

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 7009-BL9NEF

Issue Date: February 28, 2020

Sky Energy (Power) Corporation and Tractebel Management Inc. as general partner for and on behalf of Tractebel Windsor Power L.P. operating as West Windsor Power  
4375 Sandwich Street  
Windsor, Ontario  
N9C 4C8

**Site Location:** 4375 Sandwich Street  
Windsor City, County of Essex  
N9C 4C8

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act , R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

A 143 megawatt (nominal) combined cycle power generation facility consisting of the following major components:

One (1) natural gas fired combustion turbine generator having a maximum generating capacity of 104 megawatts electrical at -18 degrees Celsius, firing natural gas at a maximum thermal input rate of 1,112 gigajoules per hour higher heating value, discharging to one (1) heat recovery steam generator located after the turbine, discharging into the air through a stack having an exit diameter of 4.9 metres, extending 48.8 metres above grade, equipped with a Continuous Emissions Monitoring (CEM) system;

One (1) natural gas fired supplementary duct burner, with a maximum thermal heat input rate of 42.16 gigajoules per hour, installed in the heat recovery steam generator inlet duct to augment output from the combustion turbine generator;

One (1) steam turbine generator having a rated output of 35 megawatts;

One (1) natural gas fired auxiliary boiler equipped with low-NOx burners and having a maximum thermal input of 13 gigajoules per hour;

One (1) diesel generator set with rated output of 600 kilowatts used to provide emergency backup power, firing diesel fuel at a maximum rate of 173 litres per hour and discharging into the air at a maximum volumetric flow rate of 1.19 cubic metres per second through each of two stacks, each having an exit diameter of 0.2 metre, extending 7.0 metres above grade and 3.5 metres

above roof;

Twenty-two (22) natural gas fired comfort heating units and one (1) natural gas fired water heater, having an aggregate maximum thermal heat input of 6.6 gigajoules per hour;

One (1) double cell, induced draft, counter-flow cooling tower, exhausting to the air through two stacks at a volumetric flow rate of 566.34 cubic metres per second per stack, each stack having an exit diameter of 9.2 metres, extending 4.27 metres above the roof and 12.9 metres above grade;

Two (2) QA/QC laboratory fume hoods;

One (1) welding exhaust fan;

Two (2) GTG oil tank exhausts;

One (1) STG oil tank exhaust;

One (1) oil vapour exhaust fan;

all in accordance with the Application for Environmental Compliance Approval signed by Helen Mei of West Windsor Power and dated March 22, 2019, the Emission Summary and Dispersion Modelling Report prepared by Zachary Zehr P.Eng. of Arcadis Canada Inc., and dated March 2019, the information submitted via e-mail by Tara Bailey P.Eng. of Arcadis Canada Inc. on February 7, 2020, the Acoustic Assessment Report prepared by Arcadis Canada Inc., dated March 2019 and signed by Slavi Grozev, P.Eng., and all other supporting information and documentation submitted in support of the application.

*For the purpose of this environmental compliance approval, the following definitions apply:*

1. "*Approval*" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
2. "*Combustion Turbine Facility*" means the supplementary duct burner, heat recovery steam generator, steam turbine generator, and combustion turbine as described in the *Company's* application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *Approval*;
3. "*Company*" means Sky Energy (Power) Corporation and Tractebel Management Inc. as general partner for and on behalf of Tractebel Windsor Power L.P. operating as West Windsor Power, that is responsible for the construction or

operation of the *Facility* and includes any successors and assigns;

4. "*District Manager*" means the District Manager of the appropriate local district office of the *Ministry*, where the *Facility* is geographically located;
5. "*EPA*" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended ;
6. "*Equipment*" means the processes and equipment described in the *Company's* application, this *Approval* and in the supporting documentation submitted with the application, to the extent approved by this *Approval*;
7. "*Facility*" means the entire operation located on the property where the *Equipment* is located;
8. "*Fuel Flow Rate*" means flow rate of the fuel, expressed in cubic metres per second at standard temperature and pressure, or kilograms per second;
9. "*Heat Output*" means the total useful heat energy recovered from the combustion turbine as heat, expressed in megawatts;
10. "*Lower Heating Value*" means the energy released during combustion of the fuel, excluding the latent heat content of the water vapour component of the products of combustion, expressed in megajoules per cubic metre at standard temperature and pressure, or megajoules per kilogram;
11. "*Manual*" means a document or a set of documents that provide written instructions to staff of the *Company*;
12. "*Ministry*" means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf;
13. "*Minister*" means the Minister of the Environment and Climate Change or such other member of the Executive Council as may be assigned the administration of the *EPA* under the Executive Council Act;
14. "*Ministry*" means the ministry of the *Minister*;
15. "*Nitrogen Oxides*" means oxides of nitrogen, and includes nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>);
16. "*Power Output*" means the electricity and shaft power production of the combustion turbine, expressed in megawatts;
17. "*Publication NPC-300*" means the *Ministry* Publication NPC-300, " Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August, 2013, as amended;
18. "*Report EPS 1/PG/7*" means the document titled "Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation - Report EPS 1/PG/7" published by Environment Canada in

December 2005, as modified;

19. "*Thermal Efficiency*" means the thermal efficiency of the *Combustion Turbine Facility* calculated according to the formula described in Schedule "C" of this *Approval*.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

## TERMS AND CONDITIONS

### 1. OPERATION AND MAINTENANCE

1. The *Company* shall ensure that the *Equipment* is properly operated and maintained at all times. The *Company* shall:
  - a. prepare, not later than three (3) months after the date of this *Approval*, and update, as necessary, a *Manual* outlining the operating procedures and a maintenance program for the *Equipment*, including:
    - i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the *Equipment* suppliers;
    - ii. emergency procedures;
    - iii. procedures for any record keeping activities relating to operation and maintenance of the *Equipment*;
    - iv. all appropriate measures to minimize noise and odorous emissions from all potential sources; and
  - b. implement the recommendations of the *Manual*.
2. The *Company* shall ensure that the combustion turbine is not operated more than 1500 hours within a calendar year.

### 2. RECORD RETENTION

1. The *Company* shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this *Approval*, and make these records available for review by staff of the *Ministry* upon request. The *Company* shall retain:
  - a. all records on the maintenance, repair and inspection of the *Equipment*;
  - b. all records on the calibration and maintenance of the Continuous

Emission Monitoring Systems;

- c. all records produced by the Continuous Emission Monitoring Systems;
- d. all records and summaries produced from the *Thermal Efficiency* testing; and
- e. all records of any environmental complaints, including:
  - i. a description, time and date of each incident to which the complaint relates;
  - ii. wind direction at the time of the incident to which the complaint relates; and
  - iii. a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

### **3. NOTIFICATION OF COMPLAINTS**

1. The *Company* shall notify the *District Manager*, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:
  - a. a description of the nature of the complaint; and
  - b. the time and date of the incident to which the complaint relates.

### **4. PERFORMANCE LIMITS**

1. The *Company* shall ensure that the *Facility* is designed and operated to comply, at all times, with the following performance requirements:
  - a. The concentrations of *Nitrogen Oxides* and carbon monoxide in the undiluted gas emitted from the *Combustion Turbine Facility* are not greater than their limits as specified in Schedule "A" of this *Approval*.
  - b. The *Thermal Efficiency* of the *Combustion Turbine Facility* is not less than the efficiency specified in Schedule "A" of this *Approval*.
2. The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set in *Ministry Publication NPC-300*.

### **5. MONITORING**

1. The *Company* shall monitor the emissions and operation of the *Facility* as follows:
  - a. The *Company* shall maintain operational a Continuous Emission Monitoring (CEM) system to continuously monitor and record the concentrations of *Nitrogen Oxides*, carbon monoxide and oxygen in the undiluted gases leaving the *Combustion Turbine Facility*. The locations

and the specifications of the CEM system are outlined in Schedule "B" of this *Approval*.

- b. The *Company* shall perform a test, initially by January 31, 2021, and then once every two (2) calendar years thereafter, to determine the *Thermal Efficiency* of the *Combustion Turbine Facility*. The *Company* shall:
- determine the parameters described in Schedule "C" of this *Approval* during the *Thermal Efficiency* testing;
  - calculate the *Thermal Efficiency* of the *Combustion Turbine Facility* according to the formula described in Schedule "C" of this *Approval*; and
  - prepare a summary of the results of the *Thermal Efficiency* testing no later than two (2) months after completing the test. The summary shall indicate the *Thermal Efficiency* of the *Combustion Turbine Facility* and also include all parameters described in Schedule "C" of this *Approval*.
- c. If the measured *Thermal Efficiency* is less than the anticipated *Thermal Efficiency* specified in Schedule "A" of this *Approval* (with a tolerance of 0.05 multiplied by the anticipated *Thermal Efficiency*), the *Company* shall notify the *Ministry* so that the emission limits specified in Schedule "A" of this *Approval* can be revised accordingly.

#### SCHEDULE "A"

PARAMETER	LIMIT
<i>Nitrogen Oxides</i>	76 ppmv <sup>1,2</sup>
Carbon Monoxide	60 ppmv <sup>1,2</sup>
Thermal Efficiency	46 percent <sup>3</sup>

- Demonstration of compliance with the limits of *Nitrogen Oxides* and carbon monoxide is based on the "arithmetic averaging" of the emissions recorded in their respective CEM System under "normal operation" of the *Combustion Turbine Facility*. "Normal operation" means the full-load operation of the *Combustion Turbine Facility* as defined by the manufacturer. "Arithmetic averaging" means arithmetic averaging of the emissions recorded by the CEM System in the entire normal operation cycle, when the normal operation cycle lasted for less than 24 hours, or arithmetic averaging of the emissions recorded by the CEM System in the normal operation cycle based on a 24-hour rolling average basis, when the normal operation cycle lasted more than 24 hours.
- "ppmv" means parts per million by volume at Reference Conditions (ambient temperature at 15 degrees Celsius, 60 percent relative humidity and 101.3 kiloPascals barometric pressure) on a dry volume basis normalized to 15 percent oxygen.
- The calculated *Thermal Efficiency* shall be converted to Reference Conditions.

## SCHEDULE "B"

### B.1 CONTINUOUS OXYGEN MONITOR AND DATA RECORDER

#### INSTALLATION:

The continuous oxygen monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of oxygen in the undiluted flue gases leaving the *Combustion Turbine Facility* and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (percentage):	0-20 or 0-25
2	Calibration Gas Ports:	close to the sample point

#### PERFORMANCE:

The continuous oxygen monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	SPECIFICATION
1	Span Value (percentage):	80% - 100% of Full Scale (FS) for each range
2	Relative Accuracy	the greater of < 10% Relative Accuracy or 0.5% O <sub>2</sub> average absolute difference
3	System Bias	< the greater of 5% of FS or 0.5% O <sub>2</sub> average absolute difference
4	Procedure for Zero and Span Calibration Check:	all system components checked
5	Zero Calibration Drift (24-hour):	≤ 0.5 % O <sub>2</sub>
6	Span Calibration Drift (24-hour):	≤ 0.5 % O <sub>2</sub>
7	Response Time:	< 200 seconds for 90% change

#### CALIBRATION:

Daily calibration drift checks on the monitor shall be performed and recorded when the *Combustion Turbine Facility* is operating and in accordance with the requirements of *Report EPS 1/PG/7*.

#### DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

#### RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 80 percent of the time for each calendar year when the *Combustion Turbine Facility* is operating.

### B.2 CONTINUOUS CARBON MONOXIDE MONITOR AND DATA RECORDER

#### INSTALLATION:

The continuous carbon monoxide monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of carbon

monoxide in the undiluted flue gases leaving the *Combustion Turbine Facility* and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (parts per million, ppm):	0-100
2	Calibration Gas Ports:	close to the sample point

#### PERFORMANCE:

The continuous carbon monoxide monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	SPECIFICATION
1	Span Value (nearest ppm equivalent):	80% - 100% of Full Scale (FS) for each range
2	Relative Accuracy	the greater of < 10% Relative Accuracy or 8 ppm average absolute difference
3	System Bias	< the greater of 5% of FS or 5 ppm average absolute difference
4	Procedure for Zero and Span Calibration Check:	all system components checked
5	Zero Calibration Drift (24-hour):	< the greater of 2% of FS or 2.5 ppm absolute difference
6	Span Calibration Drift (24-hour):	< the greater of 2.5% of FS or 2.5 ppm absolute difference
7	Response Time:	< 200 seconds for 90% change

#### CALIBRATION:

Daily calibration drift checks on the monitor shall be performed and recorded when the *Combustion Turbine Facility* is operating and in accordance with the requirements of *Report EPS 1/PG/7*.

#### DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

#### RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 80 percent of the time for each calendar year when the *Combustion Turbine Facility* is operating.

### B.3 CONTINUOUS NITROGEN OXIDES MONITOR AND DATA RECORDER

#### INSTALLATION:

The continuous nitrogen oxides monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of nitrogen oxides in the undiluted gases leaving the *Combustion Turbine Facility* and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (parts per million, ppm):	0-100



	ppm):	
2	Calibration Gas Ports:	close to the sample point

#### **PERFORMANCE:**

The continuous nitrogen oxides monitor shall meet the following minimum performance specifications for the following parameters:

	<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1	Span Value (nearest ppm equivalent):	80% - 100% of Full Scale (FS) for each range
2	Relative Accuracy	the greater of < 10% of Relative Accuracy or 8 ppm average absolute difference
3	System Bias	< the greater of 5% of FS or 5 ppm average difference
4	Procedure for Zero and Span Calibration Check:	all system components checked
5	Zero Calibration Drift (24-hour):	< the greater of 2% of FS or 2.5 ppm absolute difference
6	Span Calibration Drift (24-hour):	< the greater of 2.5% of FS or 2.5 ppm absolute difference
7	Response Time:	< 200 seconds for 90% change

#### **CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded when the *Combustion Turbine Facility* is operating and in accordance with the requirements of *Report EPS 1/PG/7*.

#### **DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

#### **RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 80 percent of the time for each calendar year when the *Combustion Turbine Facility* is operating.

### **SCHEDULE "C"**

#### ***Thermal Efficiency Testing Procedures:***

##### **Parameters to be tested/measured:**

1. *Power Output*
2. *Heat Output*
3. *Fuel Flow Rate*
4. *Lower Heating Value*
5. (a) Ambient air temperature (expressed in degrees of Celsius)  
(b) Barometric pressure (expressed in kilopascal)  
(c) Relative humidity (expressed in percent)
6. Date, time and duration of test

#### **FORMULA:**

$( \text{Power Output} + \text{Heat Output} ) \times 100\%$

**Thermal Efficiency** =  $\frac{\text{Power Output} + \text{Heat Output}}{\text{Fuel Flow Rate} \times \text{Lower Heating Value}}$

**NOTE:**

*Thermal Efficiency* testing should be conducted at maximum rating or at the maximum load achievable at the time of testing and shall employ an averaging time of not less than three hours.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition No. 1 is included to emphasize that the *Equipment* must be maintained and operated according to a procedure that will result in compliance with the *EPA*, the regulations and this *Approval*.
2. Condition No. 2 is included to require the *Company* to keep records and to provide information to staff of the *Ministry* so that compliance with the *EPA*, the regulations and this *Approval* can be verified.
3. Condition No. 3 is included to require the *Company* to notify staff of the *Ministry* so as to assist the *Ministry* with the review of the site's compliance.
4. Condition No. 4 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the *Facility / Equipment*.
5. Condition No. 5 is included to require the *Company* to gather accurate information so that the environmental impact and subsequent compliance with the *EPA*, the regulations and this *Approval* can be verified.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 3862-ACXJXZ issued on August 24, 2016**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not*

*be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Minister of the Environment,  
Conservation and Parks  
777 Bay Street, 5th Floor  
Toronto, Ontario  
M7A 2J3

AND

The Director appointed for the purposes of  
Part II.1 of the Environmental Protection Act  
Ministry of the Environment, Conservation  
and Parks  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at <https://ero.ontario.ca/>, you can determine when the leave to appeal period ends.*

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 28th day of February,  
2020

Jeffrey McKerrall, P.Eng.  
Director  
appointed for the purposes of Part  
II.1 of the *Environmental  
Protection Act*

c: Area Manager, MECP Windsor  
c: District Manager, MECP Sarnia  
Tara Bailey P.Eng., Arcadis Canada Inc.