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 Mr. Eric Pasi

Innovative Power Systems

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Mr. Pasi

Attached is indicative pricing for the Dundas 5 MW MN CSG project.

The services listed below can be selected a la carte and the pricing is reflective of that. Should multiple scope items be selected, additional discounts may apply. There may be duplicate scope listed below and the fee may be reduced by consolidating the scope as the project progresses.

Please contact me with any questions. 952-646-0264 or akim@evs-eng.com

Andy Kim

Vice-President

EVS, Inc.

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| --- | --- |
| **Typical Minnesota CSG Pricing for 5 MW Site** |  |
| **TASK** | **FEE** |
| ALTA Survey, Existing Site Survey, Lidar Verification |  $ 7,500  |
| CUP/Local Permitting |  $ 12,500  |
| Geotechnical Engineer / Report |  $ 14,190  |
| PVSyst Production Analysis (Preliminary) |  $ 500  |
| OPTIONAL - Permit Matrix |  $ 1,200  |
| Phase I ESA |  $ 2,800  |
| Environmental Desktop Study (wetlands, cultural, natural) |  $ 3,500  |
| OPTIONAL - Wetland Delineation - Field |  $ 2,000  |
| OPTIONAL - Cultural Constraints Review / Report - Field |  $ 3,500  |
| OPTIONAL - Biological Constraints Review / Report - Field |  $ 2,500  |
| Site Survey Controls |  $ 18,300  |
| Civil Engineering - Site Plan / Sed Control / Access |  $ 31,000  |
| Corrosion Design |  $ 9,900  |
| Foundation Design |  $ 13,200  |
| OPTIONAL - Pile load test |  $ 28,600  |
| Electrical Engineering |  $ 55,350  |
| ALTA Survey: Post-Construction |  $ 6,700  |
| OPTIONAL - Final Punchlist - Electrical/Civil |  $ 4,000  |

**SCOPE OF SERVICES:**

**PRE-DESIGN PHASE:**

**ALTA Survey, Existing site survey, LiDAR Verification**

Scope includes a topographic survey which includes topographic contours based on publicly available LiDAR, 2-ft. interval, property lines, easements, locations of any existing hardscapes, and locations of any above ground/marked utilities. The scope includes field verification of LiDAR data.

To be provided by owner:

* A copy of a current title commitment covering the properties and copies of all related documents for the production and issuance of the final survey.
* Copies of any easement documents that may be pertinent from “Schedule B” of the title commitment.

**Geotechnical Engineering**

Scope includes a desktop review of the site, including review of publically available geologic maps, geologic data, and depth to groundwater. Based on this review, we will preliminarily assess whether the soils at the site are susceptible to frost heave and will immediately identify the need for additional sampling or lab testing in addition to what is currently proposed. We propose to perform 8 – 10 borings at each site, each to a depth of 25 ft., and collect bulk samples at depths between 2 to 5 ft. Sampling will be in general accordance with industry standard procedures wherein Shelby tube samples or split-barrel (Standard Penetration Test) samples are obtained. Samples will be obtained at approximately 2-ft. intervals in the upper 10 ft. borings and at approximately 5-ft. intervals thereafter. Field and lab testing will consist of industry standard tests for this type of work.

**Preliminary PVsyst Production Estimate**

Scope includes the preparation of a PVsyst report. We will use PV module, inverter, and weather file data provided by the owner.

**Local Permitting / CUP**

It is assumed the proposed project design shall not trigger Federal and or State siting requirements. The following regulatory framework reflects the solar facility siting process whereby County or Local agencies assume lead regulatory responsibility. The regulatory requirements for each county are unique and as such the approval processes will vary somewhat between counties. Minnesota counties generally require a Conditional Use Permit (CUP) for the development of solar facilities. Review of a number of CUPs has found that the requirements listed below, which are based upon those published by Stearns

County, are representative of many County CUP programs. Please note that there may be additional studies, permits, and/or approvals that may be required by individual counties and would be an out of scope task.

Services rendered include:

* Compilation of materials to complete individual CUPs
* One draft CUP available for client review and associated consolidated round of edits of draft CUP materials
* Final CUP application prepared for Client submittal
* Response to additional data requests associated with initial filing from the county planning and zoning department
* Attendance at one county planning or public meeting.

Assumptions

* Project development would be entirely constrained to private lands.
* Each site will be located within a single Minnesota county.
* No projects will be designed to operate in excess of 5 MW.
* No project will convert more than 80 acres of agricultural, native prairie, forest, or naturally vegetated land requiring an Environmental Assessment Worksheet.
* Each project is a stand-alone project and will not fall under the Minnesota Public Utility Commission’s permitting authority.
* Project development will not result in temporary or permanent impacts to jurisdictional wetlands or waterbodies, impacts to state, federally listed threatened endangered species or critical habitat.
* A single draft, in electronic format of all filings will be offered for review. One set of consolidated comments will be returned to EVS within two business days.
* Each project will require a Conditional Use Permit (CUP). Additional county or state specific permits and processes will be subject to an additional scope/proposal.
* This estimate does not include permit or application fees.
* Once a task is initiated, any modification to the project will be managed as an out of scope task. These services are offered on a time and materials basis with a not to exceed estimate without prior approval from the client.

Typical CUP Submittal Requirements (Sterns County)

1. *Existing property lines and property lines extending 100 feet from the exterior boundaries, including the names of the adjacent property owners and current use of those properties.*
2. *Existing public and private roads, showing widths of the roads and any associated easements.*
3. *Location and size of any abandoned wells, sewage treatment systems and dumps.*
4. *Existing buildings and any impervious surface*
5. *Topography at two foot intervals and source of contour interval – illustrated on a map.*
6. *Existing vegetation (type, percent of coverage).*
7. *Location of waterways, watercourses, lakes and public water wetlands.*
8. *Delineated wetland boundaries.*
9. *The 100 year flood elevation and Regulatory Flood Protection Elevation.*
10. *Floodway, flood fringe and/or general flood plain district boundary.*
11. *Shoreland district boundary if the project is located in a shoreland overlay district. The ordinary high water level and the highest known water level in the shoreland overlay district.*
12. *Toe and top of any bluffs within the project boundaries.*
13. *Mapped soils according to the Stearns County Soil Survey.*
14. *Surface water drainage patterns.*
15. *LESA score for the project area if located within an agricultural zoning district.*
16. *Site Plan of Proposed conditions including the following:*
	1. *Location and spacing of solar panels*
	2. *Location of access road*
	3. *Planned location of underground and overhead electric lines connecting the solar farm*
	4. *New electrical equipment other than at the existing building or substation that is the connection point to the solar farm*
	5. *Proposed erosion and sediment control measures*
	6. *Proposed stormwater management measures*
	7. *Sketch elevation of the premises accurately depicting the proposed SES and its relationship to structures on adjacent lots*
17. *Stormwater Management Plan.*
18. *Erosion Control Plan.*
19. *Manufactures specifications and recommend installation methods.*
20. *Number of panels to be installed.*
21. *Description of the method of connecting the array to a building or substation.*
22. *A copy of the interconnection agreement or explanation why one is not necessary.*
23. *Decommissioning plan.*

**Permit Matrix (Federal, State, Local)**

Scope includes preparation of a permit matrix and summary report to identify the necessary permits required for the project. This includes contacting the necessary agencies and government.

**ENVIRONMENTAL:**

**ESA Phase I Evaluation**

Scope includes the preparation of a Phase I ESA according to the general scope of work identified in ASTM E-1527-13, Standard Practice for Environmental Site Assessments. This is the most recent set of standards that incorporates the US EPA’s “All Appropriate Inquiries” (AAI) rules which further specifies procedures for the Phase I ESA.

**Wetland, Cultural, and Biological/Natural Resources Desktop Study**

Combined report includes:

**Wetland “Desktop Review"**

Scope includes a desktop review of available database information which includes areas of hydric soils which are drained and farmed. A systematic review of historical aerial photos will be performed to determine if these areas meet the Farmed Wetland criteria. If deemed necessary, scope includes contacting landowners to acquire draintile maps for the sites to complete the farmed wetland evaluations.

**Cultural Resources "Desktop Review"**

Scope includes a comprehensive desktop review of known cultural resources and a GIS predictive model delineating high-, medium-, and low-probability areas for unknown cultural resources based on remote sensing data and MnDOT’s MnModel.

**Biological Constraint "Desktop Review"**

Scope includes a comprehensive Desktop Review of known natural resources, protected wildlife species, and critical habitats within the Area of Potential Effect. Deliverables will include a desktop report and maps detailing natural resource features.

 **Field Work:**

**Wetland Delineation ''Field Review"**

Scope includes the delineation of boundaries of wetlands located on the site. Wetland boundaries will be flagged so they can be located by the project surveyor. The delineation will be completed in accordance with the U.S. Army Corps of Engineers "Wetlands Delineation Manual” (Technical Report Y-87-1, 1987), and/or the "Regional Supplement to the Corps of Engineers Wetland Delineation Manuals." On-site delineation time may be more or less depending on what is discovered during the desktop review. If the site is planted with a crop that prevents observation of the landscape, the delineation may not be able to be completed in those areas until the crop is harvested. After the field work is completed, a report documenting our findings will be prepared.

**Cultural Resources "Field Review"**

Scope includes a field review including fatal flaw analysis, assessment of known sites, and cursory investigation of high-probability landforms within the Area of Potential Effect. Deliverables will include 1) SHPO-standard Phase Ia literature review; 2) color-coded GIS predictive model layers; and 3) letter report summarizing field review including detailed recommendations regarding findings and any additional Cultural Resources work.

**Biological Constraint "Field Review"**

Scope includes field review including fatal flaw analysis, assessment of known natural resources including wetlands/waterbodies, and investigation of protected species or features, such as raptor nests, within Area of Potential Effect. Deliverables include field report summarizing field investigation including detailed recommendations regarding findings and any additional natural resources work.

**DESIGN PHASE:**

**Corrosion Rate Analysis**

Scope Includes:

1. Data analysis - analysis of the resistivity test results obtained during the geotechnical testing.
2. Galvanic Corrosion Rate Analysis –perform galvanic corrosion rate analysis and determine corrosion rates expected due to galvanic corrosion between the copper grounding grid and the galvanized pile support.
3. Corrosion Evaluation Report – furnish an evaluation report with an overview of the tests conducted, a map with the location of the tests and the GPS coordinates, the test results, the analysis of the results, corrosion rates for the zinc and steel, calculations for soil and galvanic corrosion, service life calculations of the zinc/steel post/piles, a discussion of the finding, and conclusions and recommendations.  The report will be first submitted as preliminary for discussion purposes and as final after the agreed upon review comments have been incorporated.

**Pile Load Testing**

Scope Includes:

Install and remove piles at the site. Perform vertical and horizontal load testing on the test piles. The following tests will be performed:

* Lateral Testing – Eight (8) piles (1 pile type, embedment lengths of 11 and 13 feet, at 4 different locations)
	+ Loaded to 200% of the estimated lateral design load or failure
	+ After lateral loading, each post will be tested in axial pullout to failure or the limits of the equipment

Terracon will measure the vertical and horizontal displacement at various loads predetermined by the structural engineer. Results of horizontal load tests and vertical load tests will be provided in an observation and testing report documenting the measurements of the vertical and horizontal displacements.

In order to complete pile testing in advance of significant frost, we have considered that all pile load testing would need to be completed before November 25, 2015. In all likelihood this testing would need to be performed prior to completion of geotechnical explorations at the site. The project team should discuss preliminary desired pile lengths and sections. If desired, Terracon can test multiple different shapes for additional cost. Acquisition of piles will also be a limiting factor from a schedule standpoint. We have considered that piles are readily available in the Minnesota area (or could be provided). Once we are provided desired pile sections, we can coordinate and confirm schedule to obtain piles and a schedule to get a subcontractor to install piles. There is a risk that weather will substantially slow or halt our work. Once frost advances at least 6 inches into the ground and/or high temperatures are regularly at or below freezing, we would likely need to cease all work.

**PV System Civil Engineering**

Scope includes Civil Engineering design services. Includes one site visit prior to beginning design and a kickoff meeting or conference call with the owner to establish design requirements. Civil design deliverables will include site layout of civil items (roads, fences, ponds, etc), design of grading and drainage plan, design of erosion control plan, development of supporting details, and specifications. As part of permitting support, scope includes a full hydrology and hydraulic report as well as a Storm Water Pollution Prevention Plan as required to obtain the NPDES permit.

**Foundation Design**

Scope includes sealed design drawings and calculations for design of the structural pile foundations and the concrete equipment pads. Design deliverables to include, coordination with the project team to determine the preferred pile type, determination of minimum embedment depth, performance of structural analysis of pile performance, design of concrete equipment foundation, and preparation of design packages including cover letter, drawings, specifications, and engineering calculations.

**PV System Electrical Engineering**

Scope for Electrical Engineering:

**Final Electrical Design - Scope of Work**

Design documents to be in accordance with generally accepted best practices and shall meet the latest applicable requirements of the following codes and standards:

* + 1. NEC 2014
		2. National Fire Protection Association (NFPA
		3. Institute of Electrical and Electronic Engineers (IEEE).
		4. American Society for Testing and Materials (ASTM).
		5. All local, state, and federal codes, rules, regulations.
		6. Interconnecting utility interconnection requirements and standards as applicable

**DC, AC and Interconnection Design:**

The following items listed below are considered part of the scope:

1. PV Block design and optimization
2. PV array layout
3. Array elevations
4. String wiring specification and design
5. DC collection specification and design
6. Single Line diagram
7. Combiner specification
8. AC feeders from inverters to substation
9. AC low voltage cable systems
10. Cable Schedule
11. Line loss analysis
12. Review of commissioning plans
13. PVsyst analysis
14. Lighting plan
15. AC system design/specifications – from the inverter output up to interconnect with the utility 15 kV power line
16. Grounding system design
17. AC auxiliary system design
18. AC BOM development
19. Short Circuit, Arc Flash, Cable, Relay Setting, and Coordination Studies
20. PE stamp the electrical design for the State of MN
21. SCADA integration; however SCADA programming is by others

**Not included in Scope:**

1. AC Branch Power from Secondary Side of Meter
2. Security System Design
3. As Built drawings
4. Any performance guarantees
5. Commissioning
6. Commissioning observation
7. Construction support
8. IR Scanning of PV modules
9. IV Curve testing
10. SCADA programming

**Electrical scope qualifications and assumptions:**

1. Owner will provide EVS with SRC Application numbers and complete site addresses for the Interconnect application
2. Modules and inverters and the total DC size of the projects have not been determined yet
3. EVS will work with the owner to determine the DC size of the system
4. The Owner will provide EVS with the all major equipment specifications

**CONSTRUCTION PHASE:**

1. **System Site Control Points and Staking**

Scope includes setting control points as specified in the RFP. This is subject to change based on final design.

1. Property Corners
2. PV System Array Control Points
3. Access/Highway Layout
4. **Post Construction ALTA Survey**

Scope includes a survey to 2011 Minimum Standard Detail Requirements for ALTA/ACSM Survey Standards and is to include Items 1 – 5, 6(a), 7(a), 8, 9, 11(a,b), 13 and 16 from Table A of the those requirements.

To be provided by owner: A copy of the current title commitment covering the properties and copies of all related documents for the production and issuance of the final survey. Additionally, we will need copies of any easement documents that may pertain from “Schedule B” of the title commitment.

1. **Final Punchlist (Compilation/Field Review)**

Inspect the work as a part of the punchlist and determine compliance with the construction documents on the following items:

**Civil:**

1. Site stabilization ie. vegetation establishment, erosion control removal, etc
2. Verify integrity of site security fence, gates, etc
3. Stormwater management area and conveyance channel stabilization
4. Document as-built conditions
5. Verify drainage patterns on and off site

**Electrical:**

1. Module, combiner box and inverter wiring
2. Drawing compliance
3. Verify equipment and systems are installed as per IFC drawings
4. Verify the installation is safe
5. Document as-built conditions
6. Verify Electrical connections

**STANDARD FEE SCHEDULE**

**2015**

**EVS, Inc.**

**Title Hourly Rate**

**Principal-In-Charge $165.00**

**Licensed Surveyor $155.00**

**Senior Engineer $155.00**

**Project Engineer $120.00**

**Staff Engineer / Environmental Specialist $100.00**

**Engineering / Environmental Technician $90.00**

**Two-Person Survey Crew $175.00**

**One-Person Survey Crew $105.00**

**Clerical $65.00**

**Instrument Person $70.00**