

INVASIVE SPECIES CONTROL PLAN

FOR CONSTRUCTION ACTIVITIES AND POST CONSTRUCTION MONITORING

INTRODUCTION

Copenhagen Wind Farm, LLC is proposing to develop a wind-powered electric generating facility (the Project) in the Town of Denmark, Lewis County, New York. The Project is anticipated to include up to 49 wind turbines with a rated capacity of 1.6 megawatts (MW), for a total generating capacity up to 79.9 MW. In addition, the Project will also involve construction of approximately 17 miles of gravel access roads, approximately 24 miles of 34.5 kV electrical collector lines, a substation/switchyard, three permanent 100-meter (328 feet) tall meteorological towers, a temporary construction staging area, and an operations and maintenance building. The Project also includes a proposed 9-mile, 115-kilovolt (kV) transmission line that will be located in the Towns of Champion, Rutland, and Watertown, in Jefferson County, New York. Land use within the Project area is dominated by active and reverting agricultural land. With the exception of the Village of Copenhagen, the area surrounding the Project is primarily undeveloped, with farms and rural residences interspersed along area roadways.

Approximately 2.9 acres of temporary disturbance is anticipated at each proposed wind turbine site, which will include vegetation clearing (if necessary) and soil disturbance of a 200-foot radius around each turbine site for turbine construction and rotor assembly. The permanent width of access roads will be a maximum of 20 feet, although during construction a 40 foot-wide road corridor cleared of vegetation will be required for crane movement. The collection lines will be installed within a trench three to four feet-deep, and will require a construction corridor with a maximum width of 25 feet. The total area of disturbance associated with the substation/switchyard and temporary construction areas is expected to be 11 acres in total. All proposed Project facilities will be located within the Town of Denmark in Lewis County and Towns of Champion, Rutland, and Watertown in Jefferson County.

Wetland and stream corridors are a sensitive resource in the Project area. Construction activities will disturb these resources as a result of a culvert replacement and upgrade, access road construction, buried electrical line installation, and earthwork activities. A potential threat to wetland and stream resources is the risk of introduction or spread of invasive vegetative species, through the movement of topsoil, fill, gravel, construction equipment. Such activities will occur during both construction and restoration phases of the Copenhagen Wind Farm.

An invasive species is an organism that has been purposefully or accidentally introduced outside its original geographic range, and is able to proliferate and aggressively alter its new environment, potentially causing harm to the economy, environment, or human health. Invasive plant species spread in a number of different ways. Dispersal mechanisms include wind, water, wildlife, vegetative reproduction, and human activity. Populations of invasive

species typically establish most readily in places where the ground has been disturbed, thereby exposing the soil. The Copenhagen Wind Farm will utilize an Invasive Species Control Plan (ISCP) to minimize the spread of invasive species within federal and NYSDEC regulated wetlands, streams, and other riparian areas affected by wind development activities on-site.

PURPOSE AND GOAL

The purpose of the ISCP is to facilitate the identification, control, and monitoring of invasive vegetation within sensitive environmental areas, such as streams and wetlands. The goal of the ISCP is to prevent expansion of invasive species. Invasive plant control will be considered successful when 0% net increase in the aerial coverage of invasive species (compared to a baseline survey of the target area) is realized.

LAWS AND REGULATIONS

There are numerous federal laws that contain provisions for the control of invasive species, such as the Endangered Species Act, the Federal Plant Pest Act, the Federal Noxious Weed Act, and the Nonindigenous Aquatic Nuisance Prevention Act. Specific to the Copenhagen Wind Farm, the Federal law applicable to the management of invasive species is Section 404 of the Clean Water Act.

The Environmental Conservation Law and the Agriculture & Markets Law both authorize the NYSDEC and the NYS Department of Agriculture and Markets (NYSDAM) to regulate invasive species. Under the Agriculture & Markets Law, NYSDAM has the regulatory authority regarding the Inspection and Sale of Seeds (Article 9); Integrated Pest Management Program (Article 11); and Prevention and Control of Disease in Trees and Plants (Article 14). Under the Environmental Conservation Law, the NYSDEC has regulatory authority regarding Lands and Forests (Article 9) and Fish and Wildlife (Article 11). The Invasive Species Council (Council) is a statutory body that was created in 2008 by Title 17, Section 9 of the Environmental Conservation Law (ECL). The Council was created to coordinate among multiple State entities and partners in addressing the environmental and economic threats of invasive species. In June 2010, the Council released a report, *A Regulatory System for Non-Native Species*, which recommends a regulatory system for preventing the importation and/or release of non-native species. The recommended system would create the first-ever official lists of invasive species for New York State that would apply to all species of animals and plants. The proposed listing system is intended to ensure that harmful non-native species are not purposefully introduced for pets, nursery stock, food, or other human uses.

During the summer of 2012, the Governor signed legislation (Laws of 2012, Chapter 267), which provides the NYSDEC and NYSDAM with the authority to regulate the sale, purchase, possession, introduction, importation and transport of invasive species and establishes penalties for those who violate such regulations. The official State

listing of invasive species is still under development. However, in May 2012, the Council released a *Revised Interim List of Invasive Plant Species* (see Attachment A). The primary purpose of this list is to inform New York State agencies so they can incorporate invasive species management into their funding, regulatory, and other activities pursuant to ECL 9-1705 (b) and especially ECL 9-1709 (2).

This ISCP assumes that targeted invasive species are those included in the *Revised Interim List of Invasive Plant Species*. Ecological surveys conducted during the fall of 2012 identified the following invasive species within the Project area: reed canary-grass (*Phalaris arundinacea*), European common reed grass (*Phragmites australis*), garlic mustard (*Alliaria petiolata*), common buckthorn (*Rhamnus cathartica*), and Morrow's honeysuckle (*Lonicera morrowii*). As indicated above, a baseline survey will be conducted prior to construction to determine the aerial coverage of each invasive species within the target area.

PROPOSED CONTROL MEASURES

A central theme of the ISCP will be educating construction workers about invasive species and how to prevent their spread. This education will be accomplished through the various contractor-training sessions provided by the Environmental Monitor, which will occur as part of the Project's Environmental Compliance and Monitoring Program. Controlling the introduction and spread of the target species will be achieved through the implementation of an Invasive Species Control Plan (ISCP), which is proposed to consist of the following measures: 1) construction materials inspection; 2) target species treatment and removal; 3) construction equipment sanitation; and 4) restoration. Each of these measures is described in detail below:

1. **Construction Materials Inspection:** Construction material such as seed mixes, mulch, topsoil, sand, gravel, crushed stone, and rock brought to the Project area from an outside source will be free of invasive plant materials. In addition, during all aspects of construction, soil and/or spoil materials will only be temporarily stockpiled (i.e., will be spread and graded to match original contours following construction activities). Proper methods for segregating stockpiled and spoil material will be implemented, and excavated soil will be reused to the maximum extent possible on the site that it was excavated from, as a means to limit opportunities for proliferation of non-native flora and other invasive species. Appropriate sediment and erosion control measures (see Section 3.1 for additional information) will be implemented, which will ensure that temporarily stockpiled soil and/or spoil material will not result in significant sedimentation or turbidity to local surface waters. In addition, appropriate sediment and erosion control measures will eliminate the spread of invasive species from one area to another.

2. **Target Species Treatment and Removal:** If unavoidable areas containing target invasive species are encountered within regulated wetlands/streams, then appropriate treatment and removal methods will be conducted. Therefore, hand removal of all plant materials including root mass, rhizomes, and stolons would be performed within the Project's area of disturbance, followed by proper disposal. Specific disposal methods for removed plant material will be determined based on the density and quantity of invasive species encountered, and may include herbicide treatment, placement in an interim designated secure container, transport in a sealed container and proper offsite disposal in a designated secure container. Soil removal would adversely affect adjacent regulated areas by introducing disturbance and thereby promoting further spread of target invasive species. Therefore, soil removal is not considered a preferred method of control. Any herbicide spot treatments would be applied by a Certified Commercial Pesticide Applicator, Commercial Pesticide Technician, or a Private Pesticide Applicator (i.e., individuals that meet the requirements set forth in 6 NYCRR Part 325, Application of Pesticides), in accordance with NYSDEC approved herbicide and treatment measures.

3. **Construction Equipment Sanitation:** The introduction of non-native invasive plant species will be controlled by assuring that all construction equipment is clean upon arrival on site, and that equipment utilized in areas with an abundance of invasive species will be cleaned prior to moving to another site. The intent is that equipment should arrive at the site clean and leave the site clean. Equipment/clothing cleaning stations will be established to ensure that invasive species seeds and other viable plant parts cannot escape in runoff or through other means.

4. **Restoration:** Regulated wetland and stream areas that are temporarily impacted during construction will be stabilized and restored in accordance with the Project-specific Stormwater Pollution Prevention Plan. Following construction activities, temporarily disturbed areas will be seeded with a native seed mix to reestablish vegetative cover in these areas.

POST CONSTRUCTION MONITORING

Monitoring of the control of invasive species for the Copenhagen Wind Farm is proposed to have two phases: 1) monitoring the implementation of the ISCP during construction and 2) monitoring the success of the ISCP for a two-year period to coincide with the monitoring of other project restoration activities (i.e., NYSDAM Guidelines). Each of these phases is described in detail below:

1. Construction Monitoring: During construction, workers will be educated about the Best Management Practices described above in controlling the spread of invasive species, and the Environmental Monitor will confirm that all required practices are being implemented during construction activities.
2. Post-Construction Monitoring: The change in invasive species coverage on-site from pre-construction to post-construction will be assessed by an experienced biologist conducting a visual inspection of sensitive and/or regulated areas within the limit of disturbance during the growing season for two consecutive years following restoration. A report detailing the success of the ISCP will be prepared. In the event that the ISCP goals are not met, then a revised control plan containing additional control actions for an extended monitoring term will be developed to ensure control of invasive species.

ATTACHMENT A

INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

14 May 2012

Purpose

This list was not prepared pursuant to ECL 9-1705 (5) (h), the so-called “four-tier system”.

The primary purpose of this list to inform New York State agencies so they can incorporate invasive species management into their funding, regulatory and other activities pursuant to ECL 9-1705 (b) and especially ECL 9-1709 (2):

“...[DEC] in cooperation with [DAM] shall have the authority...to... coordinate state agency and public authority actions to do the following: (a) **phasing out uses of invasive species**; (b) **expanding use of native species**; (c) **promoting private and local government use of native species as alternatives to invasive species**; and (d) wherever practical and where consistent with watershed and/or regional invasive species management plans, **prohibiting and actively eliminating invasive species at project sites funded or regulated by the state;....”**

It is intended to inform regulatory actions pursuant to existing statutory authorities, e.g., protection of waters (ECL Article 15), wetlands (ECL Articles 24 and 25), State Environmental Quality Review (ECL Article 8), biocontrol (ECL Article 11), and pesticides (ECL Article 33). This list is also intended to inform non-regulatory management decisions and actions, such as for planning and priority-setting, prevention, early detection, monitoring, rapid response, control and eradication, restoration, research, and public education.

This list does not include *all* plant species that are invasive or potentially-invasive in New York State. Rather, it includes many of those plant species that are widely-recognized as invasive or potentially-invasive in New York State. ECL 9-1703 (10) defines “invasive species” as:

“...a species that is: (a) nonnative to the ecosystem under consideration; and (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits.”

Thus, when complying with the provisions of 9-1709, agency staff use professional judgment in assessing the potential environmental harm (or harm to human health) when considering particular species in particular contexts.

Invasive Plants Field and Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands

http://www.fs.fed.us/ne/newtown_square/publications/information_bulletins/NA-TP-05-04.pdf

Mistaken Identity? Invasive Plants and their Native Look-alikes: an Identification Guide for the Mid-Atlantic

http://www.nybg.org/files/scientists/rnaczi/Mistaken_Identity_Final.pdf

* * *

REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

Species are assigned to the most commonly known plant category, although overlap may exist.

| Floating & Submerged Aquatic | | |
|---|-----------------------------------|------------|
| Common Name | Scientific Name | Draft Rank |
| Water Thyme | <i>Hydrilla verticillata</i> | Very High |
| Common Frogbit | <i>Hydrocharis morsus-ranae</i> | Very High |
| Floating Primrose Willow | <i>Ludwigia peploides</i> | Very High |
| Broadleaf Water-milfoil | <i>Myriophyllum heterophyllum</i> | Very High |
| Eurasian Water-milfoil | <i>Myriophyllum spicatum</i> | Very High |
| Water Chestnut | <i>Trapa natans</i> | Very High |
| Rock Snot (diatom) | <i>Didymosphenia geminata</i> | Not Ranked |
| Carolina Fanwort | <i>Cabomba caroliniana</i> | High |
| Brazilian Waterweed | <i>Egeria densa</i> | High |
| Parrot-feather | <i>Myriophyllum aquaticum</i> | High |
| Yellow Floating Heart | <i>Nymphoides peltata</i> | High |
| Curly Pondweed | <i>Potamogeton crispus</i> | High |

| Emergent Wetland & Littoral | | |
|--|---|------------|
| Common Name | Scientific Name | Draft Rank |
| Uruguayan Primrose-willow | <i>Ludwigia grandiflora</i> spp. <i>hexapetala</i> | Very High |
| Floating Primrose-willow | <i>Ludwigia peploides</i> spp. <i>glabrescens</i> | Very High |
| Purple Loosestrife | <i>Lythrum salicaria</i> | Very High |
| European Common Reed Grass | <i>Phragmites australis</i> | Very High |
| Tall Glyceria | <i>Glyceria maxima</i> | High |
| Yellow Iris | <i>Iris pseudacorus</i> | High |
| Broad-leaf Pepper-grass | <i>Lepidium latifolium</i> | High |
| Marsh Dewflower | <i>Murdannia keisak</i> | High |
| Reed Canary-grass | <i>Phalaris arundinacea</i> | High |

| Terrestrial - Herbaceous | | |
|---------------------------------|--------------------------------|------------|
| Common Name | Scientific Name | Draft Rank |
| Garlic Mustard | <i>Alliaria petiolata</i> | Very High |
| Slender False Brome | <i>Brachypodium sylvaticum</i> | Very High |
| Black swallow-wort | <i>Cynanchum louiseae</i> | Very High |
| Pale Swallow-wort | <i>Cynanchum rossicum</i> | Very High |
| Japanese Knotweed | <i>Fallopia japonica</i> | Very High |
| Japanese Stilt Grass | <i>Microstegium vimineum</i> | Very High |
| Lesser Celandine | <i>Ranunculus ficaria</i> | Very High |
| Wild Chervil | <i>Anthriscus sylvestris</i> | High |
| Mugwort | <i>Artemisia vulgaris</i> | High |
| Small Carpgrass | <i>Arthraxon hispidus</i> | High |
| Narrowleaf Bittercress | <i>Cardamine impatiens</i> | High |
| Spotted Knapweed* | <i>Centaurea stoebe</i> ssp. | High |

| | | |
|----------------------|---------------------------------|------|
| | <i>micranthos</i> | |
| Canada Thistle | <i>Cirsium arvense</i> | High |
| Chinese Yam | <i>Dioscorea polystachya</i> | High |
| Cut-leaf Teasel | <i>Dipsacus laciniatus</i> | High |
| Winter Creeper | <i>Euonymus fortunei</i> | High |
| Cypress Spurge | <i>Euphorbia cyparissias</i> | High |
| Leafy Spurge | <i>Euphorbia esula</i> | High |
| Giant Hogweed | <i>Heracleum mantegazzianum</i> | High |
| Japanese Hops | <i>Humulus japonicus</i> | High |
| Cogon Grass | <i>Imperata cylindrica</i> | High |
| Chinese Lespedeza | <i>Lespedeza cuneata</i> | High |
| Garden Loosestrife | <i>Lysimachia vulgaris</i> | High |
| Chinese Silver Grass | <i>Miscanthus sinensis</i> | High |
| Wavyleaf Basketgrass | <i>Oplismenus hirtellus</i> | High |
| Cup-plant | <i>Silphium perfoliatum</i> | High |

| Terrestrial - Vines | | |
|-------------------------|------------------------------------|------------|
| Common Name | Scientific Name | Draft Rank |
| Oriental Bittersweet | <i>Celastrus orbiculatus</i> | Very High |
| Japanese Honeysuckle | <i>Lonicera japonica</i> | Very High |
| Mile-a-minute Weed | <i>Persicaria perfoliata</i> | Very High |
| Kudzu | <i>Pueraria montana</i> | Very High |
| Porcelain Berry | <i>Ampelopsis brevipedunculata</i> | High |
| Japanese Virgin's-bower | <i>Clematis terniflora</i> | High |

| Terrestrial - Shrubs & Trees | | |
|------------------------------|---|------------|
| Common Name | Scientific Name | Draft Rank |
| Norway Maple | <i>Acer platanoides</i> | Very High |
| Japanese Angelica Tree | <i>Aralia elata</i> | Very High |
| Japanese Barberry | <i>Berberis thunbergii</i> | Very High |
| Autumn Olive | <i>Elaeagnus umbellata</i> | Very High |
| Winged Euonymus | <i>Euonymus alatus</i> | Very High |
| Amur Honeysuckle | <i>Lonicera maackii</i> | Very High |
| Morrow's Honeysuckle | <i>Lonicera morrowii (incl. xbella)</i> | Very High |
| Common Buckthorn | <i>Rhamnus cathartica</i> | Very High |
| Black Locust | <i>Robinia pseudoacacia</i> | Very High |
| Multiflora Rose | <i>Rosa multiflora</i> | Very High |
| Wineberry | <i>Rubus phoenicolasius</i> | Very High |
| Rusty Willow | <i>Salix atrocinerea</i> | Very High |
| Sycamore Maple | <i>Acer pseudoplatanus</i> | High |
| Smooth Buckthorn | <i>Frangula alnus</i> | High |
| Border Privet | <i>Ligustrum obtusifolium</i> | High |
| Amur Cork Tree | <i>Phellodendron amurense</i> | High |
| Beach vitex | <i>Vitex rotundifolia</i> | High |

* Brown and Black Knapweed have also been known to be problematic in grassland habitats.

~ END ~