

# Carmangay KryptoSolar Project

August 2025

OPERATIONS &  
MAINTENANCE PLAN

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# OPERATIONS & MAINTENANCE PLAN

## INTRODUCTION

### BACKGROUND

Azgard Solar Inc. is proposing to develop and operate a 900kWac solar photovoltaic project combined with a 240kWac bitcoin mining operation to be known as the Carmangay KryptoSolar Project (hereinafter referred to as the “Project”). The Project will be located on a 10.3 acre parcel of privately owned industrial land. The property is located at the north end of the Village of Carmangay in southern Alberta as shown in Figure 1.

The proposed Project will use solar photovoltaic technology to generate electricity and the bitcoin mining will consume the electricity generated by the solar. The solar modules will be mounted on Azgard’s SunRanger seasonally-adjustable racking system and arranged in the form of 144 racks, each holding 16 solar modules. Electricity generated by the solar modules will be converted from direct current (DC) to 480V 3phase AC by an inverter, and subsequently stepped up to 25 kV by a Fortis-owned 1 MVA transformer in order to connect to the nearby distribution line. The bitcoin mining operation will be connected to the same transformer.

It is anticipated that the construction period will be 4 months in duration, tentatively commencing in the early spring of 2026. It is anticipated that the Project will be operational for a duration of at least 20 years, after which it may be decommissioned if no arrangement for further use is determined.

### SCOPE

The Operations and Maintenance Plan (hereinafter referred to as “the Plan”) will clearly define how the Project will be operated and maintained including how vegetation will be controlled and managed on the site.



Figure 1 - Project Location

## FACILITY DESIGN PLAN

### PREPARATION AND GRADING

The parcel is relatively flat with a concrete foundation and some minor ground disturbance from previous activity on the site. Some minor earth work will be done to correct this disturbance and ensure that the snow melt and rainwater runoff is as uniform as possible.

### ROADWAYS

With the exception of the access point onto the parcel, no permanent roads will be built around or among the arrays. While other developers sometimes do construct such roadways within their developments, Azgard has found through the experience of operating its existing fleet of solar installations that the periodic inspection and adjustment required is easily accomplished by access on foot, a 'quad', or snowmobile in the winter.

## SURFACE WATER AND DRAINAGE

The construction will be scheduled to avoid the spring and other heavy rain periods. Installation of the screw-piles will be delayed until May or later to avoid difficulties that might otherwise be experienced with wetter, organic soil overlaying the clay/silt.

## FACILITY COMPONENTS

### FOUNDATIONS

Solar racking and inverters will be mounted on helical pile foundations. The design of the piles will be finalized after soil testing has been completed. The helical piles will be installed to a specified minimum depth, and will be designed to safely support the loads place on them. A typical helical pile for this type of project is shown in Figure 2.

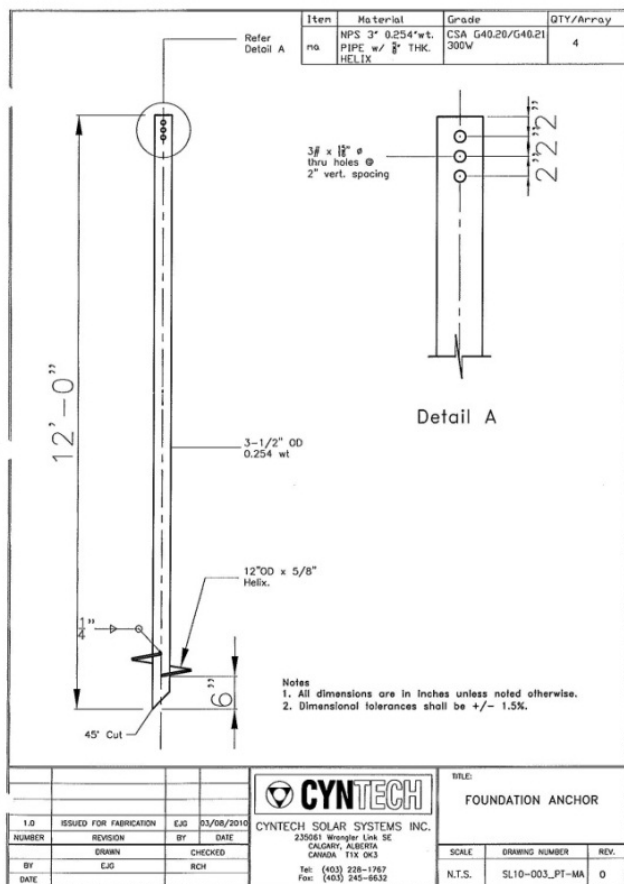


Figure 2 – Typical Helical Pile

## SOLAR RACKING

Azgard’s SunRanger seasonal-tilt racking system that enables manually adjusted, seasonal tilt, with ‘summer’ and ‘winter’ settings will be employed on the Project. In Western Canada, the albedo (sunlight reflected from the snow) and colder temperatures (the PV modules perform proportionately better when colder) result in peak power development by the modules in the late winter/early spring. To benefit from these conditions, the rows of racks will be spaced approximately 35-m apart, north to south. The spacing will eliminate shading of rows of arrays by the ones to the south in the winter and provide areas in front of the rows where snow will accumulate such that the albedo will be most effective.

The high angle of tilt in the ‘winter’ position, 70° from horizontal, will also minimize snow accumulation in the winter season.

The racking is fabricated from pre-galvanized sheet steel. The light weight rack components are easily handled and assembled by crews of workers without the need of lifting equipment—Figure 3. While the racks are relatively light in weight, they are very strong and rigid, allowing the racks to resist the maximum wind gusts that might occur at this site. The upper portion of the racks to which the modules are affixed are balanced about a pivot point so that the seasonal tilt adjustment is easily made by 2 workers— Figures 4.

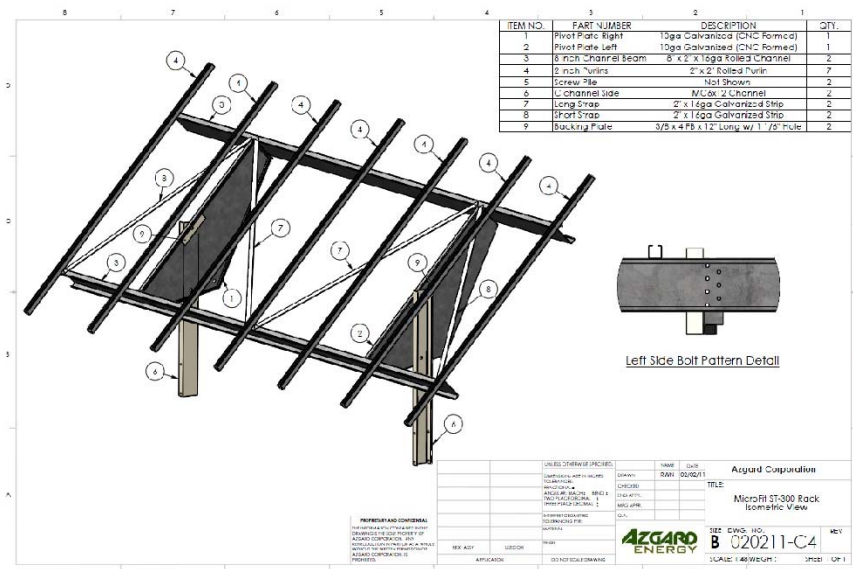


Figure 3 - PV Racking (Upper Section)



Figure 4 - PV Array (summer and winter positions)

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### SOLAR MODULES

Sixteen (16) PV solar modules (Longi LR5-72HBD 540W or equivalent) will be mounted on each rack in a 4 x 4 landscape arrangement with the rack being 4.5-m x 9-m overall. Twelve (12) racks arranged east-west will form a row. Twelve (12) rows will provide 144 racks with 2,304 PV modules total.

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### ELECTRICAL SYSTEM

The sixteen (16) modules (panels) on each rack will be connected in series into strings. Wires carrying direct current (dc) power from the 16-panel strings will connect to a string inverter where they will join wires from other strings on adjacent racks. The dc power from 12 strings is then fed to a 75kW inverters (Solis S5-GC 75K or equivalent) located at the end of the row. A DC Disconnect just before the inverters, and an AC Disconnect after, allows the inverters to be isolated from all power sources for maintenance or repair work.

Wires that connect rows of racks together and then connect to the inverters will be contained in conduit buried along the east side of the arrays. The reasons to install the wires underground between the rows are to avoid shading of the modules, and to allow unrestricted movement among the rows.

The DC power, with voltage levels that vary with light intensity—especially on partially cloudy days—produced by the PV modules is converted to AC power of consistent voltage by the inverters, so that alternating frequency and voltage level do not vary and match grid values.

Through a series of programmed algorithms, the inverters constantly adjust to allow the modules to output maximum power as incident light and ambient temperature vary.

Once the inverters convert the DC power to 60-Hz 480V 3 phase ac power that is synchronous with the grid, a Fortis transformer will convert the 480V 3 phase power coming from the inverters to the 25-kV that is required to inject power onto the Fortis distribution line servicing the site.

The function of connecting to the grid each day when the sun comes up, and ensuring that the solar farm is safely disconnected from the grid when there is a grid malfunction or emergency work is being conducted on the grid, is automatically performed by the inverters, with no need for human intervention. The solar farm will operate reliably and safely on its own.

Every PV module, the racking and all of the equipment enclosures will be grounded. Also, the inverters contain 'ground-fault' detection and isolation features to ensure that no abnormal, dangerous conditions exist within the solar farm.

The inverters will all be connected to a central monitoring device that will send data to an internet web page so that Azgard personnel can monitor the performance of the solar farm and be immediately notified of any abnormal condition.

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## **BUILDINGS AND STRUCTURES**

The only building on the site will be an 8' x 20' Profit-Air A3S Custom Silenced Mining Container designed and fabricated by Wild Rose Mining of Calgary, Alberta. This container will house sixty (60) Bitmain Antminer S21+ data miners. No other buildings or other structures required on this site for this project.

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## **SECURITY**

A fence with a locked gate will be installed around the perimeter of the site to prevent unauthorized access and provide a level of public safety.

### OPERATIONS

The Project will operate year round and the bitcoin mining operation will operate 24 hours per day while the solar operation will generate electricity only during daylight hours. Rated at a maximum of 900kW, the amount of power that the facility will generate depends on ambient temperature, albedo and available sunlight. The operation will be entirely autonomous—power production continues whenever there is sunlight and it is safe for the grid to receive power. For maintenance or repair work, affected portions of the plant can be de-energized as required. During emergency, the entire facility can be de-energized by authorized personnel from a single lockable switch located near the grid connection. The facility does not require site-based employees to monitor its operation, this will be done remotely.

### MAINTENANCE

Components of the solar facility will be routinely inspected, typically on a monthly basis. Any broken or malfunctioning components will be fixed or replaced. Solar panels are normally kept clean by periodic rain. An exception could be excessive bird droppings or adhered leaves that may require spot cleaning. This is typically performed with a stream of water from a portable device. During the monthly inspection, if required, panels will be spot cleaned and cleared of any debris. Trash and debris will be taken offsite to local landfill areas. During winter, snow will melt or slide off panels due to the steep ‘winter’ position the arrays are set to at that time.

The bitcoin mining operation may require occasional site visits to repair or replace malfunctioning mining units. All mining units will be monitored remotely and a work area is located in one end of the mining container to perform repairs and testing onsite.

Vegetation control will be periodically undertaken in summer months, it is expected that grasses and plants will need to be controlled to prevent excessive build-up of undesirable fuel loads—to avoid fire and to maintain a neat and tidy appearance. All vegetation will be controlled by mowing. No chemicals will be used to control growth of vegetation around or under solar equipment.

## KEY PROCESS FEATURES

### WATER TAKING

The Project does not require any on-site facilities to supply ground or surface water. No water will be taken from ground or surface water resources on or adjacent to the site. Though not anticipated, any water needed will be brought into the site via trucks.

### SEWAGE/STORMWATER MANAGEMENT

During operation, the Project will not generate any sewage or wastewater. With the exception of the access road, surface drainage will be left undisturbed

### DISCHARGE OF CONTAMINANTS TO AIR

The Project does not include any equipment that discharges contaminants to the air.

### WASTE AND BIOMASS MANAGEMENT EQUIPMENT

The Project does not include any facilities for handling, storing or processing any waste, biomass, organics, farm material, biogas or waste materials.