EAST POINT ENERGY CENTER

INVASIVE SPECIES

MANAGEMENT AND CONTROL PLAN

Contents

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1.0 Introduction

East Point Energy Center, LLC (East Point Energy Center or Applicant), a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC (NextEra), is planning to construct, operate, and maintain the East Point Energy Center, a proposed 50 MW solar energy generation project located in the Town of Sharon, Schoharie County, New York (the Project). Project facilities will include commercial-scale solar arrays, access roads, buried electric collection lines, and electrical interconnection facilities. Interconnection facilities will include a 69-kV switchyard, which will be transferred to National Grid to own and operate. The proposed collection substation and interconnection facilities will be located on land within the Project Area, in relative proximity to National Grid's existing Sharon – Marshville 69 kV transmission line, which is adjacent to the existing Sharon substation.

The Project consists of rolling hills and is a patchwork of agricultural land, forests, successional old-field, and wetland ecological communities. 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 a concern because they are not native to the area, and their spread is likely to cause some degree of environmental, human health, or economic harm. Additionally, invasive insect species can alter ecosystems and destroy native vegetation. For example, invasive species will often out-compete native species because they may lack control mechanisms that 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, and wildlife; however, anthropogenic means of spread (e.g., construction activity) are of particular 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. 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 Priority Invasive Plant Species within Region

The Project Area is located within the Catskills Regional Invasive Species Partnership (CRISP) Partnership for Regional Invasive Species Management (PRISM). There are eight PRISMs within New York State, each of which is made up of resource managers, non-governmental organizations, industry, resource users, citizens and other state agencies and stakeholders (NYSDEC, 2017a). The PRISMs were enacted under Title 17, ECL 9-1705(5) (g). The CRISP PRISM prioritizes invasive species based on the ability to perform prevention, early detection, and control efforts separates them into five tiers: Tier 1 Early Detection/Prevention, Tier 2 Eradication, Tier 3 Containment, Tier 4 Local Control, and Tier 5 Monitor. Tier 1 Early Detection/Prevention represents the highest level of early detection survey efforts. Tier 2 Eradication represents the highest level of early detection response effort and eradication is feasible. Tier 3 Containment represents invasive species that are likely too widespread for eradication and therefore require strategic management to slow their spread. Eradication is possible of Tier 3 Containment invasive species only if there are adequate resources and effective control methods. Tier 4 Local Control means eradication is not possible within the PRISM and therefore strategic localized management is necessary to protect high-priority resources from these invasive species. Tier 5 Monitor represents species that require more research, mapping, and monitoring to better understand their invasiveness (CRISP PRISM, 2018).

The CRISP PRISM identifies the following terrestrial plants as Tier 1 Early Detection/Prevention invasive species:

- Hardy Kiwi (*Actinidia arguta*)
- Silver Vine (*Actinidia polygama*)

- Small Carpetgrass (*Arthraxon hispidus*)
- Slender Falsebrome (*Brachypodium sylvaticum* ssp. *sylvaticum*)
- Incised Fumewort (*Corydalis incisa*)
- Scotch Broom (*Cytisus scoparius*)
- Parrot Feather (*Myriophyllum aquaticum*)
- Amur Corktree (*Phellodendron amurense*)
- Oriental photinia (*Photinia villosa*)
- Kudzu (*Pueraria montana* var. *lobata*)
- Rusty Willow (*Salix atrocinerea*)
- European Gray Willow (*Salix cinerea*)
- Sticky Sage (*Salvia glutinosa*)
- Cup-plant (*Silphium perfoliatum* var. *perfoliatum*)
- Linden Arrowwood (*Viburnum dilatatum*)
- Japanese Snowball (*Viburnum plicatum*)
- Oak Wilt (*Ceratocystis fagacearum*)

The following terrestrial plants are considered Tier 2 Eradication invasive species by the CRISP PRISM:

- Sycamore Maple (Acer pseudoplatanus)
- Five-leaf Akebia (Akebia quinata)
- Porcelain Berry (Ampelopsis brevipedunculata)
- Japanese Angelica Tree (Aralia elata)
- Narrowleaf Bittercress (Cardamine impatiens)
- Carline Thistle (Carlina vulgaris)
- Japanese Virgin's bower (Clematis terniflora)
- Daphne (Daphne mezereum)
- Cut-leaf Teasel (Dipsacus laciniatus)
- Lesser celandine (Ficaria verna ssp. verna)
- Japanese Hops (Humulus japonicus)
- Chinese Silver Grass (Miscanthus sinensis)
- Princess Tree (Paulownia tomentosa)
- Mile-a-minute Weed (Persicaria perfoliata)
- Bohemian knotweed (Reynoutria x bohemica)

- Black Jetbead (Rhodotypos scandens)
- Wineberry (Rubus phoenicolasius)
- Japanese Tree Lilac (Syringa reticulata)

The following terrestrial plants are considered Tier 3 Containment invasive species by the CRISP PRISM:

- Black Swallow-wort (Cynanchum louiseae)
- Cypress Spurge (Euphorbia cyparissias)
- Leafy Spurge (Euphorbia esula)
- Glossy Buckthorn (Frangula alnus)
- Giant Hogweed (Heracleum mantegazzianum)
- Policemen's Helmet (Impatiens glandulifera)
- Yellow Iris (Iris pseudacorus)
- Border Privet (Ligustrum obtusifolium)
- Amur Honeysuckle (Lonicera maackii)
- Garden Loosestrife (Lysimachia vulgaris)

The following terrestrial plants are considered Tier 4 Local Control invasive species by the CRISP PRISM:

- Norway Maple (Acer platanoides)
- Tree-of-heaven (Ailanthus altissima)
- Garlic Mustard (Alliaria petiolata)
- Wild Chervil (Anthriscus sylvestris)
- Mugwort (Artemisia vulgaris var. vulgaris)
- Japanese Barberry (Berberis thunbergii)
- Oriental Bittersweet (Celastrus orbiculatus)
- Spotted Knapweed (Centaurea stoebe spp. micranthos)
- Canada Thistle (Cirsium arvense)
- European Marsh Thistle (Cirsium palustre)
- Autumn Olive (Elaeagnus umbellata)
- Burning Bush (Euonymus alatus)
- Japanese Honeysuckle (Lonicera japonica)

- Morrow Honeysuckle (Lonicera morrowii)
- Unknown Honeysuckle (Lonicera spp.)
- Tartarian Honeysuckle (Lonicera tatarica)
- Fly Honeysuckle (Lonicera x bella)
- European Fly-honeysuckle (Lonicera xylosteum)
- Purple Loosestrife (Lythrum salicaria)
- Japanese Stiltgrass (Microstegium vimineum)
- Wild Parsnip (Pastinaca sativa)
- Reed Canarygrass (Phalaris arundinacea)
- Common Reed (Phragmites australis)
- Japanese Knotweed (Reynoutria japonica var. japonica)
- Common Buckthorn (Rhamnus cathartica)
- Black Locust (Robinia pseudoacacia)
- Multiflora Rose (Rosa multiflora)

2.1 Invasive Plant Species Identified within Project Area

As part of the ecological resource survey field efforts performed for the East Point Energy Center in the summer of 2017, spring/summer of 2018, and spring 2019, TRC biologists documented observed occurrences of invasive species within the Project Area. As part of the field efforts, TRC identified 12 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 CRISP 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 in low densities throughout the Project Area:

- Black Locust (*Robinia pseudocacia*)
- Canada Thistle (*Cirsium arvense*)
- Common Buckthorn (*Rhamnus cathartica*)
- Curly Pondweed (*Potamogeton crispus*)
- Garlic Mustard (*Alliaria petiolata*)
- Glossy Buckthorn (*Frangula alnus*)

- Japanese Barberry (*Berberis thunbergii*)
- Leafy Spurge (*Euphorbia esula*)
- Morrow Honeysuckle (*Lonicera morrowii*)
- Multiflora Rose (*Rosa multiflora*)
- Oriental Bittersweet (*Celastrus orbiculatus*)
- Purple loosestrife (*Lythrum salicaria*)

All of the invasive species identified within the Project Area are listed as Tier 3 Containment or Tier 4 Local Control invasive plant species on the CRISP PRISM regional invasive species list. There were two Tier 3 invasive plant species: glossy buckthorn and leafy spurge. Due to their regional significance and priority listing, these species are discussed in further detail below.

2.2 Glossy Buckthorn (*Frangula alnus*)

This species is listed as a Tier 3 Containment invasive plant species within the CRISP PRISM. This species of deciduous shrub is endemic to Eurasia. This species was first introduced to North America in the 1880's but did not become widespread until the early 20th century. Glossy buckthorn leafs out early in the spring and retains its leaves through the fall, thus shading out native shrubs. Throughout the early 20th century, this species was planted as an ornamental and for wildlife food and cover as part of conservation plantings (MDNR, 2012; NRCS, n.d.; NYIS, 2008).

Glossy buckthorn establishes dense, even-aged thickets that crowd out native shrubs and herbs. These dense thickets can fill in canopy gaps in forests and inhibit native tree saplings from reaching maturity. Glossy buckthorn grows best on moist sunny sites, including wetlands, pastures, roadsides, open woods. Glossy buckthorn is an alternate host for alfalfa mosaic virus and crown fungus, which causes oak rust. Plants mature quickly and can produce seed-bearing fruits when they are less than 1 m tall. Plants that have been top-killed can produce fruit on new shoots within the same season. This plant is a prolific fruit producer and the fruits are widely dispersed by birds and mammals (MDNR, 2012; NRCS, n.d.; NYIS, 2008). Mechanical control methods include grubbing or pulling seedlings and mature shrubs. Cutting alone is not recommended as it

Photo 1. Glossy Buckthorn (USDA NRCS)

may lead to vigorous re-sprouting. Winter clipping can encourage vigorous re-sprouting. It is recommended to cut or pull glossy buckthorn at least twice a year for 3–5 years. Grubbing or pulling by hand is appropriate where herbicides cannot be used and for small populations. Mechanical control is impractical in larger, more well-established populations with mature shrubs, but may effectively supplement the use of herbicide. Chemical controls are advised for large and well-established stands of glossy buckthorn. Factors that should be considered when selecting an herbicide for use on a particular site include proximity to water or wetlands, presence or absence of desirable native vegetation, potential for erosion and the effectiveness of the herbicide under consideration on glossy buckthorn. Because glossy buckthorn remains green much later than many native species, fall treatment may minimize damage to other native plants. A treatment of cutting followed by herbicide application to stumps in the winter has proven to be effective (MDNR, 2012; NRCS, n.d.; NYIS, 2008; Reinartz, 1997).

Within the Project Area, glossy buckthorn was primarily identified in areas of shrubland adjacent to agricultural land. As this species can aggressively spread and outcompete native species in disturbed areas, it is important to ensure that disturbed areas as a result of the Project are not populated by this species during the restoration phase and that early recognition of the plants at the earliest stages of invasion occur for proper management.

2.3 Leafy Spurge (*Euphorbia esula*)

Photo 2. Leafy Spurge (John M. Randall, The Nature Conservancy).

This species is listed as a Tier 3 Containment invasive plant species within the CRISP PRISM, and is an aggressive herb that colonizes abandoned cropland, pastures, woodland, and roadsides (NRCS, 2007). Seed capsules can explosively disperse the seeds up to 15 feet from the parent plant, and seeds may be dispersed even farther by water and wildlife. Seeds can survive at least seven years in the soil. Seedlings emerge in early spring, grow rapidly and are capable of regeneration as early as one week. (NRCS, 2007; NYIS, 2009). The extensive root system can reach 15 feet or more deep into the ground. Vegetative growth from crown buds, root buds, and root pieces allows leafy spurge to quickly occupy large areas. One study showed that leafy spurge can spread vegetatively at a rate of several feet per year (0.5–11 feet annually) (Gucker, 2010). Leafy spurge's vegetative growth is more of a contributing factor to its invasiveness as opposed to its seed germination rate (NRCS, 2007; NRCS, 2014; NYIS, 2009).

The mature leafy spurge is a perennial, clump-forming, broadleaf weed, growing 3 feet or taller in height (NRCS, 2007). The flowers are very small and lack sepals and petals but have yellow-green flared bracts. Stems appear woody when mature, giving leafy spurge a shrub-like appearance. The stem produces a white milky sap when damaged and this sap is toxic to some wildlife and livestock (NRCS, 2007; St. John & Tilley, 2014).

Leafy spurge is an aggressive competitor and often outcompetes native species for access to light, nutrients, and soil moisture (NYIS, 2009). Once established, this species can spread rapidly and will often displace native grasses and forbs. One study found leafy spurge able to produce stands with up to 2,000 shoots per square meter (Biesboer & Eckardt, 1996).

Mechanical control methods of leafy spurge, including cutting, mowing, pulling, and grubbing are largely ineffective at eradicating leafy spurge. Hand pulling and grubbing are ineffective because of leafy spurge's extensive root system. Repeated hand cutting or mowing can be effective at reducing seed production if repeated every 2–4 weeks during the growing season (NRCS, 2007; NYIS, 2009).

Chemical control with herbicides has been proven to be the most effective method of controlling small, newly formed infestations of leafy spurge. The most effective herbicide at controlling leafy spurge is Picloram (Tordon 22K) and its application is most effective in the fall. Effective chemical control typically requires several years of application. Chemical control of large, well established stands of leafy spurge with herbicides alone has not been proven to be very successful. The plant's extensive root system is able to purge chemicals from herbicide application (Gucker, 2010; St. John & Tiley, 2014).

Biological control of large stands leafy spurge has been proven successful. Grazing with sheep or goats in combination with herbicide application or releasing host-specific insects is effective at controlling leafy spurge. Five species of flea beetles (*Apthona* spp.) are the most successful agents for leafy spurge control.

Within the Project Area, leafy spurge was primarily identified in upland habitat. As this species can propagate from fragments of roots in the soil, it is important to ensure that propagule and seeds are not transmitted within and out of the Project Area.

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. No invasive insect species, or signs of infestation, were observed as part of this field effort; however, one insect species, the emerald ash borer (*Agrilus planipennis*) is listed as a Tier 4 Local Control invasive insect within the CRISP PRISM. Additional information regarding this species is presented below.

3.1 Emerald Ash Borer (*Agrilus planipennis*)

The emerald ash borer (EAB) (*Agrilus planipennis*) 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, including Schoharie County (NYSDEC, 2017b). This insect infects ash (*Fraxinus* spp.) 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 tree 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 weather, adult EAB shelter beneath the bark of ash trees (NYIS, n.d.).

Photo 5. Emerald ash borer adult (NYSDEC, 2017b).

New York State has implemented programs to help with early detection of EAB to prevent the spread, and all of Schoharie 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, ash firewood (untreated), 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.

4.0 Control Measures

To prevent introduction and spread of the listed species, management actions 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 particular 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 should be limited to minimize the possibility of spreading invasive species. Importation of these materials should be limited by reusing excavated products to the maximum extent practicable. Imported construction materials should be obtained from reputable sources and thoroughly inspected for the presence of invasive species prior to transportation or use on the site. Materials should be used immediately 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 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 should 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 should be established to thoroughly clean machinery and clothing. It is important to note that cleaning should be conducted both prior to equipment arriving on site and prior to it leaving, to prevent the spread of invasive species onto and off of work site within the Project Area.

4. **Restoration:** Invasive species spread most readily in disturbed soil and 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 should be regraded and stabilized (with seed and mulch) as quickly as possible. Once the site is regraded, native seed mixes should be applied along with seed free mulch to reestablish vegetative cover. Best management practices (BMPs) should also be implemented in accordance with the Stormwater Pollution Prevention Plan to prevent erosion and limit the potential for spread of invasive species bearing soil offsite.

5.0 Monitoring

Prior to the start of construction, crews should be educated regarding the contents of the ISMCP to ensure that their activities on site comply with the BMPs outlined in it. Monitoring should 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 activities on site. More specifically, East Point 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 long after construction activities have concluded. Movement of invasive species, as identified by visual inspection of a qualified biologist, will be treated in accordance with the control measures

listed above, as deemed appropriate based on the characteristics of the invasive species. A final report will be prepared detailing the success of the ISMCP. 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.

6.0 References

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Attachment A

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