SUNCOR ENERGY CEDAR POINT WIND POWER PROJECT
DESIGN AND OPERATIONS REPORT

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Prepared for:

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Executive Summary

Suncor Energy Products Inc. ("Suncor") is proposing to develop the Suncor Energy Cedar Point Wind Power Project (the Project) within the Town of Plympton-Wyoming, the Municipality of Lambton Shores, and Warwick Township all within Lambton County, Ontario. The proposed Project was awarded a Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA) in July, 2011 for up to 100 MW (FIT Contract F-002175-WIN-130-601).

It is envisioned that the proposed Project will include up to 46 wind turbines. The proposed Project would also include access roads, meteorological towers (met towers), electrical collector lines, substation, and a 115 kV transmission line. Suncor has elected to assess and seek approval for some alternative wind turbine locations. The Renewable Energy Approval (REA) application will consider up to nine (9) alternative turbine locations. Final selection of the turbine sites will be determined prior to Project construction and will be based on consultation activities, potential effects assessments, and detailed design / engineering work. The Project site plan is shown in **Attachment A**.

This Design and Operations Report is one component of the REA application for the Project, and has been prepared in accordance with O. Reg. 359/09, the Ontario Ministry of Natural Resources' (MNR's) *Approval and Permitting Requirements Document for Renewable Energy Projects* (September 2009), and MOE's "Technical Guide to renewable Energy Approvals".

The following table summarizes the documentation requirements as specified under O. Reg. 359/09:

Design and Operations Report Requirements (as per O. Reg. 359/09 – Table 1)

Requirements	Completed	Section Reference
1. Set out a site plan of the project location at which the renewable energy project will be engaged in, including,		
i. one or more maps or diagrams of,		
A. all buildings, structures, roads, utility corridors, rights of way and easements required in respect of the renewable energy generation facility and situated within 300 m of the facility,	✓	Attachment A
B. any ground water and surface water supplies used at the facility,	N/A	N/A
C. any things from which contaminants are discharged into the air,	N/A	N/A
D. any works for the collection, transmission, treatment and disposal of sewage,	N/A	N/A
E. any areas where waste, biomass, source separated organics and farm material are stored, handled, processed or disposed of,	N/A	N/A
F. the project location in relation to any of the following within 125 m: the portion of the Oak Ridges Moraine Conservation Plan Area that is subject to the Oak Ridges Moraine Conservation Plan, the area of the Niagara Escarpment Plan, the Protected Countryside, the Lake Simcoe watershed, and	N/A	N/A

Design and Operations Report Requirements (as per O. Reg. 359/09 – Table 1)

Requirements	Completed	Section Reference
G. any noise receptors or odour receptors that may be negatively affected by the use or operation of the facility,	✓	Attachment B
ii. a description of each item diagrammed under subparagraph i,	✓	2.0, 3.0
iii. one or more maps or diagrams of land contours, surface water drainage and any of the following, if they have been identified in complying with this Regulation: properties described in Column 1 of the Table to section 19, heritage resources, archaeological resources, water bodies, significant or provincially significant natural features and any other natural features identified in the Protected Countryside or in the portion of the Oak Ridges Moraine Conservation Plan Area that is subject to the Oak Ridges Moraine Plan.	✓	Attachment A, NHA/EIS, and Archaeological and Heritage Assessment
iv. a description, map or diagram of the distance between the base of any wind turbines and any public road rights of way or railway rights of way that are within a distance equivalent to the length of any blades of the wind turbine, plus 10 metres,	✓	2.2
v. a description, map or diagram of the distance between the base of any wind turbines and all boundaries of the parcel of land on which the wind turbine is constructed, installed or expanded within a distance equivalent to the height of the wind turbine, excluding the length of any blades,	✓	2.2 and Attachment D
vi. a description, map or diagram of the distance between the base of each wind turbine and the nearest noise receptor	✓	Attachment B
2. Set out conceptual plans, specifications and descriptions related to the design of the renewable energy generation facility, including a description of,		
i. any works for the collection, transmission, treatment and disposal of sewage, including details of any sediment control features and storm water management facilities,	N/A	N/A
ii. any things from which contaminants are discharged into the air,	N/A	N/A
iii. any systems, facilities and equipment for receiving, handling, storing and processing any waste, biomass, source separated organics, farm material and biogas, and	N/A	N/A
iv. if the facility includes a transformer substation, the works, facilities and equipment for secondary spill containment.	✓	3.5
3. Set out conceptual plans, specifications and descriptions related to the operation of the renewable energy generation facility, including,		
i. in respect of any water takings,	N/A	N/A
A. a description of the time period and duration of water takings expected to be associated with the operation of the facility,	N/A	N/A
B. a description of the expected water takings, including rates, amounts and an assessment of the availability of water to meet the expected demand, and	N/A	N/A
C. an assessment of and documentation showing the potential for the facility to interfere with existing uses of the water expected to be taken,	N/A	N/A

Design and Operations Report Requirements (as per O. Reg. 359/09 – Table 1)

Requirements	Completed	Section Reference
ii. a description of the expected quantity of sewage produced and the expected quality of that sewage at the project location and the manner in which it will be disposed of, including details of any sediment control features and storm water management facilities,	N/A	N/A
iii. a description of any expected concentration of air contaminants discharged from the facility,	N/A	N/A
iv. in respect of any biomass, source separated organics and farm material at the facility,	N/A	N/A
A. the maximum daily quantity that will be accepted,	N/A	N/A
B. the estimated annual average quantity that will be accepted,	N/A	N/A
C. the estimated average time that it will remain at the facility, and	N/A	N/A
D. the estimated average rate at which it will be used, and	N/A	N/A
v. in respect of any waste generated as a result of processes at the project location, the management and disposal of such waste, including,		
A. the expected types of waste to be generated,	N/A	N/A
B. the estimated annual average quantity that will be accepted,	N/A	N/A
C. the estimated average time that it will remain at the facility, and	N/A	N/A
D. the estimated average rate at which it will be used.	N/A	N/A
vi. if the facility includes a transformer substation,		
A. a description of the processes in place to prevent spills,	✓	4.4
B. a description of the processes to prevent, eliminate or ameliorate any adverse effects in the event of a spill, and	✓	4.4
C. a description of the processes to restore the natural environment in the event of a spill.	✓	4.4
4. Include an environmental effects monitoring plan in respect of any negative environmental effects that may result from engaging in the renewable energy project, setting out,		
i. performance objectives in respect of the negative environmental effects,	✓	5.0
ii. mitigation measures to assist in achieving the performance objectives mentioned in subparagraph i,	✓	5.0
iii. a program for monitoring negative environmental effects for the duration of the time that the project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.	✓	5.0
5. Include a response plan setting out a description of the actions to be taken while engaging in the renewable energy project to inform the public, aboriginal communities and municipalities, local roads boards and Local Services Boards with respect to the project, including,		
i. measures to provide information regarding the activities occurring at the project location, including emergencies,	✓	6.0
ii. means by which persons responsible for engaging in the	✓	6.2

Design and Operations Report Requirements (as per O. Reg. 359/09 – Table 1)

Requirements	Completed	Section Reference
project may be contacted, and		
iii. means by which correspondence directed to the persons responsible for engaging in the project will be recorded and addressed.	✓	6.2
6. If the project location is in the Lake Simcoe watershed, a description of whether the project requires alteration of the shore of Lake Simcoe, the shore of a fresh water estuary of a stream connected to Lake Simcoe or other lakes or any permanent or intermittent stream and,		
i. how the project may impact any shoreline, including the ecological functions of the shoreline, and	N/A	N/A
ii. how the project will be engaged in to,	N/A	N/A
A. maintain the natural contour of the shoreline through the implementation of natural shoreline treatments, such as planting of natural vegetation and bioengineering, and	N/A	N/A
B. use a vegetative riparian area, unless the project location is used for agricultural purposes and will continue to be used for such purposes.	N/A	N/A
7. If it is determined that the project location is not on a property described in Column 1 of the Table to section 19, provide a summary of the matters addressed in making the determination.	✓	2.0
8. If section 20 applies in respect of the project and it is determined that the project location does not meet one of the descriptions set out in subsection 20 (2) or that the project location is not in an area described in subsection 20 (3), provide a summary of the matters addressed in making the determination.	✓	2.0
9. If subsection 21 (3) or 23 (2) applies, provide a summary of the matters addressed in making the determination,	✓	2.0
i. under subsection 21 (3) or clause 23 (2) (a), as the case may be, including a copy of the document completed under the applicable provision, and	✓	2.0
ii. under clause 23 (3)(b), if applicable.	✓	2.0

Provided the identified protective and mitigation measures are properly applied to the environmental features discussed, in conjunction with the monitoring plans and contingency measures, the operation phase of the Project is not likely to cause significant net environmental effects. Further, the Project will positively contribute economic resources to the community, while not contributing greenhouse gases.

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1.0 Overview

Suncor Energy Products Inc. ("Suncor") is proposing to develop the Suncor Energy Cedar Point Wind Power Project (the Project) within the Town of Plympton-Wyoming, the Municipality of Lambton Shores, and Warwick Township all within Lambton County, Ontario. The proposed Project was awarded a Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA) in July, 2011 for up to 100 MW (FIT Contract F-002175-WIN-130-601).

It is envisioned that the proposed Project will include up to 46 wind turbines. The proposed Project would also include access roads, meteorological towers (met towers), electrical collector lines, substation, and a 115 kV transmission line. A full description of Project infrastructure is provided in the **Project Description Report**. The Project site plan is shown in **Attachment A**.

Suncor has elected to assess and seek approval for some alternative Project configurations. The Renewable Energy Approval (REA) application process will consider up to nine (9) alternative turbine locations. Final selection of the turbine sites will be determined prior to Project construction and will be based on consultation activities, potential effects assessments, and detailed design / engineering work.

The Cedar Point Wind Power Project is to supply electricity to the Provincial Grid at a connection point on a 500 kV circuit which spans between the Bruce Power nuclear facility and London, ON. In addition to the Cedar Point Wind Power Project transmission facility, the power generated by the project will be transported through a transmission facility owned by Jericho Wind, Inc. and a shared transmission facility jointly owned by Jericho Wind, Inc. (Jericho Wind Energy Centre), Kerwood Wind, Inc. (Adelaide Wind Energy Centre) and Bornish Wind, LP (Bornish Wind Energy Centre). The transmission facility owned by Jericho Wind, Inc. is to be permitted, designed, and constructed by Jericho Wind, Inc. Similarly, the shared transmission facility is to be permitted, designed, and constructed by its owners. For additional details regarding the transmission facilities owned by Jericho Wind, Inc., Kerwood Wind, Inc., and Bornish Wind, LP, please visit the following website (www.nexteraenergycanada.com) and refer to REA documentation for the proposed Jericho Wind Energy Centre.

The Project Location includes all land and buildings/structures associated with the Project and any air space in which the Project will occupy. This includes structures such as turbines, access roads and collector lines that will be utilized during the operation of the Project.

A "Zone of Investigation" has been identified based on the requirements of Ontario Regulation 359/09 (O. Reg. 359/09) and the MNR's Approvals and Permitting Requirements Document (APRD). The zone of investigation encompasses the Project Location and an additional 120 m surrounding the Project Location (50 m surrounding collector lines and the transmission line). This report identifies natural features that are within the Zone of Investigation and assesses potential negative environmental effects that may result from operational activities. Mitigation measures are also identified to alleviate potential negative environmental effects.

Suncor has retained Stantec Consulting Ltd. (Stantec) to prepare a REA application, as required under O. Reg. 359/09. According to subsection 6.(3) of O. Reg. 359/09, the wind component of the Project is classified as a Class 4 Wind Facility. This Design and Operations Report is one component of the REA application for the Project, and has been prepared in accordance with O. Reg. 359/09, the MNR's APRD, and the Ministry of the Environments' (MOE) "Technical Guide to Renewable Energy Approvals".

2.0 Site Plan

The Project Site Plan is provided in **Attachment A**. The Site Plan provides the following information:

- Facility components, including: turbine locations, meteorological towers (met tower), access roads, collector lines, transmission line, and substation.
- Project Location: the outer limit of all components of the Project. The Project Location is used for defining setback and site investigation distances.
- Public Roads.
- Location of property lines.
- Significant natural features and water bodies.
- Visual representation of setback buffer areas from the Project Location to water bodies and significant natural features. Additional setback information is provided in the **Natural Heritage Assessment/Environmental Impact Study** and the **Water Body/Water Assessment Report**.
- Noise receptors (non-participating and vacant lots) are illustrated within the Noise Assessment Report (**Attachment B**). Additionally, setbacks to noise receptors and associated noise calculation tables are provided within **Attachment B**.
- The locations of archaeological study areas and heritage resources are shown within the **Archaeological and Heritage Report**. This includes a discussion of archaeological and heritage resources described in sections 19 thru 23 of O. Reg. 359/09 and an assessment of the potential effects and mitigation measures to these resources. No protected properties are located at or adjacent to the Project Location. This determination was made via the requirements of O. Reg. 359/09 including contacting the Ministry of Tourism/Culture/Sport, Ontario Heritage Trust, and the local municipalities and County (additional detail related to this determination is provided in the **Heritage Report**). As such, no protected properties are depicted on the site plan.

2.1 SETBACK DISTANCES

O. Reg. 359/09 provides setback distances between the Project Location and:

- Significant and provincially significant natural features (120 m);
- Provincial parks and conservation reserves (120 m); and
- Water bodies (120 m).

O. Reg. 359/09 also provides setback distances between wind turbine base and:

- Property lines (hub height);

- Public road right-of-ways (blade length plus 10 m);
- Railway right-of-ways (blade length plus 10 m); and
- Noise receptors (550 m).

O. Reg. 359/09 also provides setbacks between transformers and noise receptors.

Visual representation of the setback distances are illustrated on the Site Plan (**Attachment A**) and within the Noise Assessment Report (**Attachment B**). All turbines are located at a minimum distance of 550 m from the nearest non-participating receptor (measured from turbine base). The majority of the turbines also meet the setback of 99.5 m (hub height) from the nearest property line (also measured from turbine base). There are fourteen (14) turbines that are less than hub height but greater than blade length plus 10 m from property lines (65 m). For these turbines, a written assessment of the potential effects and preventative measures associated with the turbine location has been completed (**Attachment D**). In addition, all turbines have been located at least blade length plus 10 m from public roads and railway rights-of-way.

Where the Project Location is within the setback distances to natural features and/or property lines, additional information is provided within the **Natural Heritage Assessment/Environmental Impact Study** (**NHA/EIS**) and the Property Line Setback Assessment (**Attachment D** to this report) respectively.

The collector substation has been assessed as part of the Noise Assessment Report (**Attachment B**) and thus setbacks do not apply. In addition, a sound attenuation wall will be built around the west perimeter of the transformers to minimize the escape of transformer noise into the surrounding environment.

3.0 Facility Design Plan

This section provides a description of the key facility components identified on the Site Plan (**Attachment A**). A detailed description of Project infrastructure is included in the **Project Description Report**. No equipment in the facility design relate to groundwater and surface water supplies, air discharges and/or water and biomass management.

3.1 WIND TURBINES

The Siemens SWT - 2.3 -113 has been selected as the turbine model, details of which are provided below in Table 3.1 (additional information is provided in the **Wind Turbine Specifications Report**). Turbine locations are provided in Table 3.2.

Table 3.1: Siemens SWT – 2.3 - 113 Turbine Description

Operating Data	Specification
General	
Rated Capacity (MW)	2.030 - 2.221
Cut-in wind speed (m/s)	3.0 (12.6 km/hr)
Cut-out wind speed (m/s)	25 (90 km/hr)
Rotor	
Number of rotor blades	3
Rotor diameter (m)	113
Swept Area (m^2)	10,000
Rotor/Rotational Speed (rpm)	6 - 13
Blade length (m)	55
Tower	
Hub height above grade (m)	99.5
Tip height (m)	154.5

Table 3.2: Wind Turbine Coordinates

Wind Turbine ID	Easting	Northing	Nameplate Capacity (MW)
1	423325	4779947	2.126
2	423377	4779347	2.126
4	422879	4778982	2.126
5	423245	4778344	2.126
6	422802	4778019	2.126
7	421230	4778183	2.126
8	422865	4777231	2.126
9	422893	4775653	2.126
10	419153	4777370	2.030
11	422661	4775135	2.126
13	419265	4776572	2.126
14	419035	4775996	2.126
15	420667	4774508	2.126
16	421160	4774047	2.126
17	419179	4775153	2.221
18	420545	4773644	2.221
19	418499	4774532	2.126

Table 3.2: Wind Turbine Coordinates			
Wind Turbine ID	**Easting**	**Northing**	**Nameplate Capacity (MW)**
20	420881	4773009	2.126
21	416732	4776214	2.030
22	416903	4775746	2.126
23	416180	4775949	2.221
24	416619	4775229	2.126
25	417026	4774693	2.126
26	421545	4770967	2.221
27	416257	4774033	2.221
29	420519	4770627	2.221
30	414976	4774473	2.221
31	414508	4773498	2.221
32	413984	4773786	2.221
34	413419	4773597	2.221
35	413504	4771876	2.221
36	412817	4771516	2.221
37	412242	4771844	2.221
39 (Alt)	410803	4771647	2.221
40	412134	4769169	2.221
41	410537	4769264	2.221
42 (Alt)	413558	4766375	2.221
43	410885	4768546	2.221
44	409812	4769400	2.221
46 (Alt)	413838	4765546	2.221
47	408115	4768818	2.221
48	408411	4768249	2.221
50 (Alt)	410398	4765477	2.221
51	408572	4766648	2.221
53	408885	4765445	2.221
54 (Alt)	407818	4765618	2.221
69	412533	4768085	2.221
70	413660	4767965	2.221
71 (Alt)	414270	4770586	2.221
72 (Alt)	414073	4766424	2.221
76	413336	4768393	2.126
79 (Alt)	411606	4765300	2.221
80 (Alt)	412204	4765167	2.221
81	413092	4768868	2.221
82	421271	4777618	2.221
Transformer (1)	416857	4775052	N/A
Transformer (2)	416857	4775031	N/A
Met Tower 1	423085	4780168	N/A
Met Tower 48	408134	4768275	N/A
Met Tower 26	421468	4770720	N/A
Met Tower 4	422650	4779049	N/A
Met Tower 23	416044	4776189	N/A
Met Tower 37	412193	4772075	N/A

3.2 ACCESS ROADS

Access roads are required to access each turbine site from existing roads during the operation of the Project. Where possible, access has been planned in a manner that reduces the amount of land required to access the turbine sites, thus reducing potential impacts on the existing environment and agricultural operations.

Access roads are approximately 15 m wide except in some cases where they may be decreased in size (5 m) following construction based on consultation with landowners. Access roads will be constructed of native materials or engineered fill. Alternatively, a woven geotextile could also be utilized with a reduced granular material depth or a cement/soil stabilizing agent.

3.3 FOUNDATIONS

Foundations are made of poured in place reinforced concrete. Foundations will be designed based on a site specific geotechnical assessment. Foundation designs could be either a gravitational spread type footing with or without piles. Piles may be required at some locations should soil conditions require piling. Gravitational spread type footings are octagonal in shape with an approximate diameter of 18 m, 2-3 m deep. Piles would be added to the foundation if necessary. Piles would be driven until refusal. The foundation will also include a grounding grid. During the operation of the turbines the majority of the foundation will be covered with top soil enabling the landowners to continue utilizing the land for agricultural purposes.

3.4 TURBINE TRANSFORMERS AND COLLECTOR LINES

A generator step-up (GSU) transformer, located adjacent to each turbine, is required to transform the electricity generated in the nacelle of each turbine to a common collection system line voltage (i.e. 690 V to 34.5 kV). From each GSU, 34.5 kV underground and/or overhead collector circuits carry the electricity to the Project's substation at Fuller Road and Cedar Point Line. The collector lines will be buried underground on private property from the turbines to the municipal road rights-of-way at which time the lines may be switched to overhead lines or remain underground, generally depending upon other utilities within the road right-of-way and discussions with municipal staff.

The overhead lines (if used) will be constructed on single pole structures, similar to existing distribution lines located throughout the area. Generally, the poles are spaced approximately 60 m apart. Underground lines are buried at a minimum depth of 1 m so that agricultural production can continue on the lands above the collector lines.

3.5 TRANSFORMER SUBSTATION

A transformer substation will be built to accumulate the power circuits from the wind generation equipment outlined above. The accumulated power of up to 100 MW at 34.5 kV will arrive to the transformer substation via the collector lines. Two transformers, located within the substation, will step up the voltage from the 34.5 kV collector bus to 115 kV for the power transfer to the transmission line.

The transformer substation will consist of a prepared area of approximately 23,600 m^2 in size. An approximate 2.4 m high perimeter chain link fence will enclose the substation for safety reasons. The substation site would house the switching, control, protection, communication and metering equipment required to support the operation of the substation. The grounding design of the substation will be informed through an investigation of earth resistance at the location and ground grid resistance designed to industry standards. The substation will be built in accordance with the current regulations and standards.

Within the substation footprint itself, the transformers will be equipped with an oil containment system to capture oil in the event of a leak. The oil containment system is sized to hold all of the oil from the transformers. Additionally, the oil containment system will be designed to distinguish between oil and water to only let water pass through the system. This will allow rain water to drain off the site through normal operation of the facility when no oil leaks are detected.

A sound attenuation wall, approximately 5 m high, will be constructed along the west side of the transformers. The barrier will minimize the escape of transformer noise into the surrounding environment and to break the line of sight with adjacent noise receptors.

3.6 TRANSMISSION LINE

A 115 kV overhead and/or underground transmission line will be installed between the Project's transformer substation (near Fuller Road and Cedar Point Line) and a proposed substation to be built as part of the Jericho Wind Energy Centre (located near Jericho Road as shown in the Site Plan). The transmission line will connect to the high voltage side of the Jericho substation via a 115 kV circuit breaker. The transmission line would be approximately 15 km in length.

If overhead, the transmission line will be constructed on single pole structures approximately 20 m in height. Generally, the poles are spaced 60 m – 150 m apart. Typically, a 20 m wide (66 feet) area cleared of tall vegetation is required for the transmission line (when overhead). If installed underground, the transmission line would buried at a minimum depth of 1.0 m. The cables would be backfilled with sand around the vicinity of the cables with wide electrical caution tape buried above the electrical cables to serve as a warning. Additionally, buried high voltage warning signs may be installed near road crossings. Native soils will be compacted to bring the trench to grade. The proposed transmission line is intended to be installed overhead, however underground sections would be installed where environmental constraints require.

3.7 STORMWATER MANAGEMENT SYSTEM

Area drainage from the transformer substation will be accomplished through swales/ditches adjacent to the substation that will collect and convey runoff from the substation area and the associated access road. The total drainage area associated with the substation and access road "hard" surfaces is less than 2 ha and therefore a "wet" water quality control pond (i.e. one containing a permanent pool) is inappropriate, as per the MOE *SWM Planning and Design Guidelines Manual* (2003). In addition to the conveyance of runoff, the swales will also provide water quality control, which is a suitable stormwater management practice for such an area according to the MOE guidelines.

3.8 OPERATIONS AND MAINTENANCE BUILDING

An operations and maintenance building may be constructed within the constructible area of the substation and would be used to store spare parts and monitor the day to day operations of the facility. Servicing would be provided via a buried septic tank (pumped out via a licensed third party) and municipal water supply. Permits for these services will be sought from the Municipality of Lambton Shores.

3.9 MET TOWERS

Suncor has two active 60 m tubular guyed met towers which were installed in 2006 and 2008. An 80 m lattice tower was installed in 2005 but was subsequently decommissioned in 2010. These met towers have been used to identify the quality of the wind resource for the proposed Project. The wind data collected will be used to determine the best orientation of the wind turbines such that wind speed reduction from adjacent wind turbines will be minimized. These towers are prospecting towers and may be removed upon reaching commercial operation.

Up to six permanent met towers may be installed for use during the operation phase of the Project. The permanent met towers will be installed as per requirements by the Independent Electrical System Operator (IESO). The met towers are used for two functions: to complete a power performance study to confirm performance of the wind turbines installed and to provide data to the IESO to support their wind forecasting activities and operations of the electrical system. The met towers will remain and be maintained for the duration of the Project's operating life.

Met towers would be a steel lattice type structure up to 100 m high. The tower foundation, depending on ground conditions, is typically a steel reinforced concrete-filled tubular pile. These towers would either be freestanding supported entirely by the foundation or would have guy wires for lateral support. Guy wires would be mounted on steel anchors embedded into buried reinforced concrete.

4.0 Facility Operations Plan

Operation activities include daily monitoring, maintenance activities, and monitoring of meteorological data.

4.1 SITE SUPERVISION

After the manufacturer's warranty period of the turbine has expired Suncor may hire a specialized Operation and Maintenance Contractor for specific maintenance tasks. Suncor would carry out the various on-going activities, including daily operation associated with the facility. It is expected that approximately three to five operation and maintenance staff would be employed by the Project during the operation phase (except during larger maintenance events).

4.2 MAINTENANCE PROGRAM

Prior to operation, Suncor would develop an operation and maintenance program. The program would be designed to ensure compliance with any applicable municipal, provincial, and/or federal requirements. As appropriate, the program would cover staff training, predictive/preventive maintenance, routine maintenance, unscheduled maintenance (including appropriate environmental mitigation measures), annual overhauling, inspection of equipment and components, and procurement of spare parts. It would also include a schedule for regular inspections of the Project's facilities.

Maintenance staff would be able to monitor the performance of all turbines on-line in real time basis. Monitoring of the turbines would occur 24 hours a day/7 days a week. The on-line system would identify any potential problems so that pro-active inspection and maintenance can be undertaken. The turbines are equipped with sensors to identify abnormalities including but not limited to unbalanced rotor, detection for lose parts, vibration monitoring, which would automatically shut down the turbine and provide the operator with an error code. Upon receiving an error code the operator would perform a visual inspection to identify cause of shut down. Regular maintenance of Project equipment would be a key method of mitigating potential effects such as equipment failure. All maintenance activities would be conducted in accordance with the manufacturers specifications and warranty. Scheduled maintenance will likely cover the following:

- Complete visual inspection of turbine components and tower;
- Functionality testing;
- Replacement of warn parts;
- Bolt torque testing;
- Lubrication of moving parts;
- Inspection of mechanical components high voltage systems;

- Inspection of electrical components; and
- Greasing and general maintenance.

Although the exact oil and grease requirements for the Project are not known at this time, oil changes will be completed as required. Used oil would be picked up by a certified contractor with the appropriate manifests in place. The proposed Siemens SWT-2.3-113 wind turbine model is a direct drive system that does not have a gearbox. This will significantly reduce the requirements for petroleum hydrocarbons during the operation of the wind farm.

If there is oil/grease detected in the transformer catch basin, the liquid would be removed from site via a licensed waste hauler and the source of the leakage would be determined and rectified.

Suncor will provide unscheduled maintenance of the Project when required including maintenance such as snow removal.

4.3 MONITORING METEOROLOGICAL DATA

Each turbine would have sensors to measure wind speed and direction. This data would be used to determine when the turbines are operating as well as to control the pitch of the blades and the orientation of the nacelle. Meteorological data will also be collected from the Met towers. All data would be used to monitor the operational efficiency of the turbines.

4.4 ACCIDENTAL SPILLS

Standard containment facilities and emergency response materials (spill kits) will be maintained on-site as required. Refuelling, equipment maintenance, and other potentially contaminating activities will occur in designated areas.

In the event of a potential discharge of fluids associated with Project operation, Suncor will determine the source of the spill and the extent of contamination. Containment facilities and emergency response materials will be used to minimize the extent of any contamination. Suncor will then assess the extent of contamination (e.g. soils, surface water, and groundwater) and rectify the contaminated lands/water. For example, once a spill is under control Suncor will remove contaminated soil and dispose of it in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation and the site will be restored. The Emergency Response Plan will contain procedures for spill contingency and response plans (including any required monitoring), spill response training, notification procedures, and necessary cleanup materials and equipment. As per s.13 of the *Environmental Protection Act*, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE's Spills Action Centre.

4.5 WASTE MATERIAL DISPOSAL

Lubricating and hydraulic oils associated with Project maintenance and operation would be used for the facility during standard operation and maintenance activities. Waste materials will be disposed of at an appropriate MOE approved off-site facility. There will be no on-site disposal of waste during the operation of the facility. Used oil, oil filters, oily rags may be temporarily stored in a designated area of the substation, and picked up by a certified contractor with the appropriate manifests in place.

4.6 ACCIDENTS AND MALFUNCTIONS

The potential exists for full or partial blade detachment from the turbine, resulting in damage to the landing area from the impact. Garrad Hassan Canada undertook a review of publicly-available literature on turbine rotor failures resulting in full or partial blade throws (Garrad Hassan Canada, 2007). Such events were found to be very rare; therefore data describing these events are scarce.

Root causes of blade failure have been continuously addressed through developments in best practice in design, testing, manufacture and operation; much of these developments have been captured in the International Electrotechnical Commission (IEC) standards to which all current large wind turbines comply (Garrad Hassan Canada, 2007).

Turbine control systems are subjected to rigorous specification in the design standards for wind turbines (IEC 61400-1) and exhaustive analysis in the certification process. Turbines with industry certification must have a safety system completely independent of the control system. In the event of a failure of one system, the other is designed to control the rotor speed.

Lightning protection systems for wind turbines have developed significantly over the past decade and best practices have been incorporated into the industry standards to which all modern turbines must comply. This has led to a significant reduction in events where lightning causes structural damage.

Even in the rare event of a blade failure in modern turbines, it is much more likely that the damaged structure would remain attached to the turbine rather than separating (Garrad Hassan Canada, 2007). Reviews of available information did not find any recorded evidence of injury to the public as a result of turbine blade or structural failure (Garrad Hassan Canada, 2007; Chatham-Kent Public Health Unit, 2008).

Given that accidents or malfunctions of the turbines are considered to be infrequent events, and turbines would be located at least the minimum regulated setback distance from any residence, the event of a failure of the structure would likely not fall beyond the setback distance to a residence and thus poses minimal risk to public health and safety.

The possibility also exists for accidents related to third party damage of the wind turbines. However, given the location of the turbines (set back in agricultural fields) and the structural integrity of the turbines, major structural impacts to the turbines are highly unlikely.

5.0 Potential Environmental Effects and Monitoring Plans

The following operation-specific potential effects, mitigation measures, monitoring plans, and contingency plans have been identified and analyzed for negative environmental effects that may result from operational activities within the zone of investigation (see Table 5.1).

Descriptions of the existing natural heritage, water, archaeological and heritage environments in the general Project area and/or the zone of investigation can be found within the **Natural Heritage Assessment & Environmental Impact Study (NHA/EIS)**, **Water Body and Water Assessment Report**, and **Archaeological and Heritage Report**. These reports form part of the REA application and are provided under separate cover.

Where a significant natural feature is located within the zone of investigation, a detailed analysis of the potential effects is provided in the **NHA/EIS** and **Water Assessment and Water Body Report**. The site plan (**Attachment A**) clearly identifies all natural features within the zone of investigation and the Project Location in relation to the natural feature.

The environmental effects monitoring plans for the Project have been designed to monitor implementation of the proposed protection and mitigation measures and to verify compliance of the Project with O. Reg. 359/09. Suncor would be the primary party responsible for the implementation of operational effects monitoring. Implementation of these measures would be undertaken in compliance with applicable municipal, provincial, and federal standards and guidelines.

Potential effects associated with accidental spills will be mitigated and responded to in accordance with the information contained above in Section 4.4.

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Heritage and Archaeological Resources[1]					
Protected Properties and Heritage Resources	• Although heritage features (not protected properties were determined to have cultural heritage value or interest, no direct or indirect impacts are anticipated. • As no cultural heritage landscapes were determined, there are no adverse impacts anticipated to the cultural heritage landscape. • As no protected properties are located at or adjacent to the Project Location, there are no adverse impacts anticipated to protected properties.	• Minimize potential impacts to protected properties and heritage resources. • Avoid the use of protected properties and heritage resources.	• None	• None	• None
Archaeological Resources	• There are no areas that would be excavated during the operation phase that would not have been previously assessed prior to construction; therefore no effects are anticipated to archaeological resources during operation.	• None required	• None	• None	• None
Natural Heritage Resources[2]					
Significant Wetlands	• The dust and disturbance to wetland vegetation as a result of maintenance vehicle traffic is expected to be negligible due to the infrequency of these activities. • Potential disturbance effects to wildlife inhabiting wetlands are discussed under Significant Wildlife Habitat.	• No Project infrastructure is within wetland boundaries.	• N/A	• N/A	• None
Areas of Natural and Scientific Interest	• As no Areas of Natural and Scientific Interest were identified, there are no anticipated impacts.	• N/A	• N/A	• N/A	• None
Valleylands	• As no valleylands were identified, there are no anticipated impacts.	• N/A	• N/A	• N/A	• None
Significant Woodlands	• Tree pruning of previously cleared areas within the easement required for the transmission line in accordance with electrical safety standards. • The dust and disturbance to woodland vegetation as a result of maintenance vehicle traffic is expected to be negligible due to the infrequency of these activities. • Potential disturbance effects to wildlife inhabiting woodlands are discussed under Significant Wildlife Habitat.	• Minimize the extent of tree pruning required.	• To the extent practical, pruning would be avoided during leaf fall, typically between September to November and be completed prior to or after the breeding season for migratory birds (May 1 to July 31). • Pruned trees would be provided to the landowner for personal use and/or sale in an attempt to minimize waste. • If required, replanting of native species and restoration of damaged areas with native species. • Adherence to the principles of any tree-cutting bylaws such as replacement requirements.	• Should pruning be required during the breeding bird season, surveys will be undertaken to identify the presence/absence of nesting birds. If a nest is located, a designated buffer would be marked off within which no pruning activity would be allowed while the nest is active. The radius of the buffer width ranges from 5 - 60 m depending on the species.	• No net effects are anticipated given the minimal amount of tree pruning that would be required.
Provincial Parks and Conservation Reserves	• As no Provincial Parks and Conservation Reserves were identified, there are no anticipated impacts.	• N/A	• N/A	• N/A	• None

[1] Golder Associates. Suncor Energy Cedar Point Wind Project Heritage Assessment Report.
[2] Suncor Energy Cedar Point Wind Project Natural Heritage Assessment / Environmental Impact Study

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects

Significant Wildlife Habitat (includes birds, bats, amphibians and other wildlife)	• Disturbance in the form of dust, noise, and tree pruning from maintenance activities.
	• Avian and bat mortality from collisions with turbine blades.
	• Mortality from collisions with maintenance vehicles on access roads.
	• Changes in surface water patterns adversely affecting Significant Wildlife Habitat
		• Minimize potential impacts to significant wildlife habitat
		• No loss of Significant Wildlife Habitat outside of previously cleared areas for the transmission line
			• To the extent practical, pruning would be restricted to previously cleared areas and would be avoided during leaf fall, typically between September to November and be completed prior to or after the breeding season for migratory birds (May 1 to July 31).
			• Minimal alteration to surface water drainage patterns and installation of culverts (during construction) as required to maintain flows.
			• Maintenance vehicle speeds should be restricted to 30 km/h or less on wind turbine access roads.
			• Disturbance of wildlife due to increased activity would be temporary during maintenance activities.
				• Monitoring of disturbance effects.
				• Bird and bat mortality monitoring will be conducted according to MNR's Bat Guidelines (2011) and MNR's Bird Guidelines (2010) for a minimum of 3 years – see Appendix C – Environmental Effects Monitoring Plan for monitoring commitments.
				• Implementation of operational controls when the mortality thresholds are exceeded (see Appendix C – Environmental Effects Monitoring Plan for mortality thresholds):
				• Operational controls may include:
				  • Birds:
				  • Development of a response plan including an analysis of the species, timing and distribution of fatalities to determine potential risk factors leading to mortality.
				  • Periodic shut-down of select turbines at specific times of year.
				  • Blade feathering at specific times of year
				  • Bats:
				  • Increasing cut-in speed to 5.5 m/s or feathering wind turbine blades when wind speeds are below 5.5 m/s between sunset and sunrise, from July 15 to September 30.
				  • Should the cut-in speed mitigation be implemented and the bat mortality thresholds continue to be exceeded, Suncor will work with the MNR to determine additional mitigation and scoped monitoring requirements.
					• Given the low potential for effects and the proven effectiveness of the proposed mitigation, no net effects are predicted to significant wildlife habitat.
					• Most North American studies have shown that direct bird mortality attributable to wind facilities is low, especially when compared to other anthropogenic structures[3], and for birds, is not expected to be significant at a population level[4] .
					• Post-construction disturbance and mortality monitoring would be conducted to verify effects predictions and additional operational mitigation would be implemented if unanticipated net effects occur.

Water Bodies and Aquatic Resources					
Groundwater	• None	• None required	• None	• None	• None
Surface Water, Fish, and Fish Habitat[5]	• Erosion, sedimentation, and surface water turbidity during maintenance activities.	• Minimize the risk of erosion, sediment transport or surface water turbidity.	• No wind turbines have been located within 30 m of the average annual high water mark of a lake or a permanent or intermittent watercourse. • Minimize removal of vegetation on the slopes of watercourses. • Following completion of the maintenance activity, stream banks should be restored to their original grade. • If siltation to a watercourse occurs, activities should cease immediately until the situation is rectified.	• An Operations Contractor representative would be on-site during maintenance of Project components that could potentially affect aquatic habitats to ensure compliance with specifications, site plans and permits. • If siltation to a watercourse occurs, related activities should cease immediately until the situation is rectified. • Erosion and sediment control measures (if required for maintenance activity) are to remain securely installed until maintenance activities	• Effects to surface water and water bodies would be both spatially and temporally limited to the maintenance activity. • No net negative effects are anticipated to surface water, water bodies and fish and fish habitat.

[3] Arnett et al., 2007; Kingsley and Whittam, 2007; National Academy of Sciences, 2007
[4] Arnett et al., 2007
[5] Suncor Energy Cedar Point Wind Project Water Body and Water Assessment Report

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
				are completed. • Compensation strategies and/or permits from Fisheries and Oceans Canada and/or conservation authorities, as applicable, would likely include conditions of approval such as monitoring activities.	
Air Quality and Environmental Noise					
Air Quality	• Emissions from equipment and vehicles during maintenance activities.	• Minimize duration and magnitude of emissions.	• Operate vehicles in a manner that reduces air emissions to the extent practical, including: o Using multi-passenger vehicles as possible; and o Avoid idling vehicles. • Equipment and vehicles would be maintained in a manner that reduces air emissions.	• Adherence to Complaint Response Protocol. • All vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practical.	• Any net effects are expected to be short-term in duration and highly localized.
Environmental Noise[6]	• Noise emitted from a turbine and/or transformers.	• Noise at all non-participating receptors to meet MOE Noise Guidelines.	• Design of the wind farm was completed to be compliant with the applicable MOE environmental noise guidelines. • A regular maintenance program would largely mitigate potential effects related to noise. • All turbines have been located at least 550 m from all non-participating receptors. • Use of sound barriers near substation transformers.	• Noise monitoring would be conducted in accordance with the REA for the Project • Turbine shutdown in the event of a malfunctioning turbine or extreme weather event. • Turbine maintenance to ensure turbines are running properly and efficiently.	• No net effects are anticipated since the project was designed to the MOE environmental noise guidelines.
Land Use and Socio-Economic Resources					
Agricultural Lands	• Change in use from agricultural to renewable energy development on lands used during operation. • Disruption to agricultural operations. • Stray voltage impacts on livestock.	• Minimize disturbance to agricultural lands and operations. • Minimize land required for the Project. • Eliminate potential sources of stray voltage.	• Landowners are being financially compensated for the lease of the private lands and thus offset the effect of removing the land from agricultural production. • Efforts have been made to site the turbines, access roads and collector lines in such a way as to minimize disturbances to existing agricultural lands and operations. • Operational and maintenance activities would be restricted to the delineated Project areas (e.g. access roads). • All electrical collector lines would be installed including appropriate insulation to meet the Ontario Electrical Safety Code and be certified by the Electrical Safety Authority.	• Adherence to Complaint Response Protocol.	• No anticipated net effects. • The Project provides positive income to participating landowners through land lease agreements for agricultural lands.
Mineral, Aggregate, and Petroleum Resources	• None	• None required	• None	• None	• None
Game And Fishery Resources	• Disturbance to game species from operational activities such as large scale maintenance activities. • No effects identified to fishery resources.	• Minimize disturbance to game resources.	• Routine maintenance to ensure equipment is operating properly and efficiently, thus limiting potential disturbance to game resources. • Current agricultural, recreational and hunting activities provide some disturbance, and none of the game species occupying the area are known	• N/A	• The net effect of limiting access to land due to safety concerns and potential disturbance to game resources will be

[6] HGC. 2013. Suncor Energy Cedar Point Wind Project Noise Assessment Report (Appendix B to the Design and Operations Report)

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			to be particularly wary of human activity, so it is anticipated that they will adapt to the presence of operational turbines[7]. • Hunting and other recreational uses will be permitted on lands occupied and adjacent to the Project (not withstanding private property restrictions). • The operation of the Project will not result in the creation of access to previously inaccessible areas as the Project is located in areas already cleared for agricultural uses.		temporary during large scale maintenance events.
Provincial Plans, Policies, and Recreation Areas	• None	• N/A	• N/A	• N/A	• None
Local Traffic	• Temporary increase in traffic. • Temporary road/lane closures.	• Minimize disturbance to local traffic.	• There may be instances where maintenance activities require excess loads (e.g. cranes) and will require special traffic planning. • Operations and Maintenance Contractor will implement a Traffic Management Plan during instances of large scale equipment transport.	• Permits will be obtained (if required) from the County/Municipalities and/or MTO.	• A limited, short term effect on local traffic during large scale maintenance activities, but will be managed through the implementation of a Traffic Management Plan.
Local Economy	• Small Increase in direct employment. • Local economic benefits from land lease payments, local expenditures, municipal taxes, etc.	• Create positive effects on local economy.	• To the extent possible, Suncor would source required goods and services from qualified local suppliers.	• None required.	• A positive net effect is anticipated on the local economy during operation of the Project. • On average, it is expected that 3 to 5 persons may be directly employed during operation.
Viewscape	• Viewscape from areas surrounding the Project Location will be altered due to the presence of wind turbine.	• Minimize potential for visual disturbance.	• Minimal mitigation measures are available to address concerns related to visual changes to the area due to the physical size of the turbines. • Turbines will be light grey in colour to better blend into the environment. • Visual impacts from lower project structures such the visible components of the electrical system (substation, collector lines) may be reduced through landscaping.	• Adherence to Complaint Response Protocol.	• Will be a net effect (either positive or negative based on perceptions) due to the change in viewscape of the surrounding area.
Existing Infrastructure					
Provincial and Municipal Infrastructure	• None	• None	• None	• None	• None
Navigable Waters	• None	• None	• None	• None	• None

[7] Arnett et al., 2007

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Telecommunication and Radar Systems	• Potential to interfere with telecommunication and radar systems	• Minimize interference with telecommunication and radar systems	• Suncor has consulted with relevant agencies and licensed providers to identify any likely effects to telecommunication and radar systems. • In the unlikely event that signal disruption is experienced, mitigation measures may include: o Replacing the receiving antenna with one that has a better discrimination to the unwanted signals; o Relocating either the transmitter or receiver; or o Switching to an alternate means of receiving the information	• Adherence to Complaint Response Protocol. • Suncor would review potential incidents of telecommunications interference on a case by case basis.	• No anticipated net effects to telecommunication/ radar systems.
Aeronautical Systems	• Aeronautical obstruction.	• Minimize potential hazard to low flying aircraft.	• Once the turbines are erected (and prior to operation), turbine lighting will conform to Transport Canada standards. Turbine lighting would be selected with the minimal allowable flash duration, narrow beam, and would be synchronized. • Nav Canada would be responsible for updating all aeronautical charts with the turbine locations. • Low-level aircraft such as ultra-lights and crop dusters are to be familiar with the area they are flying over.	• Adherence to Complaint Response Protocol. • In the event that crop dusting is to be completed near a turbine, Suncor is willing to discuss temporary mitigation measures such as turbine shutdown with aircraft operators.	• No anticipated net effects to aeronautical systems. • Low-level aircrafts, such as crop dusters may need to re-route their flight paths or consult with Suncor when spraying is to occur.
Public Health and Safety					
Public Health and Safety	• Potential traffic safety hazards. • Accidents and malfunctions. • Ice throw	• Operational performance target of zero (0) reportable instances on an annual basis. Suncor's "Journey to Zero" protocol.	• As appropriate, all non-conventional loads would have front and rear escort or "pilot" vehicles accompany the truck movement on public roads. May provide notification of non-conventional load movements. • Implementation of a Traffic Management Plan and a detailed Health and Safety/Emergency Response Plan. • The wind turbines would be designed, installed, operated and maintained according to applicable industry standards/certifications. • Project components have been designed to withstand the effects from extreme events. • All turbines have been located at least 550 m from all non-participating receptors and within the pre-scribed limits to property lines and public roads as per O. Reg. 359/09. • Garrad Hassan Canada Inc. has assessed the probability of being struck by ice thrown from a wind turbine. It concluded the following risks: • 1 strike per 62,500 years for a dwelling at 300 m from a turbine • 1 vehicle striker per 100,000 years at 200	• Adherence to Complaint Response Protocol. • Discussions with local emergency services personnel shall take to address concerns of local emergency services personnel. If required, Suncor would participate in a training session for these workers. • Failsafe devices are capable of shutting down the turbine blades in the event of excessive wind conditions, imbalance or malfunction of other turbine components. • Turbines would be monitored electronically twenty-four hours a day, seven-days a week, to allow operational changes to be noted and assessed quickly. • Inspections of turbines would occur as part of the regular preventative maintenance schedule to identify malfunctioning components early. • Annual safety reporting would be required.	• With adherence to safety policies and procedures, there is minimal increased or new risk to public health and safety

Table 5.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			m from a turbine • 1 strike in 500 years to an individual at 300 m from a turbine[8]. • All personnel operating the wind farm will be provided with all necessary training and personal protective equipment to work safely.		

[8] Garrad Hassan Canada Inc. May 2007. Recommendations for Risk Assessments of Ice Thrown and Blade Failure in Ontario.

6.0 Emergency Response, Environmental and Communication Plans

As part of the environmental monitoring outlined above, several programs, plans, and procedures would be developed by Suncor. They would guide the operation of the Project to optimize its performance.

6.1 EMERGENCY RESPONSE PLAN

Suncor will develop a detailed Emergency Response Plan which will include collaboration with local Emergency Services Departments and the Municipalities/County. As appropriate, the plan may cover response actions to high winds, fire preparedness, evacuation procedures, and medical emergencies. Developing this plan with local emergency services personnel would allow Suncor to determine the extent of emergency response resources and response actions of those involved.

The plan would also include key contact information for emergency service providers, a description of the chain of communications and how information would be disseminated to the relevant responders. The plan would also indicate how Suncor would contact local residents who may be directly impacted by an emergency so that the appropriate actions can be taken to protect health and safety.

6.1.1 Environmental Plans, Programs, and Procedures

As appropriate, Suncor would implement the programs, plans, and procedures to prevent environmental contamination and injury to personnel. Suncor would take steps to ensure that they have appropriately skilled personnel to carry out the responsibilities as defined in this document. All organizations associated with the Project operational activities would develop responsive reporting systems that clearly assign responsibility and accountability.

During the operation of the facility, changes to operational plans may be required to address unforeseen or unexpected conditions or situations. Suncor would be responsible for ensuring environmental and safety issues are addressed for any such changes.

The following procedures may be employed during operations:

- *Environmental calendar:* to establish the specific dates and times for environmental inspections of turbines, monitoring events, and emergency notifications;
- *Spills and releases:* to identify the specific procedures for the prevention, response, and notification of spills. In addition, it will establish the general procedures for spill clean-up, personnel training, and material handling and storage to prevent spills;
- *Hazardous waste management:* to outline the procedures for proper identification, temporary storage, handling, transport, and disposal of hazardous waste; and,

- *Non-hazardous waste management:* to establish alternative procedures for the management and disposal of non-hazardous waste.
- *Personnel training:* to ensure personnel receive appropriate training in relation to operation and maintenance programs, environmental, health, and safety procedures, and the Emergency Response Plan.
- *Public Safety Plan*: measures to be implemented (such as appropriate signage near electrical equipment) to ensure local residents are protected from personal injury during operations and maintenance activities.

6.2 PROJECT UPDATES AND ACTIVITIES

Suncor will continue contact with Project stakeholders (public, aboriginal communities, and the township) during the operation of the Project including providing Project updates. As a long-term presence in the area, Suncor will continue to develop contacts and to develop local relationships and channels of communication, which could benefit the local area.

6.3 COMMUNICATIONS AND COMPLAINT RESPONSE PROTOCOL

Contact information for Suncor will be posted on the Project website and provided directly to the Township and MOE. The telephone number provided for the reporting of concerns and/or complaints would be equipped with a voice message system used to record the name, address, telephone number of the complainant, time and date of the complaint along with details of the complaint. All messages would be recorded in a Complaint Response Document (see **Attachment E**) to maintain a record of all complaints. Suncor would endeavour to respond to messages within 24 hours. All reasonable commercial efforts would be made to take appropriate action as a result of concerns as soon as practical. The actions taken to remediate the cause of the complaint and the proposed actions to be taken to prevent reoccurrences of the same complaint in the future would also be recorded within the Complaint Response Document. If appropriate, correspondence would be shared with other stakeholders, such as the MOE, as required and/or as deemed appropriate.

7.0 Closure

This Design and Operations Report for the Suncor Energy Cedar Point Wind Power Project has been prepared by Stantec for Suncor in accordance with O. Reg. 359/09, and the Ministry of the Environments' (MOE) "Technical Guide to Renewable Energy Approvals".

This report has been prepared by Stantec for the sole benefit of Suncor, and may not be used by any third party without the express written consent of Suncor. The data presented in this report are in accordance with Stantec's understanding of the Project as it was presented at the time of reporting.

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