



**Mill Point**  
**SOLAR I PROJECT**

**ConnectGen Montgomery County LLC**

Mill Point Solar I Project

Matter No. 23-00034

**§ 900-2.6 Exhibit 5**

**Design Drawings**

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## Glossary Terms

- Applicant:** ConnectGen Montgomery County LLC (ConnectGen), a direct subsidiary of ConnectGen LLC, is the entity seeking a siting permit for the Facility from the Office of Renewable Energy Siting (ORES) under Section 94-c of the New York State (NYS) Executive Law.
- Facility:** The proposed components to be constructed for the generation, collection and distribution of energy for the Project will include: photovoltaic (PV) solar modules and their rack/support systems; direct current (DC) and communications cables connecting the panels to inverters; the inverters, with their support platforms, control electronics, and step-up transformers; buried alternate current (AC) medium voltage collector circuits; fencing and gates around each array of modules; access roads; temporary laydown/construction support areas; a medium voltage-to-transmission voltage substation with associated equipment and fenced areas; a new 3-breaker ring bus point of interconnection switchyard (POI switchyard); two adjacent approximately 305 foot-long 345 kV transmission line segments to interconnect the new POI switchyard to the existing National Grid Marcy – New Scotland 345-kilovolt transmission line; and an operations and maintenance (O&M) building with parking/storage areas as well as any other improvements subject to ORES jurisdiction.
- Facility Site:** The tax parcels proposed to host the Facility, which collectively totals 2,665.59 acres.
- Point of Interconnection (POI) or POI Switchyard:** A new 3-breaker ring bus point of interconnection switchyard will be constructed adjacent to the existing National Grid Marcy – New Scotland 345-kilovolt transmission line; the substation will tie into the new POI switchyard via an overhead span and deliver power produced from the Facility onto the electric grid through two overhead spans tapping the National Grid-owned Marcy – New Scotland 345-kV transmission line. The POI switchyard is located off Ingersoll Road in the northeastern portion of the Facility Site.

**Limits of Disturbance (LOD):** The proposed limits of clearing and disturbance for construction of all Facility components and ancillary features are mapped as the LOD. The LOD encompasses the outer bounds of where construction may occur for the Facility, including all areas of clearing, grading, and temporary or permanent ground disturbance. This boundary includes the footprint of all major Facility components, defined work corridors, security fencing, and proposed planting modules, and incorporates areas utilized by construction vehicles and/or personnel to construct the Facility.

**Project or Mill Point Solar I** Collectively refers to permitting, construction, and operation of the Facility, as well as proposed environmental protection measures and other efforts proposed by the Applicant.

**Study Area:** In accordance with the Section 94-c Regulations, the Study Area for the Facility includes a radius of five miles around the Facility Site boundary, unless otherwise noted for a specific resource study or Exhibit. The 5-mile Study Area encompasses 96,784.84 acres, inclusive of the 2,665.59-acre Facility Site.

## Acronym List

AASHTO	American Association of State Highway and Transportation Officials
AC	Alternating current
ACI	American Concrete Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
DC	Direct current
HDD	Horizontal directional drilling
ICEA	Insulated Cable Engineers Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
kV	Kilovolt
LOD	Limits of Disturbance
NEC	National Electric Code
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NYCRR	New York Code Rules and Regulations
NYS	New York State
O&M	Operations and Maintenance
ORES	Office of Renewable Energy Siting
OSHA	Occupational Safety and Health Administration
PE	Professional Engineer
PV	Photovoltaic
ROW	Right-of-way
RUS	Rural Utilities Service
SSC	Site Specific Condition

## EXHIBIT 5 DESIGN DRAWINGS

### 5(a) Statement of Engineer Qualifications

The Design Drawings and supporting documentation prepared for the Application, and included as Appendix 5-1, were developed under the direction of a licensed Professional Engineer (PE) in the State of New York, as identified on Sheet MPS-C-100-01. All drawings are labeled as “Issued for 94-c,” and are not for construction.

### 5(b) Conformance with Setback Requirements for Wind Turbines

The proposed Facility is a solar facility. Therefore, this section is not applicable.

### 5(c) Wind Turbine Descriptions

The proposed Facility is a solar facility. Therefore, this section is not applicable.

### 5(d) Conformance with Setback Requirements for Solar Facilities

The Facility has been designed to meet the setback requirements listed in Table 5-1, below, which correspond directly to the requirements presented in Table 2 of Section 900-2.6(d) of the Section 94-c Regulations.

**Table 5-1. Setback Requirements for Solar Facility Components**

Setback Type	Solar Facility Setback
Non-participating residential property lines	100 feet
Centerline of Public Roads	50 feet
Non-participating property lines (non-residential)	50 feet
Non-participating occupied residences	250 feet

The Design Drawings in Appendix 5-1 depict setbacks in accordance with Section 94-c (per table 5-1). As allowed, fencing, collection lines, access roads, and landscaping occur within the setback; however, all solar arrays, inverters, and the substation are constructed outside of the required setbacks.

The Glen Solar Law (Town of Glen 2022) Section 5(2)(b)(i) established setback requirements that are more restrictive than the Office of Renewable Energy Siting (ORES) requirements (Exhibit 24, Appendix 24-3). The local law requires a 500-foot setback from non-participating parcels, although fencing, access roads, stormwater measures, electrical wiring and conduit (above and below ground), and landscaping may occur within the 500 feet. As part of Facility design the Applicant reviewed whether the 500-foot setback could be applied to the Facility. However, once the 500-foot setback was applied to the Facility parcels, the buildable area remaining was insufficient to construct and operate the proposed Facility on the available constructable land. The Applicant is requesting a waiver from ORES on the setbacks established in the Glen Solar Law (2022) as they are unreasonably burdensome. Further explanation of the justification for this waiver request is available in Exhibit 24, Appendix 24-5. Given the Applicant's request for a waiver, the Design Drawings in Appendix 5-1 do not include the setbacks established in the Glen Solar Law (2022), however the Town setbacks are depicted on Figures 2 and 5 in Exhibit 24, Appendix 24-5.

#### **5(e) Solar Facility Descriptions**

The maximum height of the Facility solar arrays is 10 feet (3.05 meters) (Appendix 5-1, Sheet MPS-C-104-01). Therefore, the arrays will not exceed 20 feet from finished grade. The height of the arrays is measured from the highest natural grade below each solar panel to its maximum potential height. As identified in Section 900-2.6(e), this height restriction does not apply to electric collection, transmission, or substation components.

The Applicant respectfully requests that ORES consider adding a Site-Specific Condition (SSC) to permit the Applicant to use a Phased Notice to Proceed approach to construction to ensure that seasonal clearing and construction restrictions can be adhered to during the compliance and construction phases. A similar SSC was granted to Horseshoe Solar (Matter #21- 02480) in Section 6(j) of that applicant's Final Permit (December 9, 2022), Riverside Solar (Matter #21- 00752) in Section 6(g) of the applicant's Final Permit (January 9, 2023), and ORES staff indicated support for adding a similar SSC to the Hemlock Solar Permit as well (see ORES Substantive and Significant Brief in Matter #21- 00748 [July 20, 2022, DMM Item 53] at page 81).

Major renewable energy facilities are often constructed in phases, as each phase frequently includes a contractor who specializes in the specific design and construction occurring for that

phase. This is why, under Article 10, major renewable energy facilities often received several Notices To Proceed for each phase of construction because each phase of construction requires specialized contractors and subcontractors who cannot be hired until their services are required. Moreover, not every phase of construction requires the full facility to be designed, and the Facility can go into construction while other portions of facility design are being finalized (e.g., access roads can be constructed while the collection system design is still being finalized). This SSC will allow the Applicant to seek authority from ORES to phase construction as necessary for the Project, in addition to the conditional Notice to Proceed with Site Preparation, already permitted by the Permit and 19 New York Codes, Rules and Regulations (NYCRR) Section 900-6.1(g).

#### **5(f) Preliminary Design Drawings**

As required per 19 NYCRR Section 900-2.6(f), the following sections describe the information included on the Design Drawings (Appendix 5-1) and within supporting documentation.

##### **(1) Site Plans**

The Site Plan of the proposed Facility has been provided within Appendix 5-1, depicting Facility components as required in the following subsections.

##### **(i) Solar Facility Site Plan Drawings**

General Site Plan drawings of all Facility components are included throughout the Design Plans in Appendix 5-1 through 5-3 at a 1" = 100' scale; the Applicant has provided one full-size (22" x 34") hard copy set of the Design Drawings with the Application. Per the Section 94-c regulations, the Design Drawings include the following proposed and existing features.

##### **(a) Solar Panel and Setback Plan**

Detailed drawings inclusive of solar arrays, inverters, property lines, and applicable setbacks described above in Section 5(d) above (as well as additional Facility components) are depicted on Sheets MPS-C-101-01 through MPS-C-101-46 of Appendix 5-1. The Facility consists of 529,802 solar modules consisting of 26 modules per string (total of 20,377 strings). The inverters proposed for the Facility are Sungrow SG4400UD-MV and SG3300UD-MV inverters with a 4.4MVA and 3.15MVA rating respectively, which will be located throughout the panel arrays. Within the substation, the Facility proposes one CT/PT combo instrument transformers and one three winding main phase transformer, identified as T1 (Sheet MPS-E-201-00). In addition, one station service transformer identified as SST1 is also shown on the cross-section drawing (Sheet MPS-E-210-02).



(b) Access Road and Travel Lane Plan for Solar Facilities

The Facility proposes the use of the following access road type as detailed on Sheet MPS-C-106-01:

- **Permanent Access Roads:** Gravel access roads will be constructed and utilized daily during construction and on an occasional basis during operations. Construction uses shall include moving crews to work areas, delivering equipment, driving vehicles for inspections, and other construction activities. Operational uses will only be for low-impact maintenance activities (i.e., providing access for mowing, equipment repair or maintenance, emergency vehicle access, etc.); and

The extents of proposed access roads, including indications of any existing access roads to be utilized, turn-around areas, and temporary road improvements for component deliveries are shown. Site entrance improvement details are included on Sheets MPS-C-106-02 through MPS-C-106-07. Proposed permanent access road widths are designed at 20 feet wide. The Facility contains a total of 60,186.10 linear feet (11.40 miles) of permanent access roads.

(c) Overhead and Underground Collection Plan for Solar Facilities

The Facility includes 82,553.19 linear feet (15.64 miles) of 34.5 kV collection lines within the Facility that will gather power from the inverters and transport it underground to the substation. Collection lines will be installed underground via trenching except for 30 locations where horizontal directional drilling (HDD) will be employed to avoid impacts to sensitive resources and road crossings. Collection lines have been co-located with access roads to the maximum extent practicable to reduce the extent of impacts within the Facility Site. There are no overhead collection lines proposed as part of the Facility. Specific details regarding collection lines are located on Sheet MPS-E-407-01 of the Design Drawings included in Appendix 5-1.

(d) Existing Utility and Interconnection Plan for Solar Facilities

The Facility will connect to the National Grid Marcy – New Scotland 345 kV transmission line. Adjacent to the existing National Grid transmission line, the Applicant proposes to construct a Point of Interconnection (POI) switchyard, which will be owned by National Grid. An overhead generation tie line of approximately 1,300 feet will connect the substation and POI switchyard. The substation is sited away from the switchyard to reduce sound and visual impacts on neighboring residences, and to reduce wetland impacts. The generation tie line spans several wetlands, avoiding pole locations within

wetlands boundaries, however one pole is located within a State wetland adjacent area. Conversely, installing a 345 kV generation tie line underground would require the installation of an underground concrete vault the length of the line, and the dredge and fill of multiple jurisdictional wetlands to install the vault. Interconnect details, including the location of the existing transmission line and proposed new transmission structures are shown on Sheets T-101-01 and T-102-01 of Appendix 5-1. Two existing underground fiber optic lines run through National Grid's right-of-way (ROW). They run parallel to each other on either side of the existing National Grid Marcy – New Scotland 345 kV transmission line. There are no pipelines mapped within the Facility Site.

(e) Limits of Disturbance for Solar Facilities

The limits of disturbance (LOD) for the Facility is 1,224.65 acres and includes the limits of all areas to be disturbed as part of the construction of the Facility, including locations of solar panels, and permanent access roads, collection lines, inverters, the substation and POI switchyard, and fence line. The LOD also includes areas that will be temporarily disturbed during construction including laydown yards and clearing limits.

(f) Clearing Limits for Solar Facilities

The vegetative clearing limits for the Facility are shown on Sheets MPS-C-101-01 through MPS-C-101-46 of Appendix 5-1. Vegetative clearing has been minimized to the maximum extent practicable for construction, placement of Facility components, and to prevent module shading during operation, and includes a total of 100.31 acres (87.80 acres will be cleared and grubbed, and 12.51 acres will be cleared with no grubbing). The Applicant acknowledges the importance of existing vegetation and performed several iterations of Facility design to preserve existing, natural vegetation to the maximum extent practicable. Throughout the Facility Site, the Applicant incorporates existing vegetation for natural screening in consideration of public roads, adjacent residences, and other sensitive receptors.

(g) Interconnection Facilities and Setbacks for Solar Facilities

The substation, POI switchyard, and existing National Grid Marcy – New Scotland transmission line right of way (ROW) is depicted on aerial photography on Sheet T-101-01 of Appendix 5-1. The substation will be accessible via a new permanent access road off Ingersoll Road and adheres to Section 94-c setback requirements. Full details of the collection and interconnection design are in Appendix 5-3.

(h) Energy Storage Systems and Setbacks for Solar Facilities

No battery energy storage systems are proposed for the Facility.

(i) Site Security Features for Solar Facilities

A discussion of site security for the Facility is included in Section 6(b) of Exhibit 6 (Public Health, Safety and Security), including security features such as access controls, electronic security and surveillance, security lighting, and cyber system security. Additionally, a Site Security Plan detailing security features and risk mitigation measures has been included in Exhibit 6, Appendix 6-2. Security fencing will be placed around the perimeter of Facility components, inclusive of the substation and POI switchyard. For solar PV array areas, fencing will be agricultural style fencing and will be 8 feet in height. Fencing specific to the PV array areas is shown on Sheet MPS-C-105-01. For the substation and POI switchyard, fencing will be chain link and will be 8 feet in height with 1 foot of barbed wire, for a total of 9 feet in height. Fencing specific to the substation is shown on Sheet MPS-E-210-15. The locations of Facility fencing are shown on Sheets MPS-C-102-01 through MPS-C-102-46.

(j) Landscaping improvements for Solar Facilities

Appendix 5-2 include details of the Landscaping Plan for the Facility. The landscape drawings detail the location of proposed vegetative screening in relation to Facility components and adjacent sensitive receptors. As noted above, existing vegetation will be preserved to the maximum extent possible and will be incorporated into the Landscaping Plan. Additionally, Sheet MPS-L-102-01 includes general planting notes, details on plantings, and identifies the quantities and types of proposed tree, shrub, and grass species. No berms or retaining walls are proposed for the Facility.

(i) *Wind Facility Site Plan Drawings*

The proposed Facility is a solar facility. Therefore, this section is not applicable.

**(2) Design Detail Drawings**

The Applicant has provided the following typical design detail drawings within Appendix 5-1 as required by the Section 94-c regulations. The plans were prepared using AutoCAD Civil 3D design software and are generally presented at a scale of 1-inch equals 100 feet, with the exception of those intended to provide an overview of the Facility Site.

*(i) Typical Elevation Drawings*

Typical elevation drawings for the substation and interconnection facilities are included in Appendix 5-3 and described further in subsections 5(2)(i)(b) and (c) below. Drawings include the length, width, height, material of construction, color, and finish of all structures and fixed equipment as part of the Facility and are described by Facility component in the following sections. There will be a control house at the proposed substation (Sheet MPS-E-210-20 in Appendix 5-3) and an operations and maintenance (O&M) building (Sheet MPS-E-405-01 in Appendix 5-1).

(a) Wind Turbine Typical Elevation Drawings

The proposed Facility is a solar facility. Therefore, this subsection is not applicable.

(b) Switchyard Typical Elevation Drawings

Interconnection facilities include an approximately 1,300-foot generation tie line between the Facility's proposed substation and a new POI switchyard that will connect to the National Grid Marcy – New Scotland 345 kV transmission line. An elevation drawing for the interconnection line and proposed new transmission structures is included on Sheet HV-C.09.02 of Appendix 5-3, with additional details on Sheets HV-C.09.01, HV-C.09.03, and HV-E.15.01.

(c) Substation Typical Elevation Drawings

The Applicant has included drawings for the substation with this application (including fencing, gates, and all substation equipment). A general arrangement plan has been included in the elevation drawing set showing elevation mark pointers (arrows) with reference to associated elevation views (including views of all components of the substation). The general arrangement is included on Sheet HV-P.02.01 of Appendix 5-3, with additional electrical equipment elevations included on Sheet HV-P.02.02. The control house general arrangement and details are included on Sheets HV-P.14.01, HV-P.15.01, and HV-P.15.02.

(d) Energy Storage Typical Elevation Drawings

No battery energy storage systems are proposed for the Facility.

*(ii) Permanent Access Point Typical Elevation Drawings*

Each proposed permanent point of access and access type has been depicted in the design plans. Per Section 900-2.6(f) of the 94-c regulations, these drawings include a typical installation plan view, cross section and side view with appropriate dimensions (temporary

and permanent width(s)), and identification of materials to be used along with corresponding material thickness.

*(iii) Underground Infrastructure Typical Elevation Drawings*

Typical underground infrastructure/collection system details have been provided, including single and multiple circuit layouts with dimensions of proposed depth, trench width, level of cover, separation requirements between circuits, clearing width limits for construction and operation of the facility, LOD, required permanent ROW, and a description of the cable installation process. Appendix 5-1, Sheet Series MPS-E-400 and MPS-E-600 include details on the collection system and installation information. Medium voltage cable splice details have also been provided.

*(iv) Overhead Electric Transmission and Typical Elevation Drawings*

Details have been provided for typical overhead electric transmission lines, including a profile of the centerlines at an exaggerated vertical scale and typical elevation plans including height above grade and structure layouts. An elevation drawing for the interconnection line and proposed new generation tie line transmission structures is included on Sheet T-102-01 of Appendix 5-3, with additional details on Sheets MPS-T-101-01. There are no overhead medium voltage collection lines proposed for the Facility.

**(3) Compatibility of Wind Turbine with Existing Conditions**

The proposed Facility is a solar facility. Therefore, this section is not applicable.

**(4) Engineering Codes, Standards, and Guidelines**

The Applicant intends to conform to the below listed engineering codes, standards, guidelines, and practices to conform to during the planning, designing, construction, and operation of the Facility's solar arrays, electric collection system, substation, generation tie line, interconnection, and associated structures, as applicable:

- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Electrotechnical Commission (IEC)
- Insulated Cable Engineers Association (ICEA)
- American Society of Mechanical Engineers
- National Electric Code (NEC)
- National Electrical Safety Code (NESC)

- National Electric Manufacturers Association
- National Fire Protection Association (NFPA)
- Uniform Building Code
- United Laboratories
- American Iron and Steel Institute
- American Institute of Steel Construction
- International Building Code 2006
- American Association of State Highway and Transportation Officials (AASHTO) Standard for Aggregates
- American Society of Civil Engineers (ASCE)
- Federal Occupational Safety and Health Administration (OSHA) 1910.269
- American Concrete Institute (ACI)
- Rural Utilities Service (RUS) Bulletins

On February 2, 2023, the Applicant met in person with personnel associated with the Town of Glen Volunteer Fire Department (Glen Fire Department). At that time, the Glen Fire Department was introduced to the Facility layout, fence lines, fire access routes, fire breaks and buffers, fire access routes, and turnaround widths. The Applicant requested feedback on the Glen Fire Department personnel count, current equipment, local water source and needs, and mutual aid response from surrounding fire departments. At the time of filing this application, the Applicant did not receive feedback on this request from the Glen Fire Department.

On October 13, 2023, the Applicant e-mailed a copy of the draft Site Security Plan and the draft Safety Response Plan (Exhibit 6, Appendix 6-1 and 6-2, respectively) to the Glen Fire Department. October 19, 2023, via phone call, the Applicant consulted with the Glen Fire Department, which noted that they had reviewed the draft Site Security Plan and the draft Safety Response Plan, and had no comments or questions, and did not feel the need to meet in person to discuss them further.

**(5) Design, Safety, and Testing of Equipment**

The Applicant intends to utilize a module similar to the LONGi LR5-72HBD 540W module with Anti-Reflection Coating. The Applicant proposes to install solar modules on a tracker racking system similar to the Nextracker Horizon NXT system, which will be installed with minimal ground disturbance via driven posts. A specification sheet for the modules and tracking system have been included as Appendix 5-4. The collection system will include an

underground collection system to connect the solar modules to the inverters and ultimately to substation. The Applicant intends to use an Sungrow SG4400 and Sungrow SG3300 inverter, or a similar inverter. A specification sheet for these inverters has been included in Appendix 5-4.

All Facility components including the solar modules, collection system, inverters, substation, generation tie line, and interconnection systems have been designed to meet the specifications that are provided by the manufacturer of each component and specifications listed in Section 5(f)(4) above. All systems will be tested prior to commercial operation of the Facility and to ensure components are functioning properly.

**References:**

Town of Glen. 2022. Solar Energy Facilities Law of the Town of Glen. Available at: [https://www.co.montgomery.ny.us/web/municipal/glen/documents/FinalAdoptedSolarLaw-5\\_2022.pdf](https://www.co.montgomery.ny.us/web/municipal/glen/documents/FinalAdoptedSolarLaw-5_2022.pdf). Accessed August 2023.