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GREENGATE POWER CORPORATION

FEBRUARY 2019

WELCOME

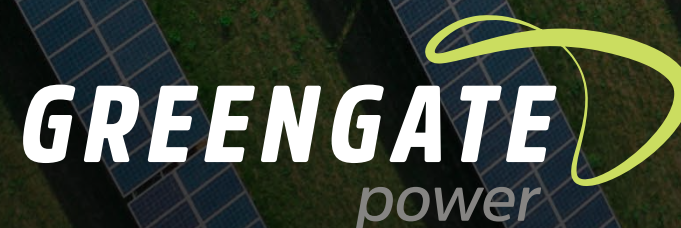
FEBRUARY 20, 2019

TRAVERS SOLAR PROJECT | PUBLIC OPEN HOUSE

**PLEASE SIGN IN AND WALK AROUND
WE ARE HERE TO ASSIST YOU**

**For more information about
the Travers Solar Project,
please visit our website or
contact a representative by
telephone or email**

**Dan Tocher
VP Stakeholder Relations
Email: traverssolar@greengatepower.com
Toll Free: 1.833.476.4283 ext. 106
www.greengatepower.com/travers-solar-400-mw**





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ABOUT US



www.greengatepower.com

Greengate is an industry leading, privately-held sustainable energy company based in Calgary, Alberta. Since 2007, Greengate has successfully developed 450 MW of operating wind energy projects in Alberta.

These projects represent approximately \$1 billion of investment and provide a clean source of power to over 200,000 homes. Greengate is currently pursuing the development of over 1,000 MW of sustainable energy projects in Alberta and across North America and continues to grow as an industry leading producer of renewable and clean energy.

IN OPERATION



WIND IN DEVELOPMENT



SOLAR IN DEVELOPMENT





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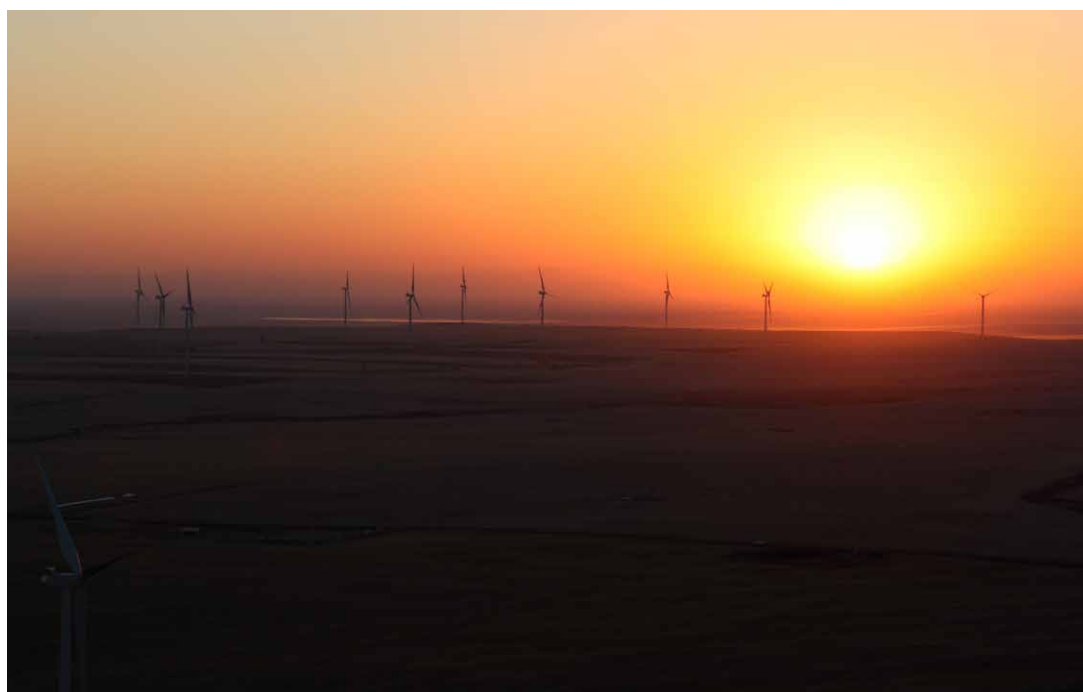
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GREENGATE & VULCAN COUNTY



BLACKSPRING RIDGE WIND POWER PROJECT

- 300 MW project featuring 166 Vestas 1.8 MW turbines
- Sold to EDF and Enbridge for construction in 2013
- Fully operational in 2014
- Located in Vulcan county east of the Village of Carmangay and approximately 8km southwest of the Travers Solar Project



RELATIONSHIP WITH VULCAN COUNTY

- Greengate has established landowner relationships in the community since 2008
- Greengate worked closely with Vulcan County to ensure:
 - Compliance with municipal by-laws
 - Road use agreement was in place
- Greengate has recently sponsored the 3 on 3 Travers Classic Hockey Tournament in support of the Southern Alberta Bible Camp (February 2019)



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PROJECT INFORMATION

PROJECT INFORMATION

PROJECT OWNER

- Greengate Power Corporation

PROJECT NAME

- Travers Solar Project

HOST MUNICIPALITY

- Vulcan County

PROJECT TYPE AND SIZE

- 400 MW_{ac} Solar Photovoltaic Project

COLLECTION SYSTEM

- 34.5 kilovolt (kV) above ground or under ground collector lines to connect to the Project substation. Collector lines will be located under ground, where feasible

POWER CONVERSION STATIONS (PCS)

- 168 Power Conversion Stations to convert direct current to alternating current and to boost the voltage to 34.5 kilovolts (kV)



* ALL PROJECT INFORMATION IS PRELIMINARY AND SUBJECT TO CHANGE

INTERCONNECTION

PROJECT COLLECTOR SUBSTATION

- The Project Collector Substation (Little Bow 991S) is proposed to be located on SE 24-15-21 W4M and NE 13-15-21 W4M

POINT OF INTERCONNECTION

- Existing 240 kilovolt (kV) power line located at the western portion of the Project

OTHER INFRASTRUCTURE

ROADS

- Used to deliver material during construction and access the Project during operations.
- Where possible, existing roads will be used to minimize disturbance

METEOROLOGICAL STATION

- The Project will require several small weather stations for data collection and communication.

OPERATIONS AND MAINTENANCE BUILDING

- Approximate location will be beside the Project Collector Substation

TEMPORARY LAY DOWN AREAS

- Locations to be determined



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PROJECT DETAILS

NUMBER OF SOLAR MODULES (PANELS):

- Approximately 2,500,000

TOTAL CAPACITY DELIVERED TO GRID:

- 400 Mw_{ac}

ANTICIPATED COMMERCIAL OPERATION DATE:

- Q4 2021

PROJECT DURATION:

- 35 + years

ACRES WITHIN PROJECT BOUNDARY:

- Approximately 4,700


PROJECT LOCATION:

- Township 15, Ranges 20 and 21



The Project will supply enough electricity annually to power the equivalent of approximately

111,000 HOMES

THIS IS APPROXIMATELY  3x as many houses as in the City of Lethbridge.



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REGIONAL MAP

Travers Solar Project

Proposed Project Map
(Subject to Change)

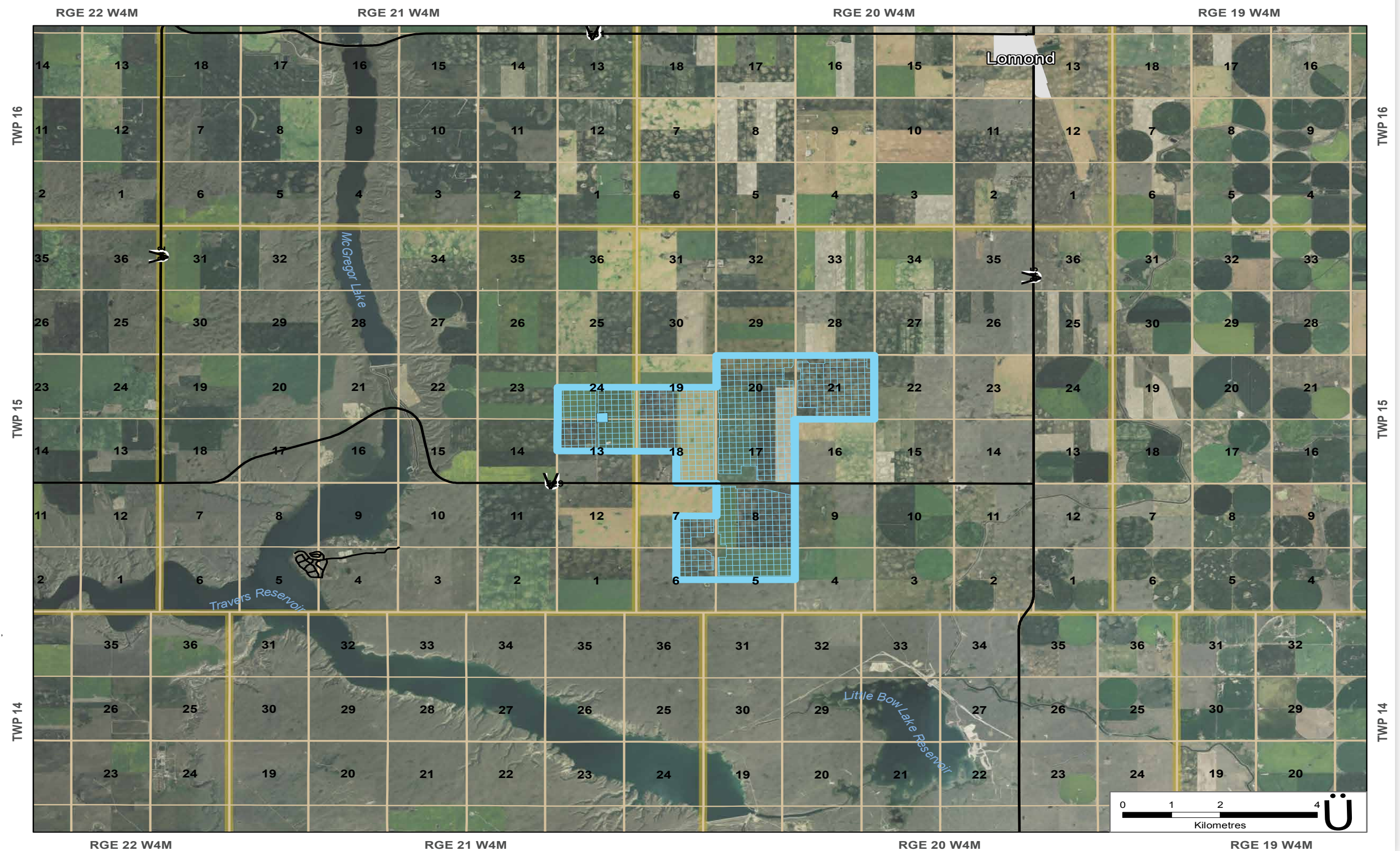
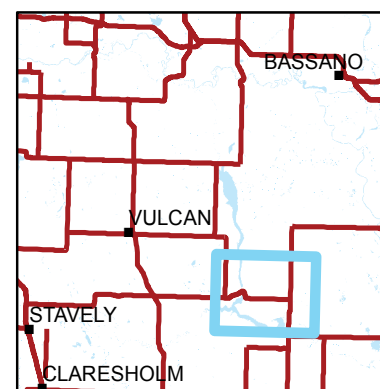
-  Project Boundary
-  Solar Panels
-  Project Collector Substation
-  Minor Highway
-  Paved Road
-  Township Line
-  Section Line

Map published January 30, 2019



Coordinate System: NAD 1983 UTM Zone 12N
Scale: 1:80,000
Prepared by: Scott Land & Lease Ltd.
Sources: AltaLIS, GeoGratis, AESO, Abadata

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





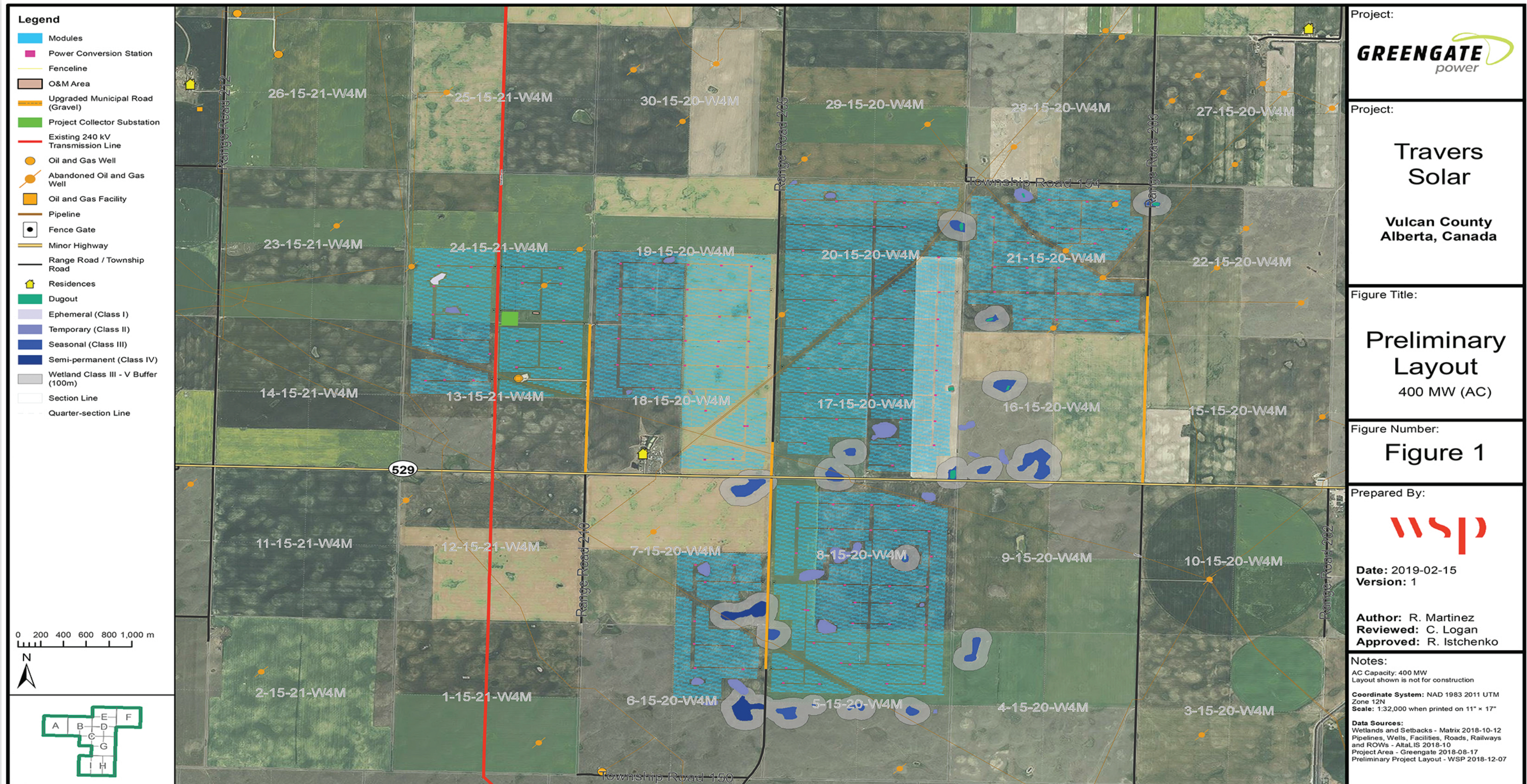
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PROPOSED PROJECT MAP





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ENVIRONMENTAL CONSIDERATIONS

ENVIRONMENTAL

FIELD STUDIES WERE INITIATED IN 2017 AND COMPLETED IN 2018

- The studies were performed to collect a baseline of environmental data to assist Greengate in developing the layout
- These studies included:
 - Wildlife surveys, including breeding bird, spring and fall migration, and sharp-tailed grouse;
 - Vegetation studies;
 - Desktop wetland delineation and informal field verification;
 - Habitat mapping

CONSULTATION WITH ALBERTA ENVIRONMENT AND PARKS (AEP) IS ONGOING

- An environmental evaluation report was submitted to AEP in December 2018
- AEP's review is anticipated for Q1/Q2 2019
- We are committed to working with the AEP throughout the development, construction and operation of the Project





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KEY REGULATORY AGENCIES



Alberta Utilities Commission (AUC)

Alberta Environment and Parks (AEP)

Alberta Culture and Tourism (ACT)

Alberta Transportation

NAV Canada

Vulcan County



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COMMUNITY & ECONOMIC BENEFITS OF SOLAR



LOCAL EMPLOYMENT

- Over 200 full-time jobs during construction
- 2-10 permanent full-time jobs during operations

LOCAL ECONOMIC BOOST

- Spin-off opportunities for local businesses during development, construction and operation

PROPERTY TAXES

- Annual property taxes paid to the County, resulting in financial benefits to the community

CLEAN ELECTRICITY GENERATION

- Emissions-free electricity will be generated to power more than 111,000 homes in Alberta
- More than 472,000 tonnes of greenhouse gas emissions will be offset annually

LOW IMPACT GENERATION

- Solar PV generation has low noise emissions, low water usage and low visual impact





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COMMUNITY DEVELOPMENT FUND



Greengate will provide the community with a funding commitment throughout the Project life, and will work with existing community representatives to support local initiatives and projects.

This community development fund will be in addition to the significant municipal tax revenues generated by the Project.

More details on the fund will be shared with the community as the Project progresses.

Greengate is interested in supporting local events and activities in the community.

**LET US KNOW IF YOU HAVE
IDEAS OF HOW GREENGATE
CAN SUPPORT THE COMMUNITY!**

TRAVERS CLASSIC HOCKEY TOURNAMENT IN SUPPORT OF THE SOUTHERN ALBERTA BIBLE CAMP (FEB 2019)



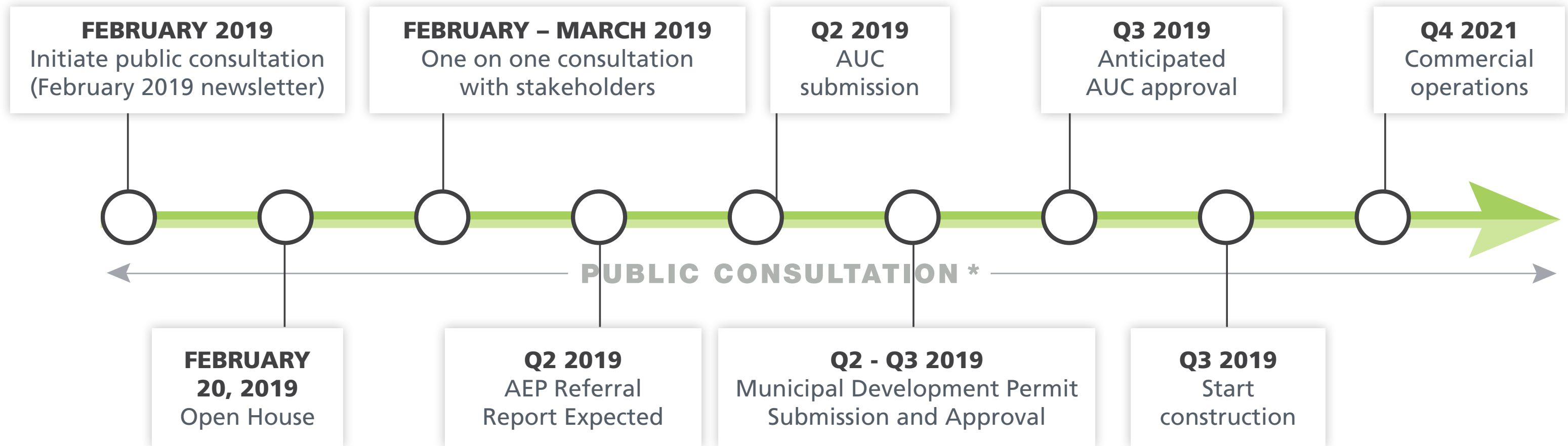
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EXPECTED PROJECT SCHEDULE



*** Public consultation will continue through the life of the project, from development, through construction, operation and decommissioning.**

NOTE

This schedule is subject to change. Project timing is dependent on regulatory approvals. **We will continue to provide schedule updates as the Project progresses.**



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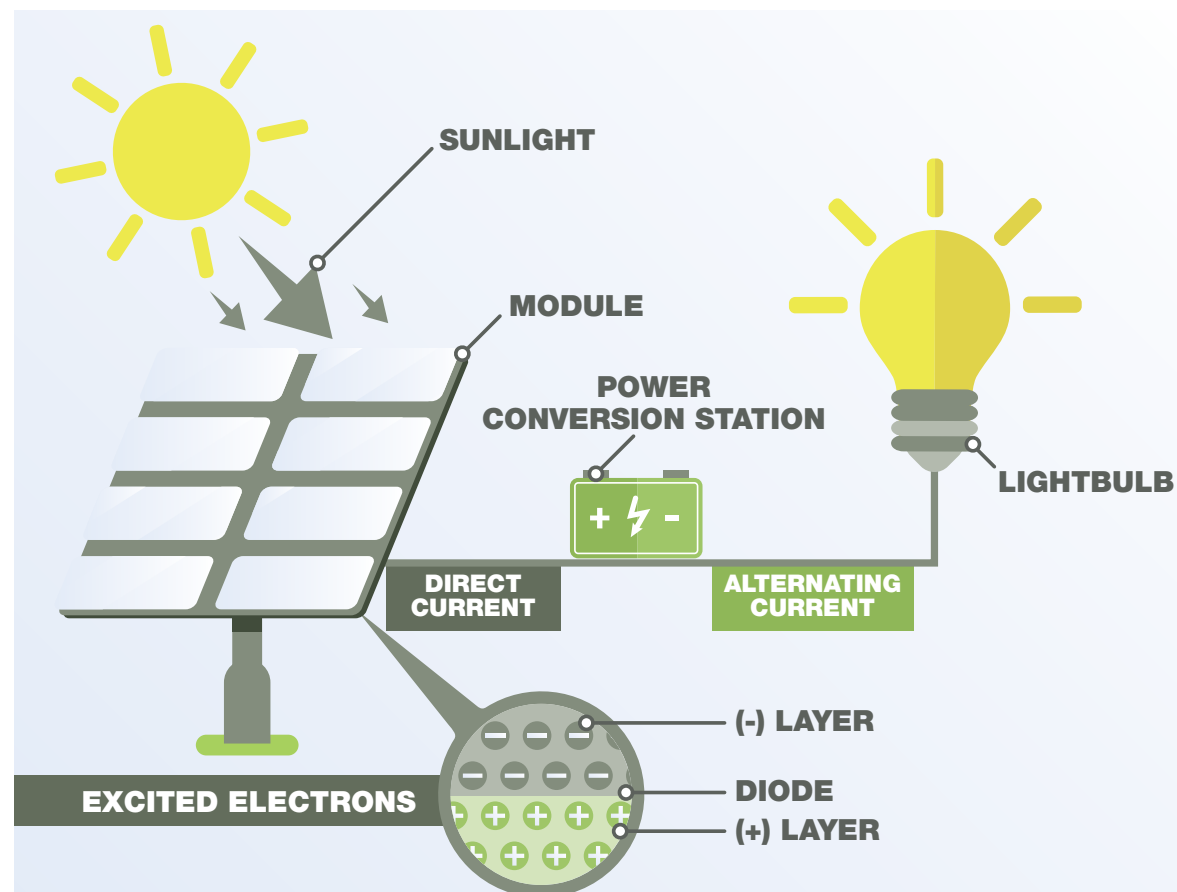
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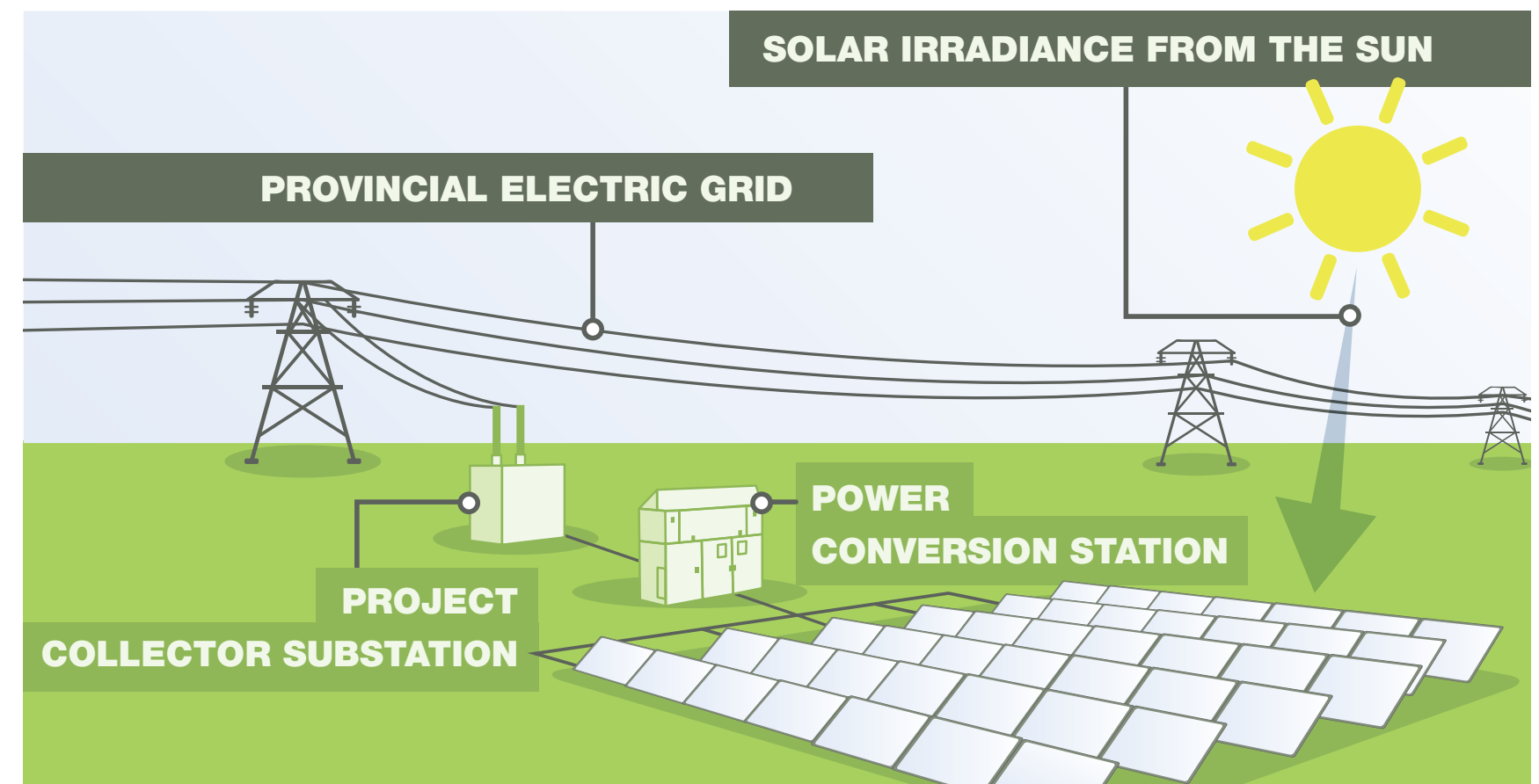
HOW DOES SOLAR WORK?

SOLAR MODULES

- Energy from the sun radiates onto the earth's surface each day in the form of sunlight
- The sunlight is absorbed by the solar module and interacts with the materials in the module. This interaction excites electrons within the module producing electricity.



- A large utility scale solar power project is comprised of thousands, even millions of solar modules
- Solar uses very little water, is emission free and has a renewable fuel source that doesn't deplete
- Greengate is also exploring the use of bi-facial modules which is a technology that allows electricity to be generated from both the front and back side of the module, further increasing the efficiency of the Project





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HOW DOES SOLAR WORK?



FIXED TILT RACK



SINGLE AXIS TRACKING

RACKING

- Racking is the mounting system used to support the solar PV modules

- There are different types of racking systems:

- **Fixed Tilt:** the racking remains at a stationary tilt angle, generally between 15 degrees and 35 degrees facing south
- **Single Axis Tracking:** the racking can move in one direction to follow the path of the sun

- Greengate proposes to use fixed tilt for the Project but is also investigating the option of using single axis tracking

GROUND-MOUNTING SYSTEMS

- The modules will be ground mounted, which means the modules and racking will be affixed to foundations in the ground that anchor everything in place
- This system will use driven steel piles or helical (screw) piles to provide the foundation for the racking and solar modules



DRIVEN PILING



SCREW PILING



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HOW DOES SOLAR WORK?

POWER CONVERSION STATION

INVERTERS

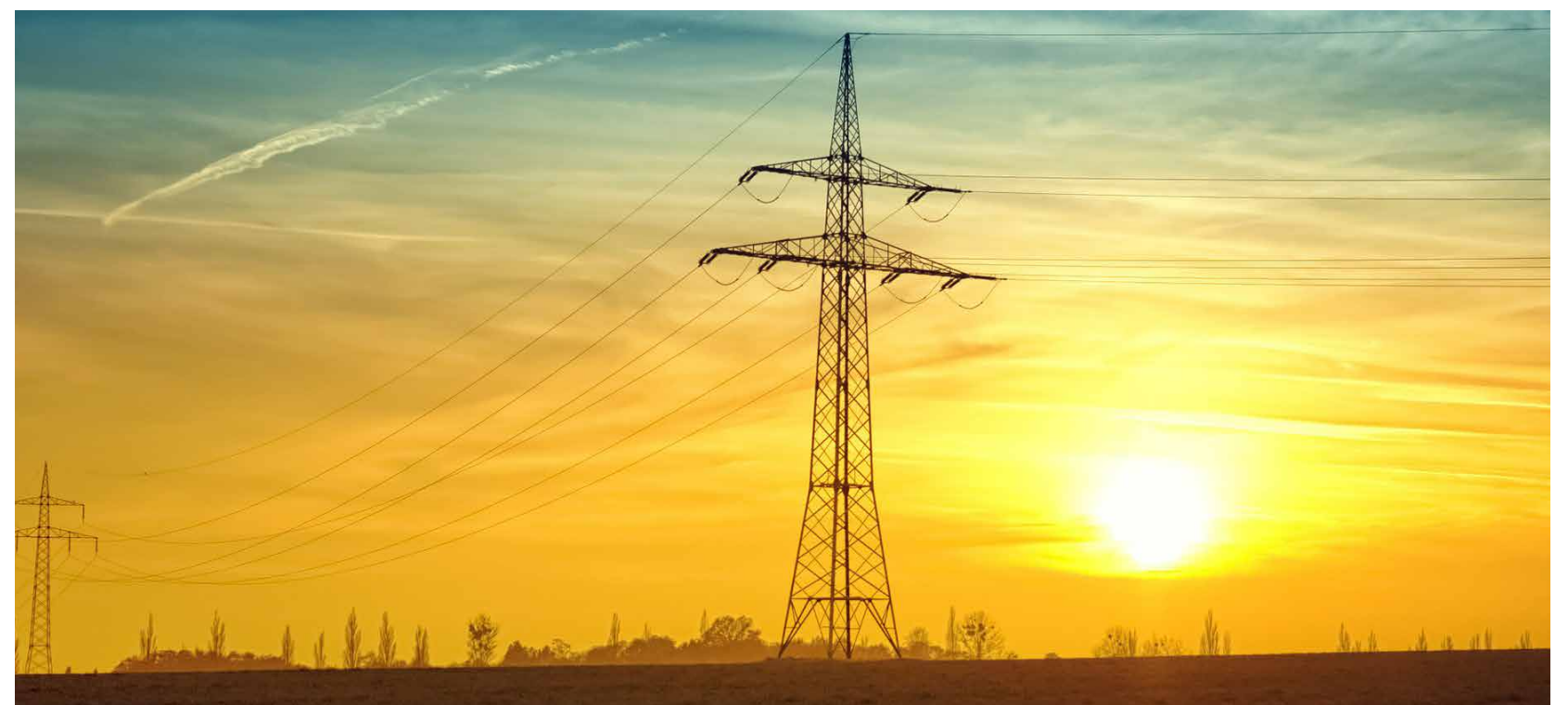
- The electricity generated by the modules is transformed into usable energy by way of an inverter that turns direct current (dc) energy into alternating current (ac) electricity
- Solar modules generate dc electricity whereas ac electricity is the form of power used in homes and businesses

TRANSFORMERS

- Transformers boost the voltage from that generated by the modules to that of the collector system (34.5 kilovolts)

TRANSMISSION AND DISTRIBUTION

- Once converted into ac, electricity generated at a the solar facility will be increased from the collector voltage of 34.5 kilovolts to that of the transmission system at 240 kilovolts
- The electricity then travels through existing transmission and distribution lines to homes and businesses





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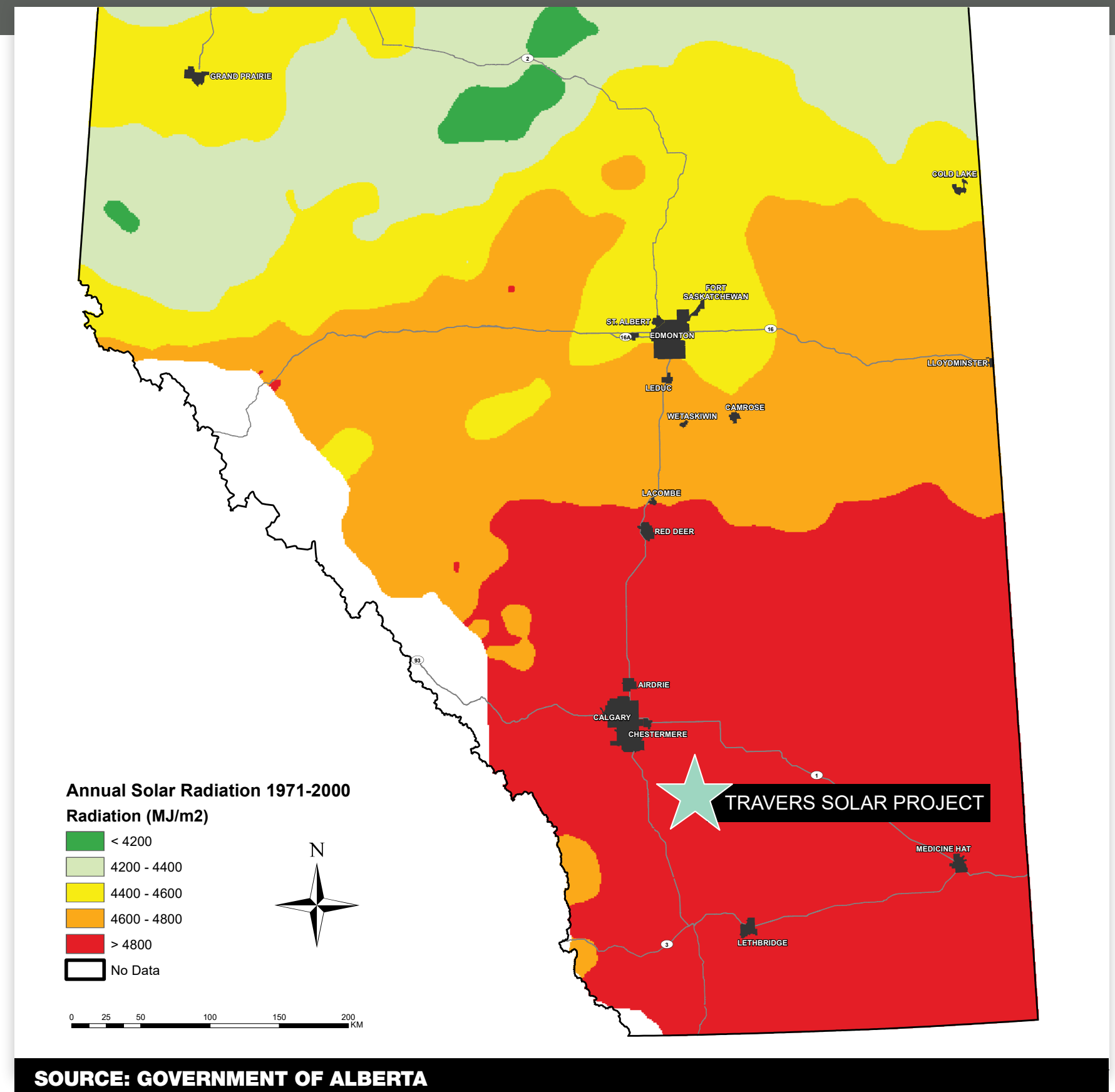
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ALBERTA'S SOLAR RESOURCE

- Alberta is the “Sunshine State of the North”
- Alberta has a solar resource as strong as Florida’s during the summer months
- The Project is located in Southern Alberta, which has a great solar resource as shown on the map to the right
- Cold weather, like that experienced in Alberta’s winter, increases the performance of solar photovoltaic projects





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TECHNICAL STUDIES

HISTORICAL RESOURCES

- Greengate has submitted Project information to Alberta Culture and Tourism (ACT) for review and a Historical Resources Act approval

NOISE IMPACT ASSESSMENT

- Greengate has completed a noise impact assessment (NIA) for the proposed Project layout as per AUC Rule 012, Noise Control

GLARE IMPACT ASSESSMENT

- Greengate has completed a third-party glare analysis for the Project including 12 observation points within and adjacent to the Project

VISUAL SIMULATION

- Greengate has completed third-party visual representations from 3 locations near the Project





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STAKEHOLDER CONSIDERATIONS



DUST

- We will work with the County to ensure dust mitigation is in place and impact is kept to a minimum

INCREASED TRAFFIC

- Main access is through highway 529
- We will work with the County to reduce impacts on the community from traffic
- Speed limits will be enforced through the Project area and on county roads

NOISE

- Greengate will comply with the County work-hours to minimize noise impacts during construction, and has completed a Noise Impact Assessment to ensure the Project is compliant under AUC Rule 012: Noise Control during operation

FIRE AND EMERGENCY RESPONSE PLAN

- Greengate will work with the County and local Fire Chief to develop a Fire and Emergency Response Plan



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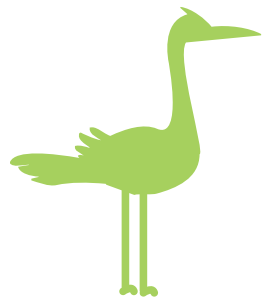
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STAKEHOLDER CONSIDERATIONS

WILDLIFE

- Setbacks to wildlife habitat will be used to reduce risk
- Greengate will implement an environmental monitoring plan during construction and operations



WEED MANAGEMENT AND SOIL EROSION

- Greengate will abide by the *Weed Management Act* to minimize weeds during operation
- Greengate will hire an experienced O&M contractor to oversee weed control
- In consultation with local experts, the municipality and landowners, we will determine the best vegetation ground cover to minimize weeds, maintain soil stability and minimize erosion





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PROJECT LIFE CYCLE



THE TRAVERS SOLAR PROJECT WILL BE REPOWERED OR DECOMMISSIONED

- The Project lifetime is expected to be over 35 years
- Solar is a renewable resource that does not deplete over time
- At the end of the 35 year project life, the Project may be repowered. Repowering involves reusing some of the existing components and replacing other components, where required
- The Project may also be decommissioned at the end of Project life:
 - Decommissioning removes all surface equipment for salvage or recycling
 - All infrastructure below 1.0 metres will remain under ground to prevent further disturbance to the land according to the AEP Conservation and Reclamation Directive for Renewable Energy Operations, September 2018
 - Land will be returned to reasonably the same condition as prior to entry as determined by applicable laws and regulations at the appropriate time
 - A copy of the decommissioning and reclamation plan will be provided to Vulcan County as part of the development permit application

GREENGATE WILL COMPLY WITH APPLICABLE RECLAMATION STANDARDS AT THE TIME OF DECOMMISSIONING



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VISUAL SIMULATIONS



Human Vision 60° x 30°



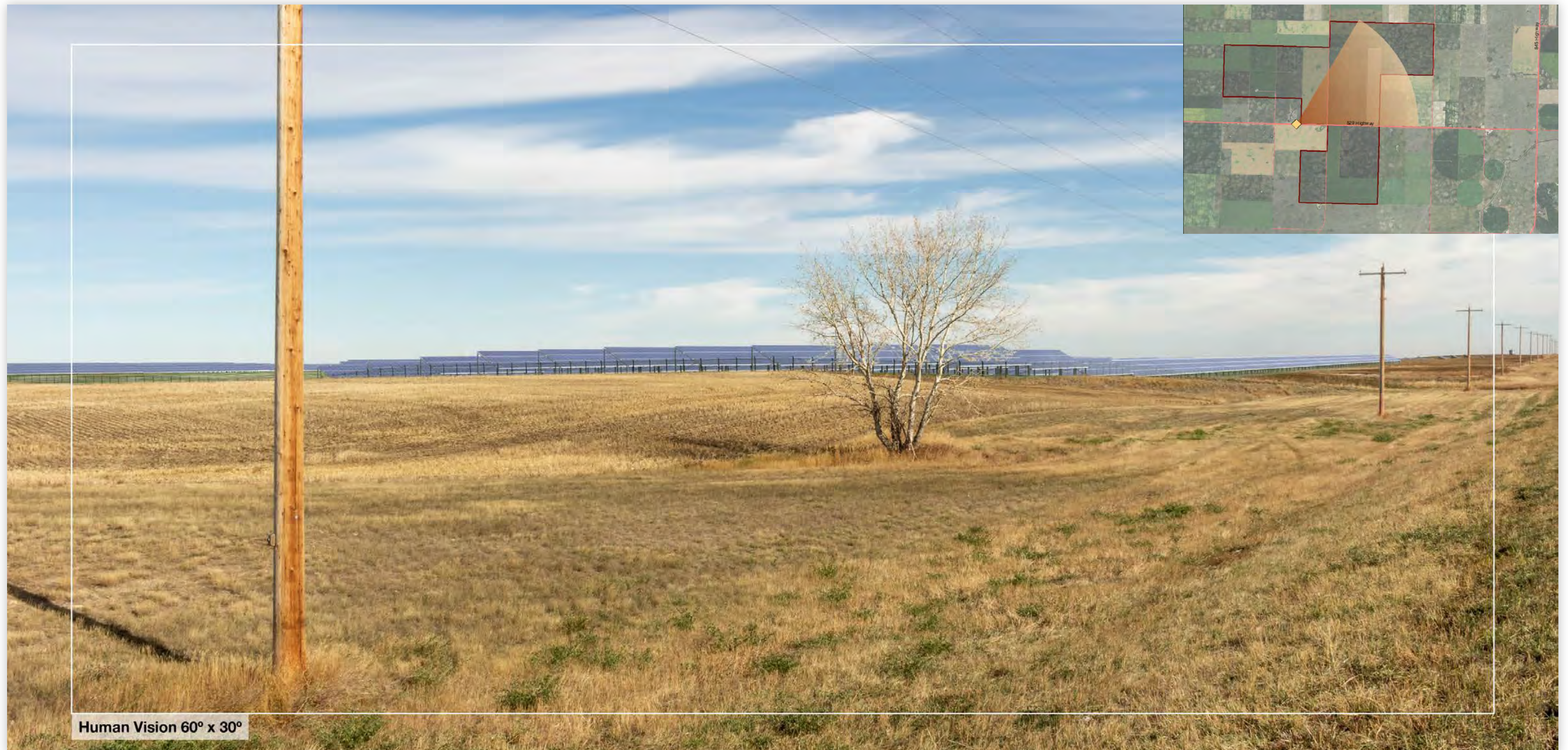
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VISUAL SIMULATIONS



Human Vision 60° x 30°



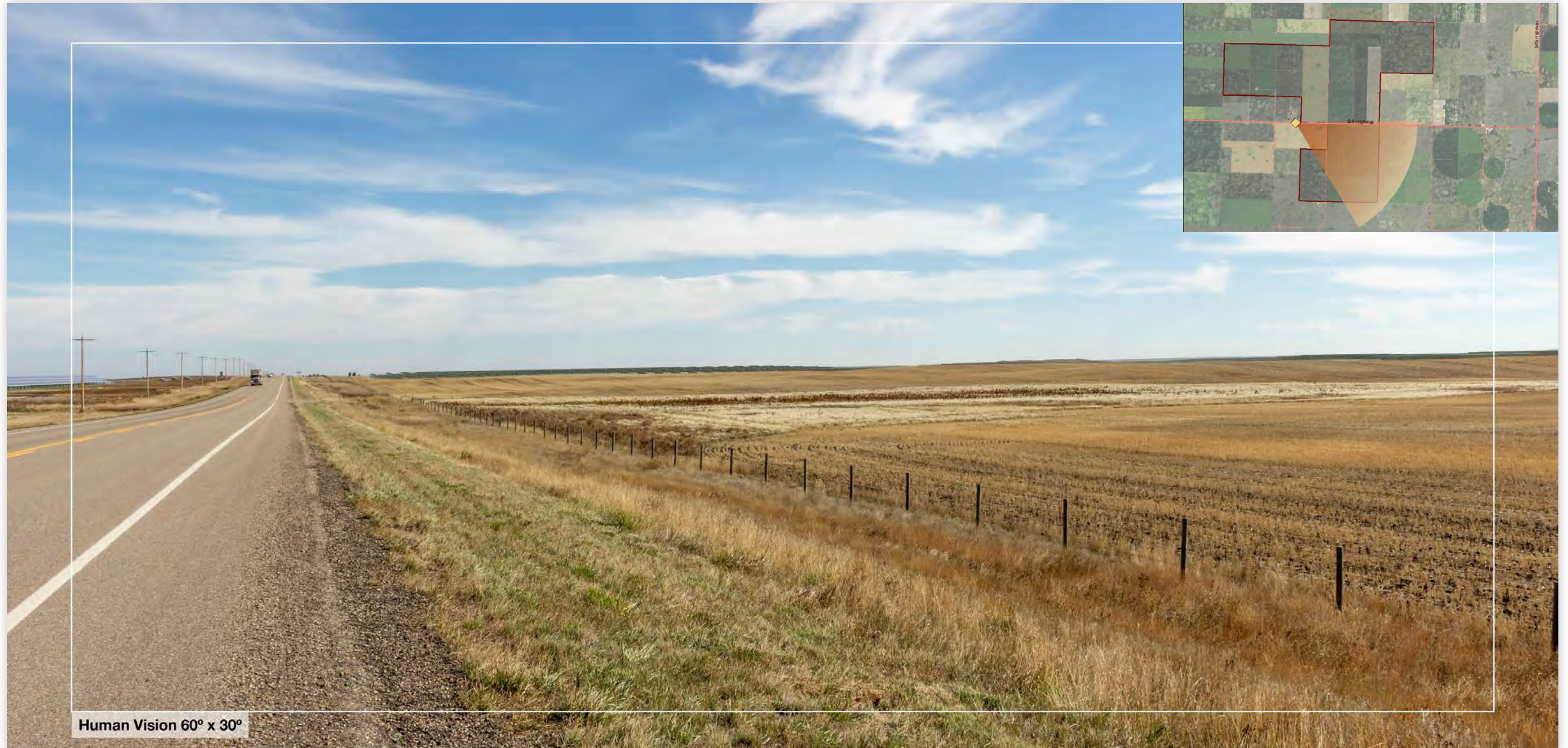
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VISUAL SIMULATIONS





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GLARE STUDIES

- Approximately 2% of sunlight may be reflected from solar modules into the surrounding areas as glare
- A third party glare study was completed which indicated an intensity of temporary glare similar to the image to the right
- Predicted glare is expected to be present for short durations in the evening and morning from March to September



This image shows similar irradiance level (brightness) to those expected at the Project during moments of glare (in the morning and evening from March to September). Glare is not experienced across the entire Project at once and is highly dependent on the location of the observer and the position of the sun.



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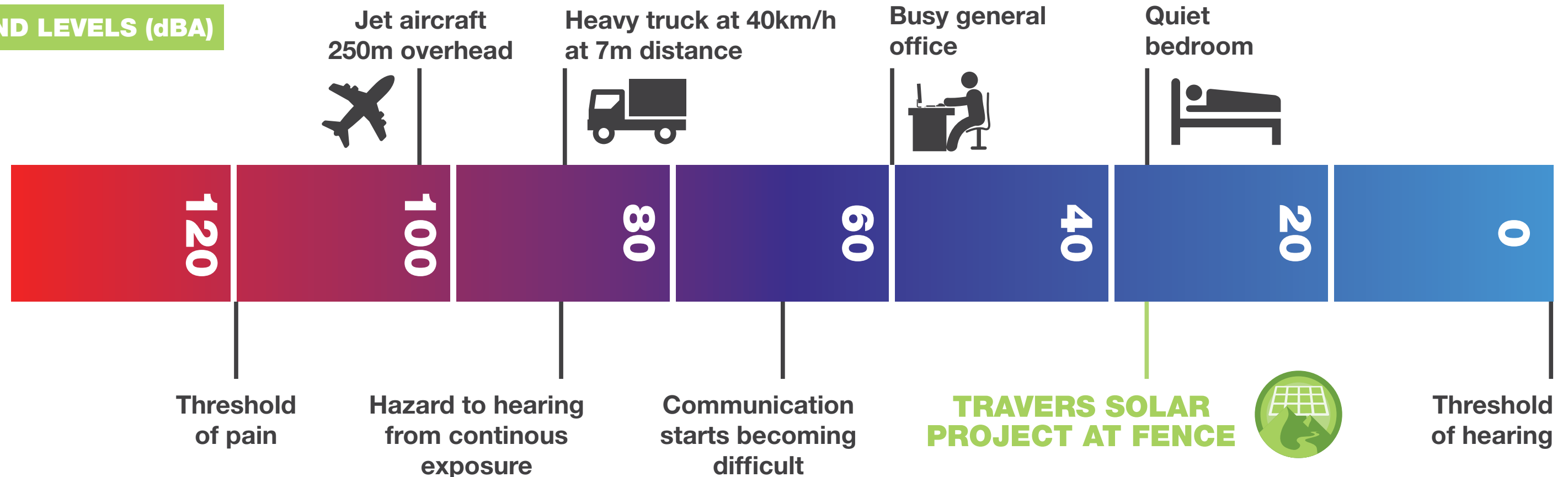
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NOISE IMPACT ASSESSMENT

TYPICAL SOUND LEVELS OF COMMON NOISE SOURCES COMPARED TO SOLAR PROJECTS:

SOUND LEVELS (dBA)



- All solar energy projects must meet AUC Rule 012: Noise Control. This is the same regulation for all energy facilities in Alberta
- The Project will be compliant with AUC Rule 012
- A cumulative noise impact assessment was completed for all residences and dwellings within 1.5 kilometres of the Project
- Cumulative noise at the residences and dwellings must be below 38.3 dBA
- Solar modules do not emit any sound. The inverters and transformers emit a very low level noise.



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PRELIMINARY NOISE CONTOUR MAP

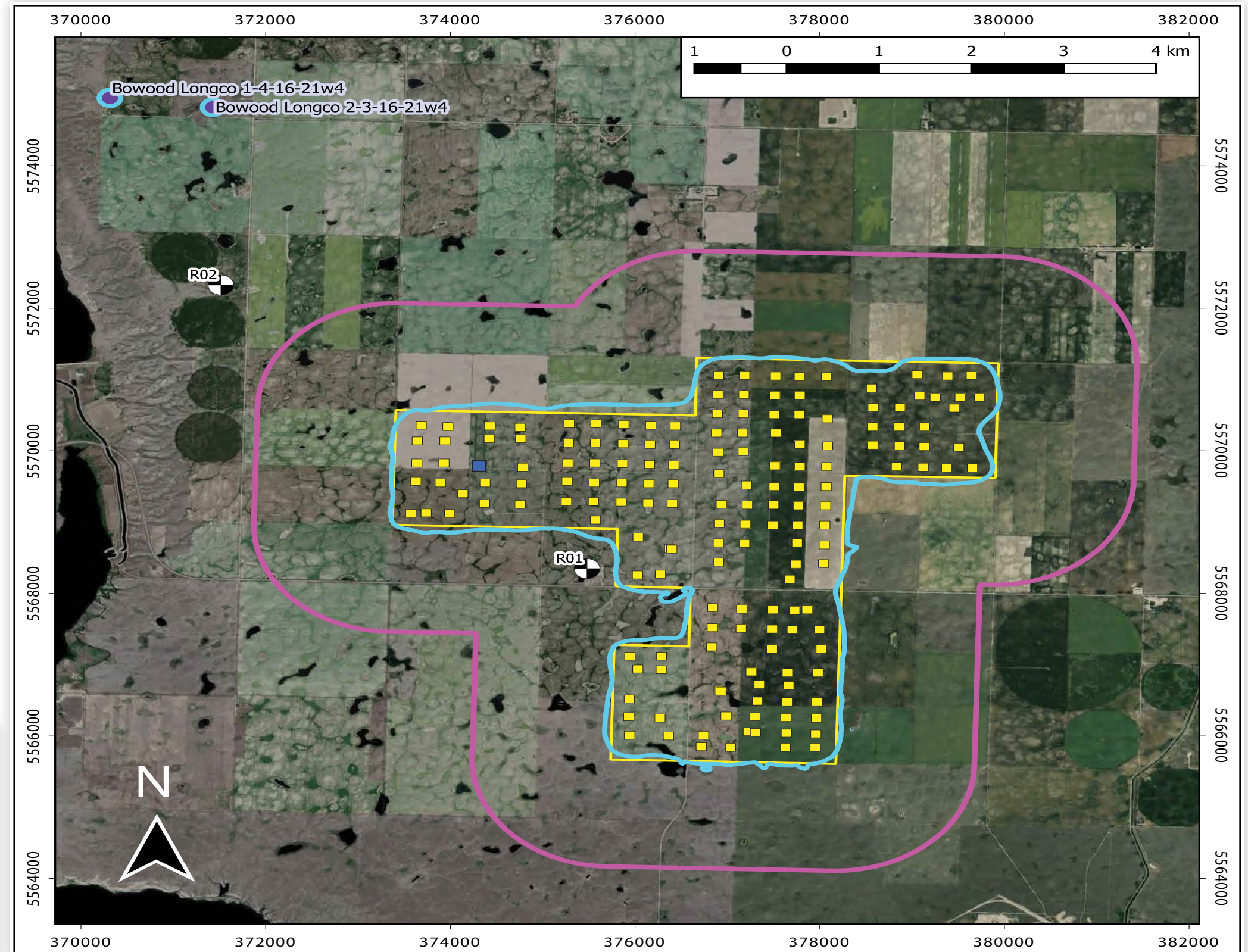
- A Noise Impact Assessment was completed to demonstrate that the requirements of AUC Rule 012: Noise Control have been addressed
- The assessment predicts the cumulative impact of noise from the Project and the existing and approved energy facilities in the area

Legend

- Project Boundary
- 1.5km Criteria Boundary
- Power Conversion Station
- Project Substation
- Third Party Facilities
- Residences
- 38.3 dBA Contour

Travers Solar Power Project
Predicted 38.3 dBA Contour - Project and
Energy-Related Facilities
Map Projection: NAD 1983 UTM Zone 12N
Travers Solar Power Project, Vulcan County, AB
Project Number: 1803989

Figure
Drawn by: RNL
Scale: 1:70000
Date revised:
Feb 18, 2019





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SOLAR POWER IN CANADA

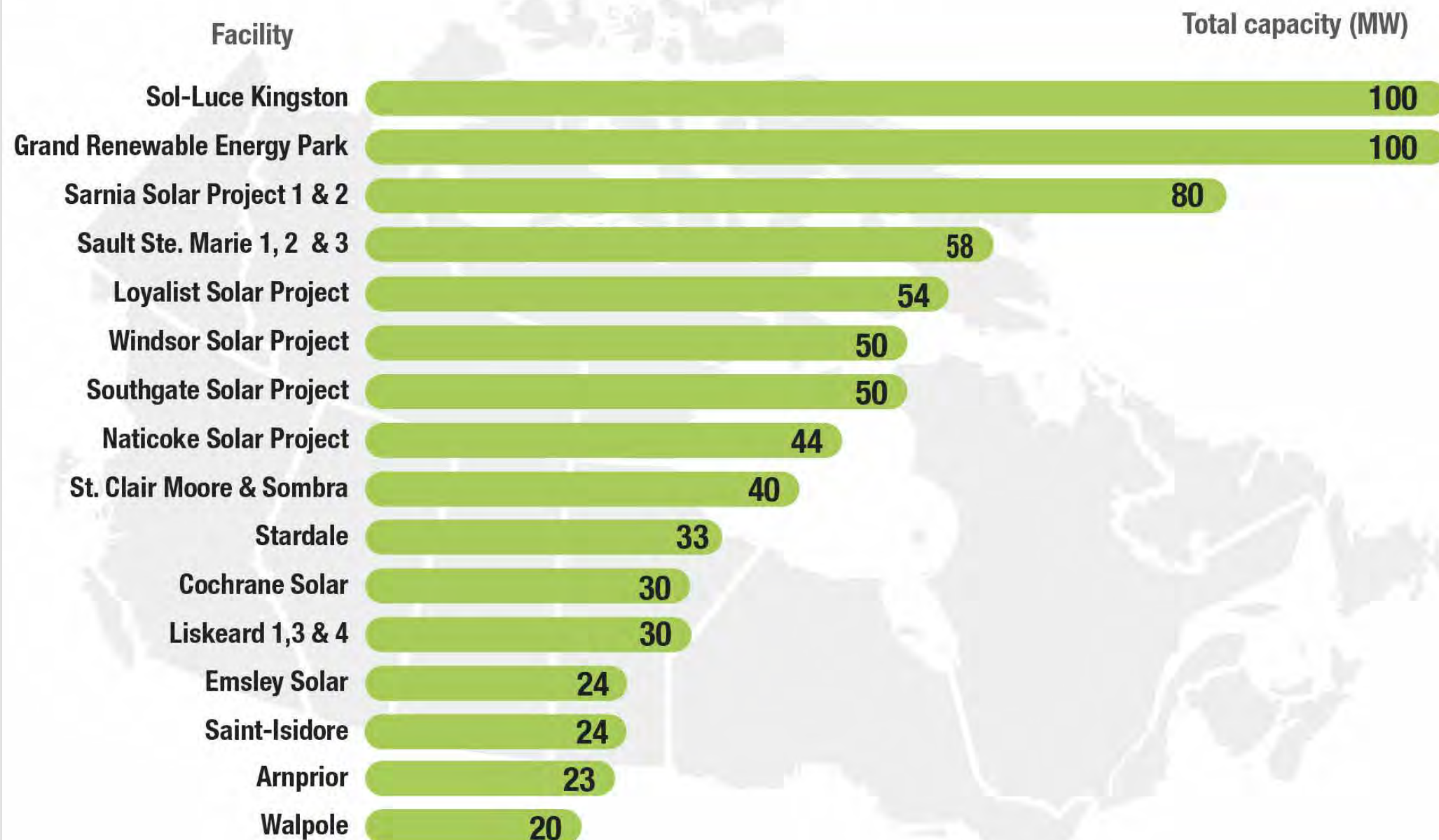
SOLAR INSTALLATIONS IN CANADA

- In 2017, there was over 2900 MW of grid connected and residential solar installed capacity in Canada
- As shown in this chart, the largest two solar projects operating in Canada are currently 100 MW each

SOLAR INTEREST IS INCREASING IN ALBERTA

- Currently there is approximately 45 MW_{ac} of Solar in Alberta
- The largest installation is 15 MW_{ac} at Brooks, Alberta
- 4,600 MW_{ac} of Solar Projects are proposed to connect to the grid
- When completed, Travers will be the largest Solar PV project in Canada

SOME OF THE LARGEST SOLAR PV FARMS IN CANADA* (≥20 MW)



SOURCE: WWW.NRCAN.GC.CA



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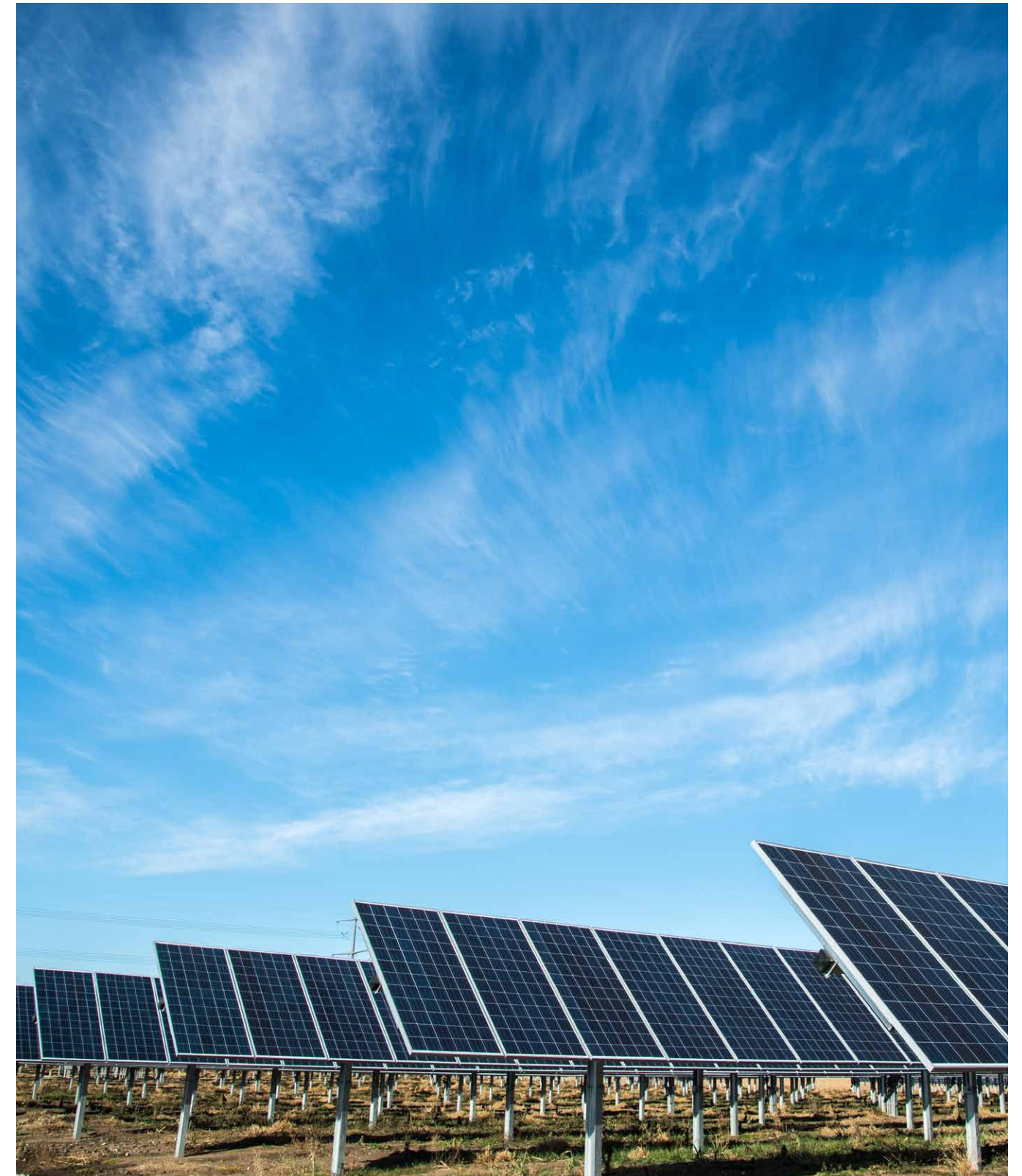
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STAKEHOLDER PRINCIPLES

- All stakeholders including landowners, municipalities, special interest groups and First Nations, have the right to express their views and seek information from us
- We will engage in a consultation process with stakeholders to assess feedback, suggestions and recommendations in accordance with AUC Rule 007
- We will endeavour to provide responses to stakeholder inquiries in a timely and transparent manner
- We will comply with the municipalities' applicable land use bylaws
- We will comply with guidelines set out by Alberta Environment and Parks (AEP) in an effort to protect the local environment
- We will comply with all decisions set forth by the Alberta Utilities Commission (AUC), in an effort to preserve orderly development in Alberta





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THANK YOU!



- We encourage you to speak to any of the representatives here today for more information on any of the topics covered on our posters.
- We are committed to sharing information about the Project and working with the public to ensure that stakeholder input and concerns are heard and addressed. Stakeholders are encouraged to participate throughout this process. We hope you will contact us if you have any questions or concerns about the Project. A summary of stakeholder comments will be incorporated into the power plant application that we submit to the AUC.
- If you have any further questions or comments, please feel free to fill out a comment sheet. You can also send us questions or comments at the email address, or phone number listed below and on the comment sheet or newsletter.

DAN TOCHER, VP STAKEHOLDER RELATIONS

Email: TraversSolar@greengatepower.com

Number: 1-833-GRN-GATE (1-833-476-4283) ext 106

Website: www.greengatepower.com/travers-solar-400-mw



- For more information about how Greengate protects your personal information, visit our website at **www.greengatepower.com** or contact us directly via phone toll-free at **1.833.476.4283 ext. 106.**



Greengate is committed to protecting your privacy. Collected personal information will be protected under the provincial Personal Information Protection Act (PIPA). As part of the regulatory process for new generation projects, Greengate may be required to provide your personal information to the AUC.