Application to the Alberta Utilities Commission

Oyen 1 Solar Project

Power Plant & Substation Application

September 13, 2024

UK Solar East Ltd.
4023 19 Street SW
Calgary, AB T2T 4Y1

List of Appendices

Application Introduction

UK Solar East Ltd. (the Proponent), a wholly owned subsidiary of Universal Kraft Canada Renewables Ltd. hereby makes an application to the Commission, pursuant to Sections 11, 14 and 15 of the *Hydro and Electric Energy Act* (HEEA) for the construction and operation of a 400-megawatt (MW) solar photovoltaic (PV) power project and the associated 240 kilovolt (kV) Fair Acres 1162S substation, known as the Oyen 1 Solar Project (the Project).

All communication regarding this application should be directed to:

Samantha Brown
SABR Energy Consulting Inc.
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Dated at the City of Calgary, in the Province of Alberta, this 13th day of September, 2024.

Signed by:

Ajay Mann
Project Manager - Engineering

Executive Summary

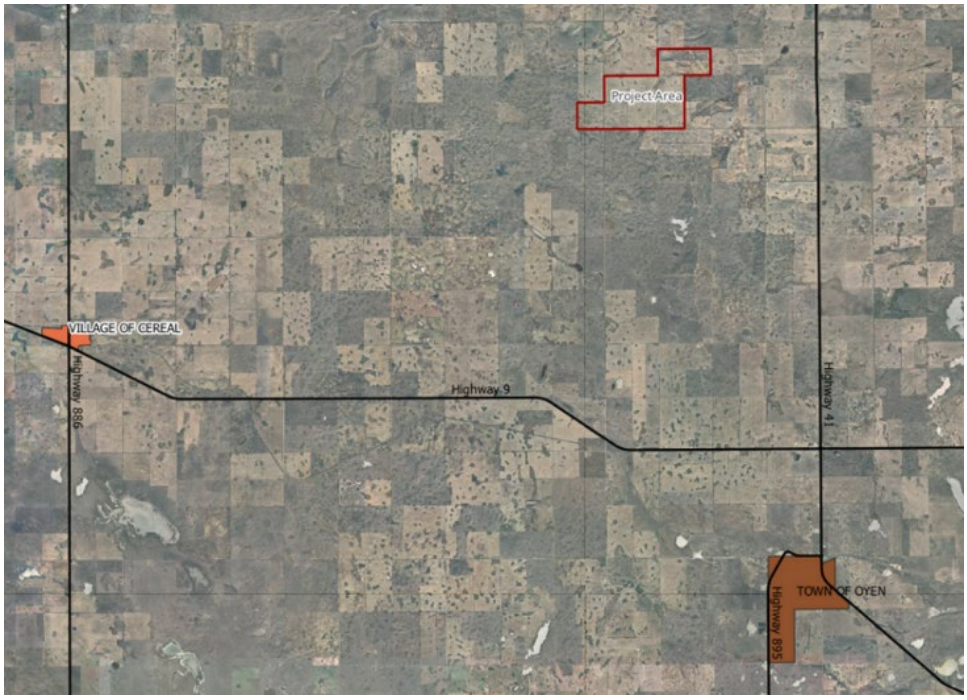
Project Overview

UK Solar East Ltd. (the Proponent), a wholly owned subsidiary of Universal Kraft Canada Renewables Ltd. is proposing to construct and operate the 400-megawatt ac (MWac) Oyen 1 Solar Project (the Project) located on freehold land in the Special Area No. 3. The proposed Project will consist of approximately 672,000 solar photovoltaic modules installed on a single-axis tracking system, 91 SunGrow inverters (SG4400UD-MV-US), an electrical collection system, internal access roads and the construction of a Project substation (Fair Acres 1162S substation) to connect to the Alberta Interconnected Electric System (AIES).

Project Location

The proposed Project is located on the lands identified in the table below on approximately 1,450 acres of privately owned, cultivated land approximately 13.2km north west of the Town of Oyen, as shown in Figure 1.

Figure 1: Project Location



The Project includes the following lands:

SW 17-29-4 W4M	SE 18-29-4 W4M	SW 18-29-4 W4M	SE 13-29-5 W4M
NW 18-29-4 W4M	NE 18-29-4 W4M	NW 17-29-4 W4M	SE 20-29-4 W4M
SW 20-29-4 W4M			

Project Schedule

The preliminary Project schedule is as follows:

Submission to Alberta Environment & Protected Areas	December 2023
Initial Public Notification	November 2023
Personal Consultation	Ongoing
AEP Referral Report Received	March 2024
AUC Applications	April 2024
Anticipated AUC Approval	August 2024
Municipal Development Permit Application	May 2024
Municipal Development Permit Approval	September 2024
Construction Start	September 2025
Commercial Operation Date	March 2027

In order to maintain this schedule, approval of this Application is required by January 31, 2025.

Corporate Information

UK Solar East Ltd. is a wholly owned subsidiary of Universal Kraft Canada Renewables Ltd. Universal Kraft Canada Renewables Ltd. is a Joint Venture between Korkia and Universal Kraft Lda to develop utility scale solar. The companies bring together global experience with a specialty in developing ground mount solar in cold climates.

For over 25 years Universal Kraft, has focused on renewable energy, operating globally with various technologies. The group prioritizes sustainable energy solutions, starting in Sweden, addressing energy efficiency from the consumer side, and extending to production through small-scale hydro, wind, solar, battery storage (both utility-scale and decentralized), compressed air storage, green hydrogen, and ammonia. The group aims to integrate commercial development with positive social and environmental impacts to make a difference.

With over 60 highly skilled professionals from diverse nationalities, Universal Kraft adds to its own portfolio as well as those of selected partners and clients. Currently, it is developing close to 6 GW of power projects, with a pipeline of 9 GW, spread across various geographical locations, from its Scandinavian base to Europe, North America, and Asia. Having divested a volume of over half a GW to four different recurring IPPs or financial buyers to date, the project execution has been well proven. Our mission is to promote commercial sustainability with a direct and positive impact on society.

Korkia is an accelerator in the energy transition, with a global portfolio of +18GW of utility scale solar, onshore wind and BESS. Its focus is on the development phase of renewable energy projects. It is responsible for funding the development of all projects in the partnership.

Korkia and Universal Kraft are currently developing 1.78 GW of Solar in Alberta, and together they aim to develop an additional 1GW of Battery and other Energy Storage Solutions, along with Wind and Solar power.

List of Acronyms

ACO	Aboriginal Consultation Office
AEPA	Alberta Environment and Protected Areas
AESO	Alberta Electric System Operator
AGRASID	Alberta Soil Inventory Database
AIES	Alberta Interconnected Electric System
AUC	Alberta Utilities Commission
EMP	Environmental Management Plan
ERP	Emergency Response Plan
HEEA	Hydro and Electric Energy Act
HRA	Historical Resources Act
HV	High Voltage
ISD	In-service Date
ISO	Independent Systems Operator
km	Kilometre
kV	Kilovolt
LSD	Legal Subdivision
LSRS	Land Suitability Rating System
m	Metres
MVA	Megavolt ampere
MW	Megawatt
MW	Megawatts alternating current
NIA	Noise Impact Assessment
PDSA	Pre-disturbance Assessment
PMU	Phasor Measurement Unit
PIP	Participant Involvement Program
PV	Photovoltaic
REO C&R	Renewable Energy Operations Conservation and Reclamation
TFO	Transmission Facility Owner

Power Plant Application

Project Description

SP1 – Requested Approvals

State the approvals that are being applied for from the AUC and describe the power plant and collector system, including the number of solar photovoltaic panels and their make, model and the nominal capability of each solar photovoltaic panel in MW and the total capability of the power plant in MW, including battery storage, if applicable. If the vendors have not been selected or the equipment has not been finalized, provide:

- **The total capability of the power plant in MW, including battery storage, if applicable.**
- **The anticipated type and number of solar modules, the physical dimensions of the solar array and the type of solar tracking system, if applicable.**

The Proponent is requesting the following approvals:

- Construct and operate a power plant pursuant to Section 11 of the Hydro and Electric Energy Act, c H-16, R.S.A. 2000 (the HEEA), as amended; and
- Construct and operate the associated Project substation (Fair Acres 1162S substation) pursuant to Sections 14 and 15 of the HEEA, as amended.

The proposed Project consists of approximately 672,000 Canadian Solar CS7N-705TB-AG (BI-FACIAL 705W) modules mounted on a single-axis tracking system, 91 SunGrow inverters (SG4400UD-MV-US), a 240 kV project collector substation (known as the Fair Acres 1162S substation), underground collector lines that connect to the Project substation and an internal road network. The total capability of the power plant is 400 MWac. The site layout is included as **Appendix A**.

SP2/TS4 – Existing Approvals

Provide a list of existing approvals for facilities directly affected by this project, if any.

There are no existing approvals directly affected by this Project.

SP3/TS3 – Ownership Structure

Provide details of the project ownership structure, including the names of all companies having an ownership interest in the project and their ownership share, and if applicable, the name of the project operator. Confirm that the applicant is a qualified owner.

The Project is 100% owned by UK Solar East Ltd., a wholly owned subsidiary of Universal Kraft Canada Renewables Ltd. The certificate of incorporation for UK Solar East Ltd. is included as **Appendix B**. To confirm, the applicant is a qualified owner.

SP4 – Municipal Interest

For a municipality or a subsidiary of a municipality to hold an interest in a generating unit, provide documentation confirming compliance with Section 95 of the *Electric Utilities Act*.

Not applicable as there is no municipal interest in the Project.

SP5 – Project Location

Describe the location of the project:

- **Provide the legal description of the proposed power plant site (legal subdivision [LSD], section, township, range, meridian and/or plan, block, lot, municipal address for urban parcels) and connection point, if applicable.**
- **Provide a Keyhole Markup Language (.kml/.kmz) file that contains the geographic data of each of the major components, including substation locations and project boundary of the proposed power plant. This file should reflect the information shown on the drawings and maps submitted to address information requirement SP6.**

The proposed Project is located in the following LSD's:

LSD	Section	Township	Range	Meridian		LSD	Section	Township	Range	Meridian
1	20	29	4	4		2	20	29	4	4
3	20	29	4	4		4	20	29	4	4
5	20	29	4	4		6	20	29	4	4
7	20	29	4	4		8	20	29	4	4
1	13	29	5	4		2	13	29	5	4
7	13	29	5	4		8	13	29	5	4
1	18	29	4	4		2	18	29	4	4
3	18	29	4	4		4	18	29	4	4
5	18	29	4	4		6	18	29	4	4
7	18	29	4	4		8	18	29	4	4
9	18	29	4	4		10	18	29	4	4
11	18	29	4	4		12	18	29	4	4
13	18	29	4	4		14	18	29	4	4
15	18	29	4	4		16	18	29	4	4
3	17	29	4	4		4	17	29	4	4
5	17	29	4	4		6	17	29	4	4
11	17	29	4	4		12	17	29	4	4
13	17	29	4	4		14	17	29	4	4

A kml file including major components of the Project is included as **Appendix C**.

SP6 – Project Maps

Provide the following drawings and maps with units of measure/scale and the direction of north specified:

i. A legible plant site drawing showing the solar array, collector substations, collector lines and access roads and the power plant site boundary.

The site layout is included as **Appendix A**.

ii. Legible maps showing:

- **The power plant site boundary.**
- **Land ownership of surrounding lands, including any residences and dwellings within the notification radius described in Appendix A1 – Participant involvement program guidelines, Table A1-1: Electric facility application notification and consultation requirements.**

- **Neighbouring municipalities, First Nation reserves, Metis Settlements, including nearby roads, water bodies and other landmarks that may help identify the general location of the project area. This map may be at a larger scale than the detailed maps provided in response to other information requirements.**
- **All registered aerodromes and any known unregistered aerodromes within 4,000 metres of the edge of the proposed power plant site boundary.**
- **Important environmental features and sensitive areas in the local study area.**
- **Any additional energy-related facilities within the project area.**
- **The proposed collector line route or routes, and major land use and resource features (e.g., vegetation, topography, existing land use, existing rights-of-way). This information should also be provided in air photo mosaics.**

A landowner map is included as Appendix B of the Participant Involvement Program (PIP) Report (**Appendix D**). An overview map showing the neighboring municipalities, First Nation reserves, Metis Settlements, nearby roads and other information to identify the location of the Project is included as **Appendix E**.

No registered aerodromes were located within 4km of the Project boundary and no unregistered aerodromes were identified through consultation within 4km of the Project boundary.

Important environmental features and major land use and resource features are included in the Environmental Evaluation (**Appendix F**).

The proposed collector line design and existing energy related facilities within the Project area are shown on the site layout (**Appendix A**).

SP7/TS19 – Requested Approval Date
Provide the requested approval date from the Commission, the expected construction start date, the expected in-service date of the project and the requested construction completion date to be used in the project approval. Provide the rationale for these dates.
The requested approval date from the Commission is January 31, 2025. The expected construction commencement date is September 2025, beginning with site clearing and grading activities, and the expected in-service date is March 2027 and construction completion date is June 2027. To allow for any unforeseen delays, the Proponent respectfully requests a construction completion date of December 31, 2027 in the Project approval.

Project Connection

SP8 – Connection Order
If a connection order is not concurrently being applied for, provide the expected date when the connection order application will be submitted.
A connection order is not concurrently being applied for and will be applied for by the Transmission Facility Owner (TFO) with the Facilities Application for the transmission line at a later date.

SP9 – Asset Identification Code

Provide the asset identification code assigned by the independent system operator (ISO) and the ISO Project ID number related to your system access service request, if available.

The asset identification code has not yet been assigned by the ISO however the Project ID number related to the system access services request is P2611.

SP10 – Interconnection Details

If the power plant is to be connected to the transmission system, provide a map with one or more conceptual layouts showing possible routes and general land locations for facilities that would be used to interconnect the power plant to the Alberta Interconnected Electric System.

The Project is not an MPC project and is being handled by the Transmission Facility Owner (TFO), ATCO Electric. ATCO Electric will submit a separate facilities application for the interconnection when ready.

If the power plant is to be connected to the distribution system, provide a statement from the distribution facility owner indicating that it is willing to connect the generating facilities.

Not applicable.

Emergency Response Plan

SP11 – Emergency Response Plan Overview

Confirm the applicant has or will have a corporate or site-specific emergency response plan for the construction and operation of the proposed power plant. If the applicant will have a corporate emergency response plan, please explain why it decided not to develop a site-specific emergency response plan.

A site-specific emergency response plan (ERP) has been prepared for the Project and is included as **Appendix G**.

SP12 – Risk Management

Provide a summary of the following:

- **The site-specific risks (construction phase and operations phase) that have been identified to date.**
- **The emergency mitigation measures that have been identified.**
- **The site monitoring and communication protocols that will be put into place.**

General site-specific risks identified to date include the following, as further detailed in the site-specific ERP:

- Medical Emergency: worker injury such as slips/trips/falls/burns or personal medical issue
- Severe Weather/Catastrophic Emergency: thunderstorms, floods, wind and downed power lines, snow and ice
- Fire: small fires, large fires, wildland/grassfire or electrical fire
- Hazardous Material Emergency: chemical spills, equipment failures, environmental conditions dangerous to personnel.

Preliminary emergency mitigation measures that have been identified and site monitoring / communication protocols are outlined in the ERP and will be updated prior to construction commencement.

SP13 – Emergency Response Consultation

Confirm that local responders and authorities have been contacted or notified regarding the project emergency response plan. Describe any requirements or feedback received and describe how the applicant intends to address the requirements and feedback received.

A draft emergency response plan (ERP) was emailed to the Special Areas Board Fire Chief on January 10, 2024. The Fire Chief had questions and input on a smoking policy and the ERP was subsequently updated to include this information. The Proponent will continue to work with the local emergency services during construction and operation of the Project, if approved. The Proponent intends to continue to consult with local responders and authorities through the development, construction and operation of the Project.

Solar Glare Assessment

SP14 – Solar Glare Assessment Report

Submit a solar glare assessment report that predicts the solar glare at receptors within 800 metres from the boundary of the project and registered aerodromes and known unregistered aerodromes within 4,000 metres from the boundary of the project where the potential for glare is possible. The assessment report must:

- **Describe the time, location, duration and intensity of solar glare predicted to be caused by the project.**
- **Describe the software or tools used in the assessment, the assumptions and the input parameters (equipment-specific and environmental) utilized.**
- **Describe the qualification of the individual(s) performing the assessment.**
- **Identify the potential solar glare at critical points along highways, major roadways and railways.**
- **Identify the potential solar glare at any registered and known unregistered aerodromes within 4,000 metres from the boundary of the project, including the potential effect on runways, flightpaths and air traffic control towers.**
- **Include a map (or maps) identifying the solar glare receptors, critical points along highways, major roadways and railways and aerodromes that were assessed.**
- **Include a table that provides the expected intensity of the solar glare (e.g., green, yellow or red) and the expected duration of solar glare at each identified receptor, critical points along highways, major roadways and railways and any registered and known unregistered aerodromes.**

The Proponent retained RWDI to prepare a solar glare hazard assessment (Glare Analysis) for the Project. As per the Glare Analysis included as **Appendix H**, "The results indicated that the Project was not predicted to create red glare at any of the studied receptor locations. Assuming a resting angle of 2.6°, yellow glare was most frequently predicted along Range Road 45A (RR3) in approximately 7.4% of the daytime annually. Similarly, Range Road 45 (RR2) and Township Road 292A (RR6) were predicted to have the potential for yellow glare in approximately 6.3% and 4.8% of the daytime respectively. A lower frequency of yellow glare was predicted at Range Road 50, (approximately 2.6% of the daytime annually). Township Roads 292 (RR5) and 294 (RR7) were predicted to receive yellow glare in

approximately 0.5% of the daytime annually". The Proponent commits to the resting angle recommended by RWDI. Please refer to **Appendix H** for additional information. Minor changes were made to the layout following the completion of the Glare Analysis and RWDI assessed the updates and concluded "RWDI would not expect the updated layout to result in materially different conclusions to those presented in the December 4 report". A memo from RWDI is included as **Appendix I**.

Environmental Information

SP15/TS24 – Environmental Evaluation

If preparation of either a federal impact assessment or a provincial environmental impact assessment report was required, provide a copy as an appendix to the application and a separate environmental evaluation is not required. If a federal impact assessment or a provincial impact assessment report was not required, submit an environmental evaluation of the project. The environmental evaluation must:

- **Describe the present (pre-project) environmental and land use conditions in the local study area.**
- **Identify and describe the project activities and infrastructure that may adversely affect the environment.**
- **Identify the specific ecosystem components (i.e., terrain and soils, surface water bodies and hydrology, groundwater, wetlands, vegetation species and communities, wildlife species and habitat, aquatic species and habitat, air quality and environmentally sensitive areas) within the local study area that may be adversely affected by the project.**
- **Describe any potential adverse effects of the project on the ecosystem components during the life of the project.**
- **Describe the methodology used to identify, evaluate and rate the adverse environmental effects and determine their significance, along with an explanation of the scientific rationale for choosing this methodology.**
- **Describe the mitigation measures the applicant proposes to implement during the life of the project to reduce the potential adverse effects.**
- **Describe the predicted residual adverse effects of the project and their significance after implementation of the proposed mitigation.**
- **Describe any monitoring activities the applicant proposes to implement during the life of the project to verify the effectiveness of the proposed mitigation.**
- **List the qualifications of the individual or individuals who conducted or oversaw the environmental evaluation.**

The Proponent retained PESCA Environment to complete the environmental assessments for the Project. The environmental evaluation is included as **Appendix F**.

SP16/TS25 – Projects on Federal Lands

For projects wholly or partially located on federal lands (First Nation reserves, national parks or military bases), provide a copy of the environmental impact analysis completed for the corresponding federal government department. Indicate whether the project has the potential to cause effects that

may cross into another jurisdiction. Environmental effects that originate on federal lands, but cross into another jurisdiction, must be addressed as part of the environmental review process. Projects on federal lands may be subject to provincial laws, standards and permits. The applicant must address how it has considered AUC Rule 007, Rule 012 and Rule 033 and describe the steps taken, if any, to address specific requirements set out in these rules.
Not applicable as the Project is not located on federal lands.

SP17/TS26 – Environmental Protection Plan
Submit a stand-alone, project-specific environmental protection plan (or environmental management plan) that itemizes and summarizes all of the mitigation measures and monitoring activities that the applicant is committed to implementing during construction and operation to minimize any adverse effects of the project on the environment.
A stand-alone, project-specific environmental protection plan prepared by PESCA Environment is included as Appendix B of the Environmental Evaluation (**Appendix F**).

End of Life Management

SP18 – C&R Plan
Submit a copy of the initial renewable energy operations conservation and reclamation plan (REO C&R Plan) as set out in the Conservation and Reclamation Directive for Renewable Energy Operations.
An initial renewable energy operations conservation and reclamation plan (REO C&R Plan) prepared by PESCA Environment is included as **Appendix J**.

SP19 – Decommissioning and Reclamation Costs
Provide an overview of how the operator will ensure sufficient funds are available at the project end of life to cover the cost of decommissioning and reclamation.
Please refer to **Appendix K** – Decommissioning and Reclamation Cost Estimate.

Noise

SP20/TS28 – Noise Impact Assessment
Provide a noise impact assessment in accordance with Rule 012.
The Proponent retained EnergyLink International to complete a noise impact assessment (NIA) in accordance with Rule 012, which is included as **Appendix L**.

Approvals, Reports and Assessments from Other Agencies

SP21/TS29 – Other Acts and Approvals
Identify any other acts (e.g., Environmental Protection and Enhancement Act, Water Act, Public Lands Act and Wildlife Act) that may apply to the project, identify approvals the project may require, and provide the status of each of these approvals.
Other Acts that may potentially affect the Project include:

- Alberta Land Stewardship Act, S.A. 2009, c.A-26-8;
- Alberta Utilities Commission Act, S.A. 2007, c.A-37.2;
- Electric Utilities Act, S.A. 2003 c E-5.1;
- Environmental Protection and Enhancement Act, R.S.A. 2000, c.E-12;
- Highways Development and Protection Act, RSA 2004, c H-8.5;
- Historical Resources Act, R.S.A. 2000, c.H-9;

- Migratory Birds Convention Act, S.C. 1994, c.22;
- Municipal Government Act, R.S.A. 2000, c.M-26;
- Occupational Health and Safety Act, S.A. 2017 c.0-2.1;
- Public Highways Development Act, R.S.A. 2000, c.P-38;
- Radiocommunications Act, RSC 1985, c R-2
- Safety Codes Act, R.S.A. 2000, c.S-1;
- Soils Conservation Act, R.S.A. 2000, c. S-15;
- Species at Risk Act, S.C. 2002. c.29;
- Water Act, R.S.A. 2000, c.W-3; and
- Weed Control Act, S.A. 2008, c. W-5.1.
- Wildlife Act, R.S.A. 2000, c. W-10;

Other approvals the Project may require include:

- NAV Canada – Approval was received January 15, 2024
- Transport Canada – Approval was received on March 13, 2024
- Historical Resources Act – Approval was received on January 8, 2024
- Alberta Environment and Protected Areas – referral report received August 7, 2024
- Special Areas Board Municipal Permits – Development Permit Application will be submitted following the AUC permitting process, if approved.

SP22 – Renewable Energy Referral Report

Submit a signed renewable energy referral report from Alberta Environment and Parks (AEP) Fish and Wildlife Stewardship. If the applicant is unable to provide a renewable energy referral report at time of application, the applicant must clearly identify the reason and provide details of its status.

A signed renewable energy referral report from Alberta Environment and Protected Areas (AEPA) Fish and Wildlife Stewardship was received on August 7, 2024 and is included as **Appendix M**.

SP23/TS31 – Historical Resources Act Approval

Confirm that a Historical Resources Act approval has been obtained or has been applied for. If a historic resource impact assessment is required, briefly describe any known historical or archaeological sites, palaeontological sites, or traditional use sites of a historic resource nature. If a Historical Resources Act approval has been obtained, provide a copy of it.

Historical Resources Act approval was received on January 8, 2024 and the approval is included as **Appendix N**.

SP24 – Indigenous Consultation

If the government of Alberta, through the Aboriginal Consultation Office (ACO) or otherwise, directed consultation with an Indigenous group for related approvals (i.e., Public Lands Act, Water Act, Environmental Protection and Enhancement Act, Historical Resources Act, Government Organization Act, etc.) the applicant must provide a copy of the pre-consultation assessment, the adequacy assessment and the specific issues and response table (if prepared). If the government of Alberta, through the ACO or otherwise, indicated that a pre-consultation assessment is not required, the applicant must provide a copy of that direction. If advice from the government of Alberta has not been obtained, the applicant must provide justification for its decision to not seek advice.

Please refer to page 11 of the PIP Report (**Appendix D**).

Participant Involvement Program

SP25/TS32 – PIP Overview

Summarize the participant involvement information, including a description of the activities undertaken and include any engagement materials provided. (See Appendix A1 – Participant involvement program guidelines and Appendix A1-B – Participant involvement program guidelines for Indigenous groups.).

A summary of the PIP, including a description of the activities undertaken and including any engagement materials provided is included in the PIP Report (**Appendix D**).

SP26 – Agency Consultations

Confirm that, if applicable, Alberta Transportation, the municipality in which the project is located, the applicable railway companies, and the owner of any registered and known unregistered aerodrome within 4,000 metres of the project boundary were consulted and provide a summary of any objections received, mitigations discussed, and any outstanding objections.

Not applicable, as the proposed Project is not in proximity to a provincial highway or within 4,000m of a known aerodrome. Details of consultation with Special Area No 3. are included in the PIP Report (**Appendix D**).

SP27/TS33 – Stakeholder List

List all occupants, residents and landowners on lands within the appropriate notification radius as shown below and described in Appendix A1 – Participant involvement program guidelines, as well as Indigenous groups, owners of aerodromes or other interested persons that were consulted as part of the participant involvement program.

A list of all occupants, residents and landowners on lands within the appropriate notification radius as described in Appendix A1 – Participant involvement program guidelines and other interested persons that were consulted as part of the participant involvement program is included in the PIP Report (**Appendix D**).

SP28/TS34 – Stakeholder Contact Information

Supply a list of contact information for all persons who had been contacted as part of the participant involvement program in a spreadsheet in accordance with the template included in Appendix A1 – Participant involvement program guidelines.

A list of contact information for all persons who had been contacted as part of the participant involvement program in a spreadsheet in accordance with the template included in Appendix A1 – Participant involvement program guidelines is included as **Appendix O**.

SP29/TS35 – Municipal Consultation

Summarize consultation with local jurisdictions (e.g., municipal districts, counties).

Consultation with Special Area No. 3 is included in the PIP Report (**Appendix D**).

SP30/TS36 – Stakeholder Concerns

Identify all persons who expressed a concern(s) about the project. For each person, include the following information:

- **The specifics of the concern(s).**
- **Steps taken to try and resolve the concern(s).**

- **Whether the concern(s) was resolved.**

Details with respect to questions and concerns raised during the PIP are included in the PIP Report (**Appendix D**).

Additional Substation Application Requirements

Project Description

TS1 – Project Description
Provide a description of the proposed project.
The Project collector substation (known as the Fair Acres 1162S substation) is a 240/34.5 kV substation located in LSDs 2 and 3 in section 18-29-4 W4M, as shown on the site layout (**Appendix A**). The substation has a footprint of 150m x 150m. Two 240/34.5 kV 135/180/225 MVA main power transformers will be mounted inside the substation which will step up the voltage from 34.5kV from the solar field collector system to 240kV, the required voltage grid interconnection.

TS2 – Transmission Regulation
Confirm if the application is for a customer project or an application related to a proposal for a market participant under Section 24.31 of the Transmission Regulation.
The application is related to a proposal for a market participant under Section 24.31 of the Transmission Regulation.

TS5 – ISO Direct Assignment Letter
Provide a copy of the ISO direct assignment letter pursuant to the Electric Utilities Act. Alternatively, if a needs identification document was not required, provide a copy of the ISO approval letter pursuant to the abbreviated needs approval process, or provide a statement in the application that the project was exempt pursuant to the Transmission Regulation (as described in subsection 7.1 of this rule).
Not applicable as this is a substation application.

TS6 – Functional Specification
Provide the most up-to-date functional specification issued by the ISO.
The functional specification for the Project will be part of the Facilities Application for the interconnection.

TS7 – Equipment Design and Ratings
Describe the design and ratings of the transmission line and major elements of the substation.
To support the interconnection to the AIES, the Proponent is proposing to build and operate a 34.5/240 kV substation that will be connected to the AIES by a 240 kV transmission line.

The Fair Acres 1162S substation designed to have a nominal voltage of 240 kV and connect through 240 kV circuit approximately 8 km between the proposed Fair Acres 1162S and existing Lanfine 959S substation and will include the following major equipment:

- Two (2) 240 kV HV breakers.
- Three (3) 240 kV motorized disconnect switches.
- Two (2) 240/34.5 kV 135/180/225 MVA OLTC (On-Load Tap Changer) Y-Y/Y-Delta Transformer with buried tertiary.

- Ten (10) 1200 Amp 34.5 kV breakers
- Up to two (2) 34.5 kV capacitor banks and associated breakers (size to be determined).
- 240 kV Transmission line with minimum rating 445MVA
- Phasor Measurement Unit (PMU) or equivalent equipment approved by the AESO that is capable of long-term recording of electrical characteristics and disturbances in phasor format as well as continuous phasor measurements.
- An enclosure surrounded by a chain link fence

The substation single-line diagram is included in **Appendix P** and shows all equipment and associated ratings. A drawing of the substation layout is included as **Appendix Q**.

TS8 – Conductor Selection
If the ISO requires the facility applicant to determine the choice of conductors, describe the conductor size and arrangement selected and the basis for the conductor selection.
Not applicable as this is a substation application.

TS9 – Substation Equipment Rationale
If the application is not direct assigned by the ISO, provide the rationale for the rating/size of any proposed conductor or piece of major substation equipment.
Not applicable as this is a substation application.

TS10 – Structure Information
Describe the proposed transmission line structure type, including height and spacing; if more than one type of structure is proposed, state where each type will be used.
Not applicable as this is a substation application.

TS11 – Right-of-Way Width
State the right-of-way width and the basis for determining the width.
Not applicable as this is a substation application.

TS12 – Substation Equipment Details
Describe all major substation equipment being applied for, including the height of any telecommunications structure, and provide a list of the final major equipment that would be in the substation.
For the major equipment please refer to TS7. The substation will also contain additional equipment such as capacitor voltage transformers, revenue metering units, bus bars, station service transformer, surge arrestors, earthing electrodes, HV insulators, oil containment for the transformers, etc. For the remaining equipment refer to the substation layout and substation SLD. Substation also include the telecommunication equipment for SCADA. No telecommunications structures are included in the scope of this Application.

TS13 – Switching and Protection Features
Describe the switching and protection features of the proposed transmission facilities.
The proposed Fair Acres 1162S substation will be built and operated in accordance with the applicable rules and regulations for Transmission Facilities (Electric Utilities Act). Industry standard switching and protection features will be installed for the applicable transmission facilities.

TS14 – Electrical Interaction

Describe the electrical interaction of proposed transmission facilities with other facilities, such as pipelines, railways, telephone, radio and television transmission facilities, and other surface structures.

Not applicable as this is a substation application and there are no pipelines, railways, telephone, radio and television transmission facilities, and other surface structures in close proximity to the substation.

TS15 – Existing Facilities

Describe the changes to existing facilities required to accommodate the proposed facilities.

Not applicable, as there are no proposed changes to existing facilities.

TS16 – Routing Alternatives

Describe any transmission line routing alternatives to the proposal, and compare the relative effects (environmental, social and economic, including any associated distribution costs) of these alternatives with the proposal. If the alternatives are segmented, include a comparison of the effects of each segment to the effects of its corresponding alternative segments.

Not applicable as this is a substation application.

TS17 – Single-line Diagram

Provide an electric single-line diagram or switching map showing new facilities in place in the system. In the case of a substation, provide an electric single-line diagram and a substation layout diagram, including major items of equipment and the fenced boundary of the substation, with units of measure/scale.

An electric single-line diagram is included as **Appendix P.**

TS18 – Construction & Maintenance

Discuss the construction schedule, equipment and method of construction, and method of eventual right-of-way maintenance.

Safe work practices, including applicable occupational health and safety requirements, will be adhered to during the construction of the Project. The sequence of construction activities will be planned in detail and coordinated with the Alberta Electric System Operator (AESO) and stakeholders.

The construction stage of the Project is described in three phases: the pre-construction phase; the construction phase; and the cleanup and reclamation phase. Table 1 below outlines the anticipated construction schedule and commissioning and operation dates for the Project.

Table 1: Construction Schedule

Project Phase	Task	Timeline
Pre-construction Phase	AUC Anticipated Approval	September 30, 2025*
	Pre-Disturbance Assessments	May 2023 - August 2024
	Detailed Engineering	June 2024 – December 2024
Construction Phase (including cleanup and reclamation)	Access Preparation	November 2025
	Substation Construction	June 2026 – August 2026
Commissioning and Operation	In-Service Date (ISD)	March 15, 2027
	Construction Complete	June 2027

* The AUC approval date assumes approximately 4 months from application to approval. If the AUC approval date is later than proposed, the schedule would be approximately adjusted proportionately to the actual approval date.

Pre-construction Phase

During pre-construction, several activities are required both on and off site to ensure the engineering plans, access, materials, permits and tools required to construct the facility are in place to allow for safe and efficient construction.

Planning & Design: Substantial planning and design is required in advance of construction to ensure compliance with applicable rules and regulations, stakeholder commitments are upheld, appropriate quality management plans are in place, and that efficient construction methods are possible.

Land Acquisition and Access: The Project is proposed on land owned by the Proponent.

Surveys: Survey crews will survey the proposed facilities, underground facilities, environmental features, access, property boundaries and any other applicable features in advance of construction. Survey markers will be installed to visually identify surveyed locations and may be replaced or repaired during construction. These surveys are used to confirm engineering, enable construction, and ensure commitments made to stakeholders are upheld.

Geotechnical Survey: Geotechnical surveys are completed in advance of construction to inform the engineering process and help determine appropriate types of foundations required for the Project. Tracked or wheeled borehole equipment will drill holes up to 8m deep to obtain core samples.

Pre-disturbance Assessments for Environmental, Historical and Cultural Features: To minimize Project-related effects to environmental and historical features, Pre-disturbance Assessments (PDA) will be undertaken prior to construction. The Information from the PDAs is used to develop the Environmental Management Plan (EMP) which ensures mitigation strategies are implemented to avoid and/or mitigate potential effects of construction and to uphold stakeholder commitments.

Equipment:

The following general equipment will be used during the pre-construction phase of the project: Pick up trucks, geotechnical drilling rigs, all terrain vehicles and other conventional survey preconstruction equipment.

Construction Phase

Access Preparation: Access preparation is required to establish the required access trails in and around the Project property where required including any preparation or upgrading of access from existing roads onto the Project land. These activities include building gravel aprons, grading, upgrading or maintaining existing access trails or roads, installing access mats, culverts, fences and gates. Where possible, existing roads, trails and pre-disturbed land is used for construction access.

Material Laydown Yard: The Project land includes areas for material laydown which will serve as the primary material storage location for the Project. The material storage areas will also be used for office trailers, vehicle, and equipment parking and will act as the base of operations for the construction crews.

Site Grading: The proposed substation area will be graded in accordance with the Environmental Management Plan. Topsoil is removed and the substation area is graded and compacted to final elevation.

Foundation Installation: Structure foundations will be prepared and/or installed within the substation area. Foundations can include screw pile, concrete caisson or precast pads. Soil conditions may require other types of foundations based on the engineering requirements.

Oil Containment Installation: The secondary oil containment is installed in the area around the substation power transformer to provide assurance that in the event of an oil release from the substation transformer that the oil is contained within the substation site for appropriate removal and cleanup.

Equipment:
The following general equipment will be used during the construction phase of the project: tracked excavators, skid steers, pick-up trucks, transport trucks, loaders, cranes, graders, dump trucks, site trailers and site offices.

Substation Assembly and Erection: Materials, structures, equipment and sub-assemblies are transported from the material laydown yards to the work area and installed according to engineering plans.

Substation Commissioning: Following the completion of all required construction and quality control, final commissioning is completed to ensure the facility can be energized and placed into service.

Cleanup and Reclamation Phase

Cleanup: Following the completion of construction activities, the Project will undertake final quality inspections and ensure remaining construction debris are removed from the substation area.

Reclamation: Any damage to soils (such as ruts), temporary access trails or site grading resulting from the construction activities will be reclaimed in accordance with stakeholder commitments and the Environmental Protection Plan included as Appendix B of the Environmental Evaluation (**Appendix F**).

Maintenance: The Fair Acres 1162S substation will require routine maintenance. Monthly inspections will be performed to monitor the conditions of the substation and equipment with equipment monitoring and testing being completed in accordance with manufacturer and industry standards.

TS20 – Temporary Workspace
If available, provide the location of any required temporary or permanent workspace areas and access roads, and state whether these locations are requested to be listed in a permit and licence.
No temporary workspaces will be required outside of the fenced area.

TS21 – Project Maps
Provide the following drawings and maps with units of measure/scale and the direction of north specified:

i. **A legible map defining the study area and state the reasons for the chosen area.**
ii. **Legible maps of the proposed facilities showing:**
    - **The preferred transmission line route and any alternative routes or segments.**
    - **Right-of-way widths.**

- **Location of the transmission line on the right-of-way.**
- **Location of the transmission line relative to property lines.**
- **Kilometre points along each transmission line route.**

iii. **Legible maps and air photo mosaics upon which the proposed transmission line route(s) and/or substation have been imposed and showing the residences, landowner names, and major land use and resource features along the routes and/or adjacent to the substation (e.g., agricultural crops or pasture, topography, soil type, existing land use, existing rights-of-way, existing or potential historical, archaeological or paleontological sites, and superficial and mineable resources).**

iv. **Legible maps showing the most relevant environmental features, wildlife and aquatic habitat, ecological communities, environmentally sensitive areas, protected areas and designations present in the local study area.**

Please refer to Project maps in SP6.

TS22 – Project Location

Provide a Keyhole Markup Language (.kml/.kmz) file that contains the geographic data of the transmission line centrelines for all applied for transmission route options and substation locations. This file should reflect the information shown on the drawings and maps submitted to address information requirement TS21.

The substation location is included in the Project kml file referenced in SP5.

TS23 – Visual Impacts

If applicable, describe the measures proposed to minimize potential visual effects of the proposed development, including the identification of project components and locations that require screening and the screening measures (e.g., fences, earth berms, painting, landscaping) to be used.

There are no residences near the proposed Project Substation location (which is located within the Oyen 1 Solar Project footprint) and no areas were identified as being “significant viewpoints” during the PIP process, regulatory consultation with Special Areas Board, or during environmental field assessments. There are no recreational areas in close proximity to the substation which are used as viewpoints. Furthermore, the land is cultivated and privately owned. Public access to the substation site and Project is restricted, therefore, no mitigation is being proposed.

TS27 – Decommissioning & Reclamation

Describe any decommissioning of existing transmission facilities and describe the reclamation plan that will be carried out, including for any temporary workspace areas and temporary access roads following commissioning.

There is no proposed temporary workspace outside of the fenced area and no proposed temporary access roads. Please refer to the initial renewable energy operations conservation and reclamation plan (**Appendix J**) for details on decommissioning and reclamation of facilities at end of life.

TS30 – Preferred & Alternate Routes

For the preferred route and possible alternatives, applicants must provide a summary of feedback received to date from AEP (including the local wildlife biologist of AEP) addressing the environmental aspects of the project, and confirmation that AEP is satisfied with any proposed mitigation measures and monitoring activities or identify any unresolved project aspects where agreement with AEP was not achieved.

Not applicable as this is a substation application.

TS37 – Cost Estimate

Provide an AACE Class 3 cost estimate for the preferred route and all alternatives on a common basis, in accordance with the requirements in ISO Rules Section 504.5 and the AESO Information Document #2015-002R, Service Proposals and Cost Estimating. The format of the cost estimate provided must take the form of the estimate summary that is obtained by completing the AESO's cost estimate template (available on the AESO web page). Where identifiable, include costs to be borne by persons other than the applicant and the applicant's customer(s) in the comparison. This information requirement may not be applicable to market participant and merchant line applications.

Not applicable as this is a substation application.

TS38 – MPC Projects

In addition to the above, if the applicant is a market participant applying under Section 24.31 of the Transmission Regulation, the applicant must also:

- **Provide confirmation that all required agreements are in place with the TFO including the asset transfer agreement, the written agreement with the TFO for the temporary operation of the transmission facility, if available, and confirmation of ISO approval of the connection proposal.**
- **Specify the temporary period for which the market participant expects to hold the operating licence, which may not exceed the term specified in the written agreement with the TFO for the temporary operation of the transmission facility.**

Not applicable as this is a substation application.

Interim Information Requirements

Agricultural land

1. Using the current version of the Agricultural Regions of Alberta Soil Inventory Database (AGRASID), please describe the agricultural capability of soils intersecting the project footprint as provided in the spring-seeded small grains ("SSSGRAIN") attribute of the Land Suitability Rating System ("LandSuitabilityRatings") table. SSSGRAIN provides the Land Suitability Rating System (LSRS) classification for spring-seeded small grains for the related AGRASID soil polygons. Provide a table showing the amount of area for each LSRS class impacted by the project in hectares (e.g. 2.01 hectares of Class 2A).

Please refer to PDF page 146 of the Environmental Evaluation (**Appendix F**).

2. From the Agricultural Regions of Alberta Soil Inventory Database (AGRASID), please describe all soil series within the project area and report all potential material impacts to:

a. **Soil quality (i.e. compaction, rutting, salinity, sodicity, fertility, contamination, clubroot)**
b. **Soil quantity (i.e. wind erosion, water erosion)**
c. **Hydrology (i.e. topography, soil drainage, depth to groundwater)**
d. **Describe how these material impacts to soil quality, quantity and hydrology will be adequately mitigated during construction, operation and reclamation.**

Please refer to PDF page 147 the Environmental Evaluation (**Appendix F**).

3. Describe all earthworks (e.g., stripping and grading) planned for the project, including the following information:

a. **Methodology to anchor structures (e.g. screw piles, concrete footings, etc.).**
b. **The extent of stripping and grading, with an estimate of the area of agricultural land impacted.**
c. **Description of how these activities have been reduced in both extent and intensity (as practical) to protect the quality, quantity and hydrology of impacted soils.**
d. **Description of how and where stripped soils will be stockpiled and what steps will be taken to preserve the quality and quantity of stockpiled soils prior to replacement on site.**
e. **Description of how soils will be replaced on site to preserve the quality, quantity and hydrology of the disturbed soils.**

Please refer to PDF page 149 the Environmental Evaluation (**Appendix F**).

4. Describe the potential for co-locating agricultural activities (e.g. grazing, haying, crops, apiculture) into the project design. If co-locating agricultural activities is not feasible, please explain why.
Please refer to PDF page 151 the Environmental Evaluation (**Appendix F**).

5. List the qualifications of the agrologist(s) who prepared or reviewed the responses regarding agricultural land.
Please refer to PDF page 151 the Environmental Evaluation (**Appendix F**).

Municipal Land Use

1. Confirm whether the proposed power plant complies with the applicable municipal planning documents including municipal development plans, area structure plans, land use by-laws and other municipal by-laws.
Please refer to PDF page 152 the Environmental Evaluation (**Appendix F**).

2. Identify any instances where the proposed power plant does not comply with applicable municipal planning documents and provide a justification for any non-compliance.
Please refer to PDF page 153 the Environmental Evaluation (**Appendix F**).

3. Describe how the applicant engaged with potentially affected municipalities to modify the proposed power plant or to mitigate any of its potential adverse impacts to the municipality, prior to filing the application.
Please refer to the PIP Report (**Appendix D**) and PDF page 153 of the Environmental Evaluation (**Appendix F**) for further details on County consultation.

Viewscapes

1. List and describe pristine viewscapes (including national parks, provincial parks, culturally significant areas, and areas used for recreation and tourism) on which the project will be imposed. Describe mitigation measures available to minimize impacts from the project on these viewscapes.
Please refer to PDF page 154 the Environmental Evaluation (**Appendix F**).

Reclamation Security

1. Describe the reclamation security program for the proposed power plant, including details on:

a. **The standard to which the project site will be reclaimed to upon decommissioning.**
b. **How the amount of the reclamation security will be calculated.**

c. The frequency with which the reclamation security amount will be updated or re-assessed.
d. When the reclamation security will be in place to be drawn upon, if needed.
e. What form the reclamation security will take (e.g., letter of credit, surety bond, other).
f. The security beneficiaries to whom the reclamation security will be committed.
g. How the beneficiary can access the security and any constraints on such access.
h. A report prepared by a third party estimating the costs of reclaiming the proposed project. The report must include the estimated salvage value of project components.
i. An explanation of why the chosen form of security was selected, having regard to its attributes and priority in bankruptcy, including how the secured party would be able to realize on the reclamation security should the project owner and operator be in default.

Please refer to **Appendix K** (Decommissioning and Reclamation Cost Estimate).