



GARNET ENERGY CENTER

INVASIVE SPECIES

MANAGEMENT AND CONTROL PLAN

Facility Operator:

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**Garnet Energy Center
Invasive Species Management and Control Plan
For Construction Activities and Post-Construction Monitoring**

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Attachment A. New York State Prohibited and Regulated Invasive Plants, September 10, 2014

1.0 Introduction

Garnet Energy Center, LLC (the Applicant) proposes to construct a solar energy center, the Garnet Energy Center (the Garnet Energy Center or the Project), in the Town of Conquest, Cayuga County, New York. The Project will consist of a 200-megawatt (MW) solar energy center, as well as a 20 MW/four-hour duration energy storage system, located on land leased from a private landowner. Project components include commercial-scale solar arrays, access roads, inverters, fencing, buried electric collection lines, and electrical interconnection facilities.

The Project consists of a patchwork of agricultural land and forest ecological communities, with successional old-field and wetland communities interspersed throughout. Construction activities will result in vegetation clearing and soil disturbance in the immediate vicinity of the proposed solar arrays, access roads, electrical collection lines, and associated infrastructure.

Invasive vegetative species are of special concern and their spread may cause environmental, human health, or economic harm. For example, invasive species often out-compete native species, because invasive species may lack control mechanisms in their new habitat, which are present in their native habitats. The result can be a rapid spread of invasive species populations, which can alter ecological communities and diminish biological diversity. Normal dispersal methods for invasive plant species include wind, water, wildlife, and vegetative propagation; however, anthropogenic means of spread (e.g., construction activity) are of interest in this Invasive Species Management and Control Plan (ISMCP) for plants. Because invasive plant species will readily spread in disturbed areas, construction activities related to the Project have the potential to accelerate their distribution and are the primary focus of this ISMCP.

1.1 Goals and Objectives

The intention of the ISMCP is to outline a clear plan to minimize the spread of invasive species that are present within the Project Area, or which may be introduced from off site. To prevent their spread, it is necessary to identify the existing invasive species within the Project Area and develop a plan to monitor and control the species during construction, restoration, and operation. The goal of the ISMCP is to maintain a zero percent increase in invasive species distribution and coverage within the Project Area.

Invasive species are regulated by the New York State Department of Environmental Conservation (NYSDEC) pursuant to Environmental Conservation Law (ECL) Sections 9-1709 and 71-0703. Regulations under Part 575 of 6 NYCRR restrict the sale, purchase, possession, propagation,

introduction, importation, and transport of invasive species. This ISMCP is being developed in accordance with this regulation, to prevent the introduction of new, and spread of existing, invasive species within the Project Area.

2.0 Invasive Plant Species Identified within Project Area – Baseline Survey

Results

As part of the Project field efforts, ecological resource surveys were conducted for the Garnet Energy Center in the summer and fall of 2020. During the ecological resource surveys and wetland and stream delineations, TRC biologists documented occurrences of invasive species within the Project Area to be utilized as a baseline survey for future monitoring efforts (see Figures 22-1 and 22-2 of the Article 10 Application). Prior to initiating the field effort, field biologists reviewed the priority list of invasive species for the region and key identifying characteristics using the ImapInvasives website. While conducting field surveys, TRC biologists recorded observations of invasive plants and animals. Stands of invasive plants were recorded when a species was present at a concentration of 10 percent or greater over an area of 100 square feet or greater, or if it was a species of concern for even a single plant, e.g., giant hogweed (*Heracleum mantegazzianum*). If plant species meeting criteria were identified, then a point was taken using the GPS and the observed species, concentrations of the species, and area affected were noted. When priority invasive animals were observed, a similar process was followed to document the approximate location of the species, behaviors observed (if applicable), and the number of individuals observed. This data was used to generate maps depicting the locations of occurrences of invasive species throughout the Project Area (see Figures 22-1 and 22-2 of the Article 10 Application).

As part of the field efforts, TRC identified 144 invasive vegetative species, which are listed as prohibited on the *Prohibited and Regulated Invasive Plants* list published by the NYSDEC on September 10, 2014 (see Attachment A) or listed as a priority invasive according to the Finger Lakes PRISM. Inclusion on the prohibited list means that they cannot be possessed, sold, imported, purchased, transported or introduced and therefore, construction activities which would knowingly cause distribution of these species is prohibited.

The following invasive plant species were identified within the Project Area:

- Autumn olive (*Elaeagnus umbellata*)
- Canada thistle (*Cirsium arvense*)

- Common buckthorn (*Rhamnus cathartica*)
- Common reed (*Phragmites australis*)
- European buckthorn (*Rhamnus cathartica*)
- European Frogbit (*Hydrocharis morsus-ranae*)
- Garlic mustard (*Alliaria petiolata*)
- Hydrilla (*Hydrilla verticillata*)
- Morrow's honeysuckle (*Lonicera morrowii*)
- Multiflora rose (*Rosa multiflora*)
- Pale swallow-wort (*Cynanchum rossicum*)
- Purple loosestrife (*Lythrum salicaria*)
- Reed manna grass (*Glyceria maxima*)
- Yellow iris (*Iris pseudacorus*)

3.0 Invasive Insect Species in Vicinity of the Project Area

As previously mentioned, TRC biologists documented observed occurrences of invasive species within the Project Area during ecological resource survey field efforts. During the survey, numerous dead and dying ash trees (*Fraxinus* spp.), were observed, indicating the likely presence of emerald ash borer (EAB) (*Agrilus planipennis*), a Tier 4 Local Control invasive insect within the Finger Lakes PRISM. Additional information regarding the emerald ash borer is presented below.

3.1 Emerald Ash Borer (*Agrilus planipennis*)

The EAB is an invasive beetle, native to Asia, which was first identified in the United States in 2002 (in Michigan). In New York, the EAB was first identified in Cattaraugus County in 2009, and has now spread to more than 30 counties within New York, including Cayuga County (NYSDEC, 2017b). This insect infects ash trees and causes tree canopy dieback, yellowing and browning of leaves, leading to death of infected trees within two to four years (NYSDEC, 2017b).

The EAB has a one-year life cycle and four stages of life: adult, egg, larva and pupa. The EAB emerges from beneath the bark of ash species, beginnings in late-May or early-June (NYIS, n.d.), with the adult flight season complete by early August. The adult life span is approximately three weeks and the adults are most active during the day in sunny, warm weather. In wet or cooler



Photo 1. Emerald ash borer adult (NYSDEC, 2017b).

weather, adult EAB shelter beneath the bark of ash trees (NYIS, n.d.).

New York State has implemented programs to help with early detection of EAB to prevent the spread. All of Cayuga County is included in the May 2017 Restricted Zone for the EAB. Restricted Zones include quarantines around known EAB infestations. Within these zones, regulated articles may not be removed from the zone without a compliance agreement or permit from the New York State Department of Agriculture and Markets (NYSDAM). These permits are applicable only during the non-flight season of the EAB, which is between September 1 and April 30 (NYSDEC, 2017b). Regulated articles include ash wood, ash logs, untreated ash firewood, ash nursery stock, and wood chips (only between April 15 and May 15). Additionally, in accordance with 6 NYCRR Part 575 (Prohibited and Regulated Invasive Species), the EAB itself may not be moved in any life stage, unless for management, control, identification or disposal (NYSDEC, 2017b).

The Project will comply with the Restricted Zone requirements and will contact the NYSDEC's Firewood and Invasive Insects Hotline at (866) 640-0652 if a suspected infestation or sighting is identified as part of the Project. Additionally, the Project will not transport ash products offsite.

3.2 Spotted Lanternfly (*Lycorma delicatula*)

The spotted lanternfly (SLF) (*Lycorma delicatula*) is a plant hopping insect native to Asia and first identified in Pennsylvania in 2014. The SLF has since been found in Connecticut, New Jersey, Delaware, Maryland, Virginia, and New York. In New York, SLF has been identified on Staten Island, Port Jervis, Sloatsburg, Orangeburg, and Ithaca (AGM, n.d.). The SLF is a threat to both wood and non-woody hosts that are present throughout the United States. The greatest agricultural concern is for grapes, hops, apples, blueberries, and stone fruits.

SLF is a threat to agricultural and forest health due to the wide range of plant species they attack. Adults and nymphs feed on the sap of more than 70 plant species. The stress on the plants makes them vulnerable to disease and attacks from other insects. Additionally, the SLF excrete large amounts of sticky "honeydew," which attracts sooty molds that interfere with plant photosynthesis and negatively affects the growth and fruit yield (NYSDEC, n.d.).

SLF nymphs can be seen as early as April and are black with white spots and turn red before transitioning into adults. Adults begin to appear in July and are approximately 1 inch long and ½ inch wide at rest, with eye-catching wings (see Photo 2). Their forewings are grayish with black spots. The lower portions of their hindwings are red with black spots and the upper portions are dark with a white stripe. In the fall, adults lay 1-inch-long egg masses on nearly anything from tree trunks and rocks to vehicles and firewood. They are smooth and brownish-gray with a shiny, waxy coating when first laid (NYSDEC, n.d.).



*Photo 2. Spotted Lanternfly adult
(NYSDEC, n.d.)*

Infestations can be identified by sap oozing or weeping from open wounds on tree trunks, one-inch-long egg masses that are brownish-gray, waxy and mud-like when new, and large honeydew build-up under plants, sometimes with black sooty mold (NYSDEC, n.d.).

SLF are spread primarily through human activity when eggs are inadvertently transported to new areas on vehicles, firewood, outdoor furniture, and stones. In response to the continuing spread of SLF in New York, NYSDEC, along with New York State Department of Agriculture and Markets (AGM) and US Department of Agriculture (USDA), have developed a plan to detect and prevent further spread of SLF. This plan includes trapping surveys in high risk areas, as well as inspections of nursery stock, stone shipments, and commercial transports. AGM has issued a quarantine to restrict the movement of goods into NY from quarantined areas of Delaware, New Jersey, Pennsylvania, Maryland, and Virginia. NYSDEC has also established a Protective Zone encompassing 20 counties near PA and NJ infestations to allow NYSDEC and partners to conduct surveying, monitoring, and management to prevent the spread of SLF. Cayuga County is not included in the 20 counties in the Protective Zone (NYSDEC, n.d.).

If there is a suspected infestation identified, the Certificate Holder will take pictures of the insect, egg masses and/or infestation signs and send an email to spottedlanternfly@agriculture.ny.gov and/or spottedlanternfly@dec.ny.gov. The Certificate Holder will also notify DPS if SLF if an infestation is suspected or identified. An online form is also available through AGM's website (<https://survey123.arcgis.com/share/a08d60f6522043f5bd04229e00acdd63>) to report the infestation and location.

4.0 Control Measures – Best Management Practices

To prevent introduction and spread of the listed species, the following best management practices (BMPs) will be enacted by the Applicant over the course of the Project construction and as part

of the post construction monitoring effort. These BMPs can be grouped into four main categories, including: material inspection, targeted species treatment and removal, sanitation, and restoration. Within each category, specific actions or combinations thereof can be taken depending on characteristics of a species and its density within the target area.

1. **Material Inspection:** Material inspection includes the use of products such as seed, mulch, topsoil, fill, sand, and stone that are free of invasive species. Movement of these materials both into and out of the Project Area will be limited to minimize the possibility of spreading invasive species. Importation of these materials will be limited by reusing excavated products to the maximum extent practicable. Imported construction materials will be obtained from reputable sources and thoroughly inspected for the presence of invasive species prior to transportation or use on the site. Materials will be used as quickly as possible to limit the amount of time they are stockpiled.
2. **Targeted Species Treatment and Removal:** Targeted removal is used in instances where invasive species are encountered during construction and cannot be avoided. Removal in that instance would prevent spread of the species to other areas of the Project Area. Targeted removal includes options such as hand-pulling, burning, cutting, burying, excavating, or herbicide application which will either kill, or limit the ability of a species to propagate. Herbicide application, if deemed necessary, shall be carried out in accordance with Part 325 of 6 NYCRR, Application of Pesticides. Removal methods will be determined based on the species and density of the encountered invasive. Invasive species that are removed will be either left in the infested area, or placed in a secure container for proper disposal offsite.
3. **Sanitation:** As it relates to invasive species control, sanitation includes the cleaning of clothing and equipment prior to movement or use within the Project Area. Seeds and viable plant parts can easily be transported to different locations on clothing and equipment. When working in an area known to have invasive species present, washing stations will be established to thoroughly clean machinery and clothing. It is important to note that cleaning will be conducted both prior to equipment arriving on site and prior to it leaving, to prevent the spread of invasive species on and off the work site within the Project Area.
4. **Restoration:** Invasive species spread most readily in disturbed soil. Stabilizing the site quickly will limit the amount of time that invasive species have to get established in a

particular area. Therefore, once construction is complete, disturbed areas will be regraded and stabilized (with seed and mulch) as quickly as possible. Once the site is regraded, native seed mixes will be applied along with seed-free mulch to reestablish vegetative cover. BMPs will also be implemented in accordance with the Stormwater Pollution Prevention Plan to prevent erosion and limit the potential for transport offsite of invasive species bearing soil.

5.0 Monitoring

Prior to the start of construction, the Applicant, in coordination with the Environmental Monitor, will conduct mandatory environmental training sessions for contractors and subcontractors before they begin work on the Project. The purpose of this training will be to explain the environmental compliance program in detail and assure that all personnel on site are aware of the environmental requirements for construction of the Project. Additionally, crews will be educated regarding the contents of the ISMCP to ensure that their activities on site comply with the BMPs outlined in Section 4.0 and that they are familiar with the invasive species present as outlined in Sections 2.0 and 3.0. Monitoring will be conducted throughout the duration of the Project to ensure that the ISMCP is being implemented appropriately and that the goals outlined in it are being met. It is important to note that invasive species identified on site prior to construction are likely to spread even in the absence of further human intervention. It is therefore necessary to distinguish between natural movement of invasive species and anthropogenic movement caused by Project related construction activities. The ISMCP goal of a zero-net increase in the number of invasive species present and their distribution in the Project Area is based on the latter.

Post-construction invasive species monitoring will be conducted for a period of no less than five years following completion of Project related construction activities on site. More specifically, Garnet Energy Center, LLC proposes that the post-construction monitoring of invasive species will be conducted in year one, year three, and year five following completion of construction and restoration. This is to ensure that ISMCP goals are met, as germination and spread of invasive species can continue after construction activities have concluded. To achieve the goal of a zero-net increase in the number of invasive species present in the Project Area and no new locations of existing invasive species in the Project Area resulting from Project construction or operation, the Post-construction Monitoring Plan and Adaptive Management Plan (if necessary) will be based on the recommendations of the invasive plan species baseline survey. A qualified biologist, on behalf of the Applicant, will monitor the area to determine the movement of invasive species through a visual inspection and comparison to the baseline survey conducted (see Sections 2

and 3, above). If the spread or new occurrences of invasive species is observed by the qualified biologist, these instances will be treated in accordance with the control measures listed above, as deemed appropriate based on the characteristics of the invasive species. Interim reports will be produced for each year of monitoring, and a final report will be prepared detailing the success of the ISMCP. Reports will be provided to the NYSDEC, DPS, and New York State Department of Agriculture and Markets (AGM). Evaluation of measures implemented will be completed following each monitoring period, and an adaptive management plan will be employed where appropriate to ensure objectives of the ISMCP are met. Failure to meet the goals of the ISMCP will result in revision of the control plan and extension of the post construction monitoring phase for a period of two years from implementation of the revised plan. If it is determined that the goals of the 5-Year post-construction monitoring plan are not being met, DPS, NYSDEC, the AGM, and the Applicant can meet to determine appropriate adaptive management actions, revisions to the post-construction monitoring plan, or mitigations measures, as necessary.

6.0 References

- New York Invasive Species Information (NYIS). n.d. Emerald ash borer (*Agrilus planipennis*). Accessed March 2020. http://nyis.info/invasive_species/emerald-ash-borer/
- New York State Department of Agriculture and Markets (AGM). Spotted Lanternfly. Accessed June 2021. <https://agriculture.ny.gov/spottedlanternfly>
- NYIS. 2019a. Common Reed. Accessed January 2021. http://nyis.info/invasive_species/common-reed/.
- NYIS. 2019b. Multiflora Rose. Accessed January 2021. http://nyis.info/invasive_species/multiflora-rose/.
- New York State Department of Environmental Conservation (NYSDEC). 2017a. PRISM. Accessed January 2019. <http://www.dec.ny.gov/animals/47433.html>
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- NYSDEC. N.d. Spotted Lanternfly (ALF). Accessed June 2021. <https://www.dec.ny.gov/animals/113303.html>