
2001	102,923	113,216	595,357	654,893
2002	104,326	114,758	698,280	768,108
2003	101,223	111,345	802,606	882,867
2004	103,152	113,467	903,829	994,212
2005	103,715	114,087	1,006,981	1,107,679
2006	96,234	105,858	1,110,696	1,221,766
2007	92,011	101,212	1,206,931	1,327,624
2008	85,929	94,522	1,298,942	1,428,836
2009	85,157	93,672	1,384,870	1,523,357
2010	89,291	98,220	1,470,027	1,617,030
2011	71,357	78,493	1,559,318	1,715,249
2012	90,124	99,136	1,630,674	1,793,742
2013	88,383	97,221	1,720,798	1,892,878
2014	84,675	93,143	1,809,181	1,990,099
2015	96,915	106,607	1,893,856	2,083,242
2016	92,629	101,892	1,990,772	2,189,849
2017	96,735	106,409	2,083,401	2,291,741
2018	95,786	105,365	2,180,136	2,398,150
2019	90,538	99,592	2,275,922	2,503,514
2020	89,306	98,237	2,366,460	2,603,106
2021	89,596	98,556	2,455,766	2,701,343
2022	0	0	2,545,362	2,799,898
2023	0	0	2,545,362	2,799,898
2024	0	0	2,545,362	2,799,898
2025	0	0	2,545,362	2,799,898
2026	0	0	2,545,362	2,799,898
2027	0	0	2,545,362	2,799,898
2028	0	0	2,545,362	2,799,898
2029	0	0	2,545,362	2,799,898
2030	0	0	2,545,362	2,799,898
2031	0	0	2,545,362	2,799,898
2032	0	0	2,545,362	2,799,898
2033	0	0	2,545,362	2,799,898
2034	0	0	2,545,362	2,799,898

Results

Year	NMOC					
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1995	0	0	0	0	0	0
1996	4.295E-01	1.198E+02	8.051E-03	0.000E+00	0.000E+00	0.000E+00
1997	9.019E-01	2.516E+02	1.691E-02	0.000E+00	0.000E+00	0.000E+00
1998	1.355E+00	3.779E+02	2.539E-02	0.000E+00	0.000E+00	0.000E+00
1999	1.804E+00	5.032E+02	3.381E-02	0.000E+00	0.000E+00	0.000E+00
2000	2.204E+00	6.149E+02	4.131E-02	0.000E+00	0.000E+00	0.000E+00
2001	2.618E+00	7.304E+02	4.907E-02	0.000E+00	0.000E+00	0.000E+00
2002	2.999E+00	8.368E+02	5.622E-02	0.000E+00	0.000E+00	0.000E+00
2003	3.369E+00	9.399E+02	6.315E-02	0.000E+00	0.000E+00	0.000E+00
2004	3.705E+00	1.034E+03	6.946E-02	0.000E+00	0.000E+00	0.000E+00
2005	4.035E+00	1.126E+03	7.563E-02	0.000E+00	0.000E+00	0.000E+00
2006	4.351E+00	1.214E+03	8.156E-02	0.000E+00	0.000E+00	0.000E+00
2007	4.615E+00	1.287E+03	8.650E-02	0.000E+00	0.000E+00	0.000E+00
2008	4.845E+00	1.352E+03	9.081E-02	0.000E+00	0.000E+00	0.000E+00
2009	5.033E+00	1.404E+03	9.435E-02	0.000E+00	0.000E+00	0.000E+00
2010	5.209E+00	1.453E+03	9.764E-02	0.000E+00	0.000E+00	0.000E+00
2011	5.397E+00	1.506E+03	1.012E-01	0.000E+00	0.000E+00	0.000E+00
2012	5.486E+00	1.531E+03	1.028E-01	0.000E+00	0.000E+00	0.000E+00
2013	5.664E+00	1.580E+03	1.062E-01	0.000E+00	0.000E+00	0.000E+00
2014	5.825E+00	1.625E+03	1.092E-01	0.000E+00	0.000E+00	0.000E+00
2015	5.960E+00	1.663E+03	1.117E-01	0.000E+00	0.000E+00	0.000E+00
2016	6.149E+00	1.715E+03	1.153E-01	0.000E+00	0.000E+00	0.000E+00
2017	6.307E+00	1.759E+03	1.182E-01	0.000E+00	0.000E+00	0.000E+00
2018	6.478E+00	1.807E+03	1.214E-01	0.000E+00	0.000E+00	0.000E+00
2019	6.635E+00	1.851E+03	1.244E-01	0.000E+00	0.000E+00	0.000E+00
2020	6.736E+00	1.886E+03	1.267E-01	0.000E+00	0.000E+00	0.000E+00
2021	6.872E+00	1.917E+03	1.288E-01	0.000E+00	0.000E+00	0.000E+00
2022	6.980E+00	1.947E+03	1.308E-01	0.000E+00	0.000E+00	0.000E+00
2023	6.630E+00	1.852E+03	1.245E-01	0.000E+00	0.000E+00	0.000E+00
2024	6.315E+00	1.762E+03	1.184E-01	0.000E+00	0.000E+00	0.000E+00
2025	6.007E+00	1.676E+03	1.126E-01	0.000E+00	0.000E+00	0.000E+00
2026	5.714E+00	1.594E+03	1.071E-01	0.000E+00	0.000E+00	0.000E+00
2027	5.436E+00	1.516E+03	1.019E-01	0.000E+00	0.000E+00	0.000E+00
2028	5.171E+00	1.443E+03	9.692E-02	0.000E+00	0.000E+00	0.000E+00
2029	4.918E+00	1.372E+03	9.220E-02	0.000E+00	0.000E+00	0.000E+00
2030	4.679E+00	1.305E+03	8.770E-02	0.000E+00	0.000E+00	0.000E+00
2031	4.450E+00	1.242E+03	8.342E-02	0.000E+00	0.000E+00	0.000E+00
2032	4.233E+00	1.181E+03	7.935E-02	0.000E+00	0.000E+00	0.000E+00
2033	4.027E+00	1.123E+03	7.548E-02	0.000E+00	0.000E+00	0.000E+00
2034	3.831E+00	1.069E+03	7.180E-02	0.000E+00	0.000E+00	0.000E+00
2035	3.644E+00	1.017E+03	6.830E-02	0.000E+00	0.000E+00	0.000E+00
2036	3.466E+00	9.669E+02	6.497E-02	0.000E+00	0.000E+00	0.000E+00
2037	3.297E+00	9.198E+02	6.180E-02	0.000E+00	0.000E+00	0.000E+00
2038	3.136E+00	8.749E+02	5.879E-02	0.000E+00	0.000E+00	0.000E+00
2039	2.983E+00	8.323E+02	5.592E-02	0.000E+00	0.000E+00	0.000E+00
2040	2.838E+00	7.917E+02	5.319E-02	0.000E+00	0.000E+00	0.000E+00
2041	2.699E+00	7.531E+02	5.060E-02	0.000E+00	0.000E+00	0.000E+00
2042	2.568E+00	7.163E+02	4.813E-02	0.000E+00	0.000E+00	0.000E+00
2043	2.442E+00	6.814E+02	4.578E-02	0.000E+00	0.000E+00	0.000E+00
2044	2.323E+00	6.482E+02	4.355E-02	0.000E+00	0.000E+00	0.000E+00

NMOC Results
2021 6.87 Mg/Yr
2022 6.98 Mg/Yr

Methane and Non-methane Organic Compounds Analysis Results
Crapo Hill Landfill
3-Oct-19

	NMOCs concentration in landfill gas		
Sample #	as carbon ppmv	as hexane ppmv	as hexane ppmv corrected to 50 % methane
1	544	76	77
2	566	79	80
3	660	92	93
Average			83

	Fixed gases concentration in landfill gas					
Component in landfill gas Sample #	Methane, %	Carbon dioxide, %	Carbon monoxide %	Nitrogen %	Oxygen %	Hydrogen %
1	49.5	35.2	<0.2	14.0	1.3	<2.4
2	49.6	35.3	<0.3	13.8	1.3	<2.2
3	49.7	35.3	<0.4	13.7	1.2	<2.3
Landtec GEM readings	49.6	36.4		13.8	0.3	

Exhibit 9:
RECs Agreements

CONFIDENTIAL

AGREEMENT FOR THE PURCHASE AND SALE OF RENEWABLE ENERGY CERTIFICATES

CONFIRMATION LETTER

From: Dan Heim
EXELON GENERATION COMPANY, LLC
1310 Point Street 8th Floor
Baltimore, MD 21231

To: COMMONWEALTH NEW BEDFORD ENERGY LLC
199 Corey Street
Boston, MA 02132

The purpose of this letter (this "Confirmation Letter") is to confirm the terms and conditions of the oral transaction between EXELON GENERATION COMPANY, LLC ("Buyer") and COMMONWEALTH NEW BEDFORD ENERGY LLC ("Seller") as of the Effective Date (the "Transaction"). Seller and Buyer are each referred to as a "Party" and, collectively, as the "Parties." This Confirmation Letter, including the attached General Terms and Conditions, shall constitute the entire agreement ("Agreement") between the Parties related to the subject matter hereof and supersedes and replaces any prior oral or written confirmation, including broker confirmations, regarding this Transaction.

The terms of the transaction to which this Confirmation Letter relates are as follows:

Trade Date:	06/23/2020
Effective Date:	07/14/2020
Seller:	COMMONWEALTH NEW BEDFORD ENERGY LLC
Buyer:	EXELON GENERATION COMPANY, LLC
Product:	Massachusetts "RPS Class I Renewable Generation Attributes" represented by NEPOOL GIS Certificates ("RECs")
Applicable Standard:	Massachusetts Alternative Renewable Energy Portfolio Standard, M.G.L. ch. 25A § 11F, et seq., and regulations promulgated with respect thereto, 225 CMR 14.00, in each case as applicable to the Calendar Year(s) transferred hereunder
Applicable Tracking System:	NEPOOL GIS
Facility:	Greater New Bedford LFG Utilization Facility at the Crapo Hill Landfill, a 3.3 MW landfill gas-to-energy generating facility in Dartmouth, Massachusetts.

Deal ID	Calendar Year	Contract Price	Contract Quantity	Delivery Date	Delivery Obligation
4042691	CY2020	[redacted]	Up to [redacted] RECs	6/1/2021	Unit Contingent
4042691	CY2021	[redacted]	Up to [redacted] RECs	6/1/2022	Firm
4042691	CY2022	[redacted]	Up to [redacted] RECs	6/1/2023	Firm

Capitalized terms used but not defined herein shall have the meaning given to them in the General Terms and Conditions.

1. ***Product***.
Seller represents that the Product sold hereunder meets the "RPS Class I Minimum Standard," as set forth in the Applicable Standard, as applicable to the Calendar Year(s) transferred hereunder; provided, however, that the Product does not include: (i) state and federal production tax credits, investment tax credits, and any other tax credits or tax benefits, (ii) cash payments or outright grants of money (except any cash payments or grants related to any environmental greenhouse gas or emissions cap and trade program), (iii) other financial incentives which, if achieved, will result in cash payments by the party providing such incentives and which are specific to project development or project operation and (iv) any item that would otherwise be an environmental benefit or attribute under this definition, but (a) cannot be transferred by Seller in accordance with applicable law or (b) cannot be transferred by Seller without incurring material expenses.

2. ***Product Delivery***.
For each deal set forth above, Seller shall initiate a transfer order for the applicable Contract Quantity of Product to Buyer's NEPOOL GIS account on or before the applicable Delivery Date set forth in the table above. Upon receiving written, facsimile or electronic confirmation from NEPOOL GIS that a transfer order has been initiated by Seller, Buyer shall confirm such transfer order in NEPOOL GIS within five (5) Business Days.

3. ***Payment.***
Within five (5) Business Days of Buyer's receipt of written, facsimile or electronic confirmation from NEPOOL GIS that the transfer order has been completed, Buyer shall pay Seller the Contract Price for the Product delivered. Buyer shall make such payment by wire transfer of immediately available United States dollars to an account designated by Seller or as otherwise reasonably requested by Seller. If payment is not made within the time specified, without limiting Seller's rights and remedies, the past due amount shall carry interest at the Interest Rate.

4. ***Payment Netting***.
If Buyer and Seller are each required to pay amounts in respect of purchases/sales hereunder or under any other forward commodity contract between the Parties on the same day, then, upon notice from one Party to the other, such amounts with respect to each Party shall be aggregated and the Parties shall discharge their obligations to pay through netting, in which case the Party, if any, owing the greater aggregate amount shall pay to the other Party the difference between the amounts owed.

5. ***Term***.
This Agreement shall commence on the Effective Date and shall terminate on the date on which both Parties have completed the performance of their obligations hereunder, unless earlier terminated pursuant to the terms hereof.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed as of the Effective Date.

Very truly yours,

EXELON GENERATION COMPANY, LLC

By:_____
Name: Phil Peiolo
Title: Vice President, Commercial Risk

Legal Approval by Allyson Pait

Accepted and Agreed:

COMMONWEALTH NEW BEDFORD ENERGY LLC

By:_____
Name: ThomasYeransian
Title: Managing Member

CONFIDENTIAL

AGREEMENT FOR THE PURCHASE AND SALE OF RENEWABLE ENERGY CERTIFICATES

GENERAL TERMS AND CONDITIONS

1. DEFINITIONS

1.1 Definitions. In addition to any other terms defined in the Confirmation Letter or these General Terms and Conditions, the following terms shall have the meaning ascribed to them as set forth below:

"Adequate Assurances" shall have the meaning given in Section 8.7.

"Business Day" means a day on which Federal Reserve member banks in New York City are open for business; and a Business Day shall open at 8:00 a.m. and close at 5:00 p.m. Eastern Prevailing Time.

"Calendar Year" means the period beginning January 1 of the period year and continuing until December 31 of the subject year (e.g. Calendar Year 2017 means January 1, 2017 through December 31, 2017).

"Confidential Information" means all oral and written information exchanged between the Parties with respect to the subject matter of this Agreement. The following information does not constitute Confidential Information for purposes of this Agreement: (a) information that is or becomes generally available to the public other than as a result of a disclosure by either Party in violation of this Agreement; (b) information that was already known by either Party on a non-confidential basis prior to this Agreement; and (c) information that becomes available to either Party on a non-confidential basis from a source other than the other Party if such source was not subject to any prohibition against disclosing the information to such Party.

"Costs" means, with respect to a Non-Defaulting Party, the present value of brokerage fees, commission, attorney's fees, and other similar third party transactions costs and expenses reasonably incurred by such Party either in terminating or replacing any arrangement pursuant to which it has hedged its obligations; and any charges, penalties, fines or fees imposed or assessed against the Non-Defaulting Party under the Applicable Standard on account of Delivery not occurring on the Delivery Date, as determined by the Non-Defaulting Party in a commercially reasonable manner.

"Default" shall have the meaning specified in Article 7.

"Defaulting Party" shall have the meaning specified in Article 8.2.

"Delivery Date" shall have the meaning set forth in the Confirmation Letter.

"Early Termination Date" shall have the meaning given in Article 8.2.

"**Effective Date**" shall have the meaning set forth in the Confirmation Letter.

"Firm" means that if either Party fails to perform its obligation to sell and deliver or purchase and receive the Contract Quantity of Product, such a failure would be deemed to be an Event of Default under Section 7(a) below. Force Majeure affecting Seller's supply shall not excuse performance of a Firm RECs Transaction.

"Force Majeure" means an event or circumstance which materially adversely affects the ability of a Party to perform its obligations under this Agreement, which event or circumstance was not reasonably anticipated as of the Trade Date and which is not within the reasonable control of, or the result of the negligence of, the Party claiming Force Majeure, and which the claiming Party is unable to overcome or avoid or cause to be avoided, by the exercise of reasonable care. Force Majeure may not be based on (i) the loss or failure of Buyer's markets; (ii) Buyer's inability economically to use or resell the Product; (iii) Seller's ability to sell the Product to another at a price greater than the Contract Price; (iv) Buyer's ability to produce Product; or (v) Buyer's ability to purchase product similar to the Product at a price less than the Contract Price. Force Majeure may include a change in applicable law and may, to the extent such a change falls under Section 6, require a negotiated amendment to this Agreement. In the case of a Party's obligation to make payments hereunder, Force Majeure will be only an event or act of a governmental authority that on any day disables the banking system through which a Party makes such payments.

"Gains" means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Costs), resulting from the termination of a Terminated Transaction, determined in a commercially reasonable manner.

"Interest Rate" means a per annum rate of interest equal to two (2%) percent over the prime lending rate as published from time to time in the Wall Street Journal under "Money Rates" on such due date (or if not published on such day on the most recent preceding day on which published), but in no event to exceed the maximum lawful rate.

"Losses" means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Costs), resulting from termination of a Terminated Transaction, determined in a commercially reasonable manner.

"NEPOOL GIS" means Seller's transfer within NEPOOL GIS of the RECs into Buyer's NEPOOL GIS Account, and Buyer's confirmation of such transfer, in accordance with NEPOOL GIS Operating Rules. "Delivery" will be deemed to occur on the date that the transfer has been registered in the NEPOOL GIS and Buyer has received confirmation, by electronic means or otherwise, that the RECs have been transferred into Buyer's NEPOOL GIS Account.

"Non-Defaulting Party" shall have the meaning given in Article 8.2.

"Settlement Amount" means, with respect to a transaction and the Non-Defaulting Party, the Losses or Gains, and Costs, including those which such Party incurs as a result of the liquidation of a Terminated Transaction pursuant to Article 8.2.

"Termination Payment" shall have the meaning given in Article 8.3.

"Terminated Transaction" shall have the meaning given in Article 8.2.

"Unit Contingent" means Seller's obligation to deliver the Contract Quantity of Product may be excused on account of the failure of the Facility(ies) to generate such Contract Quantity of RECs during the applicable 2020 Year, due to a Force Majeure event affecting the Facility(ies), or limited available landfill gas quantities supplied to the Facility or such other disruptions in supply from the Facility(ies).

2. REPRESENTATIONS AND WARRANTIES

2.1 Representations and Warranties of Both Parties. As of the Effective Date, each Party hereby represents and warrants to the other Party that:

(a) it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(b) it has all regulatory authorizations necessary for it to legally perform its obligations under this Agreement;

(c) the execution, delivery and performance of this Agreement is within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it;

(d) this Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms; subject to any equitable defenses, bankruptcy principles, or the like;

(e) no Event of Default (as defined in Article 7 below) with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement;

(f) it is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement;

(g) it is a "forward contract merchant" within the meaning of the United States Bankruptcy Code;

(h) it has entered into this Agreement in connection with the conduct of its business and it has the capacity or ability to make or take delivery of all Products referred to in the Agreement to which it is a Party; and

(i) with respect to this Agreement, it is a producer, processor, commercial user or merchant handling the Product, and it is entering into such Agreement for purposes related to its business as such.

2.2 Representations and Warranties of Seller. As of the Delivery Date, Seller hereby represents and warrants to Buyer that:

(a) it has the right to sell the Product;

(b) the Product has never been sold for any other purpose or use;

(c) the Product is free and clear of all liens or other encumbrances; and

(d) the Product was generated during the eligible Calendar Year.

2.3 Limitation on Warranties. EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, SELLER EXPRESSLY DISCLAIMS ANY OTHER REPRESENTATIONS OR WARRANTIES, WHETHER WRITTEN OR ORAL, AND WHETHER EXPRESS OR IMPLIED, INCLUDING,

WITHOUT LIMITATION, ANY REPRESENTATION OR WARRANTY WITH RESPECT TO CONFORMITY TO MODELS OR SAMPLES, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, SELLER MAKES NO REPRESENTATION OR WARRANTY HEREUNDER REGARDING ANY ACTION OR FAILURE TO ACT, OR APPROVAL OR FAILURE TO APPROVE, OF ANY AGENCY OR GOVERNMENTAL ENTITY.

3. TAXES AND FEES

Each Party shall be responsible for any taxes or other fees associated with its respective purchase and sale hereunder. As used herein "taxes" means, but is not limited to, any or all ad valorem, property, occupation, severance, first use, conservation, gross receipts, privilege, sales, use, consumption, excise, lease, transaction, and other taxes, governmental charges, licenses, fees, permits and assessments, or increases therein, other than taxes based on net income or net worth. A tax is not a penalty or a fine.

4. ASSIGNMENT

Neither Buyer nor Seller shall assign this Agreement nor delegate any of its duties hereunder without the prior written consent of the other Party, which consent shall not be unreasonably withheld; provided, however, that either Party, without the consent of the other Party, may assign this Agreement to any of its affiliates provided such assigning Party shall not be released from its liabilities and obligations under this Agreement; and provided further that Seller may assign this Agreement without the consent of Buyer as collateral security to any lender (and in connection therewith, Buyer shall execute and deliver to such lender a consent agreement in a form reasonably acceptable to Buyer).

5. FORCE MAJEURE

If either Party is rendered unable, wholly or in part, by Force Majeure to carry out its obligations with respect to this Agreement, that upon such Party's giving notice and full particulars of such Force Majeure as soon as reasonably possible after the occurrence of the cause relied upon, such notice to be confirmed in writing to the other Party, the obligations of the claiming Party will, to the extent they are affected by such Force Majeure, be suspended during the continuance of said inability, but for no longer period, and the claiming Party will not be liable to the other Party for, or on account of, any loss, damage, injury or expense resulting from, or arising out of such event of Force Majeure. The Party receiving such notice of Force Majeure will have until the end of the Business Day following such receipt to notify the claiming Party that it objects to or disputes the existence of an event of Force Majeure.

6. CHANGE IN LAW

If any statutes, rules, regulations, permits or authorizations are enacted, amended, granted or revoked which have the effect of changing the transfer and sale procedure set forth in this Agreement so that the implementation of this Agreement becomes impossible or impracticable, or otherwise revokes or eliminates the Applicable Standard, the Parties hereto agree to negotiate in good faith to amend this Agreement to conform with such new statutes, regulations, or rules in order to maintain the original intent of the Parties under this Agreement.

7. EVENTS OF DEFAULT

For purposes of this Agreement, a Party shall be in default (each of the following, an "Event of Default"):

(a) if that Party materially breaches any or all of its obligations as described in this Agreement and such breach is not cured within five (5) Business Days of written notice of such breach from the other Party;

(b) if any representation or warranty made by a Party in Article 2 of this Agreement proves to have been misleading or false in any material respect when made and such Party does not cure the underlying facts so as to make such representation and warranty correct and not misleading within five (5) Business Days of written notice from the other Party; or

(c) if a Party:

(i) makes an assignment or any general arrangement for the benefit of its creditors,

(ii) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause under any bankruptcy or similar law for the protection of creditors, or has such a petition filed against it, or

(iii) otherwise becomes bankrupt or insolvent (however evidenced).

8. REMEDIES UPON DEFAULT/ADEQUATE ASSURANCES

8.1 Liquidated Damages. Buyer and Seller agree this Article in its entirety represents the liquidated damages of each, and no part hereof represents a penalty.

8.2 Remedies. If either Party is in Default (the "Defaulting Party"), as set forth in Article 7, the other Party (the "Non-Defaulting Party") may select any or all of the following remedies: (i) to designate a day, no earlier than the day such notice is effective and no later than twenty (20) days after such notice is effective, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate all, but not less than all transactions (each referred to as a "Terminated Transaction") between the Parties, (ii) withhold any payments due in respect of this Agreement and any other agreements between the Parties to the extent of its damages pursuant to this Article 8, (iii) suspend performance, and (iv) exercise such remedies as provided in this Agreement, including an action for damages (except as limited by Article 8.5). The Non-Defaulting Party will calculate, in a commercially reasonable manner, a Settlement Amount for each such Terminated Transactions as of the Early Termination Date (or, to the extent that in the reasonable opinion of the Non-Defaulting Party certain of such Terminated Transactions are commercially impracticable to liquidate and terminate or may not be liquidated or may not be liquidated and terminated under applicable law on the Early Termination Date, as soon thereafter as is reasonably practicable).

8.3 Net Out of Settlement Amounts. The Non-Defaulting Party shall aggregate all Settlement Amounts into a single amount by: netting out (a) all Settlement Amounts that are due to the Defaulting Party, plus, at the option of the Non-Defaulting Party, any cash or other form of security then available to the Non-Defaulting Party pursuant to Article 8.7, plus any or all other amounts due to the Defaulting Party under this Agreement against (b) all Settlement Amounts that are due to the Non-Defaulting Party, plus any or all other amounts due to the Non-Defaulting Party under this Agreement, so that all such amounts shall be netted out to a single liquidated amount (the "Termination Payment") payable by one Party to the other.

The Termination Payment shall be due to or due from the Non-Defaulting Party as appropriate. The Termination Payment, if any, is due within two (2) Business Days following written notice sent by the Non-Defaulting Party to the Defaulting Party, which notice will be sent out as soon as reasonably possible following the calculation of the Termination Payment, but in no event later than ten (10) Business Days following the Early Termination Date.

8.4 Calculation Disputes. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Settlement Amount or Termination Payment, in whole or in part, the Defaulting Party will, within two (2) Business Days of receipt of the Non-Defaulting Party's calculation, provide the Non-Defaulting Party a detailed written explanation of the basis for such dispute.

8.5 Limitation on Damages. Subject to any provisions in this Agreement to the contrary, the Defaulting Party's liability will be limited to direct, actual damages only, and such direct, actual damages will be the sole and exclusive remedy hereunder. In no event will any other liability be incurred by either Party for any obligations that arise under this Agreement, including, but not limited to, consequential, incidental, punitive, exemplary, or indirect damages in tort, contract, or otherwise.

8.6 Exclusive Remedy. THE REMEDIES SET FORTH IN THIS ARTICLE 8 ARE THE SOLE AND EXCLUSIVE REMEDIES IN THE EVENT OF A DEFAULT OF A PARTY'S OBLIGATIONS TO SELL OR PURCHASE PRODUCT, AND A PARTY'S LIABILITY SHALL BE LIMITED AS SET FORTH IN THIS ARTICLE. ALL OTHER REMEDIES OR DAMAGES FOR FAILURE TO SELL OR PURCHASE PRODUCT AT LAW ARE HEREBY WAIVED.

8.7. Adequate Assurances. Should either Party have reasonable grounds to believe that the creditworthiness of the other Party has become unsatisfactory, then the dissatisfied Party (the "Requesting Party") may require assurance of the other Party's ability to perform any obligation hereunder. Such assurance ("Adequate Assurance") may include (i) posting of a letter of credit in favor of the Requesting Party by an issuing bank reasonably acceptable to the Requesting Party, (ii) posting of cash collateral with the Requesting Party, or (iii) other security reasonably acceptable to the Requesting Party.

9. CONFIDENTIALITY

9.1 Confidentiality. Except as provided in this Article, neither Party shall publish, disclose, or otherwise divulge Confidential Information to any person at any time during or after the term of this Agreement, without the other Party's prior express written consent. Each Party shall permit knowledge of and access to Confidential Information only to those of its affiliates and to persons investing in, providing funding to or acquiring it or its affiliates, and to its and the foregoing persons' respective attorneys, accountants, representatives, agents and employees who have a need to know such Confidential Information related to this Agreement.

9.2 Required Disclosure. If required by any law, statute, ordinance, decision, order or regulation passed, adopted, issued or promulgated by a court, governmental agency or authority having jurisdiction over a Party, that Party may release Confidential Information, or a portion thereof, to the court, governmental agency or authority, as required by the applicable law, statute, ordinance, decision, order or regulation, and a Party may disclose Confidential Information to accountants in connection with audits, provided that such Party has notified the other Party of the required disclosure, such that the other Party may attempt (if such Party so chooses) to cause that court, governmental agency, authority or accountant to treat such information in a confidential manner and to prevent such information from being disclosed or otherwise becoming part of the public domain.

9.3 Tax Treatment Exception. Notwithstanding any provision of this Agreement to the contrary, the legal obligations of confidentiality hereunder do not extend to the U.S. federal or state tax structure or the U.S. federal or state tax treatment of any transaction hereunder. If any U.S. federal or state tax analyses or materials are provided to a Party, such Party is free to disclose any such analyses or materials without limitation.

9.4 Survival. The Parties obligations under this Article 9 shall survive for a period of one (1) year following the expiration or termination of this Agreement.

10. ENTIRE AGREEMENT

This Agreement, together with any attachments or exhibits specifically referenced herein, constitutes the entire agreement between the Seller and the Buyer with respect to the subject matter hereof, supersedes all prior oral or written representations and contracts, and may be modified only by a written amendment signed by Buyer and Seller.

11. GOVERNING LAW; WAIVER OF TRIAL BY JURY

This Agreement shall be construed, enforced, and performed in accordance with the laws of the State of New York, without recourse to principles governing conflicts of law. **AS A MATERIAL INDUCEMENT TO EACH PARTY TO ENTER INTO THIS AGREEMENT, THE PARTIES EACH HEREBY IRREVOCABLY WAIVE ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING HERETO, ANY PRODUCT OR THE TRANSACTIONS CONTEMPLATED HEREBY. EACH PARTY FURTHER WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL HAS BEEN WAIVED WITH ANY OTHER ACTION IN WHICH A JURY TRIAL CANNOT BE OR HAS NOT BEEN WAIVED.**

12. RECORDING

Each Party consents to the recording of its trading, marketing and scheduling representatives' telephone conversations without any further notice. Any tape recordings may be submitted in evidence to any court or in any legal proceeding for the purpose of establishing any matter relating to the Transaction. In addition, the Parties agree not to contest the authority of either Party's employees to enter into the Transaction evidenced by this Agreement. Notwithstanding the foregoing, any agreement with respect to the Transaction shall be in a writing signed by both Parties.

13. WAIVER

No delay or omission by a Party in the exercise of any right under this Agreement shall be taken, construed or considered as a waiver or relinquishment thereof, and any such right may be exercised from time to time and as often as may be deemed expedient. If any of the terms and conditions hereof are breached and thereafter waived by a Party, such waiver shall be limited to the particular breach so waived and is not deemed to waive any other breach hereunder.

14. NOTICES

All notices, payments and other formal communications which either Party may give to the other under or in connection with this Agreement shall be in writing and shall be sent by any of the following methods: hand delivery; reputable overnight courier; certified mail, return receipt requested; or, with respect to

communications other than payments, by facsimile transmission, if the original communication is delivered by reputable overnight courier. The communications shall be sent to the following addresses, and shall be effective when received:

If to SELLER:

COMMONWEALTH NEW BEDFORD ENERGY LLC
7 Winslow Way
Mansfield, MA 02048
Attn: Thomas Yeransian
Telephone: 508-339-3074
Email: tyeransian@crmcx.com

If to BUYER:

EXELON GENERATION COMPANY, LLC
1310 Point Street 8th Floor
Baltimore, MD 21231
Email (for Invoices): RECOPSGROUP@constellation.com

Legal Notices:
EXELON GENERATION COMPANY, LLC
1310 Point Street 8th Floor
Baltimore, MD 21231
Attn: Counsel
Telephone: 410-470-7156
Facsimile: 410-470-2600